3 MAR 2008

STATE FAUNA SERIES 15

FAUNA OF MADHYA PRADESH (Including Chhattisgarh)

PART – 1

ZOOLOGICAL SURVEY OF INDIA

State Fauna Series, 15

FAUNA OF MADHYA PRADESH
(Including Chhattisgarh)

(PART–1)

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Kolkata

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STATE FAUNA SERIES

FAUNA OF MADHYA PRADESH

Part-1 **2007** **1-486**

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Fauna of Madhya Pradesh (including Chhattisgarh), State Fauna Series, **15**(Part-1) : 1-6, 2007

FAUNA OF MADHYA PRADESH AND CHHATTISGARH : AN OVERVIEW

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INTRODUCTION

The state of Madhya Pradesh was created in 1956 by merging Mahakoshal and Chhattisgarh parts of the former Central Province (CP), Berar, Vindhya Pradesh, Madhya Bharat and Bhopal, thereby forming geographically the largest state in India. Some districts of Central Province and Berar were transferred to Maharashtra and there were some minor adjustments with Rajasthan, Gujarat and Uttar Pradesh. Later on, in the year 2000, a new state, Chhattisgarh was carved out of Madhya Pradesh. Today, Madhya Pradesh with its capital in Bhopal and Chhattisgarh with its capital in Raipur occupy the very heartland of India and together they form the unit of Central India. The total area of these two states is 4,43,446 sq. km. lying between latitudes 21° to 25° N and longitudes 74° to 84° E, covering about 14.5% of the total area of India. The two states are land-locked and surrounded by seven states, viz., Bihar, Orissa, Andhra Pradesh, Maharashtra, Gujarat, Rajasthan and Uttar Pradesh.

The bulk of Madhya Pradesh and Chhattisgarh lies on the tableland of Central India that is bound by the Upper Gangetic plains in the north, the Godavari valley in the south, the plains of Gujarat in the west and Orissa and Bihar in the east. Vindhya, Satpura and Maikal hill ranges running east to west and the Eastern Ghats running to the south traverse the two states. The elevation is largely 305 to 610 m. above msl. The highest point is Dhoopgarh near Pachmarhi in Hoshangabad district with an elevation of 1350 m. above msl.

PROFILE OF MADHYA PRADESH AND CHHATTISGARH

S. No.	Particulars	Madhya Pradesh (2001)	Chhattisgarh (2001)
1.	Area	3,08,000 sq. km.	1,35,000 sq. km.
2.	Capital	Bhopal	Raipur
3.	Population	4,85,66,000 (1991) (6 crore, Present)	1,76,50,000
4.	Population Density	158 per sq. km.	130 per sq. km.
5.	Divisions	09	03
6.	Districts	45	16
7.	Tehsils	260	96
8.	Blocks	313	146
9.	Inhabited Villages	51,806	19,720

S. No.	Particulars	Madhya Pradesh (2001)	Chhattisgarh (2001)
10.	Literacy	44.67%	42.91%
11.	Forests	95,221.13 sq. km.	59,285.27 sq. km.
12.	Agricultural Land	20,26,598 hectares	58,04,540 hectares
13.	Irrigation Area	53,66,400 hectares	11,60,700 hectares
14.	Agricultural Production	191.66 Lakh Tons	60.53 Lakh Tons
15.	Road Length	67,284.2 km.	33,272.1 km.
16.	Electricity	2454 Megawatt	1360 Mega Watt
17.	Universities	08	03
18.	Revenue	3389.26 Crore	1082.75 Crore

PHISIOGRAPHY

Madhya Pradesh and Chhattisgarh can be divided into nine natural regions :

The Plateau of Malwa : It covers almost the entire western region of Madhya Pradesh. It is formed by the Deccan trap rocks, starting north of the Narmada and extending up to the Chambal river in the north. It reaches Sagar in the east, where it divides the Ganga and Narmada valleys. The Vindhyas extend from Neemuch eastward to Sagar. The elevation ranges between 300-500 m. The plateau is drained by Chambal, Betwa and Narmada rivers.

The Plateau of Central India : This region covers the northern part of Madhya Pradesh in the lower basin of Chambal river. It is formed by the Vindhyan rock groups with the Deccan trap in the south and the Bundelkhand genesis rocks in the east. Its western boundary is formed by the Bundi and Karauli hills. The region is marked by deep ravines of Chambal, Kalisindh and Parwati rivers.

The Plateau of Bundelkhand : This region lies to the east of the Central India Plateau and is bound on the north-east by the Rewa-Panna plateau. The general topography is smooth and undulating. It is drained by Betwa, Dhasan, Ken and Sindh rivers.

The Plateau of Rewa and Panna : This region is also known as the Vindhyan plateau and lies to the north-east of the Bundelkhand plateau. The maximum elevation is 750 m. The area is drained by Ken, Sonar, Berma and Tons rivers.

The Plateau of Baghelkhand : This region lies in the east with areas of the Chhota Nagpur plateau projecting into the boundary of Chhattisgarh with Bihar. The area is heavily forested and drained by Son, Renuka, Kanhar and Hasdeo rivers. The average height is 600 m, but the highest elevation is about 1500 m.

The Narmada-Sone River Valley : This valley extends from the north-east to west with an average height of 300 m. It is bound by the Vindhya, Bhander and Kaimur hills in the north, the Satpura and Maikal hills in the south and the Baghelkhand highlands in the east. It is drained by the Narmada and Sone rivers.

The Satpura and Maikal Region : This region lies to the south of the Narmada valley and contains Dhoopgarh, which has the highest elevation in Madhya Pradesh and Chhattisgarh. The average height is however only 300 m. This region is drained by Tawa, Johila, Denwa, Banganga and Vardhan rivers.

The Chhattisgarh Plains : This region is roughly fan-like and consists of the plains between the Baghelkhand plateau and the Satpuras. It stretches about 385 km east to west with a maximum north to south extent of 400 km.

PLATE -1

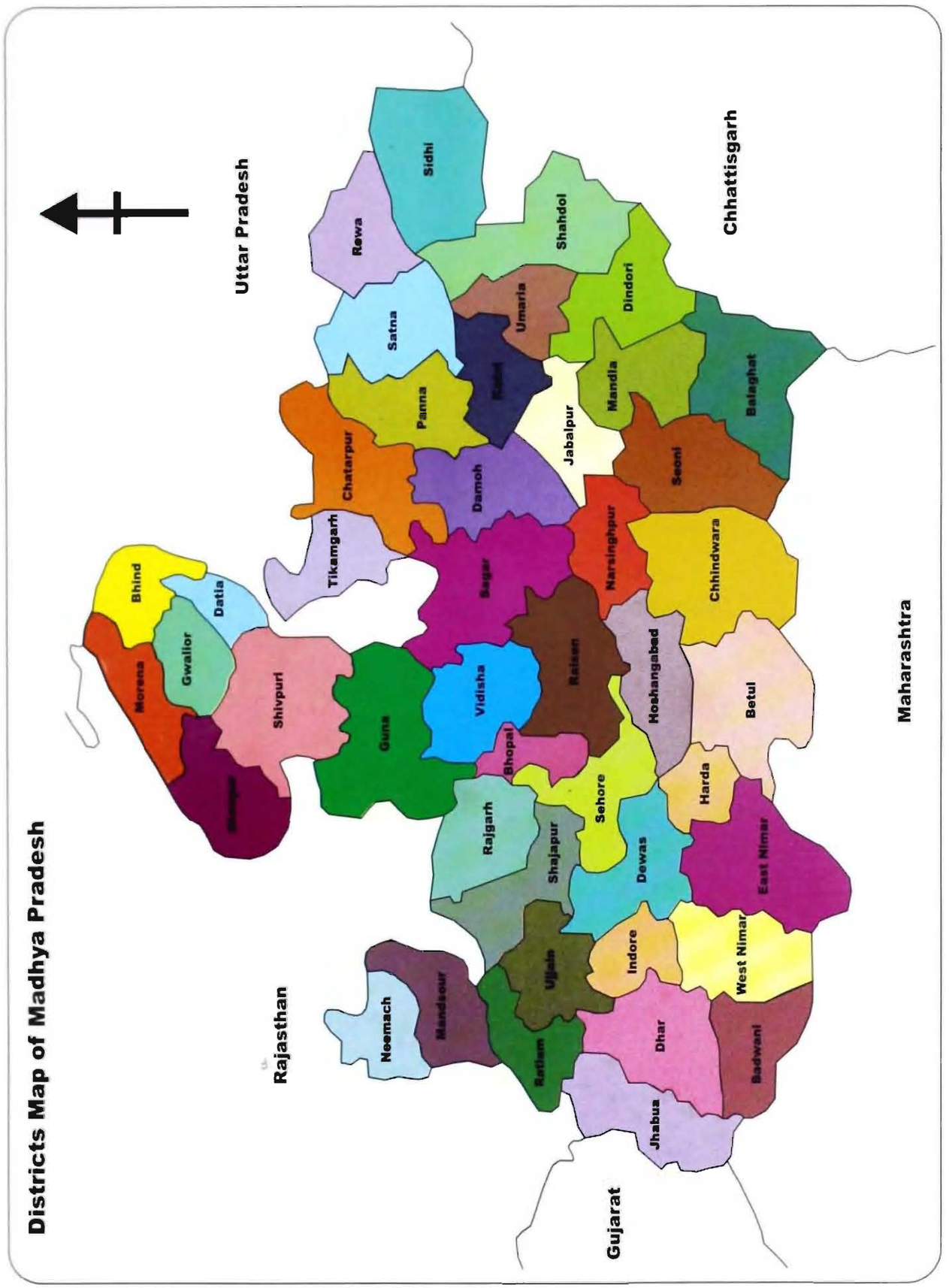

Districts Map of Madhya Pradesh
Uttar Pradesh
Chhattisgarh
Rajasthan
Maharashtra
Gujarat
Sidhi
Rewa
Satna
Umaria
Shahdol
Dindori
Katni
Jabalpur
Mandla
Balaghat
Panna
Chatarpur
Damoh
Seoni
Tikamgarh
Narsinghpur
Chhindwara
Sagar
Bhind
Datia
Gwalior
Morena
Shivpuri
Guna
Vidisha
Raisen
Hoshangabad
Betul
Bhopal
Sehore
Harda
Rajgarh
Shajapur
Dewas
East Nimar
Indore
West Nimar
Ujjain
Mandsour
Neemach
Ratlam
Dhar
Badwani
Jhabua

PLATE -2

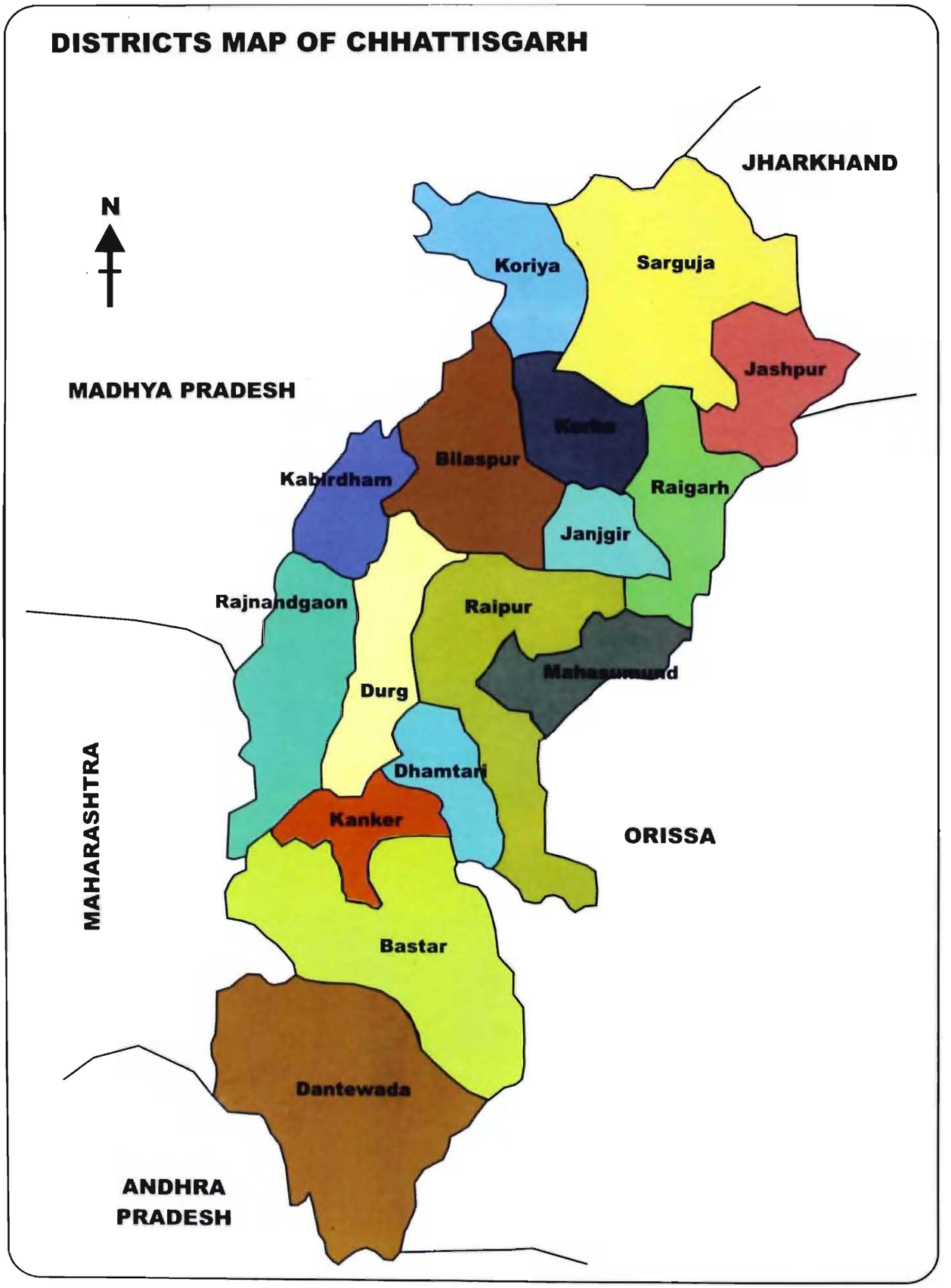
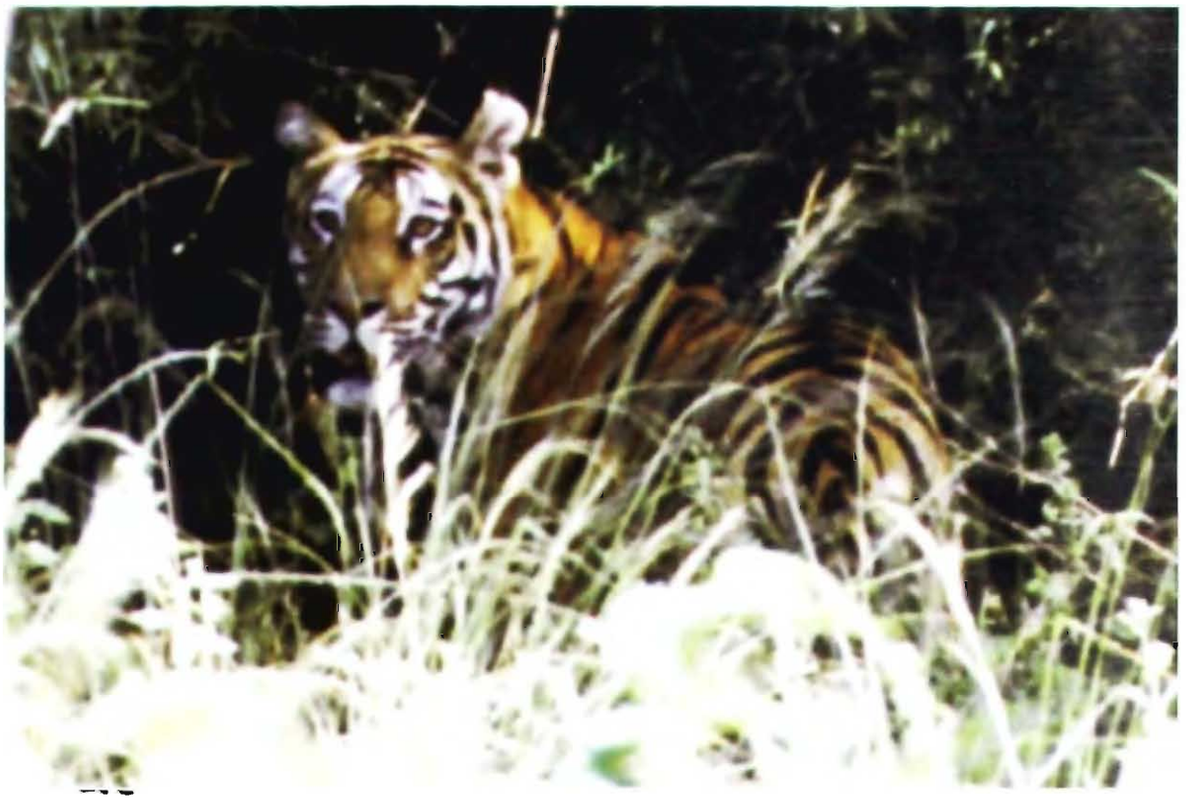
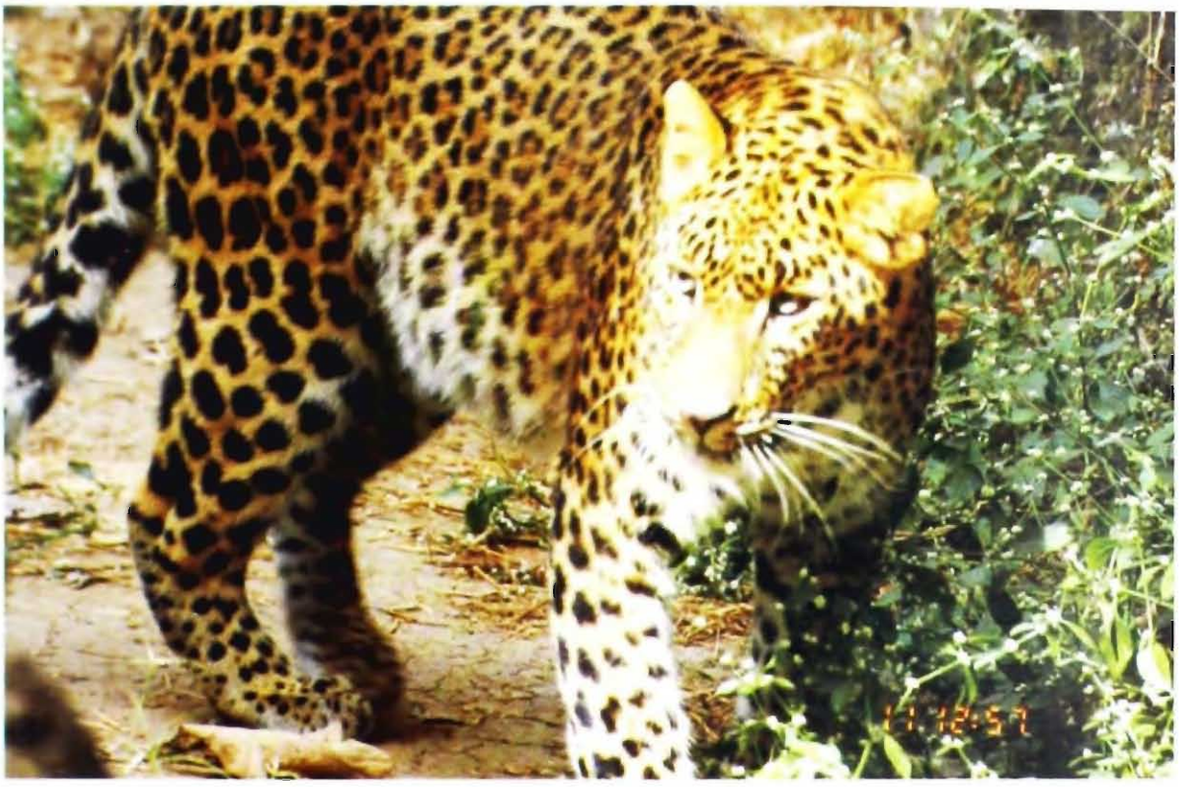

DISTRICTS MAP OF CHHATTISGARH
N
JHARKHAND
MADHYA PRADESH
MAHARASHTRA
ORISSA
ANDHRA PRADESH
Koriya
Sarguja
Jashpur
Korba
Bilaspur
Kabirdham
Raigarh
Janjgir
Rajnandgaon
Raipur
Durg
Dhamtari
Kanker
Bastar
Dantewada

PLATE -3

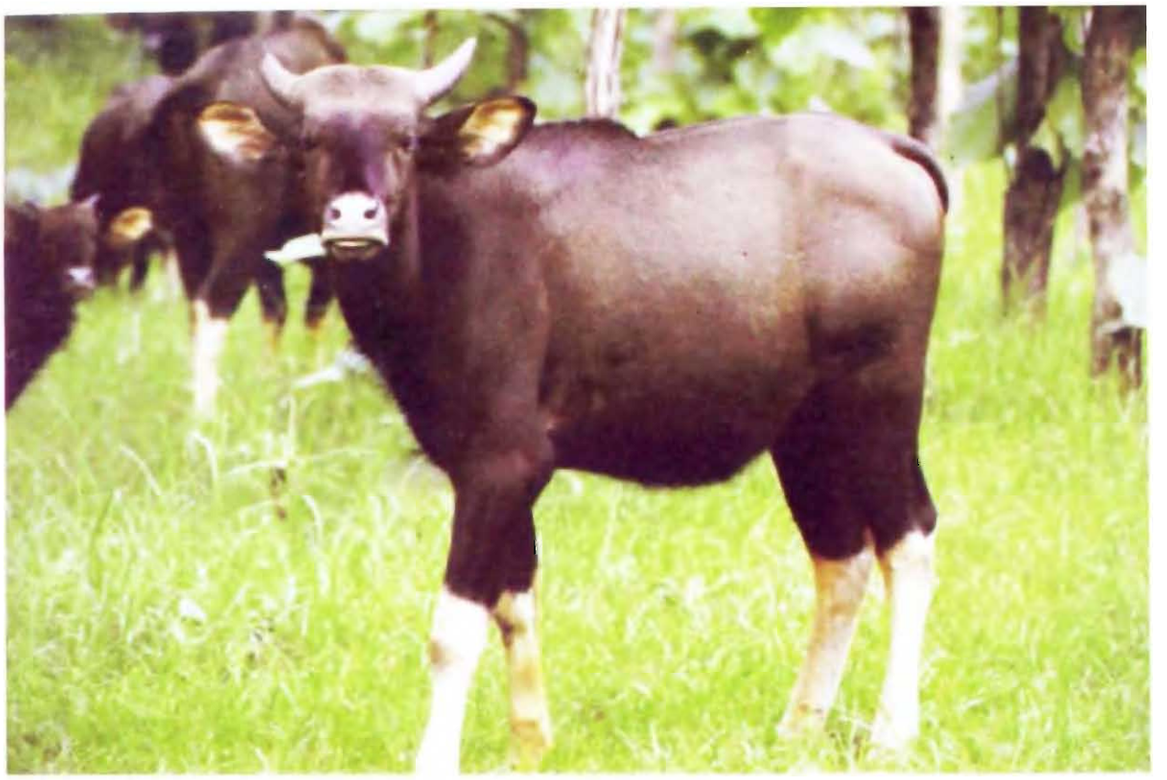


Tiger
Panthera tigris (Linnaeus)



Leopard
Panthera pardus fusca (Meyer)

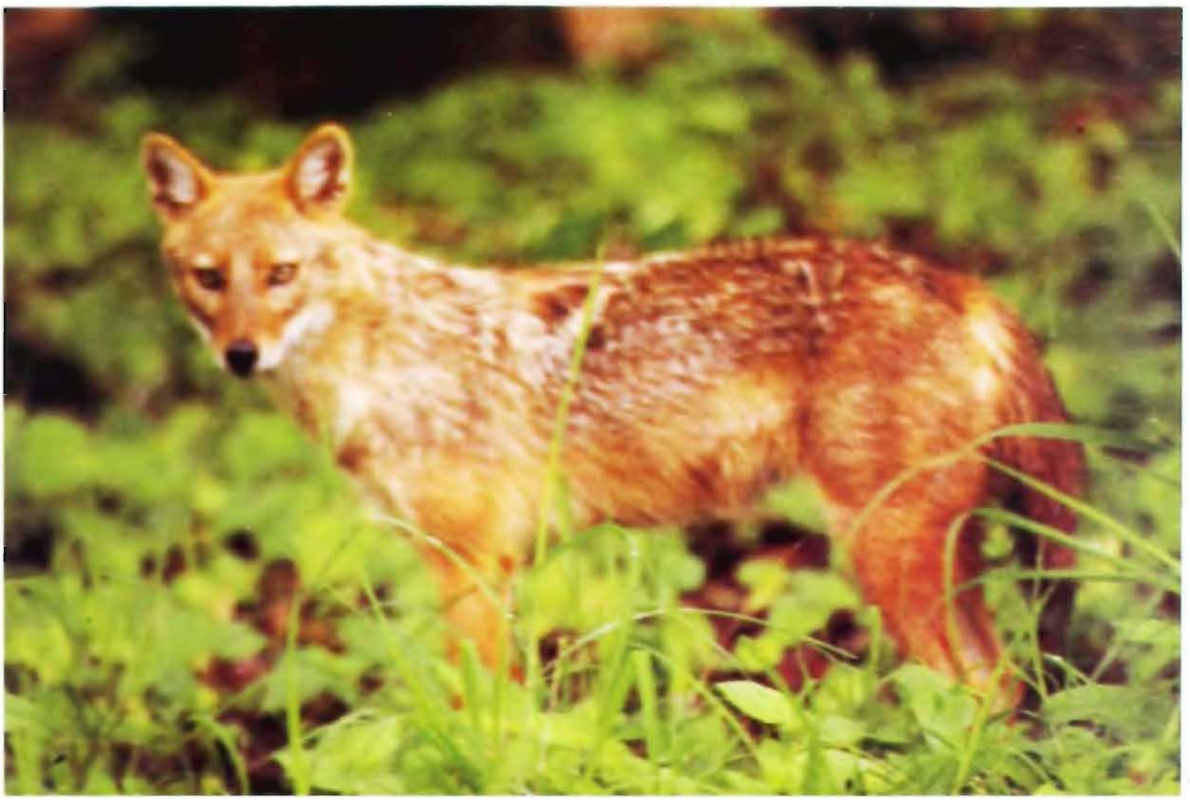
PLATE -4



Gaur
Bos gaurus gaurus Smith

Blackbuck
Antilope cervicapra cervicapra **(Linnaeus)**

PLATE -5



Asiatic Jakal
Canis aureus Linnaeus

Indian Giant Squirrel
Ratufa indica centralis (Erxleben)

PLATE -6

Common Indian Monitor
Varanus bengalensis Daudin

Common Garden Lizard
Calotes versicolor (Daudin)

Blanford's Rock Agama
Psammophilus blanfordus (Stoliezka)

Indian Chamaeleon
Chamaeleo zeylanicus Laurenti

Common Keeled Grass Skink
Mabuya carinata (Schneider)

Common Indian Karait
Bungarus caeruleus (Schneider)

PLATE -7

Green Keelback
Macropisthodon plumbicolor (Cantor)

Checkered Keelback
Xenochrophis piscator (Schneider)

Cobra
Naja naja (Linnaeus)

Green Pit Viper
Trimeresurus gramineus (Shaw)

Russell's Viper
Daboia russelli (Shaw)

Common wolf Snake
Lycodon aulicus (Linnaeus)

PLATE -8

Bufo melanostictus Schneider

Hoplobatrachus tigerinus (Daudin)

Kaloula pulchra Gray

Microhyla ornata (Dumeril & Bibron)

Polypedates maculatus Gray

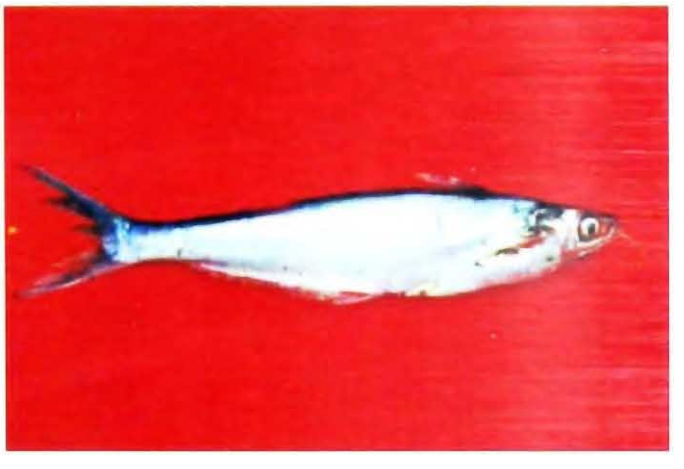
Rana cyanophlyctis Schneider

PLATE -9

Xenentodon cancila (Hamilton)

Lepidocephalichthys guntea (Hamilton)

Rasbora rasbora (Hamilton)



Pseudeutropius atherinoides (Bloch)

Heteropneustes fossils (Bloch)

Mystus montanus (Jerdon)

PLATE- 10

Tramea basilaris burmeisteri Kirby

Orthetrum sabina sabina (Drury)

PLATE- 11

Scarabaeus sanctus (Fabricius)

Gymnopleurus gemmatus (Fabricius)

Copris andrewesi Waterhouse

Heliocopris gigas (Linnaeus)

PLATE- 12

Holotrichia sculpticollis Blanchard

Mimela macleyana (Vigors)

Gymnopleurus cyaneus (Fabricius)

Anomala bengalensis Blanchard

PLATE- 13

Xylotrupes gideon (Linnaeus)

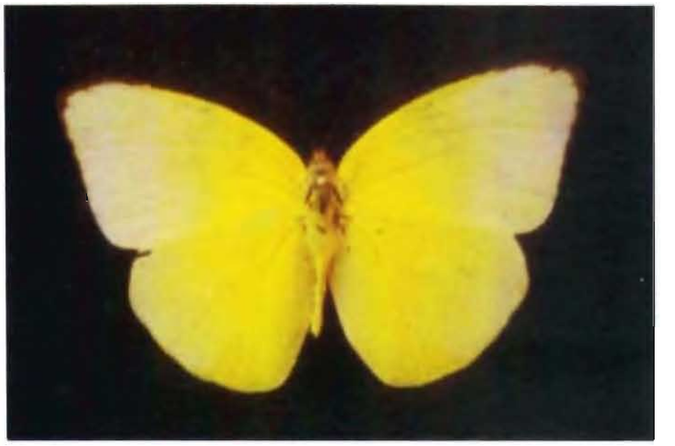
Onitis brahma Lansberg

Heterorrhina elegans (Fabricius)

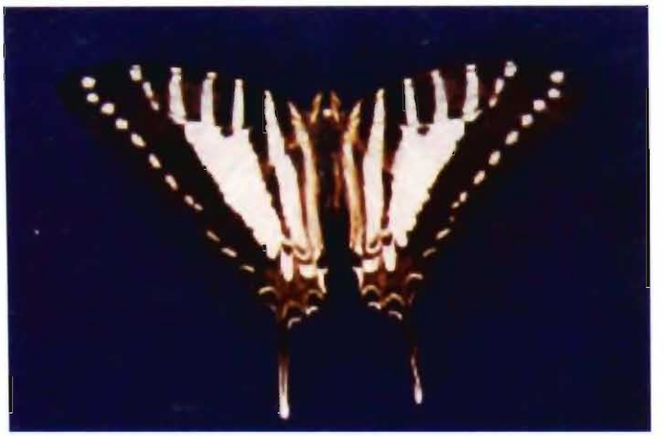
Onitis philemon Fabricius

PLATE -14

Papilio demoleus demoleus Linnaeus



Catopsilia florella gnoma (Fab.)



Graphium nomius nomius Scopoli

Euploea core core (Cramer)

Danaus genutia (Cramer)

Danaus limniace leopardus (Butler)

PLATE -15

Eurema brigita rubella (Wallace)

Junonia lemonias vaisya (Fruhstorf.)

Junonia hierta hierta (Fab.)

Symphaedra nais Forster

Hypoolimnas misippus (Linn.)

Hypolimnas misippus (Linnaeus)

PLATE -16

Acherontia lachesis (Fabricius)

Psilogramma menephron menephron (Cramer)

Marumba dyras dyras (Walker)

Polyptychus dentatus (Cramer)

Nephele didyma (Fabricius)

Deilephila nerii (Linnaeus)

PLATE- 17

Theretra alecto alecto (Linnaeus)

Theretra nessus (Drury)

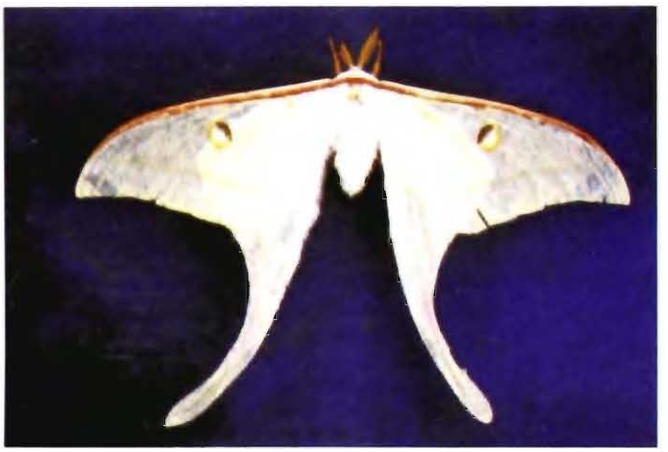
Xyleutes persona Le Guillou

Macaria fasciata (Fabricius)

Aporandria specularia Guen'ee

Phalera raya Moore

PLATE -18



Actias selene (Hubner)

Spatalia argentifera (Walker)

Antheraea paphia (Linnaeus)

Ophideres materna (Linnaeus)

Ophiusa honesta (Hubner)

Anua tirhaca (Cramer)

PLATE -19

Achaea janata Linnaeus

Homaea clathrum Guen'ee

Entomogramma tortum Guen'ee

Spirama retorta Cramer

Ophiusa coronata Fabricius

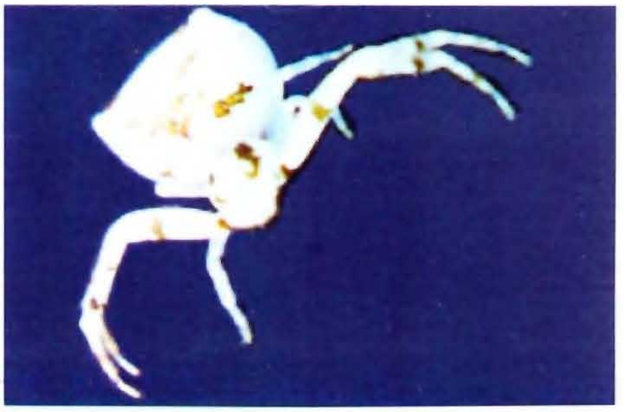
Trisula variegata Moore

PLATE -20

Argiope aemula (Walckenaer)

Nephila maculata (Fabricius)

Neoscona bengalensis Tikader & Bal



Thomisus cherapunjeus Tikader

The Bastar Plateau : This region is also known as the Plateau of Dandakaranya. It is drained by the Indravati and Savri rivers, which join the Godavari. The region is bound in the north by the Chhattisgarh Plains and in the south by the Bijapur plateau.

Hill Ranges

The major hill ranges of Madhya Pradesh and Chhattisgarh are as follows :

The Aravallis : These run along the border between Rajasthan and Madhya Pradesh and extend to Mandsaur, Ratlam and Jhabua districts.

The Vindhyas : These run from east to west just north of the Narmada river and the highest point is at Amarkantak, where lies the source of Narmada. Bhander and Kymore hills east of Amarkantak are a part of this range.

The Satpuras : These run east to west and separate the Narmada valley from the Tapti. The highest point in the two states (Dhoopgarh) is located here.

The Sinhwa and Bastar Hills : These hills in the southern part of Chhattisgarh are part of the Eastern Ghats and the Indravati and Mahanadi rivers originate here.

Major Rivers

The major rivers of Madhya Pradesh and Chhattisgarh are as follows :

The Narmada : This river originating in Amarkantak and running east to west is the fifth largest river in the country and drains almost 19% of Madhya Pradesh.

The Tapti : This river originates in Betul district and flows east to west joining the Arabian sea.

The Mahanadi : Its source lies in the Sinhwa hills of Raipur district. It first flows towards the north and later turns to the east to flow into Orissa.

The Chambal : It starts near Indore and flows north in the western part of Madhya Pradesh before entering Rajasthan.

CLIMATE

The location and physiographic conditions greatly influence the climatic characteristics of Madhya Pradesh and Chhattisgarh. Four seasons are observed during the year. The winter season extends from December to February and is followed by the summer season from March to May. The period from June to September constitutes the south-west monsoon season and the period from October to December forms the post-monsoon season. The months of April and May are generally uncomfortable due to the hot and dry weather. June is more uncomfortable as a result of the combination of high temperature and humidity.

TEMPERATURE

Since, the states are away from sea, fluctuation in the temperature is quite high. The various mountain ranges and plateau surfaces give a mild effect to the temperature conditions. The low lying valleys of Chambal, Mahanadi and Narmada are hot, dry and uncomfortable in summer, while the plateau of Malwa and the places of Satpura–Maikal ranges are relatively pleasant in summers. May is the hottest month during summer with the mean maximum temperature of 47-48°C in the plains and 2-5°C lower in the plateau region. The minimum temperature varies between 7°C in the north-west and 14°C in the south, the mean being 10°C.

RAINFALL

The bulk of the rainfall is received from the south-west monsoon originating from the Arabian Sea. However, the eastern region also receives rainfall from the Bay of Bengal. The rains in June and July are heavy. During the latter part of July and early August, the rainfall is continuous. In September, it is sporadic though sometimes heavy. Some showers are also received during winter from the north-west monsoon. The total annual rainfall varies from 70 cm over the extreme north-western parts to 160 cm over the southern parts. The south-west monsoon provides 84-94% of the

annual rainfall. The rainfall in the winter season is about 1-4% of the annual total, while the rainfall in the hot weather season about 1-3% and the same in the post-monsoon season about 3-7% of the total precipitation.

HUMIDITY

The relative humidity is affected by various factors like extent of forest cover, presence of large water bodies, elevation, etc. A high percentage of humidity is generally observed during the rainy season and low humidity during the summer season, i.e., from March to May. The highest percentage of relative humidity varies from 85% to 95% and the lowest from 20% to 30% in the various natural regions.

FORESTS

As per records of the Forest Department for the year 1994, the forest area of the two states is 1,54,495 sq. km. that works out to 34.84% of the total geographic area and also constitutes 20.09% of the total recorded forest area of the country. The recorded forest area of Madhya Pradesh is 30.9% of the total geographical area, while in Chhattisgarh it is 43.9%. The forests are well distributed over all the agro-climatic zones. The forest types found in the area are classified as sub-tropical hill forests, tropical moist deciduous forests, tropical dry deciduous forests and thorn forests. As per the observations based on satellite imagery, the tropical moist deciduous forests account for 50.09% of the forest cover, followed by 49.77% tropical dry deciduous forests and 0.14% tropical thorn forests.

BIOLOGICAL HOTSPOTS

Some of the forest areas of Madhya Pradesh are richly endowed with natural genetic resources of tropical broad leaved species and can be considered as biological hotspots. These hotspots are Amarkantak Plateau, Pachmarhi Plateau, Chandan Bag (Sandal forests) of Seoni, Patalkot, Garhakota-Ramna Reserve, Bailadilla hills, Khurchel Valley Natural Reserve, Kurundi forests, Abhujamarh, Supkhar, Plant fossils of Mandla, Trap Dyke of Pipri, Machna Teak Forest Reserve, Bori Nature Reserve, Rukhad Nature Reserve, Sitanadi Sal Nature Reserve and Bamboo forests of Lanji.

FAUNA

The faunal diversity of Madhya Pradesh including the Chhattisgarh has been dealt comprehensively for the first time. This is the first volume of the state fauna of Madhya Pradesh. Total 1159 species are so far included in the present document; whch includes 345 species of vertebrates and 814 invertebrates. Two separate chapters on Mammals and Amphibia of Madhya Pradesh and Chhattisgarh have been provided. Except above, all other chapters are the project outcome of the undivided Madhya Pradesh.

The chapter on mammals of Madhya Pradesh includes 94 species/subspecies belonging to 59 genera under 27 families and 11 orders and 76 species/subspecies belonging to 51 genera under 24 families and 9 orders from Chhattisgarh. The study is mainly based on the collection present in the National Collection of Zoological Survey of India. The paper on avifauna of Madhya Pradesh and Chhattisgarh is not included in the present volume; however the check-list of Birds of Madhya Pradesh and Chhattisgarh may be referred from Chandra and Singh (2004), which includes the list of 517 species/subspecies from both the states.

The chapter on Reptilia includes the information on 69 species pertaining to 43 genera and 18 families. The study is primarily based on the collection made by the authors during the 1998-2002. The comprehensive accounts of the Amphibia of Chhattisgarh and Madhya Pradesh are presented in the 3rd and 4th Chapter, wherein 16 species pertaining to 11 genera and four families from Chhattisgarh and 19 species pertaining to 10 genera and four families are from Madhya Pradesh. The fish fauna of the state is very varied, having many important species. Presently, 172 species/subspecies of freshwater fishes are dealt in the fauna of Madhya Pradesh

and Chhattisgarh. The list of exotic species introduced in these states is also given.

The chapter on Odonata of Madhya Pradesh includes the study of 70 species belonging to 40 genera and 9 families. In total, 123 species of Scarabaeid beetles under 9 subfamilies are so far reported from Madhya Pradesh and Chhattisgarh. So far 135 species/subspecies of butterflies under 9 families are known from Madhya Pradesh and Chhattisgarh. The attempt has been made to provide a comprehensive account on Butterflies of Madhya Pradesh including Chhattisgarh, which is mainly based on the collection present in the National Zoological Collection of Zoological Survey of India, Jabalpur. The chapter on moths includes the information on all the species/ subspecies known from the Central India. In total, 313 species/subspecies of moths belonging to 221 genera and 25 families are reported from the Madhya Pradesh. Presently, a total of 210 species of spiders under 24 families are known from Madhya Pradesh and Chhattisgarh. The plant mites play an important role in agriculture. They are phytophagus as well as predatory mites. Presently, 33 species belonging to 15 genera under 5 families of two orders Prostigmata and Mesostigmata are reported from Madhya Pradesh. All the examined material is deposited in Zoological Survey of India, Jabalpur.

These contents only include the study of ten groups of animals from Madhya Pradesh, which were mainly studied before the division of two states. The groups dealt in the present volume are represented by about 25% of faunal species. The remaining is to be dealt in the next volume of the state fauna of the Madhya Pradesh and Chhattisgarh.

Status of Faunal Diversity of Madhya Pradesh and Chhattisgarh

S. No.	Groups	Number of Species and Subspecies		
		Madhya Pradesh and Chhattisgarh combined	Madhya Pradesh	Chhattisgarh
1.	MAMMALS (Chhattisgarh)	–	–	76
2.	MAMMALS (Madhya Pradesh)	94	94	
3.	REPTILIA	69		
4.	AMPHIBIA (Chhattisgarh)			16
5.	AMPHIBIA (Madhya Pradesh)	19	19	
6.	FRESHWATER FISHES	172		
7.	ODONATA	70		
8.	COLEOPTERA (SCARABAEIDAE)	124		
9.	LEPIDOPTERA (Butterflies)	135		
10.	LEPIDOPTERA (Moths)	313		
11.	ARANEAE	127		
12.	ACARI	36		
	TOTAL	**1159**		

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MAMMALS—MADHYA PRADESH

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INTRODUCTION

The present work provides the detailed taxonomic information on mammals of Madhya Pradesh. Some information on present mammals of the this area could be gathered from the work done by Agrawal (2000), Ellerman & Morrison Scott (1951), Ellerman (1961), Ghose (1967), Ghose and Chakroborty (1976), Ghose & Bhattacharya (1995), Shrivastav (1995), Kushwaha & Kumar (1999), Harshey & Chandra (2002) etc. and in some reports of Forest Department of Madhya Pradesh for the Working Plans for various National parks and sanctuaries, but comprehensive account on mammals of the Madhya Pradesh is lacking.

As far as history of mammalian faunal studies of Madhya Pradesh is concerned, it goes back to Blanford (1888-91), who brought out the first systematic account of mammalian fauna of India in two parts, which was mainly restricted to Southern and Central India. Anderson (1881) and Sclater (1891) also provided the substantial information on mammalian species. Mammal Survey of India (1911-1928) organized by the Bombay Natural History Society reports of which published during 1912 to 1928, provided the authentic and valuable information on mammals based on the area wise collection. During this period collections were made from Gwalior, Guna, Nimar, Hoshangabad, Sagar in Madhya Pradesh. Later, Pocock (1939, 1941) published the, 'Fauna of British India and other papers (1929-42) which included the information on the mammals of Central India. Brander (1923) published a book entitled Wild Animals in Central India, which included list of 45 species of mammals from this region. Brosset (1962 a.b.c.) published an excellent accounts on bats of Central and Western India. Khajuria (1970-1980) published detailed account of bats of Jabalpur and its surrounding areas and reported 20 species of bats from this region. He also published 9 papers on mammals mostly on bats during 1967 to 1984.

With the inception of Zoological Survey of India, Central Regional Station at Jabalpur in 1960, surveys were conducted in the various districts of state including the protected areas of the region. The given account is mainly based on the observations/collections made by various members during these field surveys and the data available in the literature. This paper includes 94 species/ subspecies of mammals from Madhya Pradesh belonging to 59 genera of 27 families and 11 orders. Moreover material present in National Zoological Collection of ZSI have also been utilized for the present study.

Classification used here has mainly been adopted after Ellerman and Morrison-Scott (1951) and Honacki *et al.* (1982).

SYSTEMATIC LIST

Order INSECTIVORA

Family SORICIDAE

Genus ***Suncus***

1. *Suncus murinus* (Linnaeus) — House shrew (E.); Chuchundar (H.)
2. *Suncus etruscus perrotteti* (Duvernoy) — Savi's Pigmy shrew (E.)
3. *Suncus stoliczkanus stoliczkanus* (Anderson) — Anderson's Shrew (E); Grey Shrew (E.)

Order SCANDENTIA

Family TUPIIDAE

Genus *Anathana*

4. *Anathana ellioti pallida* Lyon — Madras Tree Shrew

Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

Genus ***Cynopterus***

5. *Cynopterus sphinx sphinx* (Vahl) — Short-nosed Fruit Bat (E.), Chota Badur (H.)

Genus ***Pteropus***

6. *Pteropus giganteus giganteus* (Brünnich) — Indian Flying Fox (E.)

Genus ***Rousettus***

7. *Rousettus leschenaulti leschenaulti* (Desmarest) — Short-nosed Fruit Bat (E.)

Suborder MICROCHIROPTERA

Family RHINOPOMATIDAE

Genus ***Rhinopoma***

8. *Rhinopoma hardwickei hardwickei* Gray — Lesser Rat-tailed Bat
9. *Rhinopoma microphyllum kinnneari* (Wroughton) — Greater Mouse-tailed Bat (E.)

Family EMBELLONURIDAE

Genus ***Taphozous***

10. *Taphozous melanopogon* Temminck — Black-bearded Tomb bat (E.)
11. *Taphozous longimanus* Hardwicke — Long-armed Sheath –tailed Bat (E).
12. *Taphozous nudiventris kachhensis* Dobson — Naked rumped Tomb Bat (E)
13. *Taphozous perforatus perforatus* E. Geoffroy — Egyptian Tomb Bat (E)
14. *Taphozous theobaldi secatus* Thomas — Theobald's Tomb Bat (E)

Genus ***Saccolaimus***

15. *Saccolaimus saccolaimus* (Temminck) — Pouch-bearing Bat (E)

Family MEGADERMATIDAE

Genus ***Megaderma***

16. *Megaderma lyra lyra* Geoffroy — Indian False Vampire (E.)

Family RHINOLOPHIDAE

Genus ***Rhinolophus***

17. ***Rhinolophus lepidus lepidus*** Blyth — Blyth's Horse-shoe Bat (E.)
18. ***Rhinolophus rouxii*** Temminck — Peninsular Horseshoe Bat (E.)
19. ***Rhinolophus luctus*** Temminck — Woolly Horseshoe Bat

Genus ***Hipposideros***

20. ***Hipposideros fulvus fulvus*** Gray — Fulvus Leaf-nosed Bat (E.)
21. ***Hipposideros durgadasi*** Khajuria — —
22. ***Hipposideros galeritus brachyotis*** (Dobson) — Ecantor's Leaf-nosed Bat (E.)
23. ***Hipposideros lankadiva*** Kellart — Kellart's Leaf-nosed Bat.

Family VESPERTILIONIDAE

Genus ***Pipistrellus***

24. ***Pipistrellus coromandra coromandra*** (Gray) — Indian Pipistrelle (E.)
25. ***Pipistrellus mimus*** Wroughton — Indian Pygmy Pipistrelle (E.)
26. ***Pipistrellus ceylonicus indicus*** (Dobson) — Kellart's Pipistrelle (E.)
27. ***Pipistrellus dormeri*** (Dobson) — Dormer's Bat (E.)
28. ***Pipistrellus babu*** Thomas — Chocalate Bat (E.)

Genus ***Scotophilus***

29. ***Scotophilus heathi heathi*** (Horsfield) — Asiatic Greater Yellow Bat (E.)
30. ***Scotophilus kuhli kuhli*** Leach — Asiatic Lesser Yellow Bat (E.)

Genus ***Myotis***

31. ***Myotis horsfieldii*** (Temminck) — Lesser Large-toothed Bat

Genus ***Hesperoptenus***

32. ***Hesperoptenus tickelli*** (Blyth) — Tickell's Bat (E)

Family MOLOSSIDAE

Genus ***Chaerephon***

33. ***Chaerephon plicata plicata*** (Buchanan) — Wrinkled –liped Bat (E.)

Genus ***Tadarida***

34. ***Tadarida aegyptiaca*** Geoffroy — Egyptian Free-Tailed Bat (E.)

Order PRIMATES

Family CERCOPITHECIDAE

Genus ***Macaca***

35. ***Macaca mulatta mulatta*** (Zimmermann) — Rhesus Macaque (E.)

Genus ***Semnopithecus***

36. ***Semnopithecus entellus entellus*** (Dufresne) — Entellus Monkey (E.); Langur(H.)

Order PHOLIDOTA

Family MANIDAE

Genus ***Manis***

37. ***Manis crassicaudata*** Gray — Indian Pangolin (E.)

Order CARNIVORA

Family CANIDAE

Genus ***Canis***

38. *Canis aureus aureus* Linnaeus — Asiatic Jackal (E.)
39. *Canis lupus pallipes* (Sykes) — Wolf (E.)

Genus ***Vulpes***

40. *Vulpes bengalensis* (Shaw) — Indian Fox (E.)

Genus ***Cuon***

41. *Cuon alpinus dukhunensis* (Sykes) — Wild Dog (E.)

Family URSIDAE

Genus ***Melursus***

42. *Melursus ursinus ursinus* (Shaw) — Sloth Bear (E.)

Family MUSTELIDAE

Genus ***Mellivora***

43. *Mellivora capensis indica* (Kerr) — Ratel Honey Badger (E.)

Genus ***Lutra***

44. *Lutra perspicillata* Geoffroy — Smooth-coated Indian Otter (E.)
45. *Lutra lutra nair* (Cuvier) — Common Otter

Family VIVERRIDAE

Genus ***Viverricula***

46. *Viverricula indica indica* (Desmarest) — Small Indian Civet (E.)

Genus ***Paradoxurus***

47. *Paradoxurus hermaphroditus* (Pallas) — Common Palm Civet, Toody Cat (E.)

Family HERPESTIDAE

Genus ***Herpestes***

48. *Herpestes edwardsii nyula* (Hodgson) — Indian Gray Mongoose (E.)
49. *Herpestes smithii* Gray — Ruddy Mongoose (E.)

Family HYAENIDAE

Genus ***Hyaena***

50. *Hyaena hyaena hyaena* (Linnaeus) — Striped Hyaena (E.)

Family FELIDAE

Genus ***Felis***

51. *Felis chaus kutas* (Pearson) — Jungle Cat (E.)

Genus ***Prionailurus***

52. *Prionailurus viverrinus* (Bennett) — Fishing Cat (E.)
53. *Prionailurus bengalensis bengalensis* (Kerr) — Leopard Cat (E.)
54. *Prionailurus rubiginosus* (Geoffroy) — Rusty spotted Cat (E.)

Genus ***Caracal***

55. *Caracal caracal* (Schreber) — Caracal (E.)

Genus ***Panthera***

56. ***Panthera pardus fusca*** (Meyer) Leopard, Panther (E.)
57. ***Panthera tigris tigris*** (Linnaeus) Tiger (E.)

Order ARTIODACTYLA

Family SUIDAE

Genus ***Sus scrofa***

58. ***Sus scrofa cristatus*** (Wagner) Wild Boar (E.)

Family CERVIDAE

Genus ***Muntiacus***

59. ***Muntiacus muntjak*** (Zimmermann) Barking Deer (E.)

Genus ***Axis axis***

60. ***Axis axis axis*** (Erxleben) Spotted Deer (E.)

Genus ***Cervus***

61. ***Cervus unicolor niger*** (Blainville) Sambar
62. ***Cervus duvacelii branderi*** (Pocock) Swamp Deer (E.), Barasingha (H.)

Family BOVIDAE

Genus ***Bos***

63. ***Bos frontalis gaurus*** (Smith) Indian Bison (E.) ; Gaur (H.)

Genus ***Tetracerus***

64. ***Tetracerus quadricornis*** (Blainville) Four Horned Antelope (E.); Chosingha (H.)

Genus ***Boselaphus***

65. ***Boselaphus tragocamelus*** (Pallas) Blue Bull (E.)

Genus ***Bubalus***

66. ***Bubalus bubalis*** (Linnaeus) Indian Buffalo

Genus ***Gazella***

67. ***Gazella bennettii*** (Sykes) Indian Gazelle (E.), Chinkara (H.)

Genus ***Antilope***

68. ***Antilope cervicapra*** (Linnaeus) Black Buck, Indian Antelope (E.)

Family TRAGULIDAE

Genus ***Moschiola***

69. ***Moschiola maminna*** (Erxleben) Mouse Deer (E)

Order LAGOMORPHA

Family LEPORIDAE

Genus ***Lepus nigricollis***

70. ***Lepus nigricollis mahadeva*** (Wroughton & Ryley) Indian Hare, Black napped Hare (E.)
71. ***Lepus nigricolis ruficaudatus*** (Geoffroy) Rufous tailed Hare (E.), Khargosh (H.)
72. ***Lepus nigricollis simcoxi*** (Wroughton) Blacknaped Hare

Genus ***Caprolagus***

73. ***Caprolagus hispidus*** (Pearson) Hispid Hare

Order RODENTIA

Family SCIURIDAE

Genus ***Petaurista***

74. *Petaurista petaurista philippensis* (Elliot) Common Giant Flying Squirrel (E.)

Genus ***Funambulus***

75. *Funambulus palmarum* (Linnaeus) Indian Palm Squirrel (E.); Gilehri (H.)
76. *Funambulus pennantii* Wroughton Northern Palm Squirrel (E.)

Genus ***Ratufa***

77. *Ratufa indica centralis* (Ryley) Giant Indian Palm Squirrel (E.).

Family HYSTRICIDAE

Genus ***Hystrix***

78. *Hystrix indica* Kerr Indian Crested Porcupine (E.)

Family MURIDAE

Genus ***Tatera***

79. *Tatera indica indica* (Hardwicke) Indian Gerbil, Antelope Rat (E.)

Genus ***Millardia***

80. *Millardia meltada* Gray Soft –furred Rat (E.)

Genus ***Rattus***

81. *Rattus rattus narbadae* (Hinton) Black Rat, House Rat (E.)
82. *Rattus rattus rufescens* (Gray) House Rat (E.)
83. *Rattus norvegicus* (Berkenhout) Brown Rat, Common Rat, Himalayan Rat (E.)

Genus ***Vandeleuria***

84. *Vandeleuria oleracea oleracea* (Bennett) Palm Mouse, Indian Long-tailed Tree Mouse (E.)

Genus ***Golunda***

85. *Golunda ellioti* Gray Indian Bush Rat (E.)

Genus ***Mus***

86. *Mus booduga booduga* (Gray) Common Indian Field Mouse (E.)
87. *Mus platythrix* Bennett Indian brown spiny Mouse
88. *Mus phillipsi* Wroughton Wroughton's small Spiny Mouse
89. *Mus musculus castaneus* (Waterhouse) House Mouse (E.)
90. *Mus saxicola sadhu* (Wringhton) Elliot's Spiny Mouse

Genus ***Bandicota***

91. *Bandicota bengalensis bengalensis* (Gray & Hardwicke) Lesser Bandicoot, Indian Mole Rat (E.)
92. *Bandicota indica indica* (Beehstein) Lesser Bandicoot Rat, Large Bandicoot Rat (E.)

Genus ***Cremomys***

93. *Cremomys blanfordi* (Thomas) Blanford's Bat

Order CETACEA

Family PLATANISTDAE

Genus ***Platanista***

94. *Platanista gangetica* (Roxburgh) Gangetic Dolphin (E.)

Abbreviations : E.- English; H.- Hindi.

SYSTEMATIC ACCOUNT

Key to the orders of class MAMMALIA

1. Posterior limbs present 2

   No external posterior limbs, body modified for swimming, Homodont or toothless, breeding orifice on top of the head. Mammae inguinal ..... CETACEA

2. Hallux or pollex, or both opposable to the other digits ..... PRIMATES

– Neither hallux or pollex opposable 3

3. Animal modified for free flight in the air. Fingers abnormally developed to support a membranous wing ..... CHIROPTERA

– Animal not modified for free flight in air.. 4

4. Jaws armed with teeth 5

– Jaws toothless. Body covered with large overlapping scales. Undersurface with bristle like hairs. Head small and pointed .... PHOLIDOTA

5. Feet terminating in distinct toes with claws and nails 6

– Feet not terminating in distinct clawed toes but furnished with hoofs .... ARTIODACTYLA

6. One pair of chisel shaped incisors in front of each jaw ..... RODENTIA

– Incisors in front of the upper and lower jaw either not two in number, or not chisel shaped 7

7. Snout long 8

– Snout not long 9

8. Two pairs of incisors in the upper jaw, placed one behind the other ..... LAGOMORPHA

   Six small incisors, a pair of large conical canines ..... CARNIVORA

9. Snout very pointed .Upper lip projecting beyond lower Median pair of incisor larger than the other incisors ..... INSECTIVORA

   Squirrel like in appearance. Its long snout is shrew like but rounded ear, body limbs and tail are squirrel like ..... SCANDENTIA

Order INSECTIVORA

Small sized; long, pointed snout extending far beyond the lower jaw; limbs as a rule short, five-toed and their gait almost plantigrade. Orbits open posteriorly; true molars studded with sharp pointed cusps. Nocturnal and mainly insectivorous.

Order Insectivora is represented in the state by one family Soricidae

Family SORICIDAE

Only one genus of this family is represented from M.P. In this, family zygomatic arches are absent and bulla is imperfect.

Genus *Suncus* Ehrenberg, 1833

Three species of the genus *Suncus* occur in the state. Upper jaw of this genus contains 18 teeth.

Key to the species of the genus *Suncus*

1. Comparatively large; head and body length more than 90 mm ..... *S. murinus*

– Head and body length less than 90mm 2

2. Moderate in size; head and body length from 60 to 80mm ..... *S. stoliczkanus*

– Smallest in three; head and body less than 48 mm. ..... *S. etruscus*

1. *Suncus murinus* (Linnaeus) House Shrew, Chhuchundar

1851. *Sorex murinus* Linnaeus, *Syst. Nat.*, **12** ed. I : 74 (Java).

Observation : This species is commonly seen in houses during night.

Diagnosis : Fur thick and long, over 8 mm in length. Dorsum brown with rusty wash; ventral surface slightly lighter.

Material : Hoshangabad, Sakot (1 ex.), Coll. C.A. Crump. 12.01.1914 Hoshangabad, Sakot,

(1ex), Coll. C.A. Crump., Hoshangabad, Singanama, 25.01.1914 (1ex.), coll. Y.N. Gupta. Jabalpur, Pachpedi, Jabalpur, Pachpedi, 14.05.1960 (1 ex.), Coll. H. Khajuria. Jabalpur. Naya Bazar, 19.09.1960 (1 ex.), Coll. P. Singh; 18.10.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Pachpedi, 9.1.1961 (1 ex.), Coll. P. Singh.

Distribution : India : Throughout the country.

Elsewhere : Afganistan, Bhutan, China, Japan, Indo-Malayan region (Continental & peninsular), Myanmar, Nepal, Sri Lanka

Remarks : This large shrew commonly seen in the houses at dusk or at night. It is harmless and useful animal, which controls the population of insects like cockroaches and noxious pests. It is very intolerant of rats and help in keeping them away.

2. ***Suncus etruscus perrotteti*** (Duvernoy)
Savi's Pigmy shrew

1842. *Sorex perrotteti* Duvernoy. *Mus. Zool. Paris*, : 29 Nilgiri Hills, India.

Observation : This species is very rare in the state.

Material : Jabalpur, Garha, 7.09.1965 (1 ex.), Coll. M.L. Koshta

Diagnosis : Dorsal surface deep rusty brown; ventral surface brown.

Distribution : Widely distributed in Peninsular India.

Remarks : Small in size. Found under stones or leaves and known to feed on insects.

3. ***Suncus stoliczkanus*** Anderson
Andersons shrew

1877. *Crocidura* (*Pacyura*) *stoliczkanus* Anderson. *J. Asiat. Soc. Bengal*, **46** : 270 (Bombay : Maharashtra).

Observation : This species is sighted in various localities of M.P.

Material : Jabalpur, Pachpedi, 27.12.1966 (1 ex.), Coll. M.L. Koshta.

Diagnosis : Dorsal surface dull brown to reddish brown and ventral surface glossy grey.

Distribution : India : Madhya Pradesh (Gwalior, Khargon, Khandwa, Hoshangabad), Maharashtra, Tamil Nadu.

Elsewhere : Bangladesh, Nepal and Pakistan.

Order SCANDENTIA

Family TUPAIIDAE

4. ***Anathana ellioti pallida*** (Lyon)
Madras Tree Shrew

1913. *Anathana pallida* Lyon, *Proc. U.S. Nat. Mus.*, **45** : 124 (Manbhum = Puruliya district, West Bengal, India).

Observation : Uncommon and rarely seen.

Material : Pachmarhi, Hoshangabad, M.P. 10.03.974. coll. (1ex.) R.K. Ghosh.

Diagnosis : Colour of the body reddish brown dorsally; feet and legs grizzled buffy; tail darker than the back.

Distribution : India : Madhya Pradesh : (Hoshangabad), Bihar, Chattisgarh; Orissa and West Bengal.

Remarks : Actually, it is not a tree dwelling animal, it climbs trees mainly as a means of escape or as a shelter but its name gives a wrong impression of tree habits of the animal. They seek food mainly on ground among fallen leaves, under rocks or in crevices etc.

Order CHIROPTERA

The second largest and the most distinctive order of mammals, having membranous wings for true flight. Fingers enormously developed to support wings. Nocturnal.

Two clearly defined suborders, viz, Megachiroptera and Microchiroptera are recognized and both are represented in the state.

Suborder MEGACHIROPTERA

Second finger usually bearing a claw; margin of ears forming a complete ring. Angular process

of mandible broad and low or almost absent; bony palate continues behind the last molar; molar teeth marked with longitudinal furrow.

Represented by only one family Pteropodidae.

Family PTEROPODIDAE

The family is represented by three genera in M.P.

Key to the genera of family PTEROPODIDAE

1. No tail; neck and shoulder generally paler than back ..... ***Pteropus***
- A short tail present; dorsum of one colour throughout 2
2. Five teeth in upper molar series and six in lower ..... ***Rousettus***
- Four teeth in upper molar series and five in lower ..... ***Cynopterus***

Family PTEROPODIDAE

5. ***Cynopterus sphinx sphinx*** (Vahl)
Short-nosed fruit Bat (E.), Chota Badur (H.)

1797. *Vespertilio sphinx* Vahl, *Skr. Nat. Selsk. Copenhagen*, 4(I) 123 (Tranquebar, Tan-javar, Tamil Nadu).

Observation : Very common in the state. Specimens were seen at various localities.

Material : Jabalpur, 44 km. from Jabalpur, 20.12.1967 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 8.09.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 1.02.1969 (1 ex.), Coll. H. Khajuria. Hoshangabad Pachmarhi, 08.03.1974 (2?), coll. R.K. Ghose; 1 young Jabalpur. Sasan (Bheraghat-Patan Rd), (7 exs.) Shahpura.

Diagnosis : Smallest of the fruit eating bats of the state, head and body length on average 110 mm. Nostril at the tip of slightly bifurcated fleshy projections; upper lip deeply grooved down the centre. Dorsum gray or grayish brown, venter paler.Margin of ears white. Toe vestigial, rod like.

Distribution : India : Madhya Pradesh (Jabalpur, Hoshangabad). Widely distributed throughout the mainland.

Elsewhere : Pakistan, Sri Lanka, Nepal, Bangladesh and Myanmar.

Remarks : A common species roosts signally or in small groups among aerial roots of banyan tree, palm leaves, tree hollows etc. and not easily seen. Though, it is useful as a cross pollinator but at the same time very much destructive to orchards.

Genus ***Pteropus*** Brisson, 1962

The genus *Pteropus* is represented by one species in the state.

6. ***Pteropus giganteus*** (Brünnich)
Indian Flying Fox, Kadul, Badur, Pata debli

1782. *Verpertilio gigantea* Brünnich. *Dyrenes Historie*, 1 : 45 (West Bengal. India).

Observation : Common. Occurs throughout the state on many fruit bearing trees mainly Banyan.

Material examined : Jabalpur, Pachpedi, 27.08.1960 (1 ex.), purchased; Jabalpur, Pachpedi, 3.09.1967 (1 ex.), purchased; Jabalpur, Lamhetaghat, 25.01.1964 (2 Ex.), Coll. H. Khajuria

Diagnosis : Largest bat of the Indian subcontinent, head and body length averaging 265 mm. Brightly colored, rufous brown around the head and neck, orange or honey-coloured band across the upper back; head long with dog like-muzzle; nostrils neither raised nor divided by any internal groove. No tail.

Distribution : India : Throughout Madhya Pradesh in suitable areas; widely distributed in India including Andaman Island.

Elsewhere : Pakistan, Sri Lanka, Nepal, Bangladesh and Myanmar.

Remarks : The largest of Indian bats, roosts during the day in large noisy colonies on trees, leaving within half an hour after sunset. Feeds only on juice of fruits, destructive to orchards.

Genus ***Rousettus*** Gray, 1821

The genus *Rousettus* is represented by one species in M.P.

7. *Rousettus leschenaulti leschenaulti* (Desmarest)
Indian Fulvous Fruit Bat

1820. *Pteropus leschenaulti* Desmarest, *Encycl. Meth. Mamm.*, **1** : 110 (Pondicherry, India).

Observation : Common. Occurs throughout the state

Material : Jabalpur, Lamhetaghat village, 23.01.1961 (3 ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 29.09.1961 (3 ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 22.07.1961 (1 ex.), Coll. S. Chakrapany.

Diagnosis : A medium sized bat, head and body on average 131 mm, with large head and elongated dog-like muzzle; tail vestigial, length-averaging 14 mm. Body fur short, dorsally with rufescent tone and ventrally pale brown; a brown collar of radiating hairs with paler bases present on the lower neck and shoulder region. Second phalanges of third digit less than 40 mm.

Distribution : India : widely distributed throughout the mainland.

Elsewhere : Bhutan, Hong Kong, Pakistan, Myanmar, Nepal, Southern China, Sri Lanka, Tibet, Thailand, Laos, possibly Cambodia and Vietnam.

Remarks : Roosts in caves and man made structures such as wells tunnels and old ruins in colonies of 10 to 2000.

Suborder MICROCHIROPTERA

Second finger without a claw; margin of ears not forming a complete ring. Angular process of mandible long and narrow. Crown of molar teeth with transverse furrow. Bony palate not extending behind the last molars.

All the six families of Microchiroptera occurring in India are represented in the state.

Key to the families of MICROCHIROPTERA

1. Both nose leaf and tragus present ..... MEGADERMATIDAE
– Either nose leaf or tragus present but not both 2
2. A nose leaf present but no tragus. ..... RHINOLOPHIDAE
– A tragus present but no nose leaf 3
3. Tail entirely enclosed in interfemoral membrane ..... VESPERTILIONIDAE
– Distal portion of tail free from interfemoral membrane 4
4. Tail emerging from upper surface of interfemoral membrane ..... EMBALLONURIDAE
– Tail emerging from the end of the interfemoral membrane 5
5. Tail very long and slender. ..... RHINOPOMATIDAE
– Tail comparatively short and stout ..... MOLOSSIDAE

Family RHINOPOMATIDAE

Family Rhinopomatidae contains a single genus *Rhinopoma.*

Genus ***Rhinopoma*** E Geoffroy, 1818

The genus is represented by two species in the state.

8. *Rhinopoma hardwickei hardwicke* Gray
Lesser Rat-tailed Bat, Lesser Mouse-tailed Bat

1831. *Rhinopoma hardwickii* Gray. *Zool. Misc.*, : 37. (India).

Observation : Common. Specimens were found in various districts, in temple old buildings and other man made structures.

Material : Jabalpur, Lamhetaghat village, 26.06.1961 (5 Ex.), Coll. S. Chakrapany; Jabalpur, Madan Mahal, 14.09.1963 (9 Ex.), Coll. H.

Khajuria; Jabalpur, Gwarighat, 19.09.1963 (1 ex.), Coll. H. Khajuria.

Diagnosis : A small sized bat, similar to ***Rhinopoma microphyllum kinneari*** but smaller in size; length of forearm 53.3 to 62.7 mm; tail usually longer than forearm.

Distribution : India : Madhya Pradesh (Hoshangabad, Gwalior, Jabalpur Mandla, Balaghat), Delhi, Jammu & Kashmir, Katrnataka, Kerala, Rajasthan, Orissa, Tamil Nadu, Uttar Pradesh & West Bengal.

Remarks : Roosts in natural or artificial caves, ruined temples, and old abandoned buildings but never in human dwellings (Brosset 1962). It feeds on small and soft insects. It is a great nuisance in places of archaeological importance and difficult to eradicate.

9. *Rhinopoma miroppyllum kinnneari* (Wroughton)
Larger Rat tailed Bat

1912. *Rhinopoma kinnneari* Wroughton, *J. Bombay nat. hist. Soc.*, **21** : 767 (Bhuj, Cutch=Bhuj, Kachch distrct, Gujarat)

Observation : This species is found in the state.

Diagnosis : A medium sized bat with length of forearm 64.5 to 75.0 mm; mouse like tail emerging from the edge of narrow uropatagium and usually shorter than forearm; tragus simple; muzzle with thick narial pad.

Distribution : India : Madhya Pradesh, Bihar, Delhi, Gujarat; Uttar Pradesh, Maharashtra, Orissa, Rajasthan.

Family EMBELLONURIDAE

Only genus *Taphozous* is recorded from the state

Genus *Taphozous* Geoffroy, 1918

All five species of the genus is found in the state. The genus is characterized by the presence of radio-metacarpal pouch and lower lip is not or scarcely grooved.

10. *Taphozous melanopogan* Temminck
Black-bearded Tomb bat

1841. *Taphozous melanopogon* Temminck, *Mon. Mamm.*, **2** : 387 (Bantam, Western Java, Indonesia).

Observation : This species is sighted in many districts of M.P.

Diagnosis : Medium-sized, forearm 63 to 68.5. No gular sac; radio-metacarpal pouch large, Most of the males have black beard. Tail somewhat laterally compressed towards the tip.

Material : Jabalpur, Pachpedi, 15.10.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Napier Town, 18.11.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Napier Town, 19.11.1960 (3 Ex.), Coll. R.C. Sharma; Jabalpur, Napier Town, 24.11.1960 (11 Ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat, 9.09.1962 (15 Ex.), Coll. S. Chakrapany.

Distribution : India : Madhya Pradesh (Betul, Balaghat, Chhindwara, Hoshangabad, Jabalpur, Mandla,), Andhra Pradesh, Bihar, Karnataka, Maharashtra, Orissa, Tamil Nadu, West Bengal.

Elsewhere : Sri Lanka, Myanmar, Malaysia, Laos, Vietnam, Southern China, Andalas, Java, Kalimantan, Timor, Savu Isl., Kei Isl., and perhaps Lombok.

Remarks : Original habitat rock clefts but now largely in ruins and old temples. Colonies have varying number of 150 to 4000. This bat does not hang by hind limbs but cling to the walls and ceiling by all four limbs and could move in all directions with ease when disturbed.

11. *Taphozous longimanus* Hardwicke
Long Armed Sheath-Tailed Bat

1825. *Taphozous longimanus* Hardwicke, *Trans. Linn. Soc. Lond.*, **14** : 525 (Calcutta district, West Bengal, India).

Observation : This species is seen in various localities of M.P.

Diagnosis : Medium sized bat having broad tragus. Dark brown in colour but adult male lighter brown. Lower lip scarcely grooved. Ear with smooth inner margin. In male gular sac moderately developed but in female it is represented by a

rudimentary fold of skin. Radio-metacarpal pouch moderately developed.

Material : Hoshangabad, Sohagpur 09.02.1912, (1ex.), coll. C.A.Crump. Jabalpur, Pachpedi, 8.07.1960 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 28.06.1963 (1 ex.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh (Balaghat, Hoshangabad, Jabalpur, Mandla) Gujarat, Rajasthan, Tripura, West Bengal.

Elsewhere : Bangladesh, Cambodia, Myanmar, Nepal, Thailand and Sri Lanka.

12. ***Taphozous nudiventris kachhensis*** Dobson
Naked-bellied Tomb Bat

1872. *Taphozous kachhensis* Dobson, *J. Asiat. Soc. Beng.*, **1** : 221 (Kachh = Kachchh, Gujarat, India).

Observation : The species is sighted in the state.

Diagnosis : Large, wingspan 300 to 423 mm. Body fur not extending over wings or interfemoral membrane. Radio-metacarpal pouch well developed. Inner surface of ear papillate and posterior margin of tragus with a lobe or slight projection. Parietal and occipital crest forming a distinct helmet at their junction.

Distribution : India : Madhya Pradesh, Bihar, Delhi, Jammu and Kashmir, Karnataka; Maharastra, Rajasthan and Uttar Pradesh.

Elsewhere : Afghanistan and Pakistan

13. ***Taphozous perforatus perforatus*** E. Geoffroy
Egyptian Tomb Bat

1818. *Taphozous perforatus* Geoffroy, *Descrip. de L' Egypte*, **2** : 126.

Observation : The species is sighted in the state. Not very common species.

Diagnosis : Wingspan 210-280 mm; whitish clavicular collar patch; head with a central depression. Radio-metacarpal pouch small. Anterior margin of ear papillate. Distal half of tail emerges about midway from interfemoral membrane.

Material : Jabalpur, Sita Pahad, 4.10.1963 (1 ex.), purchased; Jabalpur, Sita Pahad, 17.10.1963 (2 ex.), purchased; Jabalpur, Sasan village, 20.07.1966 (6 ex.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh, Gujarat, Rajasthan.

Elsewhere : Egypt, Pakistan.

14. ***Taphozous theobaldi secatus*** Thomas
Theobald's Tomb Bat

1915. *Taphozous theobaldi secatus* Thomas, *J. Bombay nat. Hist. Soc.*, **24** : 60.

Observation : The species is sighted in the state. It appears to be rare species.

Diagnosis : Dorsum proutis brown; region of neck and base of ears much lighter being smoke grey.

Material : Jabalpur, Tauria Hill in Richhai village, 7.05.1963 (4 ex.), Coll. S. Chakrapany; Jabalpur, Richhai village, 20.04.1965 (5 ex.), Coll. H.P. Agrawal.

Distribution : India : Madhya Pradesh.

15. ***Saccolaimus saccolaimus crassus*** (Blyth)
Pouch Bearing Bat

1844. *Taphozous crasssus* Blyth, *J. Asiat. Soc. Beng.*, **13** : 491 (Mirzapur, Mirzapur district Uttar Pradesh, India)

Observation : The species appears to be rare in the state.

Diagnosis : A large sized bat, dark brown in colour with some small white spots on dorsal surface. Gular sac present. Radio–metacarpal pouch absent. Lower lip is divided by a deep narrow groove. Legs and feet naked.Interfemoral membrane naked except near the point of origin of tail.

Distibution : India : Madhya Pradesh, Andman Nicobar Island, Gujarat, Karnataka, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh,

Elsewhere : Bangladesh, Malaya Peninsula and Island, Myanmar, Sri Lanka, Thailand.

Remarks : Ghosh & Bhattacharya collected specimens from Kanha National Park.

Family MEGADERMATIDAE

This family is represented by one genus and one species in the state

Genus ***Megaderma*** E. Geoffroy, 1810

16. ***Megaderma lyra lyra*** Geoffroy
Indian false Vampire

1810. ***Megaderam lyra*** Geoffroy, *Ann, Mag, nat. Hist. Paris*, **15** : **190** (India, possibly Madras, Tamil Nadu, India),

Observation : Common. A large colony of about 600-800 bats in an old house was seen in a village near Itarsi.

Material : Jabalpur, Parasia village, 31.08.1960 (11 ex.), Coll. S. Chakrapany; Jabalpur, Parasia village, 24.10.1960 (2 ex .), Coll. P. Singh; Jabalpur, Parasia village, 6.01.1961 (10 ex.), Coll. P. Singh; Jabalpur, Lamhetaghat village, 10.01.1961 (16 ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 23.01.1961 (2 Ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 15.03.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 21.03.1961 (2 Ex.), Coll. R.C. Sharma. Hoshangabad district Sohagpur. (4 exs.), 01.01.1912, coll. C.A. Crump; Raisalpur near Itarsi, Hoshangabad district, 08.02.2002, (8 ex.), coll. Y.N.Gupta.

Distribution : India : Throughout Indian main land.

Elsewhere : Afghanistan, Pakistan, Sri Lanka and Bangladesh.

Remarks : Fairly common in village areas. Size of colony may vary widely from 2 to 2000 individuals (Brosset 1962a).

Family RHINOLOPHIDAE

Genus ***Rhinolophus*** Lacepède, 1818

The genus is represented by one species from the state.

17. ***Rhinolophus lepidus lepidus*** Blyth
Blyth's Horseshoe Bat Little India Horseshoe Bat

1844. *Rhinolophus Lepidus* Blyth. *J. Asiat. Soc. Bengal*, **13** : 486 (Vicinity of Calcutta, West Bengal, India)

Observation : The species is very common in he state.

Diagnosis : Small horseshoe bat (forearm ıround 40.0 mm. on average) with horizontal base ɔf sella arched and equal to vertical part; ɔonnecting process triangular in lateral view; tibia shorter less than 18 mm.

Material : Hoshangabad, Sohagpur, 03.04. 1912, (2 ex.), coll. C.A. Crump; Hoshangabad, Narsinghgarh (1 ex.), coll. C.A. Crump., Hoshangabad district, Deokhoh, Pachmarhi, 03.04.2001. (2ex., 1ex.), Jabalpur, coll, Y.N. Gupta, Jabalpur, on Gwarighat road, 19.09.1963 (3 ex.), purchased

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur), Andhra Pradesh, Bihar, Delhi, Karnataka Maharashtra, Meghalaya, Mizoram, Nagaland, Orissa, Rajasthan, Tamil Nadu, West Bengal,

Elsewhere : Nepal, Thailand.

18. ***Rhinolophus rouxii*** Temminck
Rufous Horse shoe Bat

1835. *Rhinolophus rouxii* Temminck, *Monogr. Mammal.*, **2** : 30b (Pondichery and Calcutta, India).

Obervation : The species is sighted in the state.

Diagnosis : Colour varies from brown to orange yellow; margins of horizontal base of sella straight.

Distribution : India : Madhya Pradesh, Andhra Pradesh, Arunanchal Pradesh, Chhattisgarh, Goa, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Orissa, Uttar Pradesh.

19. ***Rhinolophus luctus*** Temminck
Wooly Horseshoe Bat

1835. *Rhinolophus luctus* Temminck, *Monog. Mamm.*, **2** : 24.

Observation : The species is not very common in the state.

Diagnosis : Large sized horse-shoe bat with broad horse-shoe, lower lip with one mental groove, much larger frontal sac present, smaller in females. Fur thick and wooly, usually blackish.

Distribution : India : Madhya Pradesh, Andhra Pradesh, Assam, Bihar, Karnataka, Meghalaya, Nagaland, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : China, Indonesia, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand and Vietnam

Genus ***Hpposideros*** Gray, 1831

The genus is represented by two species from the state

20. ***Hpposideros fulvus fulvus*** Gray
Fulvus leaf nosed Bat (E.)

1838. *Hpposideros fulvus* Gray, *Mag. Zool. Bot.*, **2** : 492

Observation : This species is rare.

Diagnosis : Very large ears, larger than head, rounded, upper third posterior margin, slightly flattened; narial margins of anterior nose leaf not expanded; narrow internarial septum; uninflatted broadened at the base, narrow between nostrils.

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur), Assam, Bihar, Karnataka, Kerala, Maharashtra, Meghalaya, Sikkim, Tamil Nadu, Uttar Pradesh, And man.

Elsewhere : Nepal, Sri Lanka, Bangladesh, Myanmar, Thailand, and Vietnam.

21. ***Hipposideros durgadasi*** Khajuria

1853. *Hipposideros cineraceus durgadasi* Khajuria *Mammalia*, **34** : 623.

Observation : This species is collected and described by Khajuria (1970) from Jabalpur.

Diagnosis : Colour of dorsal surface varies from brown to reddish brown .The ventral surface is almost whitish but in some specimens tips of the hairs are brown. The shoulders and muzzle are darker Wing in appearance resembles to that of *Rhinolophus lepidus*. The tibia is comparatively long.

Distribution : India : Madhya Pradesh (Jabalpur).

Remarks : Khajuria (1970) described durgadasi as a subspecies of *H. cineraceus* but on the basis of baculum characteristic Topal considered durgadasi as a distinct species and same was followed by Corbet and Hill (1992). Koopman (In Wilson Reader 1993) treated it as synonym of *H. cineraceus* without assigning any reasons.

22. ***Hipposideros galeritus brachyotus*** (Dobson)
Cantor's Leaf nosed Bat

1946 *Hipposideros brachyotus* Dobson, *J. Asiat. Soc. Bengal*, **43**(2) : 237 (Central India).

Observation : This species appears to be rare in the state.

Material : Jabalpur district, Gwari near Bheraghat, (5 exs.).

Diagnosis : Similar to *Rhinolophus lepidus* in appearance. Dorsally tips of hair brownish and therefore there is a middle whitish band and ventrally whitish at the base and whitish tips. The wing membranes are blackish brown.

Distribution : Madhya Pradesh, Gujarat, Maharashtra, Assam and as per Hill (1923) perhaps Bengal.

Elsewhere : Sri Lanka.

23. ***Hpposideros lankadiva*** Kellart
Kellart's Leaf Nose Bat

1850. *Hpposideros lankadiva* Kellart, *J. Sri Lanka Branch Asiat. Soc.*, **2** : 216.

Observation : This species is sighted in the state but rarely seen.

Diagnosis : Acutely pointed large ears having slightly concave margins near the tips. Nose leaf has four supplementary leaflets, fourth one rudimentary are often absent. Posterior nose leaf is broad having its upper margin semicircular and supported by three septa.

Distribution : India : Madhya Pradesh, Andhra Pradesh, Karnataka, Maharashtra, Manipur, Meghalaya, Mizoram, Orissa, Tamil Nadu.

Elsewhere : Sri Lanka.

Family VESPERTILIONIDAE

Key to the genera of VESPERTILIONIDAE

1. Upper premolar 1 on each side ..... ***Scotophilus***
- Upper premolar 2 on each side 2
2. Outer upper incisor not extending beyond the cingulum of inner ..... ***Scotozous***
- Outer upper incisor extending distinctly beyond the cingulum of inner .. ***Pipistrellus***

Genus *Pipistrellus* Kaup, 1929

Key to species of the genus *Pipistrellus*

1. Size large with forearm 38 mm or more..2
- Size smaller with forearm less than 38mm. 3
2. Colour brown, tragus less than 4mm .... *Pipistrellus ceylonicus indicus*
3. Forearm less than 30 mm. .... *Pipistrellus mimus*

   Forearm more than 30 mm. 4
4. Bacculum less than 4mm in length .... *Pipistrellus coromandra*

24. *Pipistrellus coromandra coromandra* (Gray) **Indian Pipistrelle**

1838. *Scotophilus coromandra* Gray, *Mag. Zool. Bot.*, **2** : 298 (Pondicherry India).

Observation : Common. It was seen roosting in the roofs of Rest houses of Bori, Churna and Singanama.

Material : Jabalpur, Pachpedi, 3.08.1963 (8 ex.), purchased; Jabalpur, Pachpedi, 30.10.1963 (3 ex.), purchased; Jabalpur, Pachpedi, 31.05.1961 (2 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 29.10.1963 (1 ex.), Coll. A. Paul.

Diagnosis : Small-sized, forearm length on average 31 mm, Dorsal fur blackish brown with tips slightly rufescent; venter a little paler. Tragus curving forward and bluntly rounded. A small lobe present below the calcar.

Distribution : India : widely distributed in Peninsular India, north to Jammu and Kashmir, east to northeastern states including Tripura

Elsewhere : Afganistan, Nepal and Sri Lanka

25. *Pipistrellus mimus* Wroughton **Indian Pigmy Pipstrelle**

1899. *Pipistrellus mimus* Wroughton, *J. Bombay nat. Hist. Soc.*, **12** : 722. Mheskatri, Dangs, Surat district, Gujarat.

Observation : This species is common in the state.

Material : Hoshangabad district Pachmarhi, 06.02.2002, (2 ex.), coll. Y.N.Gupta Jabalpur, Pachpedi, 28.09.1963 (2 ex.), purchased; Jabalpur, Pachpedi, 27.07.1963 (1 ex.), purchased; Jabalpur, Pachpedi, 31.05.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 12.09.1963 (1 ex.), purchased

Diagnosis : Dorsal surface is brownish black, ventral parts lighter hairs of ventral surface have silvery tips. Face, ears and wings almost black. The fur is short and dense. The basal paler band of hair is greatly reduced but middle darker band is much enlarged. The tibia is short. Ears small. Tragus short and curved. Post calcarial, lobe is present.

Distribution : India Widely distributed throughout the mainland.

Elsewhere : Afganistan, Myanmar, Nepal, Pakistan, Sri Lanka Thailand and Vietnam.

Remarks : It lives in small holes, cracks and crevices in buildings and trees. The colony consists of 5 to 30 individuals often crowded together or at a little distance from each other. It has fluttering and rapid flight with sudden change of direction in pursuit of prey. It feeds on small insects.

26. *Pipistrellus ceylonicus indicus* (Dobson) **Kellart's Pipistrelle**

1878. *Vesperugo indicus* Dobson, *Cat. Chiroptera Br. Mus.*, : 222 (Mangalore, Daskshina Kannada district, Karnataka).

Observation : This species is common in the state.

Material : Pachmarhi, Hoshangabad, coll. Y.N.Gupta, 30.8.2000 (1 ex.). Jabalpur, Pachpedi, 5.11.1963 (6 ex.), purchased; Jabalpur, Pachpedi, 24.10.1963 (1 ex.), purchased; Jabalpur, Pachpedi, 9.10.1963 (1 ex.), purchased.

Diagnosis : Large pipistrelle having forearm up to 40 mm. Dorsal surface brown or reddish or grayish brown, ventral parts paler. Ears short, triangular blackish brown. Tragus having triangular lobe at the base, straight inner end and convex outer margin. Post calcaliar lobe semicircular. Extreme tip of tail free from membrane.

Distribution : India : Throughout Madhya Pradesh, Andhra Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh.

Elsewhere : Pakistan and Bangladesh.

27. ***Pipistrllus dormeri*** (Dobson)

1875. *Scotozous dormeri* Dobson, *Proc. zool. Soc. Lond.*, : 373.

Observation : This species appears to be rare in the state.

Material : Jabalpur, Pachpedi, 11.09.1963 (2 ex.), purchased; Jabalpur, Pachpedi, 3.08.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Pachpedi, 11.10.1963 (6 ex.), purchased; Jabalpur, Bai ka Bagicha, 8.07.1963 (1 ex.), Coll. P. Singh.

Diagnosis : Medium-sized, forearm length on average 34 mm. Ears sub-triangular, tip rounded, margin below the tip nearly straight; tragus straight, pointed, with a small lobe at the base of outer margin. Dorsal fur dark brown with ashy tip, venter whitish or lemon yellow.

Distribution : India : Widely distributed in the Indian mainland from Jammu & Kashmir in the north to at least Karnataka in the south and West Bengal in the east.

Elsewhere : Pakistan, and possibly Taiwan.

28. ***Pipistrellus babu*** Thomas
Babu Pipistrell

1915. *Pipistrellus babu* Thomas, *J.Bombay nat. Hist. Soc.*, **24** : 30 (Murre, C 2,438m. Rawalpindi district, The Punjab, Pakistan).

Observation : This species is rarely found in the state.

Diagnosis : A medium sized bat having forearm around 34.0 mm, on average. Dorsal colour sepia brown or olive green, ventrally slightly paler. Wings from base of the toe. A prominent post-calcarial lobule present.

Distribution : India : Madhya Pradesh, Assam, Himachal Pradesh, Maharashtra, Sikkim, Uttar Pradesh.

Elsewhere : Afganistan, Bangladesh, China, Myanmar, Pakistan, Nepal,

Genus ***Scotophilus*** Leach, 1821

Key to the identification of species of the genus *Scotophilus*

- Smaller in size, forearm length 42-45; belly buff or pinkish brown, with a few scattered rufous hairs ..... *S. kuhli kuhli*
- Larger in size, forearm length 56-60; belly oily yellow in colour ..... *S. heathi heathi*

29. ***Scotophilus heathi heathi*** (Horsfield)
Greater yellow Bat (E.)

1831. *Nycticejus heathi* Horsfield, *Proc. Zool. Soc. Lond.*, 113 (Madras = Chennai, Tamil Nadu. India).

Material : Jabalpur, Pachpedi, 28.06.1963 (1 ex.), purchased; Jabalpur, Napier Town, 18.11.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Lamhetaghat village, 20.05.1961 (1 ex.), Coll. H. Khajuria.

Observation : Common. Spotted in many areas of the states it appears in the evening and usually flies around in company quarreling among them.

Diagnosis : Forearm length more than 56 mm. Fur short and sleek; dorsum olive to gray brown, venter lemon yellow to orange yellow and clearly demarcated from dorsum. Muzzle sparsely haired, with swollen glandular pads between the eyes and nostrils.

Distribution : India : widely distributed all over India.

Elsewhere : Afghanistan, Pakistan, Sri Lanka, Nepal, Bangladesh and Myanmar.

Remarks : Found in small colonies in crevices, on roofs, rafters and in holes in ceilings

30. *Scotophilus kuhli kuhli* Leach
Lesser Yellow Bat (E.)

1822. *Scotophilus Kuhli* Leach, *Trans. Linn. Soc. Lond.*, **13** : 72 (According to Hill & Thonglongya 1972, type-locality is India).

Observation : This species is sighted in the state

Diagnosis : Forearm length 42-55 : fur short, close and sleek. Ear small, rounded at tip; tragus semi lunar and markedly convex on posterior border, concave anteriorly. Dorsum reddish or olive brown. Muzzle with glandular swellings behind eyes.

Distribution : India : Widely distributed throughout India including Nicobar Island (Hill 1967).

Elsewhere : Pakistan (Walton 1974), Sri Lanka, Bangladesh and Myanmar.

Genus *Myotis* Kaup, 1829

31. *Myotis horsfieldii* (Temminck)
E. Lesser large–toothed Bat

1840. *Vespertioplio horsfieldii* Temminck, *Monograph Mamm.*, **2** : 226.

Observation : This species is sighted in the state but rarely found.

Distribution : India : Madhya Pradesh, Andman Islands, Goa, Karnataka, Kerala, Maharashtra, Meghalaya.

Elsewhere : China, Indonesia, Malaysia, Philippines, Thailand, and perhaps Sri Lanka and Vietnam.

Genus *Hesperoptenus* Peters

This genus is represented only by one species in India.

32. *Hesperoptenus tickelli* (Blyth)
Tickell's Bat

1851. *Nycticejus tickelli* Blyth, *J. Asiat. Soc. Beng.*, **20** : 157 (Chaibasa, Singhbhum district, Bihar, India).

Observation : This species is found in the state, but not very common.

Diagnosis : A large sized bat having forearm up to 60.0 mm. Golden yellow in colour but head grayish and wing membrane blackish. Ears oval. Small pad under thumb. Wing membrane from base of toes.

Distribution : India : Madhya Pradesh, Bihar, Karnataka, Maharashtra, Orissa, Rajasthan, Tamil Nadu.

Elsewhere : Bangladesh, possibly China, Myanmar, Nepal, Sri Lanka, Thailand.

Family MOLOSSIDAE

33. *Chaerephon plicata plicata* (Buchanan)
Wrinkle-lipped Bat

1800. *Vespertilio plicatus* Buchannan, *Trans. Linn. Soc. Lond.*, **5** : 261, pl. 13 (Bengal, India).

Observation : This species is rare in the state.

Diagnosis : Antitragus well defined; ears large rounded and thick, connected ahead of orbits by a band of skin; muzzle broad and thick, upper lip overhanging the lower, marked by prominent vertical wrinkles; lower part of legs free from wing which is connected with ankle by a raphae.

Distribution : India : Madhya Pradesh, Uttar Pradesh, Meghalaya, Punjab, Tamil Nadu ,West Bengal, Tibet.

Elsewhere : Borneo, Burma, Cambodia, Hong Kong, Malay Peninsula, Southern China including Hainan, Singapore, Sumatra, Thailand, Vietnam.

34. *Tadarida aegyptiaca* Geoffroy
Egyptian Free-Tailed Bat

1818. *Nyctinomus aegypticus* Geoffroy, *Descrip. De L'Egypte*, **2** : 128.

Observation : This species is sighted in the state but rarely found.

Diagnosis : Tragus broad and rounded above, half concealed by large anti- tragus. Wing from ankles, calcanium terminating in a lobule.

Distribution : India : Madhya Pradesh, Bihar, Gujarat, Karnataka, Maharashtra, Rajas- than, West Bengal.

Elsewhere : Algeria, Egypt to Yemen, and Omen, South Africa to Nigeria, east to Pakistan and Sri Lanka.

Order PRIMATES

Arboreal. Limbs plantigrade with five digits. Hands and feet prehensile. Thumbs of hind foot opposable (except in human beings). Clavicles well developed. Facial region relatively small. Brain complex, with great development of braincase.

Represented in the state by one family Cercopithecidae.

Family CERCOPITHECIDAE

Orbit completely closed by bone behind, Pollex short or wanting. Upper incisors not divided by a vacant space in the middle. Tail present. Arm not longer than leg.

Key to genera of family CERECOPITHECIDAE

- Face red, cheek pouches present; tail length variable but generally smaller than head and body ..... ***Macaca***
- Face black, cheek pouches absent ; tail always longer than head and body .... ***Simnopithecus***

Genus *Macaca* Lacepede, 1779

Only one species occurs in the state.

35. *Macaca mulatta mulatta* (Zimmermann) **Rhesus Macaque**

1780. *Cercopithecus mulatta* Zimmermann, *Geogr. Gesch. Mensch.*, **2** : 195 (India).

Observation : Common.

Diagnosis : Medium-sized, head and body length around 540 mm; tail short, two-fifths to one-half of head and body. Hairs straight; crown hairs not radiating from extreme. Face light pink, hindquarter of body brighter with orange-red hue, while upper back olive brown.

Distribution : India : Madhya Pradesh : throughout the state, Andhra Pradesh; Arunachal Pradesh; Assam; Bihar; Chhattisgarh; Delhi; Himachal Pradesh; Jammu & Kashmir; Meghalaya; Orissa; Punjab; Rajasthan; Sikkim; Tripura, West Bengal.

Elsewhere : Bhutan, Bangladesh, Myanmar, China, Thailand and Vietnam.

Remarks : Rhesus Macaques are regarded as most sacred; hence, there is no hunting pressure. However, they were found to be very shy and confined themselves in the forested tracts.

Genus *Semnopithecus* 1821

The genus *Semnopithecus* is represented by one species in the state.

36. *Semnopithecus entellus entellus* (Dufresne) **Hanuman Langur**

1797. *Simia entellus* Dufresne, *Bull. Soc. Philom Paris*, **1(7)** : 49 (Bengal).

Observation : Common. Fairly distributed throughout the state.

Diagnosis : Large-sized, head and body length around 580; tail longer than head and body. Upper side dark or light sepia brown, paler on the shoulder, nape and crown; hands and feet black or deep brown and colour sharply contrasted with that of arms and legs. Whiskers short, partly covering the ears; crown hairs radiating from a frontal whorl.

Distribution : India : Madhya Pradesh: throughout the state, Bihar; Chhattisgarh; Delhi; Haryana; Orissa; Punjab; Rajasthan; West Bengal.

Elsewhere : Bangladesh, China, Nepal, Pakistan, Sri Lanka.

Remarks : It was observed that langurs were more in numbers in low altitude. The average group size here was 16 to 25. Young ones are mostly observed from Feb. to May.

Order PHOLIDOTA

This order includes one genus *Manis* which was formerly placed in order Edentata meaning without teeth along with the sloths and armadilos. As pangolins differ greatly in form and appearance and have no teeth at all, therefore now classified as order Pholidota.

Pholidota represented by one family Manidae and only one species occurs in the state.

Family MANIDAE

The family has upper part of the body covered with large, overlapping scales; undersurface clothed with coarse, bristle-like hairs. Head long and narrow. No teeth.

Genus ***Manis*** Linnaeus, 1758

37. ***Manis crassicaudata*** Gray
Indian Pangolin, Bajra Kit, Bajra Kapta, Sal Sala, Silu, Suraj Mukhi

1825. *Manis crassicaudata* Gray, in Griffith *et al.*, *Anim. Kingd.*, **5** : 282 (India).

Observation : The species is found in M.P.

Diagnosis : Head and body reach 660, female a little smaller (Robers 1977). Hump-backed body, tapering tail without glandular naked area at tip. Muzzle tapers to a narrow, down-curving, trunk-like snout. External pinna like a shallow crescent-shaped, vertical fold on the naked skin. Body covered with 11-13 rows of overlapping, light yellowish brown, pointed horny scales.

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur, Mandla, Morena) Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Karnataka, Kerala, Maharashtra, Orissa, Punjab, Rajasthan, West Bengal.

Elsewhere : Bangladesh, China Pakistan and Sri Lanka.

Remarks : It usually moves about only at night, therefore it is rarely seen. The villagers and forest officials confirmed its presence in the area.

Order CARNIVORA

Large conical canine and six small, roughly equal sized incisors in both jaws; upper premolar and first lower molar specially enlarged with sharp-edged lobes for tearing the flash.

Key to families of CARNIVORA

1. Very large Ethno-turbinals, covering most of the part of nasal chambers and extending anteriorly to the anterior orifice; auditory bulla has two bones; Cowper's gland not present 2

– Small Ethno-turbinals, excluded from the anterior orifive of nasal chamber by large maxiillo-turbinal; auditory bulla has single tympanic bone; Cowper's gland present ... 5

2. Flat face, muzzle not slender; posterior palatal foramina set far back on the maxillo-palatine suture; teeth reduced in number and highly sectorial.Dental formula 3/3, 1/1, 3 or 2/3, 1/1; inter-ramal tuft of vibrissae absent ..... FELIDAE

– Pointed. face, slender muzzle; posterior palatal foramina located in front of the maxillo-palatine suture; teeth not so sectorial or reduced in number, dental formula 3/3, 1/1,4/2, 2/2, or 1/1; inter-ramal tuft of vibrissae present 3

3. Dog-like appearance; hind foot with four digits; auditory bulla without oblique groove; massive jaws and teeth ..... HYAENIDAE

– Not dog-like in appearance; hindfoot with five digits; auditory bulla with distinct groove; jaws and teeth less massive 4

4. Ear moderate in size, with well developed bursa and simple supra-tragus, but devoid of valvular flap over it; feet compact with short claws; anus not enclosed in a glandular sac. No bony tube to auditory orifice ..... VIVERRIDAE

- Ear small and rounded, with vestigial bursa, valvular supra-tragus and a valvular flap over it; feet with free digits and fossorial claws; anus enclosed in a glandular pouch. A well-developed bony tube to the auditory bulla ..... HERPESTIDAE

5. Long legs, digitigrade and slender; small first digit of forefoot raised above the plantar pad; hind foot with four toes; baculum deeply channelled below ..... CANIDAE

- Relatively short and thick Legs; plantigrade or semiplantigrade; first digit in both feet present close to the second and not raised above the plantar pad; baculum not deeply channeled below 6

6. Large-sized, having relatively short tail; pads of digits forming weak curved line; plantar pads very wide; three lower molars on each side ..... URSIDAE

- Small-sized having moderately long tail; pads of digits forminjg a sharply curved line; two lower molars in each side .. MUSTELIDAE

Family CANIDAE

Family Canidae is represented by three genera in the state

Key to the genera of family CANIDAE

1. Tail at least three-quarters of head and body length; no frontal sinus; post-orbital processes concave above; forehead between the post orbital processes flat ..... ***Vulpes***

- Tail less than two thirds of head and body length a frontal sinus present; post-orbital extremely convex above; forehead between post orbital processes elevated 2

2. Ear almost rounded at tip; two molar teeth in lower jaw; nasal noticeably expanded at the posterior half ..... *Cuon*

- Ear almost pointed at tip; three molar teeth in lower jaw; nasal not noticeably expanded at the posterior half ..... ***Canis***

Genus *Canis* Linnaeus

Two species of genus *Canis* occur in M.P.

Key to the species of genus *Canis*

- Large-sized, male 650-750 mm high at shoulder; greatest length of skull 180-240 mm; first upper molar with indistinct outer cingulum ..... *Canis lupus pallipes*

- Medium sized; measuring 380-430 mm high at shoulder; greatest length of skull 130-164 mm; first upper molar with a prominent outer cingulum ..... *Canis aureus aureus*

38. *Canis aureus aureus* Linnarus
E. Asiatic Jackal, Gidar or Sial, Phial

1758. *Canis aureus* Linnaeus, *Syst. Nat.*, 10th ed. **1** : 40 (Province of Laristan, S. Persia).

Observation : Common. Fairly distributed throughout the state.

Diagnosis : Very similar to wolf but smaller in size and without arching brows and elevated forehead. Dorsal fur coarse, wiry with sandy buff appearance, but mid dorsum predominantly black; back of ear brownish, face and lower flank grayish and tail-tip black; belly, chest and inside of legs creamy white.

Distribution : India : Madhya Pradesh (Hoshangabad, Shivpuri, Betul, Balaghat, Umaria Chhindwara, Mandla, Jabalpur) Bihar; Chhattisgarh; Haryana; Himachal Pradesh; Punjab; Rajasthan.

Elsewhere : Saudi Arabia, Iraq, and European part of earlier U.S.S.R. to the extreme south.

Remarks : Jackals could be found in any environment, in forest, in dry plains or in desert. They come out at dusk, usually signally but at times two or more may be seen and retire at dawn. Feeds on various animals and fruits. Breeds all year round.

39. *Canis lupus pallipes* (Sykes)
Wolf, Bheria

1831. *Canis pallipes* Sykes, *Proc. zool. Soc. Lond.*, 101 (Decan. India).

Observation : Common near forest tracts of M.P.

Diagnosis : About the size of an Alsatian dog, measuring 900-1050 mm in head and body length. Tail bushy, black tipped and bosky. Forehead elevated, brows arched, ear pointed and upstanding. A crest of long hairs on neck and shoulder. Dorsum grizzled with fulvous to rufous and black; Venter creamy buff; back of black; legs ochraceous, paler on outside.

Distribution : India : Madhya Pradesh (Balaghat, Betul, Chhindwara, Hoshangabad, Mandla, Rewa, Shivpuri, Umaria), Andhra Pradesh; Arunachal Pradesh; Assam; Bihar; Chhattisgarh; Karnataka; Maharashtra; Orissa; Rajasthan; West Bengal.

Elsewhere : Arabian Peninsula, Iran and Pakistan.

Remarks : Though it is an animal of forest, but in India they are more common in bare and open regions. They hunt by day or by night.

Genus ***Vulpes*** Oken, 1816

One species viz, *V. bengalensis* had been recorded from M.P.

40. *Vulpes bengalensis* (Shaw)
Common Indian Fox, Bengal Fox, Lumri, Lomri, Lokhri

1800. *Canis bengalensis* Shaw, *Gen. Zool. Syst. Nat. Hist.*, 1 : (2), Mammalia, 330. (Bengal).

Observation : Occurs throughout the state. Often seen during evening hours.

Diagnosis : Smaller and grayer than the Desert Fox, with black tail tip. Back of ear sandy brown or dark brown, with black margin. A smudge of black hairs around the upper part of the muzzle in front of eyes.

Distribution : India : Madhya Pradesh- almost throughout the state; almost all over India.

Elsewhere : Pakistan, Nepal, Bangladesh.

Remarks : It lives in burrow dug by it self, sleeps by day, coming out at dusk to get its food. It feels on small mammals, reptiles, insects, crabs, zizyphus fruits etc. Cubs are usually born between February and April.

Genus ***Cuon*** Hodgson, 1838

It is a monotypic genus.

41. *Cuon alpinus dukhunensis* (Sykes)
Dhole, Red Dog, Asian wild Dog

1831. *Canis dukhunensis* Sykes, *Proc. Zool. Soc.*, 100 (Decan, Peninsular India).

Observation : Observed in various districts of M.P.

Diagnosis : Head and body length over 910 mm, hindfoot over 170 mm, dog-like in appearance with bushy tail and almost rounded ear. Hairs long. With woolly under fur, Body colour ferruginous red to tawny.

Distribution : India : M.P. (Mandla, Hoshangabad, Balaghat, Neemuch, Mandsaur, Sagar, Narsinghpur, Damoh Raisen, Shahdol, Umaria, Seoni, Chhindwara Forested parts of Peninsular India, south of the Ganges up to an elevation of 2240m, excepting the western desert.

Remarks : Rare. Found only in the well-wooded region. Its number has considerably decreased.

Family URSIDAE

Represented in the state by a monotypic genus Melursus

Genus ***Melursus*** Meyer, 1793

42. *Melursus ursinus ursinus* (Shaw)

1791. *Bradypus ursinus* Shaw, *Nat. Misc.*, 2 (unpaged), pls. 58-59 (Patna, Bihar, India).

Observation : Commonly found in the state.

Diagnosis : Large-sized, head and body length 140-170 cm. Coat long, rough, shaggy, black, with or without a V-Shaped breast patch. Face triangular with long muzzle. Claws on forefeet ivory white.

Distribution : India : M.P. (Balaghat, Chhindwara, Damoh, Hoshangabad, Mandla,

Narsinghpur, Raisen, Sagar, Sehore, Seoni, Shahdol, Sidhi, Umaria). Forested tracts all over India from Himalayan foot hills to the extreme southernmost parts.

Remarks : Bears are found where there is sufficient forest to provide food and shelter. They are rigidly nocturnal, mostly come out shortly before sunset, hunt for food whole night and retire in the morning.

Family MUSTELIDAE

Two genera belonging to family Mustelidae occur in the state.

Key to the genera of the Family MUSTELIDAE

- Adapted for semi aquatic life; tail thick and muscular; hindfoot wider than forefoot, vibrissae thick ..... ***Lutra***
- Adapted for terrestrial life, without the above mentioned modifications ..... ***Mellivora***

Genus ***Mellivora*** Storr, 1780

Genus *Mellivora* is monotype.

43. ***Mellivora capensis indica*** (Kerr)
Ratel

1792. *Ursus indicus* Kerr, *Anim Kingd.*, 188 (India).

Observation : Uncommon.

Diagnosis : Body squat and bear like; stumpy legs and small tail, snout not projecting Pinna reduced to a thickened rim. Coat grey above and black below.

Material : 1 ex., Hoshangabad, Jan., 1908, coll. A.A. Dunbar Brander.

Distribution : India : Peninsular India and West Bengal except Malabar Coast.

Elsewhere : Iran, Afghanistan and Pakistan.

Remarks : Mainly nocturnal, occasionally diurnal. Lives in burrows in dry areas near stream beds. Shy and rarely seen. Climb trees. Having sharp teeth aggressive when threatened. Mother carries young on its back. Feeds on various small animals, fruits, honey, and poultry. Gestation period 6 months 1 litter in a year and 2 young born at a time. Life span about 24 years.

Genus ***Lutra*** Brisson, 1762

The genus is represented by two species in the state.

44. ***Lutra perspicillata*** Geoffroy
Smooth-coated Indian Otter

1826. *Lutra perspicillata* Geoffroy, *Dict, Class H.N.*, **9** : 519 (Andalas).

Observation : This species is sighted in the state. Uncommon.

Diagnosis : Thick fusiform body, broad paddle shaped tail with distal portion more or less triangular in outline. Web of skin present between all the digits of fore and hindfoot. Upper border of naked rhinarium smooth and convex in outline, Dorsum brown to olive brown, venter lighter in shade,

Distribution : India : Madhya Pradesh, Andhra Pradesh; Arunachal Pradesh; Assam; Orissa; Bihar; Chattisgarh; Karnataka; Kerala; Meghalaya.

Elsewhere : China; Vietnam; Malaysia and Indonesia.

Remarks : It lives by the sides of lakes streams, rivers and canals. Fish is its main food., but when pools, streams dry up in summer seasons otters show a ready adaptation to the changed conditions and they eat whatever they capture and kill.

45. ***Lutra lutra nair*** (Cuvier)
Common Otter, Eurasian Otter, Udbilao

1823. *Lutra nair* Cuvier, *Dict. Sci. Nat. Paris*, **27** : 247 (Pondicherry, India)

Observation : This species is sighted in the state, but not common.

Diagnosis : Robust muscular body, dark or light brown, grizzled dorsally, whitish on muzzle and throat. Head and body 60-70 cm and tail 35-40 cm.

Distribution : India : Madhya Pradesh (Bhind, Morena Sheopur) and Karnataka, Kerala, Pondicherry, Tamil Nadu.

Elsewhere : Sri Lanka.

Remarks : Mostly nocturnal but sometimes diurnal. Territorial, but hunts mainly in water. Shy animal found in group size of 1-6. Seasonal altitudinal migration in search of food and can travel long distances overland. Feeds on fish, frogs, crustaceans and water birds and therefore den in ground near water edge, usually among roots of trees. Gestation 60-65 days. Liter size 1-5, once in a year.

Family VIVERRIDAE

Two genera of the family Viverridae occur in M.P.

Key to the genera of the family VIVERRIDAE

- Feet terrestrial and digitigrade; carpal pad single; metatarsal pad absent. Scent glands opening into highly specialized pouches. a dorsal crest of long hairs presents extending posteriorly at least from shoulders ..... ***Vivvericula***
- Feet censorial and semi-plantigrade.Carpal and metacarpal pad double. No dorsal crest of long hairs ..... ***Paradoxurous***

Genus ***Viverricula*** Hodgson. 1838

It is a monotypic genus.

46. ***Viverricula indica indica*** (Desmarest)
Small Indian Civet

1817. *Viverra indica* Desmarest, *Nauv. Dict. Hist. Nat, Paris*, **7** : 170 (India).

Observation : This species is fairly common in the state.

Diagnosis : Small-sized, head and body length 500 to 620 mm, with tail a little smaller. Muzzle slender and pointed; ears broad and rounded. Small black spots on fore quarters; large spots tending to run into longitudinal lines on the flank and form 6-8 stripes down the back. Naked rhinarium reddish brown.

Distribution : India : Almost throughout Madhya Pradesh; whole of India.

Elsewhere : Sri Lanka; Pakistan; Bhutan; and Bangladesh.

Remarks : Found in various habitats. Such as scrub, grassland, forests rocks, even in barren lands and cultivated fields. Lives singly in self made burrow, often attacks poultry and other domestic stocks. A good climber, could be seen moving considerable distance through branches.

Genus ***Paradoxurous*** Cuvier, 1821

Represented in the state by a single species.

47. ***Paradoxurus hermaphroditus*** (Pallas)
Common Palm Civet, toddy Cat

1777. *Viverra hermaphroditus* Pallas, *In Schreber, Die säuget.*, **3** : 426 (India).

Observation : Common. Occurs throughout the state.

Diagnosis : Head and body length about 600 mm; tail almost equal to head and body. Coat black or blackish brown but new coat with a pattern of longitudinal stripes on back, blackish spots on flank. Thighs and shoulder usually with white patch or spots around eyes and nose.

Distribution : India : almost throughout India. Bangladesh.

Elsewhere : Myanmar, Nepal; Sri Lanka; China; Hainan Island; Malaysia; Philippine and Indonesia.

Remarks : Very common near human habitats and sometimes enters inside residential complexes.

Family HERPESTIDAE

Family Herpestidae is represented in India by one genus.

Genus ***Herpestes*** Illiger, 1811

Two species occur in the state.

Key to the species of the genus *Herpestes*

- Tawny yellowish-grey in colour and tail is tipped with white or yellowish red but never black ..... *H. edwardsi*
- Generally ruddy and tail is tipped black .... *H. smithii*

48. ***Herpestes edwardsi*** (Geoffroy) **Indian gray Mongoose**

1818. *Ichneumon edwardsii* E. Geoffroy, *Descrip. de 'L' Egypte.* **2** : 139 (East Indies; Madras, according to Pocock 1933).

Observation : Common. Occurs throughout the state.

Diagnosis : Very similar to *H. auropunctatus* but considerably larger, with longer contour hairs which from almost a cape over hindquarter of body and flank.

Distribution : India : Madhya Pradesh (almost throughout the state), Assam; Bihar, Chhattisgarh, Orissa, Sikkim, West Bengal.

Elsewhere : Nepal and Bangladesh.

Remarks : Diurnal as well as nocturnal. Found singly or in groups of up to 4. Lives in holes in the ground or in the base of trees or on thatched roofs of houses. Usually dominates while fighting with cobras due to its agility and its erectile fur which makes snake miss the flesh. Feeds on small mammals, reptiles, birds, eggs poultry, fruits and roots. Gestation period 60 days. 2 to 4 young born in a year. Life span 7 to 8 years.

49. ***Herpestes smithii*** Gray **Ruddy Mongoose**

1837. *Herpestes smithii* Gray. *Mag. NH.* **I** : 578. Said to be from Bombay.

Observation : Sighted in the state. Rarely seen.

Diagnosis : Total length about 90 cm. Tawny yellowish gray in colour with dark and light rings on its hairs. The tail is as long as body, tipped with black.

Distribution : India : Madhya Pradesh (Balaghat, Hoshangabad, Mandla), Rajasthan, east to West Bengal, southwards through Eastern Ghats and Western Ghats.

Elsewhere : Sri Lanka.

Remarks : It is as long as the common mongoose but could be easily distinguished from it by the black tip at the tail. Its food and other habits are more or less the same.

Family HYAENIDAE

The family has broad head with large pointed, upstanding ears. While its forelimbs are sturdy and long, its deep and massive body ends in a weak drooping hind portion supported on short kneed hind legs.

The family is represented in India by one genus, *viz.* Hyaena.

Genus ***Hyaena*** Brission, 1762

Out of two species, of one is found in India

50. ***Hyaena hyaena hyaena*** (Linnaeus) **Striped Hyaena**

1758. *Canis hyaena* Linnaeus. *Syst. Nat.* 10th ed., **1** : 40 (Benna mountains, Laristen, Iran).

Observation : Distributed in small numbers throughout the state.

Diagnosis : Head & body length about 104 cm and height at shoulder 68-76 cm. Dog- like with a conspicuous crest of longer hairs extending like a mane from crown of head to pelvis. Legs relatively long : hindquarters of body weak; high sloping shoulder. Body colour tawny yellow, having indistinct broad vertical stripes along the flank.

Distribution : India : throughout India in forested tracks.

Elsewhere : Pakistan, Sri Lanka, Bangladesh, Myanmar and China.

Remarks : Mostly nocturnal. Found singly in pairs or in small groups of upto 6 animals. Lives in holes or crevices in rocks, grounds or in trees.

Feeds on small animals, mostly scavenger, but also a hunter. Gestation period 3 months 2 to 4 young born at a time. Life span 24 years.

Family FELIDAE

Four genera of the family Felidae occur in the state.

Key to the genera of family FELIDAE

1. Large sized; hyoidean apparatus modified by the conversion of medium part of suspense into a long elevated tendon..... ***Panthera***

– Small to medium-sized; hyoidean apparatus of normal mammalian type. Suspensor consisting of a chain of bones joined end to end 2

2. No prominent spots or stripes on the body. Reddish grey upper parts. Long black tufts on ear ..... ***Caracal***

– Prominent spots or strips on the body. No black tufts on ears 3

3. Body has spots or rosettes on the flanks and of longitudinal stripes on the head and back; Ears low, rounded at apex..... ***Prionailurus***

– Body has traverse stripes on the sides or spots which at least behind the forelimb turn to stripes; ears high, triangular at apex***Felis***

Genus ***Felis*** Linnaeus, 1758

51. ***Felis chaus kutas*** Pearson
Jungle cat

1832. *Felis kutas* Pearson *J. Asiat. Soc Beng.*, 1 : 75 (Medinipur, West Bengal, India).

Observation : This species is sighted in the state, but not commonly seen now a days, than it was before.

Diagnosis : Dorsal pelage unspotted, but occasionally speckled buff gray or rusty; black horizontal stripes present on the inner side of fore legs; underside reddish buff.

Distribution : India : Madhya Pradesh (Betul, Balaghat, Chhindwara, Hoshangabad, Mandla, Shivpuri, Umaria), Bihar; Chhattisgarh; Orissa; Rajasthan; West Bengal.

Remarks : Diurnal as well as nocturnal. Lives in burrows in the ground. Feeds on small mammals, birds, reptiles and poultry. Gestation period 65 to 70 days. 1 to 6 young born at a time Life span 14 years.

Genus ***Prionailurus*** Severtzov, 1858

Three speices of *Prionailurus* occur in M.P.

Key to the species of the genus *Prionailurus*

1. Tail more than half of the head and body length over twice the length of hind foot... 2

– Tail comparatively short, less than half of the head and body length and less than twice the length of hind foot ..... *P. viverrinus*

2. Tail unspotted; back of ears brown with a large pale spot in the centre; upper molar series 3 on each side ..... *P. rubiginosus*

– Tail spotted above; back of ears black with a pale or whitish spot in the centre; upper molar series 4 in each side ..... *P. bengalensis*

52. ***Prionailurus*** **vivverinus** (Bennet)
Fishing Cat

1883. *Felis viverrinus* Bennett, *Proc. zool. Soc. London*, : 68 (India probably Malabar coast).

Observation : Not very common in the state.

Diagnosis : A medium sized cat. Head and body length 60-70cm. Body with black or brown spots throughout, spot longer than broad; ears with round spot in the center and back of ears black; forehead and throat have several cross bands; six to eight lines run from the forehead to the nape, breaking up into shorter lines and spots on the shoulders.

Distribution : India : Madhya Pradesh (Betul, Chhindwara, Hoshangabad,) Assam, Andhra Pradesh, Karnataka, Kerala, Maharashtra, Orissa, Tamil Nadu; Uttar Pradesh and West Bengal.

Elsewhere : Bangladesh; Indonesia; Nepal; Pakistan; Sri Lanka; Taiwan and Vietnam.

Remarks : Diurnal as well as nocturnal. Found singly or sometimes in groups of upto 4. Lives in holes in the ground. Catches fish with its fore paws. Feeds on small mammals, birds fishes, molluscs, carrion, and livestock and sometimes on insect. Gestation period 60 to 70 days. 1 to 4 young born at a time. Life span 10 to 15 years.

53. ***Prionailurus bengalensis bengalensis*** (Kerr) **Leopard Cat**

1793. *Felis bengalensis* Kerr. *Anim. Kingd.*, : 151 (Southern Bengal)

Observation : Seen in various districts of the state.

Diagnosis : Dorsal pelage pale fulvous, varying from ochraccous to grayish, ornamented throughout with numerous elongated black or rusty spots; under surface white spotted; two narrow balck stripes over the head from inner corner of eyes; transverse stripes on forelegs.

Distribution : India; Madhya Pradesh (Balaghat, Chhindwara, Hoshangabad, Mandla) Andhra Pradesh; Assam; Chhattisgarh; Maharastra; Manipur; Orissa; Karnataka; Kerala, Tamil Nadu; Tripura; West Bengal.

Elsewhere : Bangladesh; Myanmar; Thailand, China; Vietnam; Indonesia and Philippines.

Remarks : Nocturnal and rarely seen. Found singly or in pairs. Live in holes in trees. or small caves. Feeds on small birds and poultry. Gestation period 60 to 70 days.1 to 4 young born at a time. Life span 10 to 15 years.

54. ***Prionailurus rubiginosa*** (Geoffroy) **Rusty Spotted Cat**

1831. *Felis rubiginosa* Geoffroy *Belangeer Voy. Ind. Orient. Zool.*, **3** : 140 Pondicherry India.

Observation : This cat is sporadically reported from the state.

Diagnosis : Yellowish grey dorsally with sparse dark spots, which extend to the tail. White ventrally. Distal half portion of the tail is ringed black. Head and body 50 to 65 cm. Tail 25 to 30 cm.

Distribution : India : Madhya Pradesh (Balaghat, Hoshangabad) Andhra Pradesh, Arunachal Pradesh; Assam; Chhattisgarh; Maharashtra; Manipur; Meghalaya; Nagaland, Orissa; Karnataka; Kerala; Tamil Nadu; Tripura; West Bengal.

Elsewhere : Bangladesh, Burma, Thailand and Unan.

Remarks : Found singly, in pairs or in small groups.Easily climbs trees. Mostly hunt on ground. Gestation 58 to 70 days 2 to 6 young born at a time.

Genus ***Caracal*** Gray, 1843

55. ***Caracal caracal*** (Schreber) **Caracal**

1776. *Felis caracal*, Schreber *Die Säugethiere* **3**(16) : pl. 110 (1776); 3(24) : 413, 587 (1777).

Observation : Rarely found in the state.

Diagnosis : Long legs; short tail (230-320 mm). Uniformly reddish sandy gray above fading to buff or white below; a dark spot present on each side of upper lip and two short vertical bars above eyes; Ears triangular, pointed, with a long erect tuft of black hairs at tip.

Distribution : India : Madhya Pradesh (Panna), Gujarat, Rajasthan. Uttar Pradesh.

Elsewhere : Pakistan; Afghanistan; Iraq; Iran and Palestine.

Genus ***Panthera*** Oken, 1816

Key to species of the genus *Panthera*

- Size larger, including tail usually over 260 cm. Pattern consisting of vertical of vertical black stripes; tail relatively thick. .... *P. tigris tigris*
- Size smaller, including tail usually less than 215 cm. Pattern consisting of black spots irregularly arranged in rosettes; tail relatively slim ..... *P. pardus fusca*

56. *Panthera pardus fusca* (Meyer) Leopard

1793. *Felis fusca* Meyer, *Zool. Ann.*, 1 : 394 (Bengal).

Observation : This species is occurs throughout the state, but its population is now in vulnerable state

Diagnosis : Total length 170 to 215 cm., height at shoulder 60 cm. Ground colour variable-pale yellow, warm gray, rich tawny to rufous fawn, with dark spots arranged in rosettes all over the sides of the body.

Distribution : India : Madhya Pradesh (Balaghat , Chhindwara, Damoh, Hoshangabad, Mandla, Mandsaur, Narsinghpur, Neemuch, Raisen, Sagar Sarguja, Seoni, Sehore Shahdol, Shivpuri, Sidhi, Rajgarh, Umaria), throughout India in suitable habitats.

Elsewhere : Pakistan; Bangladesh; Myanmar, China and Sri Lanka.

Remarks : Diurnal as well as nocturnal. Shy animal Good tree climber Occasionally carrying its prey to a safe height for protection from scavengers Terrestrial hunt by pouncing. Found singly, in pairs or in family groups. Feeds on small mammals like deer or monkeys, livestock, carrion birds and reptiles. Gestation period 95 days 2 to 4 young born at time. Life span 15 years.

57. *Panthera tigris tigris* (Linnaeus) Tiger

1758. *Felis tigris* Linnaeus, *Syst. Nat., 10th ed.*, 1 : 41 (Bengal).

Observation : This species is found practically throughout the state in well forested areas.

Diagnosis : Size large; total length including tail 260 cm. Color pattern of skin consisting black stripes. Tail relatively thick no black spot on the tip of the tail.

Distribution : India : M.P. (Balaghat, Chhindwara, Damoh, Hoshangabad, Mandla, Narsinghpur, Raisen, Sagar, Sehore, Seoni, Shahdol, Shivpuri, Sidhi, Umaria). Found almost throughout India in suitable habitats where three essentials of its well being *viz.*, plenty of game, water and shelter from sun are available.

Elsewhere : Nepal, Bangladesh, and Myanmar.

Remarks : Mostly nocturnal. Usually found singly but at times in pairs or in small family groups of 2 to 5 animal. Hunt by stalking and ambush. Communicate through vocalisation and scent. Roars, growls and moans. Lives in thickets. Feeds on various mammals, reptiles and amphibians, peafowl and livestock. Gestation period 102 to 112 days. 2 to 6 young born at a time. Life span 15 to 25 years.

Order ARTIODACTYLA

Even toed animals. Axis of the foot passes between third and fourth toes. Toes enclosed in horny hooves of roughly equal size and giving the appearance of a single hoof, split down in the middle.

Order Artiodactyla is represented in the state by three families.

Key to families of ARTIODACTYLA

1. Upper incisors present. Devoid of horns or antlers ..... SUIDAE
– Upper incisor absent, horns or antlers present at least in males 2
2. Horns unbranched, permanent and consists of a hollow outer sheath and an inner bony core ..... BOVIDAE
– Antlers solid, branched, ornamented with knots and ridges, and periodically shed ..... CERVIDAE

Family SUIDAE

Represented by one genus in the state.

Genus *Sus* Linnaeus, 1758

Only one species occurs in the state.

58. *Sus scrofa cristatus* (Wagner)
Indian Wild Boar

1839. *Sus cristatus* Wagner, *Munch. Gelehrt. Anz.*, **9** : 435 (probably Malabar Coast, India).

Observation : Commonly found in the state.

Diagnosis : Head and body length range from 115 cm to 160 cm in adult males. Females smaller. Deep body with short thick neck and slender legs. Head with sloping muzzle terminating in a special flattened disk. Ears large; eyes small. Body dark gray to pinkish brown. Covered with coarse black and brown bristles, which form a crest over neck. Canine in adult males developed into tusk.

Distribution : India : M.P. (Balaghat, Bhopal, Chhindwara, Damoh, Hoshangabad, Mandla, Mandsaur, Narsinghpur, Neemuch, Shahdol, Rajgarh, Raisen, Sehore, Seoni, Shivpuri, Sidhi, Sagar, Umaria). Forested or semi-forested tracts of whole of India.

Elsewhere : Bangladesh, Indonesia, Myanmar, Malaysia, Nepal, Pakistan., Sri Lanka, and Vietnam.

Remarks : Diurnal as well as nocturnal. Found in groups of up to 30 or more. Adult male lives singly except during matting period. Fond of walloping in mud. Live in shelter in a thicket or tall grassses. Feeds on grasses, roots carrion, snakes, insects and cultivated crops. Gestation period 4 months 4 to 12 young born at a time. Life span 15 to 20 years.

Family CERVIDAE

Three genera occur in the state.

Key to the genera of family CERVIDAE

1 Antlers short, consisting of a short brow tine and an unbranched beam; no phalanges to lateral digits; tusk like canine in males ..... ***Muntiacus***

– Antlers long and branched bony phalanges to lateral digit; upper canine when present not tusk like 2

2. Body distinctly spotted in adult animals; browtine sets almost at a right angle to the beam of antler ..... ***Axis***

– Body unspotted; brow tine forms an acute angle with the beam of antler ..... ***Cervus***

Genus *Muntiacus* Rafinesque, 1815

The genus is represented in India by one species only.

59. *Muntiacus muntjak* (Zimmermann)
Indian *Muntjac*, Barking Deer

1780. *Cervus muntjak* Zimmermann, *Geogr. Gesch.*, **2** : 131 (Java.)

Observation : This species is commonly found in the state.

Diagnosis : Head and body length varies from 80cm to 100cm., height at shoulder from 41 cm. to 60 cm. Heavy-bodied with short dainty legs. Body fur soft, short and glossy; dorsum reddish chestnut; becoming darker at the back and paler below.

Distribution : India : Madhya Pradesh (Balaghat, Bhopal, Chhindwara,. Hoshanga- bad, Mandla, Raisen, Sarguja, Sehore, Seoni, Shahdol, Shivpuri, Sidhi, Umaria), Throughout India in thickly wooded hilly tracts up to about 1800 meter.

Elsewhere : Bangladesh Bhutan, China, Indonesia, Malaysia, Nepal, Pakistan, Sri Lanka and Thailand.

Remarks : Diurnal. Found singly or in groups of 3 to 4. Distinctive dark like bark hence called barking deer. also makes rattling noise while fleeing.Feeds on leaves grasses and fruits. Gestation period 6 months. 1 to 2 young born in litter.

Genus *Axis* H. Smith, 1827

One species of the genus is found in the state.

60. *Axis axis axis* (Erxleben)
Chital, Axis Deer, Spotted Deer (E.)

1777. *Cervus axis* Erxleben, *Syst. Regn. Anim.*, **1** : 312 (Bank of Ganges, India).

Observations : Commonly found in the state.

Diagnoisis : Head and body length varies from 137 cm. To 152 cm., height at shoulder from 91 cm.to 97 cm in males; females slightly smaller, Colour rufous fawn with white spots throughout; a dark dorsal stripe from nape to end of tail, bordered by one or two rows of spots. Horns usually with three tines, brow tine forming almost a right angle to the beam.

Distribution : India : M.P. (Balaghat, Bhopal, Chhindwara, Damoh, Hoshangabad, Mandla, Narsinghpur, Raisen, Rajgarh, Sagar, Shahdol, Sarguja, Sehore, Seoni, Shivpuri, Sidhi, Umaria). Peninsular India, northwards to Kumaon in The state and Sikkim, east wards to Assam and Meghalaya.

Elsewhere : Nepal; Bangladesh and Sri Lanka.

Remarks : Diurnal as well as nocturnal. Gregarious found in-groups of 20 to 30 animals Habitual of entering cultivation near villages. All male herd may be seen. In forests generally found associated with langurs that drop tidbits from treetops Feeds on grasses, leaves, flowers and fruits. Gestation period 7 months. One young born at a time.

Genus *Cervus* Linnaeus, 1758

One species of the genus *Cervus* occurs in the state.

61. *Cervus unicolor niger* Blainville
Sambar (E.)

1792. *Cervus unicolor* Kerr, *Anim. Kingd.*, 300

1816. *Cervus niger* Blainville, *Bull. Soc. Philom Paris*, pp. (Probably somewhere in India. Ellerman and Morison-Scot 1951).

Observation : This species commonly found in various districts of the state.

Diagnosis : Largest Indian deer; head and body length 183 cm to 213 cm. height at shoulder 122 cm. To 150 cm in males, females a little smaller. Coat coarse and shaggy. Stag with a mane around neck and throat. General colour brown with yellowish or grayish tinge, females lighter in tone. Antlers normally with three tines. Brown tine joins the beam at an acute angle.

Distribution : India : Madhya Pradesh (Balaghat, Bhopal, Betul, Chhindwara, Damoh, Hoshangabad, Mandla, Morena, Narsinghpur, Raisen, Rajgarh, Sagar, Sarguja, Shivpuri, Shahdol, Sehore, Seoni, Shivpuri, Sidhi, Umaria), Andhra Pradesh; Bihar; Chhattisgarh; Goa, Himachal Pradesh; Karnataka; Kerala, Maharashtra; Orissa; Rajasthan; Tamil Nadu; Uttar Pradesh; West Bengal.

Elsewhere : Nepal and Bangladesh.

Remarks : Diurnal and nocturnal. Found in groups of 2 to 20 animals. Fond of water and used to bath and feed in lakes, river and marshes. Feeds on grasses, leaves and fruits. Gestation period 8 months. 1-2 young born at a time.

62. *Cervus duvacelii branderi* (Pocock)
Swamp deer, Barasingha

1843. *Rucervus duvacelii branderi* Pocock, *J. Bombay N. H. Soc.*, **43** : 558.

Diagnosis : Colour light or dark brown, yellowish brown or grey. Shoulder height 115-135cm Stag having tuff and fine antlers, each with 12 or more points hence the local name Barasingha.

Distribution : India : Madhya Pradesh. Kanha National Park

Remarks : Mainly nocturnal, but also active in morning and evening. Gregarious, with herds of upto 40 or more animals. All male herds may be seen. Feeds on grasses, leaves, fruits and flowers. Gestation period 6 months one young born at a time

Family BOVIDAE

Family Bovidae is represented by six genera in the state.

Key to the identification of the genera of family BOVIDAE occurring in the state

1. Horns smooth or closely, irregularly and transversely wrinkled 2

- Horns with prominent rings at subequal intervals 5

2. Horns inserted far apart, at the extremities of vertex 3

- Horns closely set 4

3. Horns triangular in cross section and transversely ridged, exceeding 92 cm in length ..... ***Bubalus***

- Horns oval in cross-section and smooth, less than 92 cm in length ..... ***Bos***

4. Large-sized, height at shoulder about 120 cm, tail over 45 cm, males with two short horns ..... ***Boselaphus***

- Small sized, height at shoulder about 65 cm, tail about 13 cm, males with four small horns ..... ***Tetracerus***

5. Males with horns much longer than head, females without horns ..... ***Antilope***

- Horns scarcely longer than head, females sometimes with horns ..... ***Gazella***

Genus ***Bos*** Linnaeus, 1758

63. ***Bos frontalis*** (Smith)
Gaur

1827. *Bos gaurus gaurus* Smith, *Griffith's Animal Kingd.*, 4 : 399.

Observation : This species is sighted in the state. Found in good numbers in Kanha and Pench N. Parks and Bori WLS.

Diagnosis : Heavy body with relatively short limbs. A prominent muscular ridge from shoulder to the middle of back. An ashy forehead and white feet. Standing height in male 175-196 cm. at the shoulder, the female slightly smaller. The horns of bull are almost a half circle with a slight posterior bend at the tip and measure 68-76 cm. along the curve. The horns of cow are narrower. The old bull is black and almost hairless, but the cow is dark or reddish brown and possesses short hairs.

Distribution : India : M.P. (Balaghat, Chhindwara, Hoshangabad, Mandla, Raisen, Shahdol, Seoni, Shivpuri, Sidhi, Umaria). Found in the peninsular India and foothills of the Himalayas up to Assam.

Remarks : Mostly found in bush and thin forest near water source as it is more dependent on water. Usually seen alone or in pairs during monsoon. One or two fawns born in winter. Feeds mainly on grass, wild fruit and leaves.

Genus ***Tetracerus*** Leach, 1825

It is a monotypic genus.

64. ***Tetracerus quadricornis*** (Blainville)
Four horned Antelope

1816. *Cerophorus (Cervicapra) quadricornis* Blainville, *Bull. Soc. Philom Paris*, : 75 (Plains of Peninsular India).

Observation : Found in various districts of state. Its population has considerably depleted over the years and is now rarely seen in its common habitats.

Diagnosis : Two pairs of horns posterior pair 80-100, anterior pair 20-30 in length. Female hornless. Fur thin, short and harsh. Colour varies from brown to rufous brown above and white below, a dark stripe down the front of each leg.

Distribution : India : M.P. (Balaghat, Bhopal, Chhindwara, Damoh, Hoshangabad, Mandla, Narsinghpur, Raisen, Sagar, Sarguja, Shahdol, Seoni, Shivpuri, Sidhi, Umaria).Found in Peninsular India except Malabar coast north to Rajasthan and northeast to Bihar and Orissa.

Elsewhere : Nepal.

Remarks : Mostly nocturnal. Found in the groups up to 6, sometimes seen singly. Feeds on leaves, grasses and fruits. Gestation period 8 months. 1-2 young born at a time.

Genus ***Boselaphus*** Pallas, 1766

It is a Monotypic genus.

65. ***Boselaphus tragocamelus*** (Pallas)
Nilgai. Blue Bull (E.)

1766. *Antilope tragocamelus* Pallas, *Misc. Zool.*, : 5 (Plains of Peninsular India).

Observation : This species is commonly found in many districts of the state.

Diagnosis : Horse-like in appearance with stout legs, long and narrow head, a coarse mane of black gray and white hairs running down the hind neck and white hairs running down the hindneck and over the wither. Males blue gray in colour with small. smooth and cylindrical horns, females reddish tan.

Distribution : India : Madhya Pradesh, (Balaghat, Chhindwara, Damoh, Hoshangabad, Mandla, Mandsaur, Narsinghpur, Neemuch, Raisen, Rajgarh, Sagar, Sarguja, Shahdol, Seoni, Shivpuri, Sidhi, Umaria).From base of Himalayas to Karnataka, including Maharashtra.

Elsewhere : All across Pakistan border.

Remarks : Diurnal as well as nocturnal. Mostly seen in herds of 8 to 10. Adult males found solitary or may be in all male herds. Grunts when alarmed. Ordinarily defecates at the same place. Feed on grass, leaves, fruits, crops and flowers. Gestation period 8 to 9 months. 1 young born at a time.

66. ***Bubalus bubalis*** (Linn)
Wild Buffalo, Jungli Bhaisa

1758. *Bos bubalis* Linnaeus, *Syst. Nat.*, 10th ed. **1** : 72 (Rome. Italy).

Observation : Found in Panna district in Madhya Pradesh. It is now a greatly endangered species.

Diagnosis : A sturdy animal, in males, height at shoulders 150-280 cm. Females little shorter. Horns triangular in cross section and traversely ridged. Slaty black in colour with dirty white feet.

Distribution : India : Madhya Pradesh (Panna), Assam, Chhattisgarh, Maharashtra, Orissa, West Bengal.

Elsewhere : Bangladesh, Cambodia, Indo-China, Nepal and Thailand.

Genus ***Gazella*** Blainville, 1816

Represented in the state by one species.

67. ***Gazella bennettii*** (Sykes)
Indian Gazelle (E.), Chinkara (H.)

1831. *Antilope bennettii* Sykes, *Proc. Zool. Soc. Lond.*, **1830-31** : 104 (Deccan, India).

Observation : This species is found in many districts of the state.

Diagnosis : Slender bodied, medium sized, height at shoulder about 66 cm. Short tail. Horns present in both sexes but in females much smaller, number of rings in horns, 15-16 but may go up to 25 (Blanford 1888-91). Tuft of long hairs on each knee. Above light chestnut, underside white, tail nearly black, knee tuft usually dark brown, a whitish streak down each side of face.

Distribution : India : Madhya Pradesh (Balaghat, Chhindwara, Damoh, Hoshangabad, Mandsaur, Narsinghpur, Neemuch, Raisen, Sagar, Sarguja, Seoni, Shivpuri, Sidhi) Andhra Pradesh, Chhattisgarh, Gujarat, Karnataka, Punjab, Tamil Nadu, Thar Desert (Rajasthan), Uttar Pradesh.

Elsewhere : E. Iran to Pakistan.

Remarks : Diurnal and nocturnal. Found in groups of 2 to 30 or more. Shy animal. Can survive without water for long time. Feed on grasses, leaves, fruits, crops etc. Gestation period 5 months. 1 to 2 young born at a time.

Genus ***Antilope*** Pallas. 1766

Antilope is a monotypic genus.

68. ***Antilope cervicapra*** (Linnaeus)
Black buck, Indian Antelope, Harna (Male), Harni (female)

1758. *Capra cervicapra* Linnaeus, *Syst, Nat.*, 10th ed., **1** : 69 (Inland of Trivandrum, Kerala, India).

Observations : This species is commonly found in the state.

Diagnosis : Medium–sized, 70-80 cm at shoulder and 120-130 cm in head and body length. Horns long. Slender, twisted spirally and bearing rounded transverse ridges. With some bare exceptions (Chauhan, 1985), females hornless. Males black dorsally, white on throat and venter, females reddish fawn dorsally.

Distribution : India : M.P. (Balaghat, Hoshangabad, Mandla, Neemuch, Mandsaur Raisen, Shahdol, Seoni, Sagar, Narsinghpur, Damoh, Chhindwara, Umaria Shivpuri) from Rajasthan and Punjab in the north to Assam in the east and south to Kanyakumari (Tamil Nadu).

Elsewhere : Pakistan; Introduced Nepal and Texas (U.S.A.)

Remarks : Mostly diurnal. Found in groups of 5 to 10 or more. Elegant fighter, during rut dominate male may control up to 50 females and challenges others. After the rut males live separate from females. Feeds on grass leaves, fruits and crops. Gestation period 6 months. 1-2 young born at a time. Life span 12 years.

Family TRAGULIDAE

Genus ***Moschiola*** Hodgson, 1843

69. ***Moschiola maminna*** (Erxleben)

Indian spotted Chevrotain, Mouse deer, Pisora

1777. *Moschus meeminna* Erxleben. *Syst. Regn. Anim.*, 1 : 322.

Observation : This species is sighted in the state, but rarely seen now a days.

Diagnosis : Dear like but smaller in size. Shoulder height 25-30 cm. Upper parts olive brown, sparkled with yellow, longitudinal rows of buff or white spots on the flank merge to form stripes. Under parts white. Limbs with four well developed toes. Tusks in both sexes, large in males.

Distribution : India : Madhya Pradesh (Balaghat, Chhindwara, Hoshangabad, Mandla, Shivpuri, Umaria), Chhattisgarh to Tamil Nadu.

Elsewhere : Nepal, Sri Lanka.

Remarks : Nocturnal. Found singly or in pairs. Live in a tree hollow. Can climb gently sloping trees. Feeds on grasses, leaves and fruits. Gestation period 150 days. 1 to 2 young born at time.

Order LAGOMORPHA

Two pairs of upper incisors placed one behind the other. Cheek-teeth adopted for grinding and separated by a wide diastema from incisors. Three pairs of upper and two pairs of lower premolars. Tail very short. Tufted or totally absent.

Represented in the state by a single family Leporidae.

Family LEPORIDAE

Hind limbs very long, soles including digital pads completely covered with hairs. Ears very long and narrow. A short tail present.

Only one genus and three subspecies ef. *nigricollis* occur in the state.

1. Nape rufous. General body colour dull or darker but not dark black, tail rufous brown ..... *L. n. ruficaudatus*

– Nape smoke grey, grey or grey with buffy tint.....2

2 Nape smoke grey, Body colour lighter than mahadeva and ruficaudatus. Tail above blue black with grey patch on the rump .... *L. n. simcoxi*

– Nape grey or grey buffy tint. Body colour more brighter than ruficaudatous. Face , head body black.Tail above dingy rufouos with absence of grey patch on the rump..... ..... *L. n. mahadeva*

Genus ***Lepus*** Linnaeus, 1758

70. ***Lepus nigricollis mahadeva*** Wroughton and Ryley

Blacknaped Hare

1913. *Lepus mahadeva* Wroughton & Ryley, *J. Bombay nat. Hist. Soc.*, **22** : 15.

Observation : This species occurs on the higher parts of Mahadeo and Maikal ranges of Madhya Pradesh.

Diagnosis : Dorsal fur short, harsh. Dorsum pale sandy brown, nape of neck warm buff, lower limbs ochraceous, chest and throat creamy yellow, lower belly and inguinal region whiter. No trace of collar of black hairs in the lower neck.

Material : 1 ex. Hoshangabad, 12.07.1961, coll. CRS, ZSI, Jabalpur.

Distribution : India : Madhya Pradesh (Balaghat, Hoshangabad, Shahdol)

Remarks : Mostly nocturnal. Shy animal. Found singly or in groups up to 4. Feeds on grassses, leaves, flowers, fruits and crops. 1 to 4 or more young born at a time

71. *Lepus nigricollis ruficaudatus* (Geoffroy) **Rufous tailed Hare, Khargosh**

1826. *Lepus ruficaudatus* Geoffroy, Dict. *Class. Hist. Nat.*, **9** : 381 (Bengal).

Observation : This species occurs in the northern slopes of Mahadeo and Maikal ranges and northern plains of Madhya Pradesh

Diagnosis : Head and body 40–50 cm in length, grey patch on nap. Their coat is rufous brown much mixed with black on back and face, breast and limbs rufous, chin, upper throat and lower parts white. Upper surface of tail rufous brown.

Distribution : India : Madhya Pradesh (Mandla, Jabalpur, Gwalior, Sagar); Orissa; Rajasthan; Sikkim; Uttaranchal; West Bengal

Elsewhere : Nepal.

Remarks : Similar to *L. n. mahadeva* in habits. It is said to have one to two young at a birth. Its particular breeding season is not recorded.

72. *Lepus nigricollis simcoxi* Wroughton **Blacknaped Hare**

1912. *Lepus simcoxi* Wroughton *J. Bombay nat. Hist. Soc.*, **21** : 338.

Observation : This species is sighted in southern slopes of Mahadeo and Maikal ranges and adjacent plains of Madhya Pradesh

Diagnosis : It measures about 40-50 cm. in head and body length. It has a greyish-white coat with a blackish patch on the nape. The underparts are whitish. The tail is short and greyish.

Distribution : India : Madhya Pradesh Chhindwara Seoni, Balaghat except in high altitudes), Maharashtra.

Genus *Caprolagus* Blyth, 1845

73. *Caprolagus hispidus* (Pearson) **Hispid Hare**

1839. *Lepus hispidus* Pearson. In M'Clelland *Proc. zool. Soc. London*, **1838** : 152.

Observation : This species is reported the state.

Diagnosis : Colour dorsally dark brown mixed with black coarse hair and ventrally brownish white. Head and body 40-50 cm. tail 2.5- 3 cm all brown. Ears short, 5-7 cm.

Distribution : India : Madhya Pradesh (Kanha National park, Ghose & Bhattacharya 1995), Assam, Bihar, Uttar Pradesh, West Bengal.

Remarks : It is slow moving hare, more rabbit like than hare. Mostly found in grass land in Sal forest. Found signally or in pairs. Feds on leaves, grasses shoots, barks and fruits. It breeds twice or thrice in a year and litter size is 2-5

Order RODENTIA

A pair of chisel-shaped continuously growing incisors in each jaw, distinct diastema between cheekteeth aincisors

Key to families of RODENTIA

1. Fur modified into quills of stiff hairs, cheek teeth 4/4 in number ..... HYSTRICIDAE
– Fur not modified into quills. Cheek teeth except in the genus *Ratufa* never 4/4 in number 2
2. Infraorbital foramen not or scarcely opens for muscular transmission, cheek teeth except in genus *Ratufa* 5/4 in number, skull with postorbital process. ..... SCIURIDAE
– Infraorbital foramen clearly opens for muscle transmission, cheekteeth 3/3 in number, skull without postorbital process ..... MURIDAE

Family **SCIURIDAE**

Three genera of the family Sciuridae occur in the state.

Key to the genera of family SCIURIDAE

1. Flying membrane presently on both sides of the body ..... ***Petaurista***
- Flying membrane absent 2
2. Large-sized, head and body length over 280, dorsum without any stripe, maxillary teeth four in number ..... ***Ratufa***
- Small-sized head and body length never exceeding 200, dorsal surface of the body striped, maxillary teeth five in number .... ***Funambulus***

Genus ***Petaurista*** Link, 1795

Only one species of the genus occurs in The state.

74. ***Petaurista petaurista philippensis*** (Elliot)
Large Brown Flying squirrel

1839. *Pteromys philippensis* Elliot, *Madras J. Litt. and sci.*, **10** : 217 (South Maharatta Country, Maharashtra.)

Observations : Sighted in the state

Diagnosis : Head and body 45 cm. Tail 60 cm.Dorsum grizzled brown and gray, parachute and forelimb usually brown, underpart whitish to pale gray, tail usually black.

Distribution : India : Madhya Pradesh (Balaghat, Hoshangabad, Mandla, Umaria); Andhra Pradesh; Bihar; Gujarat; Karnataka; Kerala; Maharashtra; Orissa; Tamil Nadu.

Remarks : Nocturnal. Roost is a hole in tree. Shy animal. Glides from tree to tree with the help of its extended parachute like membrane between limbs. Feeds on fruits, nuts bark, resins insects and larvae.

Genus ***Funambulus*** Lesson, 1835

Two species of *Funambulus* were reported from The state

Key to species of genus *Funambulus*

- 3 buff stripes on dorsal surface of body..... ..... *F. palmarum*
- 5 buff stripes on dorsal surface of body.... ..... *F. pennanti*

75. ***Funambulus palmarum*** (Linnaeus)
Indian Palm Squirrel, Gilehri

1766. *Sciurus palmarum* Linnaeus *Syst. Nat. 12th ed.*, **1** : 86 (Madras = Chennai, Tamil Nadu, India).

Observations : This species is very common in the state.

Diagnosis : Similar to *F. pennanti* except the dorsum divided by three conspicuous cream coloured stripes instead of five.

Material : 12.02.1941. Pachmarhi, Hoshangabad district, 2 exs. coll. M.L. Roonwal. Pachmarhi, Hoshangabad district, 10.03.1974, 2 exs. coll. R.K. Ghose.

Distribution : India: Madhya Pradesh (throughout the state), Andhra Pradesh, Bihar, Chhattisgarh; Karnataka, Kerala, Orissa, Tamil Nadu, West Bengal.

Elsewhere : Sri Lanka.

Remarks : Diurnal. Arboreal and terrestrial. It is the commonest and most familiar wild animal. It is not a forest animal. Mostly seen in-groups of 2–7 near human settlement. Lives in a hole in tree or wall or under roofs of houses. Feeds on shoots, flowers, fruits, barks, bird's eggs and insects. Gestation period 6 weeks. 2-3 young born at a time.

76. ***Funambulus pennanti*** Wroughton
Northern Palm Squirrel, Five-striped Palm Squirrel

1905. *Funambulus pennanti* Wroughtom *J.Bombay nat. Hist. Soc.*, **16** : 411 (Mandvi Taluka. Surat, Gujarat, India).

Observation : Common in forested areas.

Diagnosis : Small-sized, ear rounded. Muzzle pointed. Dorsum olive gray, divided by five conspicuous cream coloured stripes, belly and flanks creamy gray and separated from the dorsum by indistinct creamy buff longitudinal stripe. Bushy tail. creamy or whitish at tip.

Distribution : India : Madhya Pradesh – All districts, Andman Island, Assam, Bihar, Chhattisgarh, Delhi, Haryana, Jammu and Kashmir, Maharashtra, Meghalaya, Orissa, Punjab, Rajasthan, Sikkim, West Bengal.

Elsewhere : Iran. Pakistan, Nepal and Bangladesh.

Remarks : Five striped palm squirrels on the other hand is a forest animal.It gives out a peculiar shrill bird-like call which it repeat again and again, accompanying its music with quick jerks of its tail. Other habits similar to *F. palmarum.*

Genus ***Ratufa*** Gray, 1867

One species of the genus Ratufa occurs in the state.

77. *Ratufa indica centralis* Ryley
Indian Giant Squirrel

1913. *Ratufa indica centralis* Ryley *J. Bombay nat. Hist. Soc.*, **22**(3) : 427 (Bori, Hoshangabad, Central Provinces).

Observation : Sighted in good numbers in the state

Diagnosis : Head and body 35 to 40 cm. Tail 60 cm. upperparts black with red head and flanks, underparts whitish.

Material : Hoshangabad 14.09.1912 1 ex., coll. C.A. Crump.

Distribution : India : Madhya Pradesh (Hoshangabad), Chhattisgarh, Maharashtra.

Remarks : Diurnal. Arboreal moving between trees with ease. Forms several globular nests of leaves and twigs on treetops. Mainly creeper; agile and shy animal. It makes loud rattles and scolds when alarmed. Feeds on fruits, flowers and barksGestation period 28 days 1-2 young born at a time.

Family HYSTRICIDAE

Represented in the state by one genus and one species.

Genus ***Hystrix*** Linnaeus, 1755

78. *Hystrix indica* Kerr
Indian Crested Porcupine

1792. *Hystrix cristata var. indica* Kerr. *Anim. Kingd.*, 213 (India.)

Observation : Population of this species seems to be moderate in the state.

Diagnosis : Body coverd with well developed spines, distinct crust of long black quills on crown and neck, quills of tail whitish. Short and hollow.

Distribution : India : almost throughout India, except north eastern states.

Elsewhere : Syria, Iraq S. Arabia, Iran, Russian Turkestan, Pakistan, Sri Lanka and China.

Remarks : Mainly nocturnal. Found singly or in groups of upto 4. Lives in burrows in ground having more than one opening. Burrows several metres long ending in a spacious chamber. Does not shoot quills as often locally believed but may fatally wound tiger or leopard with its long sharp quills while rushing at its foe at speed in reverse. Feeds on crops, fruits, roots and bones. Gestation period 24 days 2-4 young born in a litter.

Family MURIDAE

Largest family of class Mammalia and represented by two sub families in the state.

Key to the subfamilies of MURIDAE

– Skull and general appearance almost without extreme specialization, cusps of maxillary teeth arranged in three longitudinal rows, upper incisor except in Golunda not grooved ..... MURINAE

– Skull and general appearance specialized for scansorial life, cusps of maxillary teeth arranged in two longitudinal rows, upper incisor always grooved in front .... GERBILLINAE

Subfamily GERBILLINAE

Only following genus of this subfamily is found in Madhya Pradesh.

Genus ***Tatera*** Lataste, 1882

Represented by a single species in the state. Large sized, head and body length exceeds 120 mm. Tail dark above and below and paler on sides; less than one and half times of head and body.

79. *Tatera indica indica* (Hardwicke)
Indian Gerbil, Antelope Rat

1807. *Dipus indicus* Hardwicke, *Trans. Linn. Soc. Lond.*, **8** : 279 (Between Benaras and Hardwar, India).

Observation : Commonly found species in the state.

Diagnosis : Size of a common house rat, tail longer than head and body. Tail well-furred and distal one –third bears a dorsal crest of longer, blackish hairs terminating in a tuft, dorsal and ventral surface of tail dark brown, sides paler. Dorsum pale biscuits to reddish, venter pure white. Upper incisors longitudinally grooved.

Material : Hoshangabad, Pachmarhi, (2?), 12.03.1974. coll. R.K. Ghose.

Distribution : India : Throughout the Madhya Pradesh, Andhra Pradesh, Bihar, Delhi, Haryana, Pradesh; Jammu and Kashmir; Maharashtra, Orissa; Punjab; Rajasthan; West Bengal.

Elsewhere : Afghanistan; Iran; Iraq; Nepal; Pakistan; Sri Lanka and Syria.

Remarks : Commonly found gerbil and appears to be most adapted ecologically. It lives in burrows in sandy, rocky or rugged habitat. Nocturnal and fossorial. Feeds on leaves, seeds grains, flowers, insects, molluscs etc. Breeds throughout the year in Rajasthan and August to March in southern parts. Litter size 1-9.

Subfamily MURINAE

Key to the genera of the subfamily MURINAE

1. Hallux clawless. Fifth finger and fifth toe lack a claw; inter-orbital width of skull less than 4 mm. ..... ***Vandeleuria***
– Hallux clawed 2
2. Anterior border of zygomatic plate not concave; upper incisors grooved on front surface; molar heavily cuspidate .. ***Golunda***
– Upper incisors not grooved; molars not heavily cuspidate 3
3. Upper incisor prodont; condylobasal length exceeds occipitonasal length ..... ***Bandicota***
– Upper incisor ophisthodont or orthodont; occipitonasal length of skull exceeds condylobasal length. 4
4. First upper molar more than one half of tooth row; its antero-internal (t1) cusp distorted to rach the level of second lamina; third upper molar extremely reduced ..... ***Mus***
– First upper molar less than half the length of tooth row; its antero-internal (t1) cusp not distorted; third upper molar not reduced 5
5. Anterior formina long, more than one fifth of occipitonasal length and extending between maxillary tooth rows 6
– Palate long exceeding half the length of occipitonasal ; tail equal or shorter than head and body length ..... ***Millardia***

Genus ***Millardia*** Thomas, 1911

Taxonomic status of the genus *Millardi*a was discussed by Agrawal (1970). Small-sized, head and body usually less than 115.Tail being shorter than head and body. Females with three pairs of mammary glands, Plantar pads four.

80. *Millardia meltada* Gray
Metad, Northern soft furred Field Rat

1837. *Millardia meltada* Gray, *Mag. N. H.*, **1** : 586 Dharwar India.

Observation : This species is common in the state.

Diagnosis : Rat-like, with large, rounded ear and short bicoloured tail. Hind foot without posterior pad of sole. Fifth toe noticeably short, being roughly equal to hallux. Dorsum pale grayish fawn, venter grayish white.

Distribution : India : Throughout India except northeast Himachal Pradesh, Punjab.

Elsewhere : Pakistan and Nepal.

Remarks : It is common field rat, mostly occurs in irrigated crop field and grassland forming burrows. Feeds on jowar, maize, ground nut, cotton seeds till, moong, and occasionally insects Litter size 4-10. Breeds through out the year with peak from March to September.

Rattus Fischer, 1803

Two species of the genus *Rattus* occurs in the state.

81. *Rattus rattus rufescens* (Gray)
House Rat

1837. *Mus rufescens* Gray *Ann. Mag. N.H.*, **I** : 585. Dharwar, India.

Diagnosis : Dorsal rufous brown colour and under parts of body dull or dark with rusty tinge on the belly, hindfoot white. Maxillary tooth row rarely reaches 6.6 mm. in length. Tail mostly slightly larger than head and body.

Distribution : Found throughout India.

Remarks : A common commensal form found in shops, residential complexes and godowns.

82. *Rattus rattus narbadae* Hinton
House Rat, Black Rat

1918. *Rattus rattus narbadae* Hinton, *Bombay nat. Hist. Soc.*, **26** : 77 (Sakot, Hoshangabad, Madhya Pradesh, India).

Observation : This species is sighted in the state.

Diagnosis : White-bellied, tail much longer than head and body Upper molar tooth row less than 6 or less than 16 percent of occipitonasal length.

Material : Jatashankar (2exs.).

Distribution : India : Madhya Pradesh.

Remarks : A commonly found species, lives in houses, thatched huts, cultivated fields, forests etc. Nocturnal and primarily arboreal species. Feeds on various crops, stored grains, and insects. A serious pest of crops. Breeds throughout the year. Litter size 1 to 10.

83. *Rattus norvegicus* (Berkenhout)
Brown Rat

1769. Mus *norvegicus* Berkenhout, *Outlines N.H.Gr. Britain and Ireland.*, **1** : 5 (N.V.) (Great Britain)

Diagnosis : A large rat, dorsally brown coloured and venter grey Tail shorter than head and body and obscurely bicoloured. Ears relatively shorter Fur coarse and spiny.

Distribution : India : distributed throughout due to accidental transportation by human agency.

Elsewhere : Worldwide.

Remarks : Nocturnal Lives in burrows in godowns and nearby areas. Feeds mainly on stored grains. Prolific breeder and breeds throughout the year. Gestation period 22-25 days Litter size 4-12 or more.

Genus *Vandeleuria* Gray, 1942

It is a monotypic genus.

84. *Vandeleuria oleracea* (Bennett)
Indian Long-tailed Tree. Mouse, Palm Mouse

1832. *Mus oleraceous* Bennett, *Proc. Zool. Soc.*, **121** (Deccan, India.)

1914. *Vandeleuria oleracea spadicea* Ryley, *J. Bombay nat. Hist. Soc.*, **22** : 659 (Lu.Wa. Palanpur, Banaskantha district, Uttar Pradesh).

Observation : This species is sighted in the state

Diagnosis : Small-sized, head and body usually less than 100 mm. Tail white and much longer than head and body. Outer finger short, stumpy and clawless. Dorsum pale tawny brown to reddish, underside white to dirty white.

Distribution : India : Madhya Pradesh (Balaghat, Chhindwara, Hoshangabad, Nimar, Malwa, Sehore, Seoni) Uttar Pradesh; Bihar; Karnataka; Maharashtra.

Genus ***Golunda*** Gray, 1837

It is a monotypic genus.

85. *Golunda ellioti* Gray
Indian Bush Rat

1937. *Golunda ellioti* Gray, *Mag. Nat. Hist., (Charlesworth's)* **1** : 586.

Observation : This species is sighted in the state.

Diagnosis : Apparently similar to house rat, but much smaller and tail almost always shorter than head and body and covered with short hairs. Ear almost circular in outline and pinna well covered on both sides with short buff hairs. Tail dorsally dark brown, ventrally yellowish gray. Upper incisors prominently grooved.

Material : Hoshangabad, (1 ex), 13.01.1912 coll. C.A. Crump.

Distribution : India : Madhya Pradesh (Balaghat, Hoshangabad, Gwalior, Jabalpur Sagar), Andhra Pradesh, Assam, Bihar, Karnataka, Jammu & Kashmir, Himachal Pradesh, Maharashtra, Rajasthan, Uttar Pradesh,.

Remarks : Diurnal, Found in forests orchards and bushes near cultivation. Feeds on seeds, fruits, berries, shoots and vegetables. Breeds throughout the year and 4 to 11 young born at a time.

Genus ***Mus*** Linnaeus, 1758

Key to the species of the genus *Mus*

1. Tail unicoloured, longer than head and body; diastema in skull equal to or less than one fourth of occipitonasal length ..... *M. musculus*

– Tail beclouded darker above and paler below, equal to or shorter than head and body length diastema in skull generally more than one fourth of occipito-nasal length 2

2. Fur generally spiny. Skull well developed .. 3

– Fur soft. Supraorbital ridges either absent or scarcely developed ..... *Mus booduga*

3. Smaller in size. Maxillary tooth rows less than 4 mm in length ..... *M. philipsi*

– Large in size. Maxillary tooth rows more than 4 mm in length 4

4. An anterior accessory cusp present on first lamina of first upper molar ..... *M. saxicola*

– No anterior accessory cusp present on first lamina of first upper molar .. *M. platythrix*

86. *Mus booduga booduga* (Gray)
Common Indian Filed Mouse

1837. *Leggada booduga* Gray, *Charlesworth's Mag. Nat, Hist.*, **1** : 586 (South Maharatta, Maharashtra, India).

Observation : This species is commonly found.

Diagnosis : Very small, head and body length on average 60, tail usually subequal to head and body, Dorsum brown to light brown, venter perfectly white, and tail bicoloured.

Distribution : India : Madhya Pradesh, throughout the state, all over rest of India.

Elsewhere : Pakistan and Bangladesh.

Remarks : Commonly found field mouse during harvesting season.

87. *Mus platythrix* Bennett
Brown Spiny Mouse

1832. *Mus platythrix* Benett, *Proc. zool. Soc. London*, : 121.

1961. *Mus platythrix*: Ellerman, *Fauna of India, Mammalia, Rodentia*, **3**(2) : 771.

Observation : This species is sighted in the state but not common.

Material examined : Jabalpur, Madan Mahal, 22.vi.1961 (1 ex.), Coll. P. Singh; Jabalpur, Madan Mahal, 8.viii.1961 (1 ex.), Coll. P. Singh; Jabalpur, Madan Mahal, 12.ix.1961 (1 ex.), Coll. P. Singh.

Diagnosis : Dorsally rather dark brown, but varying and sometimes paler brown. Medium-sized or large mice. Tail short in all races averaging below 90% of the head and body. Hand with four clawed fingers. Foot with five clawed toes. Mammae 10 or 12.

Distribution : India, Madhya Pradesh (Jabalpur), Andhra Pradesh, Karnataka, Maharashtra, West Bengal, Rajasthan.

88. *Mus philipsi* Wroughton
Wroughton's small spiny Mouse

1912. *Mus philipsi* Wroughton. *J. Bombay nat. Hist. soc.*, **21** : 772 (Asirgarh, Nimar, Madhya Pradesh, India).

1913. *Leggadda surkha* Wroughton & Ryley, *J. Bombay nat. Hist. soc.*, **22** : 17 (Vijaynagar, Bellary, Karnataka, India).

Observation : This is very rarely found species of the state.

Diagnosis : A small sized mouse. Body brown to buff coloured dorsally and white ventrally. Tail bicoloured dark above and pale below and smaller than head and body Hind foot white Mammae 5 in pairs.

Distribution : Madhya Pradesh (Nimar), Andhra Pradesh, Karnataka, Rajasthan, Tamil Nadu.

Elsewhere : Nepal.

89. *Mus musculus castaneus* Waterhouse
House mouse

1843 *Mus castaneus* Waterhouse, *Ann. Mag. Nat. Hist.* [1], **12** : 134 (Philippines).

Observation : This species is sighted in the state. Commonly found in houses, shops etc.

Diagnosis : Small sized mouse with head and body 52-116mm in length and tail little longer than head and body. Dorsal surface sandy brown to dark brown and venter ochraceous brown, tail faintly bicoloured, dark dorsally and white ventrally. Mammae five in pairs.

Material examined : Jabalpur, Napier Town, 18.x.1960 (1 ex.), Coll. P. Singh; Jabalpur, Napier Town, 18.i.1961 (1 ex.), Coll. P. Singh; Jabalpur, Napier Town, 30.i.1961 (1 ex.), Coll. P. Singh.

Distribution : Throughout India.

Elsewhere : Africa, Sri Lanka, China, and SE Asia.

Remarks : Nocturnal. Found in houses, godowns, shops garden and fields. Feeds mostly on vegetable matters, occasionally eats insects. Breeds throughout the year. Litter size 1-15 (average 5).

90. *Mus saxicola sadhu* (Wroughton)
Elliots Spiny mouse

1911. *Leggada platythrix sadhu* Wroughton *J. Bombay nat. Hist. Soc.*, **20** : 1001 (Virawah, Sine, Pakistan).

1912. *Leggada cinderella* Wroughton *J.Bombay nat. Hist. Soc.*, **21** : 770 (Bhuj, Kutch, Gujarat, India).

Observation : This species is reported from the state.

Diagnosis : A medium sized mouse having colour of body pale sandy to dark grayish brown dorsally, white to dirty white ventrally. Tail bicolour dark above and pale below, short less than 90% of head and body. Hind foot white. Mammae 4+2 =12, sometimes 10 (3+2).

Distribution : India : Madhya Pradesh (Gwalior, Malwa), Gujarat, Rajasthan.

Elsewhere : Pakistan.

Genus *Bandicota* Gray, 1873

Two species are found in the state.

Key to the species of the genus *Bandicota*

– Bullae relatively small, normally less than one-fifth of the occipitonasal length, nasal more than 33% and palate less than 605 of occipitonasal length ..... *B. indica indica*

– Bullae relatively large, usually more than one-fifth of occipitonasal length, nasal less than 33% and palate normally more than 60% of occipitonasal length .... *B. bengalensis bengalensis*

91. *Bandicota bengalensis bengalensis* (Gray & Hardwicke)
Indian Mole Rat, Lesser Bandicoot Rat

1835. *Arvicola bengalensis* Gray & Hardwicke, *Illustr. Ind. Zool.*, **2** : 21 (Bengal).

Observations : This species is commonly found in the state.

Diagnosis : Rat-like, but snout relatively less pointed. Fur coarse, with long black tipped piles throughout the back. Tail distinctly shorter than head and body. Venter gray to dark gray, ear and tail naked and blackish gray. Mammae 12-20, not always in pairs.

Distribution : India : Madhya Pradesh (Asirgarh, Gwalior, Jabalpur, Nimar); Assam; Bihar; Orissa; Sikkim; West Bengal.

Elsewhere : Bhutan; Bangladesh; Myanmar and Nepal.

Remarks : Most commonly found rat of India. Found in fields, houses and godowns causing considerable damage to grains. Prolific breeder, breeds through out the year. Litter size normally 5 to 12 but may go upto 15.

92. ***Bandicota indica indica*** (Beehstein)
Large Bandicoot Rat

1801. *Mus indicus* Bechstein *Uber Vierf thire*, **2** : 297 (Pondicherry, India).

Observation : The species found in the state.

Diagnosis: Similar to the previous species, but larger and tail almost sub equal to the head and body length. Fur coarse, with long black-tipped piles; dorsum blackish brown with little pale yellowish or whitish grizzling; venter grayish brown. Mammae 12.

Distribution : India : Madhya Pradesh, Andhra Pradesh; Bihar; Maharashtra; Orissa; Rajasthan; Tamil Nadu.

Elsewhere : Sir Lanka.

Genus ***Cremomys*** Wroughton, 1912

93. ***Cremnomys blanfordi***
Bandford's Rat (E.)

1881. *Cremnomys (Rattus) blanford;* Thomas. *Ann. Mag. nat. Hist.*, (5)7 : 24 (Kadapa, Tamil Nadu, India)

Observation : This species is reported from some districts of the state.

Diagnosis : Medium sized rat. Tail bicoloured, dark proximally, white at the end, hairy and may be slightly tuffed at the end. Body grayish to reddish brown dorsally and whtie ventrally. Hindfoot white. Fifth toe long. Mammae 3 pairs.

Distribution : India : Madhya Pradesh (Jabalpur, Mandla and Hoshangabad), Bihar Goa, Karnataka, Kerala, Maharashtra, Orissa, Tamil Nadu and West Bengal.

Remarks : Nocturnal. Found in all types of habitats *viz.* dry deciduous forests, scrub jungles, between rocks and boulders, and in caves. Feeds on plant matter and insects. Breeds from June to October. 2-3 young born at a time.

Order CETACEA

Family PLATANISDAE

Genus ***Platanista*** Wagler, 1830

94. ***Platanista gangetica*** (Roxburgh)
Gangetic Dolphin, Suis

1801. *Delphinus gengetica* Roxburgh, *Asiat. Res. trans. Soc.*, **7** : 171 (Hugli River near Calcutta, West Bengal, India).

Observation : This species is sighted in the state.

Diagnosis : Colour of body blackish throughout. Total length 150-245 cm. or more. Females are larger than males. Spindle shaped body with a prolonged beak. Rudimentary dorsal fin, triangular pectoral flippers.

Distribution : India : Madhya Pradesh (Bhind, Morena, Sheopur), Rajasthan, Uttar Pradesh, West Bengal.

Remarks : Surfaces within every 30-45 minutes for breathing. Seasonal migration in some rivers. Food is found by echolocation which includes catfishes, crustaceans and other animals living on the bottom of the river. Gestation period 9-10 months. 1-2 young born at a time.

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MAMMAL - CHHATTISGARH

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INTRODUCTION

Work on Mammals of central India was started long back in late nineteenth century. William Thomas Blanford published the first edition of Fauna of British India – Mammalia in two parts in 1888 and 1891. His work is mainly restricted to southern and central India. Later on Bombay Natural History Society conducted the Mammal Survey of India during 1912 to 1929. Wroughton reported 46 species from Central Province on the basis of these surveys. Pocock (1939, 1941) published Fauna of British India in two parts. Brander (1923) published a book entitled wild Animals of Central India, which included a list of 45 species of mammals from the region. Some more books on Indian mammals for example Mammals of India by Jerdon (1867), Check List of Palaearctic and India mammals by Ellerman and Morrison Scott, (1951), Fauna of British India –Rodentia by Ellerman (1961), The Book of Indian Animals by Prater (1971) also provides information on mammals of Central India. Ghose (1995) published a paper on mammals of Indrawati Tiger Reserve (Bastar district) and listed 38 species of mammals. Harshey and Chandra (2001) provided a list of mammals of Madhya Pradesh and Chhattisgarh on basis of available literature.

The present account is provided on the basis of available literature, observation and collection of mammals during two faunistic surveys to Chhattisgarh. The mammal fauna of Chhattisgarh comprises of 76 species/subspecies of 51 genera, 21 families and 9 orders.

SYSTEMATIC LIST

Order SCANDENTIA

Family TUPAIIDAE

Genus ***Anathana***

1. *Anathana ellioti ellioti* (Waterhouse) — Madras Tree Shrew

Order INSECTIVORA

Family SORICIDAE

Genus ***Suncus***

2. *Suncus murinus murinus* (Linnaeus) — House shrew (E.), Chuchundar (H.)
3. *Suncus murinus caerulescens* (Shaw) — House shrew (E.), Chuchundar (H.)
4. *Suncus stoliczkanus stoliczkanus* (Anderson) — Anderson's Shrew

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Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

Genus ***Rousettus***

5. *Rousettus leschenaulti* (Desmarest) Fulvous Fruit Bat

Genus ***Pteropus***

6. *Pteropus giganteus* (Brünnich) Indian Flying Fox (E.)

Genus ***Cynopterus***

7. *Cynopterus sphinx sphinx* (Vahl.) Short nosed Fruit Bat (E.)

Suborder MICROCHIROPTERA

Family EMBELLONURIDAE

Genus ***Rhinopoma***

8. *Rhinopoma microphyllum kinneari* (Wroughton) Greater Mouse-Tailed Bat
9. *Rhinopoma hardwickei hardwickei* Gray Lesser Mouse-Tailed Bat

Genus ***Taphozous***

10. *Taphozous longimanus longimanus* Hardwick Long Winged Tomb Bat
11. *Taphozous melanopogan melanopogan* Temminck Black-bearded Tomb Bat
12. *Taphozous nudiventris kachhensis* Dobson Naked-rumped Tomb Bat

Family MEGADERMATIDAE

Genus ***Megaderma***

13. *Megaderma lyra* Geoffroy Indian False Vampire (E.)

Family RHINOLOPHIDAE

Genus ***Rhinolophus***

14. *Rhinolophus rouxii* Temminck Peninsular Horseshoe Bat (E.)
15. *Rhinolophus lepidus* Blyth Blyth's Horseshoe Bat (E.)

Genus ***Hipposideros***

16. *Hipposideros lankadiva lankadiva* Kelaart Kelaart's Leaf-nosed Bat
17. *Hipposideros armiger armiger* (Hodgson) Great Himalayan Leaf-nosed Bat (E.)
18. *Hipposideros fulvus* Gray Fulvus Leaf-nosed Bat (E.)

Family MOLOSSIDAE

Genus ***Chaerephon***

19. *Chaerephon plicata* (Buchanan) Wrinkled lipped Bat (E.)

Family VESPERTILIONIDAE

Genus ***Pipistrellus***

20. *Pipistrellus coromandra coromandra* Gray Indian Pipistrelle (E.)
21. *Pipistrellus minus minus* Wroughton Indian Pygmy Pipistrelle (E.)
22. *Pipistrellus ceylonicus indicus* Dobson Kelaart's Pipistrelle (E.)

23. ***Pipistrellus babu Thomas*** Babu's Pipistrelle (E.)
24. ***Pipistrellus dormeri*** Dobson Dormer's Bat (E.)

Genus ***Hesperoptenus***

25. ***Hesperoptenus tickelli*** (Blyth) Tickell's Bat

Genus ***Scotophilus***

26. ***Scotophilus kuhlii kuhlii*** Leach Lesser Yellow Bat (E.)
27. ***Scotophilus heathi*** Horsfield Greater Yellow Bat (E.)

Order PRIMATES

Family CERCOPITHECIDAE

Genus ***Macaca***

28. ***Macaca mulatta*** (Zimmermann) Rhesus Macaque (E.)

Genus ***Semnopithecus***

29. ***Semnopithecus entellus*** (Dufresne) Entellus Monkey (E.), Langur (H.)

Order PHOLIDOTA

Family MANIDAE

Genus ***Manis***

30. ***Manis crassicaudata*** Gray Indian Pangolin (E.)

Order CARNIVORA

Family CANIDAE

Genus ***Canis***

31. ***Canis lupus pallipus*** Sykes. Wolf (E.)
32. ***Canis aureus indicus*** Linnaeus Asiatic Jackal (E.)

Genus ***Vulpes***

33. ***Vulpes vulpes*** Linnaeus Common Red Fox (E.), Lomri (H.)
34. ***Vulpes bengalensis*** (Shaw) The Indian Fox (E.)

Genus ***Cuon***

35. ***Cuon alpinus*** (Pallas) Wild Dog (E.)

Family URSIDAE

Genus ***Melursus***

36. ***Melursus ursinus*** (Shaw) Sloth Bear

Family MUSTELIDAE

Genus ***Lutrogale***

37. ***Lutrogale perspicillata*** (Geoffroy) Smooth Coated Otter

Genus ***Mellivora***

38. ***Mellivora capensis indica*** (Kerr) Ratel, Honey Badger (E.)

Family VIVERRIDAE

Genus ***Viverra***

39. ***Viverra zibetha*** Linnaeus Larger Indian Civet (E.)

Genus ***Viverricula***

40. ***Viverricula indica*** (Desmarest) Small Indian Civet

Genus ***Paradoxurus***

41. *Paradoxurus hermaphroditus* (Pallas) Common Palm Civet, Toddy Cat (E.)

Family HERPESTIDAE

Genus ***Herpestes***

42. *Herpestes edwardsii nyula* Hodgson Indian Gray Mongoose (E.)

Family HYAENIDAE

Genus ***Hyaena***

43. *Hyaena hyaena hyaena* (Linnaeus) Striped Hyaena (E.)

Family FELIDAE

Genus ***Felis***

44. *Felis chaus* Güldenstacdt Jungle Cat (E.)

Genus ***Prionailurus***

45. *Prionailurus bengalensis* Kerr Leopard Cat (E.)

Genus ***Panthera***

46. *Panthera pardus* (Linnaeus) Leopard, Panther (E.)
47. *Panthera tigris* (Linnaeus) Tiger (E.)

Order ARTIODACTYLA

Family SUIDAE

Genus ***Sus***

48. *Sus scrofa cristatus* Wagner Wild Boar (E.)

Family CERVIDAE

Genus ***Muntiacus***

49. *Muntiacus muntjak* (Zimmermann) Barking Deer (E.)

Genus ***Axis***

50. *Axis axis* (Erxleben) Spotted Dear (E.)

Genus ***Rucervus***

51. *Rucervus unicolor* Kerr Sambar
52. *Rucervus duvaucelii* (Cuvier) Swamp Deer

Family BOVIDAE

Genus ***Bos frontalis***

53. *Bos frontalis gaurus* Smith Indian Bison (E.) Gaur (H.)

Genus ***Tetracerus***

54. *Tetracerus quadricornis* (Blainville) Four Horned Antelope (E.), Chosingha (H.)

Genus ***Boselaphus***

55. *Boselaphus tragocamelus* (Pallas) Blue Bull (E.), Nil Gai (H.)

Genus ***Bubalus***

56. *Bubalus bubalis* (Linnaeus) Indian Buffalo

Genus ***Antilope***

57. *Antilope cervicapra* (Linnaeus) Black Buck, Indian Antelope (E.)

Family TRAGULIDAE

Genus ***Moschiola***

58. ***Moschiola meminna*** (Erxleben) Mouse Deer (E)

Order LAGOMORPHA

Family LEPORIDAE

Genus ***Lepus***

59. ***Lepus nigricollis*** F. Cuvier Indian Hare, Black napped Hare (E.)

Order RODENTIA

Family SCIURIDAE

Genus ***Petaurista***

60. ***Petaurista philippensis*** (Elliot) Common Giant Flying Squirrel (E.)

Genus ***Funambulus***

61. ***Funambulus palmarum*** (Linnaeus) Indian Palm Squirrel (E.), Gilehri (H.)

62. ***Funambulus pennanti*** Wroughton Northern Palm Squirrel (E.)

Genus ***Ratufa***

63. ***Ratufa indica*** (Erxleben)

Family HYSTRICIDAE

Genus ***Hystrix***

64. ***Hystrix indica*** Kerr Indian Crested Porcupine (E.)

Family MURIDAE

Genus ***Vandeleuria***

65. ***Vandeleuria oleracea*** (Bennett) Palm Mouse (E.)

Genus ***Cremnomys***

66. ***Cremnomys blanfordi*** (Thomas) Blanford's Rat (E.)

Genus ***Rattus***

67. ***Rattus rattus arboreus*** (Horsfield) House Rat (E.)

68. ***Rattus norvegicus*** (Berkenhout) Brown Rat, Common Rat, Norway Rat (E.)

69. ***Rattus nitidus*** (Hodgson) Himalayan Rat (E.)

Genus ***Mus***

70. ***Mus musculus casteneus*** (Hodgson) House Mouse (E.)

71. ***Mus booduga*** Gray Common Indian Field Mouse (E.)

72. ***Mus platythrix*** Bennett Indian Brown Spiny Mouse (E.)

73. ***Mus saxicola*** Elliot Elliot's Spiny Rat (E.)

Genus ***Goluda***

74. ***Goluda ellioti*** Gray Indian Bush Rat (E.)

Genus ***Bandicota***

75. ***Bandicota benglensis bengalensis*** Gray Indian Mole Rat (E.)

76. ***Bandicota indica indica*** (Berkenhout) Large Bandicoot Rat (E.)

Following abbreviations are used : E. = English; H. = Hindi; CR = Critical; DD = Data Deficient; EN Endangered; IK: Insufficiently Known; VU = Vulnerable; R = Rare; LRnt = Lower Risk near threatened; LRlc = Lower Risk Least concern; NE : Not Evaluated.

SYSTEMATIC ACCOUNT

Order SCANDENTIA

Family TUPAIIDAE

Only one genus occurs in Chhattisgarh.

Genus ***Anathana*** Lyon, 1913

The genus *Anathana* is represented by a single species in Chhattisgarh

1. ***Anathana ellioti ellioti*** (Waterhouse) **Madras Tree Shrew**

1850. *Tupaia ellioti* Waterhouse. *Proc. zool. Soc. London.* 1849 : 107 (Hills between Cuddapah and Nellore, Andhra Pradesh).

Diagnosis : Upper part reddish brown and feet buff.

Distribution : India : Chhattisgarh, (Raipur, Mahasamund), Andhra Pradesh, Madhya Pradesh and Tamil Nadu.

Remarks : Generally good population is found in dry deciduous forests. Though reported to occur in different part of the state, no specimen could be collected during this survey.

Order INSECTIVORA

Small sized, long, pointed snout extending far beyond the lower jaw, limbs as a rule short, five-toed and their gait almost plantigrade. Orbits open posteriorly, true molars studded with sharp pointed cusps. Nocturnal and mainly insectivorous.

Order Insectivora is represented in the state by one family Soricidae

Family SORICIDAE

Only one genus of this family is represented from the state. In this, family zygomatic arches are absent and bulla is imperfect.

Genus ***Suncus*** Ehrenberg, 1833

Three species of the genus *Suncus* occur in the state. Upper jaw of this genus contains 18 teeth.

2. ***Suncus murinus murinus*** (Linnaeus) **House Shrew, Chuchundar**

1766. *Sorex murinus* Linnaeus, *Syst. Nat.*, **12** Ed. 1 : 74 (Java).

Diagnosis : Fur thick and long, over 8 mm in length. Moderately large sized. Dorsum brown with rusty wash, ventral surface slightly lighter.

Distribution : India : Chhattisgarh (throughout the state), Andhra Pradesh, Madhya Pradesh, Meghalaya, Orissa, Pondichery, Tamil Nadu

Elsewhere : China, Malaysia, Myanmar, Nepal, Sri Lanka.

Remarks : This large shrew commonly seen in the houses at dusk or at night. Harmless, useful animals, which controls the population of insects like cockroaches and noxious pests. It is very intolerant of rats and help in keeping them away.

Status : CAMP : LRlc

3. ***Suncus murinus caerulescens*** (Shaw)

1800. *Sorex stoliczkanus carulescens* Shaw, *Gen. Zool. Mamm.*, **1** : 533. India (? Bengal)

Diagnosis : Largest of the Indian Shrews. Fur short, less than 5 mm. Tail thick on the base and thinly clad with hairs.

Distribution : India : Chhattisgarh (throughout the state), Madhya Pradesh, Maharashtra and Tamil Nadu.

Elsewhere : Bangladesh, Nepal and Pakistan.

Status : CAMP : LRlc

4. ***Suncus stoliczkanus stoliczkanus*** (Anderson) **Anderson's Shrew**

1877. *Crocidura (Pacyura) stoliczkanus* Anderson. *J. Asiat. Soc. Bengal.*, **46** : 270 (Bombay : Maharashtra).

Diagnosis: Dorsal surface dull brown to reddish brown and ventral surface glossy grey.

Distribution : India : Chhattisgarh, Madhya Pradesh, Maharashtra, Tamil Nadu.

Elsewhere : Bangladesh, Nepal and Pakistan.

Remarks: Though reported from Chhattisgarh yet no specimen could be seen during the survey.

Status : CAMP: LRlc (Nationally), DD (Globally)

Order CHIROPTERA

The second largest and the most distinctive order of mammals, having membranous wings for true flight. Fingers enormously developed to support wings. Nocturnal.

Two clearly defined suborders, viz, Megachiroptera and Microchiroptera are recognized and both are represented in the state.

Suborder MEGACHIROPTERA

Second finger usually bearing a claw, margin of ears forming a complete ring. Angular process of mandible broad and low or almost absent, bony palate continues behind the last molar, molar teeth marked with longitudinal furrow.

Represented by only one family Pteropodidae.

Family PTEROPODIDAE

The family is represented by three genera in the state

Genus *Rousettus* Gray, 1821

The genus *Rousettus* is represented by one species in the state.

5. *Rousettus leschenaulti leschenaulti* (Desmarest)
Fulvous Fruit Bat

1820. *Pteropus leschenaulti* Desmarest, *Encycl. Meth. Mamm.*, **1** : 110 (Pondichery, India).

Diagnosis : A medium sized bat, head and body on average 131 mm, with large head and elongated dog-like muzzle, tail vestigial, length-averaging 14 mm. Body fur short, dorsally with rufescent tone and ventrally pale brown, a collar of radiating hairs with paler bases present on the lower neck and shoulder region. Second phalanges of third digit less than 40 mm.

Distribution : India : Chhattisgarh (Ambikapur, Bilaspur, Koriya, Korba And Raipur). Widely distributed throughout the Indian mainland.

Elsewhere : Bhutan, Hong Kong, Laos, Myanmar, Nepal, Pakistan, Southern China, Sri Lanka, Tibet, Thailand, possibly Cambodia and Vietnam.

Remarks : Roosts in caves and man made structures such as wells tunnels and old ruins in colonies of 10 to 2000. A roots of eight individuals was seen in a deserted house at Durg.

Status : CAMP : LRlc (Nationally), DD (Globally).

Genus *Pteropus* Brisson, 1962

The genus *Pteropus* is represented by one species/subspecies in the state.

6. *Pteropus giganteus giganteus* (Brünnich)
Indian Flying Fox, kadul, Badur, Pata debli

1782. *Verpertilio gigantea* Brünnich. *Dyrenes Historie*, **1** : 45 (West Bengal. India).

Diagnosis : Largest bat of the Indian subcontinent, head and body length averaging 265 mm. Brightly coloured, rufous brown around the head and neck, orange or honey coloured band across the upper back, head long with dog like-muzzle, nostrils neither raised nor divided by any internal groove. No tail.

Distribution : India : Chhattisgarh (through out the state). Widely distributed in India including Andaman Island.

Elsewhere : Pakistan, Sri Lanka, Nepal, Bangladesh and Myanmar.

Remarks : The largest of Indian bats, roosts during the day in large noisy colonies on trees, leaving within half an hour after sunset. Feeds only on juice of fruits, very destructive of orchards.

Status : CAMP : LRnt., CITES : Appendix II

Genus *Cynopterus* F. Cuvier

The genus *Cynopterus* is represented by a single species and subspecies in the state

7. *Cynopterus sphinx sphinx* (Vahl)
Short nosed fruit Bat (E.), Chota Badur (H.)

1797. *Vespertilio sphinx* Vahl, *Nat. Selsk. Copenhagen*, **4**(1) : 123 (Tranquebar, Tanjavar, Tamil Nadu).

Diagnosis : Medium sized fruit eating bat, head and body length on average 110 mm. Nostril at the tip of slightly bifurcated fleshy projections, upper lip deeply grooved down the centre. Dorsum gray or grayish brown, venter paler. Margin of ears white. Toe vestigial, rod like.

Distribution : India : Chhattisgarh (Bilaspur, Korba, Mahasamund, Raipur). Widely distributed throughout the mainland except the extreme drier zone.

Elsewhere : Pakistan, Sri Lanka, Nepal, Bangladesh and Myanmar.

Remarks : A common species of Chhattisgarh, lives solitary or in small groups among aerial roosts of banyan, palm leaves, tree hollows etc. and not easily seen. Though it is useful as a cross pollinator but at the same time very much destructive to orchards.

Status : CAMP : LRlc (Nationally), DD (Globally).

Suborder MICROCHIROPTERA

Second finger without a claw, margin of ears not forming a complete ring. Angular process of mandible long and narrow. Crown of molar teeth with transverse furrow. Bony palate not extending behind the last molars.

All the six families of Microchiroptera occurring in India could be located in the state.

Family RHINOPOMATIDE

Only one genus occur in Chhattisgarh.

Genus ***Rhinopoma*** Geoffroy, 1818

The genus *Rhinopoma* is represented by two species in the state.

8. *Rhinopoma microphyllum kinneari* (Wroughton)
Larger Rat tailed Bat, Greater Mouse-tailed Bat

1912. *Rhinopoma kinnneari* Wroughton, *J. Bombay nat. Hist. Soc.*, **21** : 767 (Bhuj, Cutch = Bhuj, Kachch distrct, Gujarat).

Diagnosis : A medium sized bat with length of forearm 64.5-75.0 mm, mouse like tail emerging from the edge of narrow uropatagium and usually shorter than forearm, tragus simple, muzzle with thick narial pad.

Distribution : India : Chhattisgarh, Bihar, Delhi, Gujarat, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh,

Remarks : Reported from the state but could not be found during the present survey.

Status : CAMP : LRnt (Nationally), DD (Globally).

9. *Rhinopoma hardwickei hardwickei* Gray
Lesser Rat-tailed Bat, Lesser Mouse-tailed Bat

1831. *Rhinopoma hardwickii* Gray, *Zool. Misc.*, **37**. (India).

Diagnosis : A small sized bat, similar to *Rhinopoma microphyllum kin*neari but smaller in size, length of forearm 53.3-62.7 mm, tail usually longer than forearm.

Distribution : India : Chhattisgarh (Korba), Delhi, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Orissa, Tamil- Nadu, Uttar Pradesh & West Bengal.

Remarks : Roosts in natural or artificial caves, ruined temples, and old abandoned buildings but never in human dwellings (Brosset 62). It feeds on small and soft insects. It is a great nuisance in places of archaeological importance and difficult to eradicate.

Status : CAMP : LRnt (Nationally), DD (Globally).

Family EMBELLONURIDAE

Family Embellonuridae consists of only one genus

Genus ***Taphozous*** E. Geoffroy, 1818

The genus *Taphozous* is represented by three species/subspecies in Chhattisgarh.

10. *Taphozous longimanus longimanus* Hardwicke
Long Winged Tomb Bat, Long Armed Sheath-Tailed Bat

1825. *Taphozous longimanus* Hardwicke, *Trans. Linnaeus Soc. Lond.*, **14** : 525 (Calcutta district, West Bengal, India).

Diagnosis : Medium sized bat having broad tragus. Dark brown in colour but adult male lighter brown. Lower lip scarcely grooved. Ear with smooth inner margin. In male gular sac moderately developed but in female it is represented by a rudimentary fold of skin. Radio-metacarpal pouch moderately developed.

Distribution : India : Chhattisgarh (Korba, Mahasamund), Gujarat, Madhya Pradesh, Rajasthan, Tripura, West Bengal.

Elsewhere : Bangladesh, Cambodia, Myanmar, Nepal, Thailand and Sri Lanka.

Remarks : The population seems to be thin in Chhattisgarh. A solitary specimen was seen hanging from a ceiling of a ruined house.

Status : CAMP : LRlc (Nationally), DD (Globally).

11. *Taphozous melanopogan melanopogan* Temminck
Black-bearded Tomb bat

1841. *Taphozous melanopogon* Temminck, *Mon. Mamm.*, **2** : 287 (Bantam, Western Java, Indonesia).

Diagnosis : Medium-sized, forearm 63-68.5. No gular sac, radio-metacarpal pouch large, Most of the males have black beard. Tail somewhat laterally compressed towards the tip.

Distribution : India : Chhattisgarh (Bastar, Bilaspur, Koriya), Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, West Bengal.

Elsewhere : Sri Lanka, Myanmar, Malaysia, Laos, Vietnam, Southern China, Java, Timor, Savu Isl., Kei Isl., and perhaps Lombok.

Remarks : Original habitat rock clefts but now largely ruins and old temples. Colonies have varying number of 150 to 4000. This bat does not hang by hind limbs but cling to the walls and ceiling by all four limbs and could move in all directions with ease, when disturbed. Four specimens were seen clinging to the ceiling of a deserted temple at Raipur.

Status : CAMP : LRnt (Nationally), DD (Globally).

12. *Taphozous nudiventris kachhensis* Dobson
Naked-rumped Tomb Bat

1872. *Taphozous kachhensis* Dobson, *J. Asiat. Soc. Beng.*, **1** : 221 (Kachh= Kachchh, Gujarat, India).

Diagnosis : Large, wingspan 300-423mm. Body fur not extending over wings or interfemoral membrane. Radio-metacarpal pouch well developed. Inner surface of ear papillate and posterior margin of tragus with a lobe or slight projection. Parietal and occipital crest forming a distinct helmet at their junction.

Distribution : India : Chhattisgarh (Raigarh, Raipur, Koria), Bihar, Delhi, Jammu and Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan Uttar Pradesh.

Elsewhere : Afghanistan and Pakistan.

Remarks : One example was caught in the net at Raipur, however it escaped while taking it out of the net.

Family MEGADERMATIDAE

Genus ***Megaderma*** Geoffory,1810

13. *Megaderma lyra lyra* Geoffroy
Indian false Vampire

1810. *Megaderma lyra* Geoffroy, *Ann, Mus. Hist. nat. Paris*, **15** : 190 (India, possibly Madras, Tamil Nadu, India).

Diagnosis : Medium sized bat having forearm more than 60 mm. Dorsally slaty grey and ventrally paler to dirty white. Ear, tragus and nose leaf very large, tragus bifid. Tail is not externally visible. Nose leaf posteriorly truncated.

Distribution : India : Chhattisgarh (Bilaspur, Bastar, Koria), Throughout Indian main land.

Elsewhere : Afghanistan, Pakistan, Sri Lanka and Bangladesh.

Remarks : Fairly common in village areas. Size of colony may vary widely from 2 to 2000 individuals (Brosset 1962b).

Status : CAMP : LRlc (Nationally), DD (Globally).

Family RHINOLOPHIDAE

Two genera of the family Rhinolophidae are found in the state.

Genus ***Rhinolophus*** Lacepède, 1818

The genus is represented by two species from the state.

14. ***Rhinolophus rouxii*** Temminck
Peninsular Horse shoe Bat

1835. *Rhinolophus rouxii* Temminck, *Monogr. Mammal*, **2** : 30b (Pondichery and Calcutta, India).

Diagnosis : Colour varies from brown to orange yellow, margins of horizontal base of sella straight.

Distribution : India : Chhattisgarh : (Ambikapur, Bastar, Bilaspur, Koriya, Mahasamund) Andhra Pradesh, Arunachal Pradesh, Goa, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Uttar Pradesh.

Remarks : A specimen was caught at Ambikapur, which was released after identification.

Status : CAMP : LRnt (Nationally), DD (Globally).

15. ***Rhinolophus lepidus*** Blyth
Blyth's Horseshoe Bat, Little Indian Horseshoe Bat

1844. *Rhinolophus lepidus* Blyth. *J. Asiat. Soc. Bengal*, **13** : 486 (Vicinity of Calcutta, West Bengal, India).

Diagnosis : Small horseshoe bat (forearm around 40.0 mm. on average) with horizontal base of sella arched and equal to vertical part, connecting process triangular in lateral view, tibia shorter less than 18 mm.

Distribution : India : Chhattisgarh (Koriya, Mahasamund), Andhra Pradesh, Bihar, Delhi, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Mizoram, Nagaland, Orissa, Rajasthan, Tamil Nadu, West Bengal.

Elsewhere : Afghanistan, China, Indonesia, Myanmar, Nepal, Thailand.

Remarks : Two examples were collected from Baikunthpur (Koriya) and were released after identification.

Status : CAMP : LRnt (Nationally), DD (Globally).

Genus ***Hipposideros*** Gray, 1831

Three species of genus *Hipposideros* occurs in the state.

16. ***Hipposideros lankadiva lankadiva*** Kelaart
Kelaart's Leaf -Nosed Bat

1850. *Hipposideros lankadiva* Kelaart, *J. Sri Lanka Branch Asiat. Soc.*, **2** : 216.

Diagnosis : Acutely pointed large ears having slightly concave margins near the tips. Nose leaf has four supplementary leaflets, fourth one rudimentary are often absent. Posterior nose leaf is broad having its upper margin semicircular and supported by three septa.

Distribution : India : Chhattisgarh (Bastar), Andhra Pradesh, Karnataka, Madhya Pradesh Maharashtra, Manipur, Meghalaya, Mizoram, Orissa, Tamil Nadu.

Elsewhere : Sri Lanka.

Status : CAMP: VU (Nationally), DD (Globally)

17. ***Hipposideros armiger armiger*** (Hodgson)
Great Himalayan Leaf Nosed Bat

1835. *Rhinolophus armiger* Hodgson, *J. Asiat Soc. Bengal.* 4. 699 (Nepal)

Diagnosis : Largest leaf nosed bat of the state. Large ears, broad and pointed, slight thickening at the antitragal region. Nose leaf with four supplementary leaflets, the fourth rudimentary. Upper edge of the posterior nose leaf flattened and trilobite and supported by one prominent and two less prominent septa.

Distribution : Chhattisgarh (Bastar, Koriya), Assam, Malaysia, Meghalaya, Uttar Pradesh, West Bengal.

Elsewhere : China, Hong Kong, Myanmar, Nepal, Thailand, Vietnam.

Remarks : This is the first time, this species is reported from the state.

Status : CAMP : LRnt (Nationally), DD (Globally).

18. ***Hipposideros fulvus*** Gray
Fulvus Leaf-nosed Bat

1838. *Hpposideros fulvus* Gray, *Mag. Zool. Bot.* **2** : 492

Diagnosis : Very large ears, larger than head, rounded, upper third posterior margin, slightly flattened, narial margins of anterior nose leaf not expanded, narrow inter narial septum, uninflatted broadened at the base, narrow between nostrils.

Distribution : India : Chhattisgarh (Koria), Assam, Bihar, Karnataka, Kerala, Madhya Pradesh Maharashtra, Meghalaya, Sikkim, Tamil Nadu, Uttar Pradesh, Andaman.

Elsewhere : Nepal, Sri Lanka, Bangladesh, Myanmar, Thailand, and Vietnam.

Status : CAMP : LRnt (Nationally), DD (Globally).

Family MOLOSSIDAE

Only one genus of the family Molossidae occurs in the state.

Genus ***Chaerephon*** Dobson, 1874

Only one species of the genus *Chaerephon* occurs in the state.

19. ***Chaerephon plicata plicata*** (Buchanan)
Wrinkle-lipped Bat

1874. *Vespertilio plicatus* Buchanan, *Trans Linn. Soc. London*, **5** : 261

Diagnosis : Upper lip marked by prominent wrinkles. Ears large thick and rounded. Large antitragus. Wing connected with ankles.

Distribution : India : Chhattisgarh, Bihar, Gujrat, Karnataka, Madhya Pradesh, Maharashtra, Rajas- than, West Bengal.

Elsewhere : Algeria, Egypt to Yemen, an Omen, South Africa to Nigeria, east to Pakistan and Sri Lanka.

Remarks : Though reported from the state but no specimen could be collected.

Status : DD (Nationally and Globally).

Family VESPERTILIONIDAE

Four genera of family Vespertilionidae occurs in the state

Genus ***Pipistrellus*** Kaup,1829

Five species of the genus *Pipistrellus* occurs in the state.

20. ***Pipistrellus coromandra coromandra*** Gray
Indian Pipistrelle

1838. *Scotophilus coromandra* Gray, *Mag. Zool. Bot.*, **2** : 498 (Pondichery India).

Diagnosis : Small-sized, forearm length on average 31 mm. Dorsal fur blackish brown with tips slightly rufescent, venter a little paler. Tragus curving forward and bluntly rounded. A small lobe present below the calcar.

Distribution : India : widely distributed in Peninsular India, north to Jammu and Kashmir, east to northeastern states including Tripura.

Elsewhere : Afghanistan, Nepal and Sri Lanka

Status : CAMP LRnt (Nationally), DD (Globally).

21. ***Pipistrellus mimus mimus*** Wroughton
Indian Pigmy Pipstrelle

1899. *Pipistrellus minus* Wroughton, *J. Bombay nat. Hist. Soc.* **12** : 722. Mheskatri, Dangs, Surat district, Gujrat.

Diagnosis : Dorsal surface is brownish black, ventral parts lighter, hairs of ventral surface have silvery tips. Face, ears and wings almost black. The fur is short and dense. The basal paler band of hair is greatly reduced but middle darker band is much enlarged. The tibia is short. Ears small. Tragus short and curved. Post calcarial lobe is present.

Distribution : India : widely distributed throughout the mainland.

Elsewhere : Afghanistan, Myanmar Nepal, Pakistan, Sri Lanka Thailand and Vietnam.

Remarks : It lives in small holes, cracks and crevices in buildings and trees. The colony consists of 5 to 30 individuals often crowded together or at a little distance from each other. It has fluttering and rapid flight with sudden change of direction in pursuit of prey .It feeds on small insects.

Status : CAMP : NE

22. ***Pipistrellus ceylonicus indicus*** Dobson
Kelaart's Pipistrelle

1878. *Vesperugo indicus* Dobson, *Cat. Chiroptera Br. Mus* : 222 (Mangalore, Daskshina Kannada district, Karnataka)

Diagnosis : Large pipistrelle having forearm up to 40 mm. Dorsal surface brown or reddish or grayish brown ventral parts paler. Ears short, triangular, blackish brown. Tragus having triangular lobe at the base, straight inner end and convex outer margin. Post calcaliar lobe semicircular. Extreme tip of tail free from membrane.

Distribution : India : Throughout Chhattisgarh, Andhra Pradesh, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh.

Remarks : The species commonly roots along with other two species of *Pipistrellus*.

Status : CAMP : LRlc (Nationally).

23. ***Pipistrellus babu*** Thomas
Babu's Pipistrell

1915. *Pipistrellus babu* Thomas, *J. Bombay nat. Hist. Soc.*, **24** : 30 (Murre, C 2438m. Rawalpindi district, The Punjab, Pakistan).

Diagnosis : A medium sized bat having forearm around 34.0 mm on average. Dorsal colour sepia brown or olive green, ventrally slightly paler. Wings from base of the toe. A prominent post-calcarial lobule present.

Distribution : India : Chhattisgarh, Assam, Himachal Pradesh, Madhya Pradesh, Maharashtra, Sikkim, Uttar Pradesh.

Elsewhere : Afghanistan, Bangladesh, China, Myanmar, Pakistan, Nepal.

Remarks : Though reported from the state but no specimen could be collected during this survey.

Status : CAMP : NE

24. ***Pipistrellus dormeri*** (Dobson)
Dormer's Bat

1875. *Scotozous dormeri* Dobson, *Proc. zool. Soc. Lond.*, 373.

Diagnosis : Medium-sized, forearm length on average 34 mm. Ears sub-triangular, tip rounded, margin below the tip nearly straight, tragus straight, pointed, with a small lobe at the base of outer margin. Dorsal fur dark brown with ashy tip, venter whitish or lemon yellow.

Distribution : India : Chhattisgarh (Bilaspur, Koriya, Mahasamund), Widely distributed in the Indian mainland from Jammu & Kashmir in the north to at least Karnataka in the south and West Bengal in the east.

Elsewhere : Pakistan, and possibly Taiwan.

Status : CAMP : LRnt (Nationally), DD (Globally)

Genus ***Hesperoptenus*** Peters

Only one species of the genus *Hesperoptenus* occurs in Chhattisgarh.

25. ***Hesperoptenus tickelli*** (Blyth)
Tickell's Bat

1852. *Nycticejus tickelli* Blyth, *J. Asiat. Soc. Beng.* **20** : 157 (Chaibasa, Singhbhum district, Bihar, India).

Diagnosis : A large sized bat having forearm up to 60.0 mm. Golden yellow in colour but head grayish and wing membrane blackish. Ears oval. Small pad under thumb. Wing membrane from base of toes.

Distribution : India : Chhattisgarh, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu.

Elsewhere : Bangladesh, possibly China, Myanmar, Nepal, Sri Lanka, Thailand.

Remarks : Though reported from the state but no specimen could be collected during this survey.

Status : DD (Nationally and Globally).

Genus ***Scotophilus*** Leach

Only two species of the genus *Scotophilus* occurs in Chhattisgarh.

26. ***Scotophilus kuhli*** Leach
Lesser Yellow Bat (E.)

1821. *Scotophilus* Kuhli Leach, *Trans. Linnaeus Soc. Lond.*, **13** : 71 (According to Hill & Thonglongya 1972, type-locality is India).

Diagnosis : Forearm length 42-55: fur short, close and sleek. Ear small, rounded at tip, tragus semi lunar and markedly convex on posterior border, concave anteriorly. Dorsum reddish or olive brown. Muzzle with glandular swellings behind eyes.

Distribution : India : Chhattisgarh (Ambikapur, Bastar) widely distributed throughout India including Nicobar Island (Hill 1967).

Elsewhere : Pakistan (Walton 1974), Sri Lanka, Bangladesh and Myanmar.

Remarks : Two specimens were collected from Ambikapur and released after noting the data.

Status : CAMP : LRnt (Nationally), DD (Globally)

27. ***Scotophilus heathi*** Horsfield
Greater yellow Bat

1831. *Nycticejus heathi* Horsfield, *Proc. Zool. Soc. Lond.*, 113 (Madras = Chennai, Tamil Nadu, India).

Diagnosis : Forearm length more than 56. Fur short and sleek, dorsum olive to gray brown, venter lemon yellow to orange yellow and clearly demarcated from dorsum. Muzzle sparsely haired, with swollen glandular pads between the eyes and nostrils.

Distribution : India : widely distributed all over India.

Elsewhere : Afghanistan, Pakistan, Sri Lanka, Nepal, Bangladesh and Myanmar.

Remarks : Found in small colonies in crevices, on roofs, rafters and in holes in ceilings.

Status : CAMP : LRnt (Nationally), DD (Globally).

Order PRIMATES

Arboreal. Limbs plantigrade with five digits. Hands and feet prehensile. Thumbs of hind foot opposable (except human beings). Clavicles well developed. Facial region relatively small. Brain complex, with great development of braincase.

Represented in the state by only one family Cercopithecidae.

Family CERCOPITHECIDAE

Orbit completely closed by bone behind, Pollex short or wanting. Upper incisors not divided by a vacant space in the middle. Tail present. Arm not longer than leg.

Genus ***Macaca*** Lacepede, 1779

Only one species occurs in the state.

28. ***Macaca mulatta*** (Zimmermann)
Rhesus Macaque

1780. *Cercopithecus mulatta* Zimmermann, *Geogr. Gesch. Mensch vierf Thiere*, **2** : 195 (India).

Diagnosis : Medium-sized, head and body length around 540 mm, tail short, two-fifths to

one-half of head and body. Hairs straight, crown hairs not radiating from extreme. Face light pink, hindquarter of body brighter with orange-red hue, while upper back olive brown.

Distribution : India : Chhattisgarh : (throughout the state), Andhra Pradesh, Arunanchal Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir, Chhattisgarh, Meghalaya, Orissa, Punjab, Rajasthan, Sikkim, Tripura, West Bengal.

Elsewhere : Bhutan, Bangladesh, Myanmar, China, Thailand and Vietnam.

Remarks : Rhesus Macaques are regarded as most sacred, hence, there is no hunting pressure. However, they were found to be very shy and confined themselves in the forested tracts.

Status : IWPA : Schedule II; CAMP : LRlc (Nationally), DD (Globally); CITES : Appendix II.

Genus ***Semnopithecus*** 1821

The genus *Semnopithecus* is represented by one species in the state.

29. ***Semnopithecus entellus*** (Dufresne) **Hanuman Langur**

1797. *Simia entellus* Dufresne, *Bull. Soc. Philom. Paris,* **1** : 7 : 49 (Bengal).

Diagnosis : Large-sized, head and body length around 580, tail longer than head and body. Upper side dark or light sepia brown, paler on the shoulder, nape and crown, hands and feet black or deep brown and colour sharply contrasted with that of arms and legs. Whiskers short, partly covering the ears, crown hairs radiating from a frontal whorl.

Distribution : India : Chhattisgarh : throughout the state, Bihar, Delhi, Haryana : Orissa, Punjab, Rajasthan, West Bengal.

Elsewhere : Bangladesh, China, Nepal, Pakistan, Sri Lanka.

Remarks : It was observed that langurs were more in numbers in low altitude. The average group size here was 16 to 25. Young ones were mostly observed from Feb. to May.

Status : IWPA : Schedule II, CAMP LRlc (Nationally), DD (Globally); CITES : Appendix II.

Order PHOLIDOTA

This order includes one genus *Manis* which was formerly placed in order Edentata meaning without teeth, along with the sloth and armadillo. As pangolins differ greatly in form and appearance and have no teeth at all, now classified as order Pholidota.

Pholidota represented by one family Manidae and only one species occurs in the state.

Family MANIDAE

The family has upper part of the body covered with large, overlapping scales, undersurface clothed with coarse, bristle-like hairs. Head long and narrow. No teeth.

Genus ***Manis*** Linnaeus, 1758

30. ***Manis crassicaudata*** Gray **Indian Pangolin , Bajra Kit, Bajra Kapta, Sal Sala, Silu, Suraj Mukhi**

1827. *Manis crassicaudata* Gray, in Griffith *et al., Anim. Kingd.*, **5** : 282 (India).

Diagnosis : Head and body reach 660, female a little smaller. Hump-backed body, tapering tail without glandular naked area at tip. Muzzle tapers to a narrow, down-curving, trunk-like snout. External pinna like a shallow crescent-shaped, vertical fold on the naked skin. Body covered with 11-13 rows of overlapping light yellowish brown, pointed horny scales.

Distribution : India : Chhattisgarh (Bastar), Andhra Pradesh, Bihar, Delhi, Karnataka, Kerala, Maharashtra, Orissa, Punjab, Rajasthan, West Bengal.

Elsewhere : Bangladesh, China, Pakistan and Sri Lanka.

Remarks : It usually moves about only at night, therefore it is rarely seen. The villagers and forest officials confirmed its presence in the area.

Status : IWPA : Schedule I, Part I, CITES : Appendix II, CAMP LRnt (Nationally), DD (Globally); RDB : VU.

Order CARNIVORA

Large conical canine and six small, roughly equal sized incisors in both jaws, upper premolar and first lower molar especially enlarged. With sharp-edged lobes for tearing the flash.

Family CANIDAE

The family Canidae includes all the three genera from Chhattisgarh.

Genus *Canis* Linnaeus, 1758

The two species of the genus *Canis* are found in Chhattisgarh.

31. *Canis lupus pallipus* Sykes
Wolf, Bheria

1831. *Canis pallipes* Sykes, *Pre. zool. Soc. Lond.*, **101** (Daccan, India)

Diagnosis : About the size of an Alsatian dog, measuring 900-1050 mm in head and body length. Tail bushy, black tipped and bosky. Forehead elevated, brows arched, ear pointed and upstanding. A crest of long hairs on neck and shoulder. Dorsum grizzled with fulvous to rufous and black, Venter creamy buff, back of black, legs ochraceous, paler on outside.

Distribution : India : Chhattisgarh (through out the state) Andhra Pradesh, Arunanchal Pradesh, Assam, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, West Bengal.

Elsewhere : Arabian Peninsula, Iran and Pakistan.

Remarks : Though it is an animal of forest, but in India they are more common in bare and open regions. They hunt by day or by night.

32. *Canis aureus indicus* Hodgson
E.Asiatic Jackal, Gidar or Sial, Phial

1833. *Canis aureus indicus* Hodgson, *Asiat. Res.*, **18**(2) : 237.

Diagnosis : Very similar to wolf but smaller in size and without arching brows and elevated forehead. Dorsal fur coarse, with sandy buff appearance, but mid dorsum predominantly black, back of ear brownish, face and lower flank grayish and tail-tip black, belly, chest and inside of legs creamy white.

Distribution : India : Chhattisgarh (through out the state), Bihar, Haryana, Himachal Pradesh, Punjab, Rajasthan.

Elsewhere : Myanmar, Nepal.

Remarks : Jackals could be found in any environment, in forest, in dry plains or in desert. They come out at dusk, usually signally but at times two or more may be seen and retire at dawn. Though it is an animal of forest, but in India they are more common in bare and open regions. They hunt by day or by night Feeds on various animals and fruits. Breeds all year round.

Status : IWPA : Schedule II, Part II; CITES : Appendix III, CAMP LRlc (Nationally).

Genus *Vulpes* Frisch, 1775

33. *Vulpes vulpes* (Linnaeus)
Red Fox

1758. *Canis vulpes* Linnaeus, *Syst. Nat.*, 10th ed. **1** : 40

Diagnosis : Reddish above, under parts and tip of tail white. Head and body 49-65cm. Tail 45-50 cm. Handsome fox due to its luxuriant winter coat.

Distribution : India : Chhattisgarh (Korba), Gujarat, Himachal Pradesh, Kashmir, Punjab, Rajasthan, Sikkim, Uttar Pradesh.

Elsewhere : Australia, Continental Asia, Europe, Indo-China, North America, throughout Palaearctic region.

Remarks : Found in mountainous terrain, between 1000 and 3,000 meters elevation, lowland stony areas and in highland elevation. Nocturnal, occasionally diurnal. Found singly, in pairs or in family groups. A single specimen was seen in Korba.

Status : IWPA : Schedule II, Part II, CITES Appendix III, CAMP LRnt (Nationally), DD (Globally)

34. ***Vulpes bengalensis*** (Shaw)
Common Indian Fox, Bengal Fox, Lumri, Lomri, Lokhri

1800. *Canis bengalensis* Shaw, *Gen, Zool. Syst. Nat. Hist.*, **1** : (2), Mammalia, 330 (Bengal).

Diagnosis : Smaller and grayer than the Desert Fox, with black tail tip. Back of ear sandy brown or dark brown, with black margin. A smudge of black hairs around the upper part of the muzzle in front of eyes.

Distribution : India : Chhattisgarh (almost through out the state), almost all over India.

Elsewhere : Pakistan, Nepal, Bangladesh.

Remarks : It lives in burrow dug by it self, sleeps by day, coming out at dusk to get its food. It feeds on small mammals, reptiles, insects, crabs, zizyphus fruits etc. Cubs are usually born between February and April. Two specimens were seen at Sonhat.

Status : IWPA : Schedule II, Part II, CITES : Appendix III, CAMP : LRnt (Nationally), DD (Globally).

Genus ***Cuon*** Hodgson, 1830

It is a monotypic genus.

35. ***Cuon alpinus*** (Pallas)
Dhole, Red Dog, Asian wild Dog

1811. *Cuon alpinus* Pallas *Zoogr. Rosso-Asiat.*, **1** : 34

Diagnosis : Head and body length over 910 mm, hind foot over 170 mm, dog-like in appearance with bushy tail and almost rounded ears. Hairs long with woolly under fur, Body colour ferruginous red to tawny.

Distribution : India : The Forested parts of Peninsular India, south of the Ganges up to an elevation of 2240m, excepting the western desert.

Remarks : Rare. Found only in the well-wooded region. Its number has considerably decreased.

Status : IWPA : Schedule II, Part I; CITES : Appendix II; CAMP : LRnt.

Family URSIDAE

Represented in the state by one genus *Melursus*

Genus ***Melursus*** Meyer, 1793

36. ***Melursus ursinus*** (Shaw)

1791. *Bradypus ursinus* Shaw, *Nat, Misc.*, **2** (unpaged), pls. 58-59 (Patna, Bihar, India).

Diagnosis : Large-sized, head and body length 140-170 cm. Coat long, rough, shaggy, black, with or without a V-Shaped breast patch. Face triangular with long muzzle. Claws on fore feet ivory white.

Distribution : India : All over India from Himalayan foot hills to the extreme southernmost parts.

Remarks : Bears are found where there is sufficient forest to provide food and shelter. They are rigidly nocturnal, mostly come out shortly before sunset, hunt for food whole night and retire in the morning.

Status : IWPA : Schedule I, Part I; CITES : Appendix I; CAMP : VU (Nationally), DD (Globally).

Family MUSTELIDAE

Genus ***Lutrogale*** Gray, 1865

37. ***Lutrogale perspicillata*** (Geoffroy)
Smooth-coated Indian Otter

1825. *Lutra perspicillata* Geoffroy, *Dict, Class H.N.*, **9** : 519 (Andalas).

Diagnosis : Thick fusiform body, broad paddle shaped tail with distal portion more or less triangular in outline. Web of skin present between all the digits of fore and hind foot. Upper border of naked rhinarium smooth and convex in outline, Dorsum brown to olive brown, venter lighter in shade.

Distribution : India : Chhattisgarh (Bilaspur), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Orissa, Karnataka, Kerala, Madhya Pradesh, Meghalaya.

Elsewhere : China, Vietnam, Malaysia and Indonesia.

Remarks : It lives by the sides of lakes streams, rivers and canals. Fish is its main food. but when pools, streams dry up in summer seasons otters show a ready adaptation to the changed conditions and they eat whatever they capture and kill.

Status : IWPA : Schedule II, Part II, CITES : Appendix II, CAMP : NE.

Genus ***Mellivora*** Storr, 1780

Genus *Mellivora* is monotype

38. ***Mellivora capensis indica*** (Kerr)
Ratel

1792. *Ursus indicus* Kerr, *Anim Kingd.*, **188** (India).

Diagnosis : Body squat and bear like, stumpy legs and small tail, snout not projecting. Pinna reduced to a thickened rim. Coat grey above and black below.

Distribution : India : Peninsular India and West Bengal except Malabar Coast.

Elsewhere : Iran, Afghanistan and Pakistan.

Remarks : Mainly nocturnal, occasionally diurnal. Lives in burrows in dry areas near stream beds. Shy and rarely seen. Climb trees. Having sharp teeth aggressive when threatened. Mother carries young on its back. Feeds on various small animals, fruits, honey, and poultry. Gestation period 6 months 1 litter in a year and 2 young born at a time. Life span about 24 years.

Status : IWPA : Schedule I, Part I, RDB : IK, CAMP : LRnt (Nationally), DD (Globally).

Family VIVERRIDAE

Three genera of the family Viverridae occur in M.P.

Genus ***Viverra*** Linnaeus, 1758

39. ***Viverra zibetha*** Linnaeus
Large Indian Civet

1758. *Viverra zibetha* Linnaeus, *Syst. Nat.* 10th ed. **1** : 44.

Diagnosis Head and body 80 cm. Tail 45 cm. Grey and small spots on the body. Neck, shoulder and tail with dark bands. Dorsal crest of erectile hairs which are not found in small Indian Civet.

Distribution : India : Chhattisgarh (Koriya, Korba), North eastern States, Sikkim, West Bengal.

Elsewhere : Cambodia, Indonesia, Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam.

Remarks : A solitary specimen was seen at Sonhat.

Status : IWPA : Schedule II, Part II; CITES : Appendix III; CAMP : VU (Nationally), DD (Globally).

Genus ***Viverricula*** Hodgson, 1838

40. ***Viverricula indica indica*** (Desmarest)
Small Indian Civet

1817. *Viverra indica* Desmarest, *Noauv. Dict. Hist. Nat, Paris*, **7** : 170 (India).

Diagnosis : Small-sized, head and body length 500-620 mm, with tail a little smaller. Muzzle slender and pointed, ears broad and rounded. Small black spots on fore quarters, large spots tending to run into longitudinal lines on the flank and form 6-8 stripes down the back. Naked rhinarium reddish brown.

Distribution : India : throughout whole of India.

Elsewhere : Sri Lanka, Pakistan, Bhutan, and Bangladesh.

Remarks : Found in various habitats. Such as such jungle, grass jungle, forests rocks and even in barren lands and cultivated fields. Lives singly in self made burrow often attacks poultry and other domestic stocks. A good climber could be seen moving considerable distance through branches.

Status : IWPA : Schedule II, Part II, CITES : Appendix III, CAMP : LRnt (Nationally), DD (Globally).

Genus ***Paradoxurous*** Cuvier, 1821

Represented in the state by a single species.

41. *Paradoxurus hermaphroditus* (Pallas)
Common Palm Civet, toddy Cat

1777. *Viverra hermaphroditus* Pallas, *In Schreber, Die Sauget.*, 3(25) : 426 (India).

Diagnosis : Head and body length about 600, tail almost equal to head and body. Coat black or blackish brown but new coat with a pattern of longitudinal stripes on back, blackish spots on flank. Thing and shoulder usually with white patch or spots around eyes and nose.

Distribution : India : almost throughout India.

Elsewhere : Bangladesh, Myanmar, Nepal, Sri Lanka, China, Hainan Island, Malaysia, Philippine, and Indonesia.

Remarks : Very common near human habitats and sometimes enters inside residential complexes.

Status : IWPA : Schedule II, Part II; CAMP : LRlc (Nationally), DD (Globally).

Family HERPESTIDAE

Family Herpestidae is represented in India by one genus,

Genus ***Herpestes*** Illiger, 1881

Two species occur in the state.

42. *Herpestes edwardsii nayula* (Hodgson)
Indian gray Mongoose

1836. *Mangusta (Herpestes) nyula* Hodgson, *J. Asiat. Soc. Beng.*, **5** : 236 (Nepal).

Diagnosis : Very similar to *H. auropunctatus* but considerably larger, with longer contour hairs which from almost a cape over hind quarter of body and flank.

Distribution : India : Chhattisgarh (almost throughout the state), Assam, Bihar, Orissa, Sikkim, West Bengal.

Elsewhere : Nepal and Bangladesh.

Remarks : Diurnal as well as nocturnal. Found singly or in groups of up to 4. Lives in holes in the ground or in the base of trees or on thatched roofs of houses. Usually dominates while fighting with cobras due to its agility and its erectile fur which makes snake miss the flesh. Feeds on small mammals, reptiles, birds, eggs poultry, fruits and roots. Gestation period 60 days. 2 to 4 young born in a year. Life span 7 to 8 years.

Status : IWPA : Schedule IV, CITES : Appendix III, CAMP : LRlc (Nationally), DD (Globally).

Family HYAENIDAE

The family has broad head with large pointed, upstanding ears. While its forelimbs are sturdy and long, its deep and massive body ends in a weak drooping hind portion supported on short kneed hind legs.

The family is represented in India by one genus, viz. *Hyaena*.

Genus ***Hyaena*** Brission, 1762

Out of two species of this genus following one species is found in India.

43. *Hyaena hyaena hyaena* (Linnaeus)
Striped Hyaena

1758. *Canis hyaena* Linnaeus. *Syst. Nat., 10th ed.*, **1** : 40 (Benna mountains, Laristan, Iran)

Diagnosis : Head body length about 104 cm and height at shoulder 68-76 cm. Dog- like with a conspicuous crest of longer hairs extending like a mane from crown of head to pelvis. Legs relatively long : hindquarters of body weak, high sloping shoulder. Body colour tawny yellow, having indistinct broad vertical stripes along the flank.

Distribution : India : throughout India in forested tracks.

Elsewhere : Pakistan, Sri Lanka, Bangladesh, Myanmar and China.

Remarks : Mostly nocturnal. Found singly in pairs or in small groups of up to 6 animals. Lives in holes or crevices in rocks, grounds or in trees. Feeds on small animals, mostly scavenger, but also a hunter. Gestation period 3 months 2 to 4 young born at a time. Life span 24 years.

Status : IWPA : Schedule III; CAMP :LRnt (Nationally), DD (Globally).

Family FELIDAE

Two genera of the family Felidae occur in the state.

Genus *Felis* Linnaeus

One species of *Felis* is found in the state.

44. *Felis chaus* Güldenstaedt.
Jungle cat

1777. *Felis chaus* Güldenstaedt, *Nov. com. Acad. Petrop.* **20** : 483.

Diagnosis : Dorsal pelage unspotted, but occasionally speckled buff gray or rusty; black horizontal stripes present on the inner side of fore legs; underside reddish buff with fore throat, azalea and groin white.

Distribution : India : Chhattisgarh (Koriya), Bihar; Orissa; Rajasthan; West Bengal.

Remarks : Diurnal as well as nocturnal. Lives in burrows in the ground. Feeds on small mammals, birds, reptiles and poultry. Gestation period 65 to 70 days. 1 to 6 young born at a time Life span 14 years.

Status : IWPA : Schedule II, Part II; CITES : Appendix II; CAMP : LRnt (Nationally), DD (Globally).

Genus *Prionailurus* Severtzov, 1858

One species of *Prionailurus* is found in the state.

45. *Prionailurus bengalensis* (Kerr)
Leopard Cat

1792. *Felis bengalensis Kerr. Anim. Kingdom*, 1 : 151 (Southern Bengal)

Diagnosis : Dorsal pelage pale fulvous, varying from ochraceous to grayish, ornamented throughout with numerous elongated blackish brown spots; under surface white spotted; two narrow black stripes over the head from inner corner of eyes; transverse stripes on forelegs.

Distribution : India; Chhattisgarh (Bastar, Bijpur, Bilaspur); Madhya Pradesh, Maharashtra, Manipur, Orissa, Karnataka, Kerala, Tamil Nadu, Tripura, West Bengal.

Elsewhere : Bangladesh, Myanmar, Thailand, China, Vietnam, Indonesia and Philippines.

Remarks : Nocturnal and rarely seen. Found singly or in pairs. Live in holes in trees. or small caves. Feeds on small birds and poultry. Gestation period 60 to 70 days.1 to 4 young born at a time. Life span 10 to 15 years.

Status : IWPA : Schedule I, Part I; RDB : VU; CITES : Appendix I; CAMP : LRnt (Nationally), DD (Globally).

Genus *Panthera* Oken, 1861

46. *Panthera pardus* (Linnaeus.)
Leopard

1758. *Felis pardus* Linnaeus, *Syst. Nat.*, 10th Ed., 1 : 41

Diagnosis : Total length 170 to 215 cm., height at shoulder 60 cm. Ground colour variable-pale yellow, warm gray, rich tawny to rufous fawn, with dark spots arranged in rousettes all over the sides of the body.

Distribution : India : Chhattisgarh; Throughout India in suitable habitats.

Elsewhere : Pakistan, Bangladesh, Myanmar, China and Sri Lanka.

Remarks : Diurnal as well as nocturnal. Shy animal Good tree climber. Occasionally carrying its prey to a safe height for protection from scavengers Terrestrial Hunt by pouncing Found singly, in pairs or in family groups. Feeds on small mammals like deer or monkeys, livestock, carrion birds and reptiles. Gestation period 95 days 2 to 4 young born at time. Life span 15 years.

Status : IWPA : Schedule I, Part I; RDB : VU; CITES : Appendix I; CAMP : VU (Nationally), DD (Globally).

47. *Panthera tigris* (Linnaeus)
Tiger

1758. *Felis tigris* Linnaeus, *Syst. Nat., 10th ed.*, 1 : 41 (Bengal).

Diagnosis : Size large; total length including tail 260 cm. Color pattern of skin consisting black

stripes. Tail relatively thick no black spot on the tip of the tail.

Distribution : India : Found almost throughout India in suitable habitats where three essentials of its well being viz., plenty of game, water and shelter from sun are available.

Elsewhere : Nepal, Bangladesh, and Myanmar.

Remarks : Mostly nocturnal. Usually found singly but at times in pairs or in small family groups of 2 to 5 animal. Hunt by stalking and ambush. Communicate through vocalization, scent, roars, growls and moans. Lives in thickets. Feeds on various mammals, reptiles and amphibians, peafowl and livestock. Gestation period 102 to 112 days. 2 to 6 young born at a time. Life span 15 to 25 years.

Status : IWPA : Schedule I, Part I; RDB : VU; CITES : Appendix I; CAMP : EN (Nation- ally), DD (Globally).

Order ARTIODACTYLA

Even toed, axis of the foot passes between third and fourth toes. Toes enclosed in horny hooves of roughly equal size and giving the appearance of a single hoof split down in the middle.

Order Artiodactyla is represented in the state by four families.

Family SUIDAE

Represented by one genus in the state

Genus *Sus* Linnaeus, 1758

Only one species occurs in the state.

48. *Sus scrofa cristatus* Wagner
Indian Wild Boar

1839. *Sus cristatus* Wagner, *Munch. Gelehrt. Anz.*, **9** : 435 (probably Malabar Coast, India).

Diagnosis : Head and body length range from 115 cm to 160 cm in adult males. Females smaller. Body with short thick neck and slender legs. Head with sloping muzzle terminating in a special flattened disk. Ears large; eyes small. Body dark gray to pinkish brown. Covered with coarse black and brown bristles, which form a crest over neck. Canine in adult males developed into tusk.

Distribution : India : Forested or semi-forested tracts of whole of India.

Elsewhere : Bangladesh, Indonesia, Myanmar, Malaysia, Nepal, Pakistan., Sri Lanka, and Vietnam.

Remarks : Diurnal as well as nocturnal. Found in groups of up to 30 or more. Adult male lives singly except during matting period. Fond of walloping in mud. Live in shelter in a thicket or tall grasses. Feeds on grasses, roots carrion, snakes, insects and cultivated crops. Gestation period 4 months 4 to 12 young born at a time. Life span 15 to 20 years.

Status : IWPA : Schedule III; CAMP : LRlc (Nationally), DD (Globally).

Family CERVIDAE

Three genera occur in the state.

Genus ***Muntiacus*** Rafinesque, 1815

The genus is represented in India by one species only.

49. ***Muntiacus muntjak*** (Zimmermann)
Indian Muntjak, Barking Deer

1780. *Cervus muntjak* Zimmermann, *Geogr. Gesch.*, **2** : 131 (Java.)

Diagnosis : Head and body length varies from 80cm to 100 cm. heights at shoulder from 41 cm. to 60 cm. Heavy-bodied with short dainty legs. Body fur soft, short and glossy; dorsum reddish chestnut; under surface developing from two skin covered pedicels.

Distribution : India : Chhattisgarh (through out the state), throughout India in thickly wooded hilly tracts up to 1828 meter.

Elsewhere : Bangladesh Bhutan, China, Indonesia, Malaysia, Nepal, Pakistan, Sri Lanka and Thailand.

Remarks : Diurnal. Found singly or in groups of 3 to 4. Distinctive dark lie bark. also makes rattling noise while fleeing. Feeds on leaves grasses and fruits. Gestation period 6 months. 1 to 2 young born in litter.

Status : IWPA : Schedule III; CAMP : LRlc (Nationally), DD (Globally).

Genus ***Axis*** H. Smith, 1827

One species of the genus is found in the state.

50. *Axis axis* (Erxleben)
Chital, Axis Deer, Spotted Deer (E.)

1777. *Cervus axis* Erxleben, *Syst. Regn. Anim.*, 1 : 312 (Bank of Ganges, Bihar, India).

Diagnosis : Head and body length varies from 137 cm. To 152 cm., height at shoulder from 91 cm. to 97 cm in males; females slightly smaller, Colour rufous fawn with white spots throughout; a dark dorsal stripe from nape to end of tail, bordered by one or two rows of spots. Horns usually with three tines, brow tine forming almost a right angle to the beam.

Distribution : India : Chhattisgarh (Bastar, Koriya), Peninsular India, northwards to Kumaon in The state and Sikkim, east wards to Assam and Meghalaya.

Elsewhere : Nepal, Bangladesh and Sri Lanka.

Remarks : Diurnal as well as nocturnal. Gregarious found in-groups of 20 to 30 animals Habitual of entering cultivation near villages. All male herd may be seen. In forests generally found associated with langurs that drop tidbits from treetops Feeds on grasses, leaves, flowers and fruits. Gestation period 7 months. One young born at at time.

Status : IWPA : Schedule IV; CAMP : LRlc (Nationally), DD (Globally).

Genus ***Cervus*** Linnaeus,1758

One species of the genus *Cervus* occurs in the state.

51. *Recervus unicolor* Kerr
Sambar (E.)

1794. *Cervus unicolor* Kerr, *Anim. Kingd.*, : 300

Diagnosis : Largest Indian deer; head and body length 183 cm to 213 cm. Height at shoulder 122 cm. To 150 cm. in males, females a little smaller. Coat coarse and shaggy. Stag with a mane around neck and throat. General colour brown with yellowish or grayish tinge, females lighter in tone. Antlers normally with three tines. Brown tine joins the beam at an acute angle.

Distribution : India : Chhattisgarh (Bastar, Dantewara, Koriya), Andhra Pradesh; Bihar; Goa, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal. Elsewhere : Nepal and Bangladesh.

Remarks : Diurnal and nocturnal. Found in groups of 2 to 20 animals. Fond of water and used to bath and feed in lakes, river and marshes. Feeds on grasses, leaves and fruits. Gestation period 8 months. 1-2 young born at time.

Status : IWPA : Schedule III; CAMP : LRlc (Nationally), DD (Globally).

52. *Rucervus duvaucelii* Cuvier
Swamp Deer, Barasingha

1823. *Cervus duvacelii* Cuvier, *Rech Oss. Foss. Nouv.* ed. 4 : 505.

Diagnosis : Light coloured or dark brown, yellowish brown or grey. Shoulder height 115-135cm. Stags having ruff and fine antlers each with about 12 points hence called as barasingha.

Distribution : India : Chhattisgarh (Kwardha), north of Ganges from Uttar Pradesh to Assam and south of Ganges, principally in Kerala NP, Madhya Pradesh.

Remarks : Prefers grassland and forest near marshes and swamps. Mainly nocturnal but active during morning and evening. Found in herds up to 50 or more gestation period 6 months. One young born at a time.

Status : IWPA : Schedule I, Part I; RDB : VU; CITES : Appendix I; CAMP : EN (Nationally), DD (Globally).

Family BOVIDAE

Five genera of this family occur in the state.

Genus ***Bos*** Linnaeus, 1758

53. ***Bos frontalis gaurus*** (Smith)
Gaur

1827. *Bos gaurus* H. Smith, *Griffith,s Cuvier Anim. Kingd.*, **4** : 399 (Mainpat, Sarguja, India)

Diagnosis : Heavy body with relatively short limbs. A prominent muscular ridge from shoulder to the middle of back. An ashy forehead and white feet. Standing height in male 175-196 cm. at the shoulder, the female slightly smaller. The horns of bull are almost a half circle with a slight posterior bend at the tip and measure 68-76 cm. along the curve. The horns of cow are narrower. The old bull is black and almost hairless, but the cow is dark or reddish brown and possesses short hairs.

Distribution : India : Found in the peninsular India and foothills of the Himalayas up to Assam.

Remarks : Mostly found in bush and thin forest near water source as it is more dependent on water. Usually seen alone or in pairs during monsoon. One or two fawns born in winter. Feeds mainly on grass, wild fruit and leaves.

Status : IWPA : Schedule I, Part I; RDB : VU; CITES : Appendix I; CAMP : VU (Nationally), DD (Globally).

Genus ***Tetracerus*** Leach, 1825

It is a monotypic genus.

54. ***Tetracerus quadricornis*** (Blainville)
Four horned Antelope

1816. *Cerophorus (Cervicapra) quadricornis* Blainville, *Bull. Soc. Philom. Paris*, : 75

Diagnosis : Two pairs of horns posterior pair 80-100, anterior pair 20-30 in length. Female hornless. Fur thin, short and harsh. Colour varies from brown to rufous brown above and white below, a dark stripe down the front of each leg.

Distribution : India : Found in Peninsular India except Malabar Coast north to Rajasthan and northeast to Bihar and Orissa. Elsewhere : Nepal.

Remarks : Mostly nocturnal. Found in the groups up to 6, sometimes seen singly. Feeds on leaves, grasses and fruits. Gestation period 8 months. 1-2 young born at a time.

Status : IWPA : Schedule I, Part I; RDB : VU; CAMP : LRnt (Nationally), DD (Globally).

Genus ***Boselaphus*** Pallas, 1766

It is a Monotypic genus.

55. ***Boselaphus tragocamelus*** (Pallas)
Nilgai (H), Blue Bull (E.)

1766. *Antilope tragocamelus* Pallas, *Misc. Zool.*, **5** (Plains of Peninsular India)

Diagnosis : Horse-like in appearance with stout legs, long and narrow head, a coarse mane of black gray and white hairs running down the hind neck and over the wither. Males blue gray in colour with small. smooth and cylindrical horns, females reddish tan.

Distribution : India : Chhattisgarh (Ambikapur, Bilaspur, Bastar Dantewara, Koriya, Raipur), From the base of Himalayas to Karnataka, including Maharashtra.

Elsewhere : All across Pakistan border.

Remarks : Diurnal as well as nocturnal. Mostly seen in herds of 8 to 10. Adult males found solitary or may be in all male herds. Grunts when alarmed. Ordinarily defecates at the same place. Feed on grass, leaves, fruits, crops and flowers. Gestation period 8 to 9 months. 1 young born at a time.

Status : IWPA : Schedule III, CAMP : LRlc (Nationally), DD (Globally).

Genus ***Bubalus*** Smith, 1857

56. ***Bubalus bubalis*** (Linnaeus)
Wild Buffalo, Jungli Bhaisa

1758. *Bos bubalis* Linnaeus, *Syst. Nat.* 10th ed. **1** : 72 (Rome. Italy).

Diagnosis : A sturdy animal, in males, height at shoulders 150-280 cm., females little shorter. Horns triangular in cross section and traversely ridged. Slaty black in colour with dirty white feet.

Distribution : India : Chhattisgarh (Raipur, Bastar, Dantewara); Assam; Madhya Pradesh; Maharashtra, Orissa, West Bengal.

Elsewhere : Bangladesh, Cambodia, Indo-China, Nepal, Thailand.

Remarks : Ranjitsingh *et al.* (2004) estimated 42-45 bufalloes in Udanti and 25-30 individuals in Indrawati National park.

Status : IWPA : Schedule I, Part I; RDB : EN; CITES : Appendix III; CAMP : EN (Nationally).

57. ***Antilope cervicapra*** (Linnaeus)
Black buck, Indian Antelope, Harna (Male), Harni (female)

1758. *Capra cervicapra* Linnaeus, *Syst, Nat.*, 10th ed, **1** : 69 (Inland of Trivandrum, Kerala, India).

Diagnosis : Medium–sized, 70-80 cm at shoulder and 120-130 cm in head and body length. Horns long. Slender, twisted spirally and bearing rounded transverse ridges. With some bare exceptions (Chauhan, 1985), females hornless. Males black dorsally, white on throat and venter, females reddish fawn dorsally.

Distribution : India : Chhattisgarh (Bilaspur, Raipur, Bastar, Dantewara); from Rajasthan and Punjab in the north to Assam in the east and south to Kanyakumari (Tamil Nadu).

Elsewhere : Pakistan and Nepal, also introduced in Texas (U.S.A.)

Remarks : Mostly diurnal. Found in groups of 5 to 10 or more. Elegant fighter, during rut dominate male may control up to 50 females and challenges others. After the rut males live separate from females. Feeds on grass leaves, fruits and crops. Gestation period 6 months. 1-2 young born at a time. Life span 12 years.

Status : IWPA : Schedule I, Part I; RDB : VU; CITES : Appendix III; CAMP : LRlc (Nationally). DD (Globally).

Family TRAGULIDAE

Genus ***Moschiola*** Hodgson, 1843

58. ***Moschiola meminna*** (Erxleben)
Indian spotted Chevrotain, Mouse deer, Pisora

1777. *Moschus meminna* Erxleben. *Syst. Regn. Anim.*, **1** : 322.

Diagnosis : Dear like but smaller in size. Shoulder height 25-30 cm. Upper parts olive brown, sparkled with yellow, longitudinal rows of buff or white spots on the flank merge to form stripes. Under parts white. Limbs with four well developed toes. Tusks in both sexes, large in males.

Distribution : India : Chhattisgarh (Bastar, Dantewara), From Tamil Nadu to Madhya Pradesh.

Elsewhere : Nepal, Sri Lanka.

Remarks : Nocturnal. Found singly or in pairs. Live in a tree hollow. Can climb gently sloping trees Feeds on grasses, leaves and fruits. Gestation period 150 days.1 to 2 young born at time.

Status : CAMP : LRnt (Nationally). DD (Globally).

Order LAGOMORPHA

Two pairs of upper incisors placed one behind the other. Cheek-teeth adopted for grinding and separated by a wide diastema from incisors. Three pairs of upper and two pairs of lower premolars. Tail very short. Tufted or totally absent.

Represented in the state by a single family Leporidae.

Family LEPORIDAE

Hind limbs very long, soles including digital pads completely covered with hairs. Ears very long and narrow. A short tail present.

Genus ***Lepus*** Linnaeus, 1758

59. ***Lepus nigricollis*** Cuvier
Blacknaped Hare

1823. *Lepus nigricollis* Cuvier, *Diet Sci. Nat.*, **26** : 307.

Diagnosis Dorsal fur short, harsh. Dorsum pale sandy brown, nape of neck warm buff, lower limbs ochraceous, chest and throat creamy yellow, lower belly and inguinal region whiter. No trace of collar of black hairs in the lower neck.

Distribution : India : Throughout India.

Elsewhere : Bangladesh, Bhutan, Indonesia, Pakistan, Sri Lanka

Remarks : Mostly nocturnal. Shy animal. Found singly or in groups up to 4. Feeds on grasses, leaves, flowers, fruits and crops. 1 to 4 or more young born at a time

Status : IWPA : Schedule IV; CAMP : LRlc (Nationally). DD (Globally)

Order RODENTIA

Family SCIURIDAE

Genus ***Petaurista*** Link, 1795

Only one species of the genus occurs in the state.

60. ***Petaurista philippensis*** (Elliot)
Large Brown Flying squirrel

1839. *Pteromys philippensis* Elliot, *Madras J. Litt. Sci.*, **10** : 217 (Near Madras, Tamil Nadu, India)

Diagnosis : Head and body 45 cm. Tail 60 cm. Dorsum grizzled brown and gray, parachute and forelimb usually brown, under part whitish to pale gray, tail usually black.

Distribution : India : Chhattisgarh (Bastar, Bilaspur, Dantewara, Koriya), Andhra Pradesh; Assam; Bihar, Gujarat; Himachal Pradesh; Jammu Kashmir; Karnataka, Kerala, Maharashtra, Nagaland; Punjab; Orissa, Tamil Nadu; Uttar Pradesh.

Elsewhere : Afghanistan, China, Indo-China, Indonesia, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand.

Remarks : Nocturnal. Roost is a hole in tree. Shy animal. Glides from tree to tree with the help of its extended parachute like membrane between limbs. Feeds on fruits, nuts bark, resins insects and larvae.

Status : Not Known.

Genus ***Funambulus*** Lesson, 1835

Two species of genus *Funambulus* are found in the state

61. ***Funambulus palmarum*** (Linnaeus)
Indian Palm Squirrel, Gilehri

1766. *Sciurus palmarum* Linnaeus *Syst. Nat., 12th ed.* **1** : 86 (Madras = Chennai, Tamil Nadu, India).

Distribution : India : Chhattisgarh (throughout the state), Andhra Pradesh, Bihar, Karnataka, Kerala, Orissa, Tamil Nadu, West Bengal. Elsewhere : Sri Lanka.

Remarks : Diurnal. Arboreal and terrestrial. It is the commonest and most familiar wild animal. It is not a forest animal. Mostly seen in-groups of 2 –7 near human settlement. Lives in a hole in tree or wall or under roofs of houses. Feeds on shoots, flowers, fruits, barks, bird's eggs and insects. Gestation period 6 weeks. 2-3 young born at a time

Status : CAMP : LRnt (Nationally), DD (Globally).

62. ***Funambulus pennanti*** Wroughton
Northern Palm Squirrel, Five-striped Palm Squirrel

1905. *Funambulus pennanti* Wroughton *J. Bombay nat. Hist. Soc.*, **16** : 411 (Mandvi Taluka. Surat, Gujarat, India).

Distribution : India : Chhattisgarh (All districts), Andaman Island, Assam, Bihar, Delhi, Haryana, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Meghalaya, Orissa, Punjab, Rajasthan, Sikkim, West Bengal. *Elsewhere* : Iran. Pakistan, Nepal and Bangladesh.

Remarks : Five striped palm squirrels on the other hand is a forest animal.It gives out a peculiar

shrill bird-like call which it repeat again and again, accompanying its music with quick jerks of its tail. Other habits similar to F. palmarum.

Status : IWPA : Schedule IV; CAMP : LRlc (Nationally). DD (Globally)

Genus ***Ratufa*** Gray, 1867

One species of the genus *Ratufa* occurs in the state.

63. *Ratufa indica* (Erxleben)
Large Indian Squirrel

1777. *Sciurus indica* Erxleben *Syst. Regn. Anim.*, 1 : 420. (Bombay, Maharashtra, India)

Diagnosis : Head and body 35 to 40cm. Tail 60cm. upperparts black with red head and flanks, underparts whitish.

Distribution : India : Chhattisgarh (Bastar, Dantewara, Kawardha), Madhya Pradesh, Maharashtra.

Remarks : Diurnal. Arboreal moving between trees with ease. Forms several globular nests of leaves and twigs on treetops. Mainly creeper; agile and shy animal. It makes loud rattles and scolds when alarmed. Feeds on fruits, flowers and barks Gestation period 28 days 1-2 young born at a time.

Status : IWPA : Schedule II, Part II; CITES : Appendix II; CAMP : VU (Nationally). DD (Globally)

Family HYSTRICIDAE

Genus ***Hystrix*** Linnaeus

64. *Hystrix indica* Kerr
Indian Crested Porcupine

1792. *Hystrix indica* Kerr. *Anim. Kingd.*, 213 (India.)

Diagnosis : Body covered with well developed spines, distinct crust of long black quills on crown and neck, quills of tail whitish. Short and hollow.

Distribution : India : almost throughout India, except north eastern states.

Elsewhere : Syria, Iraq S. Arabia, Iran, Russian Turkistan, Pakistan, Sri Lanka and China.

Remarks : Mainly nocturnal. Found singly or in groups of up to 4. Lives in burrows in ground having more than one opening. Burrows several meters long ending in a spacious chamber. Does not shoot quills as often locally believed but may fatally wound tiger or leopard with its long sharp quills while rushing at its foe at speed in reverse. Feeds on crops, fruits, roots and bones. Gestation period 24 days 2-4 young born in a litter.

Status : IWPA : Schedule IV; CAMP : LRlc (Nationally). DD (Globally).

Family MURIDAE

Largest family of class Mammalia and represented by one sub family in the state.

Subfamily MURINAE

Genus ***Vandeleuria*** Gray, 1842

It is a monotypic genus.

65. *Vandeleuria oleracea* (Bennett)
Indian Long-tailed Tree. Mouse, Palm Mouse

1832. *Mus oleraceous* Bennett, *Proc. Zool. Soc.*, **121** (Deccan, India.)

Diagnosis : Small-sized, head and body usually less than 100. Tail purely white and much lunger than head and body. Outer finger short, stumpy and clawless. Dorsum pale tawny brown to reddish, underside white to dirty white.

Distribution : India : Chhattisgarh (Ambikapur, Bilaspur, Durg, Koriya) Madhya Pradesh Uttar Pradesh : Bihar; Karnataka;; Maharashtra.

Status : IWPA : Schedule V; CAMP : LRlc (Nationally). DD (Globally)

Genus ***Cremnomys*** Wroughton,1912

One species of the gnus *Cremnomys* occurs in Chhattisgarh.

66. *Cremnomys blanfordi* (Thomas)
Blanford's Rat

1881. *Mus blanfordi.* Thomas, *Ann. Mag. nat. Hist.*, 7 : 24 (Madras, Tamil Nadu, India).

Diagnosis : Body grey to reddish dorsally, white ventrally. Terminal half of tail wholly white.Tail tends to be tuffed terminally.

Distribution : Chhattisgarh, Andhra Pradesh, Bihar, Goa, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, West Bengal.

Elsewhere : Sri Lanka.

Status : IWPA : Schedule V; CAMP : LRnt (Nationally). DD (Globally).

67. ***Rattus rattus arboreus*** (Horsfield)
House Rat

1837. *Mus arboreus* (Buchanan Hamilton) Horsfield, *Cat. E. India Co. Mus.*, 141 (Bengal).

Diagnosis : The under parts white or dirty white; occipitonasal length 38.0-42.0 mm.; ballae more than 7 mm.

Distribution : India Chhattisgarh Bihar, Orissa, Uttar Pradesh, West Bengal.. *Elsewhere* : Nepal.

Remarks : It is a serious pest of crops, household goods etc. Very Common, found through out the state.

Status : IWPA : Schedule V; CAMP : LRlc (Nationally). DD (Globally)

68. ***Rattus norvegicus*** (Berkenhout)
Brown Rat

1769. *Mus norvegicus* Berkenhout, *Outlines N.H.Gr. Britain and Ireland.*, 1 : 5 (N.V.) (Great Britain).

Diagnosis : A large rat, dorsally brown coloured and venter grey Tail shorter than head and body and obscurely bicoloured. Ears relatively shorter Fur coarse and spiny

Distribution : India : distributed throughout India due to accidental transportation by human agency.

Elsewhere : Worldwide.

Remarks : Nocturnal Lives in burrows in godowns and nearby areas. Feeds mainly on stored grains. Prolific breeder and breeds throughout the year. Gestation period 22-25 days Litter size 4-12 or more.

Status : IWPA : Schedule V; CAMP : LRlc (Nationally). DD (Globally)

69. ***Rattus nitidus*** (Hodgson)
Himalayn Rat

1845. *Mus nitidus* Hodgson *Ann. Mag nat. Hist.*, **15** : 267 (Nepal).

Diagnosis : Dusky brown dorsally, body slivery to dark grey, with or without rusty tinge ventrally .tail wholly white. Hind foot whitish. Mammae six pairs.

Distribution : India : Chhattisgarh (Koriya), Arunanchal Pradesh, Uttar Pradesh, Sikkim, West Bengal, Meghalaya, Tripura, Mizoram and Manipur.

Elsewhere : Nepal, Bhutan, N.Myanmar, S. China, Thailand and Vietnam.

Remarks : This species is recorded from the Chhattisgarh for the first time.

Status : IWPA : Schedule V; CAMP : DD (Globally)

Genus ***Mus*** Linnaeus, 1758

Four species of the genus *Mus* are found in Chhattisgarh.

70. ***Mus musculus casteneus*** Waterhouse
House mouse

1843. *Mus casteneus* Waterhouse, *Ann. Mag. Nat. Hist.*, [1], **12** : 134 (Philippines).

Diagnosis : Small sized mouse with head and body 52-116mm in length and tail little longer than head and body. Dorsal surface sandy brown to dark brown and venter ochraceous brown, tail faintly bicoloured, dark dorsally and white ventrally. Mammae five in pairs.

Distribution : India : Chhattisgarh t throughout the state. Throughout India.

Elsewhere : Africa, Nepal, Sri Lanka, China, and SE Asia.

Remarks : Nocturnal. Found in houses, godowns, shops garden and fields. Feeds mostly

on vegetable matters, occasionally eats insects. Breeds throughout the year. Litter size 1-15 (average 5)

Status : IWPA : Schedule V; CAMP : LRlc (Nationally), DD (Globally).

71. *Mus booduga* (Gray)
Common Indian Filed Mouse

1837. *Leggada booduga* Gray, *Charlesworth's Mag. Nat, Hist.*, **1** : 586 (South Maharatta, Country, Maharashtra, India).

Diagnosis : Very small, head and body length on average 60, tail usually subequal to head and body, Dorsum brown to light brown, venter perfectly white, and tail bicoloured.

Distribution : India : Chhattisgarh, throughout the state, all over rest of India.

Elsewhere : Pakistan and Bangladesh.

Remarks : Commonly found field mouse during harvesting season.

Status : IWPA : Schedule V; CAMP : LRlc (Nationally), DD (Globally).

72. *Mus platythrix* Bennett
Brown Spiny Mouse

1961. *Mus platythrix* : Ellerman, *Fauna of India, Mammalia, Rodentia*, 3(2) : 771.

Diagnosis : Dorsally rather dark brown, but varying and sometimes paler brown. Medium-sized or large mice. Tail short in all races averaging below 90% of the head and body. Hand with four clawed fingers. Foot with five clawed toes. Mammae 10 or 12.

Distribution : India : Chhattisgarh (Bastar), Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, West Bengal, Rajasthan.

Status : IWPA : Schedule V; CAMP : LRlc (Nationally), DD (Globally).

73. *Mus saxicola* Elliot
Elliot's Spiny Rat

1840. *Mus saxicola* Elliot, *Madras. J. Lit. Sci.*, **10**. 215.

Diagnosis : A medium sized mouse with a short tail. Head and body length 87 to 90 mm. Body pale sandy to dark grayish brown above and dirty white below. Hind foot white. Tail tip coloured, dark above and paler below. Mammae 4+2 (12) or 3+2 (10).

Distribution : India Chhattisgarh. Found throughout India The eastern limit is West Bengal.

Elsewhere : Pakistan and Nepal.

Remarks : No specimens could be seen during this survey.

Status : IWPA : Schedule V; CAMP : LRlc (Nationally), DD (Globally).

74. *Goluda ellioti* Gray
Indian Bush Rat

1837. *Golunda ellioti* Gray, Chorleworths *Mug. N.H.* **1** : 846.

Diagnosis : Apparently similar to house rat, but much smaller and tail almost always shorter than head and body, covered with short hairs. Ear almost circular in outline and pinna well covered on both sides with short buff hairs. Tail dorsally dark brown, ventrally yellowish gray. Upper incisors prominently grooved.

Distribution : India : Chhattisgarh (Koriya), Andhra Pradesh, Assam, Bihar, Karnataka, Jammu & Kashmir, Himachal Pradesh, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh.

Remarks : Diurnal, Found in forests orchards and bushes near cultivation. Feeds on seeds, fruits, berries, shoots and vegetables. Breeds throughout the year and 4 to 11 young born at a time.

Status : IWPA : Schedule V; CAMP : LRlc (Nationally), DD (Globally).

Genus *Bandicota* Gray

75. *Bandicota bengalensis bengalensis* Gray
Indian Mole Rat, Lesser Bandicoot Rat

1835. *Arvicola bengalensis* Gray, *Illustr. Ind. Zool., 2. pl.* **21** (Bengal).

Diagnosis : Rat-like, but snout relatively less pointed. Fur coarse, with ling black tipped piles

throughout the black. Tail distinctly shorter than head and body Venter gray to dark gray, ear and tail naked and blackish gray. Mammae 12-20, not always in pairs.

Distribution : India : Chhattisgarh (through out the state). Through out India.

Elsewhere : Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and Myanmar.

Remarks : Most commonly found rat of India. Found in fields, houses and godowns causing considerable damage to grains. Prolific breeder, breeds through out the year. Litter size normally 5 to 12 but may go upto 15.

Status : IWPA : Schedule V; CAMP : LRlc (Nationally), DD (Globally).

76. ***Bandicota indica indica*** (Bechstein)
Large Bandicoot Rat

1801. *Mus indicus* Bechstein *Uber Vierf. Thire*, **2** : 297 (Pondicherry, India).

Diagnosis : Similar to the previous species, but larger and tail almost equal to the head and body length. Fur coarse, with long black-tipped piles; dorsum blackish brown with little pale yellowish or whitish grizzling; venter grayish brown. Mammae 12.

Distribution : India : Chhattisgarh, Andhra Pradesh; Bihar; Madhya Pradesh, Maharashtra Orissa; Rajasthan; Tamil Nadu.

Elsewhere : Sir Lanka.

Status : IWPA : Schedule V; CAMP : LRnt (Nationally), DD (Globally).

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REPTILIA

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INTRODUCTION

The largest state of India including Chhattisgarh (area 4,43,445 km^2), Madhya Pradesh is unique in the sense that being land-locked, with no connection with the Himalayas and yet it has some hills and mountains and has large rivers. As its name implies, the state is centrally located and is often referred to as the heart of India. It is bounded by as many as seven states, by Rajasthan to its north-west, Uttar Pradesh on the north, Bihar on the north-east, Orissa on the east, Andra Pradesh and Maharastra on the south and Gujarat on the west.

Prior to the establishment of the Zoological Survey of India in 1916, little work was carried out on the reptiles of Madhya Pradesh. Thus, this is the first detailed account on the reptilian fauna of the state as a whole.

MATERIAL AND METHODS

Reptiles are either aquatic, terrestrial or arboreal. Aquatic form has been collected by the help of water net, cast net and fishing hook. Both terrestrial and arboreal forms have been collected by hand or with long forceps. The reptiles reported in this paper have been collected by parties of the Zoological Survey of India from different habitats. For collection, aquatuc vegetatons, bushes, scrubby jungles, heaps of rotten leaves or straw burrows, dark corners of villages huts, undersurface of barks of trees, soil under stones etc. are explored. The collected materials are first chloroformed and then put into 5% formaline solution at least 24 hours for fixation. Before putting in the formalin, an incision on the abdomen for the bigger specimens and injection of 10% formaline solution inside abdomen for smaller specimen are given for the fixation of viscera. The fixed material alongwith labels containing the data of locality, altitude, habitat, date of collection and name of collector, were packed and kept in 5% formalin solution. The material, collected in the field were brought to the laboratory. After unpacking, they are washed thoroughly in water and placed in 75% rectified spirit. The materials were studied and identified with the help of literature.

Abbreviations used : Collector (coll.), Example (ex.), Kilometre (km), Milimetre (mm), Central Regional Station (CRS), Zoological Survey of India (ZSI).

SYSTEMATIC LIST

(*Markd species are taken from Published References)

Class REPTILIA
Order I CROCODYLA
Family 1. COCODYLIDAE
*1. *Crocodylus palustris* Lesson
Family 2. GAVIALIIDAE
*2. *Gavialis gangeticus* (Gmelin)
Order II TESTUDINES
Suborder I CRYPTODIRA
Family 3 TRIONYCHIDAE
3. *Aspideretes gangeticus* (Cuvier)

*4. *Aspideretes leithii* (Gray)
5. *Aspideretes hurum* (Gray)
6. *Lissemys punctata punctata* (Lacepede)
*7. *Chitra indica* (Gray)

Family 4. BATAGURIDAE

8. *Hardella thurjii* (Gray)
*9. *Kachuga tentoria* (Gray)
10. *Kachuga tectum* (Gray)
11. *Kachuga kachuga* (Gray)
12. *Kachuga dhongoka* (Gray)

Family 5. TESTUDINIDAE

13. *Geochelone elegans* (Schoepff)

Order III SQUAMATA

Suborder II SAURIA

Family 6. EUBLEPHARIDAE

14. *Eublepharis hardwickii* (Gray)

Family 7. GEKKONIDAE

15. *Geckoella nebulosus* (Beddome)
16. *Geckoella collegalensis* (Beddome)
17. *Hemidactylus brookii* Gray
18. *Hemidactylus gracillis* Blandford
19. *Hemidactylus leschenaulti* Dum. & Bibr.
20. *Hemidactylus flaviviridis* Rüppell
21. *Hemidactylus subtriedrus* Jerdon
22. *Hemidactylus maculatus* Dum. & Bibr.
23. *Hemidactylus giganteus* Stoliczka
24. *Hemidactylus frenatus* Schlegel

Family 8. AGAMIDAE

25. *Calotes versicolor* (Daudin)
26. *Laudakia minor* (Hardwickii & Gray)
27. *Psammophilus blanfordanus* (Stoliczka)

Family 9. CHAMAELEONIDAE

28. *Chamaeleo zeylanicus* Laurenti

Family 10. SCINCIDAE

29. *Lygosoma lineata* (Gray)
30. *Lygosoma punctata* (Gmelin)
31. *Lygosoma albopunctata* (Gray)
32. *Mabuya carinata* (Schneider)
33. *Mabuya dissimilis* (Hallowell)
34. *Mabuya macularia* (Blyth)

Family 11. LACERTIDAE

35. *Ophisops microlepsis* Blandford
36. *Ophisops leschenaulti* (Milne-Edwards)
37. *Ophisops minor nictans* Arnold

Family 12. VARANIDAE

38. *Varanus bengalensis* (Daudin)

Suborder III SERPENTIS

Family 13. TYPHLOPIDAE

39. *Ramphotyphlops bramimus* (Daudin)
40. *Rhinotypholops acutus* (Dum. & Bibr.)
*41. *Typhlops diard* (Schlegel)
42. *Typhlops tenuicollis* (Pesters)

Family 14. BOIDAE

*43. *Python molurus* (Linn.)
44. *Eryx conicus* (Schneider)
45. *Eryx johnii johnii* (Russell)

Family 15. UROPELTIDAE

*46. *Uropeltis ocellattus* (Beddome)

Family 16. COLUBRIDAE

47. *Amphiesma stolatum* (Linn.)
*48. *Ahaetulla nasuta* (Lacepede)
49. *Argyrogene fasciolatus* (Shaw)
50. *Atretium schistosum* (Daudin)
51. *Boiga trigonata* (Schneiden)
*52. *Dendrelaphis tristis* (Daudin)
53. *Elaphe radiata* (Schlegel)
54. *Elaphe helena* (Daudin)
55. *Lycodon aulicus* (Linn.)
*56. *Lycodon striatus (Shaw)*
57. *Macropisthodon pumbicolor* (Cantor)
58. *Oligodon arnensis* (Shaw)
59. *Oligodon taeniolatus* (Jerdon)
60. *Ptyas mucosus* (Linn.)
*61. *Sibynophis subpunctatus* (Dum. & Bibr.)
62. *Sibynophis sagittarius* (Cantor)
63. *Xenochrophis piscator* (Schneider)

Family 17. ELAPIDAE

64. ***Bungarus caeruleus*** (Schneider)

65. ***Bungarus fasciatus*** (Schneider)

66. ***Naja naja*** (Linn.)

Family 18. VIPERIDAE

67. ***Daboia russellii*** (Shaw)

68. ***Echis carinatus*** (Schneider)

69. ***Trimeresurus gramineus*** (Shaw)

SYSTEMATIC ACCOUNT

Class REPTILIA

Order 1. CROCODYLIA

Key to the families of the order CROCODYLIA

1. Snout slender, not more than twice as broad at the base, upper jaw consists of 17-19 teeth on each side ..... CROCODYLIDAE

2. Long and slender snout, at least three times as long as broad at the base, upper jaw consists of 27-29 teeth on each side .... GAVIALIIDAE

Family 1. CROCODYLIDAE

Genus 1. ***Crocodylus*** Gronovius, 1763

*1. ***Crocodylus palustris*** Lesson

Mugger or Marsh crocodiloe

1834. *Crocdodilus palustris* Lesson, in *Belang. Voy. Ind. Or. Zool.*, : 305.

1890. *Crocodilus palustris* Boulenger, *Fauna Brit. Ind.*, : 5.

Material examined : Material not available. Description based on the literature.

Diagnosis : Snout broad and without distinct ridges in front of the eyes. Snout $1^1/_3$ to 1½ times as long as broad of the base. Arow of 4 distinct, sharply raised scales just behind the head called post occipitals; dorsal scuts in 16 or 17 transverse rows and 4, sometime 6, longitudinal series of bony plates embedded in the skin. Fingers webbed at the base.

Distribution : In India this species still occurs in small scattered and isolated populations in several states such as Kerala, Tamil Nadu, Karnataka, Andra Pradesh, Madhya Pradesh (Bori Sanctuary, Satpura Conservation area), Maharastra, Orissa, Gujarat, Rajasthan, Uttar Pradesh, Bihar, Haryana and West Bengal.

Status : Placed under schedule 1 of Indian Wildlife (Protection) Act 1972.

Remarks : Formerly, this species was common most states of the Indian subcontinent, but at present, populations are depleted throughout the range.

Family 2. GAVIALIDAE

Genus 2. ***Gavialis*** Oppel, 1811

*2. ***Gavialis gangeticus*** (Gmelin)

Gharial or Mechho kumir

1789. *Lecerta gangeticus* Gmelin, *Syst. Nat.*, I : 1057.

1831. *Gavialis gangeticus* Gray, *Syn. Rept.*, : 56.

Material examined : Material not available. Description based on the literature.

Diagnosis : Snout very long and slender, at least three times as long as broad at the base; 27-29 teeth on each side in the upper jaw, and 25-26 teeth in the lower jaw. The first three teeth of the lower jaw fit into notches on the upper jaw. Adult male with a large pot-like cartilaginous mass on the tip of the snout, hence the name Gharial. Dark olive or brownish above, whitish or yellowish below.

Distribution : Confined to the Indus, Ganges, Brahmaputra and the Mahanadi river system in the Indian subcontinent. Once very common, increasing human use of rivers has restricted the Gharial to the few remaining wild stretches of its former habitat. Presently the main habitat is the Chambal Girwa, Rapti and Narayani rivers of the Ganges system.

Status : The species is now rare and endangered and placed under schedule I of Indian wildlife (Protection) Act, 1972.

Ramarks : The name Gharial is said to have originated in the resemblance of the protuberance

on the male snout to a ghara or earthenware pot. River dwelling crocodilians inhabiting deep pools at river junctions and bends, called 'kunds' and the deep gorges in hilly country. Predominantly fish eater. Occasionally takes turtles, birds and small mammals.

Order II TESTUDINES

Suborder I CRYPTODIRA

Key to the families of the order TESTUDINES

1. Forelimbs semi-paddle shaped, with 3 claws carapace covered with smooth skin, edge of carapace flexible ..... TRIONYCHIDAE
- Forelimbs paddle shaped, with more than 3 claws, carapace covered with bony shield 2
2. Digits webbed, hind limbs paddle shaped..... ..... BATAGURIDAE
- Digits not webbed hind limbs club shaped ..... TESTUDINIDAE

Family 3. TRIONYCHIDAE

Key to the genera of the family TRIONYCHIDAE

1. Marginal bones are present. Snout short .... ***Lissemys***
- Marginal bones are not present. Snout long 2
2. Orbit nearer the temporal than the nasal fossa; postorbital arch narrower than the diameter of the orbit ..... ***Aspideretes***
- Orbit nearer the nasal than the temporal fossa; postorbital arch twice as broad as the diameter of the orbit ..... ***Chitra***

Genus *Aspideretes* Grey, 1872

Key to the species of the genus *Aspideretes*

1. Alveolar surface of mandible raised at its inner margin ..... *gangeticus*
- Alveolar surface of mandible not raised at its inner margin.. 2
2. Maxillary groove ill defined ..... *hurum*
- Maxillary groove well defined ..... *leithii*

3. *Aspideretes gangeticus* (Cuvier)
Indian softshell turtle

1824. *Trionyx gangeticus* Cuvier, *Oss. Foss.*, 186, 203, 206 pls 12. (Type Locality R. Ganga).

1997. *Aspideretes gangeticus* Das, *Hamadryad*, **22** : 33.

Material examined : ZSI 23801, Loc. Bhopal, Nov. 79, Coll : R.J. Rao.

Measurements : Carapace length : 230 mm; Carpace width : 185 mm.

Diagnosis : Carapace low and oval. Head comparatively large and broad with dorso-laterally situated eye; elongated proboscis. Limbs with three claws. Tail short. Carapace dull olive green with irregular dark reticulation, plastron ivory white. Head greenish, with black longitudinal streak from between eyes and nape; three oblique black streaks on sides.

Distribution : Madhya Pradesh : as stated in the material, Bihar, Gujarat, Rajasthan, Orissa, Uttar Pradesh and Punjab.

Status : This common species has been given the strictest of legal protection. It is covered under shedule. I of the Indian Wildlife (protection) Act of 1972.

Remarks : The Indian soft-shell turtle is found in rivers, lakes and ponds, burying itself in the mud at the bottom.

*4. *Aspideretes leithii* (Gray)
Leith's softshell turtle

1872. *Trionyx leithii* Gray, *Ann. Mag. nat. Hist.*, (4) **10** : 334.

1997. *Aspideretes leithii* Das, *Hamadryad*, **22** : 33.

Material examined : Material not available. Description based on literature.

Diagnosis : Carapace low and oval; a preneural with one or more neurals separating the first pair

of pleurals; eight pair of pleurals meet at carapace midline; plastral callosities large, five in number. Alveolar surface of upper jaw is flat and with a fairly well defined median maxillary grove between them. Dorsal colouration is olive green with lighter vermiculations. Ventrum is whitish. Head is greenish with black longitudinal lines from between the eyes and two oblique black streak emerge on either side and one streak starts behind the eye.

Distribution : Madhya Pradesh (Bilaspur), Ganga river system and all the rivers of peninsular India as far as Tamil Nadu.

Status : This species is endangered on account of excessive killing of the adults for flesh.

Remarks : This species is completely omnivorous and also a scavenger. Frequently seen basking on sandy banks or resting in shallow water with its head striking out of water.

5. *Aspideretes hurum* (Gray)
Indian peacock softshell turtle

1831. *Trionyx hurum* Gray, *Syn. Rept.*, : 47. p. 10.

1997. *Aspideretes hurum* Das, *Hamadryad*, **22** : 33.

Material examined : ZSI 24408, loc. Bhopal, 2.12.86, coll. Indraneil Das. (Type locality : Brrackpore, West Bengal).

Measurements : Carapace length : 80 mm; Carapace width : 73 mm.

Diagnosis : Carapace low and oval; a preneural and a neural between the first pair of pleurals; eighth pair of pleurals meet at carapace midline; plastral callosities large; five in number; head large with snout strongly downturned; several longitudinal rows of tubercles on the posterior of the carapace. Carapace olive with a yellow rim, plastron light grey. Head and limbs olive.

Distribution : Madhya Pradesh: as stated in the material. The turtle is widespread in the northern part of the Indian subcontinent, inhabiting the drainages of the Ganga, Brahmaputra and Subarnarekha rivers.

Status : The species is protected under schedule I of the Indian Wildlife (protection) Act of 1972.

Remarks : This is most common species of turtle in the markets of eastern India.

Genus 4. *Lissemys* Smith, 1931

6. *Lissemys punctata punctata* (Lacepede)
Indian flap-shell turtle

1788. *Testudo punctata* Lacepede, *Hist. Ovip.*, **2** : 446.

1982. *Lissemys punctata punctata* Webb. *Amphebia Reptilia*, **3** : 179-181.

Material examined : Z.S.I. 25340, loc. Bilashpur (Kanan Pandari). 24.8.1998, coll. S. Sur.

Measurement : Carapace length : 196 mm; Carapace width : 173 mm.

Diagnosis : Carapace broadly oval in adult. Head moderately large, snout short, carapace and plastron covered with skin, callosities finely granulated. Lateral and portion of carapace flexible. Plasrton with soft semi-circular flaps which conceal retracted hindlimbs. Plastron with seven callosities. Limbs fully webbed, three clawed. Tail short. Olive brown above, with numerous black bordered yellow spots irregularly arranged, with a light yellow rim.

Distribution : Madhya Pradesh: Bilaspur, Hoshangabad, Raipur, Bhopal and Shivpuri dists, Gujarat, Punjab, Rajasthan, Maharashtra, Kerala, Tamil Nadu, Andra Pradesh, Orissa, Bihar, West Bengal and Andman Islands.

Status : This species is protected under shedule I of the Indian Wildlife (Protection) Act, 1972.

Remarks : This subspecies prefers to live in shallow, muddy ditches and marches. It is a carnivorous turtle and feeds mainly on frogs, fishes, shrimps and snails.

Genus 5. *Chitra* Gray 1844

*7. *Chitra indica* (Gray)
Narrow-headed softshell turtle

1831. *Trionyx indicus* Gray, *Syn. Rept.*, : 47.

1922. *Chitra indica* Smith, *J. Fed. Malay St. Mus.*, **10** : 264

Material examined : Material not available. Description based on literature.

Diagnosis : Shell oval and depressed; shell bones prominently pitted; orbit nearer the nasal than the temporal fossa; snout is rounded; alveolar surfaces of jaws are slightly expanded. The eyes are situated close to the nostrils. Carapace is remarkably pitted and vermiculated. The basic colour is dull olive or bluish-grey dorsally, with a pattern of wavy reticulations, a 'V' shaped mark commencing from the nape and extending to the carapace.

Distribution : Madhya Pradesh: Chambal area. The turtle is widespread in the Oriental region from the Indian subcontinent, eastwards to Thailand, in the rivers Indus, Ganga, Godavari, Padma, Mahanadi.

Status : Indeterminate, suspected to be threatened on account of excessive killing of adults and over exploitation of eggs for foods.

Remarks : This species is most agile and prefers to live in shallow rivers with sandy bottoms and banks. Its food mainly fish gastropod (molluscs and other small animals).

Family 4. BATAGURIDAE

Key to the genera

1. Alveolar surfaces of jaws broad, without median ridge. .....
- Alveolar surfaces of jaws broad, with a median ridge. 2
2. Fourth vertebral shield not longer than Broad, not longer than third. ..... *Hardella*
- Fourth vertebral shield elongate, much longer than broad, much longer than third .... *Kachuga*

Genus 6. ***Hardella*** Gray, 1870

* 8. ***Hardella thurjii*** (Gray)
Crowned river turtle

1831. *Emys thurjii* Gray, *Syn. Rep.*, **22** : 72.

1889. *Hardella thurjii* Boulenger, *Cat. Chel. Brit. Mus.*, 63.

Material examined : Material not available. Description based on literature.

Diagnosis : Carapace fairly depressed with interrupted vertebral keel; vertebral broader than long; carapace extensively sutured to plastron; plastron with a narrow posterior lobe; head large, snout projecting behind the lower jaw, skin of posterior of forehead smooth; limbs with narrow transverse scale, tail short, colour of carapace dark brown with a gray black vertebral keel. Plastron yellow.

Distribution : Madhya Pradesh : National Chambal Sanctuary, Kanha National Park, Assam, Bihar, Utter Pradesh, West Bengal, Punjab and Rajasthan.

Status : Large growing species is the commonest hard shelled turtle of Eastern India.

Remarks : Sluggish species which inhabits pools, cannals, slow moving rivers and is highly aquatic in nature. This is non-aggressive species when threatened, it retracts its head and limbs into the shell and does not attempt to bite.

Genus 7. ***Kachuga*** *Gray* 1869

Key to the Species of the genus *Kanchuga*

1. Head without crescentic band ..... *tenteria*
- Head patterned with crescentic band.....2
2. Head patterned with a broad, orange crescentic band..... *tectun*
- Head patterned divided into shields by fine lines. ..... *dhongoka*

9. ***Kachuga tentoria*** (Gray) 1834
Indian tent turtle

1834. *Emys tentoria* Gray, *Proc. Zool. Soc.*, : 54.

1997. *Kachuga tentoria* Das, *Hamadryad*, **22** : 33.

Material examined : ZSI 17713, Bilaspur, date : ?, coll. : E.A. D'abreu.

Measurements : Carapace length : 98 mm, Carapace width : 75 mm.

Diagnosis : Carapace elevated, oval with a distinct vertebral keel that is spiked especially on vertebral 3; vertebral 3 and 4 longer than wide, vertebral 5 wider than long, plastron truncated

anteriorly notched posteriorly, snout pointed. The head is dull olive and the red or orange patches on the temporal region are almost absent, second vertebral shield shorter than third.

Distribution : Madhya Pradesh : Bilaspur, Orissa (Tikarpara, Sambalpur, Cuttack and Puri), Andhra Pradesh (Manthani), Maharashtra (Dhon & Pune).

Status : Species has become vulnerable on account of large scale river pollution and habitat destruction. Unprotected by legislation, this familiar species of the north Indian river system is not threatened at the moment.

Remarks : This species is highly aquatic and inhabits the slow running water near the banks and still water pools on the river side. This is mainly herbivorous.

*10. *Kachuga kachuga* (Gray)
Red-crowned roofed turtle

1831. *Emys kachuga* Gray, *Illus. Ind. Zool.*, **5** : pl. 9.

1974. *Kachuga kachuga* Smith, *Fauna Brit. Ind.*, **1** : 131.

Material examined : Material not available. Description based on literature.

Diagnosis : Carapace moderately elevated, oval and slightly flaring posteriorly; vertebral keel with a knob which is most prominent on vertebral II; vertebral wider than long or as wide as long, except vertebral II and IV, which are longer than wide; snout slightly upturned; upper jaw weakly bicuspid; strongly serrated. Carapace brownish or olive in males dark brown or black in females; the plastron of both sexes cream or yellow. Adult males have a blue-black head, a broad red patch from the tip of the snout to the occiput, two yellow stripes on the sides of the head and six red stripes on a cream colour neck.

Distribution : Madhya Pradesh : Barenda in the Chambal, Restricted to river of northern India. The known localities of occurrence are : Bihar, Punjab, Uttar Pradesh and West Bengal.

Status : This rare and beautiful turtle is protected under Schedule I of the Indian wildlife (Protection) Act of 1972.

Remarks : A species of large rivers, basks on sand banks, rocks and logs. Basking has been observed in the late March to early April, but not during the winters in the Chambal region of north-central India. This is a shy, non-aggressive species.

11. *Kachuga tectum* Gray
Indian roofed turtle

1831. *Emys tectum* Gray, *Illus. India. zool.*, **2** : pl. 7.

1997. *Kachuga tectum* Das, *Hamadryad*, **22** : 33.

Material examined : ZSI 17773, Bilaspur, Date : 14.02.1915. Coll. : E. A. Debren. ZSI. 24258, Bhopal, Date : 1984, Coll : S. Bhale Rao.

Measurements : Carapace length : 106 mm; Carapace width : 93 mm.

Diagnosis : Carapace elevated, oval with a distinct vertebral keel that is spiked, especially on vertebral 3; vertebral 1 as long as wide or longer than wide, vertebral 2 and 3 variable; vertebral 4 longer than wide, flask-shaped; vertebral 5 wider than long; snout pointed, carapace brownish, with a light brown, red or orange stripe along the first three vertebrals, the marginals with a narrow yellow border, plastron yellow or pink; head with orange or reddish crescent shaped post ocular markings, curving up from below the eyes to meet on the forehead; neck dark with thin yellow stripes.

Distribution : Madhya Pradesh : Bilaspur and Bhopal as mentioned in the material, Arunachal Pradesh, Assam, Meghalaya, Bihar, Uttar Pradesh, West Bengal, Punjab and Gujarat.

Status : This common species is given the strictest legal protection in India, being listed under Schedule 1 of the Indian Wildlife (Protection) Act of 1972.

Remarks : Non-aggressive, herbivorous species.

12. *Kachuga dhongoka* (Gray)
Three-striped roofed turtle

1834. *Emys dhongoka* Gray, *Illus. Ind. Zool.*, 2 pl. 60

1912. *Kachuga dhongoka* Chaudhuri, *Rec. Ind. Mus.*, **7** : 212.

Material examined: ZSI 857, Narbada river. ZSI 858, Sagar, Coll : Lt. Roberts, (Stuffed specimen in poor condition).

Measurements : Males are considerably smaller than females attaining 25.5 cm. in maximum carapace length.

Diagnosis : Carapace fairly elevated oval, a vertebral keel with a knob on vertebral 2, vertebrals longer than wide, except vertebrals 2 & 5, which are as wide as or wider than long; plastron narrow, truncated anteriorly and notched postriorly, snout slightly upterned; skin of head smooth anteriorly and divided into small irregular scales posteriorly. Carapace brownish olive or greyish with black or dark brown stripes on the vertebral and pleural regions as well on the edges of the marginals, head and neck greyish with a cream or yellow stripe from the snout across the eyes and tympanum.

Distribution : Madhya Pradesh : as stated in the material, Bihar, Uttar Pradesh, Rajasthan, West Bengal and Assam.

Status : The species is listed under Action Plan Rating 3 of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group.

Remarks : The species is distributed over the medium-sized and large rivers. The species basks on sand banks, rocks and logs. Basking may be seen regularly at the end of March to early April in the Chambal region of Madhya Pradesh.

Family 5. TESTUDINIDAE

Genus 8. ***Geochelone*** Fitzinger, 1835

13. ***Geochelone elegans*** (Schoepff)
Indian star tortoise

1795. *Testudo elegans* Schoepff, *Hist. Test.*, : 111.

1988. *Geochelone elegans* Crumly, *Smithsonian Herpetol. Inf. Serv.*, **75** : 1-17.

Material examined : ZSI 1, Central India, Date : Feb. 1872, Coll : W.T. Blanford.

Measurements : Specimen is in poor condition.

Diagnosis : Carapace oblong when viewed from above in adults, to almost round in juveniles. Nuchal absent; all vertebrals (except first, which is as long as broad) are broder than long; marginal 12 fused; bridge with a single axillary and inguinal scute on each side; head with a weak bi- or tricuspid upper jaw; each vertebral and coastal shield with a yellow areola, from which form a radiating pattern as many as eight streaks, producing a starred pattern which is continuous over marginals to plastron. Head and limbs yellow, more or less spotted with dark brown or black.

Distribution : Madhya Pradesh : as stated in the material, Rajasthan, Gujarat, Karnataka, Andhra Pradesh and Tamil Nadu.

Status : Indeterminate, suspected to be threatened by habitat loss.

Remarks : The species inhabits rocky, grassy arid areas with plenty of other vegetation. Largely herbivorous, a variety of fruits and vegetables accepted by the species in captivity, a favourite being red and orange coloured food, such as tomatoes, oranges and water melons.

Order III. SQUAMATA

Suborder II. SAURIA

Key to the family of the suborder SAURIA

1. Tongue slender, forked ..... VARANIDAE
– Tongue not slender, nor forked 2
2. Top of head with symmetrical shield 3
– Top of head without symmetrical shield...4
3. Body covered with osteodermal plates femoral pore absent ..... SCINCIDAE
– Body not covered with osteodermal plates, femoral pore present ..... LACERTIDAE
4. Tail prehensile ..... CHAMAELEONIDAE
– Tail not prehensile 5
5. Dorsal scales imbricate, pupil rounded .... AGAMIDAE
– Dorsal scales not imbricate, pupil a narrow slit 6

6. Eyes without movable eylids, digits dilated ..... GEKKONIDAE

– Eyes with movable eylids, digits not dilated ..... EUBLEPHARIDAE

Family 6. EUBLEPHARIDAE

Genus 9. *Eublepharis* Gray, 1827

14. *Eublepharis hardwickii* Gray
Common fat-tailed gecko

1827. *Eublepharis hardwickii* Gray, *Phil. Mag.* (2) ii, p. 56.

1932. *Eublepharis hardwickii* Onial, *J. Bombay N. H. Soc.*, **35** : 903.

Material examined : ZSI 25321, Bundhogarh National Park, Umaria Dist. Coll : H. Khajuria, Date : 1975.

Measurements : Snout to vent : 90.5 mm; Tail : 60.7 mm.

Diagnosis : Head large, neck very distinct, snout obtusely pointed. Rostral broader than high not in contact with the nostril, three or four internasals; 9-10 upper and as many lower labials. Head covered above with irregular polygonal scales; body stout, back with small irregular juxtaposed scales inter mixed with larger rounded or oval subconical or keeled tubercles; belly with rounded imbricate scales. Limbs short; digits short. Tail shorter than the head and body, cylindrical, much swollen at the base, tapering to a point. Reddish brown to very dark brown above, with broad cream colour transverse marking.

Distribution : Madhya Pradesh : as stated in the material, Orissa and adjacent districts of Bengal and Bihar.

Status : Rare.

Remarks : Insectivorous, nocturnal and terrestrial.

Family 7. GEKKONIDAE

Key to the genera of the family GEKKONIDAE

1. Eyelids immovable, digits strongly dilated. ..... *Hemidactylus*

– Eyelids immovable but digits not dilated ... . *Geckeolla*

Genus 10. *Geckoella* (Beddome)

15. *Geckoella nabulosus* (Beddome)
Clouded ground gecko

1870. *Gymnodactylus nebulosus* Beddome, *Madras Month. J. Med. Sc.*, 1 : 169-176.

1993. *Gymnodactylus nebulosus* Kluge, *International Gecko Soc. San Diego.*, 245 pp.

Material examined : ZSI 22338, Mandla dist. (Kisli), 27.1.1954, coll. K.K. Tiwari. ZSI 22339, Mukhi, 4.2.1954, coll. K.K. Tiwari.

Measurements : Snout to vent : 46 to 50 mm., Tail : 35 to 41 mm.

Diagnosis : Head moderately larger and depressed, covered above with small rounded scales. Upper labials 10-12 and same in lower. Body is slightly depressed; dorsal scales on back are small, granular inter-mixed with numerous rounded larger keeled tubercles, belly is with 35-40 rounded imbricate scales across the middle of the body. Tail is shorter than the body and head, swollen at the base. Greyish dorsal coloration, with dark brown, paired, transverse, black-edge spots throughout the body and tail; ventrum is brown.

Distribution : Madhya Pradesh : as stated in the material, Kerala, Andhra Pradesh and Tamil Nadu.

Status : Indeterminate.

Remarks : The species is terrestrial, collected under stones from Kisli and from dry bed of the Banjer river, Mukhi.

16. *Geckoella collegalensis* (Beddome)
Kollegal ground gecko

1870. *Gymnodachylus collegalensis* Beddome, *Madras Month. J. Med. Sc.*, 2 : 173.

1997. *Geckoella collegalensis* Das, *Hamadryad*, **22** : 34.

Material examined : Mandla Dist. Kanah N. Park, 19.10.1963, coll : H. Khajuria.

Measurements : It could not be taken as the specimen is in damaged condition.

Diagnosis : A small and stoutly-built gecko. Head moderate and tail shorter than head and body. Almost complete absence of enlarge dorsal tubercles; mid body scales in 40 rows.

Distribution : Madhya Pradesh : Kanha N. Park as stated in the material. Hills of southern India at low elevations.

Status : Common.

Remarks : It is a forest form, generally found under bark of dead trees. It is a conspicuously and handsomely colourd gecko. Dorsal side is marked by large, oval black paired spots. Head spotted with brown colour.

Genus 11. ***Hemidactylus*** Oken, 1817

Key to the species of the genus *Hemidactylus*

1. Enlarge dorsal tubercles numerous, strongly keeled, arranged in regular longitudinal series 2
- Enlarged dorsal tubercles not numerous, feebly keeled, not regularly arranged 5
2. Subdigital lamelae in oblique series 3
- Subdigital lamelae in strait transverse series ..... *maculatus*
3. Free digital phalanx of inner digit not half as long as the dilated portion 4
- Dorsal tubercles not so large; back with dark spots ..... *brookii*
4. 7 to 10 lamellae under fourth toe .. *triedrus*
- 12 lamellae under 4th toe ..... *subtriedrus*
5. Free distal phalanx of inner digit not half as long as the dilated portion; male with continuous series of preano-femoral pores ..... *frenatus*
- Free distal phalanx of inner digit is half as long as the dilated portion; male with femoral pores only 6
6. Tail with enlarged tubercles above 7
- Tail with uniform small scales above .... *giganteus*
7. 9 to 11 lamellae under 4th toe; 10 to 17 femoral pores each side ..... *leschenaulti*
- 11 to 14 lamellae under 4th toe; 5 to 7 femoral pores on each side ..... *flaviviridis*

17. ***Hemidactylus brookii*** Gray
Brook's house gecko

1845. *Hemidactylus brookii* Gray *Cat. Liz. Brit. Mus.*, : 153.

1906. *Hemidactylus brooki* Annandale, *Mem. Asiat. Soc. Beng.*, **1** : 183.

Material examined : Raipur district : ZSI 25233, Binda Nawagarh, 20.08.98. ZSI 25267, Najim, 13.08.98. ZSI 25271, Pithora, 14.08.98. ZSI 25278, Batapara. ZSI 25290, Teranga 1.08.98, Bilaspur Dist., ZSI 25295, Mungoli, ZSI 25300, Gordekon, Shahdol Dist., 24.11.99, ZSI 25303, Amarkantak, 24.11.99, ZSI 25397, Keror, 18.11.99, ZSI 25309, Vasanai, 22.11.99, ZSI 25312, Ghunghuti, 16.11.99. Mandla district: ZSI 25301, Piporia, 29.11.99, ZSI 25302, Goraspur, 23.11.99, ZSI 25304, Chabi, 26.11.99. Jabalpur district: ZSI 25305, Bijadandi, 02.12.99, ZSI 25306, Barela, 03.12.99. Satna district : ZSI 25413, Maihar, 29.03.02. Panna district : ZSI 25414, Kartal, 04.04.02, ZSI 25443, Panna, 04.04.02, ZSI 25406, Ajoygarh, 03.04.02. Chhattarpur district : ZSI 25401, Khajuraho, 06.04.02, ZSI 25445, Bemitha, 07.04.02, ZSI 25448, Ganji, 07.04.02. Damoh district : ZSI 25438, Tendukheda, 11.04.02. All specimens are collected by Shri S. Sur.

Measurements : Snout to vent : 30-49 mm, tail : 25-56 mm.

Description : Head moderately large, snout obtusely pointed; 8-10 upper and 7-9 lower labials, 5-6 lamellae under 1st toe and 7-10 under 4th toe. Back with conical tubercles arrange in a regular series. Colour brown or grey with dark spots, whitish below; male with 14-24 preano-femoral pores.

Distribution : Madhya Pradesh : as stated in the material, Occurring through out the Indian region.

Elsewhere : South-east Asia, Southern China and Northern Africa.

Remarks : A domestic gecko is often found quite away from human buildings. It lives in a variety of habitat on trees, rocks, under stones and buildings.

18. *hemidactylus gracilis* Blandford
Slender gecko

1870. *Hemidactylus gracilis* Blandford, *J. Asiat. Soc. Beng.*, **39** : 362.

1935. *Hemidactylus gracilis, Smith, Fauna Brit. Ind.*, **2** : 94.

Material examined : Kanha N. Park, 27-28.02.1974, Coll : H. Khajuria. Kanha N. Park, 15.02.1974, Coll : N.K. Sinha.

Measurements : Snout to vent 49mm; tail 20mm.

Diagnosis : Body slender; back with small scales series of oval; keeled tubercles; upper labials 9, lower labials 7; lamellae on the 4th toe 9. Male with 6 preanal pores. The dorsum is grey with rectangular spots arranged in two longitudinal rows which are separated by a thin streak. The underside is whitish.

Distribution : Madhya Pradesh : as stated in the material, Maharashtra and Andhra Pradesh.

Status : Common.

Remarks : Grey above with dark brown rectangular spots arranged in two longitudinal rows separated by a thin mid streak.

19. *Hemidactylus leschenaultii* Dum. & Bibr.
Bark gecko

1836. *Hemidactylus leschenaultii* Dum. & Bibr., *Erp. Gen.*, **3** : 364.

1935. *Hemidactylus leschenaulti*, Smith, *Fauna Brit. Ind.*, **2** : 97-98.

Material examined : Jabalpur district : CRS. V264, Jabalpur, 23.03.61, Coll : R.C. Sharma. CRS. V263, Pachpedi, 24.04.60, Coll : H. Khajuria.

Measuements : Snout to vent : 33 to 80 mm. tail : 30 to 90 mm.

Diagnosis : Body stout with lateral folds; upper labials 10 to 12 and lower labials 8 to 10; body dorsally covered with fine granules intermixed with small tubercles irregularly scattered. Scales on belly small; rounded; imbrecate; 9 to 11 lamellae under 4th toe, 6 to 7 under 1st; 10 to 17 femoral pores on each side in males; grey above and white below. Back with conspicuous wavy cross-bars. A dark line from eye to ear.

Distribution : Madhya Pradesh : as stated in the material, Peninusular India, Rajasthan, West Bengal etc.

Status : Common.

Remarks : This is sylvatic and arboreal gecko found on large trees such as mango, banyan, etc. and it lies concealed under bark of those trees situated several feet above the ground.

20. *Hemidactylus flaviviridis* Ruppell
Yellow-green house gecko

1835. *Hemidactylus flaviviridis* Ruppell, *Neue, Wirb. Faun. Abyss.*, Pl. VI, Fig. 2.

1935. *Hemidactylus flaviviridis*, Smith, *Fauna Brit. Ind.*, **2** : 98.

Material examined: Raipur district : ZSI 25231, Bindra Nawagarh, 20.08.98, ZSI 25291, Teranga, 19.08.98, Coll : S. Sur. Bastar district : ZSI 24158, Jagdalpur, 19.11.79, Coll : R.C. Sharma. Morena district : ZSI 24612, Geipore, 06.08.87, Coll : A.K. Sarkar. Gwalior district : ZSI 24615, University campus, 24.07.87. Sibpuri district : ZSI 24630, M.R. National Park, Coll : A.K. Sarkar. Rewa district : ZSI 25410, Katra, 31.03.02. ZSI 25419, Manikpur, 01.04.02. Sarguja district : ZSI 25397, Ambikapur, 10.08.01, Coll : S. Sur.

Measurements : Snout to vent : 50 to 85 mm.; tail : 45 to 86 mm.

Diagnosis : Moderately large gecko with 12 to

15 upper and 10 to 12 lower labials, 7 to 10 lamellae under 1st and 11 to 14 under 4th toe. Tail swollen at base; body greyish above with five indistinct greenish brown bands edged with white posteriorly. Belly white, scales with minute black dots.

Distribution : Madhya Pradesh : as mentioned in the material, Whole of India, but widely distributed in North India.

Status : Common.

Remarks : This gecko is an edificial species, seldom seen far from human dwellings.

21. ***Hemidactylus subtriedrus*** Jerdon
Jerdon's gecko

1853. *Hemidactylus subtriedrus* Jerdon, *J. Asiat. Soc. Beng.*, **12** : 467.

1935. *Hemidactylus subtriedrus*, Smith, *Fauna Brit. Ind.*, **2** : 89.

Material examined : Bastar district : ZSI 24151, Kutamawa, Jagadalpur, 24.01.79. Coll : N. Majumder.

Measurements : Snout to vent : 92 mm : tail : damaged.

Diagnosis : 10 to 12 upper and lower labials, 8 lamellae under the 1st toe and 12 under 4th. Back of head with minute granules inter-mixed with large keeled tubercles. Light brown with dark-brown saddle shaped band on the dorsum.

Distribution : Madhya Pradesh : as mentioned in the material, Andhra Pradesh and Tamil Nadu.

Status : Indeterminate.

Remarks : This is a rock dwelling, nocturnal and insectivorous species.

22. ***Hemidactylus maculatus*** Dum. & Bibr.
Spotted house gecko

1836. *Hemidactylus maculatus* Dum & Bibr., *Erp. Gen.*, **3** : 358.

1935. *Hemidactylus maculatus*, Smith, *Fauna Brit. Ind.*, **2** : 85-86.

Material examined : Bastar district : ZSI 24155, Sukna, 28.02.79, Coll : R.C. Sharma. ZSI 25506, Jagadalpur, 25.10.03, Coll : N.C. Gayen.

Measurements : Snout to vent : 80 mm to 95 mm tail 100 mm to 117 mm.

Diagnosis : Head is large and prominent and covered with small granular scales intermixed with larger conical tubercles, 10 to 12 upper and 9 to 10 lower labials; mental shield subtriangular; broader than the rostral and slightly longer than the adjoining labials; the transverse lamellae under toes are completely straight and smooth, 9 to 10 under the inner toe, 11 to 13 under 4th. Tail is larger than the head and body. Male with femoral pores on each sides.

Distribution : Madhya Pradesh : as mentioned in the material, Gujarat, Kerala, Maharashtra and Tamil Nadu.

Status : Indeterminate.

Remarks : This is a carnivorous species and inhabits the crevies, caves and other such structures in the rocks.

23. ***Hemidactylus giganteus*** Stoliczka
Giant stout Indian gecko

1871. *Hemidactylus giganteus* Stoliczka, *P. Asiat. Soc. Beng.*, : 193.

1935. *Hemidactylus giganteus*, Smith, *Fauna Brit. Ind.*, **2** : 99.

Material examined : Bastar district : ZSI 24730-37, Konta, 06-07.03.79, Karkar, 05-08.03.79, Jagadalpur, 17.02.79, Charma, 05.03.79. Coll : R.C. Sharma & Party.

Measurement : Snout to vent : 60-100 mm; tail : 90-100 mm.

Diagnosis : Size large, 12 to 15 upper and 10 to 12 lower labials; mental large subtriangular; back with more or less uniform small granules; no enlarge tubercles; belly with smooth, rounded, imbicate scales; 13 to 15 lamellae under 4th toe. Male with numerous preanofrmoral pores. Greyish dorsally and whitish on undersides. Back with prominent large W-shaped cross bars.

Distribution : Madhya Pradesh : as mentioned in the material, Andra Pradesh, Kerala, Maharashtra and Tamil Nadu.

Status : Rare.

Remarks : This species is arboreal and insectivorous.

24. *Hemidactylus frenatus* Schlegel
Asian house gecko

1836. *Hemidactylus frenatus* Schlegel, *Erp. Gen.*, **3** : 336.

1935. *Hemidactylus frenatus*, Smith, *Fauna Brit. Ind.*, **2** : 95-96.

Material examined : Raipur district : ZSI 25229, Raipur, 13.08.98, ZSI 25234, Bindra Nawagarh, 20.08.98, Coll : S. Sur.

Measurements : Snout to vent : 35-55 mm; tail : 25-45 mm.

Diagnosis : Habitus and scalation similar to those of *Hemidactylus leschenaultii*. It is a small lizard and differs in the following particulars : 1st toe less than of length of second; male with a continuous series of 23 or more preano- femoral pores; dorsal tubercles scattered of partly in linear arrangement or absent. Dark brownish dorsally and dirty whitish below. A dark stripe through the eye to the sides and groin. Flanks with dark spots.

Distribution : Madhya Pradesh : as mentioned in the material, Peninsular India.

Status : Abundant throughout its range.

Remarks : The species is insectivorous, nocturnal and prefers to live in crevices of tree trunks, deserted houses garden and all sorts of habitats.

Family 8. AGAMIDAE

Key to the genera of the family AGAMIDAE

1. Body depressed. 2
- Body not depressed 3
2. Tympanum exposed; male without callose preanal scales ..... *Psammophilus*
- Tympanum exposed; male with callose preanal scales ..... *Laudakia*
3. Dorsal crest present, five toes only ..... *Calotes*
- Dorsal crest absent, four toes only ..... *Sitana*

Genus 12. *Calotes* Rafinesque, 1815

25. *Calotes versicolor* (Daudin)
Common garden lizard

1802. *Agama versicolor Daudin, Hist. Nat. Rept.*, **3** : 395.

1853 *Calotes versicolor* Jerdon, *J. Asiat. Soc. Beng.*, **22** : 470.

Material examined : Jabalpur dist. : ZSI 23244, Jabalpur, 29.06.76, Coll : H. Khajuria. Morena dist. : ZSI 24607 & 24608, Morena, 11.08.87 & 01.08.87, Coll : A.K.Sarkar. Mandla dist. : ZSI 24868 & 24865, Kanha N. Park, 02.01.66 & 24.01.66, Coll : K.K. Tiwari. Raipur dist. : ZSI 25230, Raipur, 13.08.98; ZSI 25266, Rajim, 13.08.98; ZSI 25273, Pithora, 14.08.98; ZSI 25277, Bhatapara, 15.08.98; ZSI 25289, Teranga, 19.08.98, Coll : S. Sur. Bilaspur dist. : ZSI 25237, Korba, 24.08.98; ZSI 25296, 27.08.98, Coll : S. Sur. Shahdol dist. : ZSI 25310, Vasania, 22.11.99; ZSI 25311, Ghunghuti, 16.11.99; ZSI 25329, Anuppur, 20.11.99, Coll : S. Sur. Hoshangabad dist. : ZSI 25376, Hirankhera, 13.08.2000; ZSI 25379, Piparia, 16.08.00, Coll : S. Sur. Raigarh dist. : ZSI 25391 & 25392, Chhal, 05.08 & 06.08.2000, Coll : S. Sur. Panna dist. : ZSI 25404, Ajoygarh, 03.04.02; ZSI 25415, Kartal, 04.04.02, Coll : S. Sur. Rewa dist. : ZSI 25420, Manikpur, 01.04.02; ZSI 25411, Katra, 31.03.02, Coll : S. Sur. Satna dist. : ZSI 25412, Maihar, 29.03.02, Coll : S. Sur. Chhatarpur dist. : ZSI 25447, Bemitha, 07.04.02, Coll : S. Sur. Bastar dist. : ZSI 25434-35, Bijapur, 05.02.90 & 08.02.90, Coll : R.K. Ghosh.

Measurements : Snout to vent : 25-110 mm; tail : 47-250 mm.

Diagnosis : Head is oval and body is laterally compressed. Dorsal scales strongly keeled and more or less longer than ventrals. 35 to 52 scales round the body; two separated spines above the tympanum.

Distribution : Madhya Pradesh : as mentioned

in the material, Widely distributed through the Indian sub-continent.

Status : Common.

Remarks : An arboreal, diurnal lizard of gardens, hedges, scrubend and forest.

Genus 13. ***Laudakia*** Grey, 1845

26. ***Laudakia minor*** (Hardwicke & Gray)
Lesser agama

1827. *Laudakia minor* Hardwicke & Gray, *Zool. Jour.*, **3** : 218.

1845. *Laudakia minor* Gray, *Liz. Brit. Mus.*, : 254.

Material examined : Bhopal dist. : ZSI 25107, Narayan nagar, June 1987, Coll : Indraneil Das. Jabalpur dist. : CRS V732, 09.04.69, Jabalpur, Coll : R.C. Sharma.

Measurements : Snout to vent : 42-98 mm; tail : 34-80 mm.

Diagnosis : Head large, not elongated, body depressed, upper head scales large, unequal strongly keeld; two separated spines above the ear; upper and lower labials scales are equal in number, dorsal scales large strongly imbicate and keeled pointing backwards and upwards; ventral smaller than the dorsal. Limbs short, digits short, the hind limb reaches to the back of the head. Yellowish-brown above and yellowish-white below, limbs with dark cross bars.

Distribution : Madhya Pradesh : as stated in the material, Utter Pradesh and Central India.

Status : Indeterminate.

Remarks : It lives in holes in the ground and feeds upon insects.

Genus 14. ***Psammophilus*** Fitzinger, 1843

27. ***Psammophilus blanfordanus*** (Stoliczka)
Blanford's rock agama

1871. *Charasia blanfordanus* Stoliczka, *Asiat. Soc. Beng.*, : 194.

1935. *Psammophilus blanfordanus* Smith, *Fauna Brit. India*, **2** : 210.

Material examined : Bastar dist. : ZSI 23853, Duranpal, 23.02.79; ZSI 23858, Sukna, 01.03.79; ZSI 23870, Dantwara, 27.02.79; ZSI 23941, Kanker, 06.03.78; ZSI 23969, Konfa, 22.02.79; ZSI 24158, Sukna, 28.02.79; ZSI 24190, Chitrakut, 18.02.79, Coll : R.C. Sharma. ZSI 24192, Charma, 05.03.79; ZSI 124278, Gidam, 06.06.80; ZSI 24284, Bijapur, 11.06.80; ZSI 24324, Barsur, 31.05.80; ZSI 24354, Bailadila, 04.06.80; ZSI 24427, Bijapur, 08.06.80; ZSI 24429, Chiritapalli, 10.06.80, Coll : D.P. Sanyal. Raipur dist. : ZSI 25232, Brinda nawagarh, 20.08.98; ZSI 25264, Rajim, 13.08.98; ZSI 25269, Pithora, 14.08.98; ZSI 25272, Bhatapara, 15.08.98; ZSI 25284, Persuli, 17.08.98, Coll : S. Sur. Bilaspur dist. : ZSI 25453, Nogai, 23.08.98; ZSI 25236, Korba, 24.08.98, Coll : S. Sur. Seoni dist. : ZSI 25368, Charia, 22.08.2000, Coll : S. Sur. Raigarh dist. : ZSI 25393-94, Sarrangarh, 05-07.08.2001, Coll : S. Sur.

Measurements : Smout to vent : 107-110 mm; tail : 130-160 mm.

Diagnosis : Body depress covered with uniform keeled scales; regularly arranged in 80-100 rows round the midbody; flank with a few scattered and a little larger series of scales. Young and females olive brown marbled or fleeks of brown; a series of large, lozenge shaped dark brown spots on the back and tail which fade out with age.

Distribution : Madhya Pradesh : as mentioned in the material, Orissa, Eastern Ghats and Kerala.

Status : Common.

Remarks : It is found on rocks; during breeding season the head and fore-parts of the male assume a brilliant red colour.

Family 9. CHAMAELEONIDAE

Genus 15. ***Chamaeleo*** Laurenti, 1768

28. ***Chamaeleo zeylaricus*** Laurenti
Indian chamaeleon

1768. *Chamaeleo zeylanicus* Laurenti, *Syn. Rept.*, : 68.

1853. *Chamaeleo zeylanicus* Jerdon, *J. Asiat. Soc. Beng.*, **22** : 466.

Material examined : Observed in the field of Chhindwara dist. by the authors. 1 example, Narshingpur, Coll : B.S. Chauhan, 23.X.1956.

Meausurements : Standard length snout to vent 166 mm; tail length 188 mm.

Diagnosis : Body compressed laterally; skull strongly ossified; a caseque on the top of the head. Body covered with granular scales; a prominent canthal and supra orbital crest, the latter continued backwards as a ridge of enlarge tubercles along side of head and than curving upwards to meet parietal crest; no rostral appendages. Eye large; pupil opening a small aperture; tympanum absent; tongue extensile, clubshaped at tip. Forelimbs modified for grasping and digits in two opposed sets, two directed away from and three towards body; number is reversed in arrangement of foot. Tail prehensile; green varying in shade from pale green to almost black. Tail banded.

Distribution : Madhya Pradesh : as mentioned in the material, Indian Peninsular up to the drainage of the Ganga river in the east.

Status : Rare.

Remarks : The prevailing colour in life is green, varying in shade from very pale green to almost black.

Family 10. SCINCIDAE

Key to the genera of the family SCINCIDAE

1. Palatine bones separated at median line of palate.
- Palatine bones meeting on midline of palate 2
2. Pterygoid bones separated, notch reaching towards level of centre of eye ..... *Mabuya*
- Pterygoid bones not separated, palatal notch not reaching level of eye and tympanum exposed ..... *Lygosoma*

Genus 16. *Lygosoma* Hardwicke & Gray, 1827

Key to species of the genus *Lygosoma*

1. Lower eyelid scaly ..... *albopunctata*
- Lower eyelid not scaly, with an undivided transparent disc 2
2. Five fingers, five toes ..... *punctata*
- Four fingers, four toes ..... *lineata*

29. *Lygosoma lineata* (Gray)
Lined supple skink

1839. *Chiamela lineata* Gray, *Ann. Mag. Nat. Hist.*, **2** : 333.

1927. *Lygosoma lineata* Hora, *Rec. Iad. Mus.*, **29** : 6.

Material examined : Mandla district : ZSI 25327, Kalpi, 30.11.99, Coll : S. Sur.

Measurements : Snout to vent : 55 mm; tail : 60 mm.

Diagnosis : Size smaller but with a relatively more elongated body; lower eyelid with an undivided transparent disc; 22 scales round midbody; 106 scales down middle back; limbs short; four fingers and four toes; third and fourth toes subequal, 8 lamellae under fourth toe. Golden brown above with black dots forming prominent longitudinal lines.

Distribution : Madhya Pradesh : as mentioned in the material, Maharashtra and Karnataka. It is recorded first time from Madhya Pradesh.

Status : Uncommon.

Remarks : Under dweller; habits are not known.

30. *Lygosoma punctata* (Gmelin)
Spotted supple skink

1799. *Scincus punctatus* Gmelin, *Hist. Amphib.*, : 197.

1887. *Lygosoma punctata* Boulenger, *Cat. Liz. Brit. Mus.*, **3** : 310.

Material examined : Balaghat dist. : ZSI 22342, Ghorella, 08.02.54, Coll : A.K. Mukherjee. Katni dist. : ZSI 25318, Katni, 06.12.99, Coll : S. Sur, Raipur dist. : ZSI 25293, Teranga, 19.08.98, Coll : S. Sur, Korba dist. : ZSI 25240, Korba, 24.08.98, Coll : S. Sur. Mandla dist. : ZSI 25325, Chirangongi, 30.11.99, Coll : S. Sur.

Measurements : Snout to vent : 42-85 mm; tail : 25-38 mm.

Diagnosis : Enongated snake like body with five fingers and five toes. Lower eyelid with undivided transparent disc. Body scales smooth, 24-26 scales round midline of the body and 62-76 scales down middle of back. Limbs reduced, fourth toe longer than third, 11-14 lamellae under fourth toe. Tail thick at base. Colour brown above, each side with a dark spot forming a longitudinal series; belly yellowish white.

Distribution : Madhya Pradesh : as mentioned in the material, The hole of India, except the north east.

Status : Common.

Remarks : It spends most of its life underground. Its habits are little knwon.

31. ***Lygosoma albopunctata*** (Gray)
Snake skink

28. *Riopa albopunctata* Gray, *Ann. Mag. Nat. Hist.*, **18** : 430.

1927. *Lygosoma albopunctata* Hora, *Rec. Ind. Mus.*, **29** : 5.

Material examined : Balaghat district : ZSI 25432, Muki, 30.01.1991, Coll : R.K. Ghosh. ZSI 22344, near Ghorela-Muki, 26.02.54, ZSI 22356, Ghorela, 18.11.61, Coll : B.S. Lamba.

Measurements : Snout to vent : 50 to 110 mm; tail : 75 to 160 mm.

Diagnosis : Lower eyelid scaly; nostril in nasal; supranasals present; ear opening distinct, timpanum sunk. Limbs short or vestigial. 28 smooth scales round the body. 14 lamellae beneath the 4th toe. Tail thicker at the base.

Distribution : Madhya Pradesh : as mentioned in the material, West Bengal, Bihar, Orissa Assam and Uttar Pradesh.

Status : Common.

Remarks : Brown or reddish-brown above, dark spots forming longitudinal series; sides of neck and anterior part of the body dark brown, white below.

Genus 17. ***Mabuya*** Rafinesque, 1815

32. ***Mabuya carinata*** (Schneider)
Common skink

1801. *Scincus carinatus* Schneider, *Hist. Amphib.*, 2 : 182

1887. *Mabuya carinata* Boulenger, *Cat. Liz. Brit. Mus.*, 3 : 181.

Material examined : Raipur district : ZSI 25268, Rajim, 13.08.98; ZSI 25286, Persuli, 17.08.98; ZSI 25450, Sikhasar, 20.08.98, Coll : S. Sur. Jabalpur district : CSR V289, Gara area, 16.12.60, Coll : R.C.Sharma, CSR V288, Burghi vi 11., 28.12.60, Coll : S. Chakrapany. Chhindwara district : ZSI 25341, Tamia, 20.08.2000, Coll : S. Sur. Hoshangabad district : ZSI 25381, Malwa, 11.08.2000, Coll : S. Sur. Seoni district : ZSI 25388, Jhilmil, 26.08.2000, Coll : S. Sur. Sarguja district : ZSI 25400, Sitapur, 14.08.02, Coll : S. Sur. Chhattarpur district : ZSI 25402, Khajuraho, 06.04.02, Coll : S. Sur. Bilaspur district : ZSI 25456, Kota, 28.09.98, Coll : S. Sur. Mandla district : ZSI 25431, Manha forest, 14.01.91, Coll : R.K. Ghose. Bastar district : 30 ex. being Regd. No. ZSI 23872 to 24378, collected by R.C. Sharma and D. P. Sanyal during their field survey from 1979 to 1980.

Measurements : Snout to vent : 60-110 mm.; tail : 114-155 mm.

Diagnosis : Head with enlarged scales arranged symmetrically; one pair of nuchals. Dorsal and lateral scales subequal, with 3 or 5 distinct keels, the three median keels are strongly marked. 30 to 34 scales round the middle of the body. Digits moderately long, with smooth or obtusely keeled lamellae, 14 to 18 under the 4th toe. Young dark bronze above with a yellow lateral band from snout to base of tail. Adults light bronze above with 4-6 rows of black dots on back. A light band from behind the eye to base of the tail. Upper lip white, lower parts white or yellow.

Distribution : Madhya Pradesh : as mentioned in the material, Widely distributed in the Indian peninsula but rare or absent in N.E. India.

Status : This is the commonest of the Indian skinks.

Remarks : The male exhibits a brilliant scarlet coloration on the flanks during breeding season.

33. *Mabuya dissimilis* (Hallowell)
Striped grass skinks

1857. *Euprepis dissimilis* Hallowell, *Trans. Amer. phil. Soc.*, (2)**10** : 78.

1887. *Mabuya dissimilis* Boulenger, *Cat. Liz. Grit. Mus.*, **3** : 175.

Material examined : Jabalpur district : ZSI 25313, Katni road, 17.10.75, Coll : H.Khajuria.

Measurements : Snout to vent : 75 mm; tail : 80mm.

Diagnosis : Supranasal in contact with one another, frontonasal broader than long, prefrontals in contact with one another lower eyelid with an undivided transparent disc, temporal scales keeled. Dorsal and lateral scales sub equal, the former with 2 strong keels, digits short, with smooth lamellae beneath, the leg reaches to the wrist. Light above, with three distinct greenish white strips, a ventebral and 2 dorsolateral, flanks with spots edged with black.

Distribution : Madhya Pradesh : as mentioned in the material, Northern India, Rajasthan, Punjab, Bihar and Bengal.

Status : Common in northern India.

Remarks : Common in the dry western districts than in the eastern. Oviparous, laying 6 or 7 eggs.

34. *Mabuya macularia* (Blyth)
Bronze grass skink

1853. *Euprepes macularia Blyth, J. Asiat. Soc. Beng.*, **22** : 652.

1887. *Mabuya macularia* Boulenger, *Cat. Liz. Brit. Mus.*, **3** : 182.

Material examined : Baster dist. ZSI 24204, Boderpur, 15.6.80, ZSI 24207, Bampur, 14.6.80. ZSI 24208, Suklapara, 6.6.80. ZSI 24313, Bailadila, 4.6.80. ZSI 247222, Barsur, 31.5.80, coll : D.P. Sanyal. Jabalpur dist. V 1092 & V 1090, Nagaghat, 22.12.61, coll : R.C. Sharma. V 1092, Dungaghat, 23.7.62, coll : R.C. Sharma. Bilaspur dist. ZSI 25242, Baitalpur, 26.8.98. ZSI 25298, Mungoli, 27.8.98. ZSI 25454, Nogai, 23.9.98, coll: S. Sur. Raipur dist. ZSI 25449, Sikhasar, 20.8.98, ZSI 25275, Pithora, 14.8.98. ZSI 25279, Bhatpara, 15.8.98. ZSI 25287, Persuli, 17.8.98. ZSI 25292. Brindanawagarh, 19.8.98, coll : S. Sur. Shadol dist. ZSI 25320, Rajendragrame, 18.11.99, ZSI 25323, Anuppur, 20.11.99, coll: S. Sur. Hoshangabad dist. ZSI 25372, Rainikhera, 17.8.01, ZSI 25374, Hironkhera, 13.8.2000. ZSI 25378, Panchmari, 16.8.2000. ZSI 25382, Malwa, 11.8.2000. ZSI 25384, Babai, 12.8.2000. coll : S. Sur. Sarguja dist. ZSI 25399, Ramgarh, 13.8.01, coll : S. Sur. Panna dist. ZSI 25405, Ajoygarh, 3.4.02. ZSI 25417, Kartal, 4.4.02, coll : S. Sur. Damoh dist. ZSI 25436, Ganj, 9.4.02. ZSI. 25437, Tendukheda, 11.4.02, coll : S. Sur.

Measurements : Snout to vent : 28-60 mm; tail : 32-90 mm.

Diagnosis : Head small, snout short not depressed, eye small, frontonasal not broader than long, ear opening oval, slightly smaller eye 6 or 7 upper and 7 lower labials. 28 to 30 scales round the mid body. Dorsal scales 5-7 keels; lateral scales smooth; 12-17 lamellae under 4th toe. Tail rounded.

Distribution : Madhya Pradesh : as mentioned in the material, Widely distributed throughout India.

Status : Common.

Remarks : It is shy and sinuous lizard and inhabits grassland and edges of cultivated field.

Family 11. LACERTIDAE

Genus 18. *Ophisops* Menetries, 1832

Key to species of the genus *Ophisops*

1. Upper head shield smooth ..... *microlepis*
– Upper head shield not smooth 2
2. Occipital scale absent, 26-30 scales round the midbody ..... *minor nictans*
– Occipetal scale present; 42-50 scales round the midbody ..... *leschenaulti*

35. *Opisops microlepsis* Blanford
Small-scaled lacerta

1870. *Ophisops* (Gymnops) *microlepis* Blanford, *Asiat. Soc. Beng.*, **39** : 351.

1935. *Ophisops microlepis* Smith, *Fauna Brit. India*, **2** : 380.

Material examined : Korba dist. ZSI 2236, Korba, 2.9.1871, coll : T.C. Jerdon (Type specimen).

Measurements : Snout to vent : 55 mm; tail : 130 mm.

Diagnosis : Snout elongate, pointed, upper head shield smooth, interparietal long and narrow, smooth, dorsal scales rhomboidal, almost equal, except outermost rows in oblique, longitudinal series converging towards vertebral line, much smaller than sub caudals, 56 scales round the midbody, 12-16 femoral pores on each side. Colour olive green or brown above, a light dorso-lateral strips from supracilliary edge and ends at the base of tail, a second stripe less distinct passes along upper lip to base of hind limb, belly greenish white.

Distribution : Madhya Pradesh : as mentioned in the material, Bihar, Rajasthan and Gujarat.

Status : Common.

Remarks : The lizards are having an acute sense of homing behaviour and always choose to live in the burrows made by themselves.

36. *Ophisops minor nictans* Arnold
Indian dwarf lacerta

1870. *Cabrita jerdonii* Beddome, *Madras Month. J. Med. Sci.*, : 34.

1989. *Ophisops minor nictans* Arnole, *Bull. Brit. Mus. nat. Hist.*, (zool.) **55**(2) : 245.

Material examine : Bastar dist. ZSI 24149, Sukna, 1.3.79, coll : R.C. Sharma. Morena dist. : ZSI 24620, Shesaipura, 13.8.87, coll : A.K. Sarkar, Mandla dist. : ZSI 25316, Kalpi, 28.11.99, coll : S. Sur. Panna dist. : ZSI 25407, Ajoygarh, 3.4.02, coll : S. Sur.

Measurements : Snout to vent : 25 to 33 mm; tail : 52 to 65 mm.

Diagnosis : Upper shields coarsely striated. Nostril between a large anterior and two small posterior nasals. Anterior labials not ridged; occipital scale absent; 26 to 30 scales round the mid body; 11 to 15 femoral pores. Colour brownish or golden above with two lateral strips; the upper much more conspicuous than the lower and is bordered with a longitudinal series of black spots, lips and throat speckled with black.

Distribution : Madhya Pradesh : as mentioned in the material, Gujarat, Rajasthan, Maharashtra, Andhra Pradesh and Tamil Nadu.

Status : Common.

Remarks : E.N. Arnold proposed the name *Ophisops nictans* for the lizard, the name nictans meaning blinking in the eyes unlike most of its congeners.

37. *Ophisops leschenaulti* (Milne-Edwards)
Leschenaultis lacerata

1828. *Cabrita leschenaulti* Milne-Edwards, *Ann. Sci. Nat. Paris*, **16** : 80 & 86.

1989. *Ophisops leschenaulti* Arnold, *Bull. Brit. Mus. nat. Hist.*, (zool.) **55**(2) : 245.

Material examined : Bastar dist. : ZSI 24150, Sukna, 01.02.79, Coll : R.C.Sharma. ZSI 24721, Bansur, 31.05.80, Coll : D.P. Sanyal.

Measurements : Snout to vent; 34 mm; tail : 70 mm.

Diagnosis : Head covered with symmetrical shields; dorsal scales keeled and imbricate while the ventral are smooth and imbricate. Anterior labials ridged; occipital scale present; 42-50 scales round the mid-body. Lower eyelid large and distinct from the upper eyelid. Tail cylindrical. 12 to 16 femoral pores on each side. Dorsal colour is brownish yellow and whitish ventrally. The dorsum is having two white lateral bands, the interval between the two bands being black or green.

Distribution : Madhya Pradesh : as mentioned in the material, The Peninsula of India.

Status : Common in the open dry jungle of the Peninsula.

Remarks : An active lizard, usually found in open jungle.

Family 12. VARANIDAE

Genus 19. ***Varanus*** Merrem, 1920

38. ***Varanus bengalensis*** (Daudin)
Common Indian monitor

1802. *Tupinambis bengalensis* Daudin, *Hist. Nat. Rept.*, **3** : 67.

1998. *Varanus bengalensis* Boulenger, *Cat. Liz. Brit. Mus.*, **2** : 310.

Material examined : Morena dist : ZSI 24627, Deuri vill; 02.08.87, Coll : A.K.Sarkar. Shibpuri dist : ZSI 24633, Vagora fish farm, 16.08.87, Coll : A.K. Sarkar. Jobalpur dist. : ZSI CRS V3055, Pachpedi, 06.08.65, Purchased. ZSI CRS F. C. No. 0.241, 18.09.70, Purchased.

Measurements : Snout to vent : 600 mm. to 750 mm, tail : 890 mm to 1000 mm.

Diagnosis : Head long narrow; snout pointed. Head covered with small scales; body scales granular; limbs strong; neck long and mobile; tail laterally compressed; mid-body scales row 132-176; no femoral pores. Young and adult differ in coloration. Young dark olive with numerous light spots or ocelli alternating with dark bars and whitish on the undersides with narrow dark transverse bars sometimes broken up into spots. Adult brownish or olive above with blackish dot on the back; lower parts yellowish molted with black.

Distribution : Madhya Pradesh : as mentioned in the material, Throughout India.

Status : Protected under Schedule 1 of Indian Wild Life (Protection) Act, 1972.

Remarks : A diurnal lizard and more active in the morning and evening. Found both in the remote forests as well as on the outskirts of the villages.

Suborder III. SERPENTES

Family 13. TYPHLOPIDAE

Key to the genera of the family TYPHLOPIDAE

1. Snout pointed, with sharp horizontaledge and inferior nostrils, 28-36 scales round the body ..... *Rhinotyphlops*
- Snout rounded; nostrils lateral 2
2. Nasal suture terminating at the edge of preocular ..... *Ramphotyphlops*
- Nasal suture not terminating at the edge of preocular ..... *Typhlops*

Genus 20 ***Rhinotyphlops*** Dum. & Bibr.

39. ***Rhinotyphlops acutus*** (Dum. & Bibr.)
Beaked worm or Blind snake

1844. *Onychocephalus acutus* Dum. & Bibr., *Erp. Gen.*, **6** : 333.

1997. *Rhinotyphlops acutus* I. Das, *Hamadryad*, **22**(1) : 38.

Material examined : Gwalior dist : ZSI 13235, Gwalior, Coll : F.J. Daly.

Measurements : Standard length-350 mm.

Diagnosis : Snout pointed and hooked, projecting with sharp horizontal edge; nostril inferior. Rostral very large, covering most of the head above. 23-24 scales round the body. Colour brownish above, paler below, each scale with a paler centre.

Distribution: Madhya Pradesh : as mentioned in the material, Peninsular India, south of the Gangetic plain and south of Rajasthan, west to Gujarat and east of West Bengal.

Status : Indeterminate.

Remarks : Tail ending with a small spine.

Genus 21 ***Ramphotyphlops*** Fitzinger, 1943

40. ***Ramphotyphlops braminus*** (Daudin)
Brahminy worm snake

1803. *Eryx braminus* Daudin, *Hist. Nat. Rept.*, **7** : 279.

1943. *Ramphotyphlops braminus* Fitzinger, *Bul. Zool. Nomencl.*, (3/4) : 204-207.

Material examined : Jabalpur dist. : CRS V744, Umaria vill, 25.07.61, Coll : S. Chakrapany. CRS V745, Amkhar vill, 28.07.61, Coll : S. Chakrapany. CSR V746, Ghat vill, 25.09.61, Coll : S.Chakrapany, CSR V1098, Bhita vill.,

21.02.61, Coll : S. Singh. Panna Dist. : ZSI 25408, Ajoygarh, 03.04.02, Coll : S. Sur. ZSI 25418, Kartal 04.04.02, coll. S. Sur.

Measurements : Total length : 125-133 mm.

Diagnosis : Head bluntly rounded. Eyes indistinct. Rostral large, snout rounded, 4 upper labials, last two in contract with ocular. Nasal suture terminating at the edge of preocular. Body uniformly cylindrical. Tail very short ending in a small sharp stiff point. Scales lighty polished. 20 scales round the body. Colour brown or blackish-brown above lighter below; snout, anal region and end of tail pale.

Distribution : Madhya Pradesh : as mentioned in the material.

Elsewhere : Throughout the Oriental region.

Status : The most widespread species of the genus.

Remarks : Lives beneath the soil, stones or debris. They have also been found in flood plain forest under logs and stones. Often seen inside houses.

Genus 22 ***Typhlops*** Dumeril & Bibron, 1844

Key to species of the genus *Typhlops*

- Rostral ½ as broad as the head, 22 scales round the body ..... *tenuicollis*
- Rostral 1⅓ or more, that of head, 24 to 26 scales round the body ..... *diardii*

*41. ***Typholops diardii*** (Schlegel)
Diard's blind snake

1839. *Typholops diardii* Schlegel,. *Abbilid. Amphib.*, : 39

1923. *Typholops diardii* Smith, *J. N. H. S. Siam*, **6** : 52.

Material examined : Material not available. Description based on literature.

Diagnosis : Snout rounded, strongly projecting; nostrils lateral. Upper portion of rostral to the breadth of the head, nasal incompletely divided, prefrontal in contract with the rostral. Tail ending in a small spine. 24 to 26 scales round the body. Brown to blackish above, paler below.

Distribution : Madhya Pradesh : Malwa region. Bengal, Assam and Orissa.

Status : Indeterminate.

Remarks : Lives underground in soil.

42. ***Typholops tenuicollis*** (Peters)
Slender-necked worm snake

1864. *Onychocephalus tenuicollis* Peters, *Mon. askad. Berlin*, 272.

1923. *Typhlops tenuicollis* Wall, *J. Bombay N.H.S.*, **29** : 350.

Material examined : Bastar dist. : ZSI 23755, Gidom vill., 05.02.79, coll : S. Ahmed.

Measurements : Specimen is in poor condition.

Diagnosis : Snout broadly rounded, strongly projecting; nostrils lateral. Rostral half as broad as the head; nasal incompletely divided; ocular shorter than preocular, prefrontal in contact with the rostral; tail ending in a point; 22 scales round the body.

Distribution : Madhya Pradesh : as mentioned in the material, Eastern India.

Status : Uncommon

Remarks : First record from Baster district of Madhya Pradesh.

Family 14 BOIDAE

Key to the genera of the family BOIDAE

- A supraorbital bone; teeth on premaxilla; head covered with large shield; labials pitted ..... *Python*
- No supraorbital bone; no teeth on premaxilla; head covered with small shield; labials not pitted ..... *Eryx*

Genus 23 ***Python*** Daudin, 1803

*43. ***Python molurus*** (Linnaeus)
Indian rock python

1758. *Coluber molurus* Linnaeus, *Syst. Nat.* 10th ed., 225.

1890. *Pithon molurus* Boulenger, *Fauna. Brit. Ind.*, : 246.

Material examined : Material not available; field observation made in Amarwara of Chhindwara dist. of M.P. by Shri S. Sur.

Diagnosis : Head flattened with a long snout; neck distinct; head covered with large shields; labials pitted; nostril large; directed upwards and situated high on snout; rostral and first two labials with sensory pits. Eye small; pupil vertical; iris flecked with gold; chin with mental groove. Tail short and prehensile, tapering abruptly. Colour greyish or yellowish cream in adults. A dark streak from eye to nostril in juveniles; marking sometimes persists in adult. A conspicuous dark, oblique band from eye to neck. On back of head and nape, a large lance shaped mark with a pale centre often fading anteriorly in adults. Body with a series of large roughly quadrate patches from neck to tail dorsally.

Distribution : Madhya Pradesh : No specific records, but likely to occur in the state as authors observed one specimen in Amerwara forest area of Chhindwara dist. of Madhya Pradesh, Peninsular India to the extreme limit of Sind and the Punjab in the north-west and to Bengal in the north-east.

Elsewhere : Sri Lanka.

Status : Protected under schedule 1 of Indian Wild Life (Proction) Act, 1972.

Remarks : These large snakes inhabit dense as well as open forests with rocky outcrops near marshes and streams.

Genus 24 ***Eryx*** Daudin, 1803

Key to the species of the genus *Eryx*

- Mental groove present; tail blunt .... *johni johni*
- Mental groove absent; tail pointed .... *conicus*

*44. ***Eryx johni johni*** (Russell)
Johni's sand boa

1801. *Boa johni* Russell, *Ind. Serp.*, **2** : 18 & 20. Pls. 16 & 17.

1923. *Eryx johni johni* Smith, *Fauna Brit. Ind.*, **3** : 113 & 114.

Material examined : Material not available. Description based on literature.

Diagnosis : Head not distinct from neck; snout broad; edge-shaped, rostral shield wide and heavy; nostril slit like between enlarged nasals; upper labials 9 to 12; lower labials 13 to 18; mental groove present; no chin shields; eye surrounded by 9 to 12 small scales; body robust; tail completely blunt. Eye small; pupil vertically elliptical; tail short, stumpy, rounded at its end. Colour sandy grey or yellowish above, the scales edged with dark brown or entirely brown above; uniform or with more or less distinct dark transverse bands; lower parts whitish, spotted with dark brown or almost entirely brown.

Distribution : Madhya Pradesh : Likely to occur in Malwa region, Widely distributed in the plains of the Indian subcontinent.

Status : Common.

Remarks : That the snake has two heads is believe held over the country due to its stumpy rounded short tail and in general form very similar to the head.

45. ***Erxy conicus*** (Schneider)
Common sand boa

1801. *Boa conica* Schneider, *Hist. Amphib.*, **2** : 264.

1893. *Eryx conicus* Boulenger, *Cat Sn. Brit. Mus.*, **1** : 124

Material examined : Jabalpur dist. : CRS V2729, Agrawal colony, 31.07.1970, Coll : D.K. Ghosal.

Measurement : Standard length 345 mm.

Diagnosis : Head slightly distinct from neck; rostral about two times broader than high; mental groove absent; nostril slit-like, between two nasals and internasals. Head cover with small obtusely keeled scales; 8 to 10 scales across forehead between eye ; 10 to 15 scales round eye. Upper labials 11 to 13; lower labials 14 to 17. Body robust; dorsal scales keeled. Tail very short and bluntly pointed. Colour yellowish, brownish or greyish above, with a dorsal series of large dark brown, black-edged spots, usually confluent with one another to form a zig-zag strip; lower parts yellowish or whitish; outer scales rows with small brown spots.

Distribution : Madhya Pradesh : as mentioned in the material, Occurs from the base of the Himalayas to the extreme south of India and from Sind and Baluchisthan in the west to Bihar and Bengal in the east.

Status : Common.

Remarks : It is a slow moving species, with uncertain temper.

Family 15. UROPELTIDAE

Genus 25. ***Uropeltis*** Cuvier, 1829

*46. ***Uropeltis ocellatus*** (Beddome)
Nilgiri shieldtail

1863. *Silybura ocellata* Beddome, *P. Z. S.*, 225.

1943. *Uropeltis ocellatus* Smith, *Fauna Brit. Ind.*, **3** : 76-77.

Material examined : Material not available. Description based on literature.

Diagnosis : Snout acutely pointed; rostral separating the nasals for more than half their length; eye one fifth to one third the length of the ocular shield. 17 scales round the body. Ventral 185-234; subcaudals 6-11. End of the tail slightly flattened above; without well defined disc. Yellowish or brown above; almost uniform or with transverse series of small yellow, black edged ocelli; belly brown with large yellow spots or cross-bars.

Distribution : Madhya Pradesh : Likely to occur in Malwa region. Western Ghats south of Goa; common in Nilgiri and Anaimali hills.

Status : Indeterminate.

Remarks : Inhabits most soft soil within dense forest near bank of rivers.

Family 16 COLUBRIDAE

Key to the family

1. All the teeth solid, not grooved 2
– All the teeth are not solid, last 2 or 3 maxillary teeth grooved 12
2. Hypapophyses present throughout vertebral column 3
– Hypapophyses absent on posterior dorsal vertebrae 6
3. Dentary bone freely movable on the articular; 30 to 50 maxillary teeth present ..... *Sibynophis*
– Dentary bone not freely movable on the articular; usually less than 30 maxillary teeth 4
4. Scales in 15 to 19 rows 5
– Scales in 25 to 27 rows ..... *Macropisthodon*
5. Inter nasal distinctly narrowed anteriorly ..... *Xenochrophis*
– Inter nasal broadly truncate anteriorly ..... *Amphiesma.*
6. Posterior maxillary teeth longest 7
– Posterior maxillary teeth not longest 9
7. Head elongated distinct from neck 8
– head short; not distinct from neck ..... *Oligodon*
8. Maxillary teeth 13 to 18 ..... *Argyrogena*
– Maxillary teeth more than 18 11
9. All maxillary teeth subequal 10
– Some maxillary teeth elongated and fang like ..... *Lycodon*
10. Scales in 19 to 27 rows ..... *Elaphe*
– Scales in 13 to 15 rows ..... *Dendrelaphis*
11. Maxillary teeth 20 to 28; mid-body scales in 16 to 17 rows ..... *Ptyas*
– Maxillary teeth 19 to 24; mid-body scales in 19 rows ..... *Atretium*
12. Pupil vertical ..... *Boiga*
– Pupil horizontal ..... *Ahaetulla*

Genus 26 ***Amphiesma*** Dumeril & Bilbron, 1854

47. ***Amphiesma stolatum*** (Linnaeus)
Striped keelback

1758. *Coluber stolatus* Linnaeus, *Syst. Nat.*, 10 ed. 219 and 12th Ed. 1766 : 379.

1854. *Amphiesma stolatum* Dumeril & Bibron, *Erp. Gen.*, **7** : 724.

Material examined : Jabalpur dist. : ZSI 21144, Pachpedi area, Coll : Cheram. CRS V2741, Pachpedi, 12.08.69, Coll : H. Khajuria. CRS 076, Pachpedi, 13.06.63, Coll : S. Chakrapany. Raipur Dist. : ZSI 25270, Pithora, 14.08.98, Coll : S. Sur. ZSI 25281, Pursuli, 17.08.98, Coll : S. Sur. Bilaspur dist. : ZSI 25394, Mungoli, 27.08.98, Coll : S. Sur.

Measurements : Snout to vent : 130-135 mm; tail : 40 to 50 mm.

Diagnosis : Inter-nasal broadly truncate anteriorly; nostrils slightly directed upwards; 8 upper labials; 3rd, 4th, and 5th touching the eye; nasals not touching the 2nd upper labials; rostrals touching 6 shields; a single anterior temporal; scales in 19 rows; strongly keeled, except the outer row. Colour olivaceous brown. A pair conspicuous buff stripes covering one whole or two half rows of scales front neck or fore-body to tip of tail. Head olivaceous-brown, whitish, yellowish or orange on tips. Belly white with some small scattered black spots.

Distribution : Madhya Pradesh : as mentioned in the material, The whole of India.

Status : A common snake in the plains.

Remarks : A remarkable inoffensive and gentle snake, common in fields, grassy and cultivated areas of open country during the rainy season.

Genus 27 ***Ahaetulla*** Link, 1807

48. ***Ahaetulla nasutus*** (Lacepede)
Common green whip snake

1789. *Coluber nasutus* lacepede, *Hist. Nat. serp.*, **1** : 100 & 2 : 227.

1933. *Ahaetulla nasutus* Stejneger, *Copeia*, : 203.

Material examined : Material not available. Description based on literature.

Diagnosis : Snout acuminate; terminating in a pointed dermal appendage; it has a median groove above and is formed usually entirely by the rostral. Eyes large; pupil hirizontal; no loreal; the internasal and pre-frontals in contact with labials; 1 large pre-ocular in contact with the frontal; 2 postoculars; 8 supra-labials; 3rd and 4th touching the eye. Colour above verdant green. Belly of an equally intense but lighter shade of green; chin and throat white with light shy blue and yellow mottling.

Distribution : Madhya Pradesh : very common in Madhya Pradesh, specially Malwa region, the whole of Peninsular India.

Elsewhere : Sri Lanka, Myanmar, Thailand and Combodia.

Status : Common.

Remarks : It is diurnal and usually reclines on the topmost boughs of bushes and escapes notice by its cryptic colouration.

Genus 28 ***Argyrogena*** Werner 1924

49. ***Argyrogena fasciolatus*** (Shaw)
Banded raecr

1802. *Coluber faciolatus* shaw, *Gen. Zool.*, **3** : 528.

1997. *Argyrogena faciolatus* Das, *Hamadryad*, **22**(1) : 40.

Material examined : Jabalpur dist. : ZSI 20934, Sita hills, 02.07.60, Coll : S. Chakrapany. CRS V1326, Pachpedi, 31.12.62, Donated., Mandla dist. : Kanha N. Park, 27.01.74, Purchased.

Measuerments : Snout to vent : 410-420 mm; tail : 170-178 mm.

Diagnosis : Head distinct from neck; maxillary teeth 12-14; snout strongly projecting; rostrum larger than high; loreal squarish; one large pre-ocular; 2 post-oculars; temporals 2 + 3 or 3 + 3; 8 supra-labials, 4th and 5th touching eye; 5th highest and touching lower anterior temporal. Scales smooth; 21 or 23 round mid-body; anals 2. Body colour light or dark brown in juveniles; ornamented with narrow cross bars on anterior falf of body; head above with light and dark olive; two white spots, one on each side of

interparietal suture; lower parts whitish or yellowish.

Distribution : Madhya Pradesh : as mentioned in the material and also found in Malwa region, throughout India except the north-west.

Status : Common.

Remarks : The species is enargetic, swift and diurnal.

Genus 29 ***Atretium*** Cope, 1861

50. ***Atretium schistosum*** (Daudin)
Olivaceous keelback

1802. *Coluber schistosus* Daudin, *Hist. Nat. Pept.*, **7** : 132.

1943. *Atretium schistosum* Smith, *Fauna Brit. Ind.*, **3** : 319.

Material examined : Baikunthpur dist. : ZSI 25367, Sonhat, 19.08.01, Coll : S. Sur.

Measurements : Snout to vent : 320 mm; Tail : 155 mm.

Diagnosis : Rostrum broader than high; eye large with round pupil; a single inter-nasal; body cylindrical; scales keeled; 19 rows in mid-body scales; 8 supra-labials, 4th and 5th touching the eye; 1 and 2 or 3 post-oculars; temporals 2+2; ventral 137; caudal 77; anal 2: olive-brown above and lower surfaces yellow.

Distribution : Madhya Pradesh : as mentioned in the material and also found in the Malwa region, Peninsular India, south of 15°N latitude.

Status : Common.

Remarks : Olive keel-black snake lives in water or among the surrounding vegetation.

Genus 30 ***Boiga*** Fitzinger, 1826

51. ***Boiga trigonata*** (Schneider)
Indian gamma or cat snake

1803. *Coluber trigonatus* Schneider, *Bechst. Transl. Lacep.*, **4** : 256.

1997. *Boiga trigonata* Smith, *Fauna Brit. Ind.*, **3** : 349-350.

Material examined : Shahdol dist : ZSI 25331, Palsa, Anuppur, 19.11.99, Coll : S. Sur.

Measurements : Snout to vent : 290 mm; tail : 70 mm.

Diagnosis : Head triangular; rostrum strongly concave below; slightly wider than high; nostril large between nasals; loreal present; eye large with vertically elliptical pupil; 1 preocular and 2 post-ocular; 8 upper labials; 3rd, 4th and 5th touching eye; 10-11 lower labials; scales in 21 : 21 : 15 rows. Ground colour yellowish brown, sandy or fawn; uniform or mottled with darker shades. Dorsally a series of dark Y-shapped marks which meet at the centre and resemble arrow-heads. The markings fade before or at the vent. Belly white. Head a pair or lung-shaded brown patches often bordered with black. A narrow dark streak from behind eye to gape.

Distribution : Madhya Pradesh : as mentioned in the material and also likely to occur in the Malwa region, the whole of the Peninsular India.

Elsewhere : Baluchistan in the west to Assam in the east and Sri Lanka.

Status : Common snake in India ascending up to about 1500 m altitude.

Remarks : Essentially arboreal, frequenting bushes, scrub or trees usually close to the ground.

Genus 31 ***Dendrelaphis*** Boulenger, 1880

*52. ***Dendrelaphis tristis*** (Daudin)
Common bronze back

1804. *Coluber tristis* Daudin, *Hist. Nat. Pept.*, **6** : 430.

1940. *Dendrelaphis tristis* Shaw & others, *J. Beng. N. H. S.*, **14** : 111.

Material examined : Material not available. Description based on literature.

Diagnosis : Maxillary teeth 17-22; posterior smallest; head distinct from neck; snout broadly rounded; nostril between two nasals; rostrum broader than high; frontal bell-shaped; inter-nasals shorter than pre-frontals; 1 pre-ocular; 2 post-oculars; temporal 2 + 2; 9 supra-labials; 5th and 6th touching eye. Scale in 15 rows; ventrals 163-197; caudals 108-145; anals 2; colour bronze brown or purplish-brown above light greyish greenish or yellowish below; a buff flank stripe

along outer two scale rows edged with black, upper lip and eye margined with yellow.

Distribution : Likely to occure in Madhya Pradesh specially in the Malwa region, throughout India.

Elsewhere : Pakistan and Sri Lanka.

Status : Common.

Remarks : A diurnal snake lives almost entirely on tree and shurbs.

Genus 32 ***Elaphe*** Fitzinger, 1833

Key to the species of the genus *Elaphe*

1. Loreal not very small; scales in 19 rows; a black occipital bar ..... *radiata*
- Scales in 25 to 29 rows ..... *helena*

53. *Elaphe radiata* (Schlegel)
Copper-headed trinket snake

1999. *Coluber radiatus* Schlegel, *Phys. Serp.*, **2** : 135.

1943. *Elaphe radiata* Smith, *Fauna Brit. India*, **3** : 146-148.

Material examined : Baster dist. : ZSI 24723, Kulumswar., 22.01.79., Coll : N. Muzumder. Balaghat dist. : Khopa, 21.10.61, Coll : B.S. Lamba.

Measurements : Snout to vent : 1406-1680 mm; Tail : 331-380 mm.

Diagnosis : Snout twice as long as the eye; loreal a little longer than high; 9 supra-labials; 4th to 6th touching the eye; scales 19 rows, distinctly keeled; anal one. Colour greyish-brown or yellowish brown above; lower parts yellowish or almost grey; head copper brown; a black bar across the occiput and three black streaks radiating from below and behind the eye.

Distribution : Madhya Pradesh : as mentioned in the material and likely to occur in the Malwa region, Whole of the Indo-China sub-region.

Status : Indeterminate.

Remarks : It is a diurnal in its habits and feeds chiefly upon small mammals. It is also observed in and near human habitations.

54. *Elaphe helena* (Daudin)
Indian trinket snake

1802. *Coluber helana* Daudin, *Hist. Nat. Rept.*, **6** : 277.

1939. *Elaphe helena* Shaw & others, *Fauna Brit. India.*, **3** : 146-148.

Material examined : Narsinghpur dist. : ZSI 24095, Barmat Khala vill., 16.12.64, Coll : Narboda Survey 64-65.

Measurements : Snout to vent : 165 mm; tail : 95 mm.

Diagnosis : Body elongate; cylindrical; head distinct; teeth solid; anterior maxillary teeth largest; Pre-frontals twice inter-nasals; loreal slightly longer than high; upper labials 9 or 10; 5th and 6th touching eye; 5th or 7th in contact with temporals. Eye large, pupul round. Scales in 19-27 rows and distinctly keeled on posterior of body and tail. Anal single. Colour light or dark-brown above with dark-brown or black cross bars containing white orcelli, prominent anteriorly and laterally; a black vertical streak below eye and behind it an oblique one; lower parts yellow.

Distribution : Madhya Pradesh : as mentioned in the material, known from Peninsular India, Rajasthan, Punjab, Uttar Pradesh, Bengal, Assam.

Elsewhere : Pakistan and Sri Lanka.

Status : Common between 500 m and 2000 m. Rarer in the plains.

Remarks : Usually found in or at the periphry of forests. Truculent when annoyed.

Genus 33 ***Lycodon*** Boie, 1826

Key to the species of the genus *Lycodon*

1. Ventral angulate laterally; 9 supralabials .... *aulicus*
- Ventral not angulate laterally; 8 supralabials ..... *striatus*

55. *Lycodon aulicus* (Linnaeus)
Common wolf snake

1754. *Coluber aulicus* Linnaeus, *Adolph.Frider.*, **1** : 29.

1943. *Lycodon aulicus* Smith, *Fauna Brit. India*, **3** : 265.

Material examined : Balaghat dist.: ZSI 24064, Sonbhar, 24.11.61, Coll : B.S. Lamba Bastar dist : ZSI 23974, Pali, 1.6.80, Coll : D.P. Sanyal, ZSI 24280, East of Gidam, 6.6.80, Coll : D.P. Sanyal. Shibpuri dist. : ZSI 24631, Madhab Rao N. Park, 17.8.87, Coll : A.K. Sarkar. Chatterpur dist. : ZSI 25403, Khajuraho, 6.4.02, Coll : S. Sur. Jabalpur dist. : CRS 155, Office building, ZSI, 25.3.68, Coll : H.P. Agrawal. Mandla dist. : 0.183, Manjitala, 1.3.74, Coll : H. Khajuria.

Measurements : Snout to vent : 280-425 mm; tail : 45-125 mm.

Diagnosis : Snout more or less spatulate and projection beyond the lower jaw; anterior and posterior nasals subequal; loreal in contact with internasal not touching the eye; 1 preocular; 17 scales at mid body. Head depressed and pear-shaped. Neck slightly constricted. Anal 2. Colour brown or greyish-brown above, with 12-19 white cross-bars triangular patches. Upper lip immaculate white or spotted with brown.

Distribution : Madhya Pradesh : as mentioned in the material, the whole of India.

Elsewhere : Sri Lanka, Maldive Islands, Myanmar to Indo China, South China, Malaysia, Indonesia and Phillippines.

Status : Common.

Remarks : The snake is most often seen in and near human habitations.

56. ***Lycodon striatus*** (Shaw)
Shaw's wolf snake

1802. *Coluber striatus* Shaw, *Gen. Zool.*, **3** : 527.

1870. *Lycodon striatus* Stoliczka, *J. Asiat. Soc. Bengal*, **29** : 200.

Material examined : Material not available. Description based on literature.

Diagnosis : Snout projecting beyond the lower jaw; rostrum much broader than high; anterior nasal usually larger than posterior; inter nasals much shorter than prefrontals, loreal in contact with internasal, not touching eye; 1 preocular; 8 supralabials, 3rd, 4th, 5th touching eye; 17 scales round midbody; ventral 165-195 not angulate laterally; caudal 45-58; anal 2. Colour dark brown or balck above with 11-18 white or yellowish cross bars on body which divide on sides to enclose triangular spots of body; belly and upper lip white.

Distribution : Madhya Pradesh : Likely to occur in Malwa region, throughout India, westwards up to Iran and Bihar in the east.

Elsewhere : Sri Lanka.

Status : Indeterminate.

Remarks : A timid snake which hides its head beneath its coil if disturbed.

Genus 34 ***Macropisthodon*** Boulenger, 1893

57. ***Macropisthodon plumbicolor*** (Cantor)
Green keelback

1839. *Tropidonotus plumbicolour Proc. Zool. Soc., London*, : 54.

1893. *Macropisthodon plumbicolor* Boulenger, *Cat. Sn. Mus.*, **1** : 267.

Material examined : Jabalpur dist. : ZSI 23245, Chinchowad, 22.10.71 Coll. : Shri Fathewati.

Measurements : Snout to vent : 170 mm; tail : 30 mm.

Diagnosis : Head broad and short; nostril between two nasals; internasal as long or nearly as long as the prefrontals; loreal united with the lower preocular; 2 pre and 3 or 4 postoculars. 7 upper labials, 3rd and 4th touching eye. Scales round the body 25 and strongly keeled. Eye moderately large, iris greenish gold. Tail short. The colour is bright green above and whitte below, with an indistinct pattern of crossbars on the back. There is a 'V' shaped mark on the head.

Distribution : Madhya Pradesh : as mentioned in the material, occours throughout India except the Ganges valley.

Status : It is somewhat rare, found only in forests and hills.

Remarks : A hill species found altitudes between 600-1800m.

Genus 35 ***Oligodon*** Boie, 1827

Key to the species of the genus *Oligodon*

1. 6-7 maxillary teeth present; hemipenis forked; loreal present ..... *taeniolatus*

– 8-11 maxillary teeth present ..... *arnensis*

58. ***Oligodon arnensis*** (Shaw)
Banded kukri Snake

1802. *Coluber arnensis* Shaw, *Gen. Zool.*, **3** : 526.

1943. *Oligodon arnensis* Smith, *Fauna Brit. Ind.*, **3** : 225-227.

Material examined : Jabalpur dist. : ZSI 21142, Thavana, 27.9.1961, coll. : S. Chakrapany.

Measurement : Snout to vent : 380 mm; tail : 85 mm.

Diagnosis : 8 to 11 maxillary teeth; 7 supralabials, 3rd and 4th touching eye; loreal frequently united with the prefrontal; scale in 17 rows. Body cylidrical; short; smooth and even sized. Head depressed; snout short and blunt. Tail short. Ground colour is reddish or greyish-brown with a series of black bands. The beyyl is plain white, sometimes with faint spots.

Distribution : Madhya Pradesh : as mentioned in the material and also likely to be found in Malwa region.

Elsewhere : Bangladesh and Central Nepal west to the Indus valley and south through Peninsular India and Sri Lanka.

Status : Common in human habitations.

Remarks : Diurnal active snake often observed in rainy season.

59. ***Oligodon taeniolatus*** (Jerdon)
Streaked kurki snake

1853. *Coronella taeniolata* Jerdon, *J. Asiat. Soc. Bengal*, **22** : 528.

1943. *Oligodon taeniolatus* Smith, *Fauna Brit. Ind.*, **3** : 223-225.

Material examined : Mandla dist. ZSI 23109, Dindori, 7.6.1927. Jabalpur dist. ZSI 23229, Pachpedi, 30.12..66, Purchased. Panna dist. ZSI 25409, Ajoygarh, 3.4.02, Coll : S. Sur.

Measurements : Snout to vent: 195-210 mm; tail: 55-65 mm.

Diagnosis : Head distinct from neck; snout blunt; rostrum large, higher than wide and extending posteriorly, almost separating internasals; loreal present; one preocular; two post oculars; 7 upper labials, 3rd and 4th touching eye; 7 or 8 lower labials. Body slender; 15 rows of scales at midbody. The back is brown or buff with either large black spots or cross bars. There are two black streaks on the nape. The lower surface is whittish, sometimes with lateral spots.

Distribution : Madhya Pradesh : as mentioned in the material, the range extends from Bihar to southern.

Elsewhere : Baluchistan and south through Peninsular India to Sri Lanka.

Status : Common snake in the evergreen forest at higher elevations.

Remarks : Diurnal active snake found of basking in the sun on rock and grass.

Genus 36 ***Ptyas*** Fitzinger, 1843

60. ***Ptyas mucosus*** (Linnaeus)
Dhaman, Rat snake

1758. *Coluber mucosus* Linnaeus, *Mus. Ad. Frid.*, **1** : 37 and *Syst. Nat.* Ed. 10. : 226.

1943. *Ptyas mucosus* Smith, *Fauna Brit. Ind.*, **3** : 159-162.

Material examined : Baster dist. ZSI 23856, 1979, Coll : R.C.Sharma. Raipur dist. : ZSI 25282, Pursuli, 17.08.98, Coll : S. Sur. Jabalpur dist. : ZSI 21141, Garha, 12.06.61, Coll : S. Chakrapany. ZSI 21947, Pachedi, 12.02.65, Coll : H. Khajuria. CRS V3038, V1103, V3037, V3039, V2727, V3035, V2737, V3042, V3036, V2725 all are from Pachpedi, Purchased specimens on different dates.

Measurements : Snout to vent : 550-1000 mm; tail : 300-400 mm.

Diagnosis : Maxillary teeth 20-28; head long, distinctly wider than neck; snout bluntly pointed; rostrum higher than long; nostril between nasals and first upper labial; 3 loreals; 2 pre-oculars; 2

post-oculars; 8 upper labials, 4th and 5th touching the eye; 9 lower labials. Eye large; scales 17 rows; body robust; compressed, tappering towards both end. Tail cylindrical, about one fourth of total length. Colour olivaceus brown or dark olive brown. Scales on posterior irregularly margined with black, forming a reticulate pattern. Lips and ventral scales margined with balck. Belly grayish-cream.

Distribution : Madhya Pradesh : as mentioned in the material, throughout Indian subcontinent.

Elsewhere : Sri Lanka and Myanmar. In the west extended to Afganistan and Turkmenistan. In the east upto the south China.

Status : A common snake in all parts of the country.

Remarks : Diurnal in habits but in populated areas may not be commonly seen during the day.

Genus 37 ***Sibynophis*** Fitzinger, 1843

Key to the species of the genus *Sibynophis*

1. 9 supralabials; 2 anterior temporals no black trips along the side of the body .... *subpunctatus*

– 7 supralabials; anterior temporal .... *sagittarius.*

*61. ***Sibynophis subpunctatus*** (Dum & Bibr.)

1854. *Oligodon subpunctatus* Dum & Bibr., *Exp. Gen.*, **7** : 58.

1943. *Sibynophis subpunctatus* Smith, *Fauna Brit. Ind.*, **3** : 279.

Material examined : Material not available. Description based on literature.

Diagnosis : Loreal small; 9 supralabials; 2 anterior temporals; pareital touches both postoculars. Ventral 172 to 215. Light brown above with a vertebral series of black dots, side of the body grey; head and nape dark brown or black; lips yellow; a yellow transverse bar between the eyes and two broad ones bording the dark colour of the nape; the dark colour extends forwards bisecting the yellow; yellow below, each ventral scale with a black dot near its outer border.

Distribution : Madhya Pradesh : Malwa region, Bengal and Maharashtra.

Status : Indeterminate.

Remarks : Not commonly seen. It lives on plains and in small burrows.

62. ***Sibynophis sagittarius*** (Cantor)
Cantor's black headed snake

1839. *Calamaria sagittaria* Cantor, *Proc. Zool. Soc.*, London : 49.

1943. *Sibynophis sagittarius* Smith, *Fauna Brit. India*, **3** : 280.

Material examined : Mandla dist. : ZSI 25429, Kanha National Park, 19.9.91, Coll : R.K. Ghose.

Measurements : Snout to vent : 190 mm; tail : 59 mm.

Diagnosis : Snout broad and more rounded; 7 supralabials; 3rd and 4th touching the eye; parietal touches both postoculars; one anterior temporal. Colour light brown above, with vertebral series of black dots; greyish brown on the sides, the colour occupying four scale rows, and bordered above with black; head and nape dark brown or black, with a large elongate oval patch of yellow on each side at the back of the head. Lower parts yellow, with a black on the outer edge of each venteral scale.

Distribution : Madhya Pradesh : as mentioned in the material, northern to eastern Indian and from the Central and Northern India.

Elsewhere : Bangladesh.

Status : Indeterminate.

Remarks : Oviparous, laying 2 to 4 eggs at a time.

Genus 38 ***Xenochrophis*** Gunther, 1864

63. ***Xenochrophis piscator*** (Schneider)
Checkered keelback

1799. *Hydrus pisacator* Schneider, *Hist. Amph.*, **1** : 247.

1935. *Xenochrophis piscator* Malnate, *Pro. Acad. Nat. Sci. Phil.*, **112** : 41-71.

Material examined : Jabalpur dist: ZSI 23200, Pachpedi, 8.8.62, purchased. CRS V2713, Pachpedi, 10.1.68, Coll : H.S. Sharma. CRS V295, Pachpedi, 27.9.60. Coll : R.C.Sharma. ZSI 20933, Muionala, 31.1.61, Coll : P. Singh. ZSI 21143, Madan Mahal, 19.9.61, Coll : H. Khajuria. Bastar dist. : ZSI 23728, Bastar, 9.8.79, Coll : M. Hafijulla. ZSI 24568, Barsur, 2.6.80, Coll : D.P. Sanyal. ZSI 23855, Duranpal, 23.2.79, coll: R.C. Sharma. Bilaspur dist. : CRS 0.198, Kjutaghat, 7.3.92, Coll : U.B. Gajbe.

Measurements : Snout to vent : 150-400 mm; tail : 40-70 mm.

Diagnosis : Head slightly flattened, distinct from neck; snout bluntly pointed; nostril wider than high. Internasal distinctly narowed anteriorly; nostril between nasals; loreal large; eye moderate with round pupil; 9 supralabials; 4th and 5th touching the eye; body stout; scales in 19 rows; distinctly keeled except the outer one or two rows. Colour yellowish or olivaceous above with black spots quincuncially arrenged; belly uniform whitish or yellowish; head olive brown above with oblique black streaks one below, the other behind the eye. The spots are arrenged in five series, namely a vertebral, 2 dorso-lateral and lateral. Together the form a chessboard pattern.

Distribution : Madhya Pradesh : as mentioned in the material, tt is found throughout the Indian subcontinent.

Status : A common freshwater snake.

Remarks : It is very common in tanks, paddy fields, pools and rivers.

Family 17 ELAPIDAE

Key to genera of the family ELAPIDAE

1. Maxillary bone extending forward beyond palatine; enertable hood ..... *Naja*
– Maxillary bone not extending forward beyone palatine; no enertable hood ..... *Bungarus*

Genus 39. *Bungarus* Daudin, 1803

Key to species of the genus *Bungarus*

1. Tail ending obtusely; back marked with black and yellow annuli ..... *fasciatus*
– Tail ending in a point; back with narrow white cross-bars arranged in pairs .... *caeruleus*

64. *Bungarus caeruleus* (Schneider) Common Indian krait

1801. *Pseudoboa caerulea* Schneider, *Hist. Amph.*, **2** : 284.

1890. *Bungarus caeruleus* Boulenger, *Fauna Brit. Ind.*, **3** : 388.

Material examined : Jabalpur dist. : ZSI 21145, Jabalpur, Coll; Chetram, 6.7.61. ZSI 21167, Pachpedi, 12.6.62 Purchased. CRS V2733, Napier town, 2.4.74, Coll : S.K. Mishra. CRS F.C. No. 0.44, Savaria cantonment, 23.10.61, Coll : Mohan.

Measurement : Snout to vent : 510-520 mm; tail : 90-98 mm.

Diagnosis : Head flat; distinct from neck; snout blunt; rostrum wider than high; nostril between nasals; eye small with round pupil; loreal absent; 1 preocular and 2 postoculars; one anterior and 2 posterior temporals; 7 upper labials; 3rd and 4th touching the eye; 8 lower labials. Tail ending in a point; midbody scales 15. The vertebral scales are enlarged and hexagonal. Colour is lustrous black above with paired narrow white crossbaars arrangged more or less distinctly in pairs.

Distribution : Madhya Pradesh; as mentioned in the material, tt occurs from western Bengal through Peninsular India.

Elsewhere : Sri Lanka.

Status : Common.

Remarks : It inhabits fields, low scrub jungles and is common in the vicinity of human habitation. It is nocturnal species.

65. *Bungarus fasciatus* (Schneider) Banded krait

1801. *Pseudoboa fasciatus* Schneider, *Hist. Amph.*, **2** : 283.

1803. *Bungarus faciatus* Daudin, *Hist. Nat. Rept.*, **5** : 263.

Material examined : Bastar dist. : ZSI 24471, Bijapur, 8.6.80, Coll : D.P. Sanyal.

Measurements : Snout to vent : 850 mm; tail : damage.

Diagnosis : Head broad and depressed; snout short, eye black; neck distinct, body smooth and glossy. A prominent ridye down the back and tail formed by the spinous processes of the vertebrae; tail ending bluntly, usually more or less swollen at the tip. Alternately banded with black or purplish-black and yellow or buff bands, completely encircling the body. Nape has a large, elongate, black path rounded behind. Top of the head with a yellow "V" with arms passing backwards over the temples to the throat.

Distribution : Madhya Pradesh : as mentioned in the material and also the Mallwa region, north-east Peninsular India, the southern most record being Hyderabad. Also found in Asam and Bangladesh.

Elsewhere : Indo Chinese and Indo-Malayan subregion.

Status : Common.

Remarks : Largely nocturnal. Frequents moist places and the vicinity of water and feeds on other snakes.

Genus 38 ***Naja*** Laurenti, 1768

66. ***Naja naja*** (Linnaeus)
Indian cobra

1758. *Coluber naja* Linnaeus, *Syst. Nat.*, **10** : 221.

1998. *Naja naja* Wuster, *Hamadryad*, **23**(1) : 15-32.

Material examined : Jabalpur dist.: ZSI 23358, Pachpedi, purchased, 1.2.65. ZSI 23112, Civil lines, Pachpedi, 4.5.66, purchased. ZSI 21146, pachpedi, 18.7.62, donated. CRS V2726, V3051, V3035, V3032, all specimens collected from Pachpedi on different dated. Raipur dist. ZSI 25244, Gariabandh, 13.8.98, coll: S. Sur.

Measurements : Snout to vent: 345-9000 mm; tail : 65-90 mm.

Diagnosis : Head depressed with short, rounded snout. Nostrils large, pupil round; head shield glossy 1 preocular and 3 postoculars 7 upper/ labials; small triangular shield (cuncate) between 4th and 5th lowerlabial at oral margin. Scale rows across widest part of the hood usually 25 and 13-15 rows just anterior to vent. Extremely variable in coloration and markings. The subspecies once recognised on the basis of hood pattern have now been elevated to species status, biocellate cobra as *Naja naja,* monoocellate as *Naja kaouthia. Naja oxiana* without any ocellation. Woffgang Wuster (1998, Hamadriad) reviewed all the species of Asiatic cobra. According to him four species are found namely *Naja naja, Naja kaouthia, Naja oxiana* and *Naja sagittifera* according to their hood pattern and distribution etc. Except *N. sagittifera* all ohter three species are available in Madhya Pradesh.

Distribution : Madhya Pradesh : as mentioned in the material, also the Malwa region.

Elsewhere : Throughout the south Asian region.

Status : Common.

Remarks : They are found in all type of ecological conditions such as plains, jungles or open fields and even in the human populated area. Frequently found near or in water and is a strong swimer.

Family 18 VIPERIDAE

Key to genera of the family VIPERIDAE

1. A deep pit between nostril and the eye ..... ***Trimeresurus***
– No pit between the nostril and the eye 2
2. Nostril in a large nasal shield; scales in straight rows ..... ***Daboia***
– Nostril in a divided nasal shield; lateral scales in oblique series ..... ***Echis***

Genus 41 ***Daboia*** Laurenti, 1768

67. ***Daboia ruselli*** (Shaw & Nodder)
Russell's viper

1797. *Coluber russelli* Shaw & Nodder, *Nat. Misc.*, **8** : 291.

1943. *Daboia russelli* Wuster, *Hamadryad*, **23**(1) 33 : 40.

Material examined : Jabalpur dist. CRS V2729, Pachpedi, 24.11.67, purchased. CRS V1114, Jabalpur, 24.11.61, Coll : R.C. Sharma ZSI 21948, Katangi road, 11.11.64, Coll : D.N. Basu, Shadol dist. : ZSI 25330, Anuppur, 20.11.99, Coll : S. Sur.

Measurements : Snout to vent : 540-580 mm; tail : 95-120 mm.

Diagnosis : Head rather long; distinctly wider than neck; snout bluntly pointed; rostrum about twice as high as wide; nostril large crescent shapped, large nasal shield; supraocular entire; 11 upper labials seperated from eye by three rows of scales; 14 lower labials. Head covered with small scales and without schields; 27 to 33 costals at midbody; subcaudal divided; dorsal scales in straight rows and keeled except for lowest row. There are three longitudinal rows of dark-brown rings with black or black and white edges which form a chain like pattern on the back sides.

Distribution : Madhya Pradesh : as mentioned in the material and also the Malwa region, It occurs throughout India.

Status : Common.

Remarks : Normally sluggish and does not strike readily unless irritated when it bites with great malice.

Genus 42 ***Echis*** Merrem, 1820

68. ***Echis carinatus*** (Schneider)
Saw-scaled viper

1801. *Pseudoboa carinata* Schneider, *Hist. Amph.*, **2** : 285.

1943. *Echis carinatus* Smith, *Fauna Brit. Ind.*, **3** : 487-490.

Material examined : Jabalpur dist. ZSI 23254, Pachpedi, 25.11.65, Coll : Maya Ram CRS F. No. 0175, Gavane vill. Garudeshwar, 17.12.71, Coll : D.K. Ghosal.

Measurements : Snout to vent : 250-260 mm; tail 17-20 mm.

Diagnosis : Head short; distinctly wider than neck; snout blunt; rostrum about twice as wide as high; nostril in divided nasal schield; eye surrounded by 10 to 15 small scales, exclusive of the supraocular; 34 scales between nasal and the eye; temporal scales small; keeled except the lowermost; 10 to 12 upper labials, the 4th usually the largest; 1-2 series of scales between them and the eye. Body scales in 25-29; 27-37 and 21-27 rows, outerrmost rows largest. Colour pattern varies considerably in form of dar-edged spots in a vertebral series connected to a light colour inverted 'U' or 'V' shaped flank mark, enclosing a dark area connected to earth other and forming a wavy flank line. Whitish below, uniform or spotted with brown.

Distribution : Madhya Pradesh : as mentioned in the material and also the Malwa region, The whole of India south of the Ganges, except Bengal.

Status : Common.

Remarks : Nocturnal snake and found in the desert and semi-arid tracts of India.

Genus 43 ***Trimeresurus*** Lacepede, 1804

69. ***Trimeresurus gramineus*** (Shaw)
Green bamboo pit viper

1802. *Coluber gramineus* Shaw, *Gen. Zool.*, **3** : 420.

1937. *Trimeresurus gramineus* Smith, *J. Bombay nat. Hist. Soc.*, **39** : 730.

Material examined : Korea dist. : ZSI 25505, Sorchat, 17.10.03, Coll. N.C. Gayen.

Measurements : Snout to vent 425 mm. tail 110 mm.

Diagnosis : Snout twice as long the diameter of the eye. Upper head scales small, subequal, subimbricate, smooth, supraocular narrow, entire, 8-11 scales on a line between them. The loreal pit between the nostril and the eye. 15-17 rows of costals two head lengths before vent. The head is flattened and appears unduly broad owing to the contricted neck, 10-12 upper labials, first completely separated from the nasal, 3rd largest. Tail short and tapering. Prehensile green or yellowish-green above uniform or with occasional small dark brown spots produced by an extension of the colour of the interstitul skin on the base of scales. Whitish or greenish below.

Distribution : Madhya Pradesh : Likely to occur in the Malwa region and as mentioned in the material, Peninsular India south of the lat. 22°.

Status : Not known.

Remarks : A mid-hill species not normally seen below 450 m. frequently found in cool, thick vegetation near stream edges, bamboo and other dense jungle areas.

SUMMARY

This paper deals with the reptile fauna of Madhya Pradesh State including Chhatisgarh and its primarily based on collection made by the authors during the Madhya Pradesh survey between 1998-2002 information from earlier collections from Madhya Pradesh in the Zoological Survey of India have also been included, species that have ranges approaching the State have also been included in this paper. Altogether, 69 species belongs to 43 genera and 18 families so far known from Madhya Pradesh have been dealt with in this paper. Keys diagnostic characters, measurements and distributional notes have also been incorporated.

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AMPHIBIA–MADHYA PRADESH

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INTRODUCTION

Only a few scattered reports on the Amphibian fauna of Madhya Pradesh are available. These are by Daniel and Verma (1963), Daniel and Selukar (1964), Daniel (1975), Gupta (1975), Saksena, Sarkar and Tewari (1988), Inger and Dutta (1988), Sanyal, Chandra and Ray (1991), Dutta (1995), Das and Chanda (1997) and D'chuna (2002). The present work being the taxonomic account of the Amphibian Fauna of Madhya Pradesh, based mainly on the material collected by various Survey parties of Zoological Survey of India from 1960 to 2003. In addition to these, species recorded in literature from Madhya Pradesh have also been incorporated to make the fauna an exclusive one.

The undivided Madhya Pradesh was the largest land mass with varied topographical constituents. Notwithstanding the fact that a separate State has been formed out of the then M.P. the present State of the name do process the same varied topographical condition. It has wide ecological condition of the Malwa Plateau (400 meters to 530 meters) with fertile tract interpossed with hillocks at Vindhyan ranges, Vindhyan Series (530 meters to 677 meters) formed of sand stone of Narmada Valley (maximum altitude 721 meters) the fertile soil formed by Narmada and its tributories, the Decan plateau (548.64 meters to 881 meters) with dotted hillocks flat table land and plateau. The soil condition also varied from black cotton soil, sandy and clays to patches of laterite and alluvium.

So, this will be first detailed account on the amphibians of Madhya Pradesh, which comprises 1481 ex. and 22 tadpoles belonging to 19 species, 10 genera and 4 families. The Orders Apoda and Caudata are not represented in the collection.

MATERIALS AND METHOD

Amphibians are aquatic, terrestrial or arboreal. Aquatic amphibians were collected with a net fitted with a metal ring fixed at the end of a long bamboo pole, cast-net and fishing hook; terrestrial and arboreal forms by hand. In the field, notes have been taken on the habitats of specimens collected. Specimens obtained were euthanised and fixed in a 5% formalin solution for at least for 24 hours. An abdominal incision was made for smaller specimesn. While larger specimens were injected with a 10 % formalin solution. The fixed material along with labels containing the data of locality, altitude, habitat, date of collection and name of collector, were packed in 5 % formalin and transported to the lab for study.

SYSTEMATIC ACCOUNT

Class AMPHIBIA

Order ANURA

Key to the families of ANURANS

1. Jaws toothless 2
– Upper jaw toothed 3
2. Skin rough with well-developed warts, parotoids present ..... BUFONIDAE

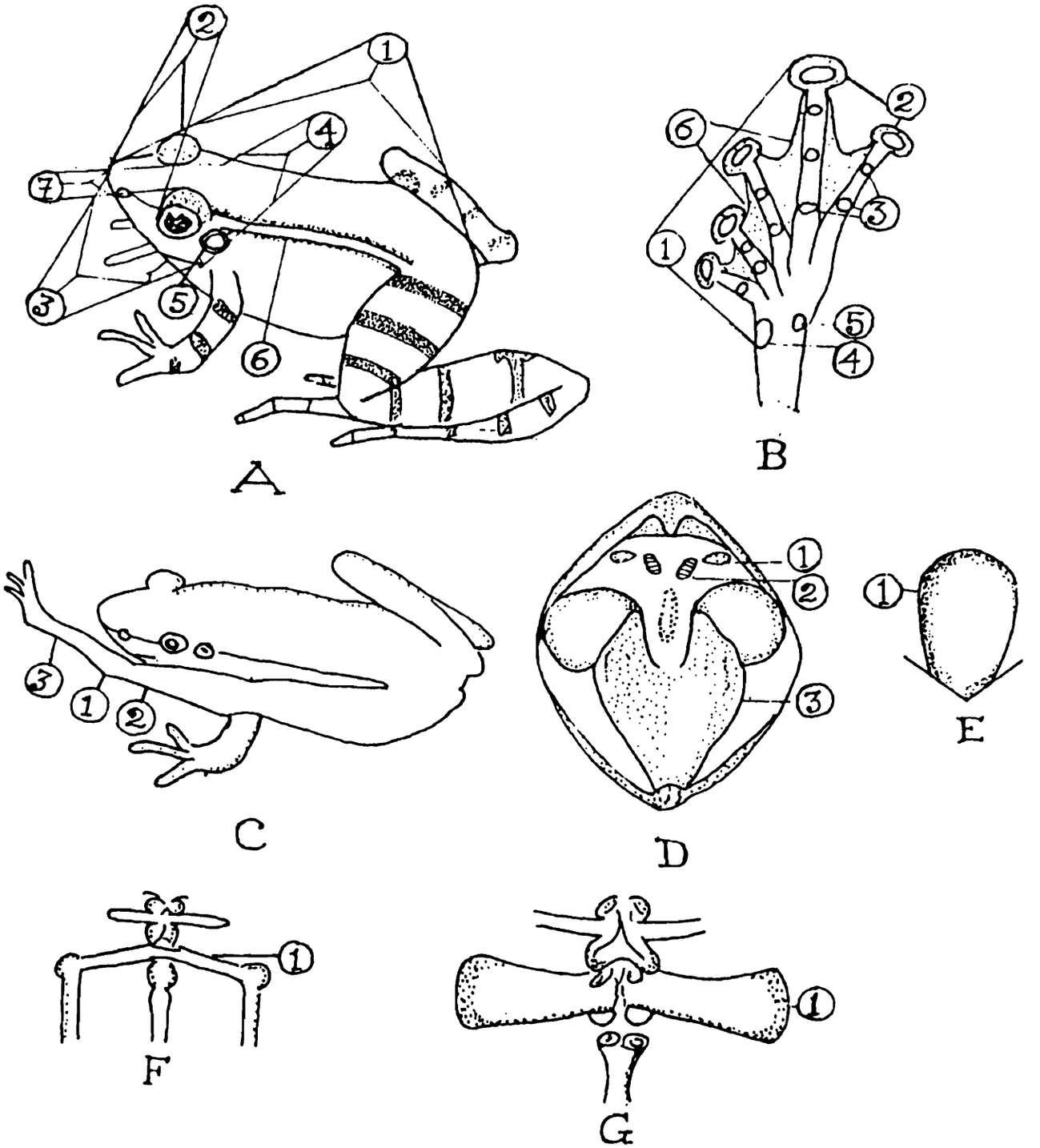

Fig. 1. Illustrations of measurements and essential morphological characters.

A 1 : snout to vent length, A 2 : Snout length, A 3 : Head length, A 4 : Head width, A 5 : Tympanum, A 6 : Glandular dorso-lateral fold, A 7 : width of interorbital space, B 1 : Foot length, 2 : Suctorial disc, B 3 : Subarticular tubercles, B 4 : Inner metatarsal tubercle, B 5 : Outer metatarsal tubercle, B 6 : Webs of toes. C 1 : Position of tibiotarsal articulation when hind limb is kept parallel to body, C 2 : Tibia, C 3 : Tarsus, D 1 : Position of Choanae, D 2 : Position of Vomerine teeth, D 3 : Tongue (bifid), E 1 : Tongue (entire). F 1 : Cylindrical sacral vertebra. G 1 : Dilated sacral Vertebra.

- Skin more or less smooth, parotoids absent ..... MICROHYLIDAE

3. No intercalary ossification (extra cartilaginous bone) between the distal and penultimate phalanges ..... RANIDAE

- An intercalary ossification between the distal and penultimate phalanges .... RHACOPHORIDAE

Family 1 BUFONIDAE

Family Bufonidae is represented in Madhya Pradesh by two species of the genus *Bufo*.

Genus 1. *Bufo* Laurenti, 1768.

1768. *Bufo* Laurenti, *Synops. Rept.*, : 25.

Key to the species of genus *Bufo*

1. Head with bony ridges, parotoids kidney shaped ..... *melanostictus*

2. Head without bony ridges, parotoids flat (not kidney-shaped) ..... *stomaticus*

1. *Bufo melanostictus* Schneider
Common Indian Toad

1799. *Bufo melanostictus* Schneider, *Hist. Amph.*, 1 : 216.

Material examined : Jabalpur district : 1 ex. (ZSI A314), Pachpedi, Jabalpur, 29.iii.1960, H. Khajuriah. 1 ex. (ZSI A315), permises of C.R.S., Z.S.I., Jabalpur, 29.iii.1960; 1 ex. (ZSI A1783, Pachpedi, 31.x.1961. All coll. R.C.Sharma. 1 ex. (ZSI A338), Sita hill, Jabalpur, 28.ix.1961, S. Chakrapani. 1 ex. (ZSI V3599, Pachpedi, Jabalpur, 5.vi.1964, A. Paul. 1 ex. (ZSI V3598), Pachpedi, Jabalpur, 2.vii.1964, J.S. Bhati. 4 ex. (ZSI V3600 & V3601), Pachpedi, Jabalpur, 21.x.1964. All coll. H. Khajuriah. 13 ex. (ZSI V3479), In and around Jabalpur city, Sept.1978, G.M. Yazdani. Balaghat district : 1 ex. (ZSI A509), Ghorela, 18.xi.1961, B.S. Lamba. 1 ex. (ZSI A9632) Lausi, 24 km. from Kirnapur, 7.vii.2000, P.K. Chandra. Shahdol district : 1 ex. (ZSI A3604), Lalhital, 5 km. from P.W.D. Shahdol, 2.xii.1978, H.P. Agarwal. 2 ex. (ZSI A9698), Pali, 40 km. west of Irrigation I.B., Shahdol, 3.ix.1998; 1 ex. (ZSI A9341), In and around F.R.H. Amarkantak, 4.ix.1998. All coll. P.K.Chandra. Satna district : 2 ex. (ZSI A9338), Brishinghpur, 65 km. north-east of Satna, 21.viii.1998; 3 ex (ZSI A9339), Maihar, 43 km. South-west of Satna, 22.viii.1998; 1 ex. (ZSI A9379), Forest Depo, Rewa road, 5 km. east of Satna, 22.viii.1998; 1 ex. (ZSI A9340), Madhogarh, 23.viii.1998. All coll. P.K. Chandra. Chhindwara district: 1 ex. (ZSI A9402), Tamia, 58 km. from F.R.H. Chhindwara, 15.viii.1999; 1 ex. (ZSI A9404), In and around F.R.H. Sausor, 17.viii.1999; 2 ex. (ZSI A9403), In and around F.R.H. Sausor, 17.viii.1998; 1 ex. (ZSI A9398), chicholi, 38 km. south of Sausor, 18.viii.1999; 1 ex. (ZSI A9729), Kotama, 20 km. north of Sausor, 19.viii.1999. All coll. P.K. Chandra and S. Ray. 1 ex. (ZSI V3808), Deokhoh, Pachmarhi, 3.iv.2001, K. Chandra. 3 ex. (ZSI V3765), Chhindwara, 26.viii.2001, Y.N. Gupta, 1 ex. (ZSI V3789), Tottadoh Rest House, 14.ix.2001; 1 ex. (ZSI V3777), Ghat Pindrai, 19.ix.2001; 1ex. (ZSI V3802), Kumbhpani, 21.ix.2001; 1 ex. (ZSI V3786), Antara, 26.ix.2001. All coll. S.K. Mishra. Chhatarpur district: 1 ex. (ZSI A9380), In and around F.R.H. Chhatarpur, 24.viii.1998; 2 ex. (ZSI A9381), Ghura, 34 km. from F.R.H. Chhatarpur, 25.viii.1998; 2 ex. (ZSI A9382), Khajuraho, 44 km. west of Chhatarpur. All coll. P.K. Chandra. Panna district: 3 ex. (ZSI A9383), Bagana village, 6 km. from F.R.H. Mandla, 27.viii.1998; 2 ex. (ZSI A9384), Ajaygarh, 40 km. north-east of Mandla F.R.H., 28.viii.1998. All coll. P.K. Chandra. Sidhi district: 1 ex. (ZSI A 9690). In and around F.R.H., Majhouli, 29.viii.1998, P.K.Chandra. Hoshangabad district : 1 ex. (ZSI A9406), Babai, 40 km. south of Hironchapra, 6.viii.1999; 1 ex., (ZSI A9407), In and around F.R.H. Piporia, 7.viii.1999; 1 ex. (ZSI A9408), Gurmakhedi, 46 km. from Piporia, 8.viii.1999; 1 ex. (ZSI A9401), In and around Eco-centre and Bhabad Kundu, 12.viii.1999. All coll. P.K. Chandra and S. Ray. 1 ex. (ZSI V 3815). Trishul Nala, Bori, Pachmarhi, 13.iv.2001, Y.N. Gupta. Umaria district : 1 ex. (ZSI V3767). Bandhavgarh National Park, 24.ix.2002, Y.N. Gupta. Seoni district : 1 ex. (ZSI A9400), In and around Seoni, 20, viii, 1999; 1 ex. (ZSI A0399),

Parasia Reserve Forest, Lakhnadon, 24.viii.1999. All coll. P.K. Chandra and S. Ray. 2 ex. (ZSI V3768), Bodanala, Pench Tiger Reserve, i.vi.2001; 5 ex. (ZSI V3830), chewrighat, Pench Tiger Reserve, 6.vi.2001; 2 ex. (ZSI V3776 & V3793), Turiya, Pench Tiger Reserve, 7.vi.2001. All coll. K. Chandra. 1 ex. (ZSI V3778), Bison Camp, 25.vii.2001, M.L.Koshta. 1 ex. (ZSI A9586), Thilmil, 40 km. from Lakhnadon, 26.viii.2002, S. Sur and S. Ray. Indore district : 1 ex. (ZSI A9473) In and around Indore, 5.xi.2001; 1 ex. ZSI A9474, Singarcholi, 45 km. from Indore, 6.xi.2001. All coll. P.K.Chandra and S. Ray. Dhar district: 1 ex. (ZSI A9475), In and around the campus of Eco Centre, Forest office, Dhar, 9.xi.2001; 1 ex. (ZSI A9477). In and around Rest House Badnawar, 13.xi.2001. All coll. P.K. Chandra and S. Ray. Sagar district: 1 ex. (ZSI A9476), Sagor, 31 km. north-east of Dhor, 11.xi.2001, P.K. Chandra and S. Ray. Ujjain district : 1 ex. (ZSI A9852). In and around F.R.H. Ujjain, 23.vii.2003; 1 ex. (ZSI A9798), Ghosala, 33 km. north of F.R.H. Ujjain, 25.vii.2003. All coll. P.K. Chandra and S. Ray. Rajgarh district: 1 ex. (ZSI A9847), Narsinghgarh W.L.S. 58 km. south-west of Rajgarh, i.vii.2003, P.K. Chandra and S. Ray. Guna district : 1 ex. (ZSI A9859), Jhagura, 27 km. north east of F.R.H. Guna, 4.viii.2003, P.K. Chandra and S. Ray. Shivpuri district : 1 ex (ZSI A9810). In and around Madhab National Park, 5.viii.2003; 1 ex. (ZSI A9794), Korera, 49 km. east of Madhab National Park, 6.viii.2003, All coll. P.K. Chandra and S. Ray. Gwalior district: 1 ex. (ZSI A9805), Ghatigaon, 34 km. s.w. of Gwalior, 9.viii.2003, P.K. Chandra and S. Ray.

Total length : 17 mm. to 198 mm. from snout to vent.

Diagnostic character : Head broader than long, with cornified bony ridges; snout rounded, nearly equal the diameter of the eye; nostril a little nearer to the tip of snout than to the eye; interorbital width broader than that of upper eye lid; tympanum very distinct, two thrid the diameter of the eye. Fingers free, first a little longer than second, tips of fingers and toes swollen. Toes nearly half webbed, more than three phalanges of fourth toe free; two oval (inner and outer) metatarsal tubercle present. Tarsometatarsal articulation reaches in between tympanum and eye. Dorsum dark brownish, rough with several spiny warts, parotoid large, kidney shaped. Venter dull whitish with numerous small spiny warts.

Distribution : India : Madhya Pradesh : As mentioned in the material examined. Common throughout the plains of India, and Andaman and Nicobar.

Elsewhere : Pakistan, Bangladesh, Sri Lanka, Nepal, Myanmar, South China, Malaya Peninsula and Archipelago.

Remarks : Gupta (1975), Saksena, Sarkar and Tweari (1988) reported it from Madhya Pradesh. Big-sized toad, nocturnal in habit and used for dissection in College labotatories, and the males are used in pregnency diagnosis tests of human beings.

Status : Common in Madhya Pradesh.

2. ***Bufo stomaticus*** Lutken
Marbled Toad

1863. *Bufo stomaticus* Lutken, *Vidensk. Meddr. Dansk. naturh-Foren,* **14** : 305.

Material examined : Jabalpur district : 1 ex. (ZSI A338), Sita Hill, Jabalpur, 28.ix.1961, S. Chakrapani. Satna district : 1 ex. (ZSI A9336), In and around R.R.H. Satna, 20.viii.1998; 1 ex. (ZSI A9337), Maihar, 43 km. south-west of Satna, 22.viii.1998. All coll. P.K. Chandra. Sidhi district : 1 ex. (ZSI A9687), In and around Majhouli, 29.viii.1998, P.K. Chandra. Shahdol district : 1 ex. (ZSI A9680), Kanaoudi, 40 km. north of Irrigation I.B. Shahdol, 2.ix.1998, P.K. Chandra. Seoni district: 1 ex. (ZSI A9726), Beharai, 32 km. east of Seoni, 2.viii.1999; 1 ex. (ZSI A9720), Parasia Reserve Forest, 25 km. from F.R.H. Lakhnadon, 24.viii.1999. All coll. P.K. Chandra and S. Ray. Ujjain district : 1 ex. (ZSI A9854), In and around F.R.H. Ujjain; 23.vii.2003, P.K. Chandra and S. Ray. Rajgarh district : 1 ex. (ZSI A9818). In and around P.W.D. Rest House,

Rajgarh, 30.vii.2003; 1 ex. (ZSI A9834), Zirapur, 35 km east of P.W.D. Rest House Rajgarh, 31.vii.2003; 1 ex. (ZSI A9845), Narsingh garh W.L.S. 58 km south east of Rajgarh, 1.viii.2003. All Coll. P.K. Chandra and S. Ray. Shivpuri district : 2 ex. (ZSI A9857). In and around Madhab National Park, Shivpuri, 5.viii.2003; 1 ex.(ZSI A9841), Korera, 43 km east of Madhab National Park, Shivpuri, 6.viii.2003. All coll. P.K. Chandra and S. Ray. Gwalior district : 1 ex. (ZSI A9831), Bhagen, 48 km east to Gwalior, 11.viii.2003; P.K. Chandra and S. Ray.

Total length : 21 mm to 60 mm from snout to vent.

Diagnostic character : Head broader than long, without bony ridges; snout rounded, nearly once the diameter of the eye; nostril nearer the tip of snout than the eye; interorbital width broader than that of upper eyelid; tympanum very distinct. nearly once the diameter of the eye. Fingers free, first a little longer than second, tips of fingers and toes swollen. Toes more than half webbed, two phalanges of fourth toe free; two oval (inner and outer) metatarsal tubercles present. Tarsometatarsal articulation reaches in between tympanum and eye. Dorsum brownish, rough with several non-spiny warts, parotoids large, flat not kidney shaped. Venter dull-whitish with numerous small, non-spiny warts.

Distribution : India : Madhya Pradesh : As mentioned in the material examined. Plains of India from Jammu and Kashmir to Karnataka, and Assam in the east.

Elsewhere : Pakistan, Nepal, Mayanmar, Sri Lanka and Arabia.

Remarks : Saksena, Sarkar and Tweari (1988) reported it from Madhya Pradesh. It is nocturnal and terrestrial in habit.

Status : Uncommon in Madhya Pradesh.

Family II. MICROHYLIDAE

This family is represented by four genera in Madhya Pradesh.

Key to the genera of the family MICROHYLIDAE

1. Tips of fingers more or less blunt (or rounded), but not dialated into discs 2
– Tips of fingers dialated into triangular discs 3
2. Two strong, shovel-shaped metatarsal tubercles (inner larger) present ..... ***Uperodon***
– Two small, distinct, (not shovel-shaped) metatarsal tubercles present ..... ***Microhyla***
3. A bony ridge immediately below internal nares ..... ***Kaloula***
– A fleshy ridge some way below internal nares ..... ***Ramanella***

Genus 2. ***Uperodon*** Dumeril & Bibron, 1841

1841. *Uperodon* Dumeril and Bibron, *Erp. Gen.*, **8** : 746.

Key to the Species of the genus *Uperodon*

1. Interobital width about twice the width of upper eyelid; dorsum marbled ..... *systoma*
2. Interorbital width about thrices the width of upper eyelid; dorsum not marbled ..... *globulosus*

3. ***Uperodon systoma*** (Schneider)

1799. *Rana systoma* Schneider, *Hist. Amph.*, **1** : 144.

1934. *Uperodon systoma* : Parker, *Mongr. Microhylidae*, : 75-76.

Material examined : Seoni district : 2 ex. (ZSI V3771), Turiya, Pench Tiger Reserve, 7.vi.2001; 2 ex. (ZSI V3785), Turiya, Pench Tiger Reserve, 7.vi.2001; 2 ex. (ZSI V3769), Pyorthadi, Pench Tiger Reserve, 13.vi.2001. All coll. K. Chandra.

Total length : 63 mm to 74 mm from snout to vent.

Diagnostic character : Head broader than long; snout rounded as long as the diameter of the eye; nostril equidistant from the tip of snout and the eye; interorbital width about twice the width of upper eyelid; tympanum hidden. Fingers free,

first shorter than second, tips not bearing discs; subarticular tubercles of fingers and toes not very distinct; two shovel-shaped metatarsal tubercles present, the inner very large. Tibiotarsal articulation not reaching the shoulder. Dorsum smooth or slightly tuberculated, olive, marbled and spotted darker. Venter smooth, white, and spotless.

Distribution : India : Madhya Pradesh : As mentioned in the material examined. Himachal Pradesh, Uttar Pradesh, Orissa, Andhra Pradesh, Gujarat, Karnataka, Kerala, Bihar and Tamil Nadu in India.

Elsewhere : Sri Lanka.

Remarks : Saksena, Sarkar and Tweari (1988) reported it from Gwalior, Madhy Pradesh. Medium-sized frog. Nocturnal in habit. It leads an secretive subterranean life and surface during breeding season.

Status : Rare.

4. ***Uperodon globulosum*** (Gunther)
Balloon Frog

1964. *Cacopus globulosus* Gunther, *Rept. Br. India*, : 416.

1934. *Uperodon globulosum* : Parker, *Monogr. Microhylodae*, 76 : 697-698.

Material examined : Jabalpur district : 1 ex. (ZSI A316), Kachpura Ward, Jabalpur, 11.xi.1960; 1 ex. (ZSI V3616), Kachpura ward, Jabalpur, 11.xi.1960. All coll. P. Singh.

Diagnostic character : Head broader than long; snout rounded about twice as the diameter of the eye; nostril equidistant from the tip of snout and the eye; interorbital width about thrice the width of upper eyelid; tympanum hidden. Fingers free, first shorter than second, tips not bearing discsl; subarticular tubercles of fingers and toes not very distinct. Toes with a rudiment of web; both inner and outer shovel-shaped metatarsal tubercles present, inner very large. Tibiotarsal articulation not reaching shoulder. Dorsum smooth or slightly tuberculated, and reddish brown. Venter wrinkled and dull whitish.

Distribution : India : Madhya Pradesh : As mentioned in the material examined. West Bengal, Assam, Bihar, Orrissa, Maharashtra, Gujarat and Karnataka in India.

Elsewhere : Sri Lanka.

Remarks : It leads a subterranean life, surfacing only during breeding season. Inger and Dutta (1986) reported it from Madhya Pradesh.

Status : Rare.

Genus 3. ***Microhyla*** Tschudi, 1838

5. ***Microhyla ornata*** (Dumeril & Bibron)
Ornate Microhylid

1841. *Engystoma ornatum* Dumeril and Bibron, *Erpet., Gen.*, **8** : 745.

1934. *Microhyla ornata* : Parker, *Monoar. Microhylidae* : 139-141.

Material examined : Jabalpur district : 1 ex. (ZSI A331), Permises of C.R.S., Pachpedi, Jabalpur, 20.ix.1961, P. Singh. 1 ex. (ZSI A382), Pedaria village, Jabalpur, 23.ix.1961, R.C. Sharma, 3 ex. (ZSI A333-A335), Barala village, Jabalpur, 27.ix.1961; 1 ex. (ZSI A1780), Madanmahal area, Jabalpur, 20.xii.1961. All coll. P. Singh. 4 Tadpoles, (ZSI A1782), Paripatak village, 18. viii.1962., J.B.S. Batti. 3 ex. (ZSI A9460 & A9461). Patan, 26 km. north-west of Jabalpur, 26.ix.1999; 1 ex. (ZSI A9733), Charia village, Hulki, 47 km. South-west of Jabalpur 26.xi.2002; 1 ex. (ZSI A9738), Pratabpur, 31 km. west of Jabalpur, 29.x.2002; 2 ex. (ZSI A9767), in and around Rest House, I.B.M., Mamla Nehru Marg, Jabalpur, 8.xi.2002. All coll. P.K.Chandra and S. Ray. Umaria district : 1 ex. (ZSI A9744), Parkhuri, 39 km. from Tala, 1.xi.2002; 1 ex. (ZSI A9750), Jaisinghnagar, 51 km. from Tala, 3.xi.2002; 1 ex. (ZSI A9751), In and around Bhandavgar, Tala, 4.xi. 2002. All coll. P.K. Chandra and S. Ray. Balaghat district : 1 ex. (ZSI A507), Khapa, 21.xi.1961, B.S. Lamba. Damoh district : 1 ex (ZSI A9587), Tendukheda, 45 km. from Damoh, 11.iv.2002, S. Sur and S. Ray. 2 ex. (ZSI A9754). In and around Rest House, Damoh, 5.xi.2002; 1 ex. (ZSI A9760), Pateria, 32 km. from Damoh, 6.xi.2002; 1 ex. (ZSI A9761), Nohta, 23 km.

from Damoh,, 7.xi.2002. All coll. P. K. Chandra and S. Ray. Shahdol district : 1 ex. (ZSI A1781), Dhoodh Dhara, Amarkantak, 9.v.1962, P. Singh. 2 ex. (ZSI A9667), pali, 40 km. west of Irrigation I.B.Shahdol, 3.ix.1998, P.K. Chandra. Mandla district : 2 ex. (ZSI V 3594, kisli, Kanha National Park, 18.ii.1974, N.K. Sinha. 2 ex. (ZSI A9459), Chilpi, 60 km. from Mandla, 24.iv.1999, P. K. Chandra and s. Ray. Sidhi district : 1 ex. (ZSI A9688), In and around F.R.H. Majhouli, 29.viii.1998; 1 ex. (ZSI A9358), Sanjay National Park, Podi, 40 km. from F.R.H. Majhouli, 31.viii.1998. All coll. P.K. chandra. Chhindwara district : 1 ex. (ZSI A9458), Tamia, about 58 km. from F.R.H. Chhindwara, 15.viii. 1999, P.K. Chandra and S. Ray. 1 ex. (ZSI V3823), Shivpuri, Parasia, Pachmarhi, 27.x.2002, Y.N. Gupta. Seoni district: 3 ex. (ZSI A9434), In and around Seoni, 20.viii.1999; 7 ex. (ZSI A9723), Beharai, 32 km. east of Seoni, 21.viii.1999; 14 ex. (ZSI A9718 & A9435), Parasia Reserve Forest, 25 km. from F.R.H. Lakhnadon, 24.viii.1999. All coll. P.K. Chandra and S. Ray. 7 ex. (ZSI V3787), Pyorthadi, Pench Tiger Reserve, 13.vi.2001, K. Chandra. Hoshangabad district: 2 ex. (ZSI A9436), In and around F.R.H. Hironchapra, 4.viii.1999, P.K.Chandra and S. Ray 1 ex. (ZSI V3811), Kajri road, Bori, Pachmarhi, 12.iv.2001, Y.N. Gupta. 1 ex. (ZSI V38828), Pachmarhi road, Pachmarhi, 30.x.2002, Y.N. Gupta. Sajapur district : 1 ex. (ZSI A9801), Bapcha, 31 km. north of Agar, Sajapur, 28.vii.2003; P.K. Chandra and S. Ray. Shivpuri district : 1 ex. (ZSI A9862). In and around Madhab National Park, Shivpuri, 5.viii.2003, P.K.Chandra and S. Ray. Gwalior district : 1 ex. (ZSI A9863), In and around Rest House, Gwalior, 8.viii.2003, P.K. Chandra and S. Ray. Ujjain district : 1 ex. (ZSI A9851), In and around F.R.H. Ujjain, 23.vii.2003, P.K.Chandra and S. Ray.

Total length : 11 mm to 25 mm from snout to vent.

Diagnostic character : Head broader than long; snout obtusely pointed, a little longer than the diameter of the eye; nostril nearer to the tip of snout than to the eye; interorbital width a little broader than that of upper eyelid; tympanum not so distinct. Fingers free, tips flattened. Toes with a rudiment of web, tips blunt, two small but distinct oval (inner and outer) metatarsal tubercles present. Tibiotarsal articulation reaches near to eye. Dorsum smooth, brownish with broad darker markings. Venter smooth, dull whitish, little darker on throat.

Distribution : India : Madhya Pradesh: As mentioned in the material examined. Inger and Dutta (1986) reported it from Madhya Pradesh. Saksena, Sarkar and Tewari (1988) reported it from Madhya Pradesh. Widely distributed all over the plains of India upto an altitude of 1524 meters, and Andaman Islands.

Elsewhere : Pakistan, Nepal, Bangladesh, Sri Lanka, Myanmar, South China, Southest Asia and Taiwan.

Remarks : Small frog found inside bush and under dry leaves.

Status : Common.

Genus 4. ***Kaloula*** Gray, 1831

6. ***Kaloula pulchra*** Gray
Painted Frog

1831. *Kaloula pulchra* Gray, *Zool. Misc.*, **1** : 38.

1934. *Kaloula pulchra taprobanica* : Parker, *Monogr. Microhylidae*, : 86-87.

Material examined : Jabalpur district : 1 ex. (ZSI V4586), Jamun tree, Pachpedi, Jabalpur, 15.vi.1961, S. Singh. 2 ex. (ZSI A336 and A 337) Pachpedi area, 15.vi.1961, P. Singh. Balaghat district: 1 ex. (ZSI A508), Baisen Ghat, 13.xi.1961, B.S. Lamba. 1 ex. (ZSI A9550), In and around F.R.H. Baihar, 28.vi.2000; 1 ex. (ZSI A9579), Panswara, 30 km. from Bihar, 1.vii.2000; 1 ex. (ZSI A9700), In and around F.R.H. Kirnapur, 5.vii.2000. All coll. P.K. Chandra. Seoni district : 2 ex. (ZSI A9437), In and around Seoni, 20.viii.1999, P.K. Chandra and S. Ray 5 ex. (ZSI V3770), Pyorthadi, Pench Tiger Reserve, 13.vi.2001. K. Chandra. Chhindwara district : 1 ex. (ZSI V 3821), Chota Mahadeo, Tamia, 23.x.2002; 1 ex. (ZSI V3824), Shivpuri, Parasia,

Pachmarhi, 27.x.2000. All coll. Y. N. Gupta. Umaria district : 1 ex. (ZSI A9739), Umaria, 34 km. from Tala, 31.x.2002; 1 ex. (ZSI A9749), Jaishinghnagar, 51 km. from Tala, 3.xi.2002. All coll. P.K.Chandra and S.Ray. Damoh district : 1 ex. (ZSI A9762), Nohta, 23 km. from Damoh, 7.xi.2002, P.K. Chandra and S. Ray.

Total length : 13 mm to 70 mm from snout to vent.

Diagnostic character : Head broader than long; snout rounded as long as the diameter of the eye; nostril nearer to the tip of snout than to eye; interorbital width much broader than that of upper eyelid; tympanum hidden. Bony ridge below internal nares. Fingers free, first shorter than second, tips bearing well developed truncate discs; subarticular tubercles of fingers and toes distinct. Toes one-third webbed, tips obtusely swollen; inner metatarsal tubercless well developed, large, shovel; shaped outer metatarsal tubercless small, shovel-shaped. Tibiotarsal articulation reaches the axil. Dorsum rough with scattered warts, and greyish with reddish brown patches fringed with black. Venter wrinkled on belly, granular on throat and under surface of thingh, and light brownish.

Distribution : India : Madhya Pradesh : as mentioned in the material examined. Daniel and Verma (1963) reported it from Jagdalpur, Baster district, M.P. now Jagdalpur is under Chattisgarh State. So it is first report from M.P. West Bengal, Bihar, Orissa, Assam, Gujarat, Karnataka, Tripura and Tamil Nadu in India.

Elsewhere : Sri Lanka, Myanmar, Southern China, Malay Peninsula.

Remarks : Terrestrial and nocturnal in habit. Sarkar (1984) gives a detailed account of its habit. It leads a secretive subterranean life and found on surface only during breeding season.

Status : Rare.

Genus 5. ***Ramanella*** Rao and Ramanna, 1925

7. ***Ramanella Variegata*** (Stoliczka)
Variable Ramanella

1872. *Callula variegata* Stoliczka, *Proc. Asiat. Soc. Bengal*, : 111.

1934. *Ramanella Variegata* : Parker, *Monogr. Microhylidae*, : 93-94.

Material examined : Nil; record from published literature.

Diagnostic Character : Head broader than long, snout rounded, as long as the diameter of the eye; nostril nearer to the tip of snout than the eye; interorbital width much broader than the upper eyelid; tympanum hidden; dermal ridge a little way behind the internal neres. Fingers free, first shorter than second, tips bearing well-developed truncate discs; subarticular tubercles of fingers and toes distinct. Toes feebly webbed, tips a little dialated; inner metatarsal tubercle prominent, outer metatarsal tubercle not prominent. Tribiotarsal articulation reaching the shoulder. Dorsum more or less smooth and brownish. Venter smooth and white with reddish brown at gular region; anal region poorly granular.

Distribution : Madhya Pradesh (Inger and Dutta, 1986). Andhra Pradesh, Orissa, West Bengal, Tamil Nadu, Kerala and Karnataka in India.

Elsewhere : Sri Lanka.

Remarks : Small size frog.

Status : Rare.

Family III. RANIDAE

This family is represented by two genera in Madhya Pradesh.

Key to the genera of the family RANIDAE

- Outer metatarsal separated by web in the distal half. ..... *Rana*
- Outer metatarsal united or separated only in the distal extremity ..... *Tomopterna*

Genus 6. ***Rana*** Linnaeus, 1758

Key to the Species of the genus *Rana*

1. Tips of toes with discs ..... *leithii*
- Tips of toes without discs 2
2. Toes webbed upto tips.....3

- Toes webbed not upto tips 4

3. Inner metatarsal tubercle digitiform (toe like) ..... *cyanophlyctis*

4. Toes entirely webbed; inner metatarsal tubercle present; outer metatarsal tubercle absent 5

5. Inner metatarsal tubercle shovel shaped; tympanum distinct, nearly equal the diameter of the eye ..... *crassa*

6. Inner metatarsal tubercle not shovel shaped 7

7. Tympanum distinct, nearly equal 1/2 diameter of the eye; length about 90 mm. from snout to vent ..... *Cancrivora*

- Tympanum distinct, nearly equal the diameter of the eye; largest species of the genus *Rana;* length about 128 mm. from snout to vent.. ..... *tigerina*

- Toes not entirely webbed; outer metatarsal tubercle present 8

8. Lateral sides of body and outer surface of limbs darker in colour than other parts of the body ..... *malabarica*

- Lateral sides of body and outer surface of limbs not darker in colour than other parts of the body 9

9. Head a little broader than long; two penultimate phalanges of fourth toe free from webbing ..... *keralensis*

- Head as long as broad; more than two penultimate phalanges of fourth toe from webbing ..... *limnocharis*

8. ***Rana leithii*** Boulenger
Boulenger's Brown frog

1888. *Rana leithii* Boulenger, *Ann & Mag. N.H.*, (6) **II** : 506.

Material examined : Nil; record from published literature.

Diagnostic character : Head as long broad; snout rounded, projecting little beyond the mouth, as long as the eye; nostril nearer to the tip of teh snout than to the eye; interorbial width less than that of upper eyelid; tympanum very distinct, about 2/3 diameter of the eye. Fingers free, tips with large discs; subarticular tubercles of fingers and toes moderately prominent. Toes 2/3 webbed, three penultimate phalanges of fourth toe free, tips with distinct discs; inner metatarsal tubercle oval, not very distinct, outer metatarsal tubercle absent. Tibiotarsal articulation reaches in between eye and tip of snout. Dorsum brownish with scatteredn warts of various shape. Venter white and smooth, throat a little brownish.

Distribution : Madhya Pradesh, Inger and Dutta, 1986. Gujarat, Maharashtra and Kerala in India.

Remarks : Inger and Dutta (1986) reported it from Madhya Pradesh.

Remarks : Rare.

9. ***Rana cyanophlyctis*** Schneider
Skipping Frog

1799. *Rana cyanophloictis* Schneider, *Hist. Amph.*, **1** : 137.

Material examined : Nil; record from published literature.

Material examined : Damoh district : 7 ex. (ZSI A281-A297), Taradehi, 14-20.iii.1960. All coll. H. Khajuria. 1 ex. (ZSI A9755), in and around Rest House, Damoh, 5.xi.2002; 1 ex. (ZSI A9759), Poteria, 32 km. from Damoh, 6.xi.2002; 2 ex. (ZSI A9764), Nohta, 23 km. from Damoh, 7.xi.2002. All coll. P.K. Chandra and S. Ray. Umaria district : 3 ex. (ZSI A9741), Umaria, 34 km. form Tala, 31.x.2002; 1 ex. (ZSI A9742), Parkheri, 39 km. from Tala, 1.xi.2002; 2 ex. (ZSI A9746), Indhar, 33 km. from Tala, 2.xi.2002; 2 ex. (ZSI A9747), Jaisinghnagar, 51 km. from Tala, 3.xi.2002. All coll. P.K. Chandra and S. Ray. Balaghat district : 14 ex. (ZSI A456-A469), Muki, 2-9.ix.1961; 1 ex. (ZSI A470), Dhirmullah, Sondhar, 11.ix.1961; 8 ex. (ZSI A471-A478), Bhaisen Ghat, 13.ix.1961; 17 ex. (ZSI A479-A495), Ghorela, 14.ix.1961. All coll. B.S. Lamba.

3 ex. (ZSI A9566), In and around F.R.H. Baihar, 32 km. from Baihar, 29.vi.2000; 3 ex. (ZSI A9703), Bishampur, Kanha Tiger Reserve, 35 km. from Baihar, 30.vi.2002; 5 ex. (ZSI A9584), Panswara, 30 km. from Baibhar, 1.vii.2000; 2 ex. (ZSI A9704), In and around F.R.H., Balaghat, 2.vii.2000; 7 ex. (ZSI A9568); Lalbasra, 25 km. from Balaghat, 3.vii.2000; 6 ex. (ZSI A9583), Wara Seoni, 15 km. from Balaghat, 4.vii.2000; 7 ex. (ZSI A9699), In and around F.R.H. Kirnapur, Balaghat, 5.vii.2000; 8 ex. (ZSI A9698), Kanho, 15 km. from Kirnapur, 6.vii.2000; 6 ex. (ZSI A9693), Lauji, 29 km. from Kirnapur, 7.vii.2000. All coll. P.K. Chandra. Shivpuri district : 1 ex. (ZSI V 3804), Madhab National Park, 27.xi.2001, D. Nema and S. Ahirwqr. 2 ex. (ZSI A9809), In and around the Madhab National Park, 5.viii.2003; 8 ex. (ZSI A9792), Korera, 45 km. east of Madhab National Park, 6.viii.2003; 2 ex. (ZSI A9822), Pohri, 24 km. east of Madhab National Park, 7.viii.2003. All coll P.K. Chandra and S. Ray. Panna district : 3 ex. (ZSI A9397), Ajaygarh, 40 km. north-east of Mandla F.R.H., 28.viii.1999, P.K. Chandra. 1 ex. (ZSI A9602), Ajaygarh, 35 km. from Panna, 3.ix.2002; 1 ex. (ZSI A9603), Karlal, 42 km. from Panna, 4.iv.2002. All coll. S. Sur and S. Ray. Mandla district : 1 ex. (ZSI V3596), Around Desi nala, north-east of Rest House, Mandla, 21.ii.1974, N.K. Sinha. 1 ex. ZSI V3592), Around Forest Rest House, Mandla, 24.ii.1974; 14 ex. (ZSI V3590 & V3595), Benjar river, Kanha, 27.ii.1940. All coll. H. Khajuria. Sagor district : 1 ex. (ZSI A9501), Sagor, 31 km. from Dhar, 11.xi.2001, P.K. Chandra and S. Ray. Shahdol district : 9 ex. (ZSI A1727-A1735), Narmada river, 18-24.v.1962; 2 ex. (ZSI A1736 & A1737); Dhoodh Dhara, Narmada river, Amarkantak, 29.v.1962. All coll. P. Singh 1 ex. (ZSI A9339), Basama, 40 km. north-east of Amarkantak, 5.ix.1998; 2 ex. (ZSI A9346), Dhanpur, 50 km. from Amarkantak, 6.ix.1998. All coll. P.K. Chandra. Satna district : 4 ex. (ZSI A9343), Birshinghpur, 65 km. north-east of Satna, 21.viii.1998; 1 ex. (ZSI A9343), Maihra, 43 km. from Satna, 22.viii.1998; 5 ex. (ZSI A9344), Madhagarh, 23.viii.1998. All coll. P. K. Chandra. Chattarpur district : 3 ex. (ZSI A9394), In and around F.R.H. Chattarpur, 24.viii.1998; 4 ex. (ZSI A9395), Chura, 34 km. from F.R.H. Chattarpur, 25.viii.1998; 5 ex. (ZSI A9396), Khajuraho, 44 km. west of Chattarpur, 26.viii.1998. All coll. P.K. Chandra. Seoni district : 3 ex. (ZSI V3819), Chewrighat, Pench Tiger Reserve, 6.vi.2001, K.Chandra. Sidhi district : 2 ex. (ZSI A9345), Joba Forest, 38 km. from F.R.H. Majhouli, 30.viii.1998, P.K. Chandra. Chhindwara district: 1 ex. (ZSI A9418), Tamia, 58 km. from F.R.H. Chhindwara, 15.viii.1998; 1 ex. (ZSI A9491), Chiloti, 38 km. south-west of Sausor, 18-viii.1999; 1 ex. (ZSI 9730), Kotama, 20 km. north of Sausor, 19.viii.1999. All coll. P. K. Chandra and S. Ray. 2 ex. (ZSI V3791), Kumbhpani, 24.xi.2001; 1 ex. (ZSI V3794), Dongargaon, 27.xi.2001. All coll. K. Chandra. Hoshangabad district : 11 ex. (ZSI V3813), Tawa river Bridge, Piparia road, Pachmarhi, 21.i.1990, U. A. Gajbe. 3 ex. (ZSI A9413), In and around Hironchapra, 4.viii.1990 & 5.viii.1999; 2 ex. (ZSI A9415), Babai, 49 km. south of Hironchapra, 6.viii.1999; 1 ex. (ZSI A9409), In and around F.R.H. Piparia, 7.viii.1999; 4 ex., (ZSI A9410 & A9411), Guramkhedi, 46 km. from Piparia, 8.viii.1999; 2 ex. (ZSI A9412), Panarpani, 10 km. from Pachmarhi, 9.viii.1999; 2 ex. (ZSI A9416), Tawa reservior, 62 km. from Pachmarhi, 10.viii.1999; 2 ex. (ZSI A9417), Bankheri, 50 km. from Matkhli, 13 viii.1999. All coll. P.K.Chandra and S. Ray. Indore district : 2 ex. (ZSI A9495), Jaswant Nagar Lake, Manpur, 33 km. from Indore, 6.xi.2002; 2 ex. (ZSI A0496), Singer Choli, 45 km. from Indore, 6.xi.2001; 1 ex. (ZSI A9497), Arjun Varoda, 21 km. from Indore, 7.xi.2001; 3 ex. (ZSI A9498), Tincha falls of river Shipra, 35 km. from Indore, 8.xi.2001. All coll. P.K. Chandra and S. Ray. Dhar district : 1 ex. (ZSI A9499). In and around the campus of Eco centre, Forest Office, Dhar, 9.ix.2001; 1 ex. (ZSI A9500), Sadalpur, 50 km. north-east of Dhar, 11.xi.2001. All coll. P.K. Chandra and S. Ray. Ratlam district: 1 ex. (ZSI A9505), Dholwara dam, 30 km. west of Ratlam, 18.xi.2001; 1 ex. (ZSI A7619), Mahe river, Parles village, 35 km. from Ratlam, 19.xi.2001. All coll. P.K. Chandra and S. Ray. Mandsur district: 2 ex. (ZSI A9506 &

A9507), In and around F.R.H. Mandeur, 21.xi.2001; 4 ex. (ZSI A9508-A9511), Sitamau, 35 km. South-east of Mandsur, 22.xi.2001. All coll. P.K. Chandra. Neemach district : 6 ex. (ZSI A9512-A9517), 34 km. east of Neemach, 24.xi.2001; 7 ex. (ZSI A9518), Down hill tract, river Gujan, 1 km. from F.R.H. Ratangarh, 25.xi.2001; 2 ex. (ZSI A9519), Manasa village, 27 km. from F.R.H. Ratangarh, 26.xi.2001; 3 ex. (ZSI A9520), Singoli, 35 km. north-east of F.R.H. Ratangarh, 27.xi.2001. All coll. P.K. Chandra and S. Ray. Jabalpur district: 2 ex. (ZSI A299 & A300), Bharaghat, Jabalpur, 21.iii.1960, H. Khajuria. 1 ex. (ZSI A298), Barala, 21 km. north-east of C.R.S. Jabalpur, 2.i.1961, S. Chakrapani. 2 ex. (ZSI A1706 & A1707), Jabalpur, 23.i.1961; 1 ex. (ZSI A317) and 5 tadpoles (ZSI A318), Bharaghat, Jabalpur, 29.iv.1961. All coll R.C. Sharma. 2 ex. (ZSI A319 & A320), Umaria village, Jabalpur, 23.ix.1961; 6 ex. (ZSI A1693-A1698), Pachpedi, Jabalpur, 24.x.1961. All coll. S. Chakrapani. 3 ex. (ZSI A1699-A1701), M.P. Govt. Medical College, Jabalpur, 27.x.1961; 3 ex. (ZSI A1702-A1704), In and around Jabalpur, 21.xi.1961,-20.xii.1961, R.C. Sharma. 16 ex. (ZSI A1705, A1708 A1733), In and around Jabalpur, 21.xii.1961-26.iii.1962. All coll. P. Singh. 2 ex. (ZSI A1723 & A1724), In and around Jabalpur, 27.iii.1962, S. Chakrapani. 1 ex. (ZSI A1725), Jabalpur, (25.iv.1962), P. Singh. 1 ex. (ZSI A1726), In and around Jabalpur, 27.iv.1962, R.C. Sharma. 1 ex. (ZSI A1744), Jabalpur, 25.ix.1962, S. Singh. Ietadpola 1 ex. (ZSI A1743), Bharaghat, Japalpur, 20.vi.1962, S. Chakrapani (ZSI A1745), Jabalpur, 27.ix.1962), H. Khajuria. 5 ex. (ZSI A1746-A1750), Jabalpur, 13.iii.1963, S. Chakrapani. 6 ex. (ZSI V3610), Padaria village, on Dindori road, Jabalpur, 17.vi.1965, H.P. Agarwal. 5. ex. (ZSI V3606) Lamatnghat, Jabalpur, 31.i.1967; 9 ex. (ZSI V3603), Balchatank, Panagar village, Jabalpur, 28.x.1967. All coll. V.V. Rao. 2 ex. (ZSI V3578), Beleha tank, Katni road, 12.vi.1970, H.P. Agarwal. 2 ex. (ZSI V3580), Gour river on Mandla road, 31.x.1972), N.K. Sinha, 1 ex. (ZSI V3585), Madan Mahal, Jabalpur, 7.ix.1974, L.P.Dubey. 3 ex. (ZSI V3608), Budogar tank on Katni road, Jabalpur, 20.ix.1975, D.S. Mathur. 5 ex. (ZSI V3581), In and around Jabalpur city, 1.ix.1978, G.M. Yazdani. 1 ex. (ZSI A9445), Ratan, 26 km. from north-west of Jabalpur, 26.iv.1999; 1 ex. (ZSI A9439), Shahpora, 40 km. from Jabalpur, 29.iv.1999; 2 ex. (ZSI A9732), Charia village, Hulki 47 km. south-west of Jabalpur, 26.x.2002; 2 ex. (ZSI A9735), Kundam, 45 km. east of Jabalpur, 27.x.2002; 2 ex. (ZSI A9736), Pratabpur, 31 km. west of Jabalpur, 29.x.2002; 1 ex. (ZSI A9765) In and around Rest House, I.B.M. Kamala Nehru Marg, Jabalpur, 8.xi.2002. All coll. P.K. Chandra and S. Ray. Ujjain district : 4 ex. (ZSI A9853). In and around F.R.H. Ujjain, 23.vii.2003; 5 ex. (ZSI A9817), Tarana, 40 km. north east of F.R.H. Ujjain, 25.vii.2003; 4 ex. (ZSI A9525), Barnagar, 45 km. south west of F.R.H. Ujjain, 26.vii.2003. All coll. P. K. Chandra and S. Ray. Sajapur district: 8 ex. (ZSI A9799), Bapcha, 31 km. north of Agar, 28.vii.2003. All coll. P.K. Chandra and S. Ray. Rajgar district : 2 ex. (ZSI A9819), In and around P.W.D. Rest House, Rajgarh, 30.vii.2003; 4 ex. (ZSI A9832), Zirapur, 35 km. east of P.W.D. Rest House Rajgarh, 31.vii.2003; 8 ex. (ZSI A9843), Narsinghgarh Wild Life Sanctuary, 58 km. south east of Rajgarh, 1.viii.2003. All coll. P.K.Chandra and S. Ray. Guna district : 3 ex. (ZSI A9808), In and around F.R.H. Guna, 2.viii.2003; 2 ex. (ZSI A9820), Kumbhraj, 32 km. South west of Guna F.R.H. 3.viii.2003; 7 ex. (ZSI A9858), Jhagura, 27 km. north east to F.R.H. Guna, 4.viii.2003. All coll. P.K. Chandra and S. Ray. Gwalior district: 2 ex. (ZSI A9802), In and around Rest House Gwalior, 8.viii.2003; 5 ex. (ZSI A9804), Ghatigaon, 34 km. south west of Gwalior, 9.viii.2003; 3 ex. (ZSI A9835), Dabra, 46 km. south east of Gwalior, 10.viii.2003; 5 ex. (ZSI A9829), Bhagen, 48 km. east of Gwalior, 11.viii.2003. All coll. P.K. Chandra and S. Ray.

Total length : 19 to 60 mm from snout to vent.

Diagnostic character : Head broader than long; nostril equidistant from the tip of the snout and the eye; interorbital width much smaller than that of the upper eyelid; tympanum distinct, nearly equal to the diameter of the eye. Fingers free,

first equals second, tips pointed; subarticular tubercles of fingers and toes feebly prominent. Toes fully webbed, tips swollen; a pointed digit-like inner metatarsal tubercle present, outer metatarsal tubercle absent. Tibiotarsal articulation reaches in between tympanum and nostril. Dorsum darker with small warts. Venter whitish and smooth.

Distribution : Madhya Pradesh: As mentioned in the material examined. Throughout the plains of India, and upto 1846 m. in the Himalayas.

Elsewhere : Bangladesh, Pakistan, Afghanistan, Beluchistan, Iran, South Arabia, Thailand, Nepal and Sri Lanka.

Remarks : It is the commonest species of frogs, which is found floating in ponds, ditches and other water bodies in Madhya Pradesh almost throughout the year. Adults can be used in college laboratories for disecting purpose. The frogs can tolerate hazards and manage to live in dirty habitat. They are found living in open drains in cities like Jabalpur, Balaghat, Shadol, Chattarpur, Hoshangabad, Indore, Damoh, Umaria, Chhindwara, Gwalior etc. The species is found in all the districts of Madhya Pradesh.

Status : Very common.

10. ***Rana crassa*** Jerdon
Jerdon's Bull Frog
Hoplobatrachus crassus (Jerdon)

1853. *Rana crassa* Jerdon, *J. Asiat. Soc. Beng.*, **22** : 531.

Material examined : 11 ex. (ZSI A9347), Madhogarh, 23.viii.1998, P.K.Chandra. 1 ex. (ZSI A9768), In and around Bhandvgarh, Tala, 4.xi.2002, P.K. Chandra and S. Ray.

Total length : 55 mm to 62 mm from snout to vent.

Diagnostic character : Head a little broader than long; snout generally pointed, projecting beyond the mouth, longer than the diameter of the eye; nostril generally equidistant from the tip of snout and the eye; interorbital width much smaller than that of upper eyelid; tympanum distinct, nearly equal to the diameter of the eye. Fingers free, first longer than second; subarticular tubercles of fingers and toes feeble distinct. Toes entirely webbed, penultimate phalange of fourth toe feee, tips not pointed; a highly developed shovel-shaped inner metatarsal tubercle present, outer metatarsal tubercle absent. Tibiotarsal articulation reaches the tympanum or the eye. Dorsum light grayish with interrupted long warts. Venter dull whitish with darker spots on throat, and smooth.

Distribution : India : Madhya Pradesh : as mentioned in the material examined. Andhra Pradesh, West Bengal, Bihar, Tripura, Kerala, Orissa, Tamil Nadu, Uttar Pradesh in India.

Elsewhere : Nepal and Sri Lanka.

Remarks : Dutta (1997) reported it from Madhya Pradesh. It is the second report from Madhya Pradesh. The frogs are nocturnal in habit. Spend day inside the crevices on the elivated walls of ditches, ponds and canals.

Status : Rare.

11. **Rana *cancrivora*** Gravenhorst
Crab-eating Frog
Current name : ***Fejervarya cancrivora*** (Gravenhonst)

1829. *Rana cancrivora* Gravenhorst, *Delic. Mus., Zool. Vratislay.*, **1** : 41.

Material examined : Nil; record from published literature.

Diagnostic character : Head variable in size. Tympanum distinct, about half the diameter of the eye. Forelimbs moderately long; fingers obtusely pointed. Subarticular tubercles of the fingers rather small and feebly prominent. Hindlimbs moderately long. Tibiotarsal articulation reaching in between the eye and nostril. Toes entirely webbed. Web between the toes strongly notched, not reaching tip of the fourth toe. A small, but blunt inner metatarsal tubercle present. Outer metatarsal tubercle absent. Dorsal surface yellowish green or olive with dark spots. Ventral surface white. A narrow or broad,

yellow mid-dorsal vertebral band is present which is occasionally accompained by a light line. Limbs with irregular cross bands. Skin is smooth or granulate, sometimes with two to three pains of longitudinal dermal folds. Ventral surface smooth.

Distribution : Madhya Pradesh (Inger and Dutta, 1986). Andaman and Nicobar Islands.

Elsewhere : Malay Peninsula, Philippines, Thailand, Sumatra, Jawa and Borneo.

Remarks : Inger and Dutta (1986) reported it from Madhya Pradesh.

Status : Rare.

12. ***Rana tigerina*** Daudin
Indian Bull Frog
Current name : ***Hoplobatrachus tigerinus*** (Daudin)

1803. *Rana tigerina* Daudin *Hist. Rain. Crip.*, : 64.

Material examined : Jabalpur district : 1 ex. (ZSI A312), Kachpura, 26.x.1960, P. Singh. 1 ex. (ZSI A313), Moia nala, Jabalpur, 24.ii.1961, R.C. Sharma. 1ex. (ZSI A328), Pachpedi, Jabalpur, 29.ix.1961; 1ex. (ZSI A1775), M.P. Govt. College, Jabalpur, 27.x.1961. All coll. S. Chakrapani. Damoh district : 1 ex. (ZSI A9758), Poteria, 32 km. from Damoh, 6.xi.2002, P.K. Chandra and S. Ray. Satna district : 1 ex. (ZSI A9348), Birsinghpur, 65 km. north-east of Satna, 21.viii.1998, P.K. Chandra. Chhatarpur district: 1 ex. (ZSI A9385), Ghura, 34 km. from F.R.H. Chhatarpur, 25.viii.1998, P.K. Chandra. Sidhi district: 2 ex. (ZSI A9349), Joba Forest, 38 km. from F.R.H. Majhouli, 30.viii.1998; 1 ex. (ZSI A9350), Sanjay National Park, Podi, 40 km. from F.R.H. Majhouli, 31.viii.1998. All coll. P. K. Chandra. Hoshangabad district : 1 ex. (ZSI A9428), Seoni Malwa, 60 km. from Hiron Chopra, 5.viii.1999; 1 ex. (ZSI A3439), Tawa Reservior, 62 km. from Pachmarhi, 10.viii.1999; 1 ex. (ZSI A3430), Bankheri, 50 km. from Motkuli, 13.viii.1999. All coll. P. K. Chandra and S. Ray 1 ex. (ZSI V3826), Tekapar, Pachmarhi, 1.xi.2002, Y. N. Gupta. Chhindwara district : 1 ex. (ZSI A9431), Tamia, 58 km. from F.R.H. Chhindwara, 15.viii.1999, P. K. Chandra and S. Ray. Seoni district : 1 ex. (ZSI A9432), Parasia Reserve Forest, Lakhnadon, 24.viii.1998, P. K. Chandra and S. Ray. Balaghat district : 1 ex. (ZSI A9701), Bishampur, Kahna Tiger Reserve, 35 km. from Baihar, 30.vi.2002; P. K. Chandra. Dhar district : 1 ex. (ZSI A9521), Sadalpur, 30 km. north east of Dhar, 11.xi.2002, P. K. Chandra and S. Ray. Panna district : 1 ex. (ZSI A9609), Ajaygarh, 35 km. from Panna, 3.iv.2002, S. Sur and S. Ray. Ujjain district : 1 ex. (ZSI A9813), Tarana, 40 km. north east of F.R.H. Ujjain, 24.vii.2003; 1 ex. (ZSI A97796), Ghosala, 33 km. north of F.R.H. Ujjain, 25.vii.2003. All coll. P. K. Chandra and S. Ray. 1 ex. (ZSI A9827), Barnagar, 45 km. south west of F.R.H. Ujjain, 26.vii.2003. All coll. P.K. Chandra and S. Ray. Sajapur district : 1 ex. (ZSI A9800), Bapcha, 31 km. north of Agar, 28.vii.2003, P. K. Chandra and S. Ray. Gwalior district : 1 ex. (ZSI A9838), Dabra, 46 km. south east of Gwalior, 10.viii.2003, P. K. Chandra and S. Ray. Rajgarh district : 1 ex. (ZSI A9846), Narsinghgarh W.L.S., 58 km. south west of Rajgarh, 1.viii.2003, P. K. Chandra and S. Ray. Shivpuri district : 1 ex. (ZSI A9855), In and around Madhab National Park, Shivpuri, 5.viii.2003; 1 ex. (ZSI A9793), Korera, 45 km. east of Madhab National Park, Shivpuri, 6.viii.2003; 1 ex. (ZSI A9824), Pohri, 24 km. east of Madhab National Park, Shivpuri, 7.viii.2003. all coll. P. K. Chandra and S. Ray.

Total length : 31 mm to 128 mm. from snout to vent.

Diagnostic chacrater : Head as long as broad or a little broader than lon; snout rounded or pointed, projecting beyond the mouth, longer than the diameter of the eye; nostril generally equidistant from the tip of snout and the eye; interorbital width much less than that of upper eyelid; tympanum distinct, nearly equal to the diameter of the eye. Fingers free, tips not sharply pointed; subarticular tubercles of fingers and toes not very distinct. Toes entirely webbed, tips not pointed; a blunt not shovel-shaped inner metatarsal tubercles present; outer metatarsal tubercle absent. Tibiotarsal articulation reaches in between eye and nostril. Dorsum olive green with

darker spots, distinct warts and long glandular folds. Venter whitish and smooth.

Distribution : Madhya Pradesh : as mentioned in the material examined. The species is common throughout India from the base of Himalaya to Southern Part of the Country, and Andaman.

Elsewhere : Bangladesh, Pakistan, Nepal, Sri Lanka, Myanmar, Thailand, South China and Taiwan.

Remarks : Large sized edible frog. Gupta (1975) reported it from Madhya Pradesh.

Status : Common.

13. ***Rana malabarica*** (Tschudi)
Fungoid Frog

1838. *Rana malabarica* Tschudi, *class. Batr.*, : 40 & 80.

Material examined : Nil; recorded from published literature.

Diagnostic character : Head as long as broad; snout rounded or obtusely pointed, projecting beyond the mouth, as long as or little longer than the diameter of the eye; nostril a little nearer to the tip of the snout than to eye; interobital width more or less equal to that of upper eyelid. Tympanum very distinct, two-third to once the diameter of the eye. Fingers free, first a little longer than second, tips blunt and swollen; subarticular tubercles of fingers and toes very distinct. Toes half webbed, three penultimate phalanges of fourth toe free, tips swollen; very prominent both inner and outer metatarsal tubercle present. Tibiotarsal articulation reaches tympanum to eye. Dorsum dull whitish with darker colouration on lateral sides of body and outer surface of limbs, white bars on limbs. Venter dark brown with white spots on belly and undersurface of limbs, granular or smooth.

Distribution : Madhya Pradesh : E.P. Eric D' Gunha (2002) reported it form Macha village, Kanha National Park, Madhya Pradesh. Daniel and Selukar (1964) reported it from Jagdalpur, Baster district, now in Chattisgarh. Orissa, Gujarat, Maharashtra, Goa, Kerala and Tamil Nadu.

Remarks : Medium sized frog. Nocturnal in habit and generally found in forest area. During monsoon days they are found on moist ground in dense forest area during day time.

Status : Rare.

14. ***Rana keralensis*** (Dubois)
Cunther's Warty Frog

Current name : ***Fejervarya keralensis*** (Dubois)

1875. *Rana verrucosa* Gunther. *Proc. Zool. Soc.*, London, : 567.

1980. *Rana keralensis* Dubois. *Bull. Mus. Natl. Hist. Nat.*, (4) ZA : 928.

Material examined : Satna district : 4 ex. (ZSI A9588), Maihar, 35 km. from Satna, 29.iii.2002. All coll. S. Sur and S. Ray. Chhindwara district : 1 ex. (ZSI A9727), Kotama, 20 km. north of Sausar, 19.viii.1999, P. K. Chandra and S. Ray. Raisen district : 3 ex. (ZSI A9709), Jamuria, 18 km. from Silwani, 2.i.2002, P. K. Chandra and S. Ray. Shivpuri district: 2 ex. (ZSI A9856), in and around Madhab National Park, 5.viii.2003, P. K. Chandra and S. Ray.

Total length : 19 mm to 34 mm form snout to vent.

Diagnostic character : Head a little broader than long; snout bluntly pointed, equal the diameter of the eye; nostril less equidistant from the tip of the snout and the eye; nostril less equidistant from the tip of the snout and the eye; interorbital width shorter than that of upper eyelid. Tympanum distinct, about two-third the diameter of the eye. Fingers free, first longer than second, tips more or less pointed; subarticular tubercles of fingers and toes larger and distinct. Toes three fourth webbed, two penultimate phalanges of fourth toe free, inner metatarsal tubercles elliptical, outer metatarsal tubercles small, oval. Tibiotarsal articulation reaching in between nostril and tip of snout. Dorsum greyish and warty. Venter white smooth.

Distribution : India : Madhya Pradesh : as mentioned in the material examined. First record

from Madhya Pradesh. West Bengal, Orissa, Tripura, Gujarat, Tamil Nadu and Kerala in India.

Remarks : Medium sized frog. These frogs generally found inside forest near streams.

Status : Rare.

15. ***Rana limnocharis*** Boie
Cricket Frog
Current name : ***Fejervarya limnocharis***
(Gravenhorst)

1935. *Rana limnocharis* (Boie), Wiegmann. *N. Acta Ac. Leop. Carol.*, 17.

Material examined : Jabalpur district : 4 ex. (ZSI A307- A310), Barala, 21 km. north-east of C.R.S., Jabalpur, 2.i.1961, S. Chakrapani. 1 ex. (ZSI A311), Padavia village Jabalpur, 17.ii.1961; 3 ex. (ZSI A321 A323), Kotangi road, Jabalpur, 29.vi.1961. All coll. R.C. Sharma. 1 ex. (ZSI A324), Pachpedi, Jabalpur, 20.ix.1961, P. Singh. 1 ex. (ZSI A325), Padarsia village, Jabalpur, 23.ix.1961, P. Singh. 1 ex. (ZSI A326), Umaria village, Jabalpur, 23.ix.1961; 1 ex. (ZSI A327), Backhra village, Jabakpur, 26.ix.1961. All coll. S. Chakrapani. 1 ex. (ZSI A1751), Bheraghat, Jabalpur, 20.xii.1961; 1 ex. (ZSI A1754), Jabalpur, 27.xii.1961. All coll. R. C. Sharma. 2 ex. (ZSI A1752 & A1753), Jabalpur, 22-23.ii.1962, P. Singh. 1 ex. (ZSI A1774), Jabalpur, 27.viii.1962, J.B.S. Bhatti, 2 ex. (ZSI 3602), Gasalpur, on Katni road, Jabalpur,, 13.ix.1974, H. P. Agarwal. 1 ex. (ZSI V3581), Amkhosh, Jabalpur, i.x.1974) R.K. Singh. 5 ex. (ZSI V3609), Budogar tank on Katni road, Jabalpur, 20.ix.1975, D.S. Mathur. 7 ex. (ZSI V3582), In and around Jabalpur, Sept. 1978, G.M. Yazdani, 5 ex. (ZSI A9454), Patan, 26 km. north-west of Jabalpur, 26.iv.1999; 6 ex. (ZSI A9455), Bheraghat, 22 km. from Jabalpur, 27.iv.1999; 6 ex. (ZSI A9455), Bheraghat, 22 km. from Jabalpur, 27.iv.1999; 6 ex. (ZSI A9456), Hulki, 55 km. from Jabalpur, 28.iv.1999; 10 ex. (ZSI A9731), Charia village, Hulki, 47 km. south west of Jabalpur, 26.x.2002; 9 ex. (ZSI A9734), Kundam, 45 km. from Jabalpur, 27.x.2002; 10 ex. (ZSI A9737), Pratabpur, 31 km. west of Jabalpur, 29.x.2002; 5 ex. (ZSI A9766), in and around Rest House I.B.M. Kamla Nehru Marg, Jabalpur, 8.xi.2002. All coll. P. K. Chandra and S. Ray. Umaria district : 4 ex. (ZSI V3805), Bhitarivah, Bandhavgarh National Park, 21.ix.2002, M. L. Koshta. 7 ex. (ZSI A9740), Umaria, 34 km. from Tala, 31.x.2002; 7 ex. (ZSI A9743), Parkhuri, 39 km. from Tala, 1.xi.2002; 8 ex. (ZSI A9745), Indhar, 33 km. from Tala, 2.xi.2002; 3 ex. (ZSI A9748), Jaisinghnagar, 51 km. from Tala, 3.xi.2002; 6 ex. (ZSI A9752), in and around Bandavgarh, Tala, 4.xi.2002. All coll. P. K. Chandra and S. Ray. Damoh district : 2 ex. (ZSI A301 & A302), Taradehi village, 14.iii.1960; 2 ex. (ZSI A303& A304), Tidney, 15.iii.1960; 2 ex. (ZSI A305 & A306), Rishai, 16.iii.1960. All coll. Khajuria. 2 ex. (ZSI A9599), Hirapur, 40 km. from Damoh, 11.iv.2002; 2 ex. (ZSI A9600), In and around Damoh, 12.iv.2002. All coll. S. Sur and S. Ray. 2 ex. (ZSI A9756), in and around Rest House, Damoh, 5.xi.2002; 3 ex. (ZSI A9757), Poteria, 32 km. from Damoh, 6.xi.2002; 4 ex. (ZSI A9763), Nohta, 23 km. from Damoh, 7.xi.2002. All coll. P. K. Chandra and S. Ray. Shahdol district: 10 ex. (ZSI A1755-A1764), Narmoda river at Horitola, 21.v.1962; 7 ex & 17 tadpoles. (ZSI A1765-A1772), Kapildhara, Narmada river, Amarkantak, 23-14.V.1962; 1 ex. (ZSI A1773), Dhoodh Dhara, Narmada river, Amarkantak, 25.v.1962. All coll. P. Singh. 1 ex. (ZSI A9678), in and around I. B. Shahdol, 1.ix.1998; 4 ex. (ZSI A9679), Kanaodi, 40 km. north of irrigation I.B. 2.ix.1998. All coll. P. K. Chandra. Balaghat district : 36 ex. ZSI A496, A498 and A450, Muki, 2-9.xi.1961; 71 ex. (ZSI A497, A499, A503 & A505, Sondhar, 4.xi.1961 to 13.xi.1961; 57 ex. (ZSI A502, A504 & A505) Gorela, 11-14.xi.1961. All coll. R.S. Lamba. 1 ex. (ZSI A9569), Tumbribhat, 32 km. from Baihar, 29.vi.2000; 3 ex. (ZSI A9702), Bishampur, Kanha Tiger Reserve, 35 km. from Baihar, 30.vi.2000; 2 ex. (ZSI A9705), in and around F.R.H. Balaghat, 2.viii.2000; 2 ex. (ZSI A9581), Wara Seoni, 15 km. from Balaghat, 4.vii.2000. All coll. P. K. Chandra. Mandia district : 10 ex. (ZSI V3589), Kanha National Park, 15.ii.1974; 21 ex. (ZSI V3583), Kothateya nala, 1 km. east of Kisli, 16.ii.1974 6 ex. (ZSI V3597), around Deshi nala,

north-east of Rest House, Mandla, 21.ii.1974. All coll. N.K. Sinha. 10 ex. (ZSI V3584), 4 km. south west of Kanha, 22.ii.1974; 7 ex. (ZSI V3588), Kanha National Park, 26.ii.1974; 3 ex. (ZSI V3593), in and around Mukki Forest House, i.iii.1974. All coll. H. Khajuria. 8 ex. (ZSI A9450), Chilpi, 60 km. from Mandla, 21.iv.1999; 4 ex. (ZSI A9452), Samnapur, 30 km. from Dindori, 24.iv.1999; 5 ex. (ZSI A9453), Gorakpur, 60 km. from Dindori, 25.iv.1999. All coll. P. K. Chandra and S. Ray. Satna district : 1 ex. (ZSI A9351), in and around R.R.H. Satna, 20.viii.1998; 3 ex. (ZSI A9352), Maihar, 43 km. south-west of Satna, 22.viii.1998; 1 ex. (ZSI A9386), Forest Depo, Rewa road, 5 km. east of Satna, 22.viii.1998; 1 ex. (ZSI A9353), Madhogarh, 23.viii.1998; 3 ex. (ZSI A9354), Joba Forest, 38 km. from F.R.H. Majhouli, 30.viii.1998. All coll. P. K. Chandra. 1 ex. (ZSI A9590), in and Around Satna, 29.iii.2002, S. Sur and S. Ray. Hoshangabad district : 11 ex. (ZSI V3814), Tawa river Bridge, Piparia road, Pachmarhi, 12.i.1990, U. A. Gajbe. 1 ex. (ZSI V3807), Churna, Bori Sanctuar, Pachmarhi, 11.vi.1999, K. Chandra. 2 ex. (ZSI A9421), Saheli, 3 km. from Hironchapra, 5.viii. 1999; 1 ex. (ZSI A9422), Babai, 49 km. south of Hironchapra, 6. viii.1999; 2 ex. (ZSI A9423), Guramkhedi, 46 km. from Piparia, 8.viii.1999; 1 ex.(ZSI A9424), Panarpani, 10 km. from Pachmarhi, 9.viii.1999. All coll. P. K. Chandra and S. Ry. 3 ex. (ZSI V3812), Sonbhadra, river Dhain, Pachmarhi, 8.iii.2000; 3 ex. (ZSI V3818, Khankarpura, Churna, Pachmarhi, 11.iii.2000. All coll. R. K. Singh. 5 ex. (ZSI V3819), Iklatna river, Bori, Pachmarhi, 11.iv.2001; 6 ex. (ZSI V3810), Kajri road, Bori, Pachmarhi, 12.iv.2001; 2 ex. (ZSI V3816), Panhat, Bori, Pachmarhi, 14.ix.2001. All coll. K. Chandra. 7 ex. (ZSI V3827), Pachmarhi road, Pachmarhi, 30.x.2002, Y. N. Gupta. Chhatarpur district : 2 ex. (ZSI A9388), Ghura, 34 km. from Rest House, Chhatarpur, 25.viii.1998; 4 ex. (ZSI A9389), Khajuraho, 44 km. west of Chhatarpur, 26.viii.1998. All coll. P. K. Chandra. 1 ex. (ZSI A9596), Khajuraho, 42 km. from Chhatarpur, 6.vi.2002; 1 ex. (ZSI A9597), Rane falls, 51 km. from Chhatarpur, 8.iv.2002; 1 ex. (ZSI A9598), in and around Chattarpur, 9.iv.2002. All coll. S. Sur and S. Ray. Panna district : 7 ex. (ZSI A9390), Bagana village, 6 km. west of F.R.H. Mandla, 27.viii.1998; 10 ex. (ZSI A9391), Ajaygarh, 40 km. north-east of Mandla F.R.H., 28.viii.1998. All coll. P. K. Chandra. 3 ex. (ZSI A9593), Ajaygarh, 35 km. From Panna, 3.iv.2002; 3 ex. (ZSI A9594), Karlal, 42 km. from Panna, 4.iv.2002; 3 ex. (ZSI A9695), in and around Palla. All coll. S. Sur and S. Ray. Chhindwara district : 1 ex. (ZSI A9425), in and around F.RH. Sausar, 17.viii.1991; 1 ex. (ZSI A9426), Chicholi, 38 km. south of Sausar, 18.viii.1999. All coll. P. K. Chandra and S. Ray. 1 ex. (ZSI V3795), Dongaraon, 27.xi.2001; 1 ex. (ZSI V3799), Banskheda, 28.xi.2001. All coll. K. Chandra. 3 ex. (ZSI V3822), Chota Mahadeo, Tamia, Pachmarhi, 23.x.2002, Y. N. Gupta, Seoni district: 2 ex. (ZSI A9427), In and around Seoni, 20.viii.1999; 3 ex. (ZSI A9722), Beharai, 32 km. east of Seoni, 21.viii.1999; 7 ex. (ZSI A9717), Parasia Reserve Forest, 25 km. from Lakhnadon, 24.viii.1999. All coll. P.K. Chandra and S. Ray. 1 ex. (ZSI V3831), Chewrighat, Pench Tiger Reserve, 8.vi.2001; 2 ex. (ZSI V3782), Pyorthadi, Pench Tiger Reserve, 13.vi.2001; 2 ex. (ZSI V3801), Vijaypani, Pench Tiger Reserve, 28.vi.2001. All coll. K. Chandra, 2 ex. (ZSI V3796), Badanala, 23.vii.2001; 1 ex. (ZSI V3800), Satosa, Pench Tiger Reserve, 26.vii.2001. All coll. M. L. Koshta. Shivpuri district : 25 ex. (ZSI V3772), G.C. Fort, Madhav National Park, 26.xi.2001; 5 ex. (ZSI V3803), Madhav National Park, 27.xi.2001; 22 ex. (ZSI V3779), Madhav National Park, Shivpuri, 28.xi.2001. All coll. D. Nema & S. Ahirwar. 2 ex. (ZSI A9812), in and around Madhav National Park, Shivpuri, 5.viii.2003; 1 ex. (ZSI A9842), Korera, 43 km. east of Madhav National Park, Shivpuri, 6.viii.2003; 1 ex. (ZSI A9823), Pohri, 24 km. east of Madhav National Park, Shivpuri, 7.viii.2003. All coll. P. K. chandra and S. Ray. Umaria district : 4 ex. (ZSI V3805), Bhitarivah, Bandhavgarh National Park, 21.ix.2002, M. L. Koshta. 7 ex. (ZSI A9740), Wmaria, 34 km. from Tala, 31.x.2002; 7 ex. (ZSI A9743), Parkhuri, 39 km. from Tala, 1.ix.2002; 8 ex. (ZSI A9745), Indhar, 33 km. from Tala, 2.xi.2002; 3 ex. (ZSI

A9748), Jaisinghnagar, 51 km. from Tala, 3.xi.2002; 6 ex. (ZSI A9752), in and around Bhandavgarh, Tala, 4.xi.2002. All coll. P. K. Chandra and S. Ray. Rewa district : 2 ex. (ZSI A9602), Manikpur, 35 km. from Reqa, i.iv.2002; 3 ex. (ZSI A9592), in and around Rewa, i.iv.2002. All coll. s. Sur and S. Ray. Dhar district : 4 ex. (ZSI A9482), Sadalpur, 30 km. north-east of Dhar, 11.xi.2001; 7 ex. (ZSI A9484), Mandu, 37 km. south of Dhar, 12.xi.2001; 4 ex. (ZSI A9485), Makni, 28 km. south-east of Badnwar, 14.xi.2001; 5 ex. (ZSI A9486), Rajod, 25 km. south west of Badnawar, 15.xi.w001; 8 ex. (ZSI A9487), Nagda, 42 km. south of Badnawar, 16.xi.2001. All coll. P. K. Chandra and S. Ray. Neemach district: 2 ex. (ZSI A9491), in and around the P.W.D. Rest House, Neemach, 23.xi.2001; 1 ex. (ZSI A9492), Manasa, 34 km. east of Neemach, 24.xi.2001; 4 ex. (ZSI A9493), Mahasa village, 27 km. from F.R.H. Ratangarh, 26.xi.2001; 2 ex. (ZSI A9494), Singoli, 35 km. north-east of F.R.H. Ratamgarh, 27.xi.2001. All coll. P. K. Chandra and S. Ray. Mandsur district : 2 ex. (ZSI A9489), In and around F.R.H., Mandsur, 21.xi.2001; 2 ex. (ZSI A9490), Sitamau, 35 km. south-east of Mandsur, 22.xi.2001. All coll. P. K. Chandra and S. Ray. Indore district : 6 ex. (ZSI A9487), Jaswant Nagar Lake, Manipur, 33 km. from Indore, 6.xi.2001; 7 ex. (ZSI A9479), Singarcholi, 45 km. from Indore, 7.xi.2001; 7 ex. (ZSI A9480), Arjun Varoda, 21 km. from Indore, 7.xi.2001; 4 ex. (ZSI A9498), Tincha falls of river Shipra, 35 km. from Indore, 8.xi.2001. All coll. P. K. Chandra and S. Ray. Sidhi district : 4 ex. (ZSI A9689), In and around F.R.H. Majhouli, 29.viii.1998; 4 ex. (ZSI A9355), Sanjay National Park, Podi, 40 km. from F.R.H. Majhouli, 31.viii.1998. All coll. P. K. chandra. Ratlam district : 7 ex. (ZSI A9488), Dholwara dam, 30 km. west of Ratlam, 18.xi.2001; 4 ex. (ZSI A9615), Seogarh Talao, 20 km. west of F.R.H. Ratlam, 18.xi.2001; 7 ex. (ZSI A9616), Nami village, 20 km. north of Ratlam, 20.xi.2001; 7 ex. (ZSI A9617), Dhalwara dam, 32 km. west of Ratlam, 18.xi.2001; 7 ex. (ZSI A9617), Dhalwara dam, 32 km. west of Ratlam, 18.xi.2001; 4 ex. (ZSI A9618), Mahe river, Parlea village, 35 km. from Ratlam, 19.xi.2001. All coll. P.K.Chandra and S. Ray. Sehore district : 15 ex. (ZSI A9708), Ashta, 43 km. south-east of Sehore, 5.i.2001; 5 ex. (ZSI A9670), in and around F.R.H. Sehore, 4.i.2001; 5 ex. (ZSI A9672), in and around P.W.D. Rest House, Nosrullahganj, 7.i.2001; 2 ex. (ZSI A9673), Kankarkhera, 18. km. from Sehore, 6.i.2001; 25 ex. (ZSI A9675), Larkui, 35 km. north-west of Nosrullahganj, 8.i.2001; 15 ex. (ZSI A9676), Nadam, 46 km. south west of Sehore, 6.vi.2001. All coll. P. K. Chandra and S. Ray. Raisen district : 4 ex. (ZSI A9706), Nayapura, 35 km. west of Raisen, 30.xii.2000; 1 ex. (ZSI A9707, Jamania, 18 km. south-west to Silwani, 2.i.2001; 5 ex. (ZSI A9671), Salamatpur, 21 km. from Raisen, 31.xi.2000; 6 ex. (ZSI A9674), Gairatganj, 35 km. north-east of Silwani, 3.i.2001. All coll. P. K. Chandra and S. Ray. Bhopal district: 2 ex. (ZSI A9622), Nazirabad beat, Sidhya Kua, Nazirabad, 27.xii.2000; 4 ex. (ZSI A9669), Haldi Reservoir, 25 km. north-east of Bhopal, 26.xii.2000; 4 ex. (ZSI A9627), Khirkhira, 20 km. north of Nazirabad, 28.xii.2000. All coll. P. K. Chandra and S. Ray. Sagor district : 2 ex. (ZSI A9601), in and around Sagor, 14.iv.2002, S. Sur and S. Rayt. Ujjain district : 2 ex. (ZSI A9815), Tarana, 40 km. north east of F.R.H. Ujjain, 24.vii.2003; 2 ex. (ZSI A9797). Ghosala, 33 km. north of F.R.H. Ujjain, 24.vii.2003; 2 ex. (ZSI A9797), Ghosala, 33 km. north of F.R.H. Ujjain, 25.vii.2003; 3 ex. (ZSI A9826), Barnager, 45 km. south west of Ujjain, 26.vii.2002. All coll. P. K. Chandra and S. Ray. Sajapur district : 2 ex. (ZSI A9817), Bajna, 33 km. west of Agar F.R.H., Sajapur, 29.vii.2003, P. K. Chandra and S. Ray. Rajgarh district : 2 ex. (ZSI A9833), Zirapur, 35 km. east of P.W.D. Rest House, Rajgarh, 31.vii.2003, P. K. Chandra and S. Ray. Guna district : 2 ex. (ZSI A9807), in and around F.R.H. Guna, 2.viii.-2003; 3 ex. (ZSI A9860), Jhagura, 27 km. north east of F.R.H. guna, 4.viii.2003. All coll. P. K. Chandra and S. Ray. Gwalior district : 1 ex. (ZSI A9806), Ghatigaon, 34 km. south west of Gwalior, 9.viii.2003; 1 ex. (ZSI A9836), Bhagen, 48 km. east of Gwalior, 11.viii.2003. All coll. P. K. Chandra and S. Ray.

Total length : 11 mm to 32 mm from snout to vent.

Diagnostic character : Head as long as broad, snout pointed, projecting beyond mouth, as long as or a little longer than the diameter of the eye; nostril nearer to the tip of snout than to the eye; interorbital width much smaller than that of upper eyelid; tympanum distinct, nearly two third the diameter of the eye. Fingers free, first longer than second, tips swollen, subarticular tubercles of fingers and toes distinct. Toes half webbed, normally three phalanges of fourth toe free; a distinct oval inner metatarsal tubercle present. Outer metatarsal tubercle is feebly and distinct. Tibiotarsal articulation reaches in between tympanum and nostril. Dorsum greyish and warty. Venter whitish and smooth.

Distribution : India : Madhya Pradesh; as mentioned in the material examined. The species is found in all the districts of Madhya Pradesh. It is a widely distributed species in India and found in almost all the biotopes.

Elsewhere : Eastern Asia from Pakistan, Bangladesh, Sri Lanka and China and Japan.

Remarks : Gupta (1975) reported it from Madhya Pradesh. Medium sized frog. Found in the vicinity of water.

Status : Common.

Genus 7. ***Tomopterna*** Dumeril and Bibron, 1841

1841. *Tomopterna Dumeril* and Bibron, *Erp. Gen.*, **8** : 443.

Key to the species of the genus *Tomopterna*

- First finger shorter than second; a small rounded tubercle at the joint of tibia and tarsus present ..... *rolandi*
- First finger much longer than second; absence of rounded tubercle at the joint of tibia and tarsus ..... *breviceps*

16. ***Tomopterna rolandi*** Dubois

Current name : ***Sphaerothea rolandi*** (Dubois)

1983. *Alytes* Dubois, **2**(4) : 163-170.

Material examined : Sidhi district : 5 ex. (ZSI A9356), Sanjay National Park, Podi, 40 km. from P.W.D. Majhouli, 31.viii.1998. 1 ex. (ZSI A9769), Joba Forest, 28 km. from F.R.H. Majhouli, 30.viii.1988. All coll. P. K. Chandra. Satna district : 2 ex. (ZSI A9770), Madhogarh, 23.viii.1998, P. K. Chandra. Umaria district : 1 ex. (ZSI A9769), Umaria, 34 km. from Tala, 31.x.2002; 1 ex. (ZSI A97770), in and around Bhandavgarh, Tala, Umaria, 4.xi.2002. All coll. P. K. Chandra and S. Ray.

Total length : 18 mm. to 24 mm. from snout to vent.

Diagnostic character : Smaller body size. Head broader than long; snout rounded, slightly projecting beyond the mandible; nostril nearer to the tip of snout than the eye; tympanum small, distinct nearly half the diameter of the eye. Fingers free, first shorter than second, tips rounded, subarticular tubercles of fingers and toes well-developed. A small rounded tubercle at the joint of tibia and tarsus present. Toes webbed minutely, three phalanges of fourth toe free; a large shovel shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent. Tibiotarsal articulation reaches posterior corner of eye. Dorsum greyish sometimes with brown marking. Ventral surface whitish. Skin almost smooth but slightly granular on the dorsum.

Distribution : India : Madhya Pradesh : as mentioned in the material examined. Kerala, Orissa, Tamil Nadu, West Bengal.

Elsewhere : Sri Lanka.

Remarks : Small sized frog. Burrowing and nocturnal in habit. Dutta (1995) reported it from Madhya Pradesh.

Status : Rare.

17. ***Tomopterna breviceps*** (Schneider)

Burrowing Frog

Current name : ***Sphaerothea breviceps*** (Schneider)

1799. *Rana breviceps* Schneider, *Hist, Amph.*, **1** : 140.

1986. *Tomopterna breviceps* : Inger and Dutta, *J. Bombay nat. Hist. Soc.*, **83** : 138.

Material examined : Damoh district : 1 ex. (ZSI A9608), Tendukheda, 45 km. form Damoh, 11.iv.2002, S. Sur and S. Ray. Bhopal district : 2 ex. (ZSI A9623), Nazirabad beat, Sidhya Kua, Nazirabad, 27.xi.2000, P. K. Chandra and S. Ray. Sehore district : 1 ex. (ZSI A9712), Ashtha, 43 km. south east of Sehore, 5.i.2001, P. K. Chandra and S. Ray. Panna district : 1 ex. (ZSI A9605), Ajaygarh, 35 km. from Panna, 3.iv.2002, S. Sur and S. Ray. Chattarpur district : 1 ex. (ZSI A9606), Khajuraho, 42 km. from Chattarpur, 6.iv.2002, S. Sur and S. Ray. Jabalpur district : 1 ex. (ZSI A330), Padaria village, Jabalpur, 23.ix.1961, R. C. Sharma, 1 ex. (ZSI A9771), in and around Jabalpur city, Sept., 1978, G. M. Yazdani, Shahdol district : 1 ex. (ZSI A9357). in and around F.R.H. Amarkantak, 4.ix.1998; 1 ex. (ZSI A9665), in and around F.R.H. Amarkantak, 4.ix.1998. All coll. P. K. Chandra. Seoni district : 1 ex. (ZSI A9719), Parasia reserve Forest, 25 km. from F.R.H. Lakhnadon, 24.viii.1999; 1 ex. (ZSI A9724), Beharai, 32 km. east of Seoni, 21.viii.1999. All coll. P. K. Chandra and S. Ray. 1 ex. (ZSI V3783), Turiya, Pench Tiger Reserve, 7.vi.2001; 1 ex. (ZSI V3788), Karmajhiri, Pench Tiger Reserve, 9.vi.2001; 1 ex. (ZSI V3780), Murer, Pench Tiger Reserve, 11.vi.2001; 7 ex. (ZSI V3781), Pyorthadi, Pench Tiger Reserve, 13.vi.2001; 1 ex. (ZSI V3775), Karmajhira, Pench Tiger Reserve, 20.vi.2001. All coll. K. Chandra. 1 ex. (ZSI V3798), Khawasa, 17.vii.2001, R. K. Singh. 1 ex. (ZSI A9604), Charai, 45 km. from Seoni, 2.iv.2001; 2 ex. (ZSI A9607), in and around Seoni, 21.iv.2002. All coll. S. Sur and S. Ray. Hoshangabad district : 1 ex. (ZSI V3806), Churna, Bori Sanctuary, Pachmarhi, 11.vi.1999, K. Chandra. Umaria district : 1 ex. (ZSI V3773), Bathan, Bandhavgarh National Park, 20.ix.2002, M. L. Koshta. Chhindwara district : 1 ex. (ZSI A), Ramakoma, 45 km. south of Chhindwara 16.viii.1999; 2 ex. (ZSI A9728), Kotama, 20 km. north of Sausor, 19.viii.1999. All coll. P. K. Chandra and S. Ray. 1 ex. (ZSI V3766), Chhindwara, 26.viii.2001, Y. N. Gupta. 1 ex. (ZSI V3797), Samarboh Bichhua, 11.ix.2001, S. K. Mishra. Ujjain district : 1 ex. (ZSI A9828), Barnagar, 45 km. south west of F.R.H. Ujjain, 26.vii.2003, P. K. Chandra and S. Ray. Rajgarh district : 2 ex. (ZSI A9848), in and around P.W.D. Rest House, Rajgarh, 30.vii.2003; 2 ex. (ZSI A9850), Zirapur, 35 km. east of P. W. D. Rest House, Rajgarh, 31.vii.2003; 3 ex. (ZSI A4844), Narsinghgarh Wild Life Sanctuary, 58 km. from Rajgarh, 1.viii.2003. All coll. P. K. Chandra and S. Ray. Guna district : 1 ex. (ZSI A9821), Kumbhraj, 32 km. south west of Guna, F.R.H. 3.viii.2003; 1 ex. (ZSI A9861), Jhagura, 27 km. north east of F.R.H. Guna, 4.viii.2003. All coll. P. K. Chandra and S. Ray. Shivpuri district : 1 ex. (ZSI A9811), In and around Madhav National Park, Shivpuri, 5.viii.2003; 2 ex. (ZSI A9820), Korera, 49 km. east to Madhav National Park, Shivpuri, 6.viii.2003. All coll. P. K. Chandra and S. Ray. Gwalior district : 1 ex. (ZSI A9803), in and around Rest House Gwalior, 8.viii.2003; 4 ex. (ZSI A9837), Dabra, 36 km. south east of Gwalior, 10.viii. 2003; 2 ex. (ZSI A9840), Bhagen, 48 km. east of Gwalior, 11.viii.2003. All coll. P. K. Chandra and S. Ray.

Total length : 31 mm to 62 mm from snout to vent.

Diagnostic character : Head broader than long; snout rounded not projecting beyond the mouth, shorter than the diameter of the eye; nostril equidistant from the tip of the snout and the eye; interorbital width less than that of the upper eyelid; tympanum distinct, more or less half diameter of the eye. Fingers free, first much longer than second, tips swollen, subarticular tubercles of fingers and toes well-developed. Toes minutely webbed, more than three phalanges of the fourth toe free; a large shovel shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent. Tibiotarsal articulation reaches axil or shoulder. Dorsum greyish and warty. Venter whitish and granular.

Distribution : India : Madhya Pradesh : as mentioned in the material examined. West Bengal, Bihar, Orissa, Uttar Pradesh, Himachal Pradesh, Punjab, Rajasthan, Tamil Nadu, Kerala, Gujarat, Andhra Pradesh.

Elsewhere : Sri Lanka, Nepal nd Myanmar.

Remarks : Medium sized frog. Burrowing and nocturnal in habit. Found in crevices and under stones alongwith toads. Gupta (1975) & Saksena, Sarkar and Tiwari (1988) reported it from Madhya Pradesh.

Status : Common.

Family IV. RHACOPHORIDAE

Key to the genera of the family RHACOPHORIDAE

- Vomerine teeth present ..... ***Polypedates***
- Vomerine teeth absent ..... ***Philautus***

Genus 9. ***Polypedates*** Tschudi, 1838

1838. *Polypedates Tschudi*, classif. *Batr.* 34.

18. ***Polypedates maculatus*** (Gray) Tree Frog

1832. *Hyla maculata* Gray, 111. *Indian Zool.*, **1** : 82.

1931. *Rhacophorus maculatus* : Ahl, *Das Tierreich*, Anura **111** : 133-134.

1985. *Polypedates maculatus* : Inger and Dutta, *J. Bombay nat. Hist. Soc.*, **83** : 139.

Material examined : Jabalpur district : 1 ex. (ZSI A1776), Padaria village, Jabalpur, 16.xi.1961, S. Chakrapani. 1 ex. (ZSI A9468), Hulki, 55 km. from Jabalpur, 28.iv.1999, P. K. Chandra and S. Ray. Satna district : 1 ex. (ZSI A9359), Madhogarh, 23.viii.1998, P. K. Chandra. 1 ex. (ZSI A9610), Pedra, 41 km. from Satna, 28.iii.2002; 1 ex. (ZSI A9611), in and around Satna, 29.iii.2002. All coll. S. Sur and S. Ray. Panna district : 1 ex. (ZSI A9612), in and around Panna, 4.iv.2002, S. Sur and S. Ray. Chattarpur district : 1 ex. (ZSI A9613), Rane fall, 51 km. from chattarpur, 8.iv.2002, S. Sur and S. Ray. Seoni district : 1 ex. (ZSI A9433), in and around Seoni, 20.viii.1999; 1 ex. (ZSI A9725), Beharai, 32 km. east of Seoni, 21.viii.1999; 1 ex. (ZSI A9721), Parasia Reserve Forest, 25 km. from F.R.H. Lakhnadon, 24.viii.1999. All coll. P. K. Chandra and S. Ray. Sidhi district: 2 ex. (ZSI A9360), Sanjay National Park, Podi, 40 km. from F.R.H. Majhouli, 31.viii.1998, P. K. Chandra. Shahdol district : 3 ex. (ZSI A9616), Pali, 40 km. west of Irrigation I. B. Shahdol, 3.ix.1998, P. K. Chandra. Ratlam district : 1 ex. (ZSI A9620), in and around F.R.H. Ratlam, 17.xi.2001; 1 ex. (ZSI A9524), Seogarh Talao, 20 km. west of Ratlam, 18.xi.2001. All coll. P. K. Chandra and S. Ray. Dhar district : 1 ex. (ZSI A9523), in and around the campus of Eco Centre, Forest Office, Dhar, 9.xi.2001; 1 ex. (ZSI A9522), Mandu, 37 km. south of Dhar, 12.xi.2001. All coll. P. K. Chandra and S. Ray. Mandla district : 1 ex. (ZSI A9466), chilpi, 60 km. from Mandla, 21.iv.1999; 1 ex. (ZSI A9467), Ghughari, 50 km. from Mandla, 23.iv.1999. All coll. P. K. Chandra and S. Ray. Raisen district : 1 ex. (ZSI A9710), Nayapura, 25 km. from west of Raisen, 30.xii.2000; 1 ex. (ZSI A9711), Jamaria, 18 km. south west of Silwani, 2.i.2001. All coll. P. K. Chandra and S. Ray. Hoshangabad district : 1 ex. (ZSI V3809), Bori Sanctuary, Pachmarhi, 8.vi.1999, K. Chandra. 3 ex. (ZSI V3817), Near Tawa Dam, Tawa Nagar, Pachmarhi, 13.ii.2001, Y. N. Gupta. Chhindwara district : 1 ex. (ZSI V3790), Panjra, 21.xi.2001, S. K. Mishra. 1 ex. (ZSI V3820), Chota Mahadeo, Tamia, Pachmarhi, 23.x.2002, Y. N. Gupta. Umaria district : 1 ex. (ZSI V3777), Tala Guest House, Bandhavgarh National Park, 25.ix.2002, R. K. Singh. 1 ex. (ZSI A9753), in and around Bandhavgarh National Park, Tala, 4.xi.2002, P. K. Chandra and S. Ray. Gwlior district : 1 ex. (ZSI A9839), Dabra, 46 km. south west of Gwalior, 10.viii.2003, P. K. Chandra and S. Ray.

Total length : 33 mm to 63 mm from snout to vent.

Diagnostic character : Head broader than long; pointed, projecting little beyond the mouth, generally longer than the diameter of the eye; nostril nearer to the tip of the snout than to the eye; interorbital width broader than that of the upper eyelid; tympanum distinct, about three-fourth diameter of the eye. Fingers with rudimentary web first equals the second, tips of toes bear horse-shoe-shaped discs; subarticular tubercles of fingers and toes distinct. Toes nearly

three fourth webbed, two phalanges of fourth toe free; a distinct oval inner metatarsal tubercles present, outer metatarsal tubercles absent. Tibiotarsal articulation reaches in between posterior end of eye and tip of snout. Dorsum brownish with light darker spots, smooth. Venter dull whitish and granular; skin on head free.

Distribution : India : Madhya Pradesh : as mentioned in the material examined. Plains of India in general.

Elsewhere : Sri Lanka.

Remarks : Gupta (1975) reported it from Sagor district, Madhya Pradesh. Medium-sized frog. Nocturnal in habit, generally found inside thick hush, dark and moist corners of villages huts and forest rest house.

Status : Common.

Genus 10. ***Philautus*** Gistel, 1848

11848. *Philautus* Gistel, Naturgesch, Thierr : 10.

19. ***Philautus sanctisilvaticus*** Das and Chanda

1997. *Philautus sanctisilvaticus* Das and Chanda *Hamadryad*, **22** : 21-27.

Material examined : Nil; record from published literature.

Diagnostic character : Snout flattened, obtusely pointed, projecting beyond the mandible; nostril closer to eye than to tip of snout; interorbital width slightly less than twice the diameter of eyelid; the supratympanic fold from posterior corner of eye, crossing over tympanum and dipping down, to cross over insertation of forelimb. Tympanum small, concealed, less than the diameter of eye; nostrils laterally situated. Tips of fingers dialated into large, rounded and flattend disks, with distinct circummaarginal grooves separating upper from lower surface. Tips of toes strongly dilated into flattend disks, with circummarginal disks like finger tips; toes partly webbed. Dorsally brownish grey. Forehead darker than rest of the body. Fore and hind limbs with dark brown band; tips of digits of fore and hind limbs pale yellow; throat brownish. Dorsum of the body smooth, except for a narrow median dermal fold along the dorsum; upper eyelids tuberculate; throat, abdominal region as well as undersurface of thighs with large, flattened tubercles; undersurface of forelimbs smooth.

Distribution : Madhya Pradesh; Jabalpur dist.,

Remarks : This is a small sized frog. Total length from snout to vent is 19.3 mm. to 23.8 mm. Das and Chanda (1997) reported it from Madhya Pradesh.

SUMMARY

Amphibian fauna of Madhya Pradesh is presented based on the study of collection and from earlier records.

This report deals with a total number of 1503 specimens of amphibians (1481 adult and 22 tadpoles) belonging to 19 species, 10 genera and 4 families. *Rana keralensis* and *Kaloula pulchra* are recorded for the first time from Madhya Pradesh. *Rana crassa* and *Tomopterna rolandi* which was reported first time by Dutta (1997) is here being reported in second time from Madhya Pradesh.

Methods of collection, illustraction of measurements of essential morphological chracter, keys and short diagnostic character of the species have added in the paper for determination of the species.

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AMPHIBIA–CHHATTISGARH

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INTRODUCTION

Only a few scattered reports on the collection of amphibia of Baster district, M.P. are available. Now Baster district is under Chattishgarh State. These are Daniel and Selukar (1963). Daniel and Verma (1963), Sanyal, Chandra and Ray (1991) and Chanda (1995). The present work being the taxonimic account of the Amphibian fauna of Chattishgarh, based mainly on the material collected by various Survey parties of Zoological Survey of India from 1962 to 2000. In addition to these, species recorded in literature from Chattishgarh have also been incorporated to made the fauna an exclusive one. Previously it was under Madhya Pradesh, the largest land mass with varied topographical constituents. Now Madhya Pradesh is divided into two State namely, Madhya Pradesh and Chattishgarh. Chattishgarh State also have varied topographical constituents.

So, this will be first detailed account on the amphibian fauna of Chattishgarh, which comprises 489 ex. belonging to 16 species, 11 genera and 4 families. The Order Apoda and Caudata are not represented in the collection. So all the specimen have been reported for the first time from Chattishgarh State. It is felt that to have detailed information on the fauna of amphibia in this State more extensive surveys are required.

MATERIALS AND METHOD

Amphibians are aquatic, terrestrial or arboreal. Aquatic amphibians were collected with a net fitted with metal ring fixed at the end of a long bamboo pole, cast-net and fishing hook; terrestrial and arborial forms by hand. In the field, notes have been taken on the habitats of specimens collected. Specimens obtained were enthanised and fixed in a 5 % formalin solution for at least for 24 hours. An abdominal incision was made for smaller specimens. While larger specimens were injected with injected with a 10% formalin solution. The fixed material along with labels containing the data of locality, altitude, habitat, date of collection and name of collector, were packed in 5% formalin and transported to the lab for study.

SYSTEMATIC ACCOUNT

Class AMPHIBIA

Order ANURA

Key to the families of ANURANS of Chattishgarh

1. Jaws toothless 2
– Upper jaw toothed 3
2. Skin rough with well-developed warts, parotoids present ..... BUFONIDAE
– Skin more or less smooth, parotoids absent ..... MICROHYLIDAE
3. No intercalary ossification (extra cartilaginous bone) between the distal and penultimate phalanges ..... RANIDAE
– An intercalary ossification between the distal and penultimate phalanges .... RHACOPHORIDAE

Family 1 BUFONIDAE

Family Bufonidae is represented in Chattishgarh by two species of the genus *Bufo*.

Genus 1. *Bufo* Laurenti, 1768

1768. *Bufo* Laurenti, *Synops. Rept.*, : 25.

1. *Bufo melanostictus* Schneider
Common Indian Toad

1799. *Bufo melanostictus* Schneider, *Hist. Amph.*, **1** : 216.

Material examined : Raipur district : 1 ex. (ZSI A9255), In and around F.R.H. Raipur, 26.viii.1997; 2 ex. (ZSI A9714), Forest Depo, 1 km. north of F.R.H. Bindhra Nawgarh, 29.viii.1997; 1 ex. (ZSI A9256), Marshy areas, 30 km. west of F.R.H. Bindhra Nawgarh, 29.viii.1997; 1 ex. (ZSI A9537), Malgaon, 27 km. east of Bindhra Nawgarh, 30.viii.1997; 2 ex. (ZSI A9257 & A9258), In and around F.R.H. Bindhra Nawgarh, 30.viii.1997; 4 ex. (ZSI A9259 & A9260), Mahasammund, 66 km. west of Pithora, 1.ix.1997; 1 ex. (ZSI A9261), Sariapali, 55 km. east of Pithora, 2.ix.1997. All coll. P. K. Chandra and S. Ray. Raigarh district : 2 ex. (ZSI A9539), Sarangarh, 40 km. south-west of Raipur, 7.ix.1997; 1 ex. (ZSI A9315), Kharsia, 35 km. west of F.R.H. Raigarh, 18.ix.1997; 1 ex. (ZSI A9540), Jamga, 20 km. east of Raigarh, 19.ix.1997; 1 ex. (ZSI A9264), In and around F.R.H. Raigarh, 20.ix.1997. All coll. P. K. Chandra and S. Ray. Bilaspur district: 2 ex. (ZSI A9262), Mungeli, 14 km. west of F.R.H. Pendarikanan, Bilaspur, 4.ix.1997, P. K. Chandra and S. Ray. Sarguja district: 1 ex. (ZSI A9366), Rajpur, 37 km. north-east of Ambikapur, 10.ix.1997; 2 ex. (ZSI A9367), Surajpur, 49 km. from Ambikapur, 11.ix.1997; 2 ex. (ZSI A9263), Ramgarh, Ambikapur, 12.ix.1997; 3 ex. (ZSI A 9697), Ambikapur, 14.ix.1997. All coll. P. K. Chandra and S. Ray.

Total length : 30 mm. to 33 mm. from snout to vent.

Diagnostic character : Head broader than long, with confified bony pidges; snout rounded, nearly equal the diameter of the eye; nostril a little nearer to the tip of snout than to the eye; interorbital width broader than that of upper eyelid; tympanum very distinct, two-third the diameter of the eye. Fingers free, first a little longer than second, tips of toes swallen. Toes nearly half webbed more than three phalanges of fourth toe free; two oval (inner and outer) metatarsal tubercle present. Tarsometatareal articulation reaches in between tympanum and eye. Dorsum dark brownish, rough with several spiny warts, parotoid large, kidney shaped. Venter dull whiish with numerous small spiny warts.

Distribution : India : Chhattisgarh : As mentioned in the material examined. First record for Chhattisgarh. Common throughout the plains of India, and Andman and Nicobar.

Elsewhere : Pakistan, Bangladesh, Sri Lanka, Nepal, Myanmar, South China, Malay Paninsula and Archipelago.

Remarks : Big-sized toad, nocturnal in habit and use for dissection in college laboratories, and the males are used in pregnency diagnosis tests of human beings. Sanyal, Chandra and Ray (1991) reported it from Baster district, M.P.

Status : Common in Chhattisgarh.

2. *Bufo stomaticus* Lutken
Marbled toad

1863. *Bufo stomaticus* Lutken, *Videnskk.. Meddr. Dansk. naturh-foren*, **14** : 305.

Material examined : Durg districts 1 ex. (ZSI A9551), in and around F.R.H. Balod, 20.vi.2000; 1 ex. (ZSI A 9365), In and around Pithora, 1.ix.1997; 5 ex. (ZSI, A9682), Lakhagar, 1 km. east of F.R.H. Pithora, 2.ix.1997; 5 ex. (ZSI A9259), Sariapali, 2.ix.199. All coll. P. K. Chandra and S. Ray, Sarguja district : 1 ex. (ZSI A9536), Kunkuri, 41 k. from Ambikapur, 13.ix.1997, P.K. Chandra and S. Ray.

Diagnostic character : Head broader than long, without bony ridges, snout rounded, nearly once the diameter of the eye; nostril nearer the tip of snout than the eye; interorbital width broader

than that of upper eyelid; tympanum very distinct, nearly once the diameter of the eye. Fingers free, first a little longer than second, tips of fingers and toes swollen. Toes more than Ëalf webbed, two phalanges of fourth toe free; two oval (inner and outer) metatarsal tubercles present. Tarsometatarsal articulation reaches in between tympanum and eye. Dorsum brownish, rough with several non-spiny warts, parotoids large, flat, not kidney shaped. Venter dull-whitish with numerous small, non spiny warts.

Distribution : Chattishgarh : as mentioned in the material examined. Found plains of India from Jammu and Kashmir to Karnataka, and Assam in the east.

Elsewhere : Pakistan, Nepal, Mayanmar, Sri Lanka and Arabia.

Remarks : It is nocturnal and terrestrial in habit. First record from Chattishgarh. Saksena, Sarkar and Tweari (1987) reported it from Madhya Pradesh.

Status : Common.

Family II. MICROHYLIDAE

Genus 2. *Uperodon* Dumeril and Bibron, 1841

3. *Uperodon globulosum* (Gunther)

1964. *Cacopus globulosus* Gunther, *Rept. Br. India,* : 416.

1934. *Uperodon globulosum* : Parker, *Monogr. Microhylidae,* : **76** : 697-698.

Material examined : 1 ex. (ZSI A9868), In and around F.R.H. Raipur, 26.viii.1997, P. K. Chandra and S. Ray.

Total length : 52 mm from snout to vent.

Diagnostic character : Head broader than long; snout rounded about twice as long as the diameter of the eye; nostril equidistant from the tip of snout and the eye; interorbital width about thrice the width of upper eyelid; tympanum hidden. Fingers free, first shorter than second, tips not bearing discs; subarticular tubercles of fingers and toes not very distinct. Toes with a rudiment of web; both inner and outer shovel-shaped metatarsal tubercles present, inner very large. Tibiotarsal articulation not reaching shoulder. Dorsum smooth or slightly tuberculated, and reddish brown. Venter wrinkled and dull whitish.

Distribution : India : Chhattishgarh : as mentioned in the material examined. Frist record for Chhattishgarh. West Bengal, Assam, Bihar, Orissa, Maharashtra, Gujarat and Karnataka in India.

Elsewhere : Sri Lanka.

Remarks : It leads a subterranean life, surface only during breeding season. Chanda (1995) reported it from easter district, M.P.

Status : Rare.

Genus 3. *Microhyla* Tschudi, 1838

4. *Microhyla ornata* (Dumeril & Bibron)

1841. *Engystoma ornatum* Dumeril and Bibron, *Erpet. Gen.,* **8** : 745.

Material examined : Raipur district : 2 ex. (ZSI A9294), In and around F.R.H. Raipur, 26.viii.1997; 2 ex. (ZSI A9295), Bank of the river kharu, 27.viii.1997; 2 ex. (ZSI A9715), Forest Depo, 1 km. north of F.R.H. Bindhra Nawagarh, 29.viii.1997; 2 ex. (ZSI A9296), Marshy area, 30 km. west of F.R.H. Bindhra Nawagarh, 29.viii.1997; 1 ex. (ZSI A9297), Mahasamund, 1.ix.1997; 2 ex. (ZSI A9392), In and around F.R.H. Pithora, Raipur, 1.ix.1997; 3 ex. (ZSI A9298), Sariapali, 2.ix.1997; 7 ex. (ZSI A9683), Kakhagar, 1 km. east of F.R.H. Pithora, 2.ix.1997. All coll. P. K. Chandra and S. Ray. Raigarh district: 2 ex. (ZSI A9545), Sarangarh, 40 km. south-west of Raigarh, 7.ix.1997; 1 ex. (ZSI A9301), Ghorghoda, 32 km. from Raigarh, 16.ix.1997; 3 ex. (ZSI A9335), Kharsia, 35 km. west of F.R.H. Raigarh, 18.ix.1997; 3 ex. (ZSI A9547), Jamga, 20 km. east of Raigarh, 19.ix.1997; 1 ex. (ZSI A9302), in and around F.R.H. Raigarh, 20.ix.1997; 4 ex. (ZSI A9364 & A9378), Rose garden, 2 km. east of F.R.H. Raigarh, 20.ix.1997. All coll P. K. Chandra and S. Ray. Sarguja district : 11 ex. (ZSI A9363), Rajpur, 37 km. north-east of Ambikapur, 10.ix.1997; 5 ex. (ZSI A9361), Surajpur, 49 km.

from Ambikapur, 11.ix.1997; 1 ex. (ZSI A9299), Ramgarh, Ambikapur, 12.ix.1997; 18 ex. (ZSI A9546), Kunkuri, 41 km. from Ambikapur, 13.xi. 1997; 4 ex. (ZSI A9695), Ambikapur, 14.ix.1997; 15 ex. (ZSI A9300 & A9695), in and around F.R.H. Ambikapur, 14.ix.1997. All coll. P. K. Chandra and S. Ray. Bilaspur district : 2 ex. (ZSI A9544), Ratanpur, 30 km. north-east of F.R.H. Pendarikanan, Bilaspur, 3.ix.1997; 2 ex. (ZSI A9332), distches and paddy field, 1 km. north of F.R.H. Katghora, 6.ix.1997. All coll. P. K. Chandra and S. Ray. Korba district : 1 ex. (ZSI A9333), Korba, 8.ix.1997, P. K. Chandra and S. Ray.

Total length : 9 mm to 19 mm from snout to vent.

Diagnostic character : Head broader than long; snout obtusely pointed a little longer than the diameter of the eye; nostril nearer to the tip of snout than to the eye; interorbital width a little broader than that of upper eyelid; tympanum not so distinct. Fingers free, tips flattened. Toes with a rudiment of web, tips blunt, two small but distinct oval (inner and outer) metatarsal tubercles present. Tibiotarsal articulation reaches near to eye. Dorsum smooth, brown with broad darke markings. Venter smooth, dull whitish, little darker on throat.

Distribution : India : Chattishgarh : as mentioned in the material examined. New record from Chattishgarh. Widely distributed all over the plains of India upto an altitude of 1524 meters, and Andaman Island.

Elsewhere : Pakistan, Nepal, Bangladesh, Sri Lanka, Myanmar, South China, Southest Asia and Taiwan.

Remarks : Sanyal, Chandra and Ray (1991) reported it from Baster. Small frog found inside bush and under dry leaves in the forest area.

Status : Common.

Genus 4. ***Kaloula*** Gray, 1831

5. ***Kaloula pulchra*** Gray
Painted Frog

1831. *Kaloula pulchra* Gray, *Zool. Misc.*, **1** : 38.

Material examined : Durg district: 1 ex. (ZSI A9553), Gunderdehi, 32 km. north of Durg, 25.vi.2000, P. K. Chandra.

Total length : 54 mm from snout to vent.

Diagnostic character : Head broader than long; snout rounded, as long as the diameter of the eye; nostril nearer to the tip of snout than to eye; interorbital width much broader than that of upper eyelid; tympanum hidden. Bony ridge below internal nares. Fingers free, first shorter than second, tips bearing well developed truncate discs; subarticular tubercles of fingers and toes distinct. Toes two-third webbed, tips obtusely swollen; inner metatarsal tubercles well developed, large shoval-shaped; outer metatarsal tubercles small, shoval-shaped. Tibiotarsal articulation reaches the axil. Dorsum rough with scattered warts, and greyish with reddish brown patches fringed with black. Venter wrinkled on belly, granular on throat and under surface of thighs and light brownish.

Distribution : India : Chattishgarh : as mentioned in the material examined. First record from Chattishgarh. West Bengal, Bihar, Orissa, Assam, Gujarat, Karnataka, Tripura and Tamil Nadu in India.

Elsewhere : Sri Lanka, Myanmar, Southern China, Malay Peninsula.

Remarks : Daniel and Verma (1963) reported it from Jagdalpur, Baster district. Terrestrial and nocturnal in habit. It surface only during breeding season.

Status : Rare.

Family III. RANIDAE

Genus 5. ***Rana*** Linnaeus, 1758

6. ***Rana malabrica*** Tschudi
Fungoid Frog

1838. *Rana malabarica* Tschudi, *class. Batr.*, : 40 & 80.

Material examined : Nil; record from published literature.

Diagnostic character : Head as long as broad; snout rounded or obtusely pointed, projecting

beyond the mouth, as long as or little longer than the diameter of the eye; nostril a little nearer to the tip of the snout than to eye; interorbital width more or less equal to that of upper eyelid; Tympanum very distinct, two-third to once the diameter of the eye. Fingers free, first a little longer than second, tips blunt and swollen; subarticular tubercles of fingers and toes very distinct. Toes half webbed, three penultimate phalanges of fourth toe free, tips swollen; very prominent both inner and outer metatarsal tubercle present. Tibiotarsal articulation reaches tympanum to eye. Dorsum dull whitish with darker colouration on lateral sides of body and outer surface of limbs, white bars on limbs. Venter dark brown with white spots on belly and undersurface of limbs, granular or smooth.

Distribution : Daniel and Selukar (1964) reported it from Jagdalpur, Baster district, now in Chattishgarh. Orissa, Gujarat, Maharashtra, Goa, Kerala and Tamil Nadu. E.P. Eric D' Cunha (2002) reported it from Kanha National Park, Madhya Pradesh.

Remarks : Medium sized frog. Nocturnal in habit and generally found in forest area. During monsoon days they are found on moist ground in dense forest area during day time.

Status : Rare.

7. ***Rana temporalis*** (Gunther)

1864. *Hylorana temporalis* Gunther, *Rept. Brit. India,* : 427.

1985. *Rana temporalis* Frost, *Amphibian species of the World,* : 517.

Material examined : 1 ex. (ZSI A1148), Jagdalpur, 30.iii.1962, K. K. Verma.

Diagnistic character : Head little longer than broad; snout subacuminate, as long as the diameter of the eye; interorbital width as broad as the upper eyelid; tympanum very distinct, as long as eye. Fingers slender and moderately long. Toes nearly entirely webbed. Tips of fingers and toes dialated into well developed discs; subarticular tubercles of fingers and toes are very prominent. Inner metatarsal tunercle oval, outer metatarsal tubercle small, round. Tibiotarsal articulation reaches the nostril or the tip of snout. Dorsum dark brown with indistinct darker markings. Venter uniformly white, sometimes with light brown spot. Throat and breast mottled with light brown. Limbs with dark brown cross-bands. Skin minutely granulated. A broad prominent dorsolateral fold extending from posterior region of the tympanum to the shoulder.

Distribution : India : Chattishgarh : as mentioned in the material examined. First record from Chattishgarh. Kerala, Tamil Nadu and Karnataka.

Elsewhere : Sri Lanka.

Remarks : It is a large frog. It is generally found near edges of rocky streams and when disturned, leaps considerable distance into water.

Status : Rare.

Genus 6. ***Hoplobatrachus*** Peters, 1863

8. ***Hoplobatrachus tigerinus*** (Daudin)

1803. *Rana tigerina* Daudin, *Hist. Rain. Gren. Crap.* : 64

Material examined : Raipur district : 1 ex. (ZSI A9271), Marshy area, 30 km. west of F.R.H. Bindhra Nawgarh, 29.viii.1997; 1 ex. (ZSI A9269), Mahasammund, 66 km. west of Pithora, 1.ix.1997. All coll. P.K. Chandra and S. Ray. Raigarh district : 1 ex. (ZSI A9273), Gharghoda, 32 km. from Raigarh, 16. ix. 1997; 1 ex. (ZSI A9274), in and around F.R.H. Raigarh, 20.ix.1997. All coll. P. K. Chandra and S. Ray. Sarguja district: 2 ex. (ZSI A9694 & A9272), In and around F.R.H. Ambikapur, 14.ix.1997, P. K. Chandra and S. Ray.

Total length : 8 mm to 173 mm from snout to vent.

Diagnostic character : Head as long as broad or a little broader than long; snout rounded or pointed, projecting beyond the mouth, longer than the diameter of the eye; nostril generally equidistant from the tip of snout and the eye; interorbital width much less than that of upper

eyelid; tympanum distinct, nearly equal to the diameter of the eye. Fingers free, tips not sharply pointed; subarticular tubercles of fingers and toes not very distinct. Toes entirely webbed, tips not pointed; a blunt not shovel-shaped inner metatarsal tubercles present; outer metatarsal tubercle absent. Tibiotarsal articulation reaches in between eye and nostril. Dorsum olive green with darker spots, distinct warts and long glandular folds. Venter whitish and smooth.

Distribution : India : Chattishgarh : as mentioned in the material examined. The species is common throughout India from the base of Himalaya to Southern part of the Country, and Andaman. New record for Chattishgarh. Sanyal, Chandra and Ray (1991) recorded it from Baster district, M.P.

Elsewhere : Bangladesh Pakistan, Nepal, Sri Lanka, Myanmar, Thailand, South China and Taiwan.

Remarks : Large sized edible frog. It is aquatic and found in wells, tanks and ponds.

Status : Common.

Genus 7. ***Limnonectes*** Fitzinger, 1843

9. ***Limnonectes crassus*** (Jerdon)

1853. *Rana crassa* Jerdon, *J. Asiat. Soc. Beng.*, **22** : 531.

Material examined : Raipur district : 2 ex. (ZSI A9265 & A9266), in and around F.R.H. Raipur, 26.viii.1997; 1 ex. (ZSI A9267), Bank of the river Kharu, 27.viii.1997; 1 ex. (ZSI A9268), Marshy area, 30 km. west of F.R.H. Bindhra Nawgarh, 29.viii.1997. All coll. P. K. Chandra and S. Ray. Bilaspur district : 1 ex. (ZSI A9270), Mungeli, 44 km. west of F.R.H. Pendarikanan, Bilaspur, 4.ix.1997; 2 ex. (ZSI A9325 & A9326), Ditches and paddy field, 1 km. north of F.R.H. Katghora, 6.ix.1997; 2 ex. (ZSI A9328 & A9329), Nagai, 40 km. north-west of Katghora, 7.ix.1997. All coll. P. K. Chandra and S. Ray. Durg District: 1 ex. (ZSI A9555), Lohara, 45 km. north-west of Balod, 21.vi.2000, P. K. Chandra. Korba district: 1 ex. (ZSI A9327). Korba, 8.ix.1997, P. K. Chandra and S. Ray.

Total length : 25 mm to 65 mm from snout to vent.

Diagnostic character : Head a little broader than long; snout generally pointed, projecting beyond the mouth, longer than the diameter of the eye; nostril generally equidistant from the tip of snout and the eye; interorbital width much smaller than that of upper eyelid; tympanum distinct, nearly equal to the diameter of the eye. Fingers free, first longer than second; subarticular tubercles of fingers and toes feebly distinct. Toes entirely webbed, penultimate phalanges of fourth toe free, tips not pointed; a highly developed shovel-shaped inner metatarsal tubercle present, cuter metatarsal tubercle absent. Tibiotarsal articulation reaches the tympanum or the eye. Dorsum light grayish with interrupted long warts. Venter dull whities with darker spots on throat, and smooth.

Distribution : India : Chattishgarh : as mentioned in the material examined. First record from Chattishgarh. Andhra Pradesh, West Bengal, Bihar, Tripura, Kerala, Orissa, Tamil Nadu, Uttar Pradesh in India.

Elsewhere : Nepal and Sri Lanka.

Remarks : The frogs are nocturnal in habit. It is a edible frog. Spend day inside the crevices on the elivated walls of ditches, ponds and canals.

Status : Common.

10. ***Limnonectes keralensis*** (Dubois)

1875. *Rana verrucosa* Gunther. *Proc. Zool. Soc.*, London : 567.

1980. *Rana keralensis* Dubois. *Bull Mus. Natl. Hist. Nat.*, (4) **2** A : 928

Material examined : Durg district : 1 ex. (ZSI A 9556), Lokara, 45 km. north-west of Balod, 21.vi.2000; 1 ex. (ZSI A9557), Gunderdehi, 32 km. north of Durg, 25.vi.2000; 1 ex. (ZSI A9558), in and around F.R.H. Bemetatra, 26.vi.2000. All coll. P. K. Chandra. Sarguja district : 1 ex. (ZSI A9371), 37 km. north east of Ambikapur, 10.ix.1997, P. K. Chandra.

Total length : 26 mm. to 38 mm from snout to vent.

Diagnostic character : Head a little broader than long; snout bluntly pointed, equal the diameter of the eye; nostril less equidistant from the tip of the snout and the eye; interorbital width shorter than that of upper eyelid. Tympanum distinct, about two-third diameter of the eye. Fingers free, first longer than second, tips more or less pointed; subarticular tubercles of fingers and toes larger and distinct. Toes three fourth webbed, two penultimate phalanges of fourth toe free, inner metatarsal tubercles elliptical, outer metatarsal tubercles small, oval. Tibiotarsal articulation reaching in between nostril and tip of snout. Dorsum greyish and warty. Venter white and smooth.

Distribution : India : Chattishgarh : as mentioned in the material examined. First record from Chattishgarh. West Bengal, Orissa, Tripura, Gujarat, Tamil Nadu and Kerala.

Remarks : Medium sized frog. These frogs generally found inside forest near stream.

Status : Rare.

Genus 8. ***Fejervarya*** Bolkay,1915

11. ***Fejervarya limnocharis*** (Gravenhortst)

1834. *Rana limnocharis* H. Boie in : A.F.A. Wiegmann *Nova Acta Acad. Caesar Leopold Carol*, **17** (1) : 255.

Material examined : Raigarh district : 5 ex. (ZSI A9285), Ghorghoda, 32 km. from Raigarh, 16.ix.1977; 4 ex. (ZSI A9533), Sarangarh, 40 km. from Raipur, 17.ix.1977; 6 ex. (ZSI A9324), Kharsia, 35 km. west of F.R.H. Raigarh, 18.ix.1977; 3 ex. (ZSI A9534), Jamga, 20 km. east of Raigarh, 19.ix.1977; 3 ex. (ZSI A9284), In and around F.R.H. Raigarh, 20.ix.1977. All coll. P. K. Chandra and S. Ray. Surguja district : 5 ex. (ZSI A9282), Ramgarh, Ambikapur, 12.ix.1977; 5 ex. (ZSI A9532), Kunkuri, 41 km. from Ambikapur, 13.ix.1977; 7 ex. (ZSI A9696 & A9283). In and around R.R.H. Ambikapur, 14.ix.1977. All coll. P. K. Chandra and S. Ray. Durg district : 1 ex. (ZSI A9580), Dhanda, 35 km. north of Durg, 24.vi.2000; 2 ex. (ZSI A9624), kadwa, 30 km. south-west of Bemetara, 27.vi.2000; 1 ex. (ZSI A9627), Delhi Rajhora, 30 km. south- of Balod, 27.vi.2000. All coll P. K. Chandra. Raipur district : 1 ex. (ZSI A9275), in and around F.R.H. Raipur, 26.viii.1997 ; 1 ex. (ZSI A9276), Bank of river Kharu, 27.viii.1997; 2 ex. (ZSI A9277), Marshy area, 30 km. west of F.R.H. Bindhra nawgarh, 29.viii.1997; 2 ex. (ZSI A9530), 27 km. east of Bindhra nawgarh, 30.viii.1997; 23 ex. (ZSI A9278 & A9279), Mahasammund, 66 km. west of Pithora, 1.ix.1997; 2 ex. (ZSI A9280), Sariapali, 55 km. east of Pithora, 2.ix.1997; 1 ex. (ZSI A9685), Lakhagar, 1 km. east of F.R.H. Pithora, 2.ix.1997. All coll. P. K. Chandra and S. Ray. Bilaspur district : 9 ex. (ZSI A9531), Ratanpur, 30 km. north-east of F.R.H. Pendarikanan, Bilaspur, 3.ix.1997; 4 ex. (ZSI A9281), Mungeli, 44 km. west of F.R.H. Pendarikanan, 4.ix.1997; 1 ex. (ZSI A9320), ditches and paddy field, 1 km. north of F.R.H. Katghora, 6.ix.1997; 10 ex. (ZSI A9323), Nagai, 40 km. north-west of Katghora, 7.ix.1997; 2 ex. (ZSI A9322). In and around F.R.H. katghora, 8.ix.1997. All coll. P. K. Chandra and S. Ray. Korba district : 6 ex. (ZSI A9321), Korba, 8.ix.1997, P. K. Chandra and S. Ray. Kawardha district : 10 ex. (ZSI A9472), in and around P.W.D. Rest House, Kawardha, 20.iv.1999, P. K. Chandra and S. Ray. Rajnandgaon district : 3 ex. (ZSI A9471), in and around F.R.H. Manpur, 16.iv.1999; 10 ex. (ZSI A9446), Mohola, 60 km. from Manpur, 17.iv.1999; 2 ex. (ZSI A9447), in and around F.R.H. Bagnadi, 18.iv.1999; 7 ex. (ZSI A9448), Rampur, 17 km. from Bagnadi, 19.iv.1999; 9 ex. (ZSI A9449), Dongargarh, 19.iv.1999; 10 ex. (ZSI A9451 & A9452), Samnapur, 30 km. from Dindori, 24.iv.1999; 5 ex. (ZSI A9453), Gorakhpur, 60 km. from Dindori, 25.iv.1999. All coll. P. K. Chandra and S. Ray. Baster district : 2 ex. (ZSI V 3614), Konta, on the bank of the river Sabri, 19.i.1974; i ex. (ZSI V3615), 5 km. south from konta motor stand, 20.i.1974. All coll. R. K. Singh.

Total length : 11 mm to 32 mm from snout to vent.

Diagnostic character : Head as long as broad, snout pointed, projecting beyond mouth, as long as or a little longer than the diameter of the eye; nostril nearer to the tip of snout than to the eye; interorbital width much smaller than that of upper eyelid; tympanum distinct, nearly two third the diameter of the eye. Fingers free, first longer than second, tips swollen, subarticular tubercles of fingers and toes distinct. Toes half webbed, normally three phalanges of fourth toe free; a distinct oval inner metatarsal tubercle present. Outer metatarsal tubercle is feebly and distinct. Tibiotarsal articulation reaches in between tympanum and nostril. Dorsum greyish and warty. Venter whitish and smooth.

Distribution : India : Chattishgarh : as mentioned in the material examined. First record from Chattishgarh. The species is found in all the districts of Chattishgarh. It is widely distributed species in India and found in almost all the biotopes.

Elsewhere : Eastern Asia from Pakistan, Bangladesh, Sri Lanka and China and Japan.

Remarks : Medium sized frog. Found in the vicinity of water.

Status : Common.

Genus 9. ***Euphlyctis*** Fitzinger, 1843

12. ***Euphlyctis cyanophlyctis*** Schneider

1799. *Rana cyanophlyctis* Schneider, *Hist. Amph.*, 1 : 137.

Material examined : Baster district : 6 ex. (ZSI V3612, V3611 & V3613), Jagdalpur, 8-13.i.1974, R. K. Singh. 8 ex. (ZSI V3576 & V3577), River Sabri of Konta, 8-12.vi.1978, G.M. Yazdani. Bilaspur district : 4 ex. (ZSI A9290), Mungeli, 44 km. west of F.R.H. Pendarikanan, Bilashpur, 4.ix.1997; 2 ex. (ZSI A9526 & A9527), Ratanpur, 30 km. north-east of F.R.H. Pendarikanan, 5.ix.1997; 3 ex. (ZSI A9318), Nagai, 40 km. north-west of Katghora, Bilaspur, 7.ix.1997; 1 ex. (ZSI A9317), in and around F.R.H. Katghora, 8.ix.1997. All coll. P. K. Chandra and S. Ray. Sarguja district : 5 ex. (ZSI A9369 & A9372), Rajpur, 37 km. north-east of Ambikapur, 10.ix.1997; 7 ex. (ZSI A9373), Surajpur, 49 km. from Ambikapur, 11.ix.1997; 3 ex. (ZSI A9291 & A9292), Ramgarh, Ambikapur, 14.ix.1997. All coll. P. K. Chandra and S. Ray. Rajnandgaon district : 1 ex. (ZSI A9470), in and around F.R.H. Manpur, 16.iv.1999; 1 ex. (ZSI A9438), in and around F.R.H. Bagnadi, 18.iv.1999; 1 ex. (ZSI A9443), Rampur, 17 km. from Bagnadi, 19.iv.1999; 2 ex. (ZSI A9441 & A9442), Gorakhpur, 60 km. from Dindori, 25.iv.1999, all coll. P. K. Chandra and S. Ray. Kwardha district: 1 ex. (ZSI A9444), in and around P.W.D. Rest House, Kwardha, 20.iv.1999, P. K. Chandra and S. Ray. Raipur district ; 2 ex. (ZSI A9286), Bank of the river Kharu, 27.viii.1997; 2 ex. (ZSI A9525 & A9535), Malgaon, 27 km. east of Bindhra Nawagarh, 30.viii.1997; 4 ex. (ZSI A9287 & A9288), paddy field, Mahasammunda, 1.ix.1997; 1 ex. (ZSI A9289), Sariapali, 2.ix.1997; 2 ex. (ZSI A9685 & A9368), Lakhagar, 1 km. east of F.R.H. Pithora, 2.ix.1997. All coll. P. K. Chandra and S. Ray. Raigarh district : 2 ex. (ZSI A9528), Sarangarh, 40 km. south-west of Raigarh, 7.ix.1997; 3 ex. (ZSI A9293), Gorghoda, 32 km. from Raigarh, 18.ix.1997; 1 ex.(ZSI A9319), Kharsia, 35 km. west of F.R.H. Raigarh, 18.ix.1997; 1 ex. (ZSI A9529), Jamga, 20 km. east of Raigarh, 19.ix.1997; 5 ex. (ZSI A9370 & A9374), Rose Garden, 2 km. east of F.R.H. Raigarh, 20.ix.1997; all coll. P. K. Chandra and S. Ray. Durg district : 7 ex. (ZSI A9560), in and around F.R.H. Balod, 20.vi.2000; 7 ex. (ZSI A9561), Lahara, 45 km. north-west of Balod, 21.vi.2000; 4 ex. (ZSI A9562), in and around F.R.H. Durg, 23.vi.2000, 5 ex. (ZSI A9582), Dhanda, 35 km. north of Durg, 24.vi.2000, 5 ex. (ZSI A9563), Gunderdehe, 32 km. north of Durg, 25.vi.2000; 2 ex. (ZSI A9564), in and around F.R.H. Bemetara, 26.vi.2000; 4 ex. (ZSI A9565, kadwa, 30 km. south-west of Bemetara, 27.vi.2000, 8 ex. (ZSI A9626), Delhi Rajhora, 30 k,. South of Balod, 27.vi.2000. All coll. P. K. Chandra.

Total length : 19 mm to 57 mm from snout to vent.

Diagnostic character : Head broader than long; nostril equidistant from the tip of the snout and the eye; interorbital width much smaller than that of the upper eyelid; tympanum distinct, nearly equal to the diameter of the eye. Fingers free, first equals second, tips pointed; subarticular tubercles of fingers and toes feebly prominent. Toes fully webbed, toes swollen; a pointed digit-like inner metatarsal tubercle present, outer metatarsal tubercle absent. Tibiotarsal articulation reaches in between tympanum and nostril. Dorsum darker with small warts. Venter whitish and smooth.

Distribution : Chattishgarh : as mentioned in the material examined. Throughout the plains of India, and upto 1846 m. in the Himalayas.

Elsewhere : Bangladesh, Pakistan, Afghanistan, Beluchistan, Iran, South Arabia, Thailand, Nepal and Sri Lanka.

Remarks : It is the commonest species of frogs. The frogs are generally found floating in ponds, ditches and other water bodies in Chattishgarh almost throughout the year. Adults can be used in college laboratories for disecting purpose. It can tolerate hazards and manage to live in dirty habitat. Sanyal, Chandra and Ray (1991) reported it from Baster district, M.P.

Status : Very common.

Genus 10. ***Spaeroteca*** Gunther, 1859

13. ***Sphaeroteca rolandi*** Dubois

1983. *Alytes* Dubois, 2(4) : 163-170.

Material examined : Raipur district : 1 ex. (ZSI A9303), in and around F.R.H. Raipur, 26.viii.1997; 2 ex. (ZSI A9304), bank of the river kharu, 27.viii.1997; 1 ex. (ZSI A9305), Marshy area, 30 km. west of F.R.H. Bindhra Nawgarh, 29.viii.1997; 3 ex. (ZSI A9716), Forest Depo, 2 km. north of F.R.H. Bindhra Nawgarh, 29.viii.1997; 5 ex. (ZSI A9396), in and around F.R.H. Bindhra Nawgarh, 30.viii.1997; 3 ex. (ZSI A9542), Malgaon, 27 km. east of Bindhra Nawgarh, 30.viii.1997; 5 ex. (ZSI A9307), paddy field, Mahasammund, 1.ix.1997; 2 ex. (ZSI A9375), in and around F.R.H. pithora, 1.ix.1997; 1 ex. (ZSI A9686), Lakhagar, 1 km. east of F.R.H. pithora, 2.ix.1997; 4 ex. (ZSI A9309), Sariapali, 2.ix.1997; 1 ex. (ZSI A9330), ditches and paddy field, 1 km. north of F.R.H. katghora. 6.ix.1997; 1 ex. (ZSI A9331), in and around F.R.H. katghora, 8.ix.1997. All coll. P. K. Chandra and S. Ray. Bilaspur district : 2 ex. (ZSI A9543), Ratanpur, 30 km. north-east of F.R.H. pendarikanan, Bilaspur, 3.ix.1997, P. K. Chandra and S. Ray. Raigarh district : 1 ex. (ZSI A9311), Gharghoda, 32 km. from Raigarh, 16.ix.1997; 1 ex. (ZSI A9541), Jama, 20 km. east of Raigarh, 19.ix.1997; 1 ex. (ZSI A9312), in and around F.R.H. Raigarh, 20.ix.1997; 1 ex. (ZSI A9379), Rose Garden, 2 km. east of F.R.H. Raigarh, 20.ix.1997. All coll. P. K. Chandra and S. Ray. Sarguja district: 1 ex. (ZSI A9376), Rajpur, 37 km. north-east of Ambikapur, 10.ix.1997, P. K. Chandra and S. Ray.

Total length : 14 mm to 23 mm from snout to vent.

Diagnostic character : Smaller body size. Head broader than long; snout rounded, slightly projecting beyond the mandible; nostril nearer to the tip of snout than the eye; tympanum small, distinct, nearly half the diameter of the eye. Fingers free, first shorter than second, tips rounded, subarticular tubercles of fingers and toes well developed. A small rounded tubercle at the joint of tibia and tarsus present. Toes webbed minutely, three phalanges of fourth toe free; a large shovel shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent. Tibiotarsal articulation reaches posterior corner of eye. Dorsum greyish sometimes with brown markings. Ventral surface whitish. Skin almost smooth but slightly granular on the dorsum.

Distribution : India : Chattishgarh : as mentioned in the material examined. Kerala, Orissa, Tamil Nadu, West Bengal. First record from Chattishgarh.

Elsewhere : Sri Lanka.

Remarks : Small sized frog. Burrowing and nocturnal in habit.

Status : Rare.

Genus 14. ***Sphaeroteca breviceps*** (Schneider)

14. ***Sphaeroteca brevicebs*** (Schneider)

1799. *Rana breviceps* Schneider, *Hist. Amph.*, **1** : 140.

Material examined : Raipur district : 1 ex. (ZSI A9308), Mahasammunda, 1.iii.1997, P. K. Chandra and S. Ray. Bilaspur district : 1 ex. (ZSI A9310), Mungeli, 44 km. west of F.R.H. Pendarikanan, Bilaspur, 4.ix.1997, P. K. Chandra and S. Ray.

Total length : 30 mm to 59 mm from snout to vent.

Diagnostic character : Head broader than long; snout rounded not projecting beyond the mouth, shorter than the diameter of the eye; nostril equidistant from the tip of the snout and the eye; interorbital width less than that of the upper eyelid; tympanum distinct, more or less half diameter of the eye. Fingers free, first much longer than second, tips swollen, subarticular tubercles of fingers and toes well developed. Toes minutely webbed, more than three phalanges of fourth toe free; a large shovel shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent. Tibiotarsal articulation reaches axil or shoulder. Dorsum greyish and warty. Venter whitish and granular.

Distribution : India : Chattishgarh : as mentioned in the material examined. First record from Chattishgarh. West Bengal, Bihar, Orissa, Uttar Pradesh, Himachal Pradesh, Punjab, Rajasthan, Tamil Nadu, Kerala, Gujarat, Andhra Pradesh.

Elsewhere : Sri Lanka, Nepal and Myanmar.

Remarks : Medium sized forg. Burrowing and nocturnal in habit. Found in crevices and under stones alongwith toads. Sanyal, Chandra and Ray (1991) reported it from Easter district, M.P. Now Baster district is under Chattishgarh State.

Status : Common.

Family IV. RHACOPHORIDAE

Genus 11. ***Polypedates Tschudi,*** 1838

1838. *Polypedates Tschudi, classif. Batr.*, : 34.

15. ***Polypedates maculatus*** (Gray)
Tree Frog

1832. *Hyla maculata* Gray, *Ill. Indian Zool.*, **1** : 82.

Material examined : Rajnandgaon district : 1 ex. (ZSI A9469), in and around F.R.H. Manpur, 16.iv.1999; 2 ex. (ZSI A9462 & A9465), Mohola, 60 km. from Manpur, 17.iv.1999; 2 ex. (ZSI A9464), in and around F.R.H. Bagnadi, 18.iv.1999; 1 ex. (ZSI A9463), Dongargaon, 19.iv.1999. All coll. P. K. Chandra and S. Ray. Durg district : 1 ex. (ZSI A9554), in and around F.R.H. Bemetara, 16.vi.2000; 1 ex. (ZSI A9625), Delhi Rajhora, 30 km. south of Balod, 27.vi.2000. All coll. P. K. Chandra and S. Ray. Raigarh district : 1 ex. (ZSI A9548), Sarangarh, 40 km. south-west of Raigarh, 7.ix.1997; 1 ex. (ZSI A9313), Ghorghoda, 32 km. from Raigarh, 16.ix.1997; 1 ex. (ZSI A9316), Kharsia, 35 km. west of F.R.H. Raigarh, 18.ix.1997; 1 ex. (ZSI A9549), Jamga, 20 km. east of Raigarh, 19.ix.1997; 1 ex. (ZSI A9314), in and around F.R.H. Raigarh, 20.ix.1997. All coll. P. K. Chandra and S. Ray.

Total length : 33 mm to 60 mm from snout to vent.

Diagnostic character : Head broader than long; pointed, projecting little beyond the mouth, generally longer than the diameter of the eye; nostril nearer to the tip of the snout than to the eye; interorbital width broader than that of the upper eyelid; tympanum distinct, about three-fourth diameter of the eye. Fingers with rudimentary web, first equals the second, tips of toes bear horse-shoe-shaped discs; subarticular tubercles of fingers and toes district. Toes nearly three fourth webbed, two phalanges of fourth toe free; a distinct oval inner metatarsal tubercles present, outer metatarsal tubercles absent. Tibiotarsal articulation reaches in between posterior end of eye and tip of snout. Dosum brownish with light darker spots, smooth. Venter dull whitish and granular; skin on head free.

Distribution : Chattishgarh : as mentioned in the material examined. The species is widespread in the plains of India, and also Sanyal, Chandra and Ray (1991) reported it from Baster district, M.P.

Elsewhere : Sri Lanka.

Remarks : Medium sized frog. Nocturnal, generally found inside thick bushes.

Status : Common.

16. ***Polypedates leucomystax*** (Gravenhorst)

1829. *Hyla leucomystax* Gravenhorst, *Dellic, Mus. Vralislav.*, **1** : 26.

Material examined : Nil. Recorded by Chandra (1995).

Diagnostic character : Head broader than long, skin on head rugose; snout not pointed, projecting a little beyond the mouth, greater than the diameter of the eye; nostril nearer to the tip of the snout than the eye; interorbital width much broader than that of the upper eyelid; tympanum district, about three-fourth diameter of the eye. Fingers free, first equals the second, tips of fingers and toes bear horse-shoe shaped distinct disc; subarticular tubercles of fingers and toes distinct. Toes three fourth webbed, one phalanges of fourth toe free; a distinct oval inner metatarsal tubercle present, outer metatarsal tubercle absent. Tibiotarsal articulation reaches in between eye and tip of snout. Dorsum light chocolate and smooth. Venter dull whitish and granular.

Distribution : Chanda (1995) reported it from Indravati Tiger Reserve, Baster district. It has so far been recorded from Andaman and Nicobar, Arunachal Pradesh, Meghlaya, Assam, Sikkim, West Bengal and Tripura.

Elsewhere : Myanmar, South China, Taiwan and Philippines.

Remarks : Chanda (1995) reported it from Baster district, M.P. Now Baster district is situated under Chattishgarh State. Chanda (1995) recorded for the first time from Madhya Pradesh. Now it is first record from Chattishgarh. It is nocturnal and a rare species of frog. It is normally found inside thick bush and crevices on tree-trunk.

Status : Rare.

SUMMARY

This reports deals with a total number of 489 ex. of amphibians belonging to 16 species, 11 genera and 4 families. Now Madhya Pradesh is divided into two State namely Madhya Pradesh and Chattishgarh, Chattishgarh is a new State. There is no reports of amphibia in the name of Chattishgarh. So all the species recorded for the first time from Chattishgarh.

Methods of collection, Illustraction of measurements of essential morphological character, keys and short diagnostic character of the species have added in the paper for detarmination of the species.

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FRESHWATER FISHES

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INTRODUCTION

Fishes are of immense economic importance to mankind. They are good source of protein, vitamins and minerals. They can be used for a variety of purposes like food, sport, ornament, biological control and high medicinal values.

Although Day's monographs still stand good as far as the fishes of India are concerned, Hora, Mishra, Menon, Jayaram, Silas, Nalwant, Tilak etc., have also contributed a lot in this field. As a result, so many new taxa have been erected with so many changes in the freshwater fish fauna of India and Madhya Pradesh as well.

Hitherto, no comprehensive account on the fish fauna of Madhya Pradesh is available, although some scattered papers are published by Hora (1938, 1940). Hora and Nair (1941), Swarup (1953), Dubey and Mehra (1959), Mehra (1959), Soni (1959), (1960), Malviya (1961), Dubey and Verma (1965), Mathur and Mishra (1976), Tilak and Sinha (1979), Karmakar and Datta (1988), Saxena (1988) and Sen (1995).

A fair proportion of the area of the state is hilly or undulating and some of the important rivers of India such as the Narmada, the Tapti, the Mahanadi, the Wainganga, the Son and the Chambal have their source in these elevated regions. The state enjoys the advantage of main riverine resources of India by virtue of its location. It forms the catchment of Ganga, Jamuna, Narmada, Mahanadi, Tapti and Godawari. The catchment of Tapti is the smallest and that of Jamuna is the biggest. The Chambal, Narmada, Betwa, Son, Mahanadi and Indravati are some of the main important perennial rivers with varied fish fauna and promising fishery. These important rivers with their tributaries form a beautiful net work of about 7000 miles of river system. None of the rivers of Madhya Pradesh descends from the Himalayas and hence are not fed in the summer months by melting snow. They are annually replenished only by the monsoon floods and the estimated annual run off of these rivers is 143 million acre feet. As the summer monsoon sets the river become flooded and the fishes ascend for breeding. In hot season, pools are formed in many of the tributaries where the fishes take the refuge. As it comes under the fold of main riverine system of India, the fish fauna of the state is rich having many commercial species (Dubey and Verma, 1965).

The Classification adopted is after Greenwood *et al.* (1966), Rosen and Patterson (1969) with slight modifications. Genera are arranged according to their Phylogenetic and/or intergeneric affinities. Species are listed alphabetically.

MATERIAL AND METHODS

The material was collected by different survey parties of Zoological Survey of India, Central Regional Station, Jabalpur (M.P.). The collected material is mostly identified by the author and some collection was referred to Head Quarter, Calcutta, for confirmation of species. Different gears were used for collection of fishes, which vary from place to place and species to species. A majority of fresh water fishes are caught by

seine nets, cast nets and dragnets whereas hill stream fishes are collected either by damming or by diverting the water to the stream to dry up. In the latter case, the fish are then picked up by hand from below stones, rocks and boulders.

METHODS OF PRESERVATION

Whole fish are preserved in 5% neutralised solution of formalin. This solution is made by diluting one part of concentrated formalin or commercial formaldehyde (the strength varies from 37% to 40%) with nine parts of water. It is advisable to neutralise the solution with 5 grams of borax per litre. The fish should be left in this solution atleast for four or five hours for proper fixation.

Fish less than 10 cm long should be immersed completely in the neutralised solution. Fish 10 to 30 cm long should have a narrow cut made through the anus (It may also be injected through the anus). Care should be taken to avoid a deep cut to injure or expose the alimentary canal.

Where the abdomen is not rounded but with a keel, the incision is preferably made on the left side of the fish (the fish may be injected through the anus but with precaution).

If the fish is getting putrefaction, it should be kept in 10% neutralised solution of formalin for about 24 hours after giving a narrow cut through the anus. The injection may also be preferred through anus (if the putrefaction is less).

After preservation the fish can be kept either in rectified spirit or in 5% neutralised solution.

SYSTEMATIC LIST

Class PISCES
Subclass TELEOSTOMI
Cohart TAENIOPAEDIA
Superorder ELOPOMORPHA
Order ANGUILLIFORMES
Family ANGUILLIDAE
Genus ***Anguilla*** Shaw

1. *A. bengalensis bengalensis* (Gray and Hardwicke)

Superorder CLUPEOMORPHA
Order CLUPEIFORMES
Family CLUPEIDAE
Subfamily ALOSINAE
Genus ***Hilsa*** Regan

2. *H. ilisha* (Hamilton)

Genus ***Gudusia*** Fowler

3. *G. chapra* (Hamilton)

Subfamily DOROSOMATINAE
Genus ***Goniolosa*** Regan

4. *G. manmina* (Hamilton)

Family ENGRAULIDAE
Subfamily ENGRAULINAE
Genus ***Setipinna Swainson***

5. *S. phasa* (Hamilton)

Cohart ARCHAEOPHYLACES
Superorder OSTEOGLOSSOMORPHA
Order OSTEOGLOSSIFORMES
Family NOTOPTERIDAE
Genus ***Notopterus*** Lacepede

6. *N. chitala* (Hamilton)
7. *N. notopterus* (Pallas)

Cohart EUTELEOSTEI
Superorder OSTARIOPHYSI
Order CYPRINIFORMES
Family CYPRINIDAE
Subfamily CULTRINAE
Genus ***Chela*** Hamilton

8. *C. (Chela) cachius* (Hamilton)
9. *C. (Chela) laubuca* (Hamilton)
10. *C. (Neochela) dadyburjori* Menon

Genus ***Securicula*** Gunther

11. *S. gora* (Hamilton)

Genus ***Salmostoma*** Swainson

12. *S. acinaces* (Valenciennes)
13. *S. bacaila* (Hamilton)
14. *S. boopsis* (Day)

15. *S. Clupeoides* (Bloch)
16. *S. Phulo phulo* (Hamilton)

Subfamily HYPOPHTHALMICHTHYINAE

Genus ***Hypophthalmichthys*** Bleeker

17. *H. molitrix* (Valenciennes)

Subfamily RASBORINAE

Genus ***Esomus*** Swainson

18. *E. barbatus* (Jerdon)
19. *E. danricus* (Hamilton)

Genus ***Danio*** Hamilton

20. *D. aequipinnatus* (Mc Clelland)
21. *D. dangila* (Hamilton)
22. *D. devario* (Hamilton)
23. *D. neilgherriensis* (Day)
24. *D. rerio* (Hamilton)

Genus ***Rasbora*** Bleeker

25. *R. daniconius daniconius* (Hamilton)
26. *R. rasbora* (Hamilton)

Genus ***Aspidoparia*** Heckel

27. *A. Jaya* (Hamilton)
28. *A. morar* (Hamilton)

Genus ***Amblypharyngodon*** Bleeker

29. *A. melettina* (Val)
30. *A. microlepis* (Bleeker)
31. *A. mola* (Hamilton)

Genus ***Barilius*** Hamilton

32. *B. barila* (Hamilton)
33. *B. barna* (Hamilton)
34. *B. bendelisis bendelisis* (Hamilton)
35. *B. bola* (Hamilton)
36. *B. evezardi Day*
37. *B. gatensis* (Valenciennes)
38. *B. shacra* (Hamilton)
39. *B. tileo* (Hamilton)
40. *B. vagra vagra* (Hamilton)

Subfamily CYPRININAE

Genus ***Cyprinus*** Linnaeus

41. *C. carpio carpio* Linnaeus

Genus ***Oreichthys*** H.M. Smith

42. *O. cosuatis* (Hamilton)

Genus ***Puntius*** Hamitlon

43. *P. amphibius* (Valenciennes)
44. *P. arenatus* Day
45. *P. arulius arulius* (Jerdon)
46. *P. chilinoides* (McClelland)
47. *P. chola* (Hamilton)
48. *P. conchonius* (Hamilton)
49. *P. curmuca* (Hamilton)
50. *P. dorsalis* (Jerdon)
51. *P. filamentosus* (Valenciennes)
52. *P. gelius* (Hamilton)
53. *P. guganio* (Hamilton)
54. *P. jerdoni* (Day)
55. *P. kolus* (Sykes)
56. *P. melanostigma* (Day)
57. *P. phutunio* (Hamilton)
58. *P. punjabensis* (Day)
59. *P. sarana sarana* (Hamilton)
60. *P. sarana spilurus* (Gunther)
61. *P. sarana subnasutus* (Valenciennes)
62. *P. sophore* (Hamilton)
63. *P. ticto* (Hamilton)
64. *P. vittatus* Day
65. *P. waagenii* (Day)

Genus ***Osteobrama*** Heckel

66. *O. cotio cotio* (Hamilton)
67. *O. vigorsii* (Sykes)

Genus ***Labeo*** Cuvier

68. *L. angra* (Hamilton)
69. *L. ariza* (Hamilton)
70. *L. bata* (Hamilton)
71. *L. boga* (Hamilton)
72. *L. boggut* (Sykes)
73. *L. calbasu* (Hamilton)
74. *L. dero* (Hamilton)
75. *L. dussumieri* (Valenciennes)
76. *L. dyocheilus* dyocheilus McClelland
77. *L. fimbriatus* (Bloch)

78. *L. gonius* (Hamilton)
79. *L. nandina* (Hamilton)
80. *L. pangusia* (Hamilton)
81. *L. porcellus* (Heckel)
82. *L. rohita* (Hamilton)

Genus ***Chagunius*** H.M. Smith

83. *Chagunius chagunio* (Hamilton)

Genus ***Tor*** Gray

84. *T. khudree* (Sykes)
85. *T. mussullah* (Sykes)
86. *T. putitora* (Hamilton)
87. *T. tor* (Hamilton)

Genus ***Cirrhinus*** Oken

88. *C. Cirrhosa* (Bloch)
89. *C. fulungee* (Sykes)
90. *C. mrigala* (Hamilton)
91. *C. reba* (Hamilton)

Genus ***Catla*** Valenciennes

92. *C. catla* (Hamilton)

Genus ***Ctenopharyngodon*** Steindachner

93. *C. idella* (Valenciennes)

Subfamily GARRINAE

Genus ***Crossocheilus*** van Hasselt

94. *C. latius latius* (Hamilton)

Genus ***Garra*** (Hamilton)

95. *G. gotyla gotyla* (Gray)
96. *G. lamta* (Hamilton)
97. *G. mullya* (Sykes)

Family HOMALOPTERIDAE

Subfamily NOEMACHEILINAE

Genus ***Noemacheilus*** van Hasselt

98. *N. anguilla* Annandale
99. *N. beavani* Gunther
100. *N. botia* (Hamilton)
101. *N. denisoni dayi* Hora
102. *N. denisoni denisoni* Day
103. *N. evezardi* Day
104. *N. multifasciatus* Day
105. *N. ruppelli* (Sykes)
106. *N. savona* (Hamilton)
107. *N. sikmaiensis* Hora
108. *N. striatus* Day

Family COBITIDAE

Subfamily BOTINAE

Genus ***Botia*** Gray

109. *B. (Botia) rostrata* Gunther

Subfamily COBITINAE

Genus ***Lepidocephalus*** Bleeker

110. *L. (Lepidocephalichthys) guntea* (Hamilton)
111. *L. (Lepidocephalichthys) thermalis* (Valenciennes)

Order SILURIFORMES

Family BAGRIDAE

Genus ***Rita*** Bleeker

112. *R. chrysea* Day
113. *R. gogra* (Sykes)
114. *R. kuturnee* (Sykes)
115. *R. rita* (Hamilton)

Genus ***Mystus*** scopoli

116. *M. bleekeri* (Day)
117. *M. cavasius* (Hamilton)
118. *M. montanus* (Jerdon)
119. *M. vittatus* (Bloch)

Genus ***Aorichthys*** Wu

120. *A. aor* (Hamilton)
121. *A. seenghala* (Sykes)

Family SILURIDAE

Genus ***Ompok*** Lacepede

122. *O. bimaculatus* (Bloch)
123. *O. pabda* (Hamilton)

Genus ***Wallago*** Bleeker

124. *W. attu* (Schneider)

Family SCHILBEIDAE

Subfamily AILINAE

Genus ***Ailia*** Gray

125. *A. coila* (Hamilton)

Subfamily SCHILBEINAE

Genus ***Pseudeutropius*** Bleeker

126. *P. atherinoides* (Bloch)

Genus ***Clupisoma*** Swainson

127. *C. bastari* Datta and Karmakar

128. *C. garua* (Hamilton)

129. *C. montana* Hora

130. *C. prateri* Hora

Genus ***Eutropiichthys*** Bleeker

131. *E. vacha* (Hamilton)

Genus ***Silonia*** Swainson

132. *S. childreni* (Sykes)

133. *S. silondia* (Hamilton)

Family PANGASIIDAE

Genus ***Pangasius*** Valenciennes

134. *P. pangasius pangasius* (Hamilton)

Family AMBLYCIPITIDAE

Genus ***Amblyceps*** Blyth

135. *A. mangois* (Hamilton)

Family SISORIDAE

Genus ***Bagarius*** Bleeker

136. *B. bagarius* (Hamilton)

Genus ***Gagata*** Bleeker

137. *G. cenia* (Hamilton)

Genus ***Nangra*** Day

138. *N. itchkeea* (Sykes)

139. *N. viridescens* (Hamilton)

Genus ***Conta*** Hora

140. *C. elongata* (Day)

Genus ***Laguvia*** Hora

141. *L. ribeiroi ribeiroi* Hora

Genus ***Glyptothorax*** Blyth

142. *G. lonah* (Sykes)

143. *G. telchitta telchitta* (Hamilton)

Family CLARIIDAE

Genus ***Clarias*** Scopoli

144. *C. batrachus* (Linnaeus)

Family HETEROPNEUSTIDAE

Genus ***Heteropneustes*** Miiller

145. *H. fossilis* (Bloch)

Superorder ATHERINOMORPHA

Order ATHERINIFORMES

Family BELONIDAE

Genus ***Xenentodon*** Regan

146. *X. cancila* (Hamilton)

Family CYPRINODONTIDAE

Genus ***Aplocheilus*** McClelland

147. *A. panchax* (Hamilton)

Genus ***Oryzias*** Jordon and Snyder

148. *O. melanostigma* (McClelland)

Family POECILIDAE

Genus ***Lebistes*** Filippi

149. *L. reticulatus* (Peters)

Superorder ACANTHOPTERYGII

Order CHANNIFORMES

Family CHANNIDAE

Genus *Channa* Scopoli

150. *C. marulius* (Hamilton)

151. *C. orientalis* Schneider

152. *C. punctatus* (Bloch)

153. *C. stewartii* (Playfair)

154. *C. striatus* (Bloch)

Order SYNBRANCHIFORMES

Family SYNBRANCHIDAE

Genus ***Monopterus*** Lacepede

155. *M. cuchia* (Hamilton)

Order PERCIFORMES

Family CHANDIDAE

Genus ***Chanda*** Hamilton

156. *C. baculis* Hamilton

157. *C. nama* Hamilton

158. *C. ranga* Hamilton

Family NANDIDAE

Genus ***Badis*** Bleeker

159. *B. badis* (Hamilton)

Genus ***Nandus***

160. *N. nandus* (Hamilton)

Genus ***Pristolepis*** Jerdon

161. *P. fasciata* (Bleeker)

Family CICHLIDAE

Genus ***Oreochromis*** Gunther

162. *O mossambica* (Peters)

Family MUGILIDAE

Genus ***Liza*** Jordon and Swain

163. *L. parsia* (Hamilton)

Genus ***Rhinomugil*** Gill

164. *R. corsula* (Hamilton)

Family GOBIIDAE

Subfamily GOBINAE

Genus ***Awaous*** (Valenciennes)

165. *A. stamineus* (Valenciennes)

Genus ***Glossogobius*** Gill

166. *G. giuris giuris* (Hamilton)

Family ANABANTIDAE

Genus ***Anabas*** cuvier

167. *A. testudineus* (Bloch)

Family BELONTIDAE

Subfamily MACROPODINAE

Genus ***Ctenops*** McClelland

168. *C. nobilis* McClelland

Subfamily TRICHOGASTRINAE

Genus ***Colisa*** cuvier

169. *C. fasciata* (Schneider)

Order MASTACEMBELIFORMES

Family MASTACEMBELIDAE

Genus ***Macrognathus*** Lacepede

170. *M. aculeatus* (Bloch)

Genus ***Mastacembelus*** Scopoli

171. *M. armatus armatus* (Lacepede)

172. *M. pancalus* (Hamilton)

SYSTEMATIC ACCOUNT

Class PISCES

Subclass TELEOSTOMI

Cohart TAENIOPAEDIA

Superorder ELOPOMORPHA

Order ANGUILLIFORMES

Family ANGUILLIDAE

Genus ***Anguilla*** Shaw

1. *Anguilla bengalensis bengalensis* Gray and Hardwicke

Long-finned eel, Freshwater eel

1833. *Muraena bengalensis* Gray and Hardwicke, *Ill, Indian Zool. Hardwicke,* **2** : pl. 95, fig. 5.

1878. *Anguilla bengalensis,* Day, *Fish. India* : 659, pl. 168, fig. 1; 1889, Day, *Fauna Br. India, Fish.,* **1** : 86, fig. 35.

1981. *Anguilla bengalensis bengalensis,* Jayaram, *Handbk. Freshw. Fish. India,* : 27, 28 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from literature.

Diagnostic characters : D.250-305, P. 18, A.200-250, C. 10-12.

Head length 3.00 to 3.10 in the distance between the snout and vent. Head broader than body. Body eel-like. Snout not broad. Lower jaw prominent. Cleft of mouth extends beyond posterior margin of eye and equals about one-third of head length. Vomerine band of teeth not extending posteriorly so far as maxillary one. Dorsal fin inserted about midway between gill-opening and insertion of anal fin. Pectoral fin less than head length. Body brownish on the dorsal surface, yellowish below. Sometimes black spots on the upper surface of the body. Adult colouration variegated.

Distribution : India : Madhya Pradesh. Freshwater and seas of India.

Elsewhere : Bangladesh, China, Formosa, Malay Archipelago, Myanmar, The Pacific, Pakistan, Sri Lanka.

Superorder CLUPEOMORPHA

Order CLUPEIFORMES

Family CLUPEIDAE

Subfamily ALOSINAE

Genus ***Hilsa*** Regan

2. *Hilsa ilisha* (Hamilton)

Indian shad, Hilsa shad

1822. *Clupanodon ilisha* Hamilton, *Fish. Ganges,* : 243, 382, pl. 19, fig. 73.

1878. *Clupea ilisha*, Day, *Fish. India* : 640, pl. 162, fig. 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 376, fig. 115.

1981. *Hilsa ilisha*, Jayaram, *Handbk. Freshw. Fish. India*, : 39, 40 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D-18-19, A. 19-22, P.15, V. 8, C. 19, LL. 39-44.

Head length 4.25 to 4.50 and body depth 3.50 to 4.00 in total length. Eye diameter 4.50 to 6.00 in head length. Eye with broad adipose eyelids. Lower jaw not prominent. Maxilla reaching to or a little beyond posterior margin of eye. Dorsal and ventral profiles equally convex. Origin of dorsal fin nearer to tip of snout than to base of caudal fin. Lateral transverse rows of scales 17-20. Prepelvic scutes 16 to 17 and postpelvic scutes 14 to 15. Body silvery shot with gold and purple. Young specimens with bronze colour along back with a row of spots in the upper half of body.

Distribution : India : Madhya Pradesh (Chambal river, Rewa district), Cauvery, Ganga, Godavari, Krishna, Narmada, Pennar, Tapti and Yamuna river systems.

Elsewhere : Bangladesh, China, Iraq, Myanmar, Pakistan, Persian Gulf, Sri Lanka.

Genus ***Gudusia*** Fowler

3. *Gudusia chapra* (Hamilton) **Ganges shad**

1822. *Clupanodon chapra* Hamilton, *Fish. Ganges*, : 248.

1878. *Clupea chapra*, Day, *Fish. India*, : 639, pl. 161, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 375.

1981. *Gudusia chapra*, Jayaram, *Handbk. Freshw. Fish. India* : 40 (distribution and key to species).

Material examined : 1 ex., Newaj river, Raigarh district; H.S. Sharma and Party; 8.10.1995.

Diagnostic characters : D.14-16 (2-3/12-13), A.21-24(2/19-22), P.13, V.8, C.17, LL. 80-110.

Head length 4.30 to 4.50 and body depth 3.50 to 4.00 in total length. Eye diameter 3.50 to 4.00 in head length. Eyes with broad adipose lids. Lower jaw slightly prominent. Maxilla reaching to middle of eye. Ventral profile more convex than dorsal profile. Dorsal fin inserted nearer to hind base of anal fin than to tip of snout. Lateral transverse rows of scales 33 to 35. Prepelvic scutes 18 to 19 and postpelvic scutes 9 to 10. Predorsal scales 23 to 25. Body silvery shot with gold at sides. Dorsal surface dark.

Distribution : India : Madhya Pradesh (Rajgarh and Rewa districts, Chambal river), Throughout except Malabar and Tamil Nadu.

Elsewhere : Bangladesh, Malaya, Myanmar, Nepal, Pakistan.

Subfamily DOROSOMATINAE

Genus ***Goniolosa*** Regan

4. *Goniolosa manmina* (Hamilton)

1822. *Clupanodon manmina* Hamilton, *Fish. Ganges* : 247, 383.

1878. *Chatoessus manminna*, Day, *Fish. India* : 633, pl. 160, fig. 2; 1889, Day, *Fauna Br. India, Fish.*, **1** : 386, 387.

1981. *Goniolosa manmina*, Jayaram, *Handbk. Freshw. Fish. India*, : 42, 43 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 14-15, P.15, V.8, A.22-24, LL. 55-65.

Head length 4.60 to 5.00 and body depth 3.60 to 3.75 in total length. Eye diameter 3.00 to 3.30 in head length. Mouth transverse, small and toothless. Upper jaw projecting over lower jaw. Maxilla short, not reaching to eye. Ventral profile slightly more convex than dorsal profile. Abdomen keeled, serrated. Abdominal scutes strong, prepelvic 17 and post pelvic 13. Dorsal fin inserted slightly in advance of pelvic fin insertion and nearer to tip of snout than to base of caudal fin. Pectoral fin reaching pelvic fin. Lateral transverse scales 21-25. Body silvery shot with gold. Back with bluish green tint. Cheeks purplish. Usually with a black spot on the shoulder.

Distribution : India : Madhya Pradesh (Bhopal, Rewa districts), Tributaries of Brahmaputra,

Ganges, Jamuna and Mahanadi rivers spreading all over India through the tanks and estuaries of major Indian rivers except in the Deccan, Southern and Western India.

Elsewhere : Bangladesh, Pakistan, Sri Lanka.

Family ENGRAULIDAE

Subfamily ENGRAULINAE

Genus ***Setipinna*** Swainson

5. ***Setipinna phasa*** (Hamilton)

1822. *Clupea phasa* Hamilton, *Fish. Ganges* : 240, 382.

1878. *Engraulis telara*, Day, *Fish. India* : 627, pl. 158, fig. 2; 1889, Day, *Fauna Br. India, Fish*, **1** : 392.

1981. *Setipinna phasa*, Jayaram, *Handbk. Freshw. Fish. India* : 49, 50 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.1+14-15, P.15, V.7, A.70-80, C.19, LL.52.

Head length 6.00 to 7.00 and body depth 4.50 in total length. Eye diameter 4.50 in head length. Maxilla extends to opposite gill-opening. Mouth slightly oblique. Dorsal profile from head to dorsal fin more convex than ventral profile. Dorsal fin inserted a little behind anal fin insertion and much nearer to tip of snout than to caudal fin base. Pectoral fin with upper ray elongated and often reaching to middle of anal fin. Abdomen keeled and serrated. Abdominal scutes, prepelvic 15-16 and post pelvic 6-7. Body greenish on the dorsal surface, silvery shot with gold along sides and below. Dorsal and caudal fins yellow, stained with black at their upper edges. Pectoral fin yellowish in young specimens but of deep, blue-black in adult specimens. Posterior three fourth of elongated ray, pelvic fins and anal fins uncoloured.

Distribution : India : Madhya Pradesh (Rewa district), Andamans, Assam, Cachar, Calcutta, Orissa, Pulta, High up in Ganges and its larger branches and tributaries, Mouth of Ganges.

Elsewhere : Bangladesh, Myanmar, Pakistan.

Cohart ARCHAEOPHYLACES

Superorder OSTEOGLOSSOMORPHA

Order OSTEOGLOSSIFORMES

Family NOTOPTERIDAE

Genus ***Notopterus*** Lacepede

Key to Species

1. Gape of mouth not extending beyond hind edge of orbit. Opercular scales much larger than those on the body. Dorsal profile of the body less humped. 28 to 33 scutes along the abdominal edge. ..... *N. notopterus*

– Gape of mouth extending beyond the hind edge of the orbit. Opercular scales not larger than those on the body. Dorsal profile of the body much humped. 50-51 scutes along the abdominal edge. ..... *N. chitala.*

6. ***Notopterus chitala*** (Hamilton)

1822. *Mystus chitala* Hamilton, *Fish Ganges*, : 236, 382.

1878. *Notopterus chitala*, Day, *Fish India*, : 654, pl. 159, fig 5; 1889, Day, *Fauna Br. India, Fish*, **1** : 407.

1981. *Notopterus chitala*, Jayaram, *Handbk. Freshw. Fish, India*, : 53, 54. (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.9-10, P. 16, V.6, A. 110-125(135), C.12-14, LL.180.

Head length 4.50 to 5.00 and body depth 3.50 to 4.00 in total length. Eye diameter 7.00 to 8.00 in head length. Maxilla extends posteriorly by about one eye diameter beyond hind edge of orbit. Dorsal profile very convex. Upper profile of head deeply concave. Preorbital entire. Dorsal fin small, commences nearer to tail than to snout. Pelvic fin small. Anal fin united with the caudal fin. Scales on opercle not larger than those on the body. 50-51 serrations along abdominal edge between throat and insertion of pelvic fin. Body copper brown above with about 15 transverse silvery bars joining over back. Sides silvery.

Distribution : India : Madhya Pradesh (Rewa district, Chambal river), Assam, Bihar, Orissa,

Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Indonesia, Malaya Archipelago, Myanmar, Pakistan, Philippines, Siam, Thailand, West Africa.

7. *Notopterus notopterus* (Pallas)
Feather back

1769. *Gymnotus notopterus* Pallas, *Spicil. Zool.*, I(7) : 40, pl. 6, fig. 2.

1878. *Notopterus kapirat*, Day, *Fish. India*, : 653, pl. 159, fig. 4; 1889, Day, *Fauna Br. India, Fish*, 1 : 406, fig. 129.

1936. *Notopterus osmani* Rahimullah and Das, *Bull. Soc. Port. nat.*, 12(18) : 136, pl. 23.

1981. *Notopterus notopterus*, Jayaram, *Handbk. Freshw. Fish. India*, : 53, 54 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, district Jabalpur; Purchased; 5.12.1960. (ii) 3 exs., Hiran river on Katangi road, district Jabalpur; V.V. Rao and Party; 10.6.1969. (iii) 1 ex., Hiran river on Katani Road, district Jabalpur; Dr. B.S. Chauhan and party; 13.7.1972. (iv) 1 ex., Narbada river at Hoshangabad, district Hoshangabad; Purchased; 25.12.1964. (v) 1 ex., Bara talab at Amarpatan, district Satna; H.S. Sharma and party; 19.10.1986. (vi) 2 exs., Betwa river, Raisen district; H.S. Sharma and party; 3.10.1995.

Diagnostic characters : D.7-8, P.17, V.5-6, A.100-110, C. 19, LL. 225.

Head length 5.00 to 5.50 and body depth 3.50 to 4.00 in total length. Diameter of eye 4.50 to 5.00 in head length. Maxilla extending to below middle of the orbit. Dorsal profile not so convex as ventral profile. Preorbital serrated. Dorsal fin small, situated midway between tip of snout and the end of caudal fin. Anal fin united with the caudal fin. Pelvic fin very short. Scales on opercle larger than those on body. 28-33 serrations along abdominal edge between throat and insertion of pelvic fin. Body greyish on dorsal surface, silvery on sides. Golden yellow tinge on head. Eyes golden.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Raisen, Rewa, Satna districts, Chambal river), Andhra Pradesh, Assam, Bihar, Chilka Lake, Deccan, Deolali, Maharashtra, Malabar, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Indonesia, Malaya, Myanmar, Nepal, Pakistan, Philippines, Thailand.

Cohart	EUTELEOSTEI
Superorder	OSTARIOPHYSI
Order	CYPRINIFORMES
Family	CYPRINIDAE
Subfamily	CULTRINAE

Genus ***Chela*** Hamilton

Key to Species

1 Lateral line incomplete or absent (A broad moniliform dark stripe interrupted in 3-5 places extends from opercle to caudal base). ..... *C. (Neochela) dadyburjori*

– Lateral line complete 2

2. Lateral line scales 51 to 68. Pectoral fin not reaching anal fin. ..... *C. cachius*

– Lateral line scales 34 to 37. Pectoral fin reaching anal fin ..... *C. laubuca*

8. *Chela (chela) cachius* (Hamilton)
Chela

1822. *Cyprinus cachius* Hamilton, *Fish. Ganges*, : 258, 384.

1822. *Cyprinus atpar* Hamilton, *Fish. Ganges*, : 259, 384.

1878. *Perilampus atpar*, Day, *Fish. India*, : 598, Pl. 151, fig. 6; 1889, Day, *Fauna Br. India, Fish.*, 1 : 359.

1958. *Chela (Chela) cachius*, Silas, *J. Bombay nat. Hist. Soc.*, 55(1) : 667 (Revision).

1981. *Chela (Chela) cachius*, Jayaram, *Handbk. Freshw. Fish. India* : 72, 73, fig. 40 (distribution and key to species).

Material examined : (i) 3 exs., Hiron river on Katni Road, district Jabalpur; P.D. Gupta and party; 21.7.1984. (ii) 50 exs., Sharman bandh near Krishnagarh village, Amarpatan, district Satna; H.S. Sharma and party; 21.10.1986. (iii) 70 exs., Tons river near Maihar, district Satna;

H.S. Sharma and party; 17.10.1986. (iv) 2 exs., Hazara nala near Maihgawan, district Satna; H.S. Sharma and party; 24.10.1986. (v) 2 exs., Talab near Usrar village, Nagod, district Satna; H.S. Sharma and party; 29.10.1986. (vi) 6 exs., Singri river, district Narsinghpur; Purchased; 14.10.1989. (vii) 3 exs., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986. (viii) 3 exs., Betwa river near Raisen, district Raisen; H.S. Sharma and party; 3.10.1995. (ix) 1 ex., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995. (x) 3 exs., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995. (xi) 25 exs., Reechha river near Raisen, district Raisen; H.S. Sharma and party; 2.10.1995. (xii) 15 exs., Newaj river at Bara-pul, Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995. (xiii) 1 ex., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995. (xiv) 2 exs., Lekada, district Ujjain; H.P. Agrawal and party; 14.11.1990.

Diagnostic characters : D.9-10 (2/7-8), P.1/8-11, V.1/4-5, A. 20-25(2-3/18-23), C.19, LL. 51-66.

Head length 5.50 to 6.00 and body depth 4.00 to 4.25 in total length. Eye diameter 3.00 to 4.00 in head length. Cleft of mouth moderately oblique, directed upwards. Dorsal fin inserted opposite to the second third of anal fin. Pectoral fin elongate, not reaching anal fin. Pelvic fin with an elongated outer ray extending to middle or even end of anal fin base. 4 rows of scales between lateral line and base of pelvic fin. Caudal fin forked. Body silvery with a burnished lateral band. Dorsal and caudal fin yellow.

Distribution : India : Madhya Pradesh (Jabalpur, Narsinghpur, Raisen, Rajgarh, Rewa, Satna, Ujjain districts). Throughout India.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

9. *Chela (Chela) laubuca* (Hamilton)
Winged rasbora

1822. *Cyprinus laubuca* Hamilton, *Fish. Ganges* : 260, 384.

1878. *Perilampus laubuca*, Day, *Fish. India*, : 598, pl. 151, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 360, fig. 112.

1958. *Chela (Chela) laubuca*, Silas, *J. Bombay nat. Hist. Soc.*, **55**(1) : 70-85 (Revision).

1981. *Chela (Chela) laubuca*, Jayaram, *Handbk. Freshw. Fish. India*, : 72, 73 (distribution and key to species).

Material examined : (i) 3 exs., Devtal, near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 8.7.1960. (ii) 1 ex., Pariat tank, district Jabalpur; R.C. Sharma and party; 4.1.1961. (iii) 3 exs., Richhai village, district Jabalpur; H.P. Agarwal and party; 18.2.1964. (iv) 2 exs., Hiran river on Katangi Road, district Jabalpur; V.V. Rao and party; 10.6.1969. (v) 2 exs., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (vi) 5 exs., Pariat river katni road, district Jabalpur; G.M. Yazdani and party; 17.1.1978. (vii) 4 exs., Hiran river on Katni Road, district Jabalpur; P.D. Gupta and party; 21.7.1984. (viii) 20 exs., Marhi ka nala near Nagod, district Satna; H.S. sharma and party; 28.10.1986. (ix) 40 exs., Sughna nala on Rewa Road, Amarpatan, district Satna; 22.10.1986. (x) 25 exs., Budagar tank on Katni Road, district Jabalpur; D.S. Mathur and party; 26.10.1971. (xi) 1 ex., Tomas river, district Stana; H.S. Sharma and party; 22.10.1986. (xii) 10 exs., Sharman bandh near Krishnagarh village, Amarpatan, district Satna; H.S. Sharma and party; 21.10.1986. (xiii) 1 ex., Betwa river near Raisen, district Raisen; H.S. Sharma and party; 3.10.1995.

Diagnostic characters : D.10-11 (2/8-9), P.1/8-11, V. 1/6, A.19-23(2/17-21), C.19, LL.34-37.

Head length 5.00 to 6.00 and body depth 3.50 to 4.25 in total length. Eye diameter 3.00 to 3.50 in head length. Cleft of mouth very much oblique, abruptly directed upwards. Dorsal fin origin midway between posterior margin of eye and end of caudal fin, slightly behind anal fin origin. Pectoral fin reaching anal fin. Pelvic fin with an elongated outer ray extending to middle or end of anal fin base. $3\frac{1}{2}$ rows of scales between lateral line and pelvic fin base. Caudal fin deeply forked. Body silvery, with golden vertical stripes when alive. A black mark above the base of pectoral fin

and another at the base of caudal fin. Fine dots over body.

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur, Raisen, Satna districts, Chambal river), Andhra Pradesh, Assam, Bihar, Gujarat, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Malaya Peninsula, Nepal, Pakistan, Peninsular Thailand, Sri Lanka, Sumatra.

10. *Chela (Neochela) dadyburjori* (Menon)

1951. *Laubuca dadyburjori* Menon, *Rec. Indian Mus.*, **49** : 1-4, text-fig. a, b and c.

1958. *Chela (Neochela) dadyburjori*, Silas, *J. Bombay nat. Hist. Soc.*, **55**(1) : 93-97 (revision).

1981. *Chela (Neochela) dadyburjori*, Jayaram, *Handbk. Freshw. Fish. India*, : 72 (distribution and key to species).

Material examined : (i) 4 exs., Singri river, district Narsinghpur; H.P. Agrawal and party; 14.10.1989. (ii) 10 exs., Sakkar river, district Narsinghpur; H.P. Agrawal and party; 17.10.1989. (iii) 4 exs., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (iv) 12 exs., Betwa river near Raisen, district Raisen; 3.10.1995; H.S. Sharma and Party. (v) 4 exs., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995. (vi) 10 exs., Sakkar river, district Narsinghpur; H.P. Agrawal and party; 17.10.1989.

Diagnostic characters : D.2/7, A. 3/11-12, P.1/7-9+2-3*, V.1/5, C. 17-19, LL. 30-34.

Head length 3.44 to 4.20 and body depth 4.00 to 5.16 in standard length. Eye diameter 2.50 to 3.21 in head length. Mouth is directed obliquely upwards. Dorsal profile rises gently from tip of snout to origin of dorsal fin beyond which it slopes down to the base of caudal fin. Ventral profile bow-shaped. Barbels absent. Dorsal fin inserted in the posterior third of the body without caudal fin and its origin opposite to 4th branched ray of anal fin. Pectoral fin long and extends beyond the base of pelvic fin. Pelvic fin short and generally not extending to anal opening. Caudal fin deeply furcate. Lateral line incomplete, piercing 2 to 8 scales. Predorsal scales 16 to 18. A lateral black band along the middle of body extending from angle of opercle to base of caudal fin with 2 to 6 black circular spots on it. Another black band along the dorsum from occiput to base of dorsal fin.

Distribution : India : Madhya Pradesh (Narsinghpur, Raisen, Raigarh districts), Kerala.

Remark : The lateral band broadest in the middle and gradually tapers towards both the ends. Black circular spots on it were not seen.

Genus *Securicula* Gunther

11. *Securicula gora* (Hamilton)

1822. *Cyprinus gora* Hamilton, *Fish. Ganges* : 263, 384.

1878. *Chela gora*, Day, *Fish. India* : 600, Pl. 151, fig. 8; 1889, Day, *Fauna Br. India, Fish.*, **1** : 362.

1981. *Securicula gora*, Jayaram, *Handbk. Freshw. Fish. India* : 73 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.9-10 (2-3/7), P. 14-15, V.8, A. 15-16 (2/13-14), C.19, LL. 140-160.

Head length 5.00 to 5.25 and body depth 6.00 in total length. Eye diameter 5.00 in head length. Mouth oblique, almost vertical. Abdomen strongly and sharply keeled. Snout longer than eye. Cleft of mouth reaches to below first fourth of eye. Suborbital ring of bones broader than eye diameter and covering two-third portion of cheek. dorsal fin commences slightly in advance of anal fin origin. Scales extend upto nostrils on head. Body silvery.

Distribution : India : Madhya Pradesh (Chambal river, Rewa district), Assam, Bihar, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal, Pakistan.

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* The pectoral fin has got 2 or 3 minute, short, undivided rays at the inner (lower) angle of its base, in addition to the first undivided and 7 to 9 branched rays (Silas, 1958).

Genus ***Salmostoma*** Swainson

Salmostoma Swainson

Key to Species

1 Lateral line scales above 70 (74 to 112) ..2

– Lateral line scales below 70 (38 to 65). ...4

2. Anal fin with 11 to 14 branched rays.....3

– Anal fin with 16 to 18 branched rays..... ..... *S. phulo phulo*

3. Rows of scales between lateral line and pelvic base 3 to 4. Gill rakers 24 to 29. .... *S. clupeoides*

– Rows of scales between lateral line and pelvic fin base 4 to 6. Gill rakers 17 to 21..... ..... *S. bacaila*

4. Anal fin with 12-14 branched rays. Lateral line with 38-42 scales. Dorsal fin inserted in advance of anal fin. 2-2$^1/_2$ rows of scales between lateral line and base of pelvic fin. Predorsal scales 22-24..... *S. boopsis*

– Anal fin with 14-15 branched rays. Lateral line (Slightly curved) with 42-46 scales. Dorsal fin inserted above anal fin. $1\frac{1}{2}$ rows of scales between lateral line and base of pelvic fin. Predorsal scales 27-30..... *S. acinaces*

12. ***Salmostoma acinaces*** (Valenciennes)

1842. *Leuciscus acinaces* Valenciennes, *Hist. nat. Poiss.*, **17** : 347, Pl. 509.

1878. *Chela argentea*, Day, *Fish. India* : 601, Pl. 152, fig. 2; 1889, Day, *Fauna Br. India, Fish.*, **1** : 364.

1981. *Salmostoma acinaces*, Jayaram, *Handbk. Freshw. Fish. India*, : 74-75 (distribution and key to species).

Material examined : 1 ex., A stream at Taradehi village, district Damoh; H. Khajuria and party; 18.3.1960.

Diagnostic characters : D.9-10, P.15, A. 17-19, C.19, LL. 42-46.

Head length 5.50 to 5.60 and body depth 5.00 to 5.50 in total length. Eye diameter 3.50 in head length. Cleft of mouth reaching to below anterior third of eye. Suborbital ring of bones broad and almost covering the cheek. Symphysial knob on lower jaw rudimentary. Dorsal fin inserted above anal fin. Pectoral fin reaching pelvic fin. Lateral line slightly curved. $1\frac{1}{2}$ rows of scales between lateral line and base of pelvic fin. Predorsal scales 27 to 30. Body silvery with a lateral band fading after death. Caudal fin and sometimes anal fin dark-edged.

Distribution : India : Madhya Pradesh (Damoh district), Bhavani river, Cauvery river system, Karnataka, S. India, W. Bengal, W. ghats, Wynaad.

Remark : The anal fin is generally reported to be tinged with black but in all the specimens from R. Cauvery at Ramanathapura, the fin was plain. A black streak along lateral line is prominent. The anal fin in most examples has 16 branched rays; the lateral line scales vary from 44-46 (Jayaram, Venkateswarlu and Ragunathan, 1982).

13. ***Salmostoma bacaila*** (Hamilton)

1822. *Cyprinus bacaila* Hamilton, *Fish. Ganges* : 265, 384, Pl. 8, fig. 76.

1878. *Chela bacaila*, Day, *Fish. India* : 603, Pl. 152, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 367.

1981. *Salmostoma bacaila*, Jayaram, *Handbk. Freshw. Fish. India*, : 74-75 (distribution and key to species).

Material examined : (i) 2 exs., Devtal near Vedinagar, district Jabalpur; S. Chakrapany and party; 18.7.1960. (ii) 3 exs., Narbada river, district Jabalpur; Purchased; 15.2.1962. (iii) 1 ex., Bhiloutha near Katangi, district Jabalpur; S. Chakrapany and party; 3.1.1961. (iv) 4 exs., Amkhas tank near Govt. Medical College, Jabalpur, district Jabalpur; H. Khajuria and party; 19.3.1963. (v) 21 exs., A nala on Rani Durgawati Samadhi Road, district Jabalpur; V.S. Durve and party; 26.4.1969. (vi) 1 ex., Karmeta village on patan Road, district Jabalpur; H.P. Agrawal and party; 3.9.1966. (vii) 3 exs., Narbada river at Lamataghat, district Jabalpur; H. Khajuria and and party; 7.9.1967. (viii) 12 exs., Narbada river at Bheraghat, district Jabalpur; V.V. Rao and party; 16.11.1967. (ix) 2 exs., Narbada rivar at Gwarighat, district Jabalpur; H.P. Agrawal and

party; 10.3.1966. (x) 1 ex., Hiran river near Katangi village, district Jabalpur; H.P. Agrawal and party; 17.9.1966. (xi) 18 exs., Pariat river on Damoh road, district Jabalpur; V.S. Durve and party; 11.10.1968. (xii) 3 exs., Baleha tank at Panagar, district Jabalpur; Purchased; 28.10.1967. (xiii) 18 exs., Pariat river on Katni Road, district Jabalpur; V.S. Durve and party; 26.10.1968. (xiv) 2 exs., A tank in Gandhigram village on Katni Road, district Jabalpur; V.V. Rao and party; 9.11.1967.

Diagnostic characters : D.9(2/7), P.13, V.9, A.13-15 (2/11-13), C.19, LL. 86-110.

Head length 5.25 to 6.00 and body depth 5.50 to 6.00 in total length. Eye diameter 3.50 to 3.75 in head length. Snout longer than eye. Cleft of mouth reaches to below first fourth of eye. Gill rakers 17-21. Keeled portion of ventral profile originates opposite pectoral fin. Suborbital ring of bones broad, almost covering cheek. Dorsal fin inserted half ahead of anal fin. 4 to 6 rows of scales between lateral line and base of pelvic fin. Body uniformly silvery.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur, Rewa districts, Chambal river, Indravati Tiger Reserve), Andhra Pradesh, Assam, Bihar, Orissa, Punjab, Uttar Pradesh, West Bengal, Brahmaputra, Ganga, Mahanadi river system.

Elsewhere : Bangladesh, Nepal, Pakistan.

14. *Salmostoma boopsis* (Day)

1873. *Chela boopsis* Day, *Proc. zool. Soc. London*, : 708.

1981. *Salmostoma boopsis*, Jayaram, *Handbk. Freshw. Fish. India*, : 74, 75 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.9-10, P.15, V.9, A.14-16 (2/12-14), C.21, LL.38-42.

Head length 5.25 to 5.50 and body depth 5.00 to 5.25 in total length. Eye diameter 2.50 to 3.00 in head length. Cleft of mouth extending to below anterior margin of eye. Dorsal fin inserted in advance of anal fin. 2 to $2\frac{1}{2}$ rows of scales between lateral line and base of pelvic fin. Predorsal scales 22 to 24. Body silvery, with a burnished lateral band. Dorsal, anal, caudal fins edged black.

Distribution : India : Madhya Pradesh, Andhra Pradesh, Maharashtra, S. Kanara, W. ghats, Cauvery river (upper reaches), Krishna river, Mutha-Mula river, Poona.

15. *Salmostoma clupeoides* (Bloch)

1795. *Cyprinus clupeoides* Bloch, *Naturg. Ausland. Fische*, **12** : 49, Pl. 408, fig. 2.

1878. *Chela clupeoides*, Day, *Fish. India* : 602; 1889, Day, *Fauna Br. India, Fish.*, **1** : 366.

1981. *Salmostoma clupeoides*, Jayaram, *Handbk. Freshw. Fish. India* : 74, 75 (distribution and key to species).

Material examined : (i) 3 exs., Anala on Rani Durgawati Samadhi Road, district Jabalpur; V.S. Durve and party; 26.4.1969. (ii) 6 exs., Ghughra fall near Bargi Rest House, district Jabalpur; H. Khajuria and party; 29.6.1965.

Diagnostic characters : D.9(2/7), P.13, V.9, A. 13-15 (2/11-13), C. 19, LL. 80-93.

Head length 5.50 to 5.75 and body depth 5.50 to 7.50 in total length. Eye diameter 4.00 in head length. Snout equal to eye diameter. Cleft of mouth nearly reaches to below first fourth of eye. A well developed knob on the symphysis. Gill rakers 24-29. Keeled portion of ventral profile originates opposite pectoral fin. Suborbital ring of bones almost covering cheek. Dorsal fin inserted half in advance of anal fin. Pectoral fin longer than head but does not touch the pelvic fin. 3 or 4 rows of scales between lateral line and base of pelvic fin. Body uniformly silvery.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Rewa districts, Chambal river), Cauvery, Godavari, Krishna, Narmada and Tapi river system. Deolali, Nasik, Tripura.

Elsewhere : Myanmar.

16. *Salmostoma Phulo Phulo* (Hamilton)

1822. *Cyprinus phulo* Hamilton, *Fish. Ganges* : 262, 384.

1878. *Chela Phulo*, Day, *Fish. India* : 602, Pl. 153, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 365.

1981. *Salmostoma phulo phulo*, Jayaram, *Handbk. Freshw. Fish. India*, : 74, 75 (distribution and key to species).

Material examined : (i) 3 exs., Pariat nala on Katni Road, district Jabalpur; V.V. Rao and party; 25.7.1969.

Diagnostic characters : D.9 (2/7), P. 13, V.8, A. 18-20 (2/16-18), C. 19, LL. 80-87.

Head length 5.50 and body depth 4.50 to 5.00 in total length. Eye diameter 3.50 in head length. Maxilla extending to below the anterior margin of eye. Abdominal profile cutting behind the base of pectoral fin. Third suborbital bone nearly as deep as the uncovered portion of the cheek below it. Gill rakers 13-16. Dorsal fin originates opposite the commencement of anal fin. Caudal fin deeply forked, lower lobe longer. Lateral line curves gently downwards. Body uniformly silvery, with a bright silvery lateral band.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur districts), Andhra Pradesh, Assam, Orissa, West Bengal and Deccan as far southwards as the Tungabhadra and Krishna rivers, also Ganga, Brahmaputra river system.

Elsewhere : Bangladesh.

Subfamily HYPOPHTHALMICHTHYINAE

Genus ***Hypophthalmichthys*** Bleeker

17. ***Hypophthalmichthys molitrix*** (Valenciennes)

Silver Carp

1975. *Hypophthalmichthys molitrix*, Jhingran, *Fish and Fisheries of India*, : 689-697.

1981. *Hypophthalmichthys molitrix*, Jayaram, *Handbk. Freshw. Fish. India*, : 76 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 3/7, V. 1/7, A. 2-3/12-14, LL. 110-115.

Head length 3.55 to 4.62 and body depth 3.81 to 4.62 in total length. Eye diameter 5.33 to 7.54 in head length. Body oblong, compressed. Mouth anterior, wide, cleft not extending to anterior margin of eye. Eyes small, visible from below ventral surface. Upper jaw slightly notched. Lower jaw with a tubercle. Snout bluntly rounded. Abdomen strongly compressed with a sharp keel from breast to vent. Barbels absent. Dorsal fin inserted behind pelvic fin, or above tip of pectoral fin, midway between tip of snout and caudal fin base. Pectoral fin extending beyond origin of pelvic fin. Scales minute, cycloid. Lateral line complete, decurved. Body silvery with blood red spots generally on the caudal peduncle region. Fins dark.

Distribution : An exotic fish introduced into India in 1959. It is now cultured all through India.

Elsewhere : Naturally found in South and Central China and in Amur river drainage, U.S.S.R.

Subfamily RASBORINAE

Genus ***Esomus*** Swainson

Key to Species

1 Lateral line complete or nearly so extending to at least the base of anal fin. Sides plain without any bands ..... *E. barbatus*

– Lateral line absent or nearly so, piercing only 4 to 6 anterior scales. Sides with broad lateral bends ..... *E. danricus*

18. ***Esomus barbatus*** (Jerdon)

1849. *Leuciscus barbatus* Jerdon, *Madras, J. Lit. Sci.*, **15** 322.

1981. *Esomus barbatus*, Jayaram, *Handbk. Freshw. Fish. India*, : 78 (distribution and key to species).

Material examined : (i) 30 exs., Sughna nala on Rewa Road, Amarpatan, district Satna; H.S. Sharma and party; 22.10.1986.

Diagnostic characters : D. 8-9 (2/6-7), P. 15, V. 9, A. 8-9 (3/5-6), C. 19, LL. 30-34.

Head length 4.10 to 5.25 and body depth 4.00 to 6.00 in total length. Eye diameter 3.40 to 4.57 in head length. Snout length slightly longer than eye diameter. Barbels 2 pairs, rostral pair short

and maxillary pair usually extend up to middle of pectoral fin but may be slightly longer or shorter. Lateral line complete and well-defined. Predorsal scales 17 to 19. Circumpeduncular scales 12. Caudal fin forked. Body silvery white, dark above and light below. Sides with broad but indistinct silvery bands passing along middle of body and becoming quite prominent behind pelvic fin.

Distribution : India : Madhya Pradesh (Satna district), Andhra Pradesh, Karnataka, Tamil Nadu.

19. *Esomus danricus* (Hamilton)
Flying barb

1822. *Cyprinus danrica* Hamilton, *Fish. Ganges* : 325, 390, pl. 16, fig. 88.

1878. *Nuria danrica*, Day, *Fish. India*, : 583, pl. 145, fig. 7; 1889, Day, *Fauna Br. India, Fish.*, 1 : 334, fig. 106.

1981. *Esomus danricus*, Jayaram, *Handbk. Freshw. Fish. India*, : 77, 78, text fig. 41 (distribution and key to species).

Material examined : (i) 2 exs., Devtal, near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 15.2.1962. (ii) 1 ex., Gour river near Gourighat on Mandla Road, district Jabalpur; D. Benerji and party; 27.5.1961. (iii) 5 exs., Pariat river on Katni Road, District Jabalpur; H.P. Agrawal and party; 2.11.1965. (iv) 5 ex., Richhai village, district Jabalpur; D.N. Basu and party; 18.11.1964. (v) 1 ex., Baleha tank at Panagar village, district Jabalpur; H.P. Agrawal and party; 31.5.1967. (vi) 2 exs., Hiran river on Katangi Road, district Jabalpur; V.V. Rao and party; 10.6.1969. (vii) 180 exs., Narbada river at Tilwaraghat, district Jabalpur; V.V. Rao and party; 6.8.1969. (viii) 3 exs., Baleha tank at Panagar village, district Jabalpur; Purchased; 28.10.1967. (ix) 5 exs., A nala on way to Rani Durgawati Samadhi, district Jabalpur; V.S. Durve and party; 14.3.1968. (x) 4 exs., Panagar tank on Katni Road, district Jabalpur; V.S. Durve and party; 30.8.1968. (xi) 10 exs., A tank in Tewar village on Shahpura Road, district Jabalpur; V.S. Durve and party; 15.5.1969. (xii) 46 exs., Pariat river on Damoh Road, district Jabalpur; V.S. Durve and party; 5.10.1966. (xiv) 4 exs., Temar river near Bargi village, district Jabalpur; H.P. Agrawal and party; 30.1.1969. (xv) 76 exs., Pariat river on Katni Road, district Jabalpur; V.S. Durve and party; 26.10.1968. (xvi) 70 exs., Budagar village on Katni Road, district Jabalpur; D.S. Mathur and party; 9.9.1971. (xvii) 3 exs., Paswini river near Majhgawan, district Satna; H.S. Sharma and party; 23.10.1986. (xviii) 15 exs., Sughna nala on Rewa Road, Amarpatan, district Satna; H.S. Sharma and party; 22.10.1986. (xix) 5 exs., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 23.9.1985. (xx) 9 exs., Narbada sagar dam area, Khandwa district; H.P. Agrawal and party; 24.9.1985. (xxi) 110 exs., Sharman bandh near Krishnagarh village, Amarpatan, district Satna; H.S. Sharma and party; 21.10.1986. (xxii) 8 exs., Ramdohu river on Chhindwara-Chand Road, district Chhindwara; H.S. Sharma and party; 3.4.1990. (xxiii) 45 exs., Hazara nala near Majhgawan, district Satna; H.S. Sharma and party; 24.10.1986. (xxiv) 14 exs., Nargarha river, district Shahdol, H.P. Agrawal and party; 3.12.1978. (xxv) Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995. (xxvi) 20 exs., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995.

Diagnostic character : D. 8 (2/6), P. 15, V. 9, A.8 (3/5), C. 19, LL. 30-34.

Head length 5.20 to 5.50 and body depth 5.50 in total length. Eye diameter 3.20 to 3.50 in head length. Mouth obliquely directed upwards. Barbels 2 pairs, maxillary pair reaching to base of pelvic fin or even up to caudal fin. Dorsal fin inserted nearer to caudal fin base than to pectoral fin base. Lateral line absent or nearly so, piercing only up to 4 to 6 anterior scales. 2 rows of scales between lateral line and base of pelvic fin. Predorsal scales 17 to 19. Body pale olive above, silvery below, with a broad black lateral band which sometimes may be absent.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Hoshangabad, Jabalpur, Khandwa, Raisen, Rewa, Satna, Shahdol districts, Chambal river, Indravati and Kanha Tiger Reserves), Andhra Pradesh, Assam, Bihar, Gujarat, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Malaya, Malaya-Archipelago, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand.

Genus ***Danio*** Hamilton

Key to Species

1 Dorsal fin with 9-17 branched rays. Lateral line complete 2

– Dorsal fin with 6-7 branched rays. Lateral line incomplete or absent ..... *D. rerio*

2. Barbels 2 pairs. Dorsal fin with 9-12 branched rays 3

– Barbels 1 pair, very short, maxillary pair. Dorsal fin with 15-17 branched rays. ..... *D. devario*

3. Both pairs of barbels much longer than eye diameter. Lateral colour bands breaking up anteriorly to form a mottled pattern ..... *D. dangila*

– Both pairs of barbels shorter than eye diameter. Lateral colour bands not breaking up anteriorly to form a mottled pattern 4

4. Several well marked and uniform lateral bands. Dorsal and anal fins with a broad, bluish band. ..... *D. aequipinnatus*

– A single lateral dark band extending from behind head to base of caudal fin. Dorsal and anal fins without any bluish band. ..... *D. neilgherriensis*

20. ***Danio aequipinnatus*** (McClelland)
Giant Danio

1839. *Perilampus aequipinnatus* McClelland, *Asiat. Res.*, **19**(2) : 393, pl. 60, fig. 1.

1849. *Perilampus malabaricus* Jerdon, *Madras, J. Lit. and Sci.*, **15** : 325 (Malabar coast).

1981. *Danio aequipinnatus*, Jayaram, *Handbk. Freshw. Fish. India* : 80, 81 (distribution and key to species).

1991. *Danio aequipinnatus*, Barman, *Rec. zool. Surv. India, Occ. Paper No.*, **137** : 22-27, text figs. 3, 3a and 3b (Synonymy and revision).

Material examined : (i) 7 exs., Balsagar village, district Jabalpur; S. Chakrapany and party; 3.12.1960. (ii) 4 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 24.5.1962. (iii) 3 exs., Narbada river at Gandhi Vihar, Amarkantak, district Shahdol; S. Chakrapany and party; 17.5.1962. (iv) 2 exs., Pariat tank, district Jabalpur; H.P. Agrawal and party; 15.9.1967. (v) 5 exs., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995. (vi) 6 exs., Reechha river, near Raisen, district Raisen; H.S. Sharma and party; 2.10.1995.

Diagnostic characters : D.13—15 (2-3/11-12), P. 13, V. 8, A. 16-18 (2-3/14-15), C. 19, LL. 32-37.

Head length 4.50 to 5.25 and body depth 4.00 to 4.50 in total length. Eye diameter 3.00 to 4.00 in head length. Eye provided with a backwardly directed preorbital spinous process at the anterior margin of eye. A blunt knob at the symphysis of lower jaw. Barbels 2 pairs, rostral pair equal to half of eye and maxillary pair shorter than rostral pair. Dorsal fin inserted midway between centre of eyes and base of caudal fin. Pectoral fin extending up to base of pelvic fin. Lateral line complete. 1½ to 2½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 13 to 15. Body yellowish white. A wide bluish band extends along the body from the eye to the centre of the base of caudal fin; below it is another narrow band; two other lighter bands above the central one. Dorsal and anal fins with a broad bluish band along their outer half.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Raisen, Shahdol districts, Kanha and Indravati Tiger Reserves). Throughout India.

Elsewhere : Bangladesh, China, Myanmar. Nepal, Pakistan, Sri Lanka, Thailand.

Remark : The preorbital spinous process at the anterior rim of the orbit in this species seems to have overlooked by earlier Indian workers. I have already pointed out this preorbital structure in this species (Barman, 1985, 1988, 1991). It is preoccupied (Rao and Sharma, 1972).

21. ***Danio dangila*** (Hamilton)

1822. *Cyprinus dangila* Hamilton, *Fish. Ganges,* : 321, 309.

1981. *Danio dangila,* Jayaram, *Handbk. Freshw. Fish. India,* : 80, 81 (Distribution and key to species).

1991. *Danio dangila,* Barman, *Rec. zool. Surv. India, Occ. Paper No.* 137 : 38-41 (Synonymy and revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 2/9-11, A. 2-3/12-15, P.1/11-12, V.1/6-7, C.19, LL. 36-40.

Head length 5.00 and body depth 3.50 to 4.00 in total length. Eye diameter 3.00 in head length. Lower jaw longer, with a knob at the symphysis. Barbels 2 pairs, both pairs of barbels much longer than eye diameter. Anal fin inserted below posterior dorsal fin rays. Caudal fin emarginate. Lateral line complete. 1½ to 2½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 16 to 18. Body olive on back, silvery on abdomen. Lateral colour bands breaking up anteriorly to form a mottled pattern. A dark spot behind gill cover. Anal fin with two or three blue stripes.

Distribution : India : Madhya Pradesh, Arunachal Pradesh, Assam, Bihar, Manipur, Meghalaya, Nagaland, Tripura, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal.

Remark : *D. dangila* is the only species among the species of *Danio* having the longest 2 pairs of barbels, so far known, which enable the species to be separated from other species of the genus (Barman, 1991 : 41).

22. ***Danio devario*** (Hamilton)
Danio

1822. *Cyprinus devario Hamilton, Fish. Ganges,* : 341, 393, Pl. 6, fig. 94.

1981. *Danio devario,* Jayaram, *Handbk. Freshw. Fish. India,* : 80 (distribution and key to species).

1991. *Danio devario,* Barman, *Rec. zool. Surv. India, Occ. Paper No.* 137 : 41-44, text fig. 9 (Synonymy and revision).

Material examined : (i) 15 exs., Hiron river on way to Katangi, district Jabalpur; R.C. Sharma and party; 3.1.1961. (ii) 3 exs., Pariat tank, district Jabalpur; R.C. Sharma and party; 4.1.1961. (iii) 1 ex., Narbada river at Tilwaraghat, district Jabalpur; P. Singh and party; 30.1.1962, (iv) 5 exs., A canal near Pachpedi, district Jabalpur; R.C. Sharma and party; 14.12.1961. (v) 1 ex., Barha village on Rani Durgawati Samadhi Road, district Jabalpur; R. C. Sharma and party; 21.12.1961. (vi) 1 ex., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 27.3.1962. (vii) 3 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 8.5.1962. (viii) 4 exs., Narbada river at doodh dhara, Amarkantak, district shahdol; 27.5.1962. (ix) 1 ex., Pachpara river on Jabalpur-Niwas Road, district Jabalpur; R.C. Sharma and party; 21.11.1961. (x) 1 ex., A nala North of Dindori, Mandla district; J.S. Bhatti and party; 9.11.1963. (xi) 4 exs., Temar river near Bargi village, district Jabalpur; H.P. Agrawal and party; 30.1.1969. (xii) 1 ex., A tank in Gandhigram, district Jabalpur; Purchased; 7.2.1968. (xiii) 3 exs., Pariat river on Katni road, district Jabalpur; V.S. Durve and party; 26.10.1968. (xiv) 1 ex., Narbada river at Barman bridge, district Narsinghpur; H. Khajuria and party; 14.12.1964. (xv) 10 exs., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (xvi) 2 exs., Hiran river on Katni Road, district Jabalpur; P.D. Gupta and party; 21.7.1984. (xvii) 55 exs., Sughna nala on Rewa Road, Amarpatan, district Stana; H.S. Sharma and party; 22.10.1986. (xviii) 12 exs., Panghat nala 17 kms. away from Nagod, district Satna; H.S. Sharma and party; 22.10.1986. (xix) 1 ex., Sakkar river, district Narsinghpur; H.P. Agrawal and party; 17.10.1989. (xx) 3 exs., Singri river, district Narsinghpur; H.P. Agrawal and party; 14.10.1989. (xxi) 16 exs., Sangam river on Jamai-Damua Road, district Chhindwara; H.S. Sharma and party; 4.4.1990. (xxii) 10 exs., A nala near Katawadi, district Betul; H.S. Sharma and party; 22.3.1990. (xxiii) 1 ex., Pench river on Amarwada Road, district Chhindwara; H.S. Sharma and party; 5.4.1990. (xxiv) 10 exs., A nala near Katawadi, district Betul; H.S. Sharma

and party; 22.3.1990. (xxv) 1 ex., Pench river at Jhilimili village, district Chhindwara; H.S. Sharma and party; 6.5.1990. (xxvi) 1 ex. Dudhi river Patalkot, district Chhindwara; H.S. Sharma and party; 1.3.1994. (xxvii) 2 exs., Gayani river Patalkot, district Chhindwara; H.S. Sharma and party; 28.2.1994. (xxviii) 3 exs., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986. (xxix) 6 exs., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xxx) 15 exs., Betwa river, district Raisen; H.S. Sharma and party; 3.10.1995. (xxxi) 75 exs., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995. (xxxii) 35 exs., Reechha river near Raisen, district Raisen; H.S. Sharma and party; 2.10.1995. (xxxiii) 2 exs., Newaj river at Bara-pul, Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995. (xxxiv) 5 exs., Newaj river, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D.17-20 (2-3/15-17), P.13, V.9, A. 18-20 (2-3/16-17), C.19, LL. 41-52.

Head length 5.00 to 5.25 and body depth 3.25 to 4.00 in total length. Eye diameter 3.00 in head length. Lower jaw longer. Maxilla extending below front margin of eye. Third suborbital bone broad. Barbels 1 pair, maxillary pair, very short or totally absent. Dorsal fin commences midway between anterior margin of eye and base of caudal fin. Caudal fin lunate. Lateral line complete. 2½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 13 to 17. Body greenish on dorsal surface and silvery on sides. Three blue narrow bands divided by yellow bands extending backwards to base of caudal fin.

Distribution : India : Madhya Pradesh (Bastar, Betul, Chhindwara, Jabalpur, Mandla, Narsinghpur, Raisen, Rajgarh, Rewa, Satna, Shahdol districts, Chambal river), Andhra Pradesh, Arunachal Pradesn, Assam, Bihar, Gujarat, Meghalaya, Orissa, Rajasthan, Tripura, Uttar Pradesh, West Bengal, Godawari and Krishna river systems.

Elsewhere : Bangladesh, Myanmar, Nepal. Pakistan.

23. ***Danio neilgherriensis*** (Day)

1867. *Paradanio neilgherriensis* Day, *Proc. Zool. Soc. Lond.*, : 296.

1981. *Danio (Danio) neilgherriensis*, Jayaram, *Handbk. Freshw. Fish. India*, : 80-81 (Distribution and key to species).

1991. *Danio neilgherriensis*, Barman, *Rec. zool. Surv. India, Occ. Paper* No. **137** : 54-55, text-fig. 15 (Synonymy and revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.11-14(2-3/9-11), P.15, V.7, A. 13-14 (2/11-12), C.19, LL. 35-38.

Head length 4.50 to 5.00 and body depth 4.00 to 4.25 in total length. Eye diameter 3.00 to 3.50 in head length. Ventral profile more convex than dorsal profile. Barbels 2 pairs, rostral pair shorter than eye diameter and maxillary pair very short. Dorsal fin reaches to above fourth or fifth anal fin ray. Predorsal scales 15 to 18. Lateral line complete. 2½ rows of scales between lateral line and base of pelvic fin. Body greenish on dorsal surface, silvery on sides and purplish tinge along abdomen. A lateral longitudinal dark narrow band extending from behind head to base of caudal fin.

Distribution : India : Madhya Pradesh (Bastar district), Arunachal Pradesh, Tamil Nadu.

24. ***Danio rerio*** (Hamilton)

1822. *Cyprinus rerio* Hamilton, *Fish. Ganges*, : 323.

1981. *Danio (Brachydanio) rerio*, Jayaram, *Handbk. Freshw. Fish. India*, : 80-82 (distribution and key to species).

1991. *Danio rerio*, Barman, *Rec. zool. Surv. India, Occ. Paper* No. **137** : 57-60, text-fig. 17 (Synonymy and revision).

Material examined : (i) 2 exs., Umaria village on Dindori Road, district Jabalpur; S. Chakrapany and party; 23.3.1962. (ii) 1 ex., A canal on Rani Durgawati Samadhi Road, district Jabalpur; S. Chakrapany and party; 22.3.1962. (iii) 1 ex., Pariat river at Imalia village, district Jabalpur; R.C. Sharma and party; 25.10.1961. (iv) 2 exs., Barha village on Rani Durgawati Samadhi Road, district Jabalpur; R.C. Sharma and party;

21.12.1961. (v) 5 exs., Gour river at Padaria village, district Jabalpur; P. Singh and party; 25.4.1962. (vi) 13 exs., Gour river near Gourighat on Mandla Road, district Jabalpur; D. Banerji and party; 27.5.1961. (vii) 1 ex., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 22.9.1961. (viii) 3 exs., Pariat canal, district Jabalpur; H.P. Agrawal and party; 12.6.1968. (ix) 6 exs., Budagar tank on Katni Road, district Jabalpur; H.P. Agrawal and party; 4.5.1968. (x) 25 exs., Baleha tank at Panagar village, district Jabalpur; H.P. Agrawal and party; 22.4.1968. (xi) 4 exs., Temar river near Bargi village, district Jabalpur; H.P. Agrawal and party; 30.1.1969. (xii) 30 exs., Pariat tank, district Jabalpur; H.P. Agrawal and party; 12.6.1968. (xiii) 16 exs., Pariat canal, district Jabalpur; H.P. Agrawal and paraty; 12.6 1968. (xiv) 10 exs., Panagar tank on Katni Road, district Jabalpur; V.S. Durve and party; 30.8.1968. (xv) 3 exs., Supatal on Nagpur Road, district Jabalpur; H.P. Agrawal and party; 15.4.1968. (xvi) 2 exs., Amkhas near Nagpur Road, district Jabalpur; H.P. Agrawal and Party; 19.10.1968. (xvii) 3 exs., Narbada river at Lamataghat, district Jabalpur; V.V. Rao and party; 7.5.1969. (xviii) 156 exs., Narbada river at Bheraghat, district Jabalpur; H.S. Sharma and party; 17.1.1972. (xix) 3 exs., Budagar tank on Katni Road, district Jabalpur; H.S. Sharma and party; 6.2.1971. (xx) 8 exs., Ramdohu river on Chhindwara-Chand Road, district Chhindwara; H.S. Sharma and party; 3.4.1990. (xxi) 2 exs., Hazara nala near Majhgawan, district Satna; H.S. Sharma and party; 24.10.1986. (xxii) 9 exs., Khermer river on Dindori Mandla Road, district Mandla; J. S. Bhatti and party; 5.11.1963. (xxiii) 12 exs., A pond east of Kishpur, district Mandla; J.S. Bhatti and party; 5.11.1963. (xxiv) 23 exs., A pond S.E. of Dindori Rest House, district Mandla; J.S. Bhatti and party; 7.11.1963. (xxv) 2 exs., Kasha Nala North of Dindori, district Mandla; J.S. Bhatti and party; 9.11.1963. (xxvi) 1 ex., Kutrar river on Dindori-Amarkantak Road, district Mandla, J.S. Bhatti and party; 1.11.1963. (xxvii) 12 exs., Hazara nala near Majhgawan, District Satna; H.S. Sharma and party; 24.10.1986. (xxviii) 100 exs., Nargaha river, Shahdol, district Shahdol; H.P. Agrawal and party; 3.12.1978. (xxix) 6 exs., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xxxx) 1 ex., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995. (xxxi) 5 exs., Newaj river, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D. 8-9 (2/6-7), P. 12-13 (1/11-12), V. 8, A. 14-16 (2-3/12-13), C. 19, LL. 26-32.

Head length 5.00 to 5.25 and body depth 4.70 to 5.00 in total length. Eye diameter 3.00 to 3.50 in head length. Lower jaw longer. Maxilla extends before anterior margin of eye. Barbels 2 pairs, rostral pair longer than the diameter of eye and maxillary pair reaching end of opercle. Dorsal fin inserted opposite to anal fin. Lateral line incomplete extending up to base of pelvic fin or totally absent. Predorsal scales 15 to 16. Body with four metallic blue bands separated by three narrow silvery ones along sides, forming three bands on caudal fin. Anal fin with three bands across their rays.

Distribution : India : Madhya Pradesh (Chhindwara, Hoshangabad, Jabalpur, Mandla, Raisen, Rajgarh, Rewa, Satna, Shahdol districts, Chambal river, Kanha Tiger Reserve), Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala (W. Ghats), Meghalaya, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

Genus ***Rasbora*** Bleeker

Key to Species

- Lateral line with 32 to 34 scales. A black lateral stripe along centre of body present. ..... *R. daniconius daniconius*
- Lateral line with 28 to 31 scales. Caudal fin with well-defined blackish hind-border. .... *R. rasbora*

25. ***Rasbora daniconius daniconius*** (Hamilton)
Common rasbora

1822. *Cyprinus daniconius* Hamilton, *Fish Ganges*, : 327, pl. 15, fig. 89.

1878. *Rasbora daniconius*, Day, *Fish. India*, : 584, pl. 146, fig. 2 and 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 336.

1981. *Rasbora daniconius daniconius*, Jayaram, *Handbk. Freshw. Fish. India*, : 84, 85, fig. 43 (distribution and key to species).

Material examined : (i) 2 exs., Gokulpur dam near Engg. College, Jabalpur, District Jabalpur; S. Chakrapany and party; 15.6.1960. (ii) 3 exs., Vedinagar, Devtal, Jabalpur, district Jabalpur; S. Chakrapany and party; 6.7.1960. (iii) 3 exs., Vedinagar, Devtal, Jabalpur, district Jabalpur; S. Chakrapany and party; 18.7.1960. (iv) 3 exs., Barela village, Jabalpur, district Jabalpur; s. Chakrapany and party; 2.1.1961. (v) 2 exs., Hiran river on way to Katangi, Jabalpur, district Jabalpur; R.C. Sharma and party; 2.1.1961. (vi) 8 exs., Pariat tank, Jabalpur, district Jabalpur; R.C. Sharma and party; 4.1.1961. (vii) 1 ex., A stream near Taradehi, district Damoh; H. Khajuria and party; 18.3.1960. (viii) 5 exs., Umaria village, Jabalpur, district Jabalpur; P. Singh and party; 13.10.1961. (ix) 1 ex., A canal on Rani Durgawati Samadhi Road, district Jabalpur; S. Chakrapany and party; 22.3.1962. (x) 1 ex., Narbada river at Gwarighat, Jabalpur, district Jabalpur; S. Chakrapany and party; 28.4.1961. (xi) 1 ex., Pariat river at Imalia village, district Jabalpur; R. C. Sharma and party; 25.10.1961 (xii) 4 exs., Narbada river at Doodh dhara, Amarkantak, Shahdol district; S. Chakrapany and party; 26.5.1962. (xiii) 2 exs., Narbada at Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 26.5.1962. (xiv) 13 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 24.5.1962. (xv) 3 exs., Narbada at Ghughrighat near Haritola, Amarkantak, Shahdol district; S. Chakrapany and party; 29.5.1962. (xvi) 1 ex., Barha village on Rani Durgavati Samadhi Road, district Jabalpur; R.C. Sharma and party; 21.12.1961. (xvii) 2 exs., Narbada at Gandhi Vihar, Amarkantak, district Shahdol; S. Chakrapany and party; 17.5.1962. (xviii) 11 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 8.5.1962. (xix) 7 exs., Pachpara river on Jabalpur-Niwas Road, district Jabalpur; R.C. Sharma and party; 21.11.1961. (xx) 4 exs., Khandari nala on way to City Corporation Water Tank, district Jabalpur; R.C. Sharma and party; 21.12.1961. (xxii) 2 exs., The kund, source of origin of Narbada river, Amarkantak, district Shahdol; S. Chakrapany and party; 25.5.1962. (xxiii) 13 exs., Narbada river at Dindori, district Mandla; Purchased; 31.10.1963. (xxiv) 3 exs., Ghugra fall near Bargi Rest House, district Jabalpur; H. Khajuria and party; 29.6.1965. (xxv) 3 exs., Biza dandi village, Mandla district; S. Chakrapany and party; 3.11.1962. (xxvi) 1 ex., Kanha National Park, Mandla district; H. Khajuria and party; 15.2.1963. (xxvii) 2 exs., Pariat river at Maharajpur, district Jabalpur; S. Chakrapany and party; 7.5.1963. (xxviii) 2 exs., Water fall on Gour river, district Jabalpur; H. Khajuria and party; 15.6.1963. (xxix) 2 exs., Charar nala on Panagar Indrani Road, district Jabalpur; J. S. Bhatti and party; 16.8.1963. (xxx) 6 exs., Machrar river on Dindori Amarkantak Road, Mandla district; J. S. Bhatti and party; 5.11.1963. (xxxii) 5 exs., Narbada river North of Dindori, district Mandla; J.S. Bhatti and party; 9.11.1963. (xxxiii) 2 exs., Kanha National Park, district Mandla; H. Khajuria and party; 12.2.1963. (xxxiv) 74 exs., Baleha tank, Panagar village, district Jabalpur; Purchased; 5.7.1967. (xxxv) 25 exs., Hiran river near Katangi village, district Jabalpur; H.S. Sharma and party; 5.11.1969. (xxxvi) 3 exs., Amkhas on Nagpur Road, district Jabalpur; H.P. Agrawal and party; 19.8.1966. (xxxvii) 1 ex., A tank in Gandhigram village, district Jabalpur; H.P. Agrawal and party; 13.10.1967 (xxxviii) 1 ex., Supatal, Jabalpur, district Jabalpur; H.P. Agrawal and party; 20.11.1967. (xxxix) 1 ex., Amkhas on Nagpur Road, district Jabalpur; H.S. Sharma and party; 23.5.1968. (xl) 1 ex., Rani Durgawati Samadhi on Mandla Road, district Jabalpur; V.V. Rao and party; 20.9.1966. (xli) 2 exs., Narbada river at Barman village, Narsinghpur

district; H. Khajuria and party; 11.12.1964. (xlii) 2 exs., Narbada river at Lamataghat, district Jabalpur; H. Khajuria and party; 7.9.67. (xliii) 13 exs., Tinsara, district Narsinghpur; H. Khajuria and party; 10.12.1964. (xliv) 50 exs., Budagar tank on Katni Road, district Jabalpur; D.S. Mathur and party; 20.3.1974. (xlv) 1 ex., Hiran river Katni Road, district Jabalpur; P.D. Gupta and party; 21.7.84. (xlvi) 20 exs., Behar river near Mukundpur, Amarpatan, district Satna; H.S. Sharma and party; 20.10.1986. (xlvii) 15 exs., Chhota talab Mukundpur, district Satna; H.S. Sharma and party; 20.10.1986. (xlviii) 15 exs., Naya talab at Bhadanpur, district Satna; H.S. Sharma and party; 15.10.1986. (xlix) 2 exs., Barra-ki-Nadi on way to Bhadanpur-Badkula road, district Satna; H.S. Sharma and party; 15.10.1986. (L) 1 ex., Paswini river near Majhgawan, district Satna; H.S. Sharma and party; 23.10.1986. (Li) 110 exs., Budagar tank on Katni Road, district Jabalpur; Purchased; 7.4.1971. (Lii) 55 exs., Usrar talab at Usrar village, district Satna; H.S. Sharma and party; 20.10.1986. (Liv) 15 exs., Tomas river, district Satna; H.S. Sharma and party; 22.10.1986. (Lv) 50 exs., Behar river near Mukundpur, district Satna; H.S. Sharma and party; 20.10.1986. (Lvi) 20 exs., Ramdohu river on way to Chhindwara Chand Road, district Chhindwara; H.S. Sharma and party; 3.4.1990. (Lvii) 3 exs., A nala near Katawadi, district Betul; 22.3.1990; H.S. Sharma and party. (Lviii) 2 exs., Hazara nala near Majhgawan, district Satna; H.S. Sharma and party; 24.10.1986. (Lix) 20 exs., Tons river, Satna district; H.S. Sharma and party; 17.10.1986. (Lx) 5 exs., Ghoghra nala sarang garh, district Rajgarh, R.K. Singh and party; 28.3.1992. (Lxi) 3 exs., Dabra, district Gwalior; H.P. Agrawal and party; 8.2.1995. (Lxii) 10 exs., Nargarha river, Shahdol, district Shahdol; 3.12.1978. (Lxiii) 2 exs., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986. (Lxiv) 15 exs., Betwa river, district Raisen; H.S. Sharma and party; 3.10.1995. (Lxv) 5 exs., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995. (Lxvi) 10 exs., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995. (Lxvii) 50 exs., Reechha river near Raisen, district Raisen; H.S. Sharma and party; 2.10.1995. (Lxviii) 40 exs., Bara pul at Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995.

Diagnostic characters : D. 9 (2/7), P.15, V.9, A.7-8 (2-3/5), C. 19, LL. 32-34.

Head length 4.50 to 5.00 and body depth 4.50 to 6.00 in total length. Eye diameter 3.60 to 4.00 in head length. Cleft of mouth reaches to below anterior margin of eye. Three prominences on lower jaw well-defined. Dorsal profile more convex than ventral profile. Barbels absent. Dorsal fin origin nearer to base of caudal fin than to tip of snout. Pectoral fin not reaching pelvic fin base. 2 rows of scales between lateral line and base of pelvic fin. Predorsal scales 12 to 14. Caudal fin emarginate. Body greenish yellow above, silvery on sides with a blue black lateral band more or less distinct extending from posterior margin of eye to base of caudal fin. Caudal fin lobes often tipped grey.

Distribution : India : Madhya Pradesh (Bastar, Betul, Bhopal, Chhindwara, Damoh, Gwalior, Hoshangabad, Jabalpur, Mandla, Narsinghpur, Rajgarh, Raisen, Rewa, Satna, Shahdol districts, Chambal river, Indravati and Kanha Tiger Reserves). Throughout India.

Elsewhere : Bangladesh, Malay-Archipelago, Myanmar, Nepal, Pakistan, Sri Lanka, Zanzibar.

26. ***Rasbora rasbora*** (Hamilton)

1822. *Cyprinus rasbora* Hamilton, *Fish. Ganges,* : 329, 391, pl. 2, fig. 90.

1878. *Rasbora buchanani,* Day, *Fish. India,* : 584, pl. 145, fig. 10; 1889, Day, *Fauna Br. India, Fish.*, 1 : 337, fig. 107.

1981. *Rasbora rasbora,* Jayaram, *Handbk. Freshw. Fish. India,* : 84, 85, (distribution and key to species).

Material examined: (i) 20 exs., A tank in Gandhigram village, district Jabalpur; Purchased; 7.2.1968.

Diagnostic character : D. 9 (2/7), P. 15, V.9, A.7-8 (2/5-6), C. 19, LL. 28-31.

Head length 5.00 and body depth 4.00 in total length. Eye diameter 3.50 in head length. Cleft of

mouth reaches almost anterior margin of eye. Three prominences on lower jaw well-defined. Ventral profile more convex than dorsal profile. Barbels absent. Dorsal fin origin nearer to base of caudal fin than to anterior margin of eye. Pectoral fin almost reaching pelvic fin base. 2 rows of scales between lateral line and base of pelvic fin. Predorsal scales 12 to 14. Caudal fin emarginate. Body olive brown above, silvery on sides with a faint lateral streak.

Distribution : India : Madhya Pradesh (Jabalpur district), Andhra Pradesh, Coromandel coast, Gangetic provinces.

Elsewhere : Bangladesh, Malaya, Myanmar, Pakistan, Thailand.

Genus ***Aspidoparia*** Heckel

Key to Species

1 Lateral line scales 52-60. Anal fin with nine rays. 4½ rows of scales between lateral line and base of pelvic fin. ..... *A. jaya*

– Lateral line scales 38-42. Anal fin with 10 to 12 rays. 2½ to 3 rows of scales between lateral line and base of pelvic fin .... *A. morar*

27. ***Aspidoparia jaya*** (Hamilton)

1822. *Cyprinus jaya* Hamilton, *Fish. Ganges,* : 333, 392.

1878. *Aspidoparia jaya,* Day, *Fish. India,* : 585, pl. 145, fig. 9; 1889, Day, *Fauna Br. India, Fish.*, **1** : 339.

1981. *Aspidoparia jaya,* Jayaram, *Handbk. Freshw. Fish. India,* : 85, 86 (distribution and key to species).

Material examined : 2 exs., Singri river, district Narsinghpur; H.P. Agrawal and party; 14.10.1989.

Diagnostic characters : D.9 (2/7), P. 15, V.8, A.9 (2/7), C. 21, LL. 52-60.

Head length 5.25 to 5.50 and body depth 5.00 in total length. Eye diameter 3.50 in head length. Mouth considerably overhung by snout. Only about half the cheek covered by suborbital ring of bones. Dorsal fin inserted opposite to pelvic fin insertion, midway between tip of snout and caudal fin base. 4½ rows of scales between lateral line and pelvic fin base. Body silvery, darkest on back.

Distribution : India : Madhya Pradesh (Narsinghpur district), Assam, Gangetic provinces, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal.

28. ***Aspidoparia morar*** (Hamilton)
Aspidoparia

1822. *Cyprinus morar* Hamilton, *Fish. Ganges,* : 264, 384, pl. 31, fig. 75.

1878. *Aspidoparia morar,* Day, *Fish. India,* : 585, pl. 146, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 338, 339, fig. 108.

1981. *Aspidoparia morar,* Jayaram, *Handbk. Freshw. Fish. India,* : 85, 86 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 9-10 (2-3/7-8), P. 15, V.8, A. 10-12 (2/8-10), C. 19, LL. 38-42.

Head length 5.00 to 5.75 and body depth 4.00 to 5.50 in total length. Eye diameter 3.00 to 3.60 in head length. Snout very obtuse. Upper jaw overlapping the lower jaw. Cheeks covered by broad suborbital ring of bones. Barbels absent. Dorsal fin inserted behind pelvic fin origin and nearer to caudal fin base than to tip of snout. $2^1/_2$ to 3 rows of scales between lateral line and pelvic fin base. Back light brown, divided from the silvery side by a burnished streak.

Distribution : India : Madhya Pradesh (Bastar, Rewa districts, Chambal river), Throughout except the western coast and localities south of the Krishna river.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Genus ***Amblypharyngodon*** Bleeker

Key to Species

1 4 or 5 rows of scales between lateral line and base of pelvic fin. 2

– 9 or 10 rows of scales between lateral line and base of pelvic fin ..... *A. mola*

2. Head length less than 5 times in total length (4.75-5.00). A broad silvery lateral band present. 5 rows of scales between lateral line and base of pelvic fin. ..... *A. microlepis*

– Head length more than 5 times in total length (5.00-5.50). No such lateral band. 4 rows of scales between lateral line and base of pelvic fin..... *A. melettina*

29. *Amblypharyngodon melettina* (Valenciennes)

1842. *Leuciscus melettina* Valenciennes, *Hist. nat. Poiss.*, **17** : 304, Pl. 501.

1878. *Amblypharyngodon melettina*, Day, *Fish. India*, : 555, Pl. 134, fig. 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 292.

1981. *Amblypharyngodon melettina*, Jayaram, *Handbk. Freshw. Fish. India*, : 86, 87 (Distribution and key to species).

Material examined : (i) 40 exs., Manyari tank, district Mandla; H. Khajuria and party; 21.5.1964. (ii) 1 ex., Narbada river at Gwarighat, district Jabalpur; D.N. Basu and party; 26.11.1964. (iii) 15 exs., Narbada river at Delhal near Kareli, district Narsinghpur; A.N.T. Joseph and party; 9.12.1964. (iv) 3 exs., Devtal on Nagpur Road, district Jabalpur; M.L. Kosta and party; 12.11.1965. (v) 3 exs., Baleha tank at Panagar village, district Jabalpur; V.S. Durve and party; 29.12.1966.

Diagnostic characters : D. 9-10 (2-3/7), P.15, V.9, A. 7-8 (2-3/5), C. 19, LL. 50-57.

Head length 5.00 to 5.50 and body depth 5.00 to 5.50 in total length. Eye diameter 4.00 in head length. Dorsal fin inserted behind the insertion of pelvic fin. Caudal fin deeply forked. Lateral line incomplete, ceasing after 15 to 20 rows of scales. 4 rows of scales between lateral line and base of pelvic fin. Body greenish on dorsal surface, silvery on sides and beneath. A bright greenish yellow band divides the colours of the back.

Distribution : India : Madhya Pradesh (Jabalpur, Mandla, Narsinghpur districts), Tamil Nadu, Western ghats.

Elsewhere : Sri Lanka.

Remark : In life golden streaked along sides, greenish above (Jayaram, Venkateswarlu and Ragunathan, 1982).

30. *Amblypharyngodon microlepis* (Bleeker)

1853. *Leuciscus microlepis* Bleeker, *Verh. Batav. Genootsch*, **25** : 41.

1878. *Amblypharyngodon microlepis*, Day, *Fish. India*, : 555, Pl. 135, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 291.

1981. *Amblypharyngodon microlepis*, Jayaram, *Handbk. Freshw. Fish. India*, : 86 (distribution and key to species)

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 9 (2/7), P. 14, V.9, A.7 (2/5), C.19, LL. 55-60.

Head length 4.75 to 5.00 and body depth 4.75 to 5.00 in total length. Eye diameter 3.70 to 4.00 in head length. Dorsal fin inserted slightly behind the insertion of pelvic fin and nearer to base of caudal fin than to tip of snout. Lateral line incomplete, ceasing after a few anterior scales. 5 rows of scales between lateral line and base of pelvic fin. Caudal fin forked, lower lobe longer. Body with a broad silvery lateral band.

Distribution : India : Madhya Pradesh (Bastar district), Throughout except Malabar coast.

Elsewhere : Bangladesh.

31. *Amblypharyngodon mola* (Hamilton) **Mola, Indian Carplet**

1822. *Cyprinus mola* Hamilton, *Fish. Ganges*, : 334, 392, pl. 38, fig. 92.

1878. *Amblypharyngodon mola*, Day, *Fish. India* : 555, pl. 135, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 291, fig. 101.

1981. *Amblypharyngodon mola*, Jayaram, *Handbk. Freshw. Fish. India*, : 86 (distribution and key to species).

Material examined : (i) 2 exs., Devtal near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 15.2.1962.

Diagnostic characters : D. 9 (2/7), P. 15, V.9, A.7(2/5), C. 19, LL. 65-75.

Head length 5.00 and body depth 4.00 to 4.25 in total length. Eye diameter 3.50 to 4.00 in head length. Dorsal profile more convex than ventral profile. Dorsal fin inserted behind the insertion of pelvic fin and nearer to caudal fin base than to tip of snout. Caudal fin forked. Lateral line incomplete, ceasing after 15 anterior scales. 9 to 10 rows of scales between lateral line and base of pelvic fin. Body with a silvery lateral band. Dorsal, anal and caudal fins usually with dark markings.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur, Rewa districts, Chambal river), Throughout except Kerala.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Genus ***Barilius*** Hamilton

Key to Species

1 Barbels present 2

– Barbels absent, if present rudimentary 5

2. Four barbels 3

– Two barbels (rostral pair, small) ..... *B. barila*

3. Lateral line scales 60 to 70 ..... *B. shacra*

– Lateral line scales 40-44 4

4. Anal fin short with 9 to 11 rays. Short vertical bars in young ones. Each scale with a black spot in adult. 2½ to 3½ rows of scales between lateral line and pelvic fin base. ..... *B. bendelisis bendelisis*

– Anal fin long with 13 to 16 rays. 10 to 14 vertical bars. 2 to $2^1/_2$ rows of scales between lateral line and pelvic fin base. ..... *B. vagra vagra*

5. Body without vertical bars 6

– Body with vertical bars 8

6. Body uniformly silvery. Lateral line scales 40. ..... *B. evezardi*

– Body with two rows of spots. Lateral line scales 70 to 94. 7

7. Lateral line scales 70-75. 3½ to 4½ rows of scales between lateral line and base of pelvic fin, predorsal scales 30. ..... *B. tileo*

– Lateral line scales 88-94. 4½ to 5 rows of scales between lateral line and base of pelvic fin. Predorsal scales 40. ..... *B. bola*

8. Body with 7-11 vertical bars. Anal fin with 10-11 branched rays. Dorsal fin with 7 branched rays. head length 4.75 to 5.25 in total length ..... *B. barna*

– Body with 15 vertical bars. Anal fin with 12-14 branched rays. Dorsal fin with 8-9 branched rays. head length 4.30 to 4.50 in total length. ..... *B. gatensis*

32. ***Barilius barila*** (Hamilton)

1822. *Cyprinus barila* Hamilton, *Fish. Ganges*, : 267, 384.

1981. *Barilius barila*, Jayaram, *Handbk. Freshw. Fish. India*, : 88, 89 (distribution and key to species).

Material examined: (i) 35 exs., Pench river near Singodi village, district Chhindwara; H.S. Sharma and party; 5.4.1990. (ii) 2 exs., Sangam river near Sukri village on Jamai-Damua Road, district Chhindwara; H.S. Sharma and party; 4.4.1990.

Diagnostic characters : D.9 (2/7), P. 13, V.9, A. 13-14 (3/10-11), C. 19, LL. 43-46.

Head length 5.00 to 5.50 and body depth 5.20 to 5.50 in total length. Eye diameter 3.20 to 4.00 in head length. Maxilla reaches to below anterior third of eye. Third suborbital bone wide and almost touching preopercular ridge. Barbels 1 pair, rostral pair, small. Dorsal fin inserted midway between the hind border of eye and caudal fin base, almost entirely in advance of anal fin. $1^1/_2$ to 2 rows of scales between lateral line and pelvic fin base. Predorsal scales 18. Body silvery, with 14-15 vertical blue bars on side.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Rewa districts, Chambal river), Andhra Pradesh, Karnataka, N. India, N.E. India, Orissa.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

33. *Barilius barna* (Hamilton)

1822. *Cyprinus barna* Hamilton, *Fish. Ganges*, : 268, 384.

1981. *Barilius barna*, Jayaram, *Handbk. Freshw. Fish. India*, : 88, 89 (distribution and key to species).

Material examined : (i) 1 ex., Singri river, Narsinghpur district; H.P. Agrawal and party; 14.10.1989. (ii) 60 exs., Pench river at Jhilimili village, district Chhindwara; H.S. Sharma and party; 6.4.1990. (iii) 10 exs., Narsingh talab, Narsinghpur, district Narsinghpur; H.P. Agrawal and party; 13.10.1989.

Diagnostic characters : D. (2/7), P. 15, V.9, A. 13-14 (3/10-11), C. 19, LL. 39-42.

Head length 4.75 to 5.25 and body depth 3.50 to 4.00 in total length. Eye diameter 2.50 to 3.50 in head length. Maxilla extends to below the first third of the orbit. Third suborbital bone thrice as deep as the uncovered portion of the cheek below it. Barbels absent or very short. Dorsal fin inserted midway between the orbit and the caudal fin base. 2½ rows of scales between lateral line and pelvic fin base. Predorsal scales 16. Body dull green with 7 to 11 vertical bands on side. Dorsal and caudal fins edged black.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Narsinghpur, Rewa districts), Brahmaputra, Ganga, Godavari, Krishna, Mahanadi river systems.

Elsewhere : Bangladesh, Myanmar, Nepal.

34. *Barilius bendelisis bendelisis* (Hamilton)
Hill trout

1807. *Cyprinus bendelisis* Hamilton, *Journ. Mysore*, 3 : 345, pl. 32.

1981. *Barilius bendelisis bendelisis*, Jayaram, *Handbk. Freshw. Fish. India*, : 88, 89 (distribution and key to species).

Material examined : (i) 65 exs., Narbada river at Haritola, Amarkantak, district Shahdol; S. Chakrapany and party; 21.5.1962. (ii) 50 exs., Narbada river at Ghugrighat near Haritola, Amarkantak, district Shahdol; S. Chakrapany and party; 29.5.1962. (iii) 18 exs., Narbada river at Bheraghat, district Jabalpur; J.S. Bhatti and party; 5.2.1964. (iv) 2 exs., Narbada river, South-West of Bilpather village, district Jabalpur; J.S. Bhatti and party; 26.3.1964. (v) 2 exs., A stream passing through Korhia village, district Mandla; J.S. Bhatti and party; 28.10.1963. (vi) 16 exs., Narbada river near Mahadwari village, district Mandla; J.S. Bhatti and party; 4.11.1963. (vii) 12 exs., Narbada river near Mohania village, district Mandla; H. Khajuria and party; 23.11.1963. (viii) 20 exs., Narbada river at Shahpura Railway Bridge, district Jabalpur; V.S. Durve and party; 8.3.1968. (ix) 11 exs., Narbada river at Bheraghat, district Jabalpur; H.P. Agrawal and party; 18.6.1966. (x) 14 exs., Narbada river at Tilwaraghat on Nagpur Road, district Jabalpur; Rajaram and party; 16.6.1966. (xi) 100 exs., Narbada river at Sandiya 12 Km. North of Pipariya, district Hoshangabad; H. Khajuria and party; 16.12.1964. (xii) 13 exs., Narbada river at Gwarighat, district Jabalpur; H. Khajuria and party; 23.4.1966. (xiii) 1 ex. Hiran river on Katni Road, district Jabalpur; V.S. Durve and party; 5.10.1966. (xiv) 3 exs., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.6.1969. (xv) 300 exs., Pench river at Jhilimili village, district Chhindwara; H.S. Sharma and party; 6.4.1990. (xvi) 85 exs., Dudhi river at Patalkot, district Chhindwara; H.S. Sharma and party; 1.3.1994. (xvii) 30 exs., Gayni river at Patalkot, district Chhindwara; H.S. Sharma and party; 28.2.1994. (xviii) 1 ex., Singri river, district Narsinghpur; H.P. Agrawal and party; 14.10.1989. (xix) 50 exs., A nala near Katawadi, district Betul; H.S. Sharma and party; 22.3.1990. (xx) 50 exs., Gayni river at Patalkot, district Chhindwara; H.S. Sharma and party; 28.2.1994.

Diagnostic characters : D.9 (2/7), P.15, V.9, A.9-11 (2-3/7-8), C. 19, LL. 40-43.

Head length 4.60 to 5.25 and body depth 4.25 to 5.25 in total length. Eye diameter 4.20 to 4.60 in head length. Maxilla reaches to below anterior third of eye. Barbels 2 pairs, short, rostral pair sometimes absent. Dorsal fin inserted nearer to caudal fin base than to tip of snout. Anal fin inserted just before the posterior end of dorsal fin base. Caudal fin forked, lower lobe slightly longer.

2½ to 3½ rows of scales between lateral line and pelvic fin base. Predorsal scales 20. Body slaty grey above, purplish silvery below. Young specimens have vertical bands on sides which become indistinct in adult specimens. Each scale with a black spot at its base in adult specimen. No spot in young specimens.

Distribution : India : Madhya Pradesh (Bastar, Betul, Chhindwara, Hoshangabad, Jabalpur, Mandla, Narsinghpur, Rewa, Shahdol districts, Chambal river), Throughout except Kerala.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

35. ***Barilius bola*** (Hamilton)

1822. *Cyprinus bola Hamilton, Fish. Ganges,* : 274, 285.

1878. *Barilius bola,* Day, *Fish. India* : 594, pl. Cxlix, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 352, fig. 110.

1981. *Barilius bola,* Jayaram, *Handbk. Freshw. Fish. India,* : 88, 90 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.10-11 (3/7-8), P.13, V.9, A.13(3/10), C.19, LL 88-95.

Head length 4.50 to 4.60 and body depth 5.00 to 6.00 in total length. Eye diameter 4.50 to 7.00 in head length. Mouth deeply cleft. Maxilla extending by about an eye diameter beyond posterior margin of eye. A knob above symphysis of lower jaw. Suborbital bone wider than opercle. Barbels absent. Dorsal fin inserted midway between angle of preopercle and caudal fin base. 4½ to 5 rows of scales between lateral line and pelvic fin base. Predorsal scales 40. Body silvery with two or more vertical rows of bluish blotches along sides. Lower half of dorsal fin greyish. Caudal fin orange, tinted with grey and black.

Distribution : India : Madhya Pradesh (Chambal river, Rewa district), Assam, Bihar, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

36. ***Barilius evezardi*** Day

1872. *Barilius evezardi* Day, *J. Asiat. Soc. Bengal,* **41** : 326, Pl. 2.

1981. *Barilius evezardi,* Jayaram, *Handbk. Freshw. Fish. India,* : 89, 90 (distribution and key to species).

Material examined : (i) 4 exs., Hiran river on Katangi Road, district Jabalpur; H.P. Agrawal and party; 2.11.1965. (ii) 2 exs., Pariat river on Katni Road, district Jabalpur; H.P. Agrawal and party; 2.11.1965. (iii) 1 ex., A nala on Rani Durgawati Samadhi Road, district Jabalpur; H.P. Agrawal and party; 24.11.1964.

Diagnostic characters : D.9(2/7), P.13, V.9, A.14-15 (2/12-13), C.19, LL.40.

Head length 5.50 and body depth 5.00 to 5.50 in total length. Eye diameter 3.00 in head length. A well developed knob at the symphysis. Maxilla reaches to below anterior margin of the eye. Suborbital ring of bones rather wide, the third being more than twice as deep as the uncovered portion of the cheek below it. Barbels absent. Dorsal fin inserted almost midway between posterior margin of eye and tip of caudal fin, the last half being above the anal fin. 2 rows of scales between lateral line and base of pelvic fin. Body uniformly silvery, with a burnished silvery lateral band. Dorsal and caudal fin edged black.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Jabalpur districts), Andhra Pradesh, Maharashtra.

37. ***Barilius gatensis*** (Valenciennes)

1844. *Leuciscus gatensis* Valenciennes, *Hist. nat. Poiss.*, **18** : 309, pl. 503.

1889. *Barilius gatensis,* Day, *Fauna Br. India, Fish.*, **1** : 349.

1981. *Barilius gatensis,* Jayaram, *Handbk. Freshw. Fish. India,* : 89, 90 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.10-12 (2-3/8-9), P.15, V.9, A. 15-17 (3/12-14). LL.39-40.

Head length 4.30 to 4.50 and body depth 4.00 to 4.50 in total length. Eye diameter 3.00 to 4.50

in head length. Maxilla extending to below middle of eyes. Barbels two pairs, very minute, sometimes absent. Dorsal fin inserted midway between middle of caudal fin and tip of snout, extending to above the third anal fin ray. 2½ rows of scales between lateral line and base of pelvic fin. Body silvery grey, with 13 to 15 vertical bars descending from back. Bars more or less broken up in the adult. Dorsal and anal fins with dark base and light margins.

Distribution : India : Madhya Pradesh (Bastar district), Coorg, Karnataka, Malabar, Nilgiris, Peninsular India, Travancore-Cochin, Western Ghats, Cauvery river (Srirangapatnam).

Remark : Adult examples have a number of papillae on jaws and are with 13 or 14 bars (Jayaram, Venkateswarlu, Ragunathan, 1982).

38. ***Barilius shacra*** (Hamilton)

1822. *Cyprinus shacra* Hamilton, *Fish. Ganges*, : 271, 385.

1981. *Barilius shacra*, Jayaram, *Handbk. Freshw. Fish. India*, : 89 (distribution and key to species).

Material examined : (i) 54 exs., Narbada river at Tilwaraghat, district Jabalpur; H.P. Agrawal and party; 25.6.1964. (ii) 21 exs., Narbada river at Handia, district Hoshangabad; H. Khajuria and party; 31.12.1965. (iii) 17 exs., Narbada river at Joga, district Hoshangabad; H.P. Agrawal and party; 24.12.1965. (iv) 13 exs., Narbada river at Shahpura Railway Bridge, district Jabalpur; V.S. Durve and party; 15.4.1967.

Diagnostic characters : D.9 (2/7), P.15, V.8, A.10 (2/8), C.19, LL. 60-70.

Head length 5.00 to 5.25 and body depth 5.00 in total length. Eye diameter 3.50 to 4.00 in head length. Third suborbital bone two thirds as wide as the uncovered portion of the cheek below it. Barbels 2 pairs, rostral pair slightly longer than the maxillary pair. Last dorsal fin ray above the first anal fin ray. Six outer pectoral fin rays strong, more especially in adult specimens. 7 rows of scales between lateral line and base of pelvic fin. Predorsal scales 25. Body olive on dorsal surface, pinkish silvery below. About 12 incomplete bars from the back towards the lateral line. Upper third of the dorsal fin with a dark bar.

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur districts), Brahmaputra, Ganga, Narmada, Yamuna rivers.

Elsewhere : Bangladesh, Nepal.

39. ***Barilius tileo*** (Hamilton)

1822. *Cyprinus tileo Hamilton, Fish. Ganges*, : 276.

1878. *Barilius tileo*, Day, *Fish. India* : 593, Pl. 149, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 351.

1981. *Barilius tileo*, Jayaram, *Handbk. Freshw. Fish. India*, : 89, 90 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.9 (2/7), P.14, V.9, A.13 (3/10), C.20, LL. 70-85.

Head length 4.70 to 5.25 and body depth 4.70 in total length. Eye diameter 4.00 to 5.50 in head length. Upper jaw slightly longer when the mouth is closed. Maxilla reaches posteriorly beneath the middle of eye. Suborbital ring of bones broad, the third being about equal to twice the extent of the uncovered portion of the cheek below it. Ventral profile more convex than the dorsal profile. Barbels if present rudimentary or entirely absent. Dorsal fin commences midway between hind margin of eye and caudal fin base. Caudal deeply forked. 3½ to 4½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 30. Body bluish on the back silvery below with two or more rows of blue blotches or spots on it.

Distribution : India : Assam, Bihar, E. Himalayas, Madhya Pradesh, W. Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

40. ***Barilius vagra vagra*** (Hamilton)

1822. *Cyprinus vagra* Hamilton, *Fish. Ganges*, : 269, 385.

1889. *Barilius vagra*, Day, *Fauna Br. India Fish.*, **1** : 345.

1981. *Barilius vagra vagra*, Jayaram, *Handbk. Freshw. Fish. India*, : 89 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river,

Jabalpur, district Jabalpur; Purchased; 23.9.1960. (ii) 1 ex., Neighbouring place on way to Jabalpur-Shahpura Road, district Jabalpur; S. Chakrapany and party; 30.12.1960.

Diagnostic characters : D.9 (2/7), P.16, V.9,A. 13-16 (2-3/11-13), C.19, LL. 42-44.

Head length 5.00 to 5.50 and body depth 5.00 to 6.00 in total length. Eye diameter 3.50 to 4.00 in head length. Maxilla reaches posteriorly to below middle of eye. Barbels 2 pairs, maxillary pair very short, rostral pair about half as long as head. Dorsal fin inserted nearer to caudal fin base than to tip of snout. Anal fin inserted just before the posterior end of dorsal fin base. Predorsal scales 20. Caudal fin forked. 2 to 2½ rows of scales between lateral line and base of pelvic fin. Body silvery with 10 to 14 bluish bars descending from back to lateral line. Caudal fin edged grey.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur, Rewa districts), Bihar, North India (Brahmaputra, Ganga, Indus and Yamuna rivers), Punjab, West Bengal, W. Himalayas, Below Krishna river system.

Elsewhere : Bangladesh, Nepal, Pakistan, Sri Lanka.

Ramark : Number of bars on body from 10 to 13 and anal fin rays from 14 to 16 (Jayaram, Venkateswarlu, Ragunathan, 1982).

Subfamily CYPRININAE

Genus ***Cyprinus*** Linnaeus

41. ***Cyprinus carpio carpio*** Linnaeus
Common carp

1758. *Cyprinus carpio* Linnaeus, *Syst. Nat. ed. 10,* **1** : 525.

1981. *Cyprinus carpio carpio,* Jayaram, *Handbk. Freshw. Fish. India,* : 94 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.3-4/17-22, P.1/15-16, V.2/8-9, A.3/5, C.17-19, LL. 30-40.

Head length 4.50 in total length. Moderately deep and slightly compressed body. Mouth surrounded by fleshy lips, directed forwards, protrusible. Cleft not extending to anterior margin of eye. Maxillary protractile, reaching to anterior nostril. Eyes placed relatively high on head. Teeth absent. Barbels 2 pairs, one pair each of rostral and maxillary. Dorsal fin long inserted above tip of pectoral fin. The last spine of dorsal fin strongest and serrated. Lateral line complete. Scales large, Pentagonal, Cycloid. Body dark on dorsal surface, golden yellow on sides and white on belly. Fins dark shot with pink.

Distribution India : Madhya Pradesh (Rewa district).

Its original home is China and Japan. This fish was introduced in India from Sri Lanka in 1939.

Remark : It is an exotic fish naturally found throughout America, China, Europe, Japan, Korea and Taiwan. At present this common carp of Asia enjoys a global distribution especially in the tropical and temperate regions.

Three varieties of this fish are known :

1. *Cyprinus carpio communis* (Scale carp)- Body fully covered by regularly arranged rows of scales. This is supposed to be the original form (recorded from Madhya Pradesh).
2. *Cyprinus carpio specularis* Lacepede (Mirror Carp) Body covered unevenly with a few large and bright scales. A large area of the body however is without scales.
3. *Cyprinus carpio nudus* Bloch (Leather Carp)- Body almost without scales and has a leathery appearance.

Genus ***Oreichthys*** H.M. Smith

42. ***Oreichthys cosuatis*** (Hamilton)

1822. *Cyprinus cosuatis* Hamilton, *Fish. Ganges,* : 338, 392.

1937. *Cyprinus cosuatis,* Hora, *Rec. Indian Mus.,* **39**(4) : 321-323 (systematic position discussed).

1981. *Oreichthys cosuatis,* Jayaram, *Handbk. Freshw. Fish. India,* : 97 (distribution).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.11 (3/8), P.13, V.9, A.7 (2/5), C.19, LL.22.

Head length 4.00 to 4.50 and body depth 3.30 in total length. Eye diameter 2.50 to 2.75 in head length. Dorsal fin without any osseous ray, it inserted midway between tip of snout and caudal fin base, its upper edge is oblique and its height exceeds that of body depth below it. Head is provided with numerous sensory folds. Lateral line incomplete. 2 rows of scales between lateral line and pelvic fin base. Predorsal scales 8 to 9. Body silvery. Scales with dark bases. Dorsal fin with a black band along the top and another across its middle. A black band on anterior anal fin rays.

Distribution : India : Madhya Pradesh (Hoshangabad district), Andhra Pradesh, Karnataka, Kerala, Maharashtra, West Bengal.

Elsewhere : Bangladesh, Pakistan, Thailand.

Remark : Hora (1937b) discussed the systematic position of this species. The most remarkable feature of the species appears to be the presence of numerous fine, parallel sensory folds on the head. This feature shares with the fishes of the genus ***Cyclocheilichthys*** Bleeker, but in other respects it is quite different (Hora, 1937 a : 18).

Genus ***Puntius*** Hamilton

Key to Species

1 Barbels present 2

– Barbels absent 15

2. Barbels two pair 3

– Barbels one pair 8

3. Last unbranched dorsal fin ray non-osseous, weak articulated 4

– Last unbranched dorsal fin ray osseous, strong 5

4. Lateral line scales 41 ..... *P. curmuca.*

– Lateral line scales 27 to 32 ..... *P. jerdoni*

5. A finger like mark on caudal peduncle. Last unbranched dorsal fin ray serrated. Between lateral line and pelvic fin base 3½ to 4½ scales 6

– No such finger like mark on caudal peduncle. Last unbranched dorsal fin ray smooth. Between lateral line and pelvic fin base 3 scales. ..... *P. chilinoides*

6. Lateral line scales 26 to 28. Between lateral line and anal fin base 2½ to 3½ scales. Between lateral line and dorsal fin base 3½ to 4½ scales. Preanal scales 14 or 15. Circumpeduncular scales 10 or 11 ..... *P. sarana spilurus*

– Lateral line scales more than 28. Between lateral line and anal fin base 4½ scales. Between lateral line and dorsal fin base 5½ to 6½ scales. Preanal scales 16 to 18. Circumpeduncular scales 7 or 8. 7

7. Predorsal scales 10 or 11. Prepelvic scales 6. Preanal scales 16 ..... *P. sarana sarana.*

– Predorsal scales 8 to 10. Prepelvic scales 7 or 8. Preanal scales 16 to 18. ..... *P. sarana subnasutus*

8. Lateral line scales 35 and above (40 to 43) ..... *P. kolus*

– Lateral line scales less than 35 9

9. Last unbranched dorsal fin ray strong, osseous 10

– Last unbranched dorsal fin ray not osseous, if so very feeble 11

10. Body with two conspicuous dark blotches, first between 21st and 23rd scales and another near the gill opening. A dark mark at base of anterior dorsal fin ray also present. 3 or 3½ rows of scales between lateral line and base of pelvic fin ..... *P. chola*

– Body with a single blotch at caudal fin base. 2½ rows of scales between lateral line and base of pelvic fin. ..... *P. dorsalis*

11. A finger like oval dark blotch on caudal fin base, on 12th to 16th scale ..... *P. filamentosus*

– No such finger like mark on caudal fin base 12

12. Body with colour bands 13

– Body without colour bands 14

13. Body with three vertical colour bands. Pectoral fin extending to pelvic fin. Dorsal fin inserted midway between tip of snout and caudal fin base. Lateral line scales 20-23. ..... *P. arulius arulius*

– Body without vertical colour bands. A light band along the side. Pectoral fin not extending to pelvic fin. Dorsal fin inserted nearer to tip of snout than to caudal fin base. Lateral line scales 23 to 26 ..... *P. melanostigma*

14. A conspicuous dark spot at base of caudal fin present. Eye diameter 3.50 in head length. Body depth 4.20 to 5.00 in total length. .... *P. amphibius*

– A dark spot at base of caudal fin absent. Eye diameter 4.50 to 5.00 in head length. Body depth 4.00 in total length..... *P. arenatus*

15. Dorsal spine strong, osseous 16

– Dorsal spine weak, articulated 21

16. Dorsal spine serrated 17

– Dorsal spine smooth ..... *P. sophore*

17. Lateral line scales 36 to 39. 5½ to 6 rows of scales between lateral line and pelvic fin base. Predorsal scales 15. ..... *P. guganio*

– Lateral line scales 20 to 26. 3 to 4½ rows of scales between lateral line and pelvic fin base. Predorsal scales 7 to 11. 18

18. Body with vertical colour bands. 19

– Body without vertical colour bands. 20

19. Dorsal spine long, longer than head length and body depth. Body with two vertical bands. Lateral line with 23 or 24 scales. .... *P. gelius*

– Dorsal spine short, shorter than or equal to head length and body depth. Body with four vertical bands. Lateral line with 20 to 23 scales ..... *P. phutunio*

20. Body depth 2.40 to 2.67 in total length .... *P. conchonius*

– Body depth 3.00 to 3.50 in total length. .... *P. ticto*

21. Lateral line with 43 scales. Predorsal scales 14. ..... *P. punjabensis*

– Lateral line with 20 to 24 scales. Predorsal scales 8 to 10 22

22. Lateral line with 20 to 22 scales. 3 rows of scales between lateral line and pelvic fin base. ..... *P. vittatus*

– Lateral line with 23 to 24 scales. $4^1/_2$ rows of scales between lateral line and pelvic fin base. ..... *P. waageni*

43. ***Puntius amphibius*** (Valenciennes)
Scarlet banded barb

1842. *Capoeta amphibia* Valenciennes, *Hist. nat. Poiss.*, **16** : 282, pl. 478.

1878. *Barbus amphibius*, Day, *Fish. India*, : 574, pl. 142, fig-8; 1889, Day, *Fauna Br. India Fish.*, **1** : 322.

1991. *Puntius amphibius*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 61-64 (revision).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 12.8.1960. (ii) 1 ex., Narbada river at Gwarighat, district Jabalpur; D.N. Basu and party; 26.11.1964. (iii) 2 exs., Machhmar river on Dindori-Amarkantak Road, district Mandla; J.S. Bhatti and party; 30.10.1963. (iv) 9 exs., Narbada river, North of Dindori, district Mandla; J.S. Bhatti and party; 9.11.1963. (v) 2 exs., Narbada river at Manot, district Mandla; H. Khajuria and party; 16.11.1963. (vi) 5 exs., Ghugra fall near Bargi, district Jabalpur; H. Khajuria and party; 29.6.1965. (vii) 1 ex., Pariat river on Katni Road, district Jabalpur; V.V. Rao and party; (viii) 1 ex., Narbada river at Bheraghat, district Jabalpur; H. Khajuria and party; 16.3.1965. (ix) 1 ex., Pariat river on Damoh Road, district Jabalpur; V.S. Durve and party; 11.10.1968. (x) 32 exs., Tewar village on Shahpura Road, district Jabalpur; H.S. Sharma and party; 3.11.1966. (xi) 1 ex., Karmeta village on Patan Road, district Jabalpur; H.P. Agrawal

and party; 3.9.1966. (xii) 1 ex., Narbada river at Shahpura Railway Bridge, district Jabalpur; V.S. Durve and party; 10.5.1968. (xiii) 1 ex., Gour river at Gouriaghat, district Jabalpur; H.P. Agrawal and party; 4.8.1965. (xiv) 20 exs., Pariat river on Damoh road, district Jabalpur; V.S. Durve and party; 11.10.1968. (xv) 3 exs., Barman Kala village, district Narsinghpur; H. Khajuria and party; 17.12.1964. (xvi) 1 ex., Barman kala village, district Narsinghpur; H. Khajuria and party; 11.12.1964. (xvii) 2 exs., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (xviii) 4 exs., A nala near Katawadi, district Betul; H.S. Sharma and party; 22.3.1990. (xix) 50 exs., Pench river at Jhilmili village, district Chhindwara; H.S. Sharma and party; 6.4.1990. (xx) 1 ex., Sharman bandh near Krishnagarh village, Amarpatan, district Satna; H.S. Sharma and party; 21.10.1986. (xxii) 1 ex., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xxiii) 3 exs., Betwa river near Raisen, district Raisen; H.S. Sharma and party; 3.10.1995. (xxiv) 1 ex., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995. (xxv) 1 ex., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xxvi) 1 ex., Reechha river near Raisen, district Raisen; H.S. Sharma and party; 2.10.1995. (xxvii) 1 ex., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D. 2-3/7-9, P. 1-2/11-12, V. 1/7-8, A. 2-3/5, C. 15-17, LL 23-25.

Head length 4.00 to 5.00 and body depth 4.20 to 5.00 in total length. Head width 1.71 to 3.00 in head length. Eye diameter 3.50 in head length. Barbels 1 pair. Dorsal fin inserted in advance of pelvic fin insertion. Last unbranched dorsal fin ray feebly osseous, mostly appearing as non-osseous, smooth. Lateral line complete. 2 to 2½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 7 to 9. Circumpeduncular scales 10 or 11. Body steel blue above, white shot with gold on sides and below. A dark spot at base of caudal fin. Dorsal fin edged black.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Jabalpur, Mandla, Narsinghpur, Raisen, Rajgarh, Satna districts), Andhra Pradesh, Bihar, Goa, Karnataka, Kerala, Maharashtra, Orissa, Peninsular India, Rajasthan, Tamil Nadu, Uttar Pradesh.

Elsewhere : Sri Lanka.

Remark : Hora and Law, 1941, stated that this species is liable to be confused with *P. dorsalis*. The presence of prominent Caudal spot and the absence of dorsal and anal spots in *amphibius* distinguish the two species (Jayaram, Venkateswarlu, Ragunathan, 1982).

44. ***Puntius arenatus*** (Day)

1878. *Barbus arenatus*, Day, *Fish. India* : 574, pl. 142, fig. 7; 1889, Day, *Fauna Br. India, Fish.*, **1** : 321.

1991. *Puntius arenatus*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 75-76 (revision).

Material examined : 1 ex., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 17.3.1986.

Diagnostic characters : D. 2/8, P.15, V.1/8, A.3/5, C.19, LL. 24-27.

Head length 4.75 and body depth 4.00 in total length. Eye diameter 4.50 to 5.00 in head length. Barbels 1 pair. Dorsal fin inserted before the insertion of pelvic fin. Last unbranched dorsal fin ray weakly osseous inferiorly, articulated superiorly, smooth. Lateral line complete. 2½ to 3½ rows of scales between lateral line and pelvic fin base. Predorsal scales 8 to 10. Body silvery without any markings. Occasionally a dark band along the dorsal fin may be seen.

Distribution : India : Madhya Pradesh (Bastar, Khandwa districts), Tamil Nadu.

45. ***Puntius arulius arulius*** (Jerdon)

1849. *Systomus arulius* Jerdon, *Madras J. Lit. Sci.*, **15** : 317.

1878. *Barbus arulius*, Day, *Fish. India*, : 575, Pl. 142, fig. 5; 1889, Day, *Fauna Br. India Fish.*, **1** : 322.

1991. *Puntius arulius arulius*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 144-146 (revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.2-3/8, P. 14-17, V. 1/8, A. 1-2/5, C. 16-17, LL. 20-23.

Head length 4.50 to 5.00 and body depth 3.75 to 4.00 in total length. Eye diameter 3.50 in head length. Barbels 1 pair, long maxillary pair. Dorsal fin inserted midway between tip of snout and base of caudal fin. Last unbranched dorsal ray non-osseous and weak. Pectoral fin extending to pelvic fin. Lateral line complete. $2^1/_2$ rows of scales between lateral line and base of pelvic fin. Predorsal scales 7 to 9. Body light brown with three black vertical bars; first below origin of dorsal fin to as low as lateral line, second below posterior extremity of dorsal fin to base of anal fin and the third across the free portion of the tail before caudal fin. Dorsal, caudal and anal fins pinkish with a black bar across the summit of the first, whilst the caudal fin stained at its edges.

Distribution : India : Madhya Pradesh (Bastar district), Karnataka, Nilgiri Hills, Wynaad.

Remark : In live condition, the fish is olive green on the back becoming silvery white dashed with reddish green over the abdomen (Jayaram, 1991).

46. ***Puntius chilinoides*** (Mc Clelland)

1839. *Barbus cheilynoides* Mc Clelland, *Asiat. Res.*, **19** : 271, 340, pl. 57, fig 5.

1878. *Barbus chilinoides,* Day, *Fish. India,* : 563, pl. 139, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 304, 3-5.

1981. *Puntius chilinoides,* Jayaram, *Handbk, Freshw. Fish. India,* : 99, 104 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 10-11 (3/7-8), P.17, V.9, A.7(2/5), C.19, LL. 32-35.

Head length 5.00 and body depth 5.50 in total length. Eye diameter 4.00 to 5.00 in head length. Lower lip with a continuous transverse fold. Barbels 2 pairs, rostral and maxillary pairs of about the same length. Dorsal fin inserted about midway between tip of snout and caudal fin base. Last unbranched dorsal ray osseous, strong and smooth. Lateral line complete. 3 rows of scales between lateral line and pelvic fin base. Body golden above, silvery below. A black mark behind the opercle. Margins of scales with fine black dots. Fins reddish.

Distribution : India : Madhya Pradesh, Ganga river system, Himalayan foot hills.

Remark : It is another confused species due to the presence of some *Tor characters.* It can not be regarded as a *Tor* species because of the following features–lateral line scales 32-35, head length, elongated body, overhanging snout, longer upper jaw, depression across the snout, moderately thick lips and lower lip without a lobe (Sen and Jayaram, 1982 : 15).

47. ***Puntius chola*** (Hamilton)
Green barb

1822. *Cyprinus chola* Hamilton, *Fish. Ganges,* : 312, 389.

1878. *Barbus chola,* Day, *Fish. India* : 571, Pl. 142, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 317.

1991. *Puntius chola,* Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 52-56 (revision).

Material examined : (i) 3 exs., Supatal tank near Madan Mahal, Jabalpur, district Jabalpur; S. Chakrapany and party; 28.3.1963. (ii) 2 exs., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (iii) 1 ex., Supatal on Nagpur Road, district Jabalpur; H.P. Agrawal and party; 15.4.1968. (iv) 3 exs., Panagar tank on Katni Road, district Jabalpur; H.P. Agrawal and party; 6.6.1968. (v) 1 ex., Hiran river on Katni Road, district Jabalpur; V.S. Durve and party; 5.10.1966. (vi) 1 ex., A nala near Budagar village, district Jabalpur; Purchased; 28.1.1970. (vii) 6 exs., Gurandi Market, Jabalpur, district Jabalpur; Purchased; 18.11.1971. (viii) 6 exs., Bara talab, Amarpatan, district Satna; H.S. Sharma and party; 19.10.1986. (ix) 1 ex., Sughna nala on Rewa Road, Amarpatan, district Satna; H.S. Sharma and party; 22.10.1986. (x) 2 exs., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995. (xi) 2 exs., Chhapi river at

Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995.

Diagnostic characters : D. 3-4/8, P. 14-17, V. 1/8, A. 2-3/5, C. 19, LL. 24-29.

Head length 4.50 to 4.75 and body depth 3.25 to 3.75 in total length. Eye diameter 3.50 to 4.00 in head length. Barbels 1 pair. Dorsal fin inserted midway between tip of snout and caudal fin base. Last unbranched dorsal ray ossified into a strong smooth spine. Pectoral fin not extending to pelvic fin. Lateral line complete. 3 to 3½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 7 to 9. Body silvery. Opercles shot with purple and gold. Body with two conspicuous dark blotches, first between 21st and 23rd scales and another near the gill opening. A dark mark at base of anterior dorsal fin rays also present.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Jabalpur, Raisen, Rajgarh, Rewa, Satna districts.), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

Remark : *Barbus tetrarupagus* Day is a synonym of this species (Menon, A.G.K., 1974). *Puntius chola*, Deraniyagala, *Spolia Zeylanica 16 (1)*: 14, 1930 (description, distribution in Sri Lanka; considers *Leuciscus thermalis* Val. Synonymous) (Jayaram, 1981, 1991).

48. *Puntius conchonius* (Hamilton)
Stigma barb

1822. *Cyprinus conchonius* Hamilton, *Fish. Ganges*, : 317, 389.

1878. *Barbus conchonius*, Day, *Fish. India*, : 576, Pl. 143, fig. 7; 1889, Day, *Fauna Br. India, Fish.*, 1 : 325.

1991. *Puntius conchonius*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* 135 : 27-29. (revision).

Material examined : (i) 1 ex., Narbada river at Shahpura Railway Bridge, district Jabalpur; V.S. Durve and party; 14.6.1967. (ii) 1 ex., Narbada river at Lamataghat, district Jabalpur; V.S. Durve and party; 2.5.1967. (iii) 31 exs., Narbada river at Bheraghat, district Jabalpur; H.S. Sharma and party; 2.7.1966. (iv) 15 exs., Melakheri near Hoshangabad, district Hoshangabad; H. Khajuria and party; 27.12.1964. (v) 1 ex., Gour river at Gouriaghat, district Jabalpur; H.P. Agrawal and party; 4.8.1965. (vi) 3 exs., A nala on Rani Durgawati Samadhi Road, district Jabalpur; V.S. Durve and party; 26.4.1960. (vii) 63 exs., A nala near Bheraghat, district Jabalpur; V.S. Durve and party; 15.5.1969. (viii) Narbada river at Lamataghat, district Jabalpur; V.S. Durve and party; 11.1.1967. (ix) 2 exs., A tank in Gandhigram on Katni Road, district Jabalpur; Purchased; 4.3.1968. (x) 2 exs., Narbada river at Lamataghat, district Jabalpur; V.V. Rao and party; 16.7.1966. (xi) 30 exs., Budagar tank on Katni Road, district Jabalpur; H.S. Sharma and party; 26.2.1971. (xii) 16 exs., Budagar tank on Katni Road, district Jabalpur; H.S. Sharm and party; 30.7.1969. (xiii) 10 exs., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 17.3.1986. (xx) 50 exs., A nala near Katawadi, district Betul; H.S. Sharma and party; 22.3.1990. (xxi) 30 exs., Badi Nadi near Aamo[illegible] a village on Betul-Sarni Road, district Betul; H.S. Sharma and party; 26.3.1990. (xxii) 300 exs., Pench river at Jhilimili village on Sewni Road, district Chhindwara; H.S. Sharma and party; 6.4.1990. (xxiii) 60 exs., Ramdohu river on Chhindwara-Chand Road, district Chhindwara; H.S. Sharma and party; 3.4.1990. (xxiv) 5 exs., Singri river, district Narsinghpur; H.P. Agrawal and party; 14.10.1989. (xxv) 1 ex., Narsingh talab at Narsinghpur, district Narsinghpur; H.P. Agrawal and party; 13.10.1989. (xxvi) 3 exs., Ghoghra nala at Saranggarh, district Raigarh; R.K. Singh and party; 28.3.1992. (xxvii) 5 exs., Nargarha river, district Shahdol; H.P. Agrawal and party; 3.12.1978. (xxviii) 5 exs., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986. (xxix) 1 ex., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xxx) 15 exs., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995. (xxxi) 3 exs., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995. (xxxii) 1 ex., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xxxiii) 2 exs.,

Bara Pool, Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995. (xxxiv) 2 exs., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D.3/8, P.11, V.1/8, A. 2/5, C.19, LL. 24-26.

Head length 5.00 and body depth 2.40 to 2.67 in total length. Eye diameter 3.00 in head length. Barbels absent. Dorsal fin inserted midway between tip of snout and caudal fin base. Last unbranched dorsal fin ray ossified, strong and serrated. Lateral line incomplete, ceasing after 9 to 10 scales. 3½ to 4½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 9 to 11. Circumpeduncular scales 10 or 11. Body yellowish brown on dorsal surface and on sides, yellowish white below. A large black spot on lateral line just above anal fin. Fins orange. Dorsal fin with its upper half blackish.

Distribution : India : Madhya Pradesh (Bastar, Betul, Bhopal, Chhindwara, Hoshangabad, Jabalpur, Khandwa, Narsinghpur, Rajgarh, Raisen, Rewa, Satna, Shahdol districts, Chambal river, Indravati Tiger Reserve), Andhra Pradesh, Assam, Bihar, Jammu, Kashmir, Manipur, Nagaland, Orissa, Rajasthan, South India, Tripura, Uttar Pradesh, West Bengal; Brahmaputra, Cauvery, Ganga, Mahanadi river systems.

Elsewhere : Bangladesh, Nepal, Pakistan.

Remark : In life the fish is golden violet in colour below the lateral line with the opercle shot with red. Generally each scale has a black tinge or a small spot. The black spot on the lateral line varies in position from 8th to 19th scale (Jayaram, 1991).

49. ***Puntius curmuca*** (Hamilton)

1807. *Cyprinus curmuca* Hamilton, *Journey in Mysore*, **3** : 344, Pl. 30.

1877. *Barbus curmuca*, Day, *Fish. India*, : 566, Pl. 141, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 310.

1981. *Puntius curmuca*, Jayaram, *Handbk. Freshw. Fish. India*, : 100, 105 (distribution and key to species).

Material examined : (i) 4 exs., Pariat river on Damoh Road, district Jabalpur; V.S. Durve and party; 11.10.1968. (ii) 15 exs., Melakheri near Hoshangabad, district Hoshangabad; H. Khajuria and party; 27.12.1964. (iii) 1 ex., Gour river at Gouriaghat, district Jabalpur; H.P. Agrawal and party; 4.8.1965.

Diagnostic characters : D.12 (3/9), P.16, V.9, A.8 (3/5), C.18, LL. 41.

Head length 5.00 and body depth 5.00 in total length. Eye diameter 4.30 in head length. Snout conical. Interorbital transversally concave. In adult specimen a band of open pores from the preorbital along the cheek. Barbels two pairs; maxillary pairs, lower as long as eye, upper half as long. Dorsal fin inserted in front of the insertion of pelvic fin, as high as the body. Last unbranched dorsal fin ray weak and articulated. Lateral line complete. $3^1/_2$ rows of scales between lateral line and base of pelvic fin. Predorsal scales 10. Body silvery grey, lighter on sides and beneath. Tips of the caudal fin black. In young specimen the middle third of caudal fin orange.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Jabalpur districts), Andhra Pradesh, Travancore-Cochin, Western Ghats.

Remark : Day, 1873, P. 567, pointed out that this species is remarkable in possessing two pairs of barbels on the maxillaries and none on the snout. *P. curmuca* is likely to be confused with *T. mussullah* sykes; the chief differences between the two being the nature of the labial fold and the relative lengths of the barbels (Jayaram, Venkateswarlu, Ragunathan, 1982).

50. ***Puntius dorsalis*** (Jerdon)

1849. *Systomus dorsalis* Jerdon, *Madras J. Lit. and Sci.*, **15** : 314.

1878. *Barbus dorsalis*, Day, *Fish India*, : 573, pl. 142, fig. 2; 1889, Day, *Fauna Br. India, Fish.*, **1** : 319.

1991. *Puntius dorsalis*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 64-67 (revision).

Material examined : (i) 6 exs., Umaria village on Dindori Road, district Jabalpur; P. Singh and party; 13.10.1961. (ii) 3 exs., Singri river, district Narsinghpur; H.P. Agrawal and party; 14.10.1989.

Diagnostic characters : D.1-2/8, P. 15-16, V. 1/7-8, A.1-2/5-7, C.17, LL. 23-26.

Head length 4.50 and body depth 4.00 to 4.25 in total length. Eye diameter 4.00 to 4.50 in head length. Lower labial fold interrupted. Barbels 1 pair, maxillary pair more than half of an eye. Dorsal fin inserted nearer to caudal fin base than to tip of snout. Last unbranched dorsal fin ray osseous, strong and smooth. Lateral line complete. $2^1/_2$ rows of scales between lateral line and base of pelvic fin. Predorsal scales 8 or 9. Circumpeduncular scales 9 or 10. Body uniformly dull brown, pale beneath. Often the scales in the upper two thirds of the body with dark bases.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Jabalpur, Narsinghpur districts), Andhra Pradesh, Karnataka, Kerala, Orissa, Tamil Nadu, Cauvery and Krishna river systems.

Elsewhere : Sri Lanka.

Remark : In life olive dorsally, silvery on sides, body whitish, fins orange. A black blotch on tail present but disappears after death. In immature specimens a well marked black lateral band extending from the shoulder along the lateral line to the caudal blotch may be present. Occasionally the posterior half of the basal sheath of the dorsal fin is also black and often the upper and lower margins of the caudal are dark.

51. *Puntius filamentosus* (Valenciennes) **Filamented barb, DMK Fish, Black Spot Barb**

1844. *Leuciscus filamentosus* Valenciennes, *Hist. nat. Poiss.*, **17** : 95, pl. 492.

1889. *Barbus mahecola*, Day, *Fauna Br. India, Fish.*, **1** : 323, fig. 105.

1991. *Puntius filamentosus*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 77-84 (Revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.3-4/8, P. 15-16, V.1/8, A.2-3/5, C.19-20, LL. 20-23.

Head length 4.70 to 5.00 and body depth 3.00 to 3.50 in total length. Eye diameter 3.20 to 3.50 in head length. Males often with large tubercles at breeding time. Barbels 1 pair, rudimentary maxillary barbels, occasionally absent. Dorsal fin inserted nearer to tip of snout than to caudal fin base. Last unbranched dorsal fin ray articulated, feeble, smooth; the branched rays are prolonged in the adult male. Lateral line complete. 2½ -3½ rows of scales between lateral line and pelvic fin base. Predorsal scales 7-9. Body silvery white. A finger like oval black blotch on 12-16 scale. Each scale with a metallic green edging.

Distribution : India : Madhya Pradesh, Andhra Pradesh, Goa, Karnataka, Kerala (Cauvery, Krishna drainages), Tamil Nadu.

Elsewhere : Sri Lanka.

Remark : In life a dash of red alternating with black blotch on the caudal lobes is prominent. A finger like oval black blotch on 12-16 scale is also very characteristic of this species. Excepting *P. sarana sarana* no other species of *Puntius* has the oval caudal spot as longitudinal, mostly they are rounded. Young fishes have dark black vertical bands and pinkish fins. The colouration completely alters as the fish matures. The vertical bands vanish and the fish takes on a bright silver sheen with a oval dot on the tail. They devour smaller fishes voraciously. Further, the males have the anterior four or five branched rays of the dorsal fin dark tipped and elongated (Jayaram, 1991).

It is now well known that at breeding time, secondary sexual characters appear in the species. In the males the anterior four or five branched rays of dorsal fin are prolonged and the snout is covered with a patch of large tubercles on either side in front of the eyes. For a number of years, this dimorphism was not noticed and the female of this species was described as *P. mahecola*. Hora, 1937; Hora and Law, 1941; demonstrated this and synonymised *mahecola* with *filamentosus* (Jayaram, Venkateswarlu, Ragunathan, 1982).

52. *Puntius gelius* (Hamilton)

1822. *Cyprinus gelius* Hamilton, *Fish. Ganges*, : 320, 390, pl. 145, fig. 3.

1878. *Barbus gelius*, Day, *Fish. India* : 577, pl. 145, fig. 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 327.

1991. *Puntius gelius*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 168-170 (revision).

Material examined : (i) 14 exs., A tank in Gandhigram on Katni Road, district Jabalpur; H.P. Agrawal and party; 8.10.1968. (ii) 140 exs., Budagar tank on Katni Road, district Jabalpur; H.S. Sharma and party; 30.7.1969. (iii) 108 exs., Baleha tank at Panagar village, district Jabalpur; Purchased; 8.7.1970. (iv) 5 exs., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (v) 5 exs., Ghoghra nala at Saranggarh, district Raigarh; R.K. Singh and party; 28.3.1992.

Diagnostic characters : D.2/8, P.14-15, V.1/8, A. 3/5, C.19, LL. 23-24.

Head length 4.25 to 4.50 and body depth 3.00 to 3.50 in total length. Eye diameter 2.50 in head length. Barbels absent. Dorsal fin inserted midway between tip of snout and caudal fin base. Last unbranched dorsal fin ray ossified into a strong, long serrated spine with 10 to 16 serrations on its inner edge; its length greater than body depth and head length. Lateral line incomplete ceasing after 4 to 6 scales. 3 or 4 rows of scales between lateral line and base of pelvic fin. Predorsal scales 8. Body camel brown on all sides. A black band over the caudal fin a little anterior to base, another less distinct band close to the base of caudal fin. A silver band on each side. A black spot across the dorsal spine. A black band over base of anal fin. Occiput also black.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur, Rajgarh districts), Andhra Pradesh, Assam, Bihar, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Pakistan.

53. ***Puntius guganio*** (Hamilton)

1822. *Cyprinus guganio* Hamilton, *Fish. Ganges*, : 338, 339, 392.

1878. *Barbus ambassis* Day, *Fish. India*, : 576, Pl. 145, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 324.

1991. *Puntius guganio*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 32-35. (revision).

Material examined : (i) 40 exs., Betwa river, near Raisen, district Raisen; H.S. Sharma and party; 3.10.1995. (ii) 3 exs., Bina river near Begamganj, district Raisen; H.s. Sharma and party; 28.9.1995.

Diagnostic characters : D. 3/8, P.11, V.1/8, A.1-2/5, C.19, LL. 36-39.

Head length 5.00 to 5.50 and body depth 3.50 in total length. Barbels absent. Dorsal fin inserted midway between tip of snout and base of caudal fin. Last unbranched dorsal fin ray strong, osseous, serrated with about 15 teeth. Lateral line incomplete ceasing after 5 or 6 scales. 5½ 6 rows of scales between lateral line and base of pelvic fin. 8 or 9 rows of scales between lateral line and dorsal fin base. Predorsal scales 15. Preanal scales 21. Body olive green with a white streak along middle of it.

Distribution : India : Madhya Pradesh (Hoshangabad, Raipur, Raisen districts), Andhra Pradesh, Assam, Orissa, Tamil Nadu, West Bengal; Brahmaputra, Ganga, Krishna, Yamuna river systems.

Elsewhere : Bangladesh.

Remark : Related to ticto group, close to *P. ticto* differing from it in having greater number of lateral line scales and colouration (Jayaram, 1991).

54. ***Puntius jerdoni*** (Day)
Jerdon's carp

1870. *Barbus jerdoni* Day, *Proc. zool. Soc. London* : 372.

1878. *Barbus jerdoni* Day, *Fish. India* : 568, Pl. 138, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 312.

1991. *Puntius jerdoni*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 46-48 (revision)

Material examined : 1 ex., Narbada river at Maheswar, district Indore; Purchased; 18.11.1969.

Diagnostic characters : D.3/8-9, P. 14-15, V. 1/8, A.2-3/5, C.19, LL. 27-32.

Head length 5.00 to 5.25 and body depth 4.00 in total length. Eye diameter 3.00 to 3.50 in head length. Dorsal and ventral profiles arched with a distinct rise up to the dorsal fin base. Barbels 2

pairs, maxillary pair as long as eye and rostral pair slightly shorter. Dorsal fin inserted midway between tip of snout and base of caudal fin. Last unbranched dorsal fin ray non-osseous, weak and articulated. Lateral line complete. 2½ to 3½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 9 to 12. Circumpeduncular scales 9 to 11. Body bluish above, lighter on sides and beneath. Fins edged grey to orange. Caudal fin tipped black.

Distribution : India : Madhya Pradesh (Indore district), Andhra Pradesh, Canara, Deccan, Karnataka, Maharashtra; Godavari and Krishna river systems.

Remark : Hora and Misra, 1942, demonstrated after examination of several examples including types that *B. dobsoni* Day, *B. jerdoni maciveri* Annandale and *B. pulchellus* Day are all synonymous with this species. They showed further that the presence or absence of tubercles on the snout is due to sexual dimorphism (Jayaram, 1991).

55. ***Puntius kolus*** (Sykes)

1840. *Barbus kolus* Sykes, *Trans. zool. Soc. Lond.*, **2** : 357, Pl. 62, fig. 1.

1991. *Puntius kolus*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 105-107 (revision)

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.3-4/9, P.15, V.1/8, A. 2-3/5, C. 19, LL. 40-43.

Head length 5.25 to 5.50 and body depth 4.00 to 4.50 in total length. Eye diameter 4.25 to 5.56 in head length. Snout with horny tubercles in adult males, females have a few only. Dorsal profile with a considerable rise from the occiput to the dorsal fin. Snout conical. Barbels 1 pair, extending beyond middle of eye. Dorsal fin inserted in advance of pelvic fin, nearer to tip of snout than to caudal fin base. Last unbranched dorsal fin ray weakly osseous, or articulated. Lateral line complete. 4 to 5½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 11-14. Body silvery shot with yellow. Dorsal, anal and caudal fins tipped grey.

Distribution : India : Madhya Pradesh (Bastar district), Andhra Pradesh, Deolali, Cauvery, Godawari, Krishna river systems in South India.

Remark : *P. kolus* was described by Sykes, 1838, along with two other species *B. mussullah* and *B. khudree;* of these three *kolus* is distinct from the other two by having only one pair of barbels and an interrupted labial groove. *P. kolus* however resembles more *P. mussullah* than *khudree* though the latter two are now referable to the genus *Tor* (Jayaram, 1991).

56. ***Puntius melanostigma*** (Day)

1849. *Systomus carnaticus* Jerdon, *Madras J. Lit. and Sci.*, **15** : 315.

1878. *Barbus melanostigma* Day, *Fish. India,* : 573-574, Pl. 143, fig. 1; 1889, Day, *Fauna Br. India. Fish.*, **1** : 320.

1991. *Puntius melanostigma*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 73-75 (revision).

Material examined : (i) 18 exs., A nala near Budagar village, district Jabalpur; Purchased; 28.1.1970.

Diagnostic characters : D. 2/8, P.15-16, V. 1/7-8, A. 1-2/4-5, C.15, LL. 23-26.

Head length 4.50 to 4.65 and body depth 3.50 to 3.65 in total length. Head width 1.75 to 2.09 in head length. Eye diameter 3.30 in head length. Lower labial fold interrupted. Barbels 1 pair, maxillary pair half as long as eye. Dorsal fin inserted in advance of the insertion of pelvic fin, nearer to tip of snout than to caudal fin base. Last unbranched dorsal fin ray very weak, osseous inferiorly and articulated in its upper half. Lateral line complete. 2½ to 3½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 8 or 9. Circumpeduncular scales 9 or 10. Body silvery above, white on sides and below. A light band along the side. A deep black blotch on caudal fin base on 21-22 scale.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur districts), Kerala, Maharashtra, Wynaad; Bhavani and Cauvery rivers.

57. *Puntius phutunio* (Hamilton)

1822. *Cyprinus phutunio* Hamilton, *Fish. Ganges,* : 319, 390.

1878. *Barbus phutunio,* Day, *Fish. India,* : 578, Pl. 145, fig. 4; 1889, Day, *Fauna Br. India, Fish.,* **1** : 327.

1991. *Puntius phutunio,* Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 166-168 (revision).

Material examined : No specimen obtained by me. It is recorded form the literature.

Diagnostic characters : D. 2-3/8, P.15, V. 1/8, A. 3/5, C.19, LL. 20-23.

Head length 4.00 to 4.60 and body depth 3.00 to 3.25 in total length. Eye diameter 2.50 in head length. Barbels absent. Dorsal fin inserted opposite the pelvic fin, midway between tip of snout and caudal fin base. Last unbranched dorsal fin ray osseous, serrated, serrations becoming indistinct in the adult. Dorsal spine short, shorter than or equal to head length and body depth. Lateral line incomplete, ceasing after 3 or 4 scales. 3 rows of scales between lateral line and base of pelvic fin. Predorsal scales 7 to 9. Circumpeduncular scales 9 or 10. Body reddish-brown with four vertical dark colour bands. A first black band passing from back to opposite middle of pectoral fin, a second from below dorsal spine to below lateral line, a third from posterior end of dorsal fin to below lateral line and a fourth across the caudal peduncle, slightly posterior to end of anal fin. The first and the last bands may have a black dot in the middle over the lateral line. Body diaphnous.

Distribution : India : Madhya Pradesh (Bastar district, Chambal river), Assam, Bihar, Goa, Orissa, Tripura, West Bengal.

Elsewhere : Bangladesh, Myanmar, Pakistan.

Remark : Day (1889), mentioned "a dark band down the centre of the dorsal, another at the base of the caudal" Related to *P. gelius* differing from it in scale counts and mainly in colouration, in having greater number of bands (four vs. two), (Jayaram, 1991).

58. *Puntius punjabensis* (Day)

1871. *Barbus punjabensis* Day, *J. Asiat. Soc. Beng.,* **40** : 334, Pl. 2.

1991. *Puntius punjabensis* Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 35-37 (revision).

Material examined : (i) 5 exs., Pench river at Jhilimili village, district Chhindwara; H.S. Sharma and party; 6.4.1990.

Diagnostic characters : D. 3/8, P.14, V. 1/8, A. 2/5, C.19, LL. 43.

Head length 5.50 and body depth 3.50 in total length. Barbels absent. Dorsal fin inserted midway between tip of snout and base of caudal fin. Last unbranched dorsal fin ray weak, articulated. Pectoral fin not extending to pelvic fin. Pelvic fin not reaching anal opening. Lateral line incomplete. 4½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 14. Circumpeduncular scales 9 or 10. Body silvery with a burnished silvery stripe along the side. A black spot at base of caudal fin. First two dorsal rays and intermediate membrane deep black.

Distribution : India : Madhya Pradesh (Chhindwara, Jabalpur districts), Bihar.

Elsewhere : Baluchistan, Pakistan.

59. *Puntius sarana sarana* (Hamilton)
Olive carp

1822. *Cyprinus sarana* Hamilton, *Fish. Ganges,* : 307, 388.

1878. *Barbus sarana,* Day, *Fish. India* : 560, Pl. 136, fig. 2; 1889, Day, *Fauna Br. India, Fish.,* **1** : 300.

1991. *Puntius sarana sarana,* Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 113-118 (revision).

Material examined : (i) 7 exs., Narbada river at Mandla, district Mandla; H. Khajuria and party; 13.6.1963. (ii) Narbada river at Dindori, district Mandla; Purchased; 12.11.1963. (iii) 4 exs., A tank in Gandhigram on Katni Road, district Jabalpur; V.V. Rao and party; 9.11.1967. (iv) 1 ex., Choral river, Bharouch, district Bharouch; Gujarat; Purchased; 29.10.1969. (v) 1 ex., A nala near Budagar village, district Jabalpur; Purchased; 28.1.1970. (vi) 3 exs., Narbada river at Handia

village, district Hoshangabad; Purchased; 16.12.1965. (vii) 4 exs., Marhi-ka-nala near Nagod, district Satna; H.S. Sharma and party; 28.10.1986. (viii) 3 exs., Tomus river, Satna district; H.S. Sharma and party; 22.10.1986. (ix) 1 ex., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986. (x) 7 exs., Lekada, district Ujjain; H.P. Agrawal and party; 14.11.1990. (xi) 1 ex., Betwa river near Raisen, district Raisen; H.S. Sharma and party; 3.10.1995. (xii) 8 exs., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D. 2-3/8, P.15-16, V. 1/8, A. 2-3/5, C.19, LL. 31 or 32.

Head length 5.00 to 5.25 and body depth 3.50 to 3.67 in total length. Eye diameter 4.25 to 4.75 in head length. Barbels 2 pairs, rostral pair as long as eye and maxillary pair longer than the rostral pair. Dorsal fin inserted opposite the insertion of pelvic fin, nearer to caudal fin base than to tip of snout. Last unbranched dorsal fin ray osseous, strong serrated posteriorly with 12 to 14 teeth. Lateral line complete. 3½ to 4½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 10 or 11. Body dark brown above and sides, light brown below. A prominent finger - like black spot on caudal peduncle. Fins yellowish white.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Jabalpur, Mandla, Rajgarh, Raisen, Rewa, Satna, Ujjain districts, Chambal river, Indravati Tiger Reserve), Throughout.

Elsewhere : Bangladesh, Bhutan, China, Myanmar, Nepal, Pakistan.

Remark : When fresh silvery, opercles shot with gold and with horizontal bands along rows of scales in upper half of body (Jayaram, 1991).

60. *Puntius sarana spilurus* (Gunther)

1868. *Barbus spilurus* Gunther, *Cat. Fish. Br. Mus.*, **7** : 114.

1991. *Puntius sarana spilurus*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 119, 120 (revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : Differing from the nominal species in distribution and lateral line having 26 to 28 scales and as mentioned in the key.

Distribution : India : Madhya Pradesh (Chambal river).

Elsewhere : Sri Lanka only.

Remark : *P. Chrysopoma* Bleeker is a synonym of this species (Menon, 1963).

61. *Puntius sarana subnasutus* (Valenciennes)

1842. *Barbus subnasutus* Valenciennes, *Hist. nat. Poiss.*, **16** : 154.

1878. *Barbus pinnauratus* Day, *Fish. India* : 561, Pl. 139, fig. 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 301.

1991. *Puntius sarana subnasutus*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 120-123 (revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : Differs from the nominal species in distribution and in the lateral line having 28-34 scales. In preserved examples a silvery patch is present on the opercle and as mentioned in the key.

Distribution : India : Madhya Pradesh (Bastar district), Krishna River System and South of it in Peninsular India.

62. *Puntius sophore* (Hamilton)
Stigma barb

1822. *Cyprinus sophore* Hamilton, *Fish. Ganges*, : 310, 389, fig. 86.

1844. *Leuciscus stigma* Valenciennes, *Hist. nat. Poiss.*, **17** : 93, pl. 489.

1878. *Barbus sophore*, Day, *Fish. India* : 566, Pl. 143, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 309.

1924. *Barbus carletoni* Fowler, *Proc. Acad. Nat. Sci. Philad.*, **76** : 90.

1991. *Puntius sophore*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 15-20 (revision).

Material examined : (i) 1 ex., Devtal near Vedinagar, Jabalpur, district Jabalpur; S.

Chakrapany and party; 6.7.1960. (ii) 1 ex., Devtal near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 18.7.1960. (iii) 1 ex., Hiran river on Katangi Road, district Jabalpur; R.C. Sharma and party; 3.1.1961. (iv) 1 ex., Pariat tank, district Jabalpur; R.C. Sharma and party; 4.1.1961. (v) 288 exs., Umaria village on Dindori Road, district Jabalpur; R.C. Sharma and party; 23.3.1962. (vi) 24 exs., A canal on Rani Durgawati Samadhi Road, district Jabalpur; S. Chakrapany and party; 22.3.1962. (vii) 2 exs., Pariat river at Imalia village, district Jabalpur; R.C. Sharma and party; 25.10.1961. (vii) 153 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 28.5.1962. (ix) 28 exs., Narbada river at Ghughrighat near Haritola, district Shahdol; S. Chakrapany and party; 29.5.1962. (x) 3 exs., Gour river on Rani Durgawati Samadhi Road, district Jabalpur; P. Singh and party; 25.4.1962. (xi) 10 exs., Narbada river at Gwarighat, district Jabalpur; S. Chakrapany and party; 28.4.1961. (xii) 1 ex., Narbada river at Tilwaraghat, district Jabalpur; H.P. Agrawal and party; 20.5.1965. (xiii) 8 exs., Baleha tank at Panagar village, district Jabalpur; Purchased; 16.6.1967. (xiv) 1 ex., A tank in Padaria village on Dindori Road, Jabalpur district; H.P. Agrawal and party; 27.11.1965. (xv) 1 ex., Narbada river at Bheraghat, district Jabalpur; H. Khajuria and party; 19.5.1965. (xvi) 1 ex., A nala near Budagar village, Jabalpur district; Purchased; 28.1.1970. (xvii) 2 exs., Amkhas tank on Nagpur Road, district Jabalpur; V.S. Durve and party; 29.7.1967. (xviii) 1 ex., Supatal on Nagpur Road, Jabalpur, district Jabalpur; H.P. Agrawal and party; 29.4.1968. (xix) 21 exs., Paswini river near Majhgawan, district Satna; H.S. Sharma and party; 23.10.1986. (xx) 5 exs., Sughna nala on Rewa Road, Amarpatan, district Satna; H.S. Sharma and party; 22.10.1986. (xxi) 2 exs., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 24.9.1985. (xxii) 1 ex., Sakkar river, district Narsinghpur; H.P. Agrawal and party; 17.10.1989. (xxiii) 10 exs., Sharman bandh near Krishnagarh village, Amarpatan, district Satna; H.S. Sharma and party; 21.10.1986. (xxiv) 3 exs., tons river on Rewa Road, Maihar, district Satna; H.S. Sharma and party; 17.10.1986. (xxv) 3 exs., Dabra, district Gwalior; H.P. Agrawal and party; 8.2.1995. (xxvi) 1 ex., Nargarha river, district Shahdol; H.P. Agrawal and party; 3.12.1978. (xxvii) 1 ex., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986.

Diagnostic characters : D. 2-3/8, P.14-15, V. 1/8, A. 1-2/5, C.17-19, LL. 23-25.

Head length 4.50 to 5.00 and body depth 3.50 to 3.75 in total length. Eye diameter 3.00 to 4.00 in head length. Barbels absent. Dorsal fin inserted in advance of the insertion of pelvic fin, midway between tip of snout and caudal fin base. Last unbranched dorsal fin ray ossified into a smooth spine. Pectoral fin not extending to pelvic fin. Lateral line complete. 3 to 4½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 8 or 9. Preanal scales 14 or 15. Circumpeduncular scales 9 or 10. Gill rakers on lower limb of first gill arch 15 to 17. Body medium brown on dorsal and upper half of lateral sides, ventral and lower half yellowish brown. A black spot at base of caudal fin on 22 to 24th scale, another at the base of 4 to 6th ray of dorsal fin. Fins light yellow and black tipped.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Gwalior, Hoshangabad, Jabalpur, Khandwa, Narsinghpur, Rewa, Satna, Shahdol districts, Chambal river, Indravati and Kanha Tiger Reserves), Throughout.

Elsewhere : Bangladesh, China, Myanmar, Nepal, Pakistan, Sri Lanka, Yunnan.

63. ***Puntius ticto*** (Hamilton)
Fire fin barb

1822. *Cyprinus ticto* Hamilton, *Fish. Ganges* : 314, 389, pl. 8, fig. 87.

1878. *Barbus ticto*, Day, *Fish. India* : 576, pl. 144, fig. 7; 1889, Day, *Fauna Br. India, Fish.*, **1** : 325.

1991. *Puntius ticto*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 22-26 (revision).

Material examined : (i) 4 exs., Barela village on Mandla Road, district Jabalpur; S. Chakrapany

and party; 2.1.1961. (ii) 1 ex., Pariat tank, district Jabalpur; R.C. Sharma and party; 4.1.1961. (iii) 10 exs., Pariat river at Imalia village, district Jabalpur; R.C. Sharma and party; 25.10.1961. (iv) 14 exs., Narbada river at Haritola, Amarkantak, district Shahdol; S. Chakrapany and party; 21.5.1962. (v) 15 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 24.5.1962. (vi) 30 exs., Narbada river at Gandhi Vihar, Amarkantak, district Shahdol; S. Chakrapany and party; 17.5.1962. (vii) 9 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 8.5.1962. (viii) 2 exs., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (ix) 1 ex., Choral river at Choral village, district Indore; D.N. Basu and party; 12.11.1969. (x) 6 exs., Naya talab, Bhadanpur near Maihar, district Satna; H.S. Sharam and party; 15.10.1986. (xi) 4 exs., Sughna nala on Rewa Road, Amarpatan, district Satna; H.S. Sharma and party; 22.10.1986. (xii) 3 exs., Sher river, district Narsinghpur; H.P. Agrawal and party; 15.10.1989. (xiii) 6 exs., Sakkar river, district Narsinghpur; H.P. Agrawal and party; 17.10.1989. (xiv) 1 ex., Singri river, district Narsinghpur; H.P. Agrawal and party; 14.10.1989. (xv) 4 exs., tomas river, district Satna; H.S. Sharma and party; 22.10.1986. (xvi) 24 exs., Ramdohu river on Chhindwara Chand Road, district Chhindwara; H.S. Sharma and party; 3.4.1990. (xvii) 1 ex., Dabra, district Gwalior; H.P. Agrwal and party; 8.2.1995. (xviii) 4 exs., Nargarha river, district Shahdol; H.P. Agrawal and party; 3.12.1978. (xix) 5 exs., Satna river near Katkon, district Satna, H.S. Sharma and party; 29.10.1986. (xx) 4 exs., Betwa river, district Raisen; H.S. Sharma and party; 3.10.1995. (xxi) 3 exs., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995. (xxii) 2 exs., Mardaha river near Begamganj, district Raisen; H.S. Sharma and party; 29.9.1995.

Diagnostic characters : D. 3-4/8, P.13-15, V. 1/8, A. 3/5; C.19, LL. 21-26.

Head length 4.00 to 5.00 and body depth 3.00 to 3.50 in total length. Eye diameter 2.50 to 3.00 in head length. Barbels absent. Dorsal fin inserted midway between tip of snout and base of caudal fin, half as high as the body. Last unbranched dorsal fin ray osseous, posterior margin serrated with 12 to 18 teeth. Pectoral fin not extending to pelvic fin. Lateral line may be complete or incomplete. 3 to 4½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 8 to 11. Preanal scales 11 to 14. Circumpeduncular scales 10 to 12. Gill rakers on lower limb of first gill arch 5 to 7. Body silvery with two black blotches along the lateral line; the first extending over 3rd or 4th or 5th scale disappears when the fish grows about 60 mm length. The second one above the anal fin over 16th to 20th scale, covering only 2 or 3 scales.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Gwalior, Hoshangabad, Indore, Jabalpur, Narsinghpur, Rewa, Satna, Shahdol districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Thailand, Sri Lanka.

Remark : This species is a highly variable one showing variations in its major characters as lateral line, scale count, dorsal spine and colouration, besides body proportions. Several attempts have been made to segregate some of the populations as subspecies. Hora, 1937, tried to separate *P. stoliczkanus* from *ticto* but the characters were found not of much use. Specimens of *ticto* from Peninsular India were found to exhibit gradations between *Punctatus* and *stoliczkanus*. Hora, Misra and Malik, 1937, ably demonstrated the variations in *P. ticto* and treated *Punctatus* and *stoliczkanus* as synonyms. Silas, 1952, however distinguished *ticto, punctatus* and *stoliczkanus* as subspecies of *ticto* based on the data of Hora et al, 1937, such as

(a) Lateral line being complete or incomplete.

(b) Differences in the number of pectoral fin rays, lateral line scales, pre-dorsal scales and scales between lateral line and pelvic fin base.

It is well known that *P. ticto* with or without

complete lateral line is not restricted to any definite geographic region or zone. Murty, 1977, Mirza and Abdussamad, 1982, did not agree with Silas' views. There are no definite evidences for treating *punctatus* and *stoliczkanus* as separate subspecies (Jayaram, 1991).

64. ***Puntius vittatus*** Day
Silver barb

1865. *Puntius vittatus* Day, *Proc. zool. Soc. London*, : 303.

1878. *Barbus vittatus* Day, *Fish. India*, : 582, Pl. 144, fig. 2; 1889, Day, *Fauna Br. India, Fish.*, **1** : 333.

1991. *Puntius vittatus*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 86-88(revision).

Material examined : No specimen obtained by me. It is recorded from literature.

Diagnostic characters : D. 2/8, P.12-13, V. 1/8, A. 2/5, C.19, LL. 20-22.

Head length 4.00 to 4.50 and body depth 3.50 in total length. Eye diameter 2.00 to 3.00 in head length. No tubercles on snout and lips. Barbels absent. Dorsal fin inserted in advance of pelvic fin, nearer to tip of snout than to caudal fin base. Last unbranched dorsal fin ray weak, articulated and smooth. Lateral line incomplete, ceasing after 5 or 6 scales. 3 rows of scales between lateral line and base of pelvic fin. Predorsal scales 8 to 10. Body light brown above lateral line, yellowish beneath. A black streak extends near gill cover to caudal fin base. Dorsal fin with a vertical black streak and a black tip with orange markings. A black spot at base of caudal fin and another at base of dorsal fin. Adults with four black spots on body.

Distribution : India : Madhya Pradesh, Karnataka, upto Goa and Kutch, Kerala, Orissa, Rajasthan, Tamil Nadu.

Elsewhere : Pakistan, Sri Lanka.

65. ***Puntius waageni*** (Day)

1872. *Barbus waageni* Day, *J. Asiat. Soc. Beng.*, **41**(2) : 325.

1991. *Puntius waageni*, Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **135** : 84-86 (revision).

Material examined : (i) 6 exs., A tank in Bhilouda village, district Jabalpur; J.S. Bhatti and party; 13.3.1964. (ii) 3 exs., A stream passing through Korhia village, district Mandla; J.S. Bhatti and aprty; 29.10.1963.

Diagnostic characters : D. 2/8-9, P.13-14, V. 1/8, A. 2/6-7, C.19, LL. 23-24.

Head length 4.00 and body depth 3.00 to 3.34 in total length. Eye diameter 3.75 to 4.00 in head length. No tubercles on snout and lips. Barbels absent. Dorsal fin inserted nearer to base of caudal fin than to tip of snout. Last unbranched dorsal fin ray weak, non-osseous and articulated. Pectoral fin extending to pelvic fin, as long as head without snout. Lateral line incomplete, ceasing after 7 or 8 scales. 4½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 8-10. Body silvery, darkest superiorly. A dark blotch on the side of the tail on about 17th or 18th row of scale.

Distribution : India : Madhya Pradesh (Jabalpur, Mandla districts), Shimla.

Elsewhere : Pakistan.

Osteobrama Heckel

Key to Species

1 Lateral line scales 55 to 70. Anal fin rays 2-3/27-33. Predorsal scales 24-28. .... *Osteobrama cotio cotio*

– Lateral line scales 75-80. Anal fin rays 2-3/23-26. Predorsal scales 34. .... *Osteobrama vigorsii*

66. ***Osteobrama cotio cotio*** (Hamilton)

1822. *Cyprinus cotio* Hamilton, *Fish. Ganges*, : 339, Pl. 39, Fig. 93.

1878. *Rohtee cotio*, Day, *Fish. India*, : 587, Pl. 151, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 340.

1981. *Osteobrama cotio cotio*, Jayaram, *Handbk. Freshw. Fish. India*, : 113 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 2 exs., Pariat river on Damoh Road, district Jabalpur; V.S. Durve and party; 11.10.1968. (iii)

1 ex., Pariat Canal, district Jabalpur; V.V. Rao and party; 25.7.1969. (iv) 15 exs., Gurandi Market, Jabalpur, district Jabalpur; Purchased; 12.9.1971. (v) 2 exs., Barra ki nadi on way to Bhadanpur-Badkula Road near Maihar, district Satna; H.S. Sharma and party; 15.10.1986. (vi) 1 ex., Sher river, district Narsinghpur; H.P. Agrawal and party; 15.10.1989. (vii) 10 exs., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986.

Diagnostic characters : D. 11-12 (3-4/8), P.13, V. 10, A. 29-36 (2-3/27-33), C.19, LL. 55-70.

Head length 5.50 to 6.00 and body depth 3.00 to 3.50 in total length. Eye diameter 2.50 to 3.00 in head length. Profile over nape concave. Upper jaw slightly longer. Barbels absent. Dorsal fin commences nearer to tip of snout than to base of caudal fin, dorsal spine weak and serrated. 12 to 13 rows of scales between lateral line and base of pelvic fin. Predorsal scales 24-28. Caudal fin deeply forked. Body silvery black on dorsal surface and often with a silvery lateral band. Generally with a black blotch before the base of dorsal fin and another on the nape.

Distribution : India : Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Narsinghpur, Rewa, Satna districts, Chambal river), Throughout except Malabar and South of Krishna river.

Elsewhere : Bangladesh, China, Myanmar, Nepal. Pakistan.

67. *Osteobrama vigorsii* (Sykes)
Deccan cotio

1841. *Rohtee vigorsii* Sykes, *Trans. zool. Soc. Lond.*, 2 : 364, Pl. 63, fig. 3.

1981. *Osteobrama vigorsii*, Jayaram, *Handbk. Freshw. Fish. India*, : 113-114 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 11-12 (3-4/8), P.19, V. 10, A. 25-28 (2-3/23-26), C.19, LL. 75-80.

Head length 5.00 and body depth 3.00 to 4.00 in total length. Eye diameter 3.00 to 3.50 in head length. Lower jaw slightly longer. Barbels either absent or a very rudimentary maxillary pair. Dorsal fin commences nearer to base of caudal fin than to tip of snout, dorsal spine strong and serrated. Caudal fin deeply forked. 11 rows of scales between lateral line and base of pelvic fin. Predorsal scales 34. Body greenish grey on dorsal surface and silvery on sides. A lateral silvery band present in young specimens.

Distribution : India : Madhya Pradesh (Bastar district), Andhra Pradesh, Deolali, Godavari and Krishna river systems, Maharashtra, Orissa, Southern India (Deccan).

Genus *Labeo* Cuvier

Key to Species

1 Dorsal fin rays not more than 13. Only one pair of barbels 2

– Dorsal fin rays more than 13. Two pairs of barbels 9

2. Lateral line scales 60-65. Scales between pelvic fin base and lateral line 8 or 9 .... *L. boggut*

– Lateral line scales not more than 45. Scales between pelvic fin base and lateral line not more than 7. 3

3. Scales between lateral line and pelvic fin base 6 or 7. (A horny covering inside of lower jaw). ..... *L. dero*

– Scales between lateral line and pelvic fin base less than 6. 4

4. Pectoral fin reaching pelvic fin 5

– Pectoral fin not reaching pelvic fin 6

5. Eyes 6.00 to 9.00 in head length .... *L. dyocheilus dyocheilus*

– Eyes 4.00 to 5.30 in head length .... *L. bata*

6. Snout with a distinct lateral lobe. 7

– Snout without any lateral lobe. 8

7. Eye diameter 3.50 to 4.50 in head length. Lips continuous and labial fold uninterrupted. ..... *L. angra*

- Eye diameter 4.50 to 5.50 in head length. Lips with a distinct inner fold which is interrupted. ..... *L. pangusia*

8. Eye diameter 5.50 in head length. .... *L. ariza*

- Eye diameter 3.70 to 4.00 in head length. ..... *L. boga*

9. Dorsal fin rays 19-26. 10

- Dorsal fin rays 14-18. 11

10. Dorsal fin rays 24-26. Scales between lateral line and pelvic fin base 5 ..... *L. nandina*

- Dorsal fin rays 19-22. Scales between lateral line and pelvic fin base 6 or 7. .... *L. fimbriatus*

11. Lateral line scales more than 50 (50-85).... 12

- Lateral line scales less than 50 (38-47)..... 13

12. Lateral line scales 71-84. Scales between lateral line and pelvic fin base 9-13 .... *L. gonius*

- Lateral line scales 53-60. Scales between lateral line and pelvic fin base 5-5½ .... *L. dussumieri*

13. Simple unbranched rays in dorsal fin two. A bluish spot on the opercle..... *L. porcellus*

- Simple unbranched rays in dorsal fin three or four. No bluish spot on the opercle. 14

14. Body depth 4.00 in total length. Snout with pores. ..... *L. calbasu*

- Body depth 4.50 in total length. Snout without pores. ..... *L. rohita*

68. *Labeo angra* (Hamilton)

1822. *Cyprinus angra* Hamilton, *Fish. Ganges*, 331, 391.

1878. *Labeo angra*, Day, *Fish. India*, : 541-542, pl. 128, fig. 2; 1889, Day, *Fauna Br. India, Fish.*, 1 257, 267.

1981. *Labeo angra*, Jayaram, *Handbk. Freshw. Fish. India*, : 117, 119 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 12-13 (2-3/10), P.16, V. 9, A. 7 (2/5), C.19, LL. 42.

Head length 5.75 in total length. Eye diameter 3.50 to 4.50 in head length. Snout with a distinct lateral lobe. Lips continuous and labial fold uninterrupted. Snout studded with pores. Barbels one pair, short, maxillary pair. Dorsal fin inserted nearer to tip of snout than to caudal fin base, as high as body. Pectoral fin not reaching pelvic fin, as long as head. 5½ rows of scales between lateral line and pelvic fin base. Body brownish on the dorsal surface. A black or bluish stripe passes from the eyes to the base of caudal fin, ending in a black blotch.

Distribution : India : Madhya Pradesh (Bastar district), Assam, Bihar, Deccan, Orissa, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

69. *Labeo ariza* (Hamilton)

1807. *Cyprinus ariza* Hamilton, *Journey Mysore*, **3**: 344, Pl. 31.

1878. *Labeo ariza*, Day, *Fish. India*, : 544, Pl. 132, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 272.

1981. *Labeo ariza*, Jayaram, *Handbk. Freshw. Fish. India*, : 117, 120 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 11 (2/9), P.18, V.9, A. 7-8(2-3/5), LL. 38.

Head length 5.25 to 5.50 in total length. Eye diameter 5.50 in head length. Snout without any lateral lobe. Barbels 1 pair, very short, maxillary pair. Dorsal fin inserted slightly posterior to tip of pectoral fin, slightly nearer to tip of snout than to caudal fin base. Pectoral fin not reaching pelvic fin, as long as head. 5½ rows of scales between lateral line and pelvic fin base. Body leaden grey above, silvery below.

Distribution : India : Madhya Pradesh, Andhra Pradesh, Tamil Nadu (Nilgiri hills), Wynaad, South India, Cauvery and Krishna river systems.

70. ***Labeo bata*** (Hamilton)
Bata

1822. *Cyprinus bata* Hamilton, *Fish. Ganges*, : 283, 386.

1878. *Labeo bata*, Day, *Fish. India*, : 542, Pl. 129, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 268.

1981. *Labeo bata*, Jayaram, *Handbk. Freshw. Fish. India*, : 117, 119 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960.

Diagnostic characters : D. 11-12 (2-3/9-10), P. 18, V. 9, A. 7 (2/5), C.19, LL. 37-40.

Head length 5.50 to 5.75 and body depth 4.30 to 4.70 in total length. Eye diameter 4.00 to 4.30 in head length. Lips continuous. A tubercle inside lower jaw above symphysis. No horny covering inside jaws. Barbels 1 pair, very short, maxillary pair. Dorsal fin inserted nearer to tip of snout than to caudal fin base, as high as head length. Pectoral fin reaching pelvic fin, as long as head. 5½ rows of scales between lateral line and base of pelvic fin. Body grey on the dorsal surface, silvery below. Lower fins tinted orange. Young specimens often with 3 or 4 small, lateral black spots.

Distribution : India : Madhya Pradesh (Jabalpur, Rewa districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Nepal, Pakistan.

71. ***Labeo boga*** (Hamilton)
Burmese fish, Jamuna fish

1822. *Cyprinus boga* Hamilton, *Fish. Ganges*, : 286, 386, pl. 28, fig. 80.

1878. *Labeo boga*, Day, *Fish. India*, : 543, pl. 128, fig. 3 and pl. 131, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 269.

1981. *Labeo boga*, Jayaram, *Handbk. Freshw. Fish. India*, : 117, 120 (distribution and key to species).

Material examined : (i) 4 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 1 ex., Hiran river near Katangi village, district Jabalpur; V.S. Durve and party; 7.9.1968.

Diagnostic characters : D. 11-13 (2-3/9-10), P. 16, V. 9, A. 7 (2/5), C.19, LL. 37-39.

Head length 5.25 to 5.50 and body depth 5.50 to 5.70 in total length. Eye diameter 3.70 to 4.00 in head length. Lips somewhat thick. A thin layer of cartilage inside lower jaw. Snout without any lateral lobe but with tubercles. Barbels 1 pair, very short, maxillary pair. Dorsal fin inserted above tip or slightly anterior to tip of pectoral fin, nearer to tip of snout than to caudal fin base. Pectoral fin not reaching pelvic fin. 5 rows of scales between lateral line and base of pelvic fin. Body orange. A dark spot on the shoulder often present. Fins with a reddish tinge.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur districts, Chambal river), Andhra Pradesh, Assam, Bihar, Deccan, Gangetic provinces, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

72. ***Labeo boggut*** (Sykes)

1841. *Chondrostoma boggut* Sykes, *Trans. zool. Soc. Lond.*, **2** : 359.

1878. *Labeo boggut*, Day, *Fish. India*, : 542, Pl. 128, fig 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 269.

1981. *Labeo boggut*, Jayaram, *Handbk. Freshw. Fish. India*, : 117, 119 (distribution and key to species).

Material examined : (i) 3 exs., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 2.1.1961. (ii) 5 exs., Narbada river at Gwarighat, district Jabalpur; S. Chakrapany and party; 28.4.1962. (iii) 6 exs., Ghugra fall near Bargi Rest House, district Jabalpur; H. Khajuria and party; 29.6.1965. (iv) 2 exs., Pharikhera village 24.8 km. E S E of Jabalpur, district Jabalpur; Purchased; 26.2.1963. (v) 1 ex., Hiran river near Katangi village, district Jabalpur; V.S. Durve and party; 7.9.1968.

Diagnostic characters : D. 11-12 (3/8-9), P. 17, V. 9, A. 7 (2/5), C.19, LL. 60-65.

Head length 5.50 to 6.00 and body depth 5.50 to 6.20 in total length. Eye diameter 4.50 to 5.00 in head length. Lower lip fimbriated with a horny covering inside. Snout without any lateral lobe

but with a few pores and tubercles. Barbels 1 pair, short, maxillary pair. Dorsal fin inserted nearer to tip of snout than to caudal fin base, as high as body. Pectoral fin not reaching pelvic fin, as long as head length. 8 or 9 rows of scales between lateral line and base of pelvic fin. Body silvery, darkest along back. A dark spot near caudal fin base. Fins orange often with few lateral lines or a bluish band.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Rewa districts, Chambal river, Indravati Tiger Reserve), Andhra Pradesh, Throughout North India and upto Cauvery river system.

Elsewhere : Bangladesh, Malaya, Pakistan.

73. ***Labeo calbasu*** (Hamilton)
Calbasu, Orange fin labeo

1822. *Cyprinus calbasu* Hamilton, *Fish. Ganges,* : 297, 387, pl. 2, fig. 83.

1878. *Labeo calbasu,* Day, *Fish. India,* : 536, pl. 126, fig. 4; 1889, Day, *Fauna Br. India, Fish.,* **1** : 259.

1981. *Labeo calbasu,* Jayaram, *Handbk. Freshw. Fish. India,* : 117, 121 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 16-18 (3/13-15), P. 19, V. 9, A. 7 (2/5), C.19, LL. 40-44.

Head length 5.00 to 6.00 and body depth 4.00 in total length. Eye diameter 4.00 to 5.00 in head length. Lips thick, fringed and each having a distinct inner fold. Snout with pores, not truncated and without any lateral lobe. Barbels 2 pairs; rostral pair equal to eye, longer than maxillary pair. Dorsal fin inserted ahead of pelvic fin insertion, midway between tip of snout and caudal fin base. 5½ to 6 rows of scales between lateral line and base of pelvic fin. Body blackish green above, lighter below. Fins black, upper tip of caudal fin usually edged white.

Distribution : India : Madhya Pradesh (Bastar, Rewa districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Thailand, Yunnan.

74. ***Labeo dero*** (Hamilton)

1822. *Cyprinus dero* Hamilton, *Fish. Ganges,* : 277, 385, pl. 22, fig. 78.

1889. *Labeo diplostomus,* Day, *Fauna Br. India, Fish.,* **1** : 265.

1981. *Labeo dero* Jayaram, *Handbk. Freshw. Fish. India,* : 117, 119 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from literature.

Diagnostic characters : D. 11-13 (2-3/9-10), P. 17, V. 9, A. 7 (2/5), C.19, LL. 41-44.

Head length 5.50 to 6.25 and body depth 5.20 to 5.70 in total length. Eye diameter 5.00 to 6.50 in head length. Snout with a distinct, deep groove across it and covered with pores. Snout without any lateral lobe. A horny covering inside lower jaw. Barbels 1 pair, short, maxillary pair. Dorsal fin inserted above last quarter of pectoral fin, midway between tip of snout and posterior end of anal fin base. Dorsal profile more convex than ventral profile. 6 (occasionally present) or 7 rows of scales between lateral line and pelvic fin base. Body dark grey above, silvery on sides and beneath. Scales often tinged with red.

Distribution : India : Madhya Pradesh (Chambal river), Assam, Bihar, Himalaya (All along), Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, China, Myanmar, Nepal, Pakistan.

75. ***Labeo dussumieri*** (Valenciennes)
Common labeo

1841. *Rohita dussumieri* Valenciennes, *Hist. nat. Poiss.,* **16** : 258, pl. 475.

1878. *Labeo dussumieri,* Day, *Fish. India,* : 538, pl. 126, fig. 5; 1889, Day, *Fauna Br. India, Fish.,* **1** : 262.

1981. *Labeo dussumieri,* Jayaram, *Handbk. Freshw. Fish. India,* : 118, 120 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 15-16 (3/12-13), P. 17, V. 9, A. 7 (2/5), C.19, LL. 53-60.

Head length 5.75 to 7.00 in total length. Eye

diameter 4.00 to 4.50 in head length. Lips fleshy, fringed with a distinct inner fold above and below. Snout without any lateral lobe, pores present. Barbels 2 pairs, very short. Ventral profile more convex than dorsal profile. Dorsal fin inserted nearer to tip of snout than to caudal fin base. 5 to 5½ rows of scales between lateral line and base of pelvic fin. Body greyish above, lighter below. Scales with reddish centre. A diffused dark spot on either side of tail usually present. Fins dusky.

Distribution : India : Madhya Pradesh (Chambal river), Andhra Pradesh, Western ghats up to N. Canara.

Elsewhere : Sri Lanka.

76. ***Labeo dyocheilus dyocheilus*** (McClelland)

1839. *Cyprinus dyocheilus* McClelland, *Asiat. Res.*, **19** : 268, 330, pl. 37, fig. 1.

1878. *Labeo dyochilus*, Day, *Fish. India*, : 540, pl. 130, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 257, 266.

1981. *Labeo dyocheilus dyocheilus*, Jayaram, *Handbk. Freshw. Fish. India*, : 117, 119 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 13 (2/11), P. 17. V. 9, A.7 (2/5), C.19, LL. 43.

Head length 5.00 to 5.50 in total length. Eye diameter 6.00 to 9.00 in head length. Snout with a distinct lateral lobe, provided with pores. Lips continuous, the fold across lower jaw interrupted. A horny covering inside both the jaws. Barbels 1 pair, short maxillary pair. Dorsal fin inserted nearer to tip of snout than to caudal fin base. Pectoral fin reaching pelvic fin. 5 rows of scales between lateral line and base of pelvic fin. Body dull green, darkest above and lighter below. Fins darkest in the centre.

Distribution : India : Madhya Pradesh (Bastar, Rewa districts, Chambal river), Assam, Doon valley, Kashmir, Poonch, Sikkim.

Elsewhere : Bangladesh, Nepal, Pakistan.

Remark : *L. dyocheilus pakistanicus* Mirza and Awan, 1976 (*Biologia, 22 (1)* : 43-47) is differentiated from the nominate species by snout contained 1.88-2.00 in head length (vs. 2.5-3.0 in *L. dyocheilus dyocheilus*), cleft of mouth extending below level of nostrils (vs. up to level of anterior margin of eye), $8^1/_2$ rows of scales between dorsal fin and lateral line (vs. 9½-10½ rows) (Jayaram, 1981 : 119).

77. ***Labeo fimbriatus*** (Bloch)
Fringe-lipped carp

1797. *Cyprinus fimbriatus*, Bloch, *Ichth.*, **12** : 50, pl. 409.

1878. *Labeo fimbriatus*, Day, *Fish. India*, : 536, pl. 126, fig. 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 258.

1981. *Labeo fimbriatus*, Jayaram, *Handbk. Freshw. Fish. India*, : 118, 120 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960.

Diagnostic characters : D. 19-22 (3-4/15-18), P. 17, V. 9, A. 7 (2/5), C.19, LL. 44-47.

Head length 6.20 to 6.50 and body depth 4.00 to 4.50 in total length. Eye diameter 3.70 to 4.50 in head length. Lips thick, continuous and fringed. Lower jaw with a horny covering inside. Snout destitute of a lateral lobe and studded with minute pores. Barbels 2 pairs, short. Dorsal fin inserted nearer to tip of snout than to base of caudal fin. 6 or 7 rows of scales between the lateral line and base of pelvic fin. Body silvery above, lighter on sides and beneath. A diffused dark blotch on caudal fin base sometimes present. Fins stained black.

Distribution : India : Madhya Pradesh (Bastar, Rewa districts), Gujarat, Maharashtra, Orissa, Punjab, South India, Uttar Pradesh, West Bengal.

Elsewhere : Myanmar, Nepal, Pakistan.

78. ***Labeo gonius*** (Hamilton)

1822. *Cyprinus gonius* Hamilton, *Fish. Ganges*, : 292, 387.

1878. *Labeo gonius*, Day, *Fish. India*, : 537, pl. 127, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 261.

1981. *Labeo gonius*, Jayaram, *Handbk. Freshw. Fish. India*, : 118, 120 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 4.12.1960.

Diagnostic characters : D. 15-17 (2-3/13-14), P. 17, V. 9, A. 7 (2/5), C.19, LL. 71-84.

Head length 5.00 to 5.50 and body depth 4.00 to 4.50 in total length. Eye diameter 4.50 to 5.00 in head length. A horny covering inside both the jaws. Snout without any lateral lobe but with pores and tubercles. Barbels 2 pairs, short. Dorsal fin inserted nearer to tip of snout than to base of caudal fin. 9 to 13 rows of scales between lateral line and base of pelvic fin. Body greenish grey above, lighter below. Scales darkest at their margins, many with red lunules on them.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur, Rewa districts, Chambal river, Indravati Tiger Reserve), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

79. ***Labeo nandina*** (Hamilton)

1822. *Cyprinus nandina* Hamilton, *Fish. Ganges,* : 300, 388, pl. 8, fig. 84.

1889. *Labeo nandina,* Day, *Fauna Br. India, Fish.*, **1** : 257, 258.

1981. *Labeo nandina,* Jayaram, *Handbk. Freshw. Fish. India,* : 118, 120 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 24-26 (2-3/22-24), P. 15, V. 9, A. 7 (2/5), C.19, LL. 42-44.

Head length 4.50 to 5.00 and body depth 4.00 in total length. Eye diameter 4.50 to 5.00 in head length. Dorsal profile concave above the eyes. Snout without lateral lobe, with a few fine pores. Lips thick and fringed, with a distinct inner fold above and below. Barbels two pairs, short. Dorsal fin inserted midway between tip of snout and end of anal fin base. 5 rows of scales between lateral line and pelvic fin base. Body dark greenish on dorsal surface, lighter below. A few cloudy blotches along sides. Many scales red at centre.

Distribution : India : Madhya Pradesh (Indravati Tiger Reserve), Assam, West Bengal.

Elsewhere : Bangladesh, Myanmar.

80. ***Labeo pangusia*** (Hamilton)

1822. *Cyprinus pangusia* Hamilton, *Fish. Ganges,* : 285, 386.

1878. *Labeo pangusia,* Day, *Fish. India,* : 541, pl. 131, fig. 1; 1889, Day, *Fauna Br. India. Fish.*, **1** : 266-267.

1981. *Labeo pangusia,* Jayaram, *Handbk. Freshw. Fish. India,* : 118, 119 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 13 (2/11), P. 15, V. 9, A. 7 (2/5), C.19, LL. 40-42.

Head length 5.66 to 6.00 and body depth 4.50 in total length. Eye diameter 4.50 to 5.50 in head length. Snout with a very distinct lateral lobe, covered with large pores. Lips with a distinct inner fold which is interrupted. A cartilaginous covering inside both the jaws. Barbels 1 pair, short, maxillary pair. Dorsal fin inserted nearer to tip of snout than to base of caudal fin. Pectoral fin not reaching pelvic fin. 5½ to 6 rows of scales between lateral line and base of pelvic fin. Body dull green above, lighter on sides and beneath. Sometimes the base of each scale has a dark mark.

Distribution : India : Madhya Pradesh (Bastar district), Assam, Deccan, West Bengal.

Elsewhere : Bangladesh, Myanmar, Pakistan.

81. ***Labeo porcellus*** (Heckel)

1844. *Tylognathus porcellus* Heckel, *Fish. Kashmir,* **4** : 385.

1878. *Labeo porcellus,* Day, *Fish. India,* : 539, pl. 128, fig. 1; 1889, Day, *Fauna Br. India. Fish.*, **1** : 263.

1981. *Labeo porcellus,* Jayaram, *Handbk. Freshw. Fish. India,* : 118, 121 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 15-16 (2/13-14), P. 17, V. 9, A. 7 (2/5), C.19, LL. 39.

Head length 6.00 in total length. Eye diameter 5.00 in head length. Snout without any lateral

lobe. Lips thick, with a distinct inner fold to both jaws. Jaws with a thin cartilaginous internal covering. Barbels 2 pairs, maxillary pair longer than rostral pair. Dorsal fin inserted nearer to tip of snout than to caudal fin base. Pectoral fin as long as head. 5 rows of scales between lateral line and pelvic fin base. Body greyish above, dull white on sides and beneath. Behind the centre of the opercle a bluish spot, which may be continued on shoulder. A dark spot, usually present at caudal fin base. Most of the scales darkest at their edges. Fins greyish, darkest along their centres.

Distribution : India : Madhya Pradesh (Bastar district), Andhra Pradesh, Maharashtra.

Elsewhere : Sri lanka.

82. ***Labeo rohita*** (Hamilton)
Rohu

1822. *Cyprinus rohita*, Hamilton *Fish. Ganges*, : 301, 388, pl. 36, fig. 85.

1878. *Labeo rohita*, Day, *Fish. India*, : 538, pl. 127, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, 1 : 262.

1981. *Labeo rohita*, Jayaram, *Handbk. Freshw. Fish. India*, : 118, 120 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 28.vi.1962.

Diagnostic characters : D. 15-16 (3/12-13), P. 17, V. 9, A. 7 (2/5), C.19, LL. 40-42.

Head length 4.50 to 5.00 and body depth 4.50 in total length. Eye diameter 4.00 to 6.00 in head length. Snout not truncated, without any lateral lobe. Lips thick, fringed, with a distinct inner fold above and below. Barbels 2 pairs. Dorsal fin inserted midway between tip of snout and base of caudal fin. Pectoral fin as long as head without snout. 6 to 6½ rows of scales between lateral line and base of pelvic fin. Body bluish or brownish on dorsal surface, silvery on sides and beneath. Fins sometimes black.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Jabalpur, Rewa districts, Chambal river), Throughout (not reported from W. ghats in the natural state).

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Genus ***Chagunius*** H.M. Smith

83. ***Chagunius chagunio*** (Hamilton)

1822. *Cyprinus chagunio* Hamilton, *Fish. Ganges*, : 295, 387.

1889. *Barbus chagunio*, Day, *Fauna Br. India, Fish.*, 1 : 299, 300, fig. 103.

1981. *Chagunius chagunio*, Jayaram, *Handbk. Freshw. Fish. India*, : 123 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 11 (3/8), P. 15, V. 9, A. 8 (3/5), C.19, LL. 44-48.

Head length 4.50 to 5.00 and body depth 4.00 to 4.25 in total length. Eye diameter 5.00 to 6.50 in head length. Snout overhanging, divided into a central and two lateral lobes by a groove extending upward and forward from base of each rostral barbel. Suborbital region, cheeks and anterior upper margin of eye covered with numerous pores. Mouth directed upwards. Barbels 2 pairs, both pairs longer than eye. Dorsal fin inserted midway between tip of snout and caudal fin base, slightly ahead of pelvic fin. Dorsal spine stout, strong and serrated. Posterior anal fin rays elongated in males. Lateral line complete. 5½ to 6½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 15. Body uniformly silvery with a pinkish tinge. Fins reddish with lighter edges. Dorsal fin edged black.

Distribution : India : Madhya Pradesh (Rewa district, Chambal river, Narmada river), North India along base of Himalaya.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Thailand.

Genus ***Tor*** Gray

Key to Species

1 Length of head considerably shorter or more or less equal to body depth. 2

– Length of head considerably greater than body depth. ..... *T. putitora*

2. 3½ rows of scales between lateral line and base of pelvic fins. ..... *T. mussullah*

– 2½ rows of scales between lateral line and base of pelvic fins. 3

3. Dorsal and ventral profiles slightly and more or less equally arched ..... *T. khudree*

– Ventral profile more arched than dorsal. .... *T. tor*

84. ***Tor khudree*** (Sykes)

1838. *Barbus khudree* Sykes, *Proc. zool. Soc. Lond.*, : 159.

1981. *Tor khudree*, Jayaram, *Handbk. Freshw. Fish. India*, : 124, 126 (distribution and key to species).

1982. *Tor khudree*, Sen and Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **39**: 7-9, fig. 5, 6a and b (review).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 13 (4/9), P. 15, V. 9-10, A. 8-9 (2/6-7), C.19, LL. 25-27.

Head length 4.50 to 4.70 and body depth 4.30 to 4.60 in total length. Eye diameter 5.50 to 7.00 in head length. Snout without tubercles. Length of head more or less equal to body depth. Lips fleshy, thick with labial fold continuous. Dorsal and ventral profiles slightly and more or less equally arched. Barbels 2 pairs, longer than eye. Dorsal fin inserted opposite to pelvic fin origin, dorsal spine strong and smooth. 2½ rows of scales between lateral line and base of pelvic fin. Caudal fin deeply forked. Body dark olive on dorsal surface becoming creamy, yellowish white below. Fins bluish grey, often tipped yellowish pink.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad districts), Andhra Pradesh, Arunachal Pradesh, Orissa, Peninsular India, Uttar Pradesh, Rivers of Western Ghats.

Elsewhere : Sri Lanka.

Remark : Known as Khudree mahseer, *Tor khudree*, is distinguished by its head being as long as the depth of body but is somewhat like *Tor tor* in its body depth in relation to body length (head 4.5 to 4.7 and depth of the body 4.3 to 4.6 in the total length) (Jhingran, 1982:163).

In life olive green with fins tipped pink and with a faint streak along lateral line. Hora, 1939, 1940, 1941, 1942, in a series of articles elucidated the taxonomy of fishes grouped under "Mahseer" *Tor Khudree* is characterised by the presence of $2^{1}/_{2}$ rows of scales between pelvic base and lateral line and absence of any tubercles on the snout. Hora, 1943, P. 166, conclusively proved that Jerdon's *B. malabaricus* is a synonym of this species (Jayaram, Venkateswarlu, Ragunathan, 1982).

85. ***Tor mussullah*** (Sykes)

1838. *Barbus mussullah* Sykes, *Proc. zool. Soc. Lond.*, : 154.

1981. *Tor mussullah*, Jayaram, *Handbk. Freshw. Fish. India*, : 124, 125 (distribution and key to species).

1982. *Tor mussullah*, Sen and Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **39**: 6-7 (review).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 4/9, A.3/5, P. 16, V. 9, C.19, LL. 25-27.

Head length 4.60 to 5.00 and body depth 3.50 to 3.70 in total length. Eye diameter 6.00 in head length. head length much less than body depth. The lateral sides of snout and suborbital region tuberculated. Lips fleshy, thick with labial fold continuous. Barbels 2 pairs, maxillary pair longer than rostral pair. Dorsal profile more convex than ventral profile. Dorsal fin inserted opposite to pelvic fin origin, dorsal spine strong and smooth. 3½ rows of scales between lateral line and base of pelvic fin. Caudal fin forked. Body dark bronze on dorsal surface and reddish cream below. Young specimens rather silvery at sides shot with pink. Fins reddish grey with bright blue streaks. Predorsal scales–10.

Distribution : India : Madhya Pradesh, Andhra Pradesh, Maharashtra, Peninsular India, Western ghats.

Remark : This fish is characterised by having

its head much shorter than the depth of the body but differs from *Tor tor* in having a much deeper body in relation to total length (head 4.6 to 5 and depth of the body-3.5 to 3.7 in total length) (Jhingran, 1982 : 164).

86. *Tor putitora* (Hamilton)

1822. *Cyprinus putitora* Hamilton, *Fish. Ganges*, : 303, 388.

1981. *Tor putitora*, Jayaram, *Handbk. Freshw. Fish. India*, : 124, 125 (distribution and key to species).

1982. *Tor putitora*, Sen and Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **39** : 5, fig. 3 (review).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 23.3.1960. (ii) 5 exs., Narbada river at Bheraghat, district Jabalpur; Purchased; 20.6.1962. (iii) 2 exs., Narbada river at Manot, district Mandla; H. Khajuria and party; 12.11.1963. (iv) 3 exs., Narbada river at Mandla, district Mandla; H. Khajuria and party; 13.11.1963.

Diagnostic characters : D. 12 (3/9), P. 19, V. 9, A. 7-8 (2-3/5), C.19, LL. 25-28.

Head length 4.00 to 4.50 and body depth 5.50 to 7.00 in total length. Eye diameter 3.00 to 5.30 in head length. head length comparatively bigger than body depth. Lips thick with a continuous labial groove. Barbels 2 pairs, more or less of equal length. Dorsal and ventral profiles gently arched. Dorsal fin originates midway between tip of snout and base of caudal fin, dorsal spine bony, strong and smooth. Predorsal scales 9. 2½ rows of scales between lateral line and base of pelvic fin. Body usually greenish on dorsal surface, light pink on sides and silvery white below. A broad, light greyish blue or purplish lateral band found generally in live specimens. Fins mostly greyish green often shot with pink.

Distribution : India : Madhya Pradesh (Jabalpur, Mandla, Rewa districts, Indravati Tiger Reserve), All along the Himalaya, Haryana, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal, Pakistan.

Remark : The putitor mahseer, also called golden or common Himalayan mahseer, has its head longer than the depth of the body (Head 4 to 4.5 and depth of the body 5.5 to 7 in total length) (Jhingran, 1982 : 160).

87. *Tor tor* (Hamilton)

1822. *Cyprinus tor* Hamilton, *Fish. Ganges*, : 305, 388.

1981. *Tor tor*, Jayaram, *Handbk. Freshw. Fish. India*, : 124-126 (distribution and key to Species).

1982. *Tor tor*, Sen and Jayaram, *Rec. zool. Surv. India, Occ. Paper No.* **39** : 3-4 (review).

Material examined : (i) 1 ex., Narbada river at Manot, district Mandla; H. Khajuria and party; 12.11.1963. (ii) 1 ex., Choral river at Choral village, district Indore; D.N. Basu and party; 12.11.1969.

Diagnostic characters : D. 12 (3/9), P. 19, V. 9, A. 7-8 (2-3/5), C.19, LL. 22-27.

Head length 4.70 to 5.00 and body depth 4.00 to 4.20 in total length. Eye diameter 3.00 to 4.00 in head length. Head shorter than depth of body. Lips fleshy, thick with continuous labial fold across the lower jaw. Jaws of same length. Snout pointed. Barbels two pairs, Maxillary pair slightly longer than rostral pair. Ventral profile more arched than dorsal profile. Dorsal fin inserted opposite to or slightly in advance of pelvic fin, dorsal spine bony and smooth. Pectoral fin reaching pelvic fin. Lateral line complete. 2½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 9.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Indore, Mandla, Rewa districts, Chambal river, Indravati Tiger Reserve), Foothills of Himalaya, Assam, Bihar, Haryana, Punjab, Uttar Pradesh, West Bengal (N. Bengal).

Elsewhere : Bangladesh, China, Myanmar, Pakistan.

Remark : The tor mahseer is more stoutly built than the putitor mahseer and is distinguished by the head being shorter than the depth of body (head 4.7 to 5 and depth of body 4 to 4.2 in total length). *Tor tor* occurs along the foot-hills of the Himalayas from Kashmir to Assam and in the

rivers Narmada and Tapti (Jhingran, 1982: 161). Ganga and Narbada are its principal habitats (Kulkarni, 1979).

Genus ***Cirrhinus*** Oken

Key to Species

1. Dorsal fin with 8 branched rays 2
– Dorsal fin with 11 or more than 11 branched rays. 3
2. Dorsal fin nearly as high as body. Lateral line scales 44-48. ..... *C. fulungee*
– Dorsal fin less than body depth. Lateral line scales 35-38 ..... *C. reba*
3. Four barbels ..... *C. cirrhosa*
– Two barbels ..... *C. mrigala*

88. ***Cirrhinus cirrhosa*** (Bloch)

1797. *Cyprinus cirrhosa* Bloch, *Ichth.*, **12** : 52, fig. 411.

1878. *Cirrhina cirrhosa*, Day, *Fish. India*, : 547, pl. 131, fig. 3.

1981. *Cirrhinus cirrhosa*, Jayaram, *Handbk. Freshw. Fish. India*, : 127 (distribution and key to species)

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 17-19 (3-4/14-15), P. 19, V. 9, A. 8 (3/5), C.19, LL. 42-44.

Head length 5.50 to 6.00 and body depth 4.50 to 5.00 in total length. Eye diameter 3.20 in head length. Barbels 2 pairs, rostral pair slightly longer than maxillary pair. Dorsal profile more convex than ventral profile. Dorsal fin inserted considerably in advance of pelvic fin insertion, midway between tip of snout and posterior end of anal fin base, as high as body. 5½ to 6½ rows of scales between lateral line and base of pelvic fin. Body silvery, every scale with a red centre except along the abdomen where it is of a dull yellowish white. Fins tinted grey.

Distribution : India : Madhya Pradesh, The Cauveri, Godavari and Krishna river systems in South India.

Remark : 14 examples out of 18 collected measuring 84-130 mm in standard length have 41 scales along lateral line, with the upper part of head and dorsal profile dark brown with a silvery base. Larger examples are however uniformly golden coloured in life. Of these only one has 16 rays in the dorsal fin, four with 18 rays and all others with 17 rays (Jayaram, Venkateswarlu, Ragunathan, 1982).

89. ***Cirrhinus fulungee*** (Sykes)

1840. *Chondrostoma fulungee* Sykes, *Trans. zool. Soc. Lond.*, **2** : 358.

1878. *Cirrhina fulungee*, Day, *Fish. India*, : 549, pl. 132, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 280.

1981. *Cirrhinus fulungee*, Jayaram, *Handbk. Freshw. Fish. India*, : 127 (distribution and key to speces).

Material examined : No specimen was obtained by me. It is recorded from the literature.

Diagnostic characters : D. 10 (2/8), P. 15, V. 9, A. 7 (2/5), C.19, LL. 44-48.

Head length 5.70 and body depth 5.20 in total length. Eye diameter 3.00 in head length. Lower jaw with a tubercle above the symphysis. Barbels 1 pair, rostral pair. Dorsal fin inserted ahead of pelvic fin insertion, midway between tip of snout and posterior end of anal fin base, nearly as high as body. 6½ rows of scales between lateral line and base of pelvic fin. Body brownish grey on dorsal surface and silvery below. A light bluish lateral band present. Dorsal and caudal fins stained grey.

Distribution : India : Madhya Pradesh (Bastar district), Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu.

90. ***Cirrhinus mrigala*** (Hamilton)
Mrigal

1822. *Cyprinus mrigala* Hamilton, *Fish. Ganges*, : 279, 386, pl. 6, fig. 79.

1878. *Cirrhina mrigala*, Day, *Fish. India*, : 457, pl. 129, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 278.

1981. *Cirrhinus mrigala*, Jayaram, *Handbk. Freshw. Fish. India*, : 127 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 15-16 (3/12-13), P. 15, V. 9, A. 8 (3/5), C.19, LL. 40-45.

Head length 5.00 to 5.25 and body depth 4.00 to 5.50 in total length. Eye diameter 3.50 to 4.00 in head length. Dorsal profile slightly more convex than ventral profile. Barbels 1 pair, rostral pair. Dorsal fin inserted much in advance of pelvic fin insertion, nearer to tip of snout than to base of caudal fin. Dorsal fin nearly as high as body. 4½ to 6 rows of scales between lateral line and base of pelvic fin. Body grey with a coppery tinge above, silvery below. Pectoral, pelvic and anal fins orange, tinted with black. Eyes golden.

Distribution : India : Madhya Pradesh (Bastar, Rewa districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

91. *Cirrhinus reba* (Hamilton)
Reba

1822. *Cyprinus reba* Hamilton, *Fish. Ganges*, : 280, 386.

1878. *Cirrhina reba*, Day, *Fish. India*, : 549, pl. 130, fig. 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 279.

1981. *Cirrhinus reba*, Jayaram, *Handbk. Freshw. Fish. India*, : 127 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 23.2.1960. (ii) 2 exs., Narbada river at Bheraghat, district Jabalpur; Purchased; 20.6.1962. (iii) 1 ex., Mautura village near Hiran river on Katni Road, district Jabalpur; B.S. Chauhan and party; 13.7.1972.

Diagnostic characters : D. 10-12 (2-3/8-9), P. 16, V. 9, A. 8 (3/5), C.19, LL. 35-38.

Head length 6.00 to 6.50 and body depth 4.00 to 4.50 in total length. Eye diameter 4.00 in head length. Upper lip fringed in young specimens and often entire in the adult. A thin cartilaginous layer covering inside of lower jaw. Barbels 1 pair, rostral pair. Dorsal fin inserted anterior to pelvic fin insertion, nearer to tip of snout than to base of caudal fin, less than height of body. 5 or 6 rows of scales between lateral line and base of pelvic fin. Body silvery. Scales generally darkest at their edges, forming bluish longitudinal bands above lateral line. The young specimens some times, with a leaden coloured lateral band along sides.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Jabalpur, Rewa districts, Chambal river, Indravati Tiger Reserve), Throughout.

Elsewhere : Bangladesh, Nepal, Pakistan.

Genus *Catla* Valenciennes

92. *Catla catla* (Hamilton)
Catla

1822. *Cyprinus catla* Hamilton, *Fish. Ganges*, : 287, 387, pl. 13, fig. 81.

1878. *Catla buchanani*, Day, *Fish. India*, : 553, pl. 134, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 287, fig. 99.

1981. *Catla catla*, Jayaram, *Handbk. Feshw. Fish. India*, : 131 (distribution).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 17-19 (3-4/14-16), P. 21, V. 9, A. 8 (3/5), C.19, LL. 40-43.

Head length 4.25 to 4.75 and body depth 3.00 to 3.50 in total length. Eye diameter 6.00 to 7.00 in head length. Dorsal profile more convex than ventral profile. Barbels absent. Dorsal fin inserted in advance of pelvic fin. Pectoral extending to pelvic fin. 5½ to 6½ rows of scales between lateral line and base of pelvic fin. Body greyish on dorsal surface, silvery on sides and below. Fins dark coloured.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Rewa districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

Genus *Ctenopharyngodon* Steindachner

93. *Ctenopharyngodon idella* (Valenciennes)
Grass carp

1841. *Leuciscus idella* Valenciennes, *Hist. nat. Poiss.*, **17** : 342.

1981. *Ctenopharyngodon idella*, Jayaram, *Handbk. Freshw. Fish. India*, : 132 (distribution).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 10 (3/7), A. 11 (3/8), LL. 43-45.

Head length 4.00 to 4.50 and body depth 3.80 to 4.80 in standard length. Body elongated. Head broad with short rounded snout. Upper jaw slightly longer than the lower. Mouth subterminal. Barbels absent. Dorsal fin rounded, originating somewhat in advance of pelvic fin base. Anal fin rounded. Lateral line running along the middle of the caudal peduncle. Scales of moderate size. Gill rakers short, wide spread about 12 in number. Body dark grey on dorsal surface and silvery on the belly. Fins dark. Base of each scale dark brown.

Distribution : India : Madhya Pradesh (Rewa district). An exotic fish originally belong to China and U.S.S. R. rivers. In India first brought from Hongkong in December, 1959 by C.I.F.R.I., pond culture division, Cuttack, Orissa, for rearing. Now it is being cultured all over India.

Subfamily GARRINAE

Genus ***Crossocheilus Van*** Hasselt

94. ***Crossocheilus latius latius*** (Hamilton)

1822. *Cyprinus latius* Hamilton, *Fish. Ganges*, : 345, 393.

1878. *Cirrhina latia*, Day, *Fish. India* : 548, pl. 130, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 279.

1981. *Crossocheilus latius latius*, Jayaram, *Handbk. Freshw. Fish. India*, : 134 (distribution and key to species).

Material examined : (i) 3 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960.

Diagnostic characters : D. 10-11 (3/7-8), P.15, V. 9, A. 7 (2/5), C.19, LL. 38-40.

Head length 6.00 to 6.50 and body depth 5.50 to 7.00 in total length. Eye diameter 3.50 to 5.00 in head length. Snout overhanging mouth, with a small lateral lobe. Upper lip deeply indented on the edge. Lower lip with a sharp horny covering. Barbels, rostral pair and some times a short maxillary pair. Dorsal fin commences midway between tip of snout and base of caudal fin in young specimens but nearer to snout tip in adult specimens. 3½ to 4½ rows of scales between lateral line and base of pelvic fin. Body brownish olive on dorsal surface and lighter on sides, with irregular black spots.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur districts, Chambal river), Andhra Pradesh, Bihar, Deccan, Deolali, the Himalayas, Maharashtra, Orissa, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal, Pakistan.

Genus ***Garra*** Hamilton

Key to Species

1 Proboscis present, well developed with well defined lateral tubercular area. .... *G. gotyla gotyla*

– Proboscis absent.....2

2. Distance of vent from base of anal fin more than 4 times, but less than 5 times in that between anterior origins of pelvic and anal fins. Pupil of eye at or slightly behind middle of head length. ..... *G. lamta*

– Distance of vent from base of anal fin less than 4 times in that between anterior origins of anal and pelvic fins. Pupil of eye at or in front of middle of head length. .. *G. mullya*

95. ***Garra gotyla gotyla*** (Gray)
Stone sucker

1832. *Cyprinus gotyla*, Gray III. *Ind. Zool., London*, **1**, pl. 88, figs. 3, 3a.

1964. *Garra gotyla gotyla*, Menon, *Mem. Indian Mus.*, **14** : 233, pl. 13, figs. 1-4 (revision).

1981. *Garra gotyla gotyla*, Jayaram, *Handbk. Freshw. Fish. India*, : 136, 137 (distribution and key to species).

Material examined : (i) 12 exs., Biaora, district Rajgarh; H.S. Sharma and party; 11.10.1995. (ii) 1 ex., Betwa river, district Raisen; H.S. Sharma and party; 3.10.1995. (iii) 4 exs., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995.

Diagnostic characters : D. 10-11 (3/7-8), P. 15, V. 9, A. 7 (2/5), C.17, LL. 32-35.

Head length 3.52 to 4.20 and body depth 3.70 to 5.00 in standard length. Eye diameter 3.00 to 6.28 in head length. Proboscis a single projection without lateral lobes, well developed with well defined lateral tubercular area. Pupil of eye at or slightly behind the middle of head length. Barbels 2 pairs, anterior pair equal to or shorter than diameter of eye and posterior pair much smaller. Dorsal fin inserted in advance of pelvic fin origin. Caudal fin deeply forked. Body bluish grey above and pale yellow below. A black spot behind the upper angle of gill openings and a row of dark spots along dorsal fin base. An obscure mid lateral band in young specimens.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Raisen, Rajgarh, Rewa districts), Andhra Pradesh, Assam, Bihar, Chota Nagpur Plateau, Himachal Pradesh (Simla), Himalaya (All along), Punjab, Uttar Pradesh, Vindhya Satpura mountains of the peninsula, West Bengal.

Elsewhere : Aden, Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, Syria, Tenasserium provinces.

96. *Garra lamta* (Hamilton)
Stone sucker

1822. *Cyprinus lamta* Hamilton, *Fish. Ganges*, : 343, 393.

1964. *Garra lamta*, Menon, *Mem. Indian Mus.*, **14** : 208-212 (revision).

1981. *Garra lamta*, Jayaram, *Handbk. Freshw. Fish. India*, : 136, 138 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 1 ex., Narbada river at Tilwaraghat, district Jabalpur; P. Singh and party; 30.1.1962. (iii) 1 ex., Narbada river at Gwarighat, district Jabalpur; S. Chakrapany and party; 28.4.1961. (iv) 4 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 28.5.1962. (v) 1 ex., Narbada river at Haritola, Amarkantak, district Shahdol; S. Chakrapany and party; 21.5.1962. (vi) 1 ex., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 27.3.1962. (vii) 3 exs., Narbada river at Maheswar, district Indore; Purchased; 18.11.1969. (viii) 12 exs., Ghusari river near Maihar, district Satna; H.S. Sharma and party; 16.10.1986. (ix) 1 ex., Panghat nala near Nagod, district Satna; H.S. Sharma and party; 29.10.1986. (x) 3 exs., Pench river at Jhilmili village on Sewni Road, district Chhindwara; H.S. Sharma and party; 6.4.1990. (xi) 3 exs., Pench river near Singodi village, district Chhindwara; H.S. Sharma and party; 5.4.1990. (xii) 1 ex., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986. (xiii) 10 exs., Bara pool, Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995. (xiv) 5 exs., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D. 10-11 (3/7-8), P. 15, V. 9, A. 7 (2/5), C.17, LL. 31-34.

Head length 3.58 to 4.33 and body depth 3.56 to 4.48 in standard length. Eye diameter 3.71 to 5.33 in head length. Proboscis absent. Tip of snout marked off by a transverse groove. Pupil of eye at or slightly behind the middle of head length. Inter-orbital width 2.06 (1.83-2.31) in head length. Width of disc 1.48 (1.32-1.67) in width of head. Distance of vent from base of anal fin more than 4 times, but less than 5 times in that between anterior origins of pelvic and anal fins. Barbels 2 pairs, maxillary pair shorter than rostral pair. Dorsal fin inserted ahead of pelvic fin. Caudal fin forked. Body dark grey above and paler beneath. A broad lateral band from gill openings to caudal fin base bordered above and below by incomplete dark narrow lateral stripes, especially in the posterior half of body. A black spot on upper angle of gill openings and a black blotch at caudal fin base.

Distribution : India : Madhya Pradesh (Chhindwara, Indore, Jabalpur, Rajgarh, Satna, Shahdol, Chambal river), Andhra Pradesh, Assam, Darjeeling and Kumaon Himalayas, Sikkim, West Bengal.

Elsewhere : Nepal, Pakistan.

97. *Garra mullya* (Sykes)
Stone sucker

1841. *Chondrostoma mullya* Sykes, *Trans. zool. Soc. Lond.*, **2** : 359, Pl. 62, fig. 3.

1964. *Garra mullya*, Menon, *Mem. Indian Mus.*, **14** : 212-216 (revision).

1981. *Garra mullya*, Jayaram, *Handbk. Freshw. Fish. India*, : 136, 137 (distribution and key to species).

Material examined : (i) 45 exs., Narbada river at Delhal near Kareli, district Narsinghpur; A.N.T. Joseph and party; 9.12.1964. (ii) 2 exs., A nala on Nagpur Road, district Jabalpur; H.P. Agrawal and party; 29.9.1964. (iii) 4 exs., Narbada river at Gariahat, Hoshangabad, district Hoshangabad; H. Khajuria and party; 4.1.1966. (iv) 1 ex., Dhanpuri village, district Jabalpur; S. Chakrapany and party; 3.11.1962. (v) 1 ex., Pariat river near Maharajpur village, district Jabalpur; S. Chakrapany and party; 7.5.1963. (vi) 1 ex., Roha river on Dindori-Amarkantak Road, district Mandla; S. Chakrapany and party; 3.11.1963. (vii) 2 exs., Narbada river at Manot, district Mandla; H. Khajuria and party; 12.11.1963. (viii) 2 exs., Choral river at Choral village, district Indore; H.P. Agrawal and party; 24.8.1964.

Diagnostic characters : D. 10-11 (3/7-8), P. 15, V. 9, A. 7 (2/5), C.17, LL. 32-34.

Head length 3.71 to 5.00 and body depth 3.82 to 4.32 in standard length. Eye diameter 3.75 to 5.12 in head length. Proboscis absent. Tip of snout marked off by a transverse groove. Pupil of eye at or infront of middle of head length. Inter-orbital width 2.05 (1.80-2.27) in head length. Width of disc 1.87 (1.53-2.17) in width of head. Distance of vent from base of anal fin less than 4 times in that between anterior origins of anal and pelvic fins. Barbels 2 pairs, maxillary pair shorter than rostral pair. Dorsal fin inserted in advance of pelvic fin origin. Caudal fin almost truncate. Body dark grey above and paler beneath. A broad lateral band from gill openings to base of caudal fin bordered above and below by incomplete dark narrow lateral stripes especially in the posterior half of body. A black spot on the upper angle of gill openings and a black blotch at caudal fin base.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Indore, Jabalpur, Mandla, Narsinghpur, Rewa districts, Indravati Tiger Reserve), Throughout except Assam and the Himalaya.

Remark : In life, body above lateral line dark, below lateral line golden tinged. Fins tipped yellow, the lateral line forming a black stripe (Jayaram, Venkateswarlu, Ragunathan, 1982).

Family HOMALOPTERIDAE

Subfamily NOEMACHEILINAE

Genus *Noemacheilus* Van Hasselt

Key to Species

1. Barbels 4 pairs ..... *N. evezardi*
– Barbels 3 pairs 2
2. Dorsal fin with 9 to 11 branched rays 3
– Dorsal fin with 7 or 8 branched rays 5
3. Head length 5.50 to 7.00 in total length .... *N. striatus*
– Head length 4.50 to 5.50 in total length .. 4
4. Caudal fin forked. Snout pointed, elongated. Caudal fin with 4-5 posteriorly directed V-shaped bands. ..... *N. ruppelli*
– Caudal fin slightly emarginate posteriorly. Snout rounded, not elongated. Caudal fin with 5-7 posteriorly directed V-shaped bands. ..... *N. botia*
5. Lateral line incomplete 6
– Lateral line complete 8
6. Caudal fin without bands. .... *N. sikmaiensis*
– Caudal fin with bands. 7
7. Body marked by varying number of vertical bands, separated by wider interspaces .... *N. denisoni denisoni*
– Body marked by 12-13 vertical bands, separated by narrower interspaces. .... *N. denisoni dayi*

8. Head length below 5 in total length (4.50 to 4.75)..... *N. savona*

– Head length 5, or more than 5 in total length 9

9. Head length 5.00 in total length..... ..... *N. beavani*

– Head length 5.30 to 5.50 in total length 10

10. Body marked with 14-16 vertical bands, broader than interspaces.. *N. multifasciatus.*

– Body marked with 19-20 saddle-shaped vertical bands as wide as white interspaces restricted to back. ..... *N. anguilla*

98. *Noemacheilus anguilla* Annandale

1919. *Noemacheilus anguilla* Annandale, *Rec. Indian Mus.*, **16** : 127, pl. 1, fig. 3, pl. 3, fig. 1.

1987. *Noemacheilus anguilla*, Menon, *Fauna of India, Pisces*, 4(1) : 154-156 (revision).

Material examined : (i) 4 exs., Pench river at Jhilimili village, district Chhindwara; H.S. Sharma and party; 6.4.1990.

Diagnostic characters : D. 11 (3/8), P. 14, V. 8, A. 6 (2/4), C.19.

Head length 5.30 to 5.50 and body depth 9.00 in total length. Eyes large, situated dorsally near middle of head. Barbels 3 pairs, outer rostral pair longest extending almost to margin of eye and maxillary reaching to perpendicular from middle of orbit. Dorsal fin short, with its upper margin nearly straight but sloping rapidly downwards and backwards. Caudal fin deeply forked, lobes pointed. Lateral line complete or nearly so, well marked upto tip of pelvic fin. Body dull green yellow. 19-20 saddle-shaped vertical bands as wide as white interspaces restricted to back. A row of large blackish spots running as a band along the mid-lateral line and some times coalescing, extending to caudal fin. Dorsal fin with an anterior scarlet border and caudal fin broadly edged both above and below with red.

Distribution : India : Madhya Pradesh (Chhindwara district), Andhra Pradesh, Karnataka, Maharashtra.

99. *Noemacheilus beavani* Gunther

1869. *Nemachilus beavani* Gunther, *Cat. Fish. Brit. Mus.*, **7** : 350.

1987. *Noemacheilus beavani*, Menon, *Fauna of India, Pisces*, 4(1) : 84-86, pl. 13, fig. 4, 5 (Revision).

Material examined : 2 exs., Pench river at Jhilimili village, district Chhindwara; H.S. Sharma and party; 6.4.1990.

Diagnostic characters : D.11 (3/8), P.11, V.8, A. 7 (2/5), C.19.

Head length 5.00 in total length. Barbels 3 pairs, well developed and all longer than eye. Dorsal fin inserted midway between tip of snout and base of caudal fin. Pelvic fin extending to anal opening. Caudal fin forked, forked lobes pointed and of equal length. Lateral line complete. Body with about 9 vertical bands broader than the lighter interspaces. A dark band at base of caudal fin, broad and conspicuous. A row of dark spots on dorsal fin and 2<shaped bands on caudal fin.

Distribution : India : Madhya Pradesh (Chambal river, Chhindwara district), Assam, E. Himalayas, Meghalaya, Uttar Pradesh, West Bengal.

Elsewhere : Nepal.

100. *Noemacheilus botia* (Hamilton) **Striped loach**

1822. *Cobitis botia* Hamilton, *Fish. Ganges*, : 350, 394.

1987. *Noemacheilus botia*, Menon, *Fauna of India, Pisces*, 4(1) : 141-144 (revision).

Material examined : (i) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 3 exs., Narbadá river at Gwarighat, district Jabalpur; S. Chakrapany and party; 28.4.1961. (iii) 3 exs., Narbada river at Gwarighat, district Jabalpur; D.N. Basu and party; 24.6.1964. (iv) 3 exs., Pariat river near Maharajpur on Katni Road, district Jabalpur; S. Chakrapany and party; 7.5.1963. (v) 1 ex., Narbada river near Mahadwari village, district mandla; J.S. Bhatti and party; 4.11.1963. (vi) 3 exs., Narbada river on Mandla-Dindori Road, district Mandla; J.S. Bhatti and

party; 5.11.1963. (vii) 1 ex., A nala north of Dindori, district Mandla; J.S. Bhatti and party; 9.11.1963. (viii) 1 ex., Narbada river at Mandla, district Mandla; H. Khajuria and party; 25.11.1963. (ix) 3 exs., Pariat river near Maharajpur village, district Jabalpur; S. Chakrapany and party; 7.5.1963. (x) 4 exs., Choral river at Choral village, district Indore; V.V. Rao and party; 20.11.1969. (xi) 1 ex., Tons river near Maihar, district Satna; H.S. Sharma and party; 17.10.1986.

Diagnostic characters : D. 12-14 (3/9-11), P. 12(1/11), V. 8 (1/7), A. 8 (3/5), C.18.

Head length 4.50 to 5.50 and body depth 4.70 in total length. Eye diameter 3.75 to 4.00 in head length. Snout rounded, not elongated. Barbels 3 pairs, maxillary pair reaching to below posterior margin of eye. Dorsal fin originates slightly nearer to tip of snout than to caudal fin base. Caudal fin slightly emarginate posteriorly (slightly notched). Lateral line complete. Body greyish with 10 to 14 short, vertical bars on lateral line and a number of irregular blotches above it, often forming bands over back. A black ocellus on upper part of the caudal fin base. Caudal fin bears 5-7 posteriorly directed V-shaped dark bands. Dorsal fin orange, with rows of black spots.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Indore, Jabalpur, Mandla, Rewa, Satna districts, Chambal river), Andhra Pradesh, Assam, Throughout north India.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

101. ***Noemacheilus denisoni dayi*** Hora

1935. *Nemachilus dayi*, Hora, *Rec. Indian Mus.*, **37** : 57.

1987. *Noemacheilus denisoni dayi*, Menon, *Fauna of India, Pisces*, **4**(1) : 99-101 (revision).

Material examined : (i) 1 ex., Seoni river on Dindori-Amarkantak Road, district Mandla; H. Khajuria and party; 18.10.1963. (ii) 3 exs., Machhmar river on Dindori-Amarkantak Road, district Mandla; J.S. Bhatti and party; 30.10.1963. (iii) 3 exs., A nala North of Dindori, district Mandla; J.S. Bhatti and party; 9.11.1963. (iv) 2 exs., A stream near Kutrar river on Dindori-Amarkantak Road, district Mandla; J.S. Bhatti and party; 1.11.1963. (v) 2 exs., Roha river on Dindori-Amarkantak Road, district Mandla; J.S. Bhatti and party; 3.11.1963. (vi) 1 ex., Narbada river at Manot, district Mandla; H. Khajuria and party; 12.11.1963. (vii) 12 exs., Kharben river, district Mandla; H. Khajuria and party; 9.11.1963. (viii) 32 exs., Burnher river, district Mandla; H. Khajuria and party; 12.11.1963. (ix) 1 ex., Pench National Park, district Seoni; N.K. Sinha and party; 21.1.1973.

Diagnostic characters : D. 11 (3/8), P. 11, V. 7, A. 7 (2/5), C.18.

Head length 5.25 to 5.50 and body depth 6.00 in total length. Eye small, situated in middle of head. Barbels 3 pairs, well developed, all almost equal to diameter of eye. Dorsal fin inserted midway between tip of snout and base of caudal fin or slightly nearer to base of caudal fin. Caudal fin slightly shorter than head length, lobes rounded, deeply emarginate. Lateral line incomplete, ending at the origin or middle of dorsal fin. 12 to 13 broad vertical bands with an equal number of narrow pale interspaces on body, very characteristic of this species. A black band at base of caudal fin and a blackish spot at base of dorsal fin origin. Dorsal fin with two rows and caudal fin with four rows of well marked spots.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Mandla, Sewni districts), Andhra Pradesh, Chota Nagpur plateau.

102. ***Noemacheilus denisoni denisoni*** Day

1867. *Nemachilus denisoni* Day, *Proc. Zool. Soc. Lond.*, : 287.

1987. *Noemacheilus denisoni denisoni*, Menon, *Fauna of India, Pisces*, **4**(1) : 93-99 (revision).

Material examined : (i) 6 exs., Narbada river at Garighat, Hoshangabad, district Hoshangabad; H. Khajuria and party; 4.1.1966. (ii) 19 exs., Narbada river at Joga, district Hoshangabad; H. Khajuria and party; 1.1.1966. (iii) 1 ex., Narbada river at Shahpura Railway bridge, District

Jabalpur, V.S. Durve and party; 15.4.1967. (iv) 1 ex., Narbada river at Lamataghat, district Jabalpur; H.S. Sharma and party; 6.1.1967. (v) 13 exs., Hertakka village, Khandwa district; H. Khajuria and party; 4.11.1969.

Diagnostic characters : D. 11 (3/8), P. 11, V. 7, A. 7 (2/5), C.18.

Head length 5.00 to 5.50 in total length. Eyes situated in anterior half of head, diameter one sixth of head length. Barbels 3 pairs, well-developed, maxillary pair extends to the opercle and rostral pairs shorter. Dorsal fin inserted midway between tip of snout and base of caudal fin or slightly nearer to tip of snout. Caudal fin as long as head, deeply emarginate, lobes rounded. Lateral line incomplete, ending infront of dorsal fin or slightly longer. Body marked with varying number of brown vertical bands extending from dorsal to ventral surface, better marked behind dorsal fin. A blackish band at base of caudal fin and a blackish spot at base of origin of dorsal fin. Dorsal and caudal fins banded with varying rows of well marked brownish spots.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Khandwa, Jabalpur, Raipur, Sagar districts), Andhra Pradesh, Karnataka, Kerala, Maharashtra, Rajasthan.

Remark : Closely related to species of *denisoni* complex distinguished from its Chota Nagpur representative, *N. denisoni dayi* by its body markings (bands separated by wider interspaces in *N. denisoni denisoni;* narrower in *N. denisoni dayi)* and other related species by the position of anal opening, nature of caudal peduncle; length of head and paired fins (Menon, 1987 : 95).

103. ***Noemacheilus evezardi*** Day

1878. *Nemachilus evezardi* Day, *Fish. India,* : 613, pl. 153, fig. 11.

1987. *Noemacheilus evezardi,* Menon, *Fauna of India, Pisces,* 4(1) : 191-193 (revision).

Material examined : (i) 21 exs., Choral river at Choral village, district Indore; H. Khajuria and party; 5.11.1969.

Diagnostic characters : D. 10 (3/7), P. 11, V. 8, A. 7 (2/5), C.18.

Head length 5.30 in total length. Barbels 4 pairs, well developed, nasal pair reaching to opposite posterior margin of eye, two pairs of rostral and one pair maxillary. Dorsal fin inserted opposite to pelvic fins and nearer to caudal fin base than to tip of snout. Upper edge of dorsal fin slightly convex. Caudal fin rounded, equal to or slightly shorter than head length. Lateral line incomplete, ending above middle of pectoral fin. Body greenish or yellowish with 9 to 18 brown vertical stripes from back to ventral side. Shape of these stripes variable. Big round spots on head. A vertical dark stripe at base of caudal fin. A small black spot at base of dorsal fin origin. Dorsal fin with 2 to 3 rows of spots and caudal fin with 3 to 4 rows of spots.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Indore districts), Andhra Pradesh, Western Ghats (Krishna and Godavari basins).

104. ***Noemacheilus multifasciatus*** Day

1878. *Nemacheilus multifasciatus* Day, *Fish. India* : 617, Pl. 153, fig. 7.

1987. *Noemacheilus multifasciatus,* Menon, *Fauna of India, Pisces,* 4(1) : 52-55 (revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 2/7, P. 12, V. 8, A. 1/5, C.16.

Head length 5.50 in total length. Eye situated partly before the middle of head length. Barbels 3 pairs, maxillary pair rather longer than the eye. Scales small. Lateral line complete. Caudal fin truncate or slightly emarginate posteriorly. Body marked with 14-16 vertical black bands broader than interspaces. Dorsal fin and caudal fin with rows of spots.

Distribution : India : Madhya Pradesh, Assam, Eastern Himalayas, West Bengal.

Remark : It is most easily separated from its

nearest relative *Noemacheilus rupecola* (Mc Clelland) by the possession of a distinct nasal barbel, relatively shorter fins, in its stouter build and 7 branched dorsal fin rays (8 in *N. rupecola*) (Menon, 1987 : 54).

105. ***Noemacheilus ruppelli*** (Sykes)

1841. *Cobitis ruppelli* Sykes, *Trans. zool. Soc. Lond.*, *2* : 366, pl. 64, fig. 1.

1889. *Nemachilichthys rueppelli*, Day, *Fauna Br. India, Fish.*, **1** : 224, fig. 83.

1987. *Noemacheilus ruppelli*, Menon, *Fauna of India, Pisces*, **4**(1) : 158-160 (revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 3/10 (11), P. 13, V. 1/7, A. 2/5, C.19.

Head length 5.25 in total length. Body of almost uniform depth. Eye prominent situated in the posterior half of head. Snout pointed, long, longer than posterior portion of head. Barbels 3 pairs, outer rostral pair longer than maxillary pair, not reaching margin of eye. Dorsal fin inserted midway between tip of snout and caudal fin base. Pelvic fin extends considerably beyond anal opening. Caudal fin deeply forked. Lateral line complete. Body greenish yellow above, white below. 18 to 19 narrow vertical bands, narrower than white interspaces, reaching below lateral line but not ventral side. Short brown bands along lateral line forming a lateral stripe. Dorsal fin with three rows of spots and caudal fin with 4-5 posteriorly directed V-shaped bands.

Distribution : India : Madhya Pradesh, Deccan, Karnataka, Maharashtra, Krishna river system.

106. ***Noemacheilus savona*** (Hamilton)

1822. *Cobitis savona* Hamilton, *Fish. Ganges*, : 357, 394.

1889. *Nemachilus savona*, Day, *Fauna Br. India, Fish.*, **1** : 234.

1987. *Noemacheilus savona*, Menon, *Fauna of India, Pisces*, **4**(1) : 91-93 (revision).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 3/8, P. 9, V. 7, A. 2/5, C. 20.

Head length 4.50 to 4.75 in total length. Barbels 3 pairs. Dorsal fin inserted before the insertion of pelvic fin. Caudal fin emarginate with rounded lobes. Scales small. Lateral line complete. Body purplish, becoming lighter on the abdomen, marked with 9-10 narrow, yellowish vertical bands. A vertical black band at base of caudal fin.

Distribution : India : Madhya Pradesh (Indravati Tiger Reserve), Eastern Himalayas, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal.

Remark : A distinct species without any close affinity to any other species but in general nature of stripes on body it is close to *Schistura* group though there are several dissimilarities in colour, body and head shape and number of branched dorsal fin rays (9 branched dorsal fin rays; 7 to 8 in other species of *Schistura*) (Menon, 1987 : 93).

107. ***Noemacheilus sikmaiensis*** Hora

1921. *Nemachilus sikmaiensis* Hora, *Rec. Indian Mus.*, **22** : 201, pl. 9, fig. 4, pl. 10, fig. 1, 1a.

1987. *Noemacheilus sikmaiensis*, Menon, *Fauna of India, Pisces*, **4**(1) : 125-127 (revision)

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 2/8, P. 11-12, V. 8, A. 2/5, C. 19.

Eye small, situated in middle of head. Barbels 3 pairs, outer rostral pair longest extending to posterior margin of nostrils. Dorsal fin inserted midway between tip of snout and caudal fin base, less than length of head. Pelvic fin provided with scaly appendage at base. Scales present. Lateral line incomplete extending upto middle of anal fin. Caudal fin forked, lower lobe longer. Body marked with 12-13 black rings around body separated by equal number of slightly narrower white ones. Dorsal fin with black bar in the

middle, a black spot at base of first few dorsal rays. Caudal fin with a black cross bar at base, without any bands over it.

Distribution : India : Madhya Pradesh (Kanha Tiger Reserve), Manipur, Meghalaya.

Elsewhere : Myanmar.

Remark : Sexual dimorphism : Males with suborbital flap.

108. *Noemacheilus striatus* Day

1866. *Nemachilus striatus* Day, *Proc. Zool. Soc. Lond.*,: 347.

1987. *Noemacheilus striatus*, Menon, *Fauna of India*, Pisces, 4(1) : 113-114 (revision).

Material examined : (i) 3 exs., Narbada river near Tilwaraghat, district Jabalpur; D.N. Basu and party; 25.6.1964. (ii) 1 ex., A nala on Nagpur Road, district Jabalpur; H.P. Agrawal and party; 29.9.1964. (iii) 11 exs., Narbada river at Delhal near Kareli, district Narsinghpur; A.N.T. Joseph and party; 9.12.1964. (iv) 1 ex., Narbada river near Shahpura Railway bridge, district Jabalpur; V.S. Durve and party; 14.6.1967.

Diagnostic characters : D. 11-12 (2/9-10), P. 11, V. 8, A. 7 (2/5), C. 17.

Head length 5.50 to 7.00 in total length. Eyes situated in middle of head. Barbels 3 pairs, well developed, inner rostral pair slightly longer than diameter of eye and other two pairs much longer. Dorsal fin inserted slightly in advance of pelvic fins and slightly nearer to tip of snout than to base of caudal fin. Caudal fin slightly lobed, equal to or slightly shorter than head length. Lateral line complete. 16 to 20 vertical bands, wider than the ground colour, encircle body. A black band at base of caudal fin. Dorsal fin with a black edge with a light external margin and a dark base. One or two rows of bands across dorsal fin. Two rows of spots on caudal fin and dull black spots on the anal fin.

Distribution : India : Madhya Pradesh (Jabalpur, Narsinghpur districts), Andhra Pradesh, Karnataka, Kerala.

Family COBITIDAE

Subfamily BOTINAE

Genus *Botia* Gray

109. *Botia (Botia) rostrata* Gunther

1868. *Botia rostrata* Gunther, *Cat. fish. Brit. Mus.*, 7 : 367.

1832. *Botia dayi* Hora, *Rec. Indian Mus.*, 34 : 571.

1981. *Botia (Botia) rostrata*, Jayaram, *Handbk. Freshw. Fish. India*, : 176 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 3/9, P. 14, V. 8, A. 2/5, C. 19-20.

Head length 4.60 and body depth 5.20 in total length. Eye diameter 7.00 in head length. Snout long, its length considerably more than the post-orbital distance. A bifid erectile suborbital spine below or infront of eyes present. Barbels 4 pairs (Four rostral barbels united at their bases, two maxillary and two mental lobes). Dorsal fin inserted midway between tip of snout and caudal fin base. Body generally yellow. Two grey bands on the head and seven distinct transverse, oblique black bands on the body, separated by narrower yellow bands. Three vertical bands on lobes of caudal fin.

Distribution : India : Madhya Pradesh, Bihar, Maharashtra, Meghalaya, West Bengal.

Elsewhere : Bangladesh.

Remark : *B. (Botia) geto* Hamilton is a juvenile of this species (Hora, S.L. *Rec. Indian Mus.*, 34, P. 573). *B. dayi* which Hora proposed for specimens of *Botia geto* included by Day in his *fish India*, 1878 and *Fauna*, 1889 is a synonym of *B. rostrata* according to Menon, 1974. Babu Rao and Yazdani, 1977, have recorded *B. dayi* = *B. rostrata* Gunther from West Mahabaleshwar (Jayaram, 1981 : 176).

Subfamily COBITINAE

Genus *Lepidocephalus* Bleeker

Key to Species

1 Head length 5.50 to 6.00. Body depth 7.45 to

9.71 in total length. .....
..... *L. (Lepidocephalichthys) thermalis*

– Head length 6.00 to 6.80. Body depth 5.65 to 7.00 in total length. .....
.....*L. (Lepidocephalichthys) guntea*

110. *Lepidocephalus (Lepidocephalichthys) guntea* (Hamilton)
Loach

1822. *Cobitis guntea* Hamilton, *Fish. Ganges,* : 353, 394.

1878. *Lepidocephalichthys guntea,* Day, *Fish. India,* : 609, pl. 155, fig. 4 and pl. 156, fig 12; 1889, Day, *Fauna Br. India, Fish.,* **1** : 220, fig. 80.

1981. *Lepidocephalus (Lepidocephalichthys) guntea,* Jayaram, *Handbk. Freshw. Fish. India,* : 181, 182 (distribution and key to species).

Material examined : (i) 1 ex., Devtal near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 18.7.1960. (ii) 15 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 29.10.1960. (iii) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (iv) 1 ex., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 2.1.1961. (v) 1 ex., Hiran river on Katangi Road, district Jabalpur; R.C. Sharma and party; 3.1.1961. (vi) 8 exs., Narbada river at Tilwaraghat, district Jabalpur; P. Singh and party; 30.1.1962. (vii) 9 exs., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 28.5.1962. (viii) 1 ex., Narbada river at Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 26.5.1962. (ix) 4 exs., Narbada river at Haritola, Amarkantak, district Shahdol; S. Chakrapany and party; 21.5.1962. (x) 11 exs., Narbada river at Ghughrighat near Haritola, Amarkantak, district Shahdol; S. Chakrapany and party; 29.5.1962. (xi) 1 ex., A pond near dindori rest house, district Mandla; J.S. Bhati and party; 7.11.1963. (xii) 1 ex., A small stream south of Bander village, district Mandla; J.S. Bhatti and party; 24.10.1963. (xiii) 1 ex., A pond South-East of Dindori Rest House, district Mandla; J.S. Bhatti and party; 7.11.1963. (xiv) 1 ex., A nala North of Dindori, district Mandla; J.S. Bhatti and party; 9.10.1963. (xv) 1 ex., Narbada river at Manot, district Mandla; H. Khajuria and party; 11.12.1964. (xvii) 3 exs., Ramdohu river on Chhindwara-Chand Road, district Chhindwara; H.S. Sharma and party; 3.4.1990. (xviii) 2 exs., A nala near Katawadi, district Betul; H.S. Sharma and party; 22.3.1990. (xix) 2 exs., Hazara nala near Majhgawan, district Satna; H.S. Sharma and party; 24.10.1986. (xx) 1 ex., Sangam river near Sukri village on Jamai-Damua Road, district Chhindwara; H.S. Sharma and party; 4.4.1990. (xxi) 4 exs., Pench river at Jhilmili village, district Chhindwara; H.S. Sharma and party; 6.4.90. (xxii) 2 exs., Ghoghra nala at Saranggarh, district Raigarh; R.K. Singh and party; 28.3.1992. (xxiii) 1 ex., Nargarha river, district Shahdol; H.P. Agrawal and party; 3.12.1978. (xxiv) 3 exs., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.95. (xxv) 3 exs., Bara pool, Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995.

Diagnostic characters : D. 8-9 (2/6-7), P. 8, V. 7-8, A. 7 (2/5), C. 16.

Head length 6.00 to 6.80 and body depth 5.65 to 7.00 in total length. Eye diameter 4.00 to 5.00 in head length. Barbels 3 pairs, 2 rostral pair and 1 maxillary pair, all longer than the orbit. Mental lobe well developed and produced into one or two projections. Dorsal fin origin nearer to tip of snout than to caudal fin base, slightly behind the pelvic fin origin. Scales on head in patches below and behind the orbit and the upper part of operculum. Scales extend anteriorly beyond isthmus on ventral side of head. 25 to 30 rows of scales between the back of body and base of anal fin. Caudal fin convex or cut square with rounded corners. Body generally dirty yellowish with a series of about 10 to 12 dark spots, connected with one another through a dark band along lateral sides of body. A dark spot on the upper part of caudal fin base. Dorsal and caudal fins with rows of dark spots.

Distribution : India : Madhya Pradesh (Bastar, Betul, Bhopal, Chhindwara, Hoshangabad, Jabalpur, Mandla, Narsinghpur, Raisen, Rajgarh,

Rewa, Satna, Shahdol districts; Chambal river, Kanha Tiger Reserve), Throughout except Karnataka, Kerala and South of Krishna.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Remark : Mathur and Mishra, 1976, reported the presence of *Lepidocephalus berdmorei* (Blyth) from Jabalpur (Madhya Pradesh). The original material on the basis of which these authors based their identification has been examined by Tilak and Sinha, 1979, who identified it as *Lepidocephalus guntea* (Ham.). Thus the presence of *L. berdmorei*, which is a Burmese and eastern Indian, form, in Madhya Pradesh is not confirmed (Tilak and Husain, 1981).

111. *Lepidocephalus (Lepidocephalichthys) thermalis* (Valenciennes)
Lesser loach

1843. *Cobitis thermalis* Valenciennes, *Hist. nat. poiss.*, **18** : 78.

1878. *Lepidocephalichthys thermalis*, Day, *Fish. India*, : 610, pl. 155, fig. 3; 1889, Day, *Fauna Br. India. Fish.*, **1** : 221.

1981. *Lepidocephalus (Lepidocephalichthys) thermalis*, Jayaram, *Handbk. Freshw. Fish. India*, : 181, 182 (distribution and key to species).

Material examined : (i) 1 ex., Hiran river on Katangi Road, district Jabalpur; H.P. Agrawal and party; 2.11.1965. (ii) Amkhas village on Nagpur Road, district Jabalpur; Raja ram and party; 18.10.1965. (iii) 3 exs., A canal on Rani Durgavati Samadhi Road, district Jabalpur; H.P. Agrawal and party; 24.11.1964. (iv) 1 ex., Baleha tank at Panagar village, district Jabalpur; H.P. Agrawal and party; 8.8.1967. (v) 2 exs., Baleha tank at Panagar village, district Jabalpur; V.S. Durve and party; 29.12.1966. (vi) 2 exs., A nala near Rani Durgawati Samadhi, district Jabalpur; V.S. Durve and party; 2.4.1969. (vii) 3 exs., Choral river at Choral village, district Indore; V.V. Rao and party; 20.11.1969.

Diagnostic characters : D. 8 (2/6), P. 7, V. 7, A. 7 (2/5), C. 16.

Head length 5.50 to 6.00 and body depth 7.45 to 9.71 in total length. Eye almost in the anterior half of head. Barbels 3 pairs, the longest pair extending to below anterior margin of eye. Mental lobe well developed and provided with a small barbel-like prolongation. Dorsal fin origin nearer to caudal fin base than to tip of snout, slightly in advance or opposite pelvic fin origin. A small patch of scales on head behind suborbital spine. Scales extend anterior to pectoral base but may not be reaching isthmus on ventral side of head. About 30 rows of scales between anal fin base and back of body. Caudal fin slightly emarginate or truncated with pointed corners. Body sandy with about 8-10 separate spots along sides. A black spot on upper part of caudal fin base. Dorsal fin with black spots or bars and caudal fin with four bands.

Distribution : India : Madhya Pradesh (Bastar, Indore, Jabalpur districts), Peninsular India.

Elsewhere : Sri Lanka.

Order SILURIFORMES
Family BAGRIDAE
Genus *Rita* Bleeker

Key to Species

1 Teeth on palate in one patch 2

– Teeth on palate in two patches 3

2. Teeth on prevomer uniformly molariform. Premaxillary band of teeth 1.00 to 1.50 times as long as broad. Eye diameter 4.00 in head length. Occipital process as wide as long at its base. Mandibular pair shorter than maxillary pair. ..... *R. chrysea*

– Teeth on prevomer mixed with molariform and villiform. Premaxillary band of teeth 3.50 to 4.00 times as long as broad. Eye diameter 5.50 to 6.00 in head length. Occipital process more than twice as long as wide at its base. Mandibular pair longer than maxillary pair. ..... *R. gogra*

3. Teeth on palate in two pear-shaped patches. Eye diameter 4.50 to 5.00 in head length.

Occipital process half longer than wide at its base. Mandibular pair reaching to hind border of eye. Dorsal fin spine entire anteriorly. ... . *R. kuturnee*

– Teeth on palate in two elliptical patches. Eye diameter 8.00 to 10.00 in head length. Occipital process as long as wide at its base. Mandibular pair extending to end of head. Dorsal fin spine serrated anteriorly. .... *R. rita*

112. ***Rita chrysea*** Day

1878. *Rita chrysea* Day, *Fish. India,* : 455, pl. 104, fig. 1; 1889, Day, *Fauna Br. India, Fish.,* **1** : 167.

1981. *Rita chrysea,* Jayaram, *Handbk. Fresw. Fish. India,* : 190, 191 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/6/0, P. 1/9-10, V. 7-8, A. 2/10, C. 17-18.

Head length 4.20 and body depth 6.00 in total length. Eye diameter 4.00 in head length. Occipital process as wide as long at its base. Teeth villiform in both the jaws, 2 or 3 inner rows in lower jaw molar-like. Teeth on palate in a single undivided patch, composed of only molariform teeth. Teeth on prevomer uniformly molariform. Premaxillary band of teeth 1.00 to 1.50 times as long as broad. Barbels 3 pairs, maxillary pair reaching the base of pectoral fin, mandibular pair slightly shorter, nasal pair short. Dorsal spine strong, coarsely serrated anteriorly and finely serrated posteriorly, half longer than head. Pectoral spine denticulated on both sides, longer than head. Body golden or creamy yellow above and on sides, whitish yellow beneath.

Distribution : India : Madhya Pradesh, Mahanadi river system, Orissa.

Remark : Live specimens are of lead grey colour above, whitish beneath and with an yellow tinge along orbital rims. Some may have alternating white and grey vertical bands on sides (Jayaram, 1977).

113. ***Rita gogra*** (Sykes)
Rita

1841. *Phractocephalus gogra* Sykes, *Trans. zool. Soc. Lond.,* **2** : 374, pl. 66, fig. 1.

1878. *Rita pavimentata,* Day, *Fish. India,* : 455, pl. 103, fig. 3; 1889, Day, *Fauna Br. India, Fish.,* **1** : 167.

1981. *Rita gogra,* Jayaram, *Handbk. Freshw. Fish. India,* : 190, 191 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river at Gwarighat, district Jabalpur; S. Chakrapany and party; 28.4.1961.

Diagnostic characters : D. 1/6/0, P.1/10, V.7-8, A. 11-13 (4/7-9), C. 16-17.

Head length 3.75 to 4.00 and body depth 6.00 in total length. Eye diameter 5.50 to 6.00 in head length. Occipital process more than twice as long as wide at its base. Teeth in villiform or cardiform rows in both jaws. Teeth on palate in a single patch but composed of villiform and molariform types. Teeth on prevomer mixed with molariform and villiform. Premaxillary band of teeth 3.50 to 4.00 times as long as broad. Barbels 3 pairs, maxillary pair reaching to pectoral fin base, mandibular pair extend a little further, nasal pair very short. Dorsal fin spine moderately strong and finely serrated posteriorly, as long as head excluding snout. Pectoral fin spine denticulated on both sides, stronger and longer than dorsal spine. Body uniformly ash-grey. Eyes bright violet and barbels black.

Distribution : India : Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur districts), Andhra Pradesh, Gujarat, Maharashtra, Rivers of Deccan up to Krishna river system.

Remark : Live specimens slightly golden coloured, bright yellow, body with fin tips tinged black (Jayaram, 1977).

114. ***Rita kuturnee*** (Sykes)
Rita

1839. *Phractocephalus kuturnee* Sykes, *Trans. zool. Soc. Lond.,* **2** : 372, pl. 65, fig. 3.

1878. *Rita hastata* Day, *Fish. India* : 456, pl. 103, fig. 4; 1889, Day, *Fauna Br. India, Fish.,* **1** : 168.

1981. *Rita kuturnee*, Jayaram, *Handbk. Freshw. Fish. India*, : 190, 191 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/6/0, P. 1/10, V. 7-8, A. 13-14 (5/8-9), C. 17.

Head length 4.20 to 4.65 and body depth 6.00 in total length. Eye diameter 4.50 to 5.00 in head length. Occipital process half longer than wide at its base. Teeth in villiform or cardiform rows in both jaws. Teeth on palate in two separate pear shaped patches comprising molariform type of uniform size. Barbels 3 pairs, maxillary pair reaching to pectoral fin base, mandibular pair reaching to hind border of eye and nasal pair short. Dorsal fin spine moderately strong, finely serrated posteriorly, as long as or a little longer than head. Pectoral fin spine denticulated on both sides, stronger and a little longer than dorsal spine. Body light brown above and on sides, pale beneath.

Distribution : India : Madhya Pradesh (Bastar district), Godavari, Krishna, Tungabhadra river systems.

Elsewhere : Myanmar.

Remark : Live specimens cement grey or light ashy grey above, silvery on sides below lateral line and beneath (Jayaram, 1977).

115. *Rita rita* (Hamilton)

1822. *Pimelodus rita* Hamilton, *Fish. Ganges*, : 165, 376, pl. 24 and 25, fig. 53.

1981. *Rita rita*, Jayaram, *Handbk. Freshw. Fish. India*, : 190, 191 (distribution and key to species).

Material examined : (i) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 2.8.1960. (ii) 4 exs., Narbada river at Joga, district Hoshangabad; H.P. Agrawal and party; 17.12.1962. (iii) 2 exs., Narbada river at Sandiya near pipariya, district Hoshangabad; Purchased : 16.12.1964. (iv) 1 ex., Narbada river at Hoshangabad, district Hoshangabad; Purchased; 25.12.1964. (v) 4 exs., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 30.9.1985. (vi) 3 exs., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 6.10.1985. (vii) 4 exs., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 23.4.1985.

Diagnostic characters : D. 1/6/0, P. 1/10, V. 8, A. 4-5/9-10, C. 19.

Head length 4.00 to 4.34 and body depth 5.50 to 6.00 in total length. Eye diameter 8.00 to 10.00 in head length. Occipital process as long as wide at its base. Teeth villiform in upper jaw and in the anterior part of lower jaw, internally two or three rows of rounded teeth. Teeth on palate in two separate elliptical patches, rounded, wide apart along median line, rarely connected at top, the teeth molariform and villiform of unequal sizes. Barbels 3 pairs, maxillary pair nearly reaching the end of head, mandibular pair extending to end of head, nasal pair very short. Dorsal fin spine very strong, serrated posteriorly, as long as or 1/3 longer than head. Pectoral fin spine denticulated on both sides, shorter than dorsal spine. Body pale brown above and on sides, dull beneath.

Distribution : India : Madhya Pradesh (Bastar Hoshangabad, Jabalpur, Khandwa, Rewa districts, Chambal river, Indravati Tiger Reserve), Bihar, Uttar Pradesh, West Bengal, Most rivers of North India.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Yunnan.

Genus *Mystus* scopoli

Key to Species

1 Adipose dorsal fin commencing almost after rayed dorsal fin 2

– Adipose dorsal fin short, commencing after an interspace from rayed dorsal fin 3

2. Maxillary barbels reach caudal fin base or beyond. Interorbital width more than 3.00 (3.00 to 4.00) in head length. A dark spot at base of dorsal fin. Rayed dorsal fin pointed, higher than the body..... *M. cavasius*

– Maxillary barbels reach anal fin. Interorbital

width less than 3.00 (2.00 to 3.00) in head length. No dark spot at base of dorsal fin. Rayed dorsal fin rounded, not higher than the body. ..... *M. bleekeri*

3. Eye diameter 3.50 to 4.00 in head length. Pectoral fin with six rays. Body with a bluish shoulder spot. A silvery line along the side ending in a dark spot at base of caudal fin. One or two light bands along sides above lateral line ..... *M. montanus*

– Eye diameter 4.50 to 5.00 in head length. Pectoral fin with nine rays. Body with 3 or 4 longitudinal colour bands above and below lateral line. A dark shoulder spot. No spot at base of caudal fin. ..... *M. vittatus*

116. *Mystus bleekeri* (Day)

1878. *Macrones bleekeri* Day, *Fish India,* : 451, pl. 101, fig. 1.

1889. *Macrones bleekeri* Day, *Fauna Br. India, Fish.*, **1** : 162.

1981. *Mystus bleekeri,* Jayaram, *Handbk. Freshw. Fish. India,* : 196, 199 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 23.9.1960. (ii) 11 exs., Narbada river at Tilwaraghat, district Jabalpur; P. Singh and party; 29.10.1960. (iii) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (iv) 2 exs., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 2.1.1961. (v) 4 exs., Barha village on Rani Durgawati Samadhi Road, district Jabalpur; R.C. Sharma and party; 21.12.1961. (vi) 1 ex., Hiran river on Katangi Road, district Jabalpur; J.S. Bhatti and party; 13.3.1964. (vii) 1 ex., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986.

Diagnostic characters : D. 1/7-8/0, P.1/9-10, V. 6, A. 9-10 (3/6-7), C.17.

Head length 5.20 to 5.50 and body depth 5.00 to 6.00 in total length. Eye diameter 4.00 to 4.50 in head length. Interorbital width less than 3.00 (2.0 to 3.0) in head length. Median longitudinal groove on head Shallow, reaching to base of occipital process. Occipital process twice as long as broad at its base, reaching basal bone of dorsal fin. Barbels 4 pairs, maxillary pair reaching anal fin. Rayed dorsal fin rounded, not higher than the body. Adipose dorsal fin commencing almost after rayed dorsal fin. Pectoral fin spine strong, denticulated internally. Body brownish grey above, lighter below. Two light longitudinal bands, one above the other, below lateral line present. A dark shoulder-spot sometimes present. A dark band along the middle of anal fin.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Jabalpur, Rewa, Satna districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Myanmar, Malaya, Nepal, Pakistan.

117. *Mystus cavasius* (Hamilton)
Dwarf cat-fish

1822. *Pimelodus cavasius* Hamilton, *Fish. Ganges,* : 203, 379, pl. 11, fig. 67.

1878. *Macrones cavasius,* Day, *Fish. India,* : 447, pl. 100, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 155.

1981. *Mystus cavasius,* Jayaram, *Handbk. Freshw. Fish. India,* : 196, 199 (distribution and key to species).

Material examined : (i) 1 ex., Dhanpuri village, district Jabalpur; S. Chakrapany and party; 3.xi.1962. (ii) 1 ex., Gour river on Mandla Road, district Jabalpur; Purchased; 30.6.1961. (iii) 5 exs., Narbada river at Sandiya near Pipariya, district Hoshangabad; Purchased; 16.12.1964. (iv) 1 ex., Narbada river at Hoshangabad, district Hoshangabad; 25.12.1964.

Diagnostic characters : D. 1/7/0, P. 1/8, V. 6, A. 11-13 (4/7-9), C.16.

Head length 6.00 to 6.25 and body depth 5.50 to 6.00 in total length. Eye diameter 3.20 to 3.50 in head length. Interorbital width more than 3.00 (3.00 to 4.00) in head length. Median longitudinal groove wide, reaching to base of occipital process. Occipital process narrow, 3.4 times as long as broad at its base, reaching to basal bone of dorsal fin. Barbels 4 pairs, maxillary pair reaching caudal fin base or beyond. Rayed dorsal fin pointed,

higher than the body. Adipose dorsal fin commencing almost after rayed dorsal fin. Pectoral fin spine strong, denticulated internally. Body leaden above, yellowish on abdomen and cheeks. A dark spot at base of dorsal fin present. A bluish band along lateral line sometimes present. Pectoral, pelvic and anal fins dull white.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Rewa districts), Throughout.

Elsewhere : Bangladesh, Borneo, China, Java, Malaysia, Myanmar, Pakistan, Sumatra, Thailand.

Remark : Live specimens are leaden above, yellowish along abdomen and cheeks. A bluish band along lateral line may be occasionally seen. Specimens from North Bengal may have a black spot on the shoulder. A dark spot at base of dorsal fin may be present (Jayaram, 1977). Most of the specimens examined have a dark spot at base of the dorsal spine. In life the fish is with a metallic blue colour along sides and golden yellow below lateral line and on ventral surface (Jayaram, Venkateswarlu, Ragunathan, 1982).

118. *Mystus montanus* (Jerdon)

1849. *Bagrus montanus* Jerdon, *Madras J. Lit. Sci.*, 15(2) : 338.

1878. *Macrones montanus*, Day, *Fish. India*, : 449, pl. 101, fig. 4; 1889, Day, *Fauna Br. India. Fish.*, 1 : 159.

1981. *Mystus montanus*, Jayaram, *Handbk. Freshw. Fish. India*, : 197, 201 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/7/0, P. 1/6, V. 6, A. 12 (3/9), C.19.

Head length 5.00 and body depth 6.00 in total length. Eye diameter 3.50 to 4.00 in head length. Median longitudinal groove on head reaching to midway between the eye and base of occipital process. Occipital process narrow, 4 times as long as broad at its base, reaching basal bone of dorsal fin. Barbels 4 pairs, maxillary pair reaching to anal fin, nasal pair extends behind posterior margin of eye. Rayed dorsal fin spine weak, serrated posteriorly. Adipose dorsal fin short, commencing after an interspace from rayed dorsal fin, its base shorter than anal fin base. Pectoral fin spine strong with 16 strong denticulations internally. Body silvery above with a tinge of yellow on ventral surface of head and along abdomen. A bluish shoulder spot present. A silvery line along the side ending in a dark spot at base of caudal fin. One or two light bands along sides above lateral line.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad districts), Andhra Pradesh, Assam, Kerala, Wynaad range of hills, Cauvery headwaters.

Remark : In life a bluish-shoulder spot and a dark spot at base of caudal fin prominent. Fins are tinged green, and one or two light bands along side above lateral line faintly seen (Jayaram, Venkateswarlu, Ragunathan, 1982).

119. *Mystus vittatus* (Bloch)
Striped dwarf cat fish

1796. *Silurus vittatus* Bloch, *Ichth. Hist. nat.*, 11 : 40, pl. 371, fig. 2.

1878. *Macrones vittatus*, Day, *Fish. India* : 448, pl. 98, fig. 3 and pl. 99, fig. 4; 1889, Day, *Fauna Br. India,. Fish.*, 1 : 157.

1981. *Mystus vittatus*, Jayaram, *Handbk. Freshw. Fish. India*, : 197, 201 (distribution and key to species).

Material examined : (i) 1 ex., Devtal near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 15.2.1962. (ii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 23.9.1960. (iii) 2 exs., Premises of Pariat tank, district Jabalpur; S. Chakrapany and party; 4.1.1961. (iv) 2 exs., Narbada river at Tilwaraghat, district Jabalpur; P. Singh and party; 30.1.1962. (v) 2 exs., A canal on Rani Durgawati Samadhi Road, district Jabalpur; S. Chakrapany and party; 22.3.1962. (vi) 1 ex., Hiran river on Katangi Road, district Jabalpur; H.P. Agrawal and party; 2.3.1965. (vii) 1 ex., Pariat river on Katni Road, district Jabalpur; H.P. Agrawal and party; 11.11.1965. (viii) 3 exs., Baleha tank at Panagar village, district Jabalpur; H. Khajuria

and party; 7.6.1967. (ix) 2 exs., Pench National Park, district Sewni; N.K. Sinha and party; 17.1.1973. (x) 1 ex., Hazara nala near Majhgawan, district Satna; H.S. Sharma and party; 24.10.1986. (xi) 12 exs., Barra ki nadi near Bhadanpur, Maihar, district Satna; H.S. Sharma and party; 15.10.1986. (xii) 1 ex., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986. (xiii) 1 ex., Reechha river near Raisen, district Raisen; H.S. Sharma and party; 2.10.1995.

Diagnostic characters : D. 1/7/0, P. 1/9, V. 6, A. 9-12 (2-3/7-9), C.17.

Head length 4.70 to 5.00 and body depth 5.00 in total length. Eye diameter 4.50 to 6.00 in head length. Median longitudinal groove on head reaching to midway between the posterior margin of eye and base of occipital process. Occipital process three times as long as wide at its base, reaching the basal bone of dorsal fin. Barbels 4 pairs, maxillary pair reaching to pelvic fin, nasal pair extends to opercle. Rayed dorsal fin spine finely serrated posteriorly. Adipose dorsal fin short, commencing after an interspace from rayed dorsal fin, its base shorter than anal fin base. Pectoral fin spine strong, denticulated internally with 16 coarse teeth. Body silvery or golden. 3 or 4 longitudinal colour bands above and below lateral line. A dark shoulder spot present. Fin tips usually dark.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Jabalpur, Raisen, Rewa, Satna, Sewni districts, Chambal river, Indravati Tiger Reserve), Throughout.

Elsewhere : Bangladesh, Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand.

Genus *Aorichthys* Wu

Key to Species

1 Snout spatulate. Width of gape of mouth 1/3 rd head length. Caudal fin with 20-21 rays. Maxillary pair extending to pelvic fin. Body depth 7.50 to 8.00 in total length. .... *A. seenghala*

– Snout rounded. Width of gape of mouth less than ½ head length. Caudal fin with 17 rays. Maxillary pair extending to base of caudal fin or even beyond. Body depth 6.50 to 7.50 in total length..... *A. aor.*

120. *Aorichthys aor* (Hamilton)
Long Whiskered cat-fish

1822. *Pimelodus aor* Hamilton, *Fish. Ganges,* : 205, 379, pl. 20, fig. 68.

1878. *Macrones aor,* Day, *Fish. India,* : 444; 1889, Day, *Fauna Br. India, Fish.*, **1** : 149.

1981. *Aorichthys aor,* Jayaram, *Handbk. Freshw. Fish. India,* : 205 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 12.8.1960.

Diagnostic characters : D. 1/7/0, P. 1/9-10, V. 6, A. 12-13 (3-4/8-9), C.17.

Head length 4.50 to 5.00 and body depth 6.50 to 7.50 in total length. Eye diameter 4.50 to 8.00 in head length. Snout broad, depressed and rounded. Width of gape of mouth less than half of head length. Barbels 4 pairs, maxillary pair reaching to base of caudal fin or even beyond. Rayed dorsal fin spine weak, finely serrated posteriorly, nearly or quite as long as head. Pectoral spine stronger than dorsal spine but shorter, rugose or finely serrated externally and denticulated internally. Pelvic fin inserted below last dorsal fin ray. Body bluish leaden above, white below. A black spot of the size of the eye on posterior and inferior portion of adipose dorsal fin present. A black tinge on posterior lower end of rayed dorsal fin may be present.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur, Rewa districts, Chambal river), Andhra Pradesh, Assam, Bihar, Orissa, Punjab, Uttar Pradesh, West Bengal; Brahmaputra, Cauvery, Ganga, Godavari, Krishna, Mahanadi, Narbada, Tapi, Yamuna river systems.

Elsewhere : Bangladeshm Myanmar, Pakistan.

121. *Aorichthys seenghala* (Sykes)
Giant river cat-fish

1839. *Platystoma seenghala* Sykes, *Trans. zool. Soc. Lond.,* **2** : 371, pl. 65, fig. 2.

1878. ***Macrones seenghala***, Day, *Fish. India* : 444, pl. 99, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 150.

1981. ***Aorichthys seenghala***, Jayaram, *Handbk. Freshw. Fish. India*, : 205 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river at Sandiya near pipariya, district Hoshangabad; purchased; 16.12.1964.

Diagnostic characters : D. 1/7/0, P. 10 (1/9), V. 6 (1/5), A. 11-12 (3/8-9), C.19-21.

Head length 4.50 and body depth 7.50 to 8.00 in total length. Eye diameter 6.50 to 8.00 in head length. Snout spatulate. Width of gape of mouth equals to one third of head length. Barbels 4 pairs, maxillary pair extending to pelvic fin or last ray of dorsal fin. Dorsal spine weak, rugose anteriorly, indistinctly serrated posteriorly and as long as head excluding the snout. Pectoral spine stronger than dorsal spine, roughened externally and denticulated internally. Pelvic fin inserted just behind last ray of dorsal fin. Body brownish on the dorsal surface, silvery on sides below lateral line and beneath. A round black spot less than ½ eye diameter at the posterior end of the base of adipose dorsal fin.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Rewa districts, Chambal river), The Brahmaputra, Cauveri, Ganga, Godavari, Indus, Krishna, Mahanadi, Narbada, Tapti and Yamuna river systems.

Elsewhere : Bangladesh, Myanmar, Pakistan.

Family SILURIDAE

Genus ***Ompok*** Lacepede

Key to Species

1 Maxillary barbels longer than head extending upto anal fin..... *O. bimaculatus.*

– Maxillary barbels shorter than head, not extending upto commencement of anal fin. ..... *O. pabda*

122. *Ompok bimaculatus* (Bloch) **Butter cat-fish**

1797. *Silurus bimaculatus* Bloch, *Syst. Ichth.*, **11** : 17, pl. 369.

1878. *Callichrous bimaculatus*, Day, *Fish. India* : 476, pl. 110, figs. 4 and 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 331, fig. 57.

1981. *Ompok bimaculatus*, Jayaram, *Handbk. Freshw. Fish. India* : 208, 209; fig. 102A, (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 23.9.1960. (ii) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (iii) 1 ex., Baleha tank at Panagar village, district Jabalpur; Purchased; 16.6.1967. (iv) 1 ex., Pench National Park, district Sewni; N.K. Sinha and party; 21.1.1973. (v) 3 exs., Narbada river at Sandiya near Pipariya, district Hoshangabad; Purchased; 16.12.1964.

Diagnostic characters : D. 4, P. 13-15 (1/12-14), V. 8-9, A. 61-76 (2-3/59-73), C.17-18.

Head length 5.00 to 7.00 and body depth 5.00 to 5.50 in total length. Eye diameter 4.00 to 5.75 in head length. Barbels 2 pairs, maxillary pair extending to middle of pectoral fin or the commencement of anal fin. Dorsal fin short without any spine, originates in advance of pelvic fin origin and considerably nearer to snout tip than to caudal fin base. Pectoral with a moderately strong spine, serrated or entire. Anal fin very long, ceasing close to, but not continuous with caudal fin. Body silvery, shot with purple. A black spot on shoulder behind gill openings and above middle of pectoral fin. Occasionally the caudal fin tips, black.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Jabalpur, Rewa, Sewni districts, Indravati Tiger Reserve, Chambal river), Throughout.

Elsewhere : Bangladesh, Borneo, China, East Indies, Java, Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Sumatra, Thailand, Vietnam, Yunnan.

Remark : In live condition, silvery shot with purple, dorsally faint greenish dark with a tinge of golden yellow. Fins pale gold. A black spot on shoulder, on the lateral line behind gill opening and above middle of pectoral fin. A small triangular black spot just above lateral line on caudal peduncle also present (Jayaram, 1977).

123. *Ompok pabda* (Hamilton)
Butter cat-fish

1822. *Silurus pabda* Hamilton, *Fish. Ganges*, : 950, pl. 25, fig. 47.

1878. *Callichrous pabda*, Day, *Fish. India*, : 479, pl. 111, figs. 2 and 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 133.

1981. *Ompok pabda*, Jayaram, *Handbk. Freshw. Fish. India*, : 208, 209 (distribution and key to species).

Material examined : (i) 1 ex., A nala near Rani Durgawati Samadhi, district Jabalpur; V.S. Durve and party; 29.1.1969. (ii) 1 ex., Betwa river near Raisen, district Raisen; H.S. Sharma and party; 3.10.1995. (iii) 2 exs., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995. (iv) 1 ex., Bara pool, Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995. (v) 3 exs., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D. 4-5, P. 12-14 (1/11-13), V. 7-8, A. 52-56 (2-3/50-54), C.17-19.

Head length 5.00 to 5.25 and body depth 5.00 to 5.25 in total length. Eye diameter 5.00 in head length. Barbels 2 pairs, maxillary pair shorter than head, extending to middle or end of pectoral fin and mandibular pair reaching hind edge of the orbit. Dorsal fin short, without any spine, inserted in advance of pelvic fin insertion and considerably nearer to tip of snout than to caudal fin base. Pectoral fin with a spine, serrated internally, sometimes feebly or entirely smooth. Anal fin very long not confluent with the caudal fin. Body silvery, glossed with gold. A dark shoulder spot above middle of pectoral fin present. Generally with a dark spot close to caudal fin base.

Distribution : India : Madhya Pradesh (Jabalpur, Raisen, Rajgarh, Rewa districts), The Brahmaputra, Ganga, Godavari, Indus and Krishna river systems.

Elsewhere : Bangladesh, Myanmar, Pakistan.

Remark : In fresh condition silvery green with a tinge of yellow; dark on back, fading to dull silver on abdomen. Irregular light brown patches concentrated close to back and forming longitudinal lighter bands along lateral line and just above anal fin, with the space in between bands light yellow. A dark oval shoulder spot on lateral line, above middle of pectoral fin and another diffused black spot on lateral line near base of caudal. Opercle greenish yellow with fine dark spots. Anal and caudal fins golden yellow with fine black dots, having black line on their bases (after Parameswara *et al.* 1967).

Genus *Wallago* Bleeker

124. *Wallago attu* (Schneider)
Freshwater Shark

1801. *Silurus attu* Schneider, *Syst. Ichth.*, Bloch : 378, pl. 75.

1878. *Wallago attu*, Day, *Fish. India*, : 479, pl. 111, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **1** : 126, fig. 54.

1981. *Wallago attu*, Jayaram, *Handbk. Freshw. Fish. India*, : 210 (distribution).

Material examined : (i) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 2 exs., Hiran river on Katni Road, Jabalpur district; B.S. Chauhan and party; 13.7.1972. (iii) 2 exs., Kareli, district Narsinghpur; Purchased; 11.12.1964. (iv) 1 ex., Narbada river at Sandiya near Papariya, district Hoshangabad; Purchased; 16.12.1964. (v) 1 ex., Singri river, district Narsinghpur; H.P. Agrawal and party; 14.10.1989.

Diagnostic characters : D. 5, P. 14-16 (1/13-15), V. 8-10, A. 86-93 (4/82-89), C. 17.

Head length 5.00 to 5.50 and body depth 6.50 in total length. Eye diameter about 7.00 to 8.00 in head length. Eye small, above level of corner of mouth. Dorsal profile nearly straight. Snout spatulate, rather produced. Gape of mouth wide, extending to or beyond anterior border of eye. Lower jaw more prominent. Barbels 2 pairs, maxillary pair twice as long as head and mandibular pair equal to snout. Dorsal fin short, spineless, inserted above half of pectoral fin. Adipose dorsal fin absent. Pectoral fin spine moderately strong, finely serrated internally. Anal fin long, not confluent with caudal fin. Body silvery grey becoming lighter below.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Narsinghpur, Rewa districts, Chambal river, Indravati Tiger Reserve), Throughout.

Elsewhere : Bangladesh, Borneo, China, Indonesia, Java, Malaya Archipelago, Myanmar. Pakistan, Sri Lanka, Sumatra, Thailand, Yunnan.

Remark : Fresh specimens may be light green above, with the sides of a cream colour, lighter below and darker above. A faint band of orange yellow may be along the lateral line (Jayaram, 1977).

Family SCHILBEIDAE

Subfamily AILINAE

Genus ***Ailia*** Gray

125. ***Ailia coila*** (Hamilton)

Ailia

1822. *Malapterurus coila* Hamilton, *Fish. Ganges*, : 158, 375.

1878. *Ailia coila*, Day, *Fish. India*, : 488, pl. 114, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, 1 : 134, fig. 58.

1981. *Ailia coila*, Jayaram, *Handbk. Freshw. Fish. India*, : 213, 214 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 0, P. 15 (1/14), V. 6, A. 59-75, C.19.

Head length 6.00 to 7.00 and body depth 5.25 to 6.00 in total length. Eye diameter 3.50 to 3.75 in head length. Snout overhanging. Upper jaw longer. Cleft of mouth reaching to below middle of eye. Width of gape of mouth equals 1/3 of head length. Teeth villiform in jaws and in two minute patches on vomer. Barbels 4 pairs, more or less of uniform length, extending to almost middle of body length (standard length). Rayed dorsal fin absent. Adipose dorsal fin, small, posteriorly free. Pectoral fin spine slender, as long as head. Anal fin long, not confluent with caudal fin. Body silvery to dull brown without any black blotch on caudal fin base or along side. Some of the fins tipped grey at their margins.

Distribution : India : Madhya Pradesh (Rewa district), Andhra Pradesh, Assam, Bihar, Delhi, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal, Krishna river system.

Elsewhere : Bangladesh, Nepal, Pakistan.

Subfamily SCHILBEINAE

Genus ***Pseudeutropius*** Bleeker

126. ***Pseudeutropius atherinoides*** (Bloch)

1794. *Silurus atherinoides* Bloch, *Naturges. Ausland Fische*, **8** : 48, pl. 371, fig. 1.

1878. *Pseudeutropius atherinoides*, Day, *Fish. India*, : 473, pl. 109, fig. 2; 1889, Day, *Fauna Br. India, Fish.*, **1** : 141.

1981. *Pseudeutropius atherinoides*, Jayaram, *Handbk. Freshw. Fish. India*, : 217 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/5-6/0, P. 8 (1/7), V. 6, A. 33-46 (3/30-43), C. 17.

Head length 5.00 to 5.50 and body depth 4.50 to 5.50 in total length. Eye diameter 2.50 to 3.00 in head length. Upper jaw longer. Occipital process four times as long as broad at its base, reaches the basal bone of dorsal fin. Teeth on palate in two narrow, separate crescentic bands. Barbels 4 pairs, maxillary pair reaches to base of anal fin, mandibular and nasal pairs longer than the head. Dorsal fin spine two third as long as head, rugose anteriorly and finely serrated posteriorly. Pectoral fin spine longer and stronger than dorsal fin spine with about ten denticulations internally. Anal fin long, not confluent with caudal fin. Body greenish on dorsal surface, silvery below. Three or four bands along the sides formed by black dots. A pale golden stripe along lateral line ending in a round black spot at caudal fin base. Sometimes the band may be wanting. Usually a black spot at nape and infront of dorsal fin base present.

Distribution : India : Madhya Pradesh (Bastar district), Throughout except Assam and kerala.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Genus ***Clupisoma*** Swainson

Key to Species

1. Abdominal edge rounded. ..... *C. montana*
– Abdominal edge keeled throughout or partly 2
2. Abdominal edge keeled throughout. Maxillary barbels not reaching pelvics. Anal fin with 40-44 rays. ..... *C. prateri*
– Abdominal edge keeled partly 3
3. Abdominal edge keeled from vent to thorax. Pectoral not reaching pelvics. Maxillary barbels reaching anal fin base. Anal fin with 52-54 rays. ..... *C. bastari*
– Abdominal edge keeled between pelvic and vent. Pectorals not reaching pelvics. Maxillary barbels reaching pelvic fin. Anal fin with 29-36 rays. ..... *C. garua*

127. ***Clupisoma bastari*** Datta & Karmakar

1980. *Clupisoma bastari* Datta and Karmakar, *Bull. zool. Surv. India*, **2**(2 & 3) : 193-196.

1981. *Clupisoma bastari*, Jayaram, *Handbk. Freshw. Fish. India*, : 219, 222 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D.1/7-8, P. 1/10-12, V. 6, A. 52-54.

Head length 4.40 to 4.70 and body depth 6.40 to 6.70 in standard length. Eye diameter 3.00 to 3.50 in head length. Occipital process long, pointed, extending to basal bone of dorsal fin and 4.00 to 4.80 times as long as wide at its base. Barbels 4 pairs, maxillary pair reaching to base of anal fin, outer and inner mandibular pairs longer than the head, nasal pair extends upto middle of eye. Rayed dorsal fin with a strong spine, serrated internally and externally. Adipose dorsal fin short and originates above the last quarter of anal fin base. Pectoral fin with a spine, serrated internally and externally, not reaching to pelvic fin insertion. Pelvic fin nearly reaching anal fin insertion. Caudal fin deeply forked, lobes equal. Abdominal edge keeled from vent to thorax. Body dark on dorsal surface, lighter below.

Distribution : India : Indravati river, Bastar district, Madhya Pradesh.

128. ***Clupisoma garua*** (Hamilton)

1822. *Silurus garua* Hamilton, *Fish. Ganges*, : 156, 375, pl. 21, fig. 50.

1936. *Clupisoma garua*, Hora, *J. Bombay. nat. Hist. Soc.*, **39**(4) : 606.

1981. *Clupisoma garua*, Jayaram, *Handbk. Freshw. Fish. India*, : 219, 222 (distribution and key to species).

Material examined : (i) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 18.7.1960. (ii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 23.9.1960.

Diagnostic characters : D.8 (1/7), P. 12 (1/11), V. 6, A. 29-36 (3/26-33), C. 17.

Head length 4.80 to 5.60 and body depth 4.60 to 5.60 in standard length. Eye diameter 3.00 to 3.80 in head length. Occipital process long, pointed, sometimes extending to basal bone of dorsal fin and 4 times as long as wide at its base. Barbels 4 pairs, maxillary pair reaching to base of pelvic fin or in young specimens to middle of pelvic fin, mandibular pairs reaching to base of pectoral fin and nasal pair not reaching the eye. Whole of rayed dorsal fin inserted just in advance of pelvic fin, dorsal spine slender, rugose anteriorly and feebly serrated posteriorly. Adipose dorsal fin absent in adults but present in young specimens as a minute structure. Pectoral fin not extending to base of pelvic fin. Pectoral spine longer and stronger than dorsal spine, roughened externally and denticulated internally. Abdominal edge keeled between bases of pelvics and vent. Body silvery with green on the back. Fins stained grey. Head and shoulder with a golden gloss, in fresh condition.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur, Rewa districts, Chambal river, Indravati Tiger Reserve), Assam, Bihar, North India, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

129. *Clupisoma montana* Hora

1937. *Clupisoma montana* Hora, *J. Bombay nat. Hist. Soc.*, **39(4)** : 673.

1981. *Clupisoma montana*, Jayaram, *Handbk. Freshw. Fish. India*, : 220 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/6-7, P. 1/12, V. 6, A. 41-43, C. 17.

Head length 5.00 and body depth 4.50 to 4.80 in standard length. Eye diameter about 4.80 in head length. Occipital process long, narrow and almost meets the basal bone of dorsal fin. Barbels 4 pairs, nasal pair extends beyond the anterior margin of eye, maxillary pair somewhat longer than the head and mandibular pairs considerably shorter than the head. Rayed dorsal fin situated above pectoral fin and almost entirely in advance of pelvic fin. Dorsal spine rather feeble, smooth anteriorly and finely serrated posteriorly. Adipose dorsal fin small, situated about the beginning of the last third of the distance between commencement of rayed dorsal fin and caudal fin base. Pectoral fin long, pointed, extending beyond commencement of pelvic fin. Pectoral spine stronger than dorsal fin spine, smooth externally and finely serrated internally. Anal fin long and terminates at a considerable distance from caudal fin. Abdominal edge rounded. Body dull white on head, grey on back, fading on sides. Lower portion olivaceous. Eyes greyish.

Distribution : India : Madhya Pradesh (Bastar, district), Uttar Pradesh, West Bengal.

Elsewhere : Nepal.

130. *Clupisoma prateri* Hora

1937. *Clupisoma prateri* Hora, *J. Bombay nat. Hist. Soc.*, **39(4)** : 671.

1981. *Clupisoma prateri*, Jayaram, *Handbk. Freshw. Fish. India*, : 220, 222 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/6-7, P. 1/11, V. 6, A. 40-44.

Head length 5.12 to 6.08 and body depth 4.71 to 5.80 in standard length. Eye diameter 3.04 to 3.34 in head length. Barbels 4 pairs, nasal pair extends considerably beyond front margin of eye and sometimes even to the posterior margin of eye, maxillary pair extends to about middle of pelvic fin and sometimes to the commencement of anal fin, mandibular pairs extend to hind border of operculum. Whole of dorsal fin originates considerably in advance of pelvic fin. Pectoral fin extends considerably beyond the commencement of pelvic fin. Anal long, not confluent with caudal fin. Abdominal edge keeled throughout in front of vent. Body brown above, silvery below lateral line.

Distribution : India : Madhya Pradesh (Bastar district), Allahabad (U.P.), Sone river (Bihar), Teesta river (N. Bengal).

Elsewhere : Bangladesh, Myanmar.

Remark : Hora, 1937 : 671, stated that the species will be described in detail when fresh material from Burma become available which it seems never materialised. A good description is overdue for this species (Jayaram, 1977).

Genus *Eutropiichthys* Bleeker

131. *Eutropiichthys vacha* (Hamilton)

1822. *Pimelodus vacha* Hamilton, *Fish. Ganges*, : 196, 378, pl. 19, fig. 64.

1981. *Eutropiichthys vacha*, Jayaram, *Handbk. Freshw. Fish. India*, : 222-224 (distribution and key to the species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/7/0, P. 1/13-16, V. 6, A. 3-4/41-47, C. 17.

Head length 5.50 to 5.75 and body depth 5.00 to 5.50 in total length. Eye diameter 3.50 to 3.75 in head length. Eyes with broad adipose lids. Cleft of mouth oblique reaching beyond middle of eye. Snout compressed, pointed. Upper jaw slightly longer. Teeth on palate in a continuous band, wider than premaxillary band. Barbels 4 pairs, maxillary pair reaching beyond eyes, nasal pair reaching hind border of head or slightly

beyond, mandibular pairs rather shorter. Dorsal fin spine, serrated posteriorly and as long as head without snout. Adipose dorsal fin short, free posteriorly. Pectoral fin spine rough externally, serrated internally and as long as dorsal spine. Anal fin long, not confluent with caudal fin. Body silvery, greyish along the back. Pectoral and caudal fins edged black.

Distribution : India : Madhya Pradesh (Rewa district, Chambal river), North India (upto Mahanadi).

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Thailand.

Genus ***Silonia*** Swainson

Key to Species

1 Air-bladder greatly reduced. Eye diameter 4.00 to 4.50 in head length. Width of gape of mouth more than half of head length. Barbels one pair, minute; mandibular pair usually absent. Body depth 5.00 to 5.25 in total length. ..... *S. silondia*

– Air-bladder large, longer axis transversely disposed. Eye diameter 3.50 in head length. Width of gape of mouth less than one third of head length. Barbels two pairs, more than eye diameter. Body depth 5.75 in total length. ..... *S. childreni*

132. ***Silonia childreni*** (Sykes)

1841. *Ageniosus childreni* Sykes, *Trans. zool. Soc. Lond.*, **2** : 375.

1852. *Silonia childreni* Sykes, *Proc. nat. Inst. Sci. India*, **18**(5) : 433.

1981. *Silonia childreni*, Jayaram, *Handbk. Freshw. Fish. India*, : 225 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/7/0, P. 1/12, V. 6, A. 44-50 (2-3/42-47), C. 19.

Head length 5.25 and body depth 5.75 in total length. Eye diameter 3.50 in head length. Eyes with a narrow, free, adipose lid. Lower jaw curved upwards in the middle and longer. Width of gape of mouth less than one third of head length. Cleft of mouth not extending to front margin of eye. Barbels 2 pairs, maxillary pair extending to opercle or even to base of pectoral fin, mandibular pair equal to eye. Dorsal fin spine weak, roughened anteriorly and finely serrated posteriorly. Pectoral fin spine stronger and longer than dorsal fin spine and reaching to above pelvic fin. Body dusky green on dorsal surface and silvery below. Fins stained externally with grey.

Distribution : India : Madhya Pradesh (Bastar), Cauvery, Godavari, Krishna river systems and rivers of Kerala.

133. ***Silonia silondia*** (Hamilton)

1822. *Pimelodus silondia* Hamilton, *Fish. Ganges*, : 160, 275, pl. 7, fig. 50.

1981. *Silonia silondia*, Jayaram, *Handbk. Freshw. Fish. India*, : 224-225 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/7/0, P. 1/11-13, V. 6, A. 40-46 (4/36-44), C. 17.

Head length 5.25 and body depth 5.00 to 5.25 in total length. Eye diameter 4.00 to 4.50 in head length. Eye with narrow adipose eye lids. Lower jaw longer, snout somewhat broad. Width of gape of mouth more than half of head length. Cleft of mouth not extending to below eye. Barbels one pair, minute, maxillary ones, mandibular pair usually absent. Teeth villiform in jaws, those on palate in a crescentic, uninterrupted band. Dorsal fin spine rather weak, rugose or smooth anteriorly, finely serrated posteriorly. Pectoral fin spine stronger, serrated internally and as long as head without snout. Body bluish on dorsal surface and silvery on sides. Fins stained grey.

Distribution : India : Madhya Pradesh (Rewa district, Chambal river), Northern India.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Remark : When fresh, head and back dusky green, sides and belly silvery, iris of orange

colour, opercle and body sides orange and yellow. Caudal fin with a band of light Indian red tint (Jayaram, 1977).

Family PANGASIIDAE

Genus *Pangasius* Valenciennes

134. *Pangasius pangasius pangasius* (Hamilton)

1822. *Pimelodus pangasius* Hamilton, *Fish. Ganges*, : 163, 376, pl. 33, fig. 52.

1878. *Pangasius buchanani* Day, *Fish. India*, : 470, pl. 108, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, 1 : 142, fig. 61.

1981. *Pangasius pangasius pangasius*, Jayaram, *Handbk. Freshw. Fish. India*, : 227 (distribution).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/7/0, P. 1/12, V. 6, A. 31-34 (4-5/27-29), C. 19.

Head length 4.50 to 6.00 and body depth 5.00 to 6.50 in total length. Eye diameter 3.00 to 5.00 in head length. Head moderate sized, exceptionally granulated, blunt. Cleft of mouth reaches opposite centre of front edge of eye. Width of gape of mouth equals nearly half of head length. Teeth small, villiform in bands on jaws, in four patches on palate, separate or variously united. Occipital process 2.50 to 3.00 times as long as wide at its base. Barbels 2 pairs, maxillary pair extending to pectoral fin base, mandibular pair half as long as head. Dorsal fin spine serrated anteriorly and posteriorly. Adipose dorsal fin short and posteriorly free. Pectoral fin spine stronger than dorsal spine and denticulated internally. Body silvery, darkest on dorsal surface, shot with purple on sides. Cheeks and under surface of head shot with gold.

Distribution : India : Madhya Pradesh (Chambal river), Andhra Pradesh, Assam, Bihar, Orissa, Tamil Nadu, West Bengal, Bhavani river in South India.

Elsewhere : Bangladesh, Indonesia, Java, Malaya, Myanmar, Pakistan, Thailand, Vietnam.

Remark : When fresh, dusky or yellowish green, bluish mauve above, white below, purple gloss along sides. Sides of head golden yellow, fins light reddish-yellow (Jayaram, 1977).

Family AMBLYCIPITIDAE

Genus *Amblyceps* Blyth

135. *Amblyceps mangois* (Hamilton)

1822. *Pimelodus mangois* Hamilton, *Fish. Ganges*, : 199, 379.

1981. *Amblyceps mangois*, Jayaram, *Handbk. Freshw. Fish. India*, : 228 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river at Joga, district Hoshangabad; H. Khajuria and party; 1.1.1966. (ii) 1 ex., Narbada river near Mohania village, district Mandla; H. Khajuria and party; 23.11.1963. (iii) 3 exs., Burnher river, district Mandla; H. Khajuria and party; 12.11.1963.

Diagnostic characters : D. 1/6/0, P. 1/7, V. 6, A. 9-12 (2-3/7-9), C. 19.

Head length 6.25 and body depth 7.00 to 9.00 in total length. Eyes small, superior. Mouth wide. Lower jaw longer. Palate edentate. A fold of skin above and anterior to pectoral fin base and immediately behind gill opening present. Barbels 4 pairs, Nasal pair equal to internal mandibular pair and as long as head, maxillary pair extending to end of pectoral spine. Outer mandibular pair comparatively shorter. Rayed dorsal fin inserted anteriorly above pectoral fin, partly enveloped in skin and dorsal spine weak about half as high as the rays. Adipose dorsal fin, smooth and low. Pectoral fin with a Smooth and weak spine. Caudal fin truncate or emarginate. Lateral line absent. Body dark grey on back and sides, lighter below.

Distribution : India : Madhya Pradesh (Hoshangabad, Mandla, Rewa districts), Along the foot-hills of the Himalaya from Kangra valley in Punjab to Assam, Krishna river system, S. India.

Elsewhere : Bangladesh, Laos, Myanmar, Nepal, Pakistan, Thailand.

Family SISORIDAE

Genus ***Bagarius*** Bleeker

136. ***Bagarius bagarius*** (Hamilton)
Bagarius

1822. *Pimelodus bagarius* Hamilton, *Fish. Ganges,* : 186, 378, pl. 7, fig. 62.

1878. *Bagarius yarrellii* Day, *Fish. India,* : 495, pl. 115, fig. 3; 1889, Day, *Fauna Br. India, Fish.,* **1** : 194, fig. 71.

1981. *Bagarius bagarius,* Jayaram, *Handbk. Freshw. Fish. India,* : 238 (distribution).

Material examined : 1 ex. Pariat river at Imalia village on Katni Road, district Jabalpur; R. C. Sharma and party; 25.10.1961.

Diagnostic characters : D. 1/6/0, P. 1/13, V. 1/5, A. 12-13, C. 17.

Head length 3.75 and body depth 5.00 in total length (without prolonged caudal fin ray). No adhesive apparatus. Head greatly depressed. Gape of mouth about half of head length. Palate edentate. Barbels 4 pairs, maxillary pair with broad bases and longer than head. Rayed dorsal fin inserted above base of pectoral fin, dorsal spine smooth and bony portion as long as head without snout. Pectoral fin spine equal to and stronger than dorsal spine, serrated internally. Base of adipose dorsal fin equals that of rayed dorsal fin. Pectoral and caudal fins with soft filamentous prolongations. Body scabrous, greyish yellow with large, irregular, brown and black markings and cross bands. Body speckled with coloured dots.

Distribution : India : Madhya Pradesh (Bastar, Jabalpur, Rewa districts, Chambal river), Throughout.

Elsewhere : Bangladesh, East Indies, Indo-China, Malaya, Malaya Archipelago, Myanmar, Nepal, Pakistan, Thailand, Tonkin, Vietnam.

Remark : Colour variable. Generally body greenish or ash coloured, or deep olive-brown, pale below with many scattered irregularly shaped black marks, in fresh condition (Jayaram, 1979).

Genus ***Gagata*** Bleeker

137. ***Gagata cenia*** (Hamilton)

1822. *Pimelodus cenia* Hamilton, *Fish. Ganges,* : 174, 376, pl. 31, fig. 57.

1981. *Gagata cenia,* Jayaram, *Handbk. Freshw. Fish. India,* : 239, 240 (distribution and key to species).

Material examined : (i) 10 exs., Narsingh talab, Narsinghpur, district Narsinghpur; H. P. Agrawal and party; 13.10.1989. (ii) 12 exs., Sherh river, district Narsinghpur; H.P. Agrawal and party; 15.10.1989. (iii) 8 exs., Singri river, Narsinghpur district; H. P. Agrawal and party; 14.10.1989.

Diagnostic characters : D. 1/6/0, P. 1/9, V. 6, A. 14-15 (3/11-12), C. 17-19.

Head length 4.50 to 5.00 and body depth 5.00 to 7.00 in total length. Head width 1.4-2.0 in its length. Eye diameter 4.00 to 4.25 in head length. Snout much longer than eye. Median longitudinal groove on head deep, extending to the base of occipital process. Occipital process narrow almost touches the basal bone of dorsal fin. Barbels 4 pairs, nasal pair minute, maxillary pair reaching to base of pectoral spine or little more, outer mandibular pair half as long as head. Rayed dorsal fin higher than the body, first two rays being the longest. Base of adipose dorsal fin equal to rayed dorsal fin base. Pectoral fin reaching above pelvic fin, its spine strong and serrated. Pelvic fin not reaching anal fin. Body yellowish brown above and silvery below. 3 dark bands on head and 4 on back descending up to lateral line. Dark mark across dorsal fin. Pectoral fin plain. Caudal fin with a semilunar black band or a black blotch on each line.

Distribution : India : Madhya Pradesh (Narsinghpur district), Assam, Bihar, Delhi, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Thailand.

Genus ***Nangra*** Day

Key to Species

– A pair of finger-like processes in between bases of inner mandibular barbels present.

Maxillary barbels reaching posterior border of the orbit. ..... *N. viridescens*

– No finger - like processes in between bases of inner mandibular barbels. Maxillary barbels reaching half of the length of pectoral fin. ..... *N. itchkeea*

138. *Nangra itchkeea* (Sykes)

1838. *Phractocephalus itchkeea* Sykes, *Proc. zool. Soc. Lond.*, **6** : 164; 1840, Sykes, *Trans. zool. Soc. Lond.*, **2** : 373, pl. 67, fig. 1.

1878. *Gagata itchkeea*, Day, *Fish. India*, : 492, pl. 115, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 209.

1981. *Nangra itchkeea*, Jayaram, *Handbk. Freshw. Fish. India*, : 241 (distribution and key to species).

Material examined : (i) 2 exs., Narbada river at Gwarighat, district Jabalpur; S. Chakrapany and party; 28.4.1961. (ii) 1 ex., Narbada river at Lamataghat, district Jabalpur; V.V. Rao and party; 7.5.1969.

Diagnostic characters : D. 1/6/0, P. 1/8, V. 1/5, A. 2-3/9-10, C. 18-19.

Head length 4.50 to 5.00 and body depth 5.50 to 6.00 in total length. Eye diameter 2.20 to 2.70 in head length. Median longitudinal groove on head as two short fontanelles, not reaching base of occipital process. Occipital process long, narrow, 3 times as long as broad at its base, separated from the basal bone of dorsal fin by a short distance. Barbels 4 pairs, maxillary pair without any groove, extending half of length of pectoral fin; outer mandibular pair do not extend beyond pectoral fin, nasal pair shorter than head. Rayed dorsal fin with an entire, strong spine. Pectoral fin with a strong spine, roughened externally and serrated internally. Body yellowish bronze above, becoming silvery on sides and abdomen. Dark blotches along the back descending to half-way down the sides. A dark blotch on either lobe of caudal fin and another on dorsal fin present.

Distribution : India : Madhya Pradesh (Jabalpur district), Andhra Pradesh, Cauvery river, Coorg, Rivers of Deccan, Karnataka, Maharashtra.

Elsewhere : Myanmar.

139. *Nangra viridescens* (Hamilton)

1822. *Pimelodus viridescens* Hamilton, *Fish. Ganges*, : 173, 376, pl. 10, fig. 56.

1878. *Nangra punctata*, Day, *Fish. India*, : 494, pl. 115, fig. 8.

1878. *Nangra viridescens*, Day, *Fish. India*, : 494, pl. 115, fig. 7.

1889. *Nangra punctata*, Day, *Fauna Br. India, Fish.*, **1** : 212, fig. 76.

1889. *Nangra viridescens*, Day, *Fauna Br. India, Fish.*, **1** : 212.

1981. *Nangra viridescens*, Jayaram, *Handbk. Freshw. Fish. India*, : 241 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/6/0, P. 1/8, V. 1/5, A. 3-4/8, C. 18-21.

Head length 4.20 to 4.50 and body depth 5.80 to 6.30 in total length. Eye diameter 3.50 to 4.10 in head length. Median longitudinal groove on head as a single fontanelle, and reaching to base of occipital process. Occipital process long, club-shaped, 4 times as long as broad at its base, separated from the basal bone of dorsal fin by a short interspace. Barbels 4 pairs, all barbels shorter than head, maxillary barbels with stiff bases, lying in a groove. A pair of finger-like processes in between bases of inner mandibular barbels present. Rayed dorsal fin with a small, strong entire spine. Pectoral fin with a strong spine, smooth externally and strongly denticulated internally. Body coppery glossed with gold on sides. A black blotch on occiput. Three or four black bands along back descending along sides upto lateral line. A black band on dorsal fin and some black markings on caudal fin.

Distribution : India : Madhya Pradesh (Chambal river), Andhra Pradesh, Assam, Bihar, Maharashtra, Uttar Pradesh, West Bengal, Cauvery river system, The yamuna at Delhi.

Elsewhere : Bangladesh, Nepal.

Genus ***Conta*** Hora

140. ***C. elongata*** (Day)

1871. *Hara elongata* Day, *Proc. Zool. Soc. London,* : 704.

1878. *Erethistes elongata* Day, *Fish. India,* : 453, Pl. 102, fig. 5.

1889. *Erethistes elongatus* Day, *Fauna Br. India, Fish.*, 1 : 207.

1981. *Conta elongata,* Jayaram, *Handbk. Freshw. Fish. India,* : 247, 248 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/6/0, P. 1/6, V. 6, A. 10 (3/7), C. 17.

Head length 6.50 and body depth 7.00 in total length. Eye diameter 9.00 in head length. Occipital process 3 times as long as broad at its base, separated from the basal bone of dorsal fin by a short interspace. Adhesive apparatus feebly developed. Barbels 4 pairs, none extending beyond eye. Rayed dorsal fin inserted midway between adipose dorsal fin and tip of snout. Dorsal spine strong, equal to head and serrated on both edges. Adipose dorsal fin extending to opposite to last anal ray. Pectoral fin not reaching pelvic fin, serrated on both edges. Pelvic fin not reaching anal fin, inserted below last dorsal fin ray. Caudal fin deeply forked, both lobes elongated. Least height of caudal peduncle 2.20 in its length. Body brownish with dark bands. Fins yellow with black bands. Skin tuberculated.

Distribution : India : Madhya Pradesh, Garo hills, Meghalaya, North Bengal, Siliguri.

Elsewhere : Bangladesh.

Genus ***Laguvia*** Hora

141. ***Laguvia ribeiroi ribeiroi*** Hora

1921. *Laguvia ribeiroi* Hora, *Rec. Indian Mus.*, **22** : 741, pl. 29, fig. 3.

1981. *Laguvia ribeiroi ribeiroi,* Jayaram, *Handbk. Freshw. Fish. India,* : 249, 250 (distribution and key to species).

Material examined : 1 ex., Tons river near Maihar, district Satna; H.S. Sharma and party; 17.10.1986.

Diagnostic characters : D. 1/6/0, P. 1/6-8, V. 1/5, A. 9.

Head length 4.20 and body depth 5.40 in total length. Eye diameter 7.50 in head length. Nostrils nearer to tip of snout than to anterior margin of eye. A rudimentary adhesive apparatus on thorax. Barbels 4 pairs, maxillary pair with broad bases reaching to pectoral fin base. Rayed dorsal fin inserted above last quarter of pectoral fin. Dorsal spine finely serrated along whole of anterior margin and also along upper one third of posterior margin. Adipose dorsal fin short, posteriorly free. Pectoral fin with a strong, serrated spine. Pelvic fin origin equidistant from tip of snout and caudal fin base. Anal fin inserted below adipose dorsal fin. Body dark grey above dull white below speckled with black dots. Two broad yellowish transverse bands on body, one between rayed dorsal fin and adipose dorsal fin and another below posterior half of base of adipose dorsal fin. Fins distinctly banded excepting adipose dorsal fin. Skin tuberculated.

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur, Rewa, Satna districts), Bihar, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal.

Genus ***Glyptothorax*** Blyth

Key to Species

1 Occipital process reaching basal bone of dorsal fin. Maxillary barbels longer than head. ..... *G. lonah*

– Occipital process not reaching basal bone of dorsal fin. Maxillary barbels shorter than head ..... *G. telchitta telchitta*

142. ***Glyptothorax lonah*** (Sykes)

1841. *Bagrus lonah* Sykes, *Trans. zool. Soc. London,* **2** : 371.

1878. *Glyptosternum lonah,* Day, *Fish. India,* : 496, pl. 113, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, 1 : 196, fig. 72.

1981. *Glyptothorax lonah,* Jayaram, *Handbk. Freshw. Fish. India,* : 254, 257 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/6/0, P. 1/9, V. 6, A. 11-14 (3-4/8-10), C. 15-17.

Head length 5.00 to 5.25 and body depth 6.50 to 7.25 in total length. Eye diameter 10.00 in head length. Least height of caudal peduncle 1.50 to 2.00 times as long as deep. Skin tuberculated. Occipital process 4 times as long as broad, reaching basal bone of dorsal fin. Adhesive apparatus on thorax longer than broad, without a central pit. Barbels 4 pairs, maxillary pair reaches beyond pectoral fin base. Rayed dorsal fin ¾ depth of body, dorsal spine weak and smooth. Pectoral spine not as long as head, considerably shorter, serrated internally and roughened externally. Paired fins plaited. Body yellowish brown, banded with black. Fins yellow; dorsal, anal and caudal fins with black bands.

Distribution : India : Madhya Pradesh, Deccan, Orissa, Cauvery river, Godavari and Krishna river systems.

143. *G. telchitta telchitta* (Hamilton)

1822. *Pimelodus telchitta* Hamilton, *Fish. Ganges*, : 185, 378.

1822. *Pimelodus botius* Hamilton, *Fish. Ganges*, : 192, 378.

1878. *Glyptosternum botia*, Day, *Fish. India*, : 497, pl. 112, fig. 4.

1878. *Glyptosternum telchitta*, Day, *Fish. India*, : 498, pl. 116, fig. 2.

1889. *Glyptosternum botium*, Day, *Fauna Br. India, Fish.*, 1 : 198.

1889. *Glyptosternum telchitta*, Day, *Fauna Br. India, Fish.*, 1 : 199.

1981. *Glyptothorax telchitta telchitta*, Jayaram, *Handbk. Freshw. Fish. India*, : 254, 260 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 1/6-7/0, P. 1/7-9, V. 1/5, A. 9-12 C. 16-18.

Head length 5.30 and body depth 6.80 in total length. Eye diameter 10.00 to 11.70 in head length. Caudal peduncle height 3.00 to 3.80 times in its length. Body spindle-shaped. Skin rough, tuberculated. Nostrils separated from the snout by a distance equal to eye diameter. Occipital process not reaching basal bone of dorsal fin. Barbels 4 pairs, all barbels shorter than head; maxillary pair with broad bases, reaching anterior margin of eye; outer mandibular pair half as long as snout, inner mandibular pair equal to gape of mouth; nasal pair nearly as long as the distance between their bases. Adhesive apparatus on thorax longer than broad, spindle-shaped, without any central pit. Rayed dorsal fin origin midway or nearer to adipose dorsal fin origin than to tip of snout, dorsal spine entire on both edges. Pectoral fin with a strong, broad spine, denticulated internally. Caudal peduncle whip-like. Body dark brown above and on sides, dirty yellow below. Head, sides and fins mottled with dark spots. Fins marked with spotted bands. Skin rough with horny tubercles. Nostrils separated from the snout by a distance equal to eye diameter. Caudal peduncle height 3.00 to 3.80 in its length.

Distribution : India : Madhya Pradesh (Chambal river, Rewa district), Bihar, North Bengal, Uttar Pradesh, Vindhya range of mountains.

Elsewhere : Bangladesh, Nepal, Pakistan.

Family CLARIIDAE

Genus *Clarias* scopoli

144. *Clarias batrachus* (Linnaeus)
Air breathing Catfish

1758. *Silurus batrachus* Linnaeus, *Syst. Nat., ed. 10*, 1 : 305.

1878. *Clarias magur* Day, *Fish. India* : 485, pl. 112, figs. 5 and 5a; 1889, Day, *Fauna, Br. India. Fish.*, 1 : 115, figs. 48-49.

1981. *Clarias batrachus*, Jayaram, *Handbk. Freshw. Fish. India*, : 270 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 1ex., Narbada river, Jabalpur, district Jabalpur;

Purchased; 28.1.1961. (iii) 2 exs., Pharikhera village, 24.8 km. ESE of Jabalpur, district Jabalpur; Purchased; 26.2.1963. (iv) 13 exs., Pench National Park, district Sewni; N.K. Sinha and party; 17.1.1973. (v) 3 exs., Kareli, district Narsinghpur; Purchased; 11.12.1964.

Diagnostic characters : D. 62-76, P. 1/8-11, V. 6, A. 45-58, C. 15-17.

Head length 5.60 and body depth 6.50 to 7.50 in total length. Eye diameter 8.00 in head length. Upper jaw longer. Width of gape of mouth equals about half of head length. Two depressions on head, an oblong more or less behind eyes and another oval towards the nape. Occipital process rounded behind, width of its base more than twice its length. Vomerine teeth villiform, in an uninterrupted band. Barbels 4 pairs, maxillary pair reaching base or middle of pectoral fin. Dorsal fin long, spineless and not confluent with caudal fin. Pectoral fin spine serrated and covered with skin. Body dingy green or dark brown on dorsal surface, lighter below. Vertical fins usually with reddish margins.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Jabalpur, Narsinghpur, Rewa, Sewni districts), Throughout.

Elsewhere : Bangladesh, Borneo, Bali, China, Java, Lombok, Malacca, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Sumatra, Thailand, Vietnam.

Family HETEROPNEUSTIDAE

Genus ***Heteropneustes*** Muller

145. ***Heteropneustes fossilis*** (Bloch)
Stinging Catfish

1794. *Silurus fossilis* Bloch, *Naturg. Ausland. Fische*, **8** : 46, pl. 370, fig. 2.

1878. *Saccobranchus fossilis* Day, *Fish. India*, : 486, pl. 114, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 125, fig. 53.

1981. *Heteropneustes fossilis*, Jayaram, *Handbk. Freshw. Fish. India*, : 273, 274 (distribution and key to species).

Material examined : (i) 1 ex., Devtal near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 15.2.1962. (ii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 12.8.1960. (iii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (iv) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 28.2.1961. (v) 1 ex., A pond in Tewar village, district Jabalpur; V.S. Durve and party; 15.5.1969. (vi) 1 ex., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (vii) 1 ex., Pench National Park, district Sewni; N.K. Sinha and party; 26.2.1973.

Diagnostic characters : D. 6-7, P. 1/7, V. 6, A. 60-79, C. 19.

Head length 5.50 to 7.00 and body depth 5.00 to 8.00 in total length. Eyes 2 to 3 diameters from snout end. Width of gape of mouth 2.20 to 2.50 in head length. Barbels 4 pairs, maxillary pair reaching to middle of pectoral fin or even to pelvic fin base. Dorsal fin short, spineless and inserted above tip of pectoral fin. Pectoral fin spine strong, serrated and less than head length. Pelvic fin inserted below dorsal fin insertion. Anal fin separated from the caudal fin by a deep notch. Caudal fin almost rounded. Lateral line complete. Body leaden, sometimes with two lateral, yellowish bands. Young specimens sometimes reddish brown.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Rewa, Sewni districts, Chambal river), Throughout.

Elsewhere : Bangladesh, China, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam.

Superorder ATHERINOMORPHA
Order ATHERINIFORMES
Family BELONIDAE

Genus ***Xenentodon*** Regan

146. ***Xenentodon cancila*** (Hamilton)
Freshwater garfish

1822. *Esox cancila* Hamilton, *Fish. Ganges*, : 213, 380, pl. 27, fig. 70.

1878. ***Belone cancila***, Day, *Fish. India*, : 511, pl. 118, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 420, fig. 136.

1981. ***Xenentodon cancila***, Jayaram, *Handbk. Freshw. Fish. India*, : 292 (distribution).

Material examined : (i) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 28.2.1961. (ii) 1 ex., Hiran river near Katangi village, district Jabalpur; H. Khajuria and party; 13.3.1964. (iii) 1 ex., Budagar tank on Katni road, district Jabalpur; V.V. Rao and party; 17.9.1969. (vi) 1 ex., Hiran river on Katni Road, district Jabalpur; H.P. Agrawal and party; 27.7.1968. (v) 3 exs., Budagar tank on Katni Road, district Jabalpur; P.D. Gupta and party; 21.7.1984. (vi) 2 exs., Bara talab, Amarpatan, district Satna; H.S. Sharma and party; 19.10.1986. (vii) 1 ex., A nala near Katawadi, district Betul; H.S. Sharma and party; 22.3.1990. (viii) 1 ex., Tomar river, district Satna; H.S. Sharma and party; 22.10.1986. (ix) 2 exs., Betwa river, district Raisen; H.S. Sharma and party; 3.10.1995.

Diagnostic characters : D. 15-18, P. 11, V. 6, A. 16-18, C. 15.

Head length 2.60 to 2.75 and body depth 8.00 to 12.00 in total length. Eyes 3.00 to 3.20 diameters from hind edge of opercle. Both jaws produced into a beak, with fine rugosities. A deep median, longitudinal groove on upper surface of head. A row of large, widely separated teeth in jaws, with an external row of numerous ones. No teeth on vomer. Dorsal fin commences opposite to anal fin, very nearer to caudal fin base. Pelvic fin inserted nearer to caudal fin base than to posterior margin of eye. Lateral line not keeled. 20 to 30 rows of scales between lateral line and base of dorsal fin. Caudal fin truncate. Body greenish grey above and lighter below with abdomen whitish. A dark edged silvery stripe from opposite eye to middle of caudal fin base. Often 4 or 5 lateral blotches between pectoral and anal fin bases.

Distribution : India : Madhya Pradesh (Bastar, Betul, Bhopal, Hoshangabad, Jabalpur, Raisen, Rewa, Satna districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Borneo, Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Sumatra, Thailand.

Family CYPRINODONTIDAE

Genus *Aplocheilus* McClelland

147. *Aplocheilus panchax* (Hamilton)
Lesser top minnow, panchax minnow

1822. *Esox panchax* Hamilton, *Fish. Ganges*, : 211, 380, pl. 3, fig. 69.

1878. *Haplocheilus panchax*, Day, *Fish. India*, : 523, pl. 121, fig. 3; 1889, Day, *Fauna Br. India, Fish.*, **1** : 417.

1981. *Aplocheilus panchax*, Jayaram, *Handbk. Freshw. Fish. India*, : 295 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded form the literature.

Diagnostic characters : D. 7-11, P. 15, V. 6, A. 15-17, C. 13, LL. 31-34.

Head length 4.00 to 4.30 and body depth 4.75 to 5.00 in total length. Eye diameter 3.30 in head length. Lower jaw longer. Maxilla reaching to below first third of eye. No teeth on vomer. Dorsal fin originates above the last anal fin rays. Pelvic fin small, without any prolonged ray. Caudal fin rounded. Body greenish above, dull white beneath. A white occipital spot. Fins yellow. Lower third of dorsal fin with a large black spot. Dorsal, caudal and anal edged with orange.

Distribution : India : Madhya Pradesh (Hoshangabad district), Andhra Pradesh, Andmans, Assam, Bihar, Gujarat, Orissa, Punjab, Tripura, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Pakistan, Sri Lanka, Thailand to Malay Archipelago.

Genus *Oryzias* Jordan and Snyder

148. *Oryzias melanostigma* (McClelland)
Esturine top minnow

1839. *Aplocheilus melastigmus* McClelland, *Asiat. Res.*, **19** : 301, 427, Pl. 42, fig. 3.

1878. *Haplochilus melanostigma*, Day, *Fish. India*, : 522, pl. 121, fig 4.; 1889, Day, *Fauna Br. India, Fish.*, **1** : 415.

1981. *Oryzias melanostigma*, Jayaram, *Handbk. Freshw. Fish. India*, : 296 (Distribution).

Material examined : (i) 1 ex., Hiran river near Katangi village, district Jabalpur; H. Khajuria and party; 13.3.1964. (ii) 4 exs., Narbada river at Mandla, district Mandla; H. Khajuria and party; 20.1.1963. (iii) 2 exs., Narbada river at Mandla, district Mandla; H. Khajuria and party; 21.11.1963. (iv) 1 ex., Narbada river at Mandla, district Mandla; H. Khajuria and party; 25.11.1963.

Diagnostic characters : D. 6-7, P. 15, V. 6, A. 20-24, C. 15, LL. 27.

Head length 4.25 and body depth 3.75 to 4.00 in total length. Eye diameter 3.00 in head length. Upper jaw short, not protractile. Maxilla not reaching to below front edge of eye. Teeth villiform on jaws, absent on palate and vomer. Barbels absent. Dorsal fin inserted above last fourth of anal fin. Pectoral fin equal to head. Pelvic fin small, without any elongated ray. Caudal fin rounded. Lateral line curved above pectoral fin. Body light green on dorsal surface and dull white below. A narrow dark band along middle of side ending in a dull spot at the centre of caudal fin base. Anal fin white edged.

Distribution : India : Madhya Pradesh, Andhra Pradesh, Kerala, Orissa, Tamil Nadu, West Bengal.

Elsewhere : Bangladesh, Myanmar, Pakistan, Sri Lanka, Thailand.

Family POECILIDAE

Genus ***Lebistes*** Filippi

149. ***Lebistes reticulatus*** (Peters)
Guppy

1981. *Lebistes reticulatus*, Jayaram, *Handbk. Freshw. Fish. India* : 297-298.

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 6-12, P. 13, V. 6, A. 8-10, C. 19, LL. 27-28.

Head length 4.50 to 5.00 and body depth 5.50 to 5.75 in total length. Movable spatuliform teeth. Dorsal fin inserted nearer to base of caudal fin than to tip of snout. In males the length of anal fin rays is more or less equal to length of gonopodium. Eyes bigger and situated on the dorsal profile of head. Caudal fin elongated. Generally black spots and other brilliant colouration present.

Distribution : Originally from Tropical America. Introduced in to India, particularly well established in S. India; Maharashtra.

Superorder ACANTHOPTERYGII

Order CHANNIFORMES

Family CHANNIDAE

Genus ***Channa*** scopoli

Key to Species

1. 5 to 6 rows of scales between the orbit and angle of preopercle. 12 to 13 predorsal scales. 2

– 9 to 17 rows of scales between the orbit and angle of preopercle. 15 to 22 predorsal scales 4

2. Pelvic fin less than half length of pectoral fin. Pectoral fins spotted in zones, darker and lighter patches. Chin marbled. 3

– Pelvic fin more than half length of pectoral fin. Pectoral fin plain. ..... *C. punctatus*

3. Anal fin with 26 rays. Circular black spots each occupying part of a scale present. Base of dorsal fin iridescent blue in life. Dorsal fin with 39-40 rays. ..... *C. stewartii*

– Anal fin with 21-23 rays. No black spots on scales. Dorsal fin with 32-37 rays. .... *C. orientalis*

4. Predorsal scales 18 to 20. Lateral line with peninsula of darker colour extending in to the yellow. ..... *C. striatus*

– Predorsal scales 15 to 16. No such colour markings on lateral line. A black white-edged ocellus on basal portion of caudal fin ..... *C. marulius*

150. *Channa marulius* (Hamilton)
Giant snake-head murrel

1822. *Ophiocephalus marulius* Hamilton, *Fish. Ganges*, : 65, 367, pl. 17, fig. 19.

1878. *Ophiocephalus marulius*, Day, *Fish. India*, : 363, pl. 76, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, 2 : 360.

1981. *Channa marulius*, Jayaram, *Handbk. Freshw. Fish. India*, : 306, 307 (distribution and key to species).

Material examined : (i) 45 exs., Supatal tank on Nagpur Road, Jabalpur, district Jabalpur; H.P. Agrawal and party; 8.8.1967. (ii) 1 ex., Narbada river at Shahpura Railway Bridge, district Jabalpur; V.S. Durve and party; 17.5.1967. (iii) 1 ex., Hiran river on Katangi Road, district Jabalpur; V.V. Rao and party; 10.6.1969.

Diagnostic characters : D. 45-55, P. 18, V. 6, A. 28-36, C. 14, LL. 60-70.

Head length 4.00 to 5.00 and body depth 7.00 to 7.50 in total length. Eye diameter 5.00 to 7.00 in head length. Maxilla extending below half of the orbit. Teeth villiform. Pelvic fin two-third as long as pectoral fin. 10 rows of scales between the orbit and angle of preopercle. Predorsal scales 16. Cephalic pits multiple. Generally the body greyish green on dorsal surface and lighter below. Young specimens with a brilliant, orange, lateral band and adult specimens with 5 to 6 cloudy bands below lateral line. A large black ocellus at upper part of the base of caudal fin.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Jabalpur, Rewa districts, Chambal river, Indravati Tiger Reserve), Throughout.

Elsewhere : Bangladesh, China, Myanmar, Pakistan, Sri Lanka, Thailand.

Remark : *C. leucopunctatus* (Sykes) and *C. pseudomarulius* (Gunther) are synonymous with this species (Jayaram, 1981).

151. *Channa orientalis* Schneider
Brown snake-head murrel

1801. *Channa orientalis* Schneider, *Syst. Ichth. Bloch.*, : 496, pl. 90, fig. 2.

1822. *Ophiocephalus gachua* Hamilton, *Fish. Ganges*, : 68, 367, pl. 21, fig. 21.

1981. *Channa orientalis*, Jayaram, *Handbk. Freshw. Fish. India*, : 306, 307 (distribution and key to species).

Material examined : (i) 2 exs., Devtal near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 18.7.1960. (ii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 18.7.1960. (iii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 23.9.1960. (vi) 3 exs., Narbada river at Tilwaraghat, district Jabalpur; P. Singh and party; 29.10.1960. (v) 1 ex., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 2.1.1961. (vi) 2 exs., Pariat tank, district Jabalpur; R.C. Sharma and party; 4.1.1961. (vii) 1 ex., A stream near Taradehi village, district Damoh; H. Khajuria and party; 18.3.1960. (viii) 2 ex., Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 24.5.1962. (ix) 1 ex. Narbada river between Kund and Kapil dhara, Amarkantak, district Shahdol; S. Chakrapany and party; 28.5.1968. (x) 2 exs., Narbada river at Kund, Amarkantak, district Shahdol; S. Chakrapany and party; 18.5.1963. (xi) 7 exs., Narbada river at Haritola, Amarkantak, district Shahdol; S. Chakrapany and party; 21.5.1962. (xii) 2 exs., Narbada river at Gandhi Vihar, Amarkantak, district Shahdol; S. Chakrapany and party; 17.5.1962. (xiii) 1 ex., Narbada river at Kund, Amarkantak, district Shahdol; S. Chakrapany and party; 25.5.1962. (xiv) 5 exs., Narbada river at Tilwaraghat, district Jabalpur; P. Singh and party; 30.1.1962. (xv) 2 exs., Narbada river at Manot, district Mandla; H. Khajuria and party; 11.11.1963. (xvi) 2 exs., Narbada river at Dindori, district Mandla; Purchased; 31.10.1963. (xvii) 1 ex., Kanha National Park, district Mandla; S. Chakrapany and party; 18.2.1963. (xviii) 12 exs., A Kachcha pond near Kohka village, Dindori, district Mandla; J.S. Bhatti and party; 29.x.1963. (xix) 2 exs., Narbada river at Mandla, district Mandla; J.S. Bhatti and party; 21.10.1963. (xx) 1 ex., Narbada river at Shakalpur village, district Mandla; J.S. Bhatti and party; 25.10.1963. (xxi) 1 ex., A nala near Katawadi, district Betul; H.S. Sharma and party; 22.3.1990. (xxii)1 ex., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995.

Diagnostic characters : D. 32-37, P. 14-15, V. 6, A. 21-23, C. 12-14, LL. 40-45.

Head length 3.50 to 4.35 and body depth 6.50 to 8.00 in total length. Eye diameter 5.00 to 6.00 in head length. Maxilla reaches to below posterior margin of eye. Teeth conical. Cephalic pits simple. 5 to 6 rows of scales between the orbit and angle of preopercle. Predorsal scales 12 to 13. Pelvic fin less than half the length of pectoral fin. Body dirty greenish on dorsal surface and dull white or brown on sides and below. Some darkish spots on body and fins. Pectoral fin with vertical bars on its rays.

Distribution : India : Madhya Pradesh (Bastar, Betul, Bhopal, Damoh, Hoshangabad, Jabalpur, Mandla, Rajgarh, Rewa, Shahdol districts, Chambal river, Kanha Tiger Reserve), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka.

152. ***Channa punctatus*** (Bloch)
Green Snake-head murrel

1793. *Ophiocephalus punctatus* Bloch, *Naturg. Ausland. Fische.*, **7** : 139, pl. 358.

1878. *Ophiocephalus punctatus*, Day, *Fish. India*, : 367, pl. 78, fig. 1; 1889, Day, *Fauna Br. India. Fish.*, *2* : 364.

1981. *Channa punctatus*, Jayaram, *Handbk. Freshw. Fish. India*, : 306, 307 (distribution and key to species).

Material examined : 1 ex., Devtal near vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 18.7.1960. (ii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 18.7.1960. (iii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 18.7.1960. (iv) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 23.9.1960. (v) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (vi) 2 exs., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 2.1.1961. (vii) 1 ex., Barha village on Rani Durgawati Samadhi Road, district Jabalpur; R.C. Sharma and party; 21.12.1961. (viii) 19 exs., Boria village on Damoh Road, district Jabalpur; H.P. Agrawal and party; 14.9.1965. (ix) 1 ex., A pond in Patan village, district Jabalpur; S. Chakrapany and party; 24.3.1964. (x) 4 exs., Amkhas tank near Govt. Medical College, Jabalpur, district Jabalpur; S. Chakrapany and party; 19.3.1963. (xi) 1 ex., Baleha tank at Panagar village, district Jabalpur; H.P. Agrawal and party; 5.7.1967. (xii) 1 ex., Supatal tank on Nagpur Road, Jabalpur, district Jabalpur; H.P. Agrawal and party; 8.8.1967. (xii) 1 ex., Narbada river beyond Shahpura, district Jabalpur; V.S. Durve and party; 15.4.1967. (xiv) 25 exs., Pariat river on Katni Road, district Jabalpur; V.S. Durve and party; 18.4.1969. (xv) 2 exs., Narbada river at Shahpura Railway Bridge, district Jabalpur; V.S. Durve and party; 18.11.1969. (xvi) 1 ex., Hiran river on Katangi Road, district Jabalpur; V.S. Durve and party; 5.6.1969. (xvii) 11 exs., Pench National Park, district Sewni; N.K. Sinha and party; 1.3.1973. (xviii) 5 exs., Narbada Sagar dam area, district Khandwa; H.P. Agrawal and party; 2.10.1985. (xix) 10 exs., Hazara nala near Majhgawan, district Satna; H.S. Sharma and party; 24.10.1986. (xx) 1 ex., Ghoghra nala near Saranggarh, district Raigarh; R.K. Singh and party; 28.3.1992. (xxi) 1 ex., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995.

Diagnostic characters : D. 29-32, P. 17, V. 6, A. 21-23, C. 12, LL. 37-40.

Head length 3.30 to 3.60 and body depth 5.50 to 7.00 in total length. Eye diameter 7.00 to 8.50 in head length. Lower jaw longer. Maxilla reaching to below or behind posterior margin of eye. Cephalic pits simple. Teeth conical. Pelvic fin three-fourth as long as pectoral fin. 5 rows of scales between the orbit and angle of preopercle. Predorsal scales 12. Generally the body greenish on dorsal surface, becoming yellow on sides and abdomen. A dark stripe along side of head and several short cross bands from back to middle of body. Fins spotted; pelvic fin white or grey, not spotted.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Khandwa, Rajgarh, Raigarh, Raisen, Rewa, Satna, Sewni

districts, Chambal river, Kanha Tiger Reserve), Throughout.

Elsewhere : Bangladesh, China, Malaya, Myanmar, Nepal, Pakistan, Polynesia, Sri Lanka, Tahiti.

153. *Channa stewartii* (Playfair)

1867. *Ophiocephalus stewartii* Playfair, *Proc. zool. Soc. Lond.*, : 14, pl. 3.

1889. *Ophiocephalus stewartii*, Day, *Fauna Br. India, Fish.*, **2** : 363, 364.

1981. *Channa stewartii*, Jayaram, *Handbk. Freshw. Fish. India*, : 307 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 39-40, P. 17, V. 6, A. 27, C. 14, LL. 47-50.

Head length 4.00 and body depth 7.00 to 8.00 in total length. Eye diameter 6.50 in head length. Teeth conical. Dorsal fin arises above base of Pectoral fin and 2/3 as high as body. Pelvic fin less than half length of Pectoral fin. Pectoral fin spotted in zones, darker and lighter patches. 5 rows of scales between eye and angle of preopercle. Predorsal scales 13. Body purplish black above, lighter on sides and beneath. Circular black spots, each occupying part of a scale present. Fins dark. Base of dorsal fin iridescent blue in life, margins yellow. Lower half of pectoral fin yellow in young specimens with a blue basal spot, external to which with several vertical black bands. Chin marbled.

Distribution : India : Madhya Pradesh (Bastar district, Indravati Tiger Reserve), Andamans, Arunachal Pradesh, Assam, Bihar, Eastern Himalayas, Meghalaya, Orissa, West Bengal.

Elsewhere : Nepal.

154. *Channa striatus* (Bloch)
Striped snake-head murrel

1793. *Ophiocephalus striatus* Bloch, *Naturg. Ausland, Fisches*, 2, pl. 141, pl. 359.

1878. *Ophiocephalus striatus*, Day, *Fish. India*, : 366; 1889, Day, *Fauna Br. India, Fish.*, **2** : 363.

1981. *Channa striatus*, Jayaram, *Handbk. Freshw. Fish. India*, : 307 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 28.2.1961. (iii) 1 ex., A canal on Rani Durgavati Samadhi Road, district Jabalpur; S. Chakrapany and party; 22.3.1962. (iv) 5 exs., A nala on Rani Durgawati Samadhi Road, district Jabalpur; H.P. Agrawal and party; 24.11.1964. (v) 2 exs., A nala on Nagpur Road, district Jabalpur; H.P. Agrawal and party; 29.9.1964. (vi) 8 exs., Richhai village, district Jabalpur; H.P. Agrawal and party; 30.9.1964. (vii) 1 ex., Baleha tank at Panagar village, district Jabalpur; Purchased; 16.6.1967. (viii) 1 ex., amkhas tank near Govt. Medical College, Jabalpur, district Jabalpur; V.S. Durve and party; 29.7.1967. (ix) 2 exs., Devtal near Madan Mahal, Jabalpur, district Jabalpur; M.L. Kosta and party; 12.11.1965. (x) 1 ex., Choral river at Choral village, district Indore; V.V. Rao and party; 20.11.1969.

Diagnostic characters : D. 37-45, P. 17, V. 6, A. 23-26, C. 13, LL. 50-57.

Head length 3.30 to 4.00 and body depth 6.00 to 8.00 in total length. Eye diameter 6.00 to 7.00 in head length. Lower jaw longer. Maxilla reaching to below posterior margin of eye. Teeth conical in jaws, cardiform on palatines. Cephalic pits multiple. 9 rows of scales between the orbit and angle of preopercle. Predorsal scales 18-20. Body dark greyish or blackish on dorsal surface, dirty white or yellowish white below. Bands of grey or black from sides to abdomen. Young specimens have sometimes a large black ocellus at the end of base of dorsal fin.

Distribution : India : Madhya Pradesh (Bhopal, Indore, Jabalpur, Rewa districts, Chambal river), Throughout.

Elsewhere : Bangladesh, China, Malaya, Malaya Archipelago, Myanmar, Pakistan, Philippines, Sri Lanka, Thailand.

Order SYNBRANCHIFORMES

Family SYNBRANCHIDAE

Genus ***Monopterus*** Lacepede

155. ***Monopterus cuchia*** (Hamilton)

1822. *Unibranchapertura cuchia* Hamilton, *Fish. Ganges*, : 16, 361, pl. 16, fig. 4.

1981. *Monopterus cuchia*, Jayaram, *Handbk. Freshw. Fish. India*, : 310 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : A rudimentary dorsal only. P., V., A. and C. absent.

Head length 6.00 to 8.00 in the distance between snout and anus. Eye diameter 2.00 to 3.00 in snout length. Tail length 4.00 to 4.50 in total length. Body much elongated, compressed and eel-like with a tapering tail. A single, transverse, ventral gill-opening. Gill openings triangular. Eyes situated in the anterior one-fourth or one-fifth of head length. Upper jaw slightly longer. Lips fleshy. Palatine teeth, uniserial. Scales distinct, longitudinally arranged. Dorsal fin rudimentary, commences slightly before anus. Paired fins absent. Body greenish or chestnut brown becoming lighter on abdomen, occasionally flesh coloured. Numerous black spots over body.

Distribution : India : Madhya Pradesh (Bastar, Rewa districts), Assam, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Order PERCIFORMES

Family CHANDIDAE

Genus ***Chanda***

Key to Species

1 A golden spot on occiput..... *C. baculis*

– No such colour spot on occiput 2

2. Lateral line indistinct, discontinuous or absent. A dark blotch on dorsal fin's upper edge generally present. Body depth 2.75 to 3.00 in total length. ..... *C. nama*

– Lateral line distinct. No such colour blotch on dorsal fin. Body depth 2.25 to 2.50 in total length ..... *C. ranga*

156. ***Chanda baculis*** Hamilton

1822. *Chanda baculis* Hamilton, *Fish. Ganges*, : 112, 371.

1878. *Ambassis baculis*, Day, *Fish. India*, : 51, pl. 15, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **1** : 485.

1981. *Chanda baculis*, Jayaram, *Handbk. Freshw. Fish. India*, : 318 (distribution and key to species).

Material examined : (i) 1 ex., Budagar tank on Katni Road, district Jabalpur; B.S. Gurum; 28.4.1977.

Diagnostic characters : D. 7/1/13, P. 12, A. 3/13, V. 6, C. 17.

Head length 4.00 and body depth 3.00 in total length. Eye diameter 3.00 in head length. Lower jaw little shorter than upper jaw. Maxilla reaching to below first third of eye. Preorbital strongly serrated along its lower edge, with a sharp spine directed towards eye. Upper edge of orbit serrated. Vertical limb of preopercle entire. Sub and interopercle nonserrated. Teeth villiform in jaws, palate and vomer. Two dorsal fins, united at their base. The first dorsal fin with seven spines and a recumbent spine. Lateral line complete. Caudal forked, lower lobe longer. Body yellowish olive with a golden spot on occiput. First dorsal fin black along the top. Second dorsal and anal fins black towards their margins. Caudal fin dark along its base and each lobe also tipped with black.

Distribution : India : Madhya Pradesh (Jabalpur district), Bihar, Deolali, Duars, Maharashtra, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Pakistan, Thailand.

157. ***Chanda nama*** Hamilton

Indian Glass Fish

1822. *Chanda nama* Hamilton, *Fish. Ganges* : 109, 371.

1878. *Ambassis nama*, Day, *Fish. India* : 50, pl. 14, fig. 5; 1889, Day, *Fauna Br. India, Fish.*, **1** : 484, fig. 149.

1981. *Chanda nama*, Jayaram, *Handbk. Freshw. Fish. India*, : 318 (distribution and key to species).

Material examined : (i) 8 exs., Adhartal on Katni Road, district Jabalpur; S. Chakrapany and party; 3.4.1961. (ii) 1 ex., Pariat river on Damoh Road, district Jabalpur; V.S. Durve and party; 11.10.1968. (iii) 4 exs., Narbada river at Gwarighat, district Jabalpur; H.P. Agrawal and party; 19.7.1966. (iv) 4 exs., Narbada river at Lamataghat, district Jabalpur; V.V. Rao and party; 16.7.1966. (v) Narbada river at Bheraghat, district Jabalpur; H.S. Sharma and party; 2.7.1966. (vi) 1 ex., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (vii) 1 ex., Sughna nala on Rewa Road, Amarpatan, district Satna; H.S. Sharma and party; 22.10.1986. (viii) 1 ex., Sher river, district Narsinghpur; H.P. Agrawal and party; 15.10.1989. (x) 5 exs., Singri river, district Narsinghpur; 14.10.1989. (xi) 1 ex., Dabra, district Gwalior; H.P. Agrawal and party; 8.2.1995. (xii) 2 exs., Satna river near Katkon, district Satna; H.S. Sharma and party; 29.10.1986. (xiii) 2 exs., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xiv) 3 exs., Betwa river near Raisen, district Raisen; H.S. Sharma and party; 3.10.1995. (xv) 2 exs., Bina river near Begamganj, district Raisen; H.S. Sharma and party; 28.9.1995. (xvi) 2 exs., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xvii) 8 exs., Bara pool, Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995. (xviii) 3 exs., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D. 7/1/13-17, P. 13, V. 6, A. 3/14-17, C. 17.

Head length 4.00 to 4.50 and body depth 2.75 to 3.00 in total length. Eye diameter 3.00 in head length. Dorsal and ventral profiles equal with a depression in the orbital region. Lower jaw longer than upper. Maxilla reaching to below first third of eye. Preorbital slightly serrated. Vertical border of preopercle entire, except near angle. Sub and interopercle entire. 2 or 3 large, crooked, canines on either side of the lower jaw. Two dorsal fins, united at their base. First dorsal fin with seven spines and a recumbent spine. Lateral line indistinct, discontinuous or absent. Scales minute. Body yellowish olive, covered with minute black dots. The dots on the shoulder form an oblong vertical patch. Fins orange, upper half of first dorsal fin deep black, second dorsal fin with a dark upper edge. Anal fin with a black mark over the bases of spines.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Gwalior, Hoshangabad, Jabalpur, Narsinghpur, Raisen, Rajgarh, Rewa, Satna districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

158. *Chanda ranga* Hamilton
Indian Glass Fish

1822. *Chanda ranga* Hamilton, *Fish. Ganges*, : 113, 371, pl. 16, fig. 38.

1878. *Ambassis ranga*, Day, *Fish. India*, : 51, pl. 14, fig. 6; 1889, Day, *Fauna Br. India, Fish.*, **1** : 485.

1981. *Chanda ranga*, Jayaram, *Handbk. Freshw. Fish. India*, : 318 (distribution and key to species).

Material examined : (i) 4 exs., Baleha tank at Panagar village, district Jabalpur; H. Khajuria and party; 7.6.1967. (ii) 3 exs., A tank in Gandhigram on Katni Road, Purchased; 4.3.1968. (iii) 5 exs., Pariat tank, Jabalpur district; H.P. Agrawal and party; 15.9.1967. (vi) 2 exs., Pariat river on Damoh Road, district Jabalpur; V.S. Durve and party; 11.10.1968. (v) 15 exs., Budagar tank on Katni Road, district Jabalpur; H.S. Sharma and party; 30.7.1969. (vi) 1 ex., Betwa river near Raisen, district Raisen; H.S. Sharma and party; 3.10.1995.

Diagnostic characters : D. 7/1/13-15, P. 11, V. 6, A. 3/14-16, C. 17.

Head length 3.25 to 4.00 and body depth 2.25 to 2.50 in total length. Eye diameter 2.50 in head length. Maxilla reaches to below middle of eye. Vertical limb of preopercle entire or finely serrated. Sub and interopercle entire. Preorbital serrated. Teeth all small, villiform in jaws, vomer and palate. Two dorsal fins, united at their base.

First dorsal fin with 7 spines and a recumbent dorsal spine. Lateral line present, complete. Body olive, with a dark mark composed of closely set dots on the shoulder being the remains of a band present in the young stage. The margins of the vertical fins usually grey.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Raisen, Rewa districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Malaya, Myanmar, Nepal, Pakistan, Thailand.

Remark : Both *C. nama* Hamilton and *C. Ranga* Hamilton closely resemble each other particularly in their young stages. However, they can be easily separated by having 2 or 3 canines in the lower jaw of *C. nama* which are absent in *C. ranga*. Further body deeper in *C. ranga* than *C. nama* (Barman, 1993).

Family NANDIDAE

Genus ***Badis*** Bleeker

159. ***Badis badis*** (Hamilton)

1822. *Labrus badis* Hamilton, *Fish. Ganges*, : 70, 368, pl. 25, fig. 23.

1878. *Badis buchanani*, Day, *Fish. India*, : *128*, 129, pl. 31, fig. 6; 1889, Day, *Fauna Br. India, Fish.*, **2** : 80, 81, fig. 38.

1981. *Badis badis*, Jayaram, *Handbk, Freshw. Fish. India*, : *335* (distribution and key to species).

Material examined : (i) 38 exs., Gour river near Bairagi village, district Jabalpur; S. Chakrapany and party; 24.5.1963. (ii) 1 ex., Narbada river at Mandla, district Mandla; J.S. Bhati and party; 21.10.1963. (iii) 2 exs., Budagar tank on Katni Road, district Jabalpur; D.K. Harshey and party; 2.9.1978.

Diagnostic characters : D. 16-18/7-10, P. 12, V. 6, A. 3/6-8, C. 16, LL. 26-33.

Head length 4.50 to 5.00 and body depth 2.75 to 4.50 in total length. Eye diameter 3.60 in head length. Mouth slightly upturned, cleft not extending to anterior margin of eye. Lower jaw longer. Villiform teeth on jaws, vomer and palatines, none on tongue. Single dorsal fin without notch, spinous part slender and longer than the soft part, soft part elevated and pointed. Ctnoid scales extending over body and head. Lateral line present but interrupted below posterior extremity of dorsal fin. Body dark brown or dark green with a series of transverse bands. Bluish black spots or blotches on the body, on opercle, caudal fin base, shoulder.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Mandla, Rewa districts, Chambal river, Indravati and Kanha Tiger Reserves), Throughout.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Genus ***Nandus*** Valenciennes

160. ***Nandus nandus*** (Hamilton)

1822. *Coius nandus* Hamilton, *Fish. Ganges*, : 96, pl. 30, fig. 32.

1878. *Nandus marmoratus*, Day, *Fish. India*, : 129, pl. 32, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **2** : 82.

1981. *Nandus nandus*, Jayaram, *Handbk. Freshw. Fish. India*, : 336 (distribution).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 1 ex., Barela village on Mandla Road, district Jabalpur; S. Chakrapany and party; 2.1.1961. (iii) 2 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 28.2.1961. (iv) 2 exs., Pharikhera village, 24.8 km. ESE of Jabalpur, district Jabalpur; S. Chakrapany and party; 26.2.1963. (v) 1 ex., Supatal tank near Madan-Mahal, Jabalpur, district Jabalpur; S. Chakrapany and party; 29.4.1963. (vi) 4 exs., Baleha tank at Panagar village, district Jabalpur; Puchased; 16.6.1967. (vii) 6 exs., Hiran river on Katni Road, district Jabalpur; V.V. Rao and party; 10.6.1969. (viii) 2 exs., Budagar tank on Katni Road, district Jabalpur; D.K. Harshey and party; 2.9.1978. (ix) 1 ex., Sakkar river, district Narsinghpur; H.P. Agrawal and party; 17.10.1989. (x) 1 ex., Tomas river, district Satna; H.S. Sharma and party; 22.10.1986.

Diagnostic characters : D. 12-14/11-13, P. 16, V. 1/5, A. 3/7-9, C. 15, LL. 46-57.

Head length 3.00 and body depth 3.00 to 3.35 in total length. Eye diameter 5.00 to 6.00 in head length. Body compressed. Mouth terminal, very protractile, its cleft very wide, extending to below posterior margin of eye or slightly beyond. One opercular spine present. Villiform teeth on jaws, palate and on tongue. A single notched dorsal fin, inserted above pectoral fin base. Spinous part of dorsal fin longer than soft part. Lateral line interrupted at 36th scale. Caudal fin rounded or cut square. Body greenish brown with brassy reflection. 3 broad patchy marbled bands over body and a fourth one across free portion of tail. Narrow bands of spots across soft parts of dorsal, anal and caudal fins.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Narsinghpur, Rewa, Satna districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Malaya, Myanmar, Nepal, Pakistan, Thailand.

Genus ***Pristolepis*** Jerdon

161. ***Pristolepis fasciata*** (Bleeker)

1857. *Catopra fasciata* Bleeker, *Nat. Tijdschr. Ned. India*, **2** : 65.

1889. *Pristolepis fasciata*, Day, *Fauna Br. India, Fish.*, **2** : 85, fig. 40.

1981. *Pristolepis fasciata*, Jayaram, *Handbk. Freshw. Fish. India*, : 336, 337 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 12-13/14-16, P. 15, V. 1/5, A. 3/8, C. 14, LL. 26-28.

Head length 3.75 to 4.25 and body depth 2.25 to 2.50 in total length. Eye diameter about 4.00 in head length. Body oblong, compressed. Mouth terminal, moderately protractile. Maxilla reaching to below first third of eye. Two sharp, flat, bifid opercular spines. Teeth on vomer globular. A single, notched dorsal fin with spinous portion much longer than soft portion. 16 or 17 rows of scales between bases of pelvic and dorsal fins. Body dull greenish with a deep black spot on shoulder and over upper part of pectoral fin base. Pectoral fin yellow. Other fins slaty grey.

Distribution : India : Madhya Pradesh, Kerala, Cochin.

Elsewhere : China, Malaya, Malay Archipelago, Myanmar, Thailand.

Family CICHLIDAE

Genus ***Oreochromis*** Gunther

162. ***Oreochromis mossambica*** (Peters)

1852. *Chromis mossambicus* Peters, *Monatsb. Akad. Wiss., Berlin* : 681.

1952. *Tilapia mossambica*, Jones and Sarojini, *J. Bombay nat. Hist. Soc.*, **50**(3) : 606.

1983. *Oreochromis mossambica*, Trewavas, *Br. Mus. nat. Hist. No.* **878** : 1 (Placed this species under the genus Oreochromis Gunther, 1889).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 15-16/11-12, P. 12-13, V. 1/5, A. 3/10, C. 17, LL. 28-36 (interrupted).

Head length 4.00 and body depth 3.25 in total length. Eye diameter 5.00 in head length. Cleft of mouth short, lower jaw slightly longer. Small teeth in several series. Dorsal fin originates above pectoral fin base, spinous part longer than soft part which may be prolonged with a filamentous tip. Lateral line incomplete or interrupted. Caudal fin subtruncate. Body greenish olive to golden. Each scale with a dark centre. Vertical fins blackish with indistinct white spots. Young specimens with an ovate black spot behind base of last dorsal spine.

Distribution : India : Madhya Pradesh (Bastar district). East Africa to Natal, widely introduced in India.

Elsewhere : Pakistan, Sri Lanka.

Remark : *Tilapia mossambica* Peters is the only species known in our waters, though over 90 species are known in Africa. Natural distribution in Africa is from Algoa Bay in S. Africa to the West Shebeli river in Somalia. The fish is reported

to be unsuitable for culture along with major Indian Carps, because of its depredation on carp fry (Jayaram, 1981 : 339, 340).

Family MUGILIDAE

Genus ***Liza*** Jordon and Swain

163. ***Liza parsia*** (Hamilton)
Gold spot mullet

1822. *Mugil parsia* Hamilton, *Fish. Ganges*, : 215, 380, pl. 17, fig. 71.

1878. *Mugil parsia*, Day, *Fish. India*, : 350, pl. 75, fig. 2; 1889, Day, *Fauna Br. India, Fish.*, **2** : 344.

1981. *Liza parsia*, Jayaram, *Handbk. Freshw. Fish. India*, : 343 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 4/1/8, P. 14, V. 1/5, A. 3/8-9, C. 14, LL. 34-35.

Head length 5.00 to 5.50 and body depth 4.30 to 5.00 in total length. Eye diameter 3.50 to 4.20 in head length. Eye with adipose lids. Preorbital slightly bent and serrated. Upper surface of head slightly convex. Upper lip moderately thick, forming more or less front end of snout. Mandible meet at an obtuse angle. Teeth distinct in upper jaw. First dorsal fin originates about midway between tip of snout and caudal fin base. Anal fin origin about half in advance of second dorsal fin. Predorsal scales 18-22. Body greenish olive becoming lighter below. A golden spot on upper portion of opercle. Edge of both dorsal fins dark. Caudal fin base yellowish, extremity dark.

Distribution : India : Madhya Pradesh, West and East Coasts entering tidal rivers and esturies.

Elsewhere : Bangladesh, Malanesia, Malaya, Archipelago, Myanmar, Pakistan, Philippines, Queensland, Sri Lanka, Thailand.

Genus ***Rhinomugil*** Gill

164. ***Rhinomugil corsula*** (Hamilton)
Corsula mullet

1822. *Mugil corsula* Hamilton, *Fish. Ganges* : 221, 381, pl. 9, fig. 97.

1878. *Mugil corsula*, Day, *Fish. India*, : 354, pl. 71, fig. 6; 1889, Day, *Fauna Br. India, Fish.*, **2** : 349.

1981. *Rhinomugil corsula*, Jayaram, *Handbk. Freshw. Fish. India*, : 345, 346 (distribution).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 4/1/7-8, P. 15, V. 6, A. 3/9, C. 15, LL. 48-52.

Head length 4.50 to 4.80 and body depth 6.00 to 6.50 in total length. Eye diameter 7.00 in head length. Eye without adipose lids, elevated. Head depressed. Dorsal profile nearly straight. Upper jaw longer and overhung by snout. Upper lip thick. Maxilla reaching below middle of eye. Teeth minute, a single row in either jaw. Preorbital not notched, serrated. Opercle without spine. Two dorsal fins well separated. First dorsal fin originates a little nearer to caudal fin base than to tip of snout. Caudal fin slightly emarginate. Predorsal scales 28. Body dull brown on dorsal surface and lighter below. Caudal and dorsal fins tinted grey. Eyes golden.

Distribution : India : Madhya Pradesh (Bastar, Rewa districts, Chambal river), Andhra Pradesh, Bihar, Gujarat, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Family GOBIIDAE

Subfamily GOBINAE

Genus ***Awaous*** Valenciennes

165. ***Awaous stamineus*** (Valenciennes)
Scribbled goby

1842. *Gobius stamineus* Valenciennes, *zool. Voy. Banite*, : 179, pl. 51, fig. 5.

1878. *Gobius straitus* Day, *Fish. India* : 292, pl. 62, fig. 6; 1889, Day, *Fauna Br. India, Fish.*, **2** : 262-263.

1981. *Awaous stamineus*, Jayaram, *Handbk. Freshw. Fish. India*, : 357 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 6/1/10, P. 15, A. 10, LL. 56-60.

Head length 4.00 to 4.25 and body depth 5.50 to 5.75 in total length. Eye diameter 6.00 to 7.00 in head length. Eye not prominent, directed upwards and outwards. Snout elongated, cheeks inflated. Barbels absent. Cleft of mouth almost horizontal. Head less than half as broad as long. No canine teeth. First dorsal fin spines weak, not filamentous and ¾ of body depth. Second dorsal fin rays of about same height, last dorsal ray divided to its root and reaches half way to caudal fin base. Caudal fin slightly rounded. Scales anterior to dorsal fin smaller than the rest on the body but none on head. Body generally light fulvous, with a bluish tinge along the sides, becoming dirty white beneath. Some blotches along the sides. Few irregular bands pass from back towards the middle of body. Some thin black lines proceed upwards on the abdomen opposite to anal fin. Cheeks glossed with silver. Both dorsal fins with five or six rows of brown dots. Caudal fin with eight or nine vertical rows of spots in its upper half or two thirds.

Distribution : India : Madhya Pradesh (Bastar district), Rivers and estuaries of India.

Elsewhere : Bangladesh, East Indies, Hawai, Malaya, Philippines.

Genus ***Glossogobius*** Gill

166. ***Glossogobius giuris giuris*** (Hamilton)
Bar-eyed goby

1822. *Gobius giuris* Hamilton, *Fish. Ganges*, : 51, 366, pl. 33, fig. 15.

1878. *Gobius giuris*, Day, *Fish. India*, : 294, pl. 67, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, **2** : 266.

1981. *Glossogobius giuris giuris*, Jayaram, *Handbk. Freshw. Fish. India*, : 358 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (ii) 1 ex., Adhartal village on Katni Road, district Jabalpur; S. Chakrapany and party; 3.4.1961. (iii) 1 ex., Targhat near Joga rest house, district Hoshangabad; H.P. Agrawal and party; 20.12.1965. (iv) 1 ex., Budagar tank on Katni Road, district Jabalpur; V.V. Rao and party; 17.9.1969. (v) 10 exs., Biaora, district Rajgarh; H.S. Sharma and party; 11.10.1995. (vi) 1 ex., Bara pool, Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 9.10.1995.

Diagnostic characters : D. 6/1/8-9, P. 20, A. 1/8-9, V. 1/5, C. 17, LL. 30-34.

Head length 3.50 to 4.25 and body depth 5.00 to 6.50 in total length. Eye diameter 6.00 to 8.00 in head length. Head depressed and pointed. Iris of eye without process in pupil. Snout pointed. Lower jaw longer. Maxilla extends to below anterior margin of eye. Tongue bilobate. Gill openings continued far forward below isthmus narrow. Two dorsal fins separated by a short interspace. First dorsal fin lower than depth of body with 6 weak spines. Pelvic fins united forming a disc. Caudal fin oblong to rounded. 9-14 scales in a transverse line. Body olive to dusky green on dorsal surface and lighter below. 2 alternating rows of 4 to 6 blotches on body. A dark blotch on first dorsal fin may be present.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Rajgarh, Rewa districts, Chambal river, Indravati Tiger Reserve), Throughout.

Elsewhere : Australia, Bangladesh, China, East and South Coasts of Africa, Indo-Australian Archipelago, Japan, Malaya, Mauritius, Myanmar, Nepal, Pakistan, Philippines, South Pacific Islands, Sri Lanka, Thailand.

Family ANABANTIDAE

Genus ***Anabas*** cuvier

167. ***Anabas testudineus*** (Bloch)
Climbing perch

1792. *Anthias testudineus* Bloch, *Naturg. Ausland. Fische*, **6** : 121, pl. 322.

1878. *Anabas scandens*, Day, *Fish. India* : 370, pl. 78, fig. 3; 1889, Day, *Fauna Br. India, Fish.*, **2** : 367 fig. 120.

1981. *Anabas testudineus*, Jayaram, *Handbk. Freshw. Fish. India*, : 379 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 17-18/8-10, P. 14-15, V. 1/5, A. 9-10/9-11, C. 17, LL. 21-29.

Head length 3.50 to 4.00 and body depth 3.50 to 4.00 in total length. Eye diameter 4.50 to 5.00 in head length. Lower jaw slightly longer. Opercle and preorbital serrated, the former spinate. Teeth in jaws villiform. Teeth on palate. A single dorsal fin longer than anal fin, spinous part much longer than soft part, soft portion higher than spinous. Scale large. Some scales over soft dorsal fin, caudal fin, anal fin and base of pectoral fin. Lateral line interrupted. Caudal fin rounded. Body light to dark green on dorsal surface and greenish yellow to orange below. 4 wide vertical bands on body and a black spot on caudal peduncle.

Distribution : India : Madhya Pradesh (Bastar district), Throughout.

Elsewhere : Bangladesh, China, Indo-China, Malaya, Malaya Archipelago, Myanmar, Pakistan, Philippines, Polynesia, Singapore, Sri Lanka, Thailand, Vietnam.

Family BELONTIDAE

Subfamily MACROPODINAE

Genus *Ctenops* McClelland

168. *Ctenops nobilis* McClelland

1845. *Ctenops nobilis* McClelland, *Calcutta J. Nat. Hist.*, **5** : 281, pl. 21, fig. 1.

1889. *Osphromenus nobilis*, Day, *Fauna Br. India, Fish.*, **2** : 370, Fig. 122.

1981. *Ctenops nobilis*, Jayaram, *Handbk. Freshw. Fish. India*, : 381 (distribution and key to species).

Material examined : No specimen obtained by me. It is recorded from the literature.

Diagnostic characters : D. 5-6/7-8, P. 12, V. 1/5, A. 4-5/23-28, C. 16, LL. 28-34 (Vestigial).

Head length 3.50 to 4.00 and body depth 3.00 to 3.25 in total length. Eye diameter 3.50 in head length. Posterior extremity of intermaxillaries reaches to opposite the front edge of eye. Upper and lower jaws elongated to form a somewhat pipe-shaped mouth. Lower jaw longer than upper jaw. Upper jaw protrusible. Dorsal fin inserted in posterior half of body, above mid-anal fin. Pelvic fin with a strong spine. First pelvic fin ray produced as a filament. Anal fin inserted close behind pelvic fin and separated by a notch from caudal fin. Caudal fin rounded. Body brown. A silvery-white band passes from eye to middle of tail, sometimes interrupted. A second similar band passes from pectoral fin along side and a third at base of anal fin. A black light-edged ocellus at upper part of caudal fin base, sometimes present.

Distribution : India : Assam, Bihar, Madhya Pradesh, Sikkim, West Bengal (N.E.).

Elsewhere : Bangladesh.

Subfamily TRICHOGASTRINAE

Genus *Colisa* Cuvier

169. *Colisa fasciata* Schneider
Banded colisa

1801. *Trichogaster fasciatus* Schneider, *Syst. Ichth. Bloch*, : 164, pl. 36.

1878. *Trichogaster fasciatus*, Day, *Fish. India*, : 374, pl. 78, fig. 6; 1889, Day, *Fauna Br. India, Fish.*, **2** : 372, fig. 123.

1981. *Colisa fasciata*, Jayaram, *Handbk. Freshw. Fish. India*, : 383 (distribution and key to species).

Material examined : (i) 14 exs., Narbada sagar dam area, Khandwa district; H.P. Agrawal and party; 21.9.1985. (ii) 13 exs., Narbada sagar dam area, Khandwa district; H.P. Agrawal and party; 21.9.1985. (iii) 17 exs., Narbada sagar dam area, Khandwa district; H.P. Agrawal and party; 25.9.1985. (iv) 10 exs., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 16.3.1985. (v) 17 exs., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 27.9.1985. (vi) 2 exs., Punasa, district Khandwa; H.P. Agrawal and party; 22.9.1985. (vii) 1 ex., Narbada sagar dam area, district Khandwa; H.P. Agrawal and party; 17.3.1986.

Diagnostic characters : D. 15-17/9-13, P. 10, V. 1, A. 15-18/14-19, C. 15, LL. 29-31.

Head length 3.75 to 4.25 and body depth 2.70 to 3.25 in total length. Eye diameter 3.25 to 3.50 in head length. Lower limb of preopercle serrated and sometimes a few serrations on subopercle. Last dorsal spine longest and equal to postorbital length of head. Soft anal fin resembles soft dorsal fin. Caudal fin notched or cut square. Body greenish on dorsal surface and dirty white below. Fourteen or more orange coloured bands descend obliquely downwards and backwards from back to abdomen. A green spot on gill cover. Dorsal and caudal fins spotted with orange. Young specimens with a black spot at base of caudal fin.

Distribution : India : Madhya Pradesh (khandwa, Rewa districts), Andhra Pradesh, Assam, North India, Punjab, West Bengal, Coromondal coast as far as the river Krishna.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

Order MASTACEMBELIFORMES

Family MASTACEMBELIDAE

Genus *Macrognathus* Lacepede

170. *Macrognathus aculeatus* Bloch
Lesser spiny eel

1795. *Ophidium aculeatum* Bloch, *Ichthyologie*, 5 : 60, pl. 159, fig. 2.

1878. *Rhynchobdella aculeata*, Day, *Fish. India*, : 338, pl. 72, fig. 1; 1889, Day, *Fauna Br. India, Fish.*, 2 : 331.

1981. *Macrognathus aculeatus*, Jayaram, *Handbk. Freshw. Fish. India*, : 387, 389, fig. 199 (distribution and key to species).

Material examined : (i) 2 exs., Narbada river at Tilwaraghat, district Jabalpur; P. Singh and party; 29.10.1960. (ii) 4 exs., Narbada river, Jabalpur, district Jabalpur; Purchased; 5.12.1960. (iii) 1 ex., Pariat river canal at Khamaria, district Jabalpur; S. Chakrapany and party; 22.3.1962. (iv) 1 ex., Ghughrighat near Haritola, Amarkantak, district Shahdol; S. Chakrapany and party; 29.5.1962.

Diagnostic characters : D. 16-20/44-54, P. 23, A. 2-3/44-52, C. 15.

Head length 5.00 to 6.00 and body depth 8.00 to 10.00 in total length. Eye one diameter apart. Body elongate, cylindrical and eel-like. Cleft of mouth narrow. Snout long, fleshy, trilobed with transverse striations inferiorly. No preorbital spine. Teeth in jaws minute. A single, long dorsal fin with 13 to 20 stumpy free spines. Anal fin with 2 or 3 spines. Caudal fin not united with dorsal and anal fins. 19 to 23 rows of scales between lateral line and first ray of soft dorsal fin. Scales on head larger than those on body. Body brownish or olive, marbled on dorsal surface and yellowish below. A light band above lateral line. 3 to 9 large white or buff-edged ocelli along base of soft dorsal fin. Caudal fin vertically barred.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Jabalpur, Shahdol districts), Throughout.

Elsewhere : Bangladesh, Borneo, China, Java, Laos, Malaya, Malaya Archipelago, Moluccas, Myanmar, Nepal, Pakistan, Sri Lanka, Sumatra, Thailand, Vietnam.

Remark : The number of dorsal spines, anal fin rays and ocelli at the base of caudal fin is subject to much variation. In the material examined some have only one ocelli at base of caudal and a few have no ocelli at all. Generally the ocelli is bright in specimens freshly caught but fade slightly on preservation. (Jayaram, Venkateswarlu, Ragunathan, 1982).

Genus *Mastacembelus* scopoli

Key to the species

1. Caudal fin with 17 to 21 rays .... *M. armatus armatus*
2. Caudal fin with 11 to 16 rays ....*M. pancalus*

171. *Mastacembelus armatus armatus* Lacepede
Spiny eel

1800. *Macrognathus armatus* Lacepede, *Hist. nat. Poiss.*, 2 : 283, 286.

1878. *Mastacembelus armatus*, Day, *Fish. India*, : 340, 73, fig. 2; 1889, Day, *Fauna Br. India, Fish.*, 2 : 334.

1981. *Mastacembelus armatus armatus*, Jayaram, *Handbk. Freshw. Fish. India*, : 388, 389 (distribution and key to species).

Material examined : (i) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 12.8.1960. (ii) 1 ex., Narbada river, Jabalpur, district Jabalpur; Purchased; 28.2.1961. (iii) 3 exs., Narbada river at Joga, district Hoshangabad; H. Khajuria and party; 1.1.1966. (iv) 1 ex., Narbada river at Manot, district Mandla; H. Khajuria and party; 17.11.1963. (v) 6 exs., Narbada river at Lamataghat, district Jabalpur; V.V. Rao and party; 31.1.1967. (vi) 1 ex., Narbada river at Barman Bridge, district Narsinghpur; H. Khajuria and party; 14.12.1964. (vii) 3 exs., Tomas river near Maihar, district Satna; H.S. Sharma and party; 22.10.1986. (viii) 10 exs., Tomas river, district Satna; H.S. Sharma and party; 22.10.1986. (ix) 3 exs., Pench river at Jhilimili village, district Chhindwara; H.S. Sharma and party; 6.4.1990. (x) 1 ex., Singri river Narsinghpur, district Narsinghpur; Purchased; 14.10.1989. (xi) 6 exs., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xii) 2 exs., Biaora, district Rajgarh; H.S. Sharma and party; 11.10.1995. (xiii) 1 ex., Betwa river, district Raisen; H.S. Sharma and party; 3.10.1995. (xiv) 5 exs., Chhapi river at Jeerapur, district Rajgarh; H.S. Sharma and party; 10.10.1995. (xv) 3 exs., Newaj river at Rajgarh, district Rajgarh; H.S. Sharma and party; 8.10.1995.

Diagnostic characters : D. 32-39/74-90, P. 23, A. 3/75-88, C. 17-21.

Head length 6.50 to 7.50 and body depth 11.00 to 12.00 in total length. Eye one diameter apart. Body elongated, cylindrical and eel-like. Cleft of mouth narrow. A long fleshy appendage to snout, not transversely striated inferiorly. Snout trilobed. A preorbital spine present. Teeth in jaws minute. A single, long dorsal fin with 32 to 39 stumpy free spines, origin of soft part behind anal fin origin. Vertical fins confluent. Anal fin with 3 spines. 30 rows of scales between lateral line and base of first dorsal fin ray. Head and body scales similar. Body brownish on dorsal surface and lighter below. A row of black spots along base of soft dorsal fin.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Chhindwara, Hoshangabad, Jabalpur, Mandla, Narsinghpur, Raisen, Rajgarh, Rewa, Satna districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Cambodia, China, Hainan Island, Java, Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Sumatra, Thailand, Tonkin, Vietnam.

172. ***Mastacembelus pancalus*** (Hamilton)
Spiny eel

1822. *Macrognathus pancalus* Hamilton, *Fish. Ganges*, : 30, 364.

1878. *Mastacembelus pancalus*, Day, *Fish. India*, : 340, pl. 72, fig. 4; 1889, Day, *Fauna Br. India, Fish.*, **2** : 333.

1981. *Mastacembelus pancalus*, Jayaram, *Handbk. Freshw. Fish. India*, : 389 (distribution and key to species).

Material examined : (i) 1 ex., Devtal near Vedinagar, Jabalpur, district Jabalpur; S. Chakrapany and party; 15.2.1962. (ii) 1 ex., Pariat river on Katni Road, district Jabalpur; H.P. Agrawal and party; 19.5.1964. (iii) 1 ex., Pariat river near Maharajpur village on Katni Road, district Jabalpur; S. Chakrapany and party; 7.5.1965. (iv) 2 exs., Narbada river at Lamataghat, district Jabalpur; H.S. Sharma and party; 6.1.1967. (v) 1 ex., A tank in padaria village on Dindori Road, district Jabalpur; H.P. Agrawal and party; 27.11.1965. (vi) 1 ex., Hiran river on Katangi Road, district Jabalpur; V.S. Durve and party; 5.6.1969. (vii) 1 ex., Pariat river on Katni Road, district Jabalpur; V.S. Durve and party; 31.5.1967.

Diagnostic characters : D. 24-26/30-42, P. 19, A. 3/31-46, C. 12.

Head length 5.00 to 5.50 and body depth 6.50 to 7.00 in total length. Eye small, one diameter apart. Body elongate, cylindrical and eel-like. Cleft of mouth narrow. A long fleshy appendage to snout. Snout trilobed, without transverse striations inferiorly. A preorbital spine. Teeth in jaws minute. A single, long dorsal fin with 24-26 stumpy free spines. Origin of soft dorsal fin

behind origin of anal fin. Anal fin with 3 spines. Caudal fin not united with dorsal and anal fins. 18 rows of scales between lateral line and base of first dorsal fin ray. Body greenish olive on dorsal surface and yellowish below. Yellowish white spots on scales. Posterior portion of the body often vertically striped.

Distribution : India : Madhya Pradesh (Bastar, Bhopal, Hoshangabad, Jabalpur, Rewa districts, Chambal river), Throughout.

Elsewhere : Bangladesh, Pakistan.

SUMMARY

Fresh water fish fauna of Madhya Pradesh has been revealed in detail taxonomically regarding their latest scientific names, latest references, fin-formulae, diagnostic characters, distribution and key characters. The fauna includes 172 species belonging to 68 genera, 27 families and 10 orders.

The different exotic fishes acclimatized in Madhya Pradesh are as follows :

1. *Hypophthalmichthys molitrix* (Valenciennes).
   Common name : Silver carp
2. *Cyprinus carpio* Linnaeus
   Common name : Common carp
3. *Ctenopharyngodon idella* (Valenciennes)
   Common name : Grass carp
4. *Lebistes reticulatus* (Peters)
   Common name : Guppy
5. *Oreochromis mossambica* (Peters)
   Common name : Tilapia

The different threatened species of India include the following fishes found in Madhya Pradesh.

1. *Labeo fimbriatus* (Bloch)
   Common name : Fringe-lipped carp.
2. *Tor khudree* (Sykes)
   Common name : Kudree mahaseer
3. *Puntius jerdoni* (Day)
   Common name : Jerdon's carp
4. *Puntius curmuca* (Hamilton)
   Common name : Curmuca
5. *Cirrhinus cirrhosa* (Bloch)
   Common name : White carp
6. *Silonia childreni* (Sykes)
7. *Pangasius pangasius* (Hamilton)
   Common name : Pangash
8. *Bagarius bagarius* (Hamilton)
   Common name : Bagarius, Coonch.

The remaining 5 species of fishes could not be worked out due to non-availability of literature.

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INSECTA : ODONATA

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INTRODUCTION

The damselflies (Zygoptera) and dragonflies (Anisoptera) are amphibiotic insects, which belong to order Odonata. They spent major part of their life cycle in fresh water ecosystem. The adults are generally predacious insects, while the larvae are carnivorus and voracious feeders. They are also actively used in controlling causative agent of malaria and filaria throughout the world.

Fraser (1933, 1934, 1936) published three volumes on Odonata in the 'Fauna of British India' and included 533 species and subspecies of Odonata from India including Bangladesh, Bhutan, Myanmar, Nepal, Pakistan and Sri Lanka.

After Fraser's work, some additions were made by Bhasin (1953), Singh & Bajjal (1554–1955). A number of scientists Mehrota (1961), Sahni (1964–1965), Kumar (1970–1978), Mitra & Lahiri (1975), Kumar & Juneja (1976), Kumar & Prasad (1978), Singh & Prasad (1980), Prasad & Ghosh (1984), Ram (1985) and Lahari (1987).

The Odonata fauna of Central India was studied by Mitra (1986), where in 39 species were included. Mitra (1995), while working on Odonata fauna of Indravati Tiger Reserve, enhanced the number of species to 48 from Madhya Pradesh. The present study includes the stydy of 70 species under 40 genera and 9 family from Madhya Pradesh.

TAXONOMIC ACCOUNT

Order ODONATA

Key to the Suborders

1. Fore and hind-wings more or less of same shape and Venation, head transversely elongated both superior and inferior anal appendage in male paired 2

– Fore and hind wings are distinctly different in shape and venation-hing wings broader specially in anal area, head not transversely elongated rather globular ; paired superior and single inferior anal appendage in male ..... ANISOPTPERA

2. Eyes widely separated, frons is not rigid and markedly raised, larvae with abdominal and caudal gills ..... ZYGOPTERA

– Eyes not so widely separated, frons is rigid and markedly raised, larvae without abdominal and caudal gill ..... ANISOZYGOPTERA

Key to Superfamilies

1. Fore and hind wings more or less of same shape and venation, head transversely elongated both superior and inferior anal appendage in male paired 2

– Fore and hind-wing are distinctly different in shape and venation hind wings broader specially in anal area, head not transversely elongated rather globular, paired superior and single inferior anal appendage in male 4

2. Antenodals more than 2, Postnodals not coinciding with veins below ..... CALOPTERYGOIDEA

– Antenodals, only 2 Postnodals coinciding with veins below 3

3. IR iii and R IV + V more near node than arc, males anterior hamules subqadrate .... COENAGRIONOIDEA

– IR iii and R IV + V more near arc than node, males anterior hamules elongate ....LESTOIDEA

4. Labial mark of larvae flattened without setae, lateral lobes narrow with long robust movable hook ..... AESHNOIDEA

– Libial mask of larve broad, concave with numerous setae, lateral lobes broad with tuft of setae ..... LIBELLULOIDEA

Key o the families of Odonata

1. Antenodals more than 2, Postnodals not coinciding with veins below 2

– Antenodals, only 2 Postnodals coinciding with veins below 3

2. Labial mark of larvae flattened without setae, lateral lobes narrow with long robust movable hook 7

– Libial mask of larve broad, concave with numerous setae, lateral lobes broad with tuft of setae 8

3. IRiii and R IV + V more near node than are, males anterior hamules subqadrate 4

– IRiii and R IV + V more near arc than node, males anterior hamules elongate 5

2 primary antenodal, distinct from secondaries ..... CHLOROCYPHIDAE

– 2 primary antenodal, not distinct from secondaries ..... CALOPTERYGIDAE

5. IA, cu ii reduced, former even absent ....PROTONEURIDAE

– IA, cu ii neither reduced nor absent 6

6. Discoidal cell with costal and hinder side subequal, inner distal angle obtuse .... PLATYCNEMIDIDAE

– Discoidal cell with costal side much shorter than hinder side, inner distal angle acute or sub-acute ..... COENAGRIONIDAE

7. Eyes are well separated on dorsum vertex, occipital plate large, trapezoidal ....GOMPHIDAE

– Eyes are metting all along inner side on dorsum-vertex, occipital plate small trangular ..... AESHNIDAE

8. Eyes widely separated frons not rigid not markedly raised, anal vein arising at the level of arc .....LESTIDAE

– Eyes without a projection at posterior borders, thoracic non metallic (rarely metallic), no membraneous to tibiae .... LIBELLULIDAE

Suborder A. ZYGOPTERA

Superfamily I. COENAGRIONOIDEA

Family I. COENAGRIONIDAE

Subfamily PSEUDAGRINAE

Key to the Genera of Sub family PSEUDAGRINAE

1 Prominent frontal ridge on from no postocular coloured; spot on head ; head and thorax of uniform colour, without any dark markings ..... ***Ceriagrion*** Selys

– Frontal ridge not present, postocular coloured spot present on head, head and thorax on not uniform colour, black or dark markings on body present ..... ***Pseudagrion*** Selys

Key to species of the genus *Ceriagrion* Selys

1 Abdomen pale citron-yellow with black marking in the end segments 2

– Abdomen bright citron-yellow, without marking..... *coromandelianum* (Fabricius)

2 Abdomen uniformly dull olivaceous in both sexes ..... *olivaceum* Laidlaw

– Abdomen bright red at base and anal ends black on dorsum in between .... *cerinorubellum* (Brauer)

1. Genus *Ceriagrion* Selys

1. *Ceriagrion coromandelianum* (Fabricius)

1798. *Agrion coromandelianum* Fabr. *Ent. Syst. Suppl.*, : 287.

1933. *Ceriagrion coromandelianum* : Fraser, *Fauna Brit. India. Odon.*, **1** : 315-316.

Diagnostic characters : Frons bright citron-yellow; vertex olivaceous ; occiput and postocular area ochreous. Prothorax and thorax uniformly olive green. Legs citron-yellow with short black spines. Pterostigma golden yellow.

Material examined : 2 males, Jashpur, distt. Raigarh 29.9.91. coll. H.P. Agrawal & Party; 1 male, Sonagir, distt. Datia 24.9.94. coll. H.P. Agrawal & Party.

Distribution : India : Madhya Pradesh (Raigarh, Datia), Andhra Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharastra, Manipur, Meghalaya, Mizoram, Orissa, Punjab, Tamil Nadu, Tripura and Uttar Pradesh.

Elsewhere : Malaysia, Myanmar, Nepal, Indochina, Sri Lanka and Thailand.

Remarks : This damselfly is easily distinguished from all others by its abdomen being entirely pale lemon, without markings. These are found in weedy ponds, tanks, the banks and borders of which may be found for the greater part of the year.

2. *Ceriagrion olivaceum* Laidlaw

1914. *Ceriagrion olivaceum* Laidlaw, *Rec. Indian Mus.*, **VIII** : 345.

1933. *Ceriagrion olivaceum* : Fraser, *Fauna Brit. India*, Odon., **1** : 324 - 326.

Diagnostic characters : Prothorax and thorax pale olivaceous. Legs yellow, with black spines. Pterostigma palest brown, pale yellow around the circumference and framed in darker brown nervures. Oblique, diamond-shaped. Abdomen uniform olivaceous brown, paling to yellowish beneath. Anal appendages brown. Superiors shorter than segment 10.

Material studied : 2 males, Chandamata, distt., Chhindwara, 13.9.91, coll. R.K. Singh & Party; 1 male, Nehru Park, distt. Morena, 9.1.95, coll. H.S. Sharma & Party.

Distribution : India : Madhya Pradesh (Chhindwara, Morena), Assam, Kerala, Manipur, Maharashtra, Meghalaya, Uttar Pradesh and West Bengal.

Elsewhere : Cambodia, Laos, Myanmar, Thailand and Vietnam.

Remarks : This damselfly found in long dry grass, weeds, in vicinity of water body.

3. *Ceriagrion cerinorubellum* (Brauer)

1865. *Pyrrhosoma cerinorubellum* Brauer, *Verh. Zool.-bot. Ges. Wien.*, **XV** : 511.

1933. *Ceriagrion cerinorubellum* : Fraser, *Fauna Brit. India Odon.*, **1** : 326–328.

1997. *Ceriagrion cerinorubellum* Shrivastava & Babu Suri, *Fraseria, (N.S.)* 4(1/2) : 13–15.

Distribution : India : Madhya Pradesh (Sagar), Assam, Himachal Pradesh, Uttar Pradesh and West Bengal.

Elsewhere : Indonesia, Malaysia, Myanmar, Sri Lanka and Thailand.

Remarks : This species is included on the basis of the literature.

2. Genus *Pseudagrion* Selys

Key to species of the Genus *Pseudagrion* Selys

This key based on males and females of these species separately.

Key to species based on male

1. Face, frons and vertex mainly black .... *hypermelas* Selys

– Face, frons and vertex not mainly black 2

2. Face, frons and vertex bright orange or ochrceous, thorax golden green on dorsum, azure blue on sides ..... *rubiceps* selys

– Face, frons, vertex and occiput blue or green, marked with black 3

3. Thorax palest, blue with three fine black lines on mid dorsal carinal ridge and a thicker black humeral stripe ..... *decorum* (Rambur)

– Thorax not palest blue but azure blue on dorsum and sides three fine black line on mid–dorsal carina lacking 4

4. Superior anal appendage expanded on the inner side, but with a long robust spine near base within ..... *spencei* Fraser

– Superior anal appendage expanded without or with two or three small spines 5

5. Superior anal appendages without ex-pansion on the inner side and without any spines on inner side or near base ..... *laidlawi* Fraser

– Dorsal marking on segment goblet shaped; superior anal appendages with 2 or 3 small spines on inner border .... *microcephalum* (Rambur)

Key to species based on Females

1. Thorax with only one fine black line on mid dorsum ..... *microcephalum* (Rambur)

– Thorax with the fine black line on mid darsum 2

2. Head and thorax uniform pale lilaceous .... *laidlawi* Fraser

– No orange pigment on head and upper surface of the eyes 3

3. Abdomen segment 2 with a black arrow head–shaped making on dorsum segment 9 with a quadrate black dorsal spot .... *decorum* (Rambur)

– Abdomen segment 2 more than with fine dorsum 4

4. Abdomen segment 2 to 7 with dorsal marking reduced to fine black lines... *spencei* Fraser

– Abdomen segment 2 to 7 with broad dorsal black making 5

5. Segments 9 with the black dorsal marking bifid ..... *rubriceps* Selys

– Segments 9 with the black dorsal marking not bifid, head and thorax uniform pale greenish yellow ..... *hypermelas* Selys

4. *Pseudagrion hypermelas Selys*

1876. *Pseudagrion hypermelas* Selys, *Bull. Acad. Belg., (2)XLII : 519.*

1933. *Pseudagrion hypermelas* : Fraser, *Fauna Brit. India, Odon.,* **1** : *289.*

Diagnostic characters : Face, frons, vertex bright redish- orange or dark ochreous. Abdomen violaceous brown, broadly marked by black on dorsum 2 lateral and dorsal confluent, 3 to 7 with black mark winded subapically and then confluent with black annules apically, 8-9 with black lateral spots confluent with dorsal black markings. Anal appendages bifid, black at apices.

Material examined : 2 females, Simaria vill. distt. Gwalior, 21.9.94, coll. H.P. Agrawal & Party ; 1 female, Sonagir, distt. Datia, 24.9.94, coll. H.P. Agrawal & Party.

Distribution : India, Madhya Pradesh (Gwalior, Datia), Bihar, Gujarat, Maharastra, Punjab, Uttar Pradesh, West Bengal, Western ghats.

Remarks : This species inhabits grassy, banks of small streams and canals.

5. *Pseudagrion rubriceps* Selys

1976. *Pseudagrion rubriceps* Selys. *Bull. Acad. Belg. (2),* **42** : *510.*

1933. *Pseudagrion rubriceps* : Fraser, *Fauna Brit. India. Odon.,* **1** : 296–299.

Diagnostic characters : Thorax golden green on dorsum, azure blue on sides, sparingly marked with black on dorsum, legs yellow, femora black on the outer and posterior surface, superior appendage shorter than abdomen 10, with narrow X-shaped black marking on dorsum.

Material examined : 1 male, Manendragarh, distt. Ambikapur, 10.10.91. coll. H.P. Agrawal & Party; 1 male, Chirmiri, distt., Sarguja, 13.4.92, coll. R.K. Singh & Party.

Distribution : India, Madhya Pradesh (Ambikapur, Sarguja), Assam, Himachal Pradesh, Uttar Pradesh and West Bengal.

Elsewhere : Java, Indochina, Malaysia.

Remarks : Inhabits grassy banks of small streams ; the male common, but the female is rarely seen.

6. *Pseudagrion decorum* (Rambur)

1842. *Agrion decorum* Rambur, *Ins. Neurop., 258.*

1916. *Pseudagrion decorum* : Laidlaw, *Rec. Ind. Mus.*, XII : 24.

1933. *Pseudagrion decorum* : Fraser, *Fauna Brit. India, Odon.*, 1 : 286.

Diagnostic characters : Frons, and vertex as far as the level of posterior ocelli a beautiful pale bluish green. Thorax palest blue, with three fine black lines on mid-dorsal carinal ridge and a thicker black humeral stripe. Anal appendages of carneous, superiors azure blue, tipped apically with black, a small basal spine, narrowly bifid at apex. Inferior anal appendage also with a minute black spines on inner side.

Material examined : 1 male, soopatal, Nagpur Road, distt. Jabalpur, 9.10.1973. coll. L.P. Dube ; 1 male, Chandamata, distt. Chhindwara, 13.9.91, coll. R.K. Singh & Party.

Distribution : India Madhya Pradesh (Jabalpur, Chhindwara), Karnataka, Himachal Pradesh, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar, Sri Lanka.

Remarks : This damselfly found in plains, mostly near placid water body.

7. *Pseudagrion microcephalum* (Rambur)

1842. *Agrion microcephalum* Rambur. *Ins. Neurop.*, 259.

1876. *Pseudagrion microcephalum*, Selys. *Bull. Acad. Belg.*, (2)xii : 504.

1933. *Pseudagrion microcephalum* : Fraser, *Fauna Brit. India Odon.*, 1 : 278-280.

Diagnostic characters : Prothorax and thorax azure blue, Abdomen 2 with a goblet shaped dorsal black mark, its stem very short confluent with a narrow apical black ring, a fine mid-dorsal stripe from middle of cup of goblet extending upto and confluent with a narrow basal ring. Anal appendage expanded on tthe inner side, 2 to 3 small spines on the inner basal border.

Material examined : 1 male, Punjab garden, distt. Ambikapur, 9.4.92, coll. R.K. Singh & Party ; 1 male, Gayni river near Raghu Raja Cave, Patalkot, distt. Chhindwara, 26.2.94, coll. H.S. Sharma & Party.

Distribution : India, Madhya Pradesh (Ambikapur, Chhindwalva) Bihar, Maharashtra, Uttar Pradesh and West Bengal.

Elsewhere : Australia, Indonesia (Java), Myanmar, Sri Lanka.

Remarks : Inhabits plains, Submonate zones.

8. *Pseudagrion spencei* Fraser

1922. *Pseudagrion spencei* Fraser, *Mem. Dep. Agric. India (Ent.)*, 7 : 47.

1933. *Pseudagrion spencei* : Fraser, *Fauna Brit. India Odon.*, 1 : 292-294.

Distribution : India : Madhya Pradesh, Assam, Bihar, Meghalaya, Uttar Pradesh and West Bengal.

Elsewhere : Nepal and Pakistan.

Remarks : No specimen obtained by me. This species is included on the basis of the literature.

9. *Pseudagrion laidlawi* Fraser

1922. *Pseudagrion laidlawi* Fraser, *Mem. Dept. Agric. India* (Ent.), Vol. 7 : 48-50.

1933. *Pseudagreion laidlawi* : Fraser, *Fauna Brit. India Odon.*, 1 : 294-296

1981. *Pseudagrion laidlawi.* Kumar & Prasad, *Rec. zool. Surv. India, Occ. Paper No.*, 20 : *80.*

Distribution : India Madhya Pradesh.

Remarks : This species is included on the basis of the literature.

Subfamily ISCHNURINAE

3. Genus *Aciagrion* Selys

Key to species of genus *Aciagrion*

1. Ground colour pale brown, no black marking on head and thorax ..... *pallidum* Selys

– Posterior labe of prothorax not crenate behind ; black marking on dorsum of segments 2 ..... *hisopa hisopa* Selys

10. ***Aciagrion pallidum*** selys

1891. *Aciagrion pallidum* Selys, *Ann. Mus. Civ. Genova (2)*, **10**(30) : 512–513.

1933. *Aciagrion pallidum* : Fraser, *Fauna Brit. India, Odon.*, **1** : 344–345.

Diagnostic characters : Prothorax brown on dorsum except anterior lobe, which is pale blue, pale whitish-brown laterally; posterior border of posterior lobe sinuous. Legs white the distal ends of anterior two pairs of femora striped with black ; five short fine black spines on hind tibiae. Wings hyaline very narrow and pointed at apices. Abdomen very long and very slender, dialating somewhat at the anal end; segment 1 very pale blue, almost white, with a large dorsal black spot.

Material examined : 3 females, Near Dabra rest house, distt. Gwalior, 19.9.94, coll. H.P. Agrawal & Party ; 1 female, Laxmi colony, Dabra, distt. Gwalior, 20.9.94, coll. H.P. Agrawal & Party.

Distribution : India : Madhya Pradesh (Gwalior), Assam, Arunachal Pradesh, Bihar, Goa, Karnataka, Maharashtra, Manipur, Meghalaya, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar, Nepal, Kampuchea, Thailand and Vietnam.

Remarks : This species found in dry grassy lands or dry deciduous forest or scrub jungle.

11. ***Aciagrion hisopa hisopa*** Selys

1876. *Pseudagrion hisopa* Selys, *Bull. Acad. Belg.*, (2)**42** : 509.

1931. *Aciagrion hisopa hisopa* : Tsuda, *A distributional list of Odonata*, 1991, P. 18.

Distribution : India : Madhya Pradesh : (Bastar), Darjeeling (Selys 1891) ; Coorg. Deccan, Nilgiris, Travancore, Mahabaleswar, Satara and Poona.

Elsewhere : Bangladesh, Malayasia, Myanmar, Nepal, Pakistan, Singapore, Sri Lanka, Thailand and Vietnam.

Remarks : This species included in 1995. Fauna of Conservation Areas No. 6. Mitra T R. Fauna of Indravati Tiger Reserve : 31. New records from the Madhya Pradesh.

4. Genus ***Enallagma*** Charpentier

Key to the species of genus *Enallagma*

1. Very small species, with abdomen not more than 17 mm. in length ; Postnodal nervures in forewings only 6 to 7 in number..... ..... *parvum* Selys

– Dorsal marking of segment – 1 not extending to apex of segment; only 8 postnodals .... *malayanum* Selys

12. ***Enallagma parvum*** Selys

1876. *Enallagma parvum* Selys, *Bull. Acad. Belg.* (2) vol. xii, : 537.

1933. *Enallagma parvum* : Fraser, *Fauna Brit. India, Odon.*, **1** : 376-378.

Diagnostic characters : Prothorax broadly black on dorsum the sides pale blue. Thorax black on dorsum, with very broad antehumeral azure blue stripe narrowly bordered out wardly with black stripe on segment 10.

Material examined : 1 male, Gayani River near Raghu Raja cave, Patalkot, dist. Chhindwara 26.2.94, coll. H.S. Sharma ; 1 male, Phoolbag, distt. Gwalior, 16.9.94, coll. H.P. Agrawal & Party ; 1 female, Laxmi Colony, Dabra, distt. Gwalior, 20.9.94, coll. H.P. Agrawal & Party.

Distribution : India : Madhya Pradesh. (Chhindwara, Gwalior), Gujarat, Manipur, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar and Sri Lanka.

Remarks : It is one of the smallest damselflies.

13. ***Enallagma malayanum*** Selys

1876. *Enallagma malayanum* selys, *Bull. Acad. Belg.* (2) Vol. xii, 536.

1933. *Enallagma malayanum* : Fraser, *Fauna Brit. India, Odon.*, **1** : 375 - 376.

Diagnostic characters : Bluish–green oval postocular spot, not connected but a narrow stripe present. Prothorax black anterior lobe and a large spot on each side azure blue ; posterior lobe rounded. Legs bluish-white marked broadly with black on extensor surface of femora and flexor surface of tibiae. Inferior and appendages almost as long as superior. A robust ventral spine at the apex of segment–10.

Material examined : 2 males, Jashpur, distt. Raigarh, 29.9.91, coll. H.P. Agrawal & Party. 1 male, in and around Manendragarh, distt. Ambikapur, 10.10.91, coll. H.P. Agrawal & Party.

Distribution : India : Madhya Pradesh. (Raigarh, Ambikapur). Assam and Maharashtra.

Elsewhere : Sri Lanka.

Remarks : This species is distinguished from *cyathigerum* by the broad complete black bands on abdomen and from *E. parvum* by the broad oval post-ocular spots.

5. Genus *Ischnura* Charpentier

Key to species of genus *Ischnura*

1. Species with ground colour of both sexes bright orange red, segments 8–10 black .... *rufostigma rufostigma* Selys

– Species with ground colour of male and isochrome female blue or pale grass green 2

2. Abdomen 3 to 6 citron yellow; inferior anal appendage shorter than superiors .... *aurora aurora* (Brauer)

– Abdomen 3 to 6 black on dorsum, 2nd abdominal segment steely metallic..... .....*senegalenensis* (Rambur)

14. *Ischnura rufostigma rufostigma* Selys

1876. *Ischnura rufostigma* Selys. *Bull. Acad. Belg.*, (2), xli : 283.

1933. *Ischnura rufostigma* : Fraser, *Fauna Brit. India, Odon.*, 1 : 362–364.

1977. *Ischnura rufostigma rufostigma* Selys : Lahiri, *Rec. zool. Surv. India*, 72 : 413.

Distribution : India : Madhya Pradesh; Assam; Bihar; Himachal Pradesh; Kashmir; Manipur; Meghalaya; Uttar Pradesh and West Bengal.

Elsewhere : Myanmar.

Remarks : This species is included on the basis of the literature. It is found stagnant and often ephemeral water bodies, like paddy fields.

15. *Ischnura aurora aurora* (Brauer)

1858. *Agrion delicatum* Hagen, *Verh. Zool. Bot. Ges. Wien., VIII* : 479.

1933. *Ischnura delicata* (Hagen) : Fraser, *Fauna Brit. India, Odon.*, (1) : 360.

1954. *Ischnura aurora aurora.* Lifetinck, *Treubia, XXII* : 74.

Diagnostic characters : Smallest species. Pterostigma kite shaped, rose-red for its proximal half but hyaline in distal half. Segments 8 to 10 entirely azure blue, 10 with broad quadrate black dorsal spot.

Material examined : 3 males, Rest house Neemuch, distt. Mandsaur, 2.11.1990, coll. H.P. Agrawal & Party ; 1 male, Laxmi colony, Dabra, distt. Gwalior, 20.9.1994, coll. H.P. Agrawal & Party.

Distribution : India : Madhya Pradesh (Mandsaur, Gwalior). Andhra Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Kerala, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Australia, China, Indonesia, Malaysia, New Zealand, Sri Lanka and Philippines.

Remarks : This species is commonly inhabit marshy areas flying through grasses and weeds.

16. *Ischnura senegalensis* (Rambur)

1842. *Agrion senegalensis* Rambur, *Ins. Neurop.*, : 276.

1933. *Ischnura senegalensis* : Fraser, *Fauna Brit. India, Odon.*, (1) : 348–351.

Diagnostic characters : Peterostigma diamond shaped, black outer angle and costal border narrowly white covering less than one cell.

Abdomen 2 metallic blue black on dorsum, abdomen. 10 black on dorsum, its apical border raised into two tubercles.

Material examined : 1 male, Amla proper, distt. Betul, 30.11.1989, coll. Y.N. Gupta ; 2 males Laxmi colony, Dabra, distt. Gwalior, 20.9.1994, coll H.P. Agrawal & party.

Distribution : India : Madhya Pradesh. (Betul, Gwalior), Himachal Pradesh, Maharashtra, Manipur, Rajasthan, Uttar Pradesh and West Bengal.

Elsewhere : Borneo, Malaysia, Myanmar, Philippines, Java, Japan, Sri Lanka and Africa.

Remarks : This small damselfly found in old colonies from sea-level to over about 2000 meters.

6. Genus ***Rhodischnura*** Laidlaw

No key to the species of genus Rhodischnura is provided as same is represented in Madhya Pradesh by a single species viz. *Rhodischnura nursei* Morton.

17. ***Rhodischnura nursei*** (Morton)

1907. *Ischnura nursei* Morton, *Trans. Ent. Soc. Lond.*, : 306–307.

1919. *Rhodischnura nursei* Laidlaw, *Rec. Ind. Mus.*, **16** : 171–177.

1933. *Rhodischnura nursei* : Fraser, *Fauna Brit. Odon.*, 1 : 369-371.

Diagnostic characters : Labrum, anteclypeus, frons pale greenish yellow, vertex, occiput-black. Prothorax, thorax broadly black on dorsum. Legs pale yellow, few fine black spines on tibiae and femora. Pterostgma of fore wing diamond shaped. Abdomen : segment 1 to 4 bright crimson. 1 with two small black basal dorsal marks. Anal appendages reddish or ochreous.

Distribution : India : Madhya Pradesh, Bihar and West Bengal.

Elsewhere : Pakistan.

Remarks : This species is included on the basis of the literature.

Subfamily AGRIOCNEMIDINAE

7. Genus ***Agriocnemis*** Selys

Key to species of the genus *Agriocnemis* Selys

1. Labrum metallic blue with superior anal oppendages longer than inferior .... *pygmaea* (Rambur)

– Labrum non metallic 2

2. Abdominal segment 4 to 6 with black apical rings confluent its a subapical spot shaped like an arrow-head. Segment 7 with a dorsal stripe on its basal three fourths .... *pieris* Laidlaw

– Abdominal segment without apical ring ...3

3. Black dorsal markings on abdominal segment 2, with out blue eye spot .... *splendidissima* Laidlaw

– Abdominal segment–8 ochreous, with a black anchor-shaped marking on dorsum..... ..... *d'abreui* Fraser

18. ***Agriocnemis pygmaea*** (Rambur)

1842. *Agrion pygmaea* Rambur. *Ins. Neurop.*, : 278.

1877. *Agriocnemis pygmaea* : Selys, *Syn. Agr. Smelegion : Agrion, (suite et fin)* : 52.

1933. *Agriocnemis pygmaea* : Fraser, *Fauna Brit. India, Odon.*, 1 : 398–401.

Diagnostic characters : Labrum brilliant metallic blue. Prothorax black on dorsum. Pterostigma pale yellow in the fore wing, black in the hind. Abdomen 1 to 6 segment pale greenish yellow, black marking broadly on segment 1, thistle shaped marking extending the whole length of the abdomen segments 3 to 6 broad dorsal stripe expanding sub-apically. Abdomen 7–10 and anal appendages brick red in male yellow in female. This is one of the smallest damselfly.

Material examined : 1 male, Shahpura vill. Distt. Jabalpur, 29.9.80, coll. S.K. Mishra & Party. 2 males, Imlikhera, distt. Chhindwara, 19.11.89, coll. Y.N. Gupta & Party.

Distribution : India : Madhya Pradesh (Jabalpur, Chhindwara), Assam, Himachal

Pradesh, Kerala, Manipur, Nicobar, Punjab, Rajasthan, Uttar Pradesh and West Bengal.

Elsewhere : Australia, China, Indonesia, Malaysia, Myanmar, New Guinea, Philippines, Taiwan, Pacific Island and Seychelles.

Remarks : It is one of the smallest species of damselfly.

19. *Agriocnemis pieris* Laidlaw

1919. *Agriocnemis pieris* Laidlaw, *Rec. Indian Mus.*, **16** : 179-180.

1933. *Agriocnemis pieris* : Fraser, *Fauna Brit. India. Odon.*, **1** : 384-385.

Distribution : India : Madhya Pradesh, Maharashtra, South India, West Bengal and Western ghats.

Remarks : This species is included on the basis of the literature.

20. *Agriocnemis splendidissima* Laidlaw

1919. *Agriocnemis splendidissima* Laidlaw. *Rec. Indian Mus.*, **XVI** : 180-182.

1933. *Agriocnemis splendidissima.* Fraser, *Fauna Brit. India. Odon.*, **1** : 392–394.

Diagnostic characters : Prothorax black on dorsum, palest blue on the lower part of sides. Thorax black on dorsum, marked with narrow blue or pinkish ante humeral stripe. Abdomen blue heavily marked with black as follows : segment 1 with the whole of dorsum black ; segment 2 broad dorsal marking shaped. Ventral spine inferior less than half the length of superiors, with rudimentary upper and posterior obtuse spine.

Material examined : 2 males, Mandla road, distt. Jabalpur, 15.4.1978, coll. D.K. Harshey and Party ; 1 male Shahpura vill. distt. Jabalpur, coll. 26.9.80, S.K. Mishra and Party.

Remarks : This species found during the dry seasons.

21. *Agriocnemis d' abreui* Fraser

1919. *Agriocnemis d'abreui* : Fraser, *Rec. Indian Mus.*, **16** : 454–455.

1933. *Agriocnemis d' abreui* : Fraser, *Fauna Brit. India, Odon.*, **1** : 396–398.

Diagnostic characters : Vertex and occiput black. Prothorax black on dorsum the lower part of side. Thorax black on dorsum. Legs yellow or creamy white with the extensor surface of femora black. Pterostigma brownish black. Abdomen ground colour blue from segment 1 to 6. Anal appendages superiors about half as long as segment 10. The upper angle slightly produced to from a short stout spine.

Material examined : 1 male, Imlikhera, distt. Chhindwara. 19.11.89. coll. Y.N. Gupta & Party.

Distribution : India : Madhya Pradesh (Chhindwara), Assam.

Remarks : Anal appendages of this damselfly, without ventral spine, and by the character of markings of the female it is evidently closely allied to A. splendidissima. The male distinguished from others by the ochreous end of abdomen with black anchor-shaped dorsal markings.

Subfamily COENAGRIONINAE

8. Genus *Cercion* Novas

22. *Cercion calamorum dyeri* RLS

1919. *Coenagrion dyeri* Fraser, *Rec. Ind. Mus.*, **XVI** : 451-452.

1923. *Coenagrion dyeri* Fraser, *J. Bombay Nat. Hist. Soc.*, **XXIX** : 748.

1933. *Coenagrion dyeri* : Fraser, *Fauna Brit. India, Odon.*, **1** : 413-415.

Diagnostic characters : The labrum with minute medial basal spot of black, vertex and occiput black. Pyriform postocular blue spot. Prothorax black on dorsum, Superior anal appendage, widly divaricate, truncate ending in a spines; inferior much shorter, white, small, timid processes.

Material examined : 1 male, Ganjtal, Katni road distt. Jabalpur, 24.10.80, coll. S. K. Mishra & Party.

Distribution : India : Madhya Pradesh (Jabalpur), Himachal Pradesh, Uttar Pradesh, West Bengal and Western ghat.

Elsewhere : Myanmar.

Remarks : This species known to inhabit submontane water body-stagnant weedy ponds.

9. Genus *Cercion* Navas

23. *Cercion malayanum* Selys

1870. *Cercion malayanum* Selys, *Ann. Ent. Belgique, compte Rendu*, **41** : 536.

1995. *Cercion malayanum* : Prasad and Varshney, *Oriental Insects*, **29** : 385-428.

1997. *Cercion malayanum* : Srivastava and Babu Suri, *Fraseria (N.S.)*, **4**(1/2) : 13-15.

Material examined : This species is included on the basis of the literature.

Distribution : India : Madhya Pradesh (Sagar), Assam and Maharashtra.

Family 2 PROTONEURIDAE

Subfamily DISPARONEURINAE

10. Genus *Elattoneura* Cowley

Key to species of the genus *Elattoneura* Cowley

1. Abdomen segment brownish white with small postero-lateral whitish .... *nigerrima* Laidlaw

– Abdomen yellow with dark brown spot on the lateral side ..... *nihari* Mitra

24. *Elattoneura nigerrima* Laidlaw

1917. *Elattoneura nigerrima* Laidlaw, *Rec. Indian Mus.*, **13** : 321-348.

1995. *Elattoneura nigerrima* : Prasad & Varshney, *Oriental Insects*, **29** : 394.

Material examined : This species is included on the basis of the literature.

Distribution : India : Madhya Pradesh, Maharashtra and West India.

25. *Elattoneura nihari* Mitra

1995. *Elattoneura nihari* Mitra, *Conservation Areas*, **6** : 40–41.

Diagnostic characters : Labrium, labium and clypeus ; yellow with black markings ; frons and vertex yellow with a black line across. Thorax yellow a fine black line on the mid dorsal carina, two thick black lines, one on either side of femora a brown. Pterostisma and abdomen yellow, with brown mark at the apex of 1 to 6 segments : 6 to 7 yellowish brown 8 and 9 yellow with dark brown spot on the lateral side. Anal appandage usual generis shape ; yellowish tip of the inferior black spine of the superior bifid, inferiors longer than superiors.

Distribution : India : Madhya Pradesh (Chhindwara).

Remarks : This species recorded from literature. This species is new from distt. Chhindwara.

11. Genus *Disparoneura* Selys

This genus is represented by a single species in the state hence no key is provided.

26. *Disparoneura quadrimaculata* (Rambur)

1842. *Disparoneura quadrimaculata* Rambur, Paris, **16** : 1–534.

1955. *Platylestes orientalis* Baijal & Agrawal, *Agra Univ. J. Ris., (Sscli)* **4** : (2) 453–470.

1995. *Disparoneura quadrimaculata* : Prasad & Varshney, *Oriental insects*, **29** : 394.

Material examined : 1 male, Gupt Mahadev Pachmarhi, dist. Hoshangabad 5.6.1999 coll. K. Chandra and Party.

Distribution : India : Madhya Pradesh (Hoshangabad) Delhi, Uttar Pradesh and Western Ghats.

Family 3 PLATYCNEMIDIDAE

Subfamily PLATYCNEMIMINAE

12. Genus *Copera* Kirby

27. *Copera marginipes* (Rambur)

1842. *Platycnemis marginipes* Rambur, *Ins. Neurop.*, : 240

1863. *Psilocnemis marginipes* selys. *Bull. Acad. Belg.* (2), **16** : 168.

1890. *Copera marginipes* (Rambur), Kirby. *Syn. Cat. Odon.*, : 129.

1933. *Copera marginipes* : Fraser, *Fauna Brit. India, Odon.*, **1** : 192-197.

Diagnostic characters : Inferior anal appendages at least four times in length of superior, broad at base tapering but a slightly to a rounded obtuse apex. Superior vestigial, tiny rounded tuberles, apex pointed hooked strongly in wards.

Material examined : 1 male, Rani Durgavati Samadhi, distt. Jabalpur, 20.7.78, coll. S.K. Mishra, and Party. 2 males, Gupt Mahadev, Pachmarhi distt. Hoshangabad 5.6.1999 coll. K. Chandra and Party.

Distribution : India : Madhya Pradesh (Jabalpur), Hoshangabad, Assam, Bihar, Chandigarh, Himachal Pradesh, Maharashtra, Meghalaya, Rajasthan, Tamil Nadu, South Andaman Isl ; Uttar Pradesh, West Bengal, Western Ghat and Western Himalaya.

Elsewhere : China, Java, Indonesia, Malaysia, Mayanmar, Sri Lanka, Siam, Thailand, Taiwan.

Remarks : This species shows an infinite number of varieties, not only according to the age of specimens, tenerals being white but few black markings, but also according to their locality.

Superfamily II LESTOIDEA

Family 4 LESTIDAE

Subfamily SYMPECMATINAE

13. Genus ***Indolestes*** **Fraser**

No key to the species of genus Indolestes is provided, as same is represented in Madhya Pradesh by a single species viz. I. cyaneus (Selys).

28. ***Indolestes cyaneus*** Selys

1862. *Indolestes cyaneus* Selys, *Bull. Acad. Belgique, sci.*, (2)**13** : 288–338.

1922. *Indolestes helena* : Fraser, *Mem. Dept. Agri. India (Ent.)*, **7** : 39–77.

1924. *Indolestes veronica* : Fraser, *Mem. Dept. Agri. India*, **8** : 69–87.

1955. *Indolestes manaliensis* : Singh, *Agra Univ. J. Res. (Sci.)*, **4** : 171–174.

1955. *Archibasis sushmae* : Bajjal, *Agra Univ. J. Res. (Sci.) Suppl.*, **4** : 741–766.

1995. *Indolestes cyaneus* : Selys, Prasad and Varshney, *Oriental Insects*, **29** : 395.

Distribution : India : Madhya Pradesh, Himachal Pradesh, Jammu & Kashmir, Uttar Pradesh and West Bengal.

Remarks : This species recorded from literature.

Subfamily LESTINAE

14. Genus ***Lestes*** **Leach**

Key to species of genus *Lestes* Leach

1 Thorax without metallic marking .... *umbrinus* Selys

– Thorax with green metallic ante humeral stripes 2

2. Thorax with a uniform narrow ante humaral stripes on each side ..... *viridulus* Rambur

– Thorax with ante humeral strips deeply scalloped or crenulate on the outersides .... *praemorsus praemorsus* (Selys)

29. ***Lestes umbrinus*** Selys

1891. *Lestes umbrina* Selys, *Ann. Mus. Civ. Genova*, (2) **10** (30) : 497-498.

1933. *Lestes umbrina* : Fraser, *Fauna Brit. India Odon.*, **1** : 53-55.

Distribution : India : Madhya Pradesh, Cutch, Chandigarh, Maharashtra, Waltair and West Bengal.

Elsewhere : Bangla Desh, China, Iran, Myanmar.

Remarks : Thi species recorded from literature.

30. ***Lestes viridulus*** Rambur

1842. *Lestes viridula* Rambur, *Hist. Nat. Ins. Nevrop.*, : 252-3.

1890. *Lestes viridulus* kirby, *cat. Odon.*, : 163.

1933. *Lestes viridula* : Fraser, *Fauna Brit. India Odon.*, **1** : 45-46.

Diagnostic characters : Labrum, clypeus, frons, vertex, occiput pale brown. Prothorax uniform pale khaki brown unmarked. Thorax also pale

khaki brown. Legs pale yellow with black spines. Anal appendages yellow, tipped with black, superiors rather longer than segment 10, broad at base. Very robust sub basal spine.

Material examined : 1 male shipra river, distt. Ujjain, 3.11.90, coll. H.P. Agrawal & Party, 1 male, Lakoda vill., distt. Ujjain, 4.11.90, coll. H.P. Agrawal; 1 male Chitawal Mata, Patalkot, distt. Chhindwara, 27.1.94, coll. H.S. Sharma & Party.

Distribution : India : Madhya Pradesh (Chhindwara, Ujjain), Bihar, Coorg and Uttar Pradesh.

Elsewhere : Thailand.

Remarks : It is commonest species during the dry seasons.

31. ***Lestes praemorsus praemorsus*** Selys

1862. *Lestes praemorsa* Selys, *Bull Acad. Bull. (2) Vol. xiii.* 320.

1933. *Lestes praemorsa praemorsa* : Fraser, *Fauna Brit. India Odon.*, **1** : 30-33.

1997. *Lestes praemorsa praemorsa* : Srivastava and Babu Suri, *Fraseria (N.S.)*, **4**(1/2) : 13-15.

Distribution : India : Madhya Pradesh (Sagar), Uttar Pradesh and West Bengal.

Elsewhere : Myanmar and Philippines.

Remarks : This species is included on the basis of the literature.

Superfamily III CALOPTERYGOIDEA

Family 5 CHLOROCYPHIDAE

15. Genus ***Libellago*** Selys

Key to species of genus *Libellago* Selys

1 Male with six antenodal nervures to all wings ..... *lineata lineata* (Burm.)

– Small insects, hindwing less than 18 mm. in length ; linear spot on hinder border of occiput with a median anterior prolongation; abdominal markings citron yellow .... *lineata indica* Fraser

32. ***Libellago lineata lineata*** (Burmeister)

1839. *Calopteryx lineata* Burmeister, *Handb* : *Ent.*, **2** : 826.

1840. *Libellago lineata* : Selys, *Mon. Lib. Eur.*, : 200.

1834. *Libellago lineata liotneata* : Fraser, *Fauna Brit. India. Odon.*, **2** : 60-63.

Distribution : India : Madhya Pradesh, Assam, Himachal Pradesh, Kerala, Maharashtra, Meghalaya, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Indonesia, Malaysia, Myanmar, Thailand and Vietnam.

Remarks : This species is included on the basis of the literature.

33. ***Libellago lineata indica*** (Fraser)

1919. *Micromerus lineatus* Fraser. *Rec. Indian Mus.*, **16** : 197-198.

1928. *Micromeras Lineatus indica* : Fraser, *J. Bombay Nat. Hist. Soc.*, Vol. **32** : 686-687.

1934. *Libellago lineata indica* : Fraser, *Fauna Brit. India, Odon.*, **2** : 63-65.

Distribution : India : Madhya Pradesh, Maharashtra and South India.

Elsewhere : Myanmar, Sri Lanka and Siam.

Remarks : This species is included on the basis of the literature.

16. Genus ***Rhinocypha*** Rambur

34. ***Rhinocypha bisignata*** Selys

1853. *Rhinocypha bisignata* Selys. *Syn. Cat.*, : 62.

1934. *Rhinocypha bisignata* : Fraser, *Fauna Brit. India. Odon.*, **2** : 49-52.

1997. *Rhinocypha bisignata* : Srivastava and Babu Suri, *Fraseria, (N.S.)* **4**(1/2) : 13-15.

Diagnostic characters : Prothorax black with large yellow spot on each side of middle lobe. Thorax black. Legs black, pterostigma black in all wings. Abdomen black, marked with yellow.Anal appendages the inferiors minutely spined above.

Material examined : 1 male, Gupt Mahadev

Pachmarhi, distt. Hoshangabad 5.6.1999. coll. K. Chandra and Party.

Distribution : India : Madhya Pradesh (Hoshangabad, Sagar), Maharashtra and South India.

Family 6 CALOPTERYGIDAE

Subfamily CALOPTERYGINAE

17. Genus *Vestalis* Selys

35. *Vestalis smaragdina* Selys

1879. *Vestalis smaragdina* Selys, *Bull. Acad. Belg.*, (2)47 : 362.

1934. *Vestalis smaragdina* : Fraser, *Fauna Brit. India. Odon.*, 2 : 133-134.

Diagnostic characters : Prothorax and thorax metallic emerald green and blue reflection on dorsum of thorax. Wings hyaline tinted with yellow. Inferiors anal appendages about two thirds the length of spueriors, cylindrical and ending in an acute in wardly directed spine.

Distribution : India : Madhya Pradesh, Assam, Meghalaya and West Bengal.

Elsewhere : Bangla Desh, China, Kampuchea, Laos, Malaysia, Myanmar, Nepal, Thailand and Tibet.

Remarks : This species is included on the basis of the literature.

Sub Order B ANISOPTERA

Superfamily IV AESHNOIDEA

Family 7 AESHNIDAE

Subfamily AESHNINE

18. Genus *Anax* Leach

36. *Anax guttatus* (Burmeister)

1839. *Aeschna guttata* Burmeister, *Handb. Ent.*, II : 840.

1936. *Anax guttatus* (Burmeister) : Fraser, *Fauna Brit. India, Odon.*, 3 : 140-142.

Diagnostic characters : Prothorax reddis-brown, bordered with yellow and with anterior collar yellow ; thorax pale green. Legs black, proximal ends of femora turning dark reddish-brown. Wings hyaline, anal appendages reddish-brown.

Material examined : 1 male, Gupt Mahadev, Pachmarhi distt. Hoshangabad, 5.6.1999. coll. K. Chandra and Party.

Distribution : India : Madhya Pradesh (Hoshangabad), Assam, Andhra Pradesh, Karnataka, Kerala, Orissa, Punjab, Tamil Nadu and West Bengal.

Elsewhere : Malaysia, Myanmar, Taiwan, Thailand and Indonesia (Java, Sumatra).

Remarks : This species inhabits small weddy ponds and lakes.

Subfamily GYNACANTHAGINAE

19. Genus *Gynacantha* Rambur

37. *Gynacantha bayadera* Selys

1891. *Gynacantha baydera* Selys. *Ann. Mus civ. Genova*, 30 : 47.

1936. *Gynacantha baydera* : Fraser, *Fauna Brit. India, Odon.*, 3 : 103-104.

Distribution : India : Madhya Pradesh (Bijapur. Distt. Bastar), Maharashtra, Meghalaya, Sikkim and West Bengal.

Elsewhere : Bangla Desh, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Papua Newguinea, Singapore, Thailand and Taiwan.

Remarks : This species is included on the basis of the literature.

Superfamily AESHNOIDEA

Family 8 GOMPHIDAE

Subfamily Gomphinae

20. Genus *Cyclogomphus* Selys

38. *Cyclogomphus ypsilon* Selys

1854. *Cyclogomphus ypsilon* selys, *Bull. Acad. Belg.*, 21 : 62.

1934. *Cyclogophus ypsilon* : Fraser, *Fauna Brit. India. Odon.*, 2 : 180.

Distribution : India : Madhya Pradesh (Guna distt.) and Maharashtra.

Remarks : This species is included on the basis of the literature.

Subfamily ONYCHOGOMPHINAE

21. Genus ***Onychogomphus*** Selys

Key to the species of genus *Onychogomphus* Selys

1 Antero lateral black stripe not interrupted 1

– Inferior anal appendage without an upper basal spine ..... *saundersi* Selys

– Antehumeral stripes short and oval in shape; abdominal segment 3 to 6 without mid dorsal oval yellow spots ..... *grammicus* (Rambur)

39. ***Onychogomphus saundersi*** Selys

1851. *Onychogomphus saundersi* Selys, *Mon. Gomph.*, : 22.

1922. *Onychogomphus saundersi* : Laidlaw, *Rec. Ind. Mus.*, **24** : 371, 405, 406.

1934. *Onychogomphus saundersi* : Fraser, *Fauna Brit. India. Odon.*, **2** : 242-245.

Distribution : India : Madhya Pradesh, Meghalaya, West Bengal.

Remarks : This species is included on the basis of the literature.

40. ***Onychogomphus grammicus*** (Rambur)

1842. *Gomphus grammicus* Rambur, *Ins. Neurop.*, : 164.

1934. *Onychogomphus grammicus* : Fraser, *Fauna Brit. India. Odon.*, **2** : 256-257.

Distribution : India : Madhya Pradesh and Uttar Pradesh.

Remarks : This species is included on the basis of the literature.

Subfamily ICTINOGOMPHINAE

No key to the genera of the subfamily Ictinogomphinae is provided, as it is represented in Madhya Pradesh by a single genus namely Ictinogomphus cowley.

22. Genus ***Ictinogomphus*** Cowley

This genus has a single species *I. rapax* (Rambur) represented in Madhya Pradesh, hence no key is provided.

41. ***Ictinogomphus rapax*** (Rambur)

1842. *Diastatomma rapax* Rambur, *Ins. Neurop.*, : 169.

1922. *Ictinus rapax* : Laidlaw, *Rec. Indian Mus.*, **24** : 370, 373, 374.

1934. *Ictinus rapax* : Fraser, *Fauna Brit. India. Odonata*, **2** : 373.

Material examined : 1 male, North Milloniganj, Jabalpur Distt. Jabalpur, 2.9.1979, coll. S.K. Mishra. 1 male Jaswaṛhi distt. Khandwa, coll. K. Chandra and Party.

Diagnostic characters : Large species, abdomen (with appendages) 52 mm. Face largely yellow, post clypeus black, with a large lateral yellow spot on either side; a black spot at base of frons above in the middle line which does not extend as for forwards as the crest; vertex black; occiput greenish yellow, prothorax and thorax black marked with yellow, hind femora furnished with an inner and outer row of spine. Abdomen 8 with broad yellow ring leaf like expansions of abdomen 8, black cubital cells 3 in fore wing, 2 in hind wing and 5 cells in anal triangle. Anal appendages black, as long as the two last segments.

Distribution : India : Madhya Pradesh (Jabalpur, Khandwa), Meghalaya, Karnataka, Kerala, Sikkim and West Bengal.

Elsewhere : Malaysia, Myanmar and Sri Lanka.

Remarks : It is known to inhabit both lotic and lentic water bodies, but principally in the later. If disturbed it usually returns to its resting place again and again.

Superfamily V LIBELLULOIDEA

Family 9 LIBELLULIDAE

Subfamily LIBELLULINAE

23. Genus ***Orthetrum*** Newman

Key to species of the genus *Orthetrum* Newman

1 Males coloured violaceous red due to thin

over lying pruinescence, ... *Pruinosum neglectum* Rambur

- Males coloured brown or black with yellow markings, often very conspicuously pruinosed in males, rarely without pruinescence 2

2. Abdomen enormously swollen at base and then abruptly slimmed and compressed laterally to the end; black marked with greenish-yellow, not pruinosed .... *sabina sabina* Drury

- Abdomen variable but not swollen conspicuously at base, never slim nor compressed laterally, mostly with dense pruinescence onthorax and abdomen 3

3. Only a single row of cells between IR iii and RSpl ..... *anceps* (Schneider)

- Two or more rows of cells between IR iii and RSpl 4

4. Costal border of wings and all antenodal nervures bright yellow .... *cancellatum cancellatum* (Linnaeus)

- Costal broder of wing arising from the posterior angle of discoidal cell 5

5. Moderately large species with face black or frons blackish anteriously; membrane black ..... *glaucum* (Brauer)

— Smallest species of the genus, with face and frons greyish-green or bluish ; membrane dark brown boderedwith white .... taeniolatum (Schneider)

42. *Orthetrum pruinosum neglactum* (Rambur)

1842. *Libellula neglecta* Rambur, *Ins. Neurop.*, : 86.

1909. *Orthetrum pruinosum neglectum* : *Ris., Cat coll. Selys, fasc.*, **9** : 181, 239, 240.

1936. *Orthetrum pruinosum neglectum* : Fraser, *Fauna Brit. India, Odon.*, (3) : 311-312.

Diagnostic characters : Robust species with sides violaceous red due to the over lying pruinescence ; wings enfumed pale brown to ward opices in old adults. Legs black, reddish brown at base of femora. The species can easily be by its unique violet coloured abdomen.

Material examined : 1 female, Amali Tikara, Dharamjai garh, distt. Raigarh. 7.4.1992. coll. R.K. Singh and Party. 2 males, Nawagarh, distt. Sarguja. 11.4.1992. coll. R.K. Singh and Party.

Distribution : India : Madhya Pradesh (Raigarh, Sarguja), Meghalaya, West Bengal and Western Himalaya.

Elsewhere : China, Indonesia, Malaysia, Myanmar, Nepal, Sri Lanka, Tibet, Taiwan, Philippnes, Papua.

Remarks : This species is one of the commonest dragonflies. It is known to inhabit small ponds, tanks.

43. *Orthetrum sabina sabina* (Drury)

1770. *Libellula sabina* Drury, III, *Exot. Ins.*, **1** : 114-115.

1889. *Orthetrum sabina* : (Drury) : Kirby ; *Trans. Zool. Soc. Lond.*, **12** : 302.

1936. *Orthetrum sabina* : Fraser, *Fauna Brit. India. Odon.*, **3** : 300-302.

1987. *Orthetrum sabina sabina* : Lahiri, *Rec. Zool. Surv. India, Occ. Paper No.*, **99** : 183.

Diagnostic characters : Abdomen greenish yellow marked with black ; it is distinctly identified in the field due to enormously swollen abdomen segments 1 to 3, both dorso ventrally andlaterally; segment 4 to 6 very narrow, cylindrical, segment 7 to 9 all dilated but compressed laterally, both male and female almost similar in apperance.

Material examined : 1 male, Datia, distt. Datia. 23.9.1994. Coll. H.P. Agrawal & Party. 1 female, Near Dabra rest house, distt. Gwalior. 19.9.1994. Coll. H.P. Agrawal & Party. 1 male, Near Phool bag, Gwalior, distt. Gwalior. 16.9.94. Coll. H.P. Agrawal & Party. 1 female, Simaria vill. Distt. Gwalior 21.9.94. Coll. H.P. Agrawal & Party. 1 male, Panniar, distt. Gwalior. 14.9.94. Coll. H.P. Agrawal & Party. 1female, Sonagir distt., Datia. 24.9.94. Coll. H.P. Agrawal & Party. 1 male, Chandamata, Distt. Chhindwara. 13.9.91. Coll. R.K. Singh & Party. 1 male, 1 female, Nawagarh, distt. Sarguja. 11.4.92. Coll. R.K. Singh & Party. 1 female, Pujararipati sarai, distt. Raigarh. 29.3.1992. Coll. R.K. Singh & Party.

Distribution : India : Madhya Pradesh (Jabalpur, Datia, Gwalior, Chhindwara, Sarguja, Raigarh), Assam, Bihar, Delhi, Himachal Pradesh, Manipur, Punjab, Uttar Pradesh and West Bengal.

Elsewhere : Australia, Java, Egypt, Myanmar, Nepal, Angola, Iraq, Iran, Siam, Samoa, Thailand, New Guinea, Timor, African continent, Sri Lanka, Taiwan, Turkey.

Remarks : This species very common. Abdomen is pale greenish yellow and not pruinosed.

44. ***Orthetrum anceps*** (Schneider)

1845. *Libellula anceps* Schneider, *stett. Ent. Zeit. Vol.* **6** : 111.

1935. *Orthetrum anceps* : Fraser, *Fauna Brit. India, Odon.*, **3** : 295-296.

1981. *Orthetrum anceps* : Kumar & Prasad, *Rec. zool. Sur. India. Pcc. Paper No.* **20** : 90.

Distribution : India : Madhya Pradesh, Maharashtra, Himachal Pradesh, Sikkim and West Bengal.

Elsewhere : Pakistan (Quetta), North African Coast, Moracco, Iran and Afganistan.

Remarks : Recorded from literature.

45. ***Orthetrum cancellatum cancellatum*** (Linnaeus)

1758. *Libellula cancellata* Linnaeus, *syst. Nat. ed.X. Vol.i.* : 544.

1936. *Orthetrum cancellatum cancellatum* : Fraser, *Fauna Brit. India. Odon.*, **3** : 302-304.

Diagnostic characters : Face and fron olivaceous or with the frons yellow or bright yellow, its base above narrowly black, prothrorax black, anterior border of anterior lobe, a fine bow-shaped stripe across middle lobe and the whole of posterior lobe bright yellow. Pterostigma dark reddish brown nearly black rather short, covering 2 cells, Anal appendages black.

Material examined : 1 male, Anmali, Patalkot, distt. Chhindwara. 24.2.1994. coll. H.S. Sharma & Party.

Distribution : India : Madhya Pradesh (Chhindwara), Himachal Pradesh and Jammu & Kashmir.

Elsewhere : Africa, Asia, British Island, Europe, North Africa and Minor.

46. ***Orthetrum glaucum*** (Brauer)

1865. *Libellula glauca* Brauer, *Verh. Zool. Bot. Ges Wien*, **15** : 1012.

1890. *Orthetrum glaucum* : Kirby, *cat. Odon.*, : 39.

1936. *Orthetrum glaucum* : Fraser, *Fauna Brit. India, Odon.*, **3** : 307-309.

Diagnostic characters : Moderately large species face and frons olivaceous or blackish-brown. Abdomen. ventro dorsally dialated at segment 1-3 then very thin of even width to the end triquentral in cross-section prunosed pale dirty blue abdomen. 1 to 8 and 9 to 10 black, anal appendage black.

Material examined : 1 male, Kareaam, Patalkot, distt. Chhindwara 25.2.1994. Coll. H.S. Sharma & Party. 3 males, Dudhi river, Patalkot, Distt. Chhindwara, 1.3.1994. Coll. H.S. Sharma & Party. 2 males, Dauri Patha, Patalkot, Distt. Chhindwara, 2.3.1994. Coll. H.S. Sharma & Party.

Distribution : India : Madhya Pradesh (Chhindwara), Andhra Pradesh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Mizoram, Tamil Nadu, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : China, Indonesia, Malaysia, Myanmar, Nepal, Newguina, Philippines, Sri Lanka, Thailand and Timor.

Remarks : This species is strictly montane, known to occur upto an altitude of 1500 meters.

47. ***Orthetrum taeniolatum*** (Schneider)

1845. *Libellula taeniolata* Schneider, *stett. Ent. Zeit.*, **6** : 111.

1890. *Orthetrum taeniolatum* Kirby, *cat. Odon.*, : 37.

1936. *Orthetrum taeniolatum* : Fraser, *Brit. Fauna India, Odon.*, **3** : 296-298.

1981. *Orthetrum taeniolatum* : Kumar & Prasad, *Rec. zool. Sur. India, Occ. Paper No.* **20** : 90.

Diagnostic characters : Prothorax and thorax uniform pulverulent blue in full adults, legs black, hinder surface yellow, pterostigma ochreous between thick nervures. Abdomen similar shape, Anal appendages black.

Material examined : 1 male, Megh Nagar distt. Jhabua 6.6.1999 coll. K. Chandra.

Distribution : India : Madhya Pradesh (Jhabua), Sikkim, Uttar Pradesh, West Bengal.

23. Genus *Potamarcha* Karsch

This species is represented by a single species hence no key is provided.

48. *Potamarcha congener* (Rambur)

1842. *Libellula obscura* Rambur, *Ins. Neurop.*, : 64.

1842. *Libellula congener* : Rambur, *Hist. Nat. Ins. Neurop.*, : 70.

Material examined : 2 females, In and around Manendragarh, distt. Ambikapur. 10.10.91. Coll. H.P. Agrawal & Party. 2 males, Laxmi Colony, Gwalior, distt. Gwalior 20.9.94. Coll. H.P. Agrawal & Party.

Diagnostic characters : Labrum yellow narrowly bordered with black ; face and frons olivaceous-yellow. Prothorax dark brown, thorax black. Legs black/reddish brown. Wings apices tipped with brown, pterostigma dark reddish brown covering 2 to 4 cells. Anal appendages black.

Distribution : India : Madhya Pradesh (Ambikapur, Gwalior), Himachal Pradesh, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka, Tibet, West Coast of India, Philipines and Formesa.

Remarks : This is a common dragonfly in Madhya Pradesh. It inhabits small weedy ponds and stagment water body.

25. Genus *Lathrecista* Kirby

49. *Lathrecista asiatica asiatica* (Fabricius)

1798. *Libellula asiatica* Fabricius, *Ent. Syst., Suppl.*, : 283.

1909. *Lathrecista asiatica asiatica* : Ris, *cat coll. Selys, fasc.*, 9 : 129.

1936. *Lathrecista asiatica asiatica* : Fraser, *Fauna a Brit. India, Odon.*, 3 : 281-284.

Distribution : India : Madhya Pradesh (Bijapur, Kondagaon, Kurtu, distt. Baster), Maharashtra and West Bengal.

Elsewhere : Borneo, China, Fiji, Japan, Malaysia, Malabar, Myanmar, Philippines, Papua New Guinea, Sri Lanka, Sumoa, Singapore, Thailand and Taiwan.

Remark : This species is included on the basis of the literature. New record from Madhya Pradesh by T. R. Mitra.

Subfamily BRACHYDIPLACTINAE

26. Genus *Brachydiplax* Brauer

This genus is represented by single species in Madhya Pradesh hence no key is provided.

50. *Brachydiplax sobrina* (Rambur)

1842. *Libellula sobrina* Rambur, *Ins. Neurop.*, : 114.

1893. *Brachydiplax sobrina* (Rambur) : Kirby, *J. Linn. soc., zool.*, 24 : 551.

1936. *Brachydiplax sobrina* : Fraser, *Fauna Brit. India, Odon.*, 3 : 325-327.

Material examined : 1 male, Office campus, C.R.S., Z.S.I., Pachpedi, distt. Jabalpur, 28.1.1972. coll. M.L. Koshta. 1 female, Ganjtal, Katni Road, distt. Jabalpur, 24.10.1980. coll. S.K. Mishra and Party.

Diagnostic characters : Labrum bright yellow bordered with black, frons above metallic blue, this slightly overlapping the crest, occiput dark brown with a bright yellow geminate spot behind. Prothorax dark brown, thorax olivaceous brown with black or metallic markings. Legs black, anterior femora yellow on inner side. Wings hyaline, uncoloured, pterostigma pale yellow between black nervures, abdomen black, Lamina of great size, anal appendages black.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Orissa, Punjab, Uttar Pradesh and West Bengal.

Elsewhere : Bangla Desh, Myanmar, Nepal, Sri Lanka, Thailand and Vietnam.

Remarks : It is very shy dragonfly, determining this species is the genitalia.

Subfamily SYMPETRINAE

27. Genus ***Acisoma*** Rambur

This genus has a single species Acisoma p. panorpoides Rambur represented in Madhya Pradesh but whole of India, hence no key is provided.

51. ***Acisoma panorpoides panorpoides*** Rambur

1842. *Acisoma panorpoides* Rambur, *Ins. Neurop.*, : 28.

1936. *Acisoma panorpoides panorpoides* : Fraser, *Fauna Brit. India, Odon.*, **3** : 330-331.

Distribution : India : Madhya Pradesh, Assam, Arunachal Pradesh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Punjab, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : China, Japan, Java, Bali, Indonesia, Sumatra, Celebes, Philippines, Malaya, Malaysia, Sri Lanka, Singapore, Thailand, Taiwan, Moluccan Islands.

Remarks : This species is included on the basis of the literature.

28. Genus ***Brachythemis*** Brauer

No key is provided, as this genus has single representative species not only in Madhya Pradesh but whole of India.

52. ***Brachythemis contaminata*** (Fabricius)

1793. *Libellula contaminata* Fabricius, *Ent. Syst.*, **2** : 382.

1868. *Brachythemis contaminata* : (Fabricius) Brauer, *verh. Zool : bot. Ges. Wien.*, **18** : 736.

1936. *Brachythemis contaminata* : Fraser, *Fauna Brit. India, Odon.*, **3** : 365-366.

Diagnostic characters : Small built but robust Dragonflies. The males can easily identified by reddish reticulations in wings, with a broad bright orange extending from base to with in 2 to 3 cells of pterostigma in fore wing and as for as that organ in the hind, intensifying in colour distally. Abdomen reddish ochreous marked with dorsal and sub dorsal brown stripe, anal appendages ferruginous.

Material examined : 1 male, Bhiloda vill. Dindori Road, distt. Jabalpur 30.11.73. Coll. H.S. Sharma. 2 males, 4 km north from east F.S.S. club. Shivpuri distt. Shivpuri. 11.9.75. Coll. R.K. Singh & Party. 1 male, Rani Durgavati Samadhi Road, distt. Jabalpur. 20.7.78. Coll. S.K. Mishra & party, 1 male, Chandamata, distt. Chhindwara. 13.9.91. Coll. R.K. Singh & Party. 1 male, Jashpur, distt. Raigarh. 29.9.91. Coll. H.P. Agrawal & Party. 1 female, Ghoghara nala, Sarangarh., distt. Raigarh. 28.3.92. Coll. R.K. Singh & Party. 1 male, Amali Tikara, Dharamjaygarh, distt. Raigarh. 7.4.1992. Coll. R.K. Singh & Party. 1 female, 2 males, near Dabra rest house, distt. Gwalior. 19.9.94. Coll. H.P. Agrawal & Party. 1 female, Sonagir, distt. Datia. 24.9.94. Coll. H.P. Agrawal & Party.

Distribution : India : Madhya Pradesh (Jabalpur, Shivpuri, Chhindwara, Raigarh, Gwalior, Datia), Assam, Bihar, Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh and West Bengal.

Elsewhere : Bangaladesh, China, Japan, Malaysia, Myanmar, Nepal, Sri Lanka, Phillippine, Thailand, Taiwan and Indonesia (Java, Sumatra).

Remarks : It is a very common species in Madhya Pradesh, found everywhere both along the borders of streams.

29. Genus ***Crocothemis*** Brauer

This genus is represented not only in Madhya Pradesh, but for whole of India by a single species, hence no key is provided.

53. ***Crocothemis servilia servilia*** (Drury)

1770. *Libellula servilia* Drury, *Ill. Ex. Ins.*, **1** : 112.

1868. *Crocothemis servilia* : Brauer, *verh. Zool.-bot. Ges. Wien.*, **18** : 737.

1911. *Crocothemis servilia servilia* : Ris. *Cat. coll. Selys.*, **13** : 533.

1936. *Crocothemis servilia servilia* : Fraser, *Fauna Brit. India, Odon.*, **3** : 345-347.

Diagnostic characters : Head with labrum frons and rest of the face bright blood red ; eyes during life blood red above, purple laterally ;

bases of all wings marked with rich amber yellow as far distal as the cubital nervure in fore wing and to first antenodal nervure nearly to arc and right upto and including the tornal angle in hind wing; abdomen blood red, segment 8 and 9 with mid dorsal carina blackish, anal appendages blood red.

Material examined : 1 male, In and around Manendragarh distt. Ambikapur. 14.10.91. Coll. H.P. Agrawal & Party. 2 females, Ghoghara nala, Sarangarh, distt. Raigarh. 28.3.92. Coll. R.K. Singh & Party. 1 female, Nawagarh, distt. Sarguja. 11.4.92. Coll. R.K. Singh & Party. 2 males, Datia, distt. Datia. 23.9.94. Coll. H.P. Agrawal & Party. 1 female, Sonagir, distt. Datia. 24.9.94. Coll. H.P. Agrawal & Party. 2 males, Laxmi Colony, Dabra, Distt. Gwalior. 3 males, 1 female, Simaria, distt. Gwalior. 21.9.94. Coll. H.P. Agrawal & Party.

Distribution : India : Madhya Pradesh (Ambikapur, Raigarh, Sarguja, Datia, Gwalior), Bihar, Himachal Pradesh, Manipur, Punjab, Rajasthan, Uttar Pradesh and West Bengal.

Elsewhere : Australia, Bangla Desh, China, Iran, Indonesia, Japan, Malaysia, Mayanmar, Nepal, Sri Lanka, Philippines, Taiwan and Thailand.

Remarks : This is common species in Madhya Pradesh.

30. Genus *Diplacodes* Kirby

Key to species of the genus Diplacodes kirby

1. Apices of wings tipped with black .... *nebulosa* (Fabricius)

– Apices of wings hyaline..... ..... *trivialis* (Rambur)

54. *Diplacodes nebulosa* (Fabricius)

1793. *Libellula nebulosa* Fabricius, *Entom. Syst.*, **2** : 379.

1889. *Diplacodes nebulosa* : Kirby, *Trans. Zool. Soc. Lond.*, **12** : 308.

1936. *Diplacodes nebulosa* : Fraser, *Fauna Brit. India, Odon.*, **3** : 335-336.

Distribution : India : Madhya Pradesh, Assam, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Mizoram, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Australia, China, Malaysia, Myanmar, New Gunea, Indonesia, Sri Lanka, Vietnam, Penang Malaya and Indosesia (Sumatra, Java).

Remarks : This species is included on the basis of the literature.

55. *Diplacodes trivialis* (Rambur)

1842. *Libellula trivialis* Rambur, *Ins. Neurop.*, : 115.

1891. *Diplacodes trivialis* Karsch, *Ent. Nachr.*, **17** : 246.

1936. *Diplacodes trivialis* : Fraser, *Fauna Brit. India, Odon.*, **3** : 336-338.

Diagnostic characters : Dragonflies small size, labium labrum and bases of mandibles creamy yellow, face frons, and vesicle palest azure blue, with a fine black line at base of frons ; Prothorax pale brown to black, with a mid dorsal stripe extending full length of dorsum. Thorax greenish-yellow/olivaceous with sutures finely black. Whole thorax uniform, pruinosed blue in old adults. Legs greenish yellow marked with black in sub adults. Wings hyaline, Abdomen 1 to 3 greenish yellow, with the sutures finely black. Abdomen, 4 to 7 with sub dorsal yellow stripe. Segments 8 to 10 black. Anal appendages bright yellow.

Material examined : 1 male, Ganjtal, Katni Road, distt. Jabalpur, 24.10.1980. Coll. S.K. Mishra and Party. 1 male, Rahimgarh, distt. Mandsaur. 27.10.90. coll. H.P. Agrawal & Party. 1 male, Kosawari, distt. Raigarh. 25.9.91. coll. H.P. Agrawal & Party. 8 males and 5 females. In and around Manendragarh distt. Ambikapur. 10.10.91. coll. H.P. Agrawal and Party. 1 female, Jashpur, distt. Raigarh. 29.9.91. coll. H.P. Agrawal and Party. 1 female, Laxmi colony, Dabra, distt. Gwalior, 20.9.94. coll. H.P. Agrawal and Party. 1 male, Simaria, distt. Gwalior 21.9.94. coll. H.P. Agrawal and party.

Distribution : India : Madhya Pradesh (Jabalpur, Mandsaur, Raigarh, Ambikapur,

Gwalior), Andhra Pradesh, Andaman Islands, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Orissa, Tamil Nadu and Uttar Pradesh.

Elsewhere : Sri Lanka, Thailand, Vietnam, Malaysia, Myanmar, Indonesia, New Guinea, Japan, Philippines, Australia, Pacific Islands, Iraq, Sychellis, Malacca, Indochina and Sumatra.

Remarks : It is very commonest dragonfly in Madhya Pradesh-occurs round the year and very wide distribution in plains upto over 7000 ft. in body dry and wet areas.

31. Genus *Neurothemis* Brauer

Key to species of the genus Neurothemis

1. Bases of wings pale or golden yellow at base 2
- Black basal area of wings edged outwardly with an opalescent while band .... *tullia tullia* (Drury)
2. Wings dark reddish brown from base to about middle of pterostigma, apex of wings also narrowly opaque brown to partly enclose a clear window in each wing at apex ....*fulvia* (Drury)
— Yellow area at base of wings not very sharply defined and rather pale in colour ; coastal border of wings pale yellow to as far as pterostigma; a plae brown humeral stripe on thorax..... *intermedia intermedia* (Rambur)

56. *Neurothemis tullia tullia* (Drury)

1773. *Libellula tullia* Drury, 111, *Exot. Ins.*, **2** : 85.

1890. *Neurothemis tullia* : (Drury) : Kirby, *Cat. Odon.*, : 8.

1911. *Neurothemis tullia feralis* : (Drury) : Ris. *Cat. Coll. Selys, fasc.*, **13** : 551-561, 562.

1936. *Neurothemis tullia tullia* : Fraser, *Fauna Brit. India, Odon.*, **3** : 360-362.

Diagnostic characters : Labrum, face frons, vesicle, and occiput blackish brown to black. Prothorax, thorax and abdomen black, mid dorsal carina of thorax narrowly yellow. Abdomen 1 to 8 with broad at base of segment. Legs black, wings in male hyaline for apical half, opaque steel blue-black for basal half, the border of this opaque area running in both fore and hind wings from costal border, one cell distal to node in fore wing, two or three cels distal in hind, to the posterior border of wings in a convex curve ; a broad opaleascent white band brodering the black area in both wings, anal appendages creamy-white tipped with black.

Material examined : 2 males, Amla proper, distt. Betul. 30.11.89. coll. Y.N. Gupta and Party. 1 male Jaswarhi distt. Khandwa 17.1.1999 coll. K. Chandra and Party.

Distribution : India : Madhya Pradesh (Betual), Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Punjab, Rajasthan, Tamil Nadu, Tripura, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : Nepal, Myanmar, China, Malaysia, Malacca, Sri Lanka, Tibet, Thailand, Penang, Indo China, Vietnam and Hongkong.

Remarks : Adults are weak in flight and flutter on aquaatic vegetation, near swampy areas and weedy tanks, in large colonies.

57. *Neurothemis fulvia* (Drury)

1773. *Libellula fulvia* Drury, *Ill. Exot. Ins.*, **2** : 84.

1889. *Neurothemis fulvia* (Drury) : Kirby. *Trans. Zool. Soc. Lond.*, **12** : 271.

1936. *Neurothemis fulvia* : Fraser, *Fauna Brit. India. Odon.*, **3** : 353.

Diagnostic characters : Prothorax thorax and abdomen uniform reddish-brown, sutures and border of latter finely black. Legs and anal appendages dark ferruginous. Wings opaque dark reddish brown except for an irregular triangular area of apices of wings which is clear and uncolured. Pterostigma dark reddish brown. In female wings are clear amber yellow, a dary ray in sub costal space expanding at node into large quadrate nodal spot.

Material examined : 1 female, In and around Manendragarh, distt. Ambikapur. 10.10.91. coll. H.P. Agrawal and Party. 1 female, Jashpur vill.

distt. Raigarh 29.9.91. coll. M. P. Agrawal & Party.

Distribution : India : Madhya Pradesh, (Ambikapur, Raigarh.), Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Australia, Bangla Desh, Japan, Thailand, Trimor, Malaysia, Myanmar, Indonesia, Philippine and Vietnam.

58. *Neurothemis intermedia intermedia* (Rambur)

1842. *Libellula intermedia* Rambur, *Ins. Neurop.*, : 91.

1889. *Neurothemis intermedia* : Selys, *Ann. Mus. Civ. Genova*, **27** : 454.

1911. Neurothemis intermedia intermedia : Ris., *Cat. Coll. Selys, fasc.*, **13** : 551-563, 564.

1936. *Neurothemis intermedia intermedia* : Fraser, *Fauna Brit. India. Odon.*, **3** : 357-358.

Diagnostic characters : Labrum, face, frons pale yellow, occiput and upper surface of eye reddish brown, eye below golden yellow. Prothorax reddish brown, thorax pale greenish-yellow. Prothorax reddish brown, thorax pale greenish-yellow, dorsum tinged with ferruginous and with a tistinct humeral reddish-brown stripe, well defined on inner side, diffuse at outer border and darkening below. Wings hyaline very palely tinted with yellow and with a broad basal amber-yellow marking at base of all wings. Abdomen bright reddish-ochreous with sutures on segments 2 and 3 finely darker and a more or less well defined ventra-lateral brownish stripe interrupted at apical end of segments 3 to 8 ; few small dark point at base of segments 10, anal appendages reddish.

Material examined : 1 female, Gayani river near king Raghu Raja cave Patalkot, distt. Chhindwara, 20.2.1994. coll. H.S. Sharma and Party. 1 female, Gupt Mahadev, Pachmarhi distt. Hoshangabad 5.6.1999. coll. K. Chandra and Party.

Distribution : India : Madhya Pradesh (Chhindwara), (Hoshangabad), Assam, Arunachal Pradesh, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Mizoram, Punjab, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

Elsewhere : Indo China, Malacca, Malaya, Myanmar, Nepal, Penang, Sri Lanka and Thailand.

Remarks : The limited nature of the basal marking of wings, will determine this species.

32. Genus *Indothemis* Ris.

Key to the species of the genus *Indothemis*

1. Only 8 1/2 antenodal nervures in fore-wing; apices of wings hyaline ; base of hind wing unmarked ..... *Caesia* (Rambur)

– Apices of wings clear, only 10 1/2 antenodal nervures in fore wing .... *limbata sita* Campion

59. *Indothemis caesia* (Rambur)

1842. *Libellula caesia* Rambur, *Ins. Nevrop.*, : 95.

1911. *Indothemis caesia* : Ris., *cat. Coll. Selys, fasc.*, **13** : 529-531.

1936. *Indothemis caesia* : Fraser, *Fauna Brit. India Odon.*, **3** : 340-341.

Distribution : India : Madhya Pradesh, Maharashtra, Kerala and West Bengal.

Elsewhere : Bangkok and Myanmar.

Remarks : This species is included on the basis of the literature. Fraser 1936 collection, the former from Jabalpur, Central Provience, India.

60. *Indothemis limbata sita* Campion

1923. *Indothemis limbata sita* Campion. *Ann. Mag. Nat. Hist.* **11**(9) : 28-31.

1936. *Indothemis limbata sita* : Fraser, *Fauna Brit. India., Odonata*, **3** : 342-343.

Distribution : India : Madhya Pradesh (Baster, Bijapur & Kurtu), Coorg (Fraser 1936), Orissa and Western India.

Elsewhere : Sri Lanka.

Remarks : This species is included on the basis of the literature. First time recorded from Madhya Pradesh (distt. Bastar-Bijapur) by T.R. Mitra.

33. Genus ***Bradinopyga*** Kirby

61. ***Bradinopyga geminata*** (Rambur)

1842. *Libellula geminata* Rambur, *Ins. Neurop.*, : 90.

1911. *Bradinopyga geminata* : Ris. *Cat. Coll. Selys, fasc.*, **13** : 545.

1936. *Bradinopyga geminata* : Fraser, *Fauna Brit. India, Odon.*, **3** : 349-350.

Material examined : 1 male, Pandurna north, distt. Chhindwara. 24.11.89. Coll. Y.N. Gupta & Party. 2 males, near phool bag, Gwalior, distt. Gwalior. 16.9.94. Coll. H.P. Agrawal & Party.1 female, Datia, distt. Datia, 23.9.94. Coll. H.P. Agrawal & Party. 2 males, Pilua dam Morena, distt. Morena. 8.1.95. Coll. H.S. Sharma & Party. 2 males, Neha Park, Morena, distt. Morena. 9.1.95. Coll. H.S. Sharma & Party.

Diagnostic characters : Labrum pale yellow or dark brown with a broad yellow bordering rest of face and olivaceous or cinereous, Prothorx, thorax and abdomen dirty pale yellow, topped with irregular black markings, pterostigma black at centre, legs cinereous/greyish, wings hyaline, anal appendages pale creamy white.

Distribution : India : Madhya Pradesh (Chhindwara, Gwalior, Datia, Morena), Uttar Pradesh and West Bengal.

Remarks : This species furnishes a fine example of protective, cryptic colouring which is enchanced by its action.

Subfamily TRITHEMISTINAE

34. Genus ***Trithemis*** Brauer

Key to species of the genus *Trithemis* Brauer

1. Legs very long and spidery; pterostigma bicotorous; body yellow marked with black ..... *pallidinervis* (Kirby)

– Legs of ordinary length; pterostigma unicolours ; body-colour variable 2

2. Thorax and abdomen violaceious-black; base of hind-wing with a small dark brown spot; neuration black..... *festiva* (Rambur)

– Thorax and abdomen violaceous-crimson; base of hind-wing with small reddish-brown spot ; neuration crimson .... *aurora* (Burmeister)

62. ***Trithemis pallidinervis*** (Kirby)

1889. *Sympetrum pallidinervis* kirby, *Trans. Zool. Soc. London*, **12** : 327.

1907. *Trithemis pallidinervis* : Morton, *Trans, ent. Soc. Lond.*, 304.

1936. *Trithemis pallidinervis* : Fraser, *Fauna Brit. India Odon.*, **3** : 389-391.

Diagnostic characters : Labrum black, with two large basal citron yellow spot ; frons vesicle metallic purple, prothorax dull brown or black ; thorax olivaceious brown, wing hyline with reddish reticulation a bright amber yellow basal marking at extreme base in fore wing, but extending distally to first antenodal nervure in the hind wing. Pterostigma-black with creamy white ends ; abdomen long and slender, black with bright yellow.

Material examined : 1 male, 1 female, Nawagarh, distt. Sarguja, 11.4.92. Coll. R.K. Singh and Party.

Distribution : India : Madhya Pradesh (Sarguja), Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Nagaland, Orissa, Punjab, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka, Formosa, Philippines, Malaysia, Myanmar, Indonesia, Taiwan, Thailand and Singapore.

Remarks : This species inhabit stagment water bodies. This dragonfly is found throughout the year.

63. ***Trithemis festiva*** (Rambur)

1842. *Libellula festiva* Rambur, *Ins. Neurop.*, 92.

1868. *Trithemis festiva* : Brauer, *Verh. Zool. bot. Ges. Wien.*, (18) : 736.

1936. *Trithemis festiva* : Fraser, *Fauna Brit. India, Odon.*, **3** : 387-389.

Diagonistic characters : Frons and vesicle dark brown in front, metallic violet above, occiput

dark brown; eyes dark brown above with purple reflex, bluish-grey laterally and beneath. Prothorax dark blue; thorax black coated with a thin purplish pruinescence. Legs black. Neuration and pterostigma black. Anal appendages black.

Material examined : 1 male, Chorai, distt. Chhindwara. 11.9.91. Coll. R.K. Singh and Party. 1 male, Umra nala, distt. Chhindeara 19.9.91. coll. R.K. Singh and Party. 1 female, Punjab gaden, Ambikapur, distt. Sarguja, 9.4.1992. coll. R.K. Singh and Party. 1 male, Khulama, distt. Chhindwara, 19.9.91. coll. R.K. Singh and Party. 1 female, Chirmiri, distt. Sarguja 13.4.92. coll. R.K. Singh and Party. 1 male, Gayni river near Raghu Raja cave, Patalkot distt. Chhindwara 26.2.94. coll. H.S. Sharma and Party. 1 male, Chimtipur, Patalkot, distt. Chhindwara. 22.2.94. coll. H.S. Sharma and Party. 1 male, Chitawalmata, Patalkot, distt. Chhindwara. coll. H.S. Sharma and Party.

Distribution : India : Madhya Pradesh, (Chhindwara, Sarguja), Assam, Arunachal Pradesh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Mizoram, Punjab, Uttar Pradesh and West Bengal.

Elsewhere : Java, Nepal, Pakistan, Malaysia, Myanmar, Indonesia, Philippines, New Guinea, Sri Lanka, Taiwan and Turkey.

Remarks : It is a common dragonfly in Madhya Pradesh. This species is distinguable from T. aurora, in having crimson neuration instead of black.

64. *Trithemis aurora* (Burmeister)

1839. *Libellula aurora* Burmeister, *II and b, Ent.*, (2) : 859.

1868. *Trithemis aurora* : Brauer, *verh. Zool. Bot. Ges. Wien.*, (18) : 177.

1936. *Trithemis aurora* : Fraser, *Fauna Brit. India. Odon.*, (3) : 383-385.

Diagnostic characters : Thorax and abdomen violaceous crimson ; base of hind wing with reddish brown spot ; neuration crimson ; abdomen violaceous throughout ; anal appendages red. Female considerably from the male both colour and shape.

Material examined : 1 male, sampana lake, distt. Betul. 28.11.89. Coll. Y.N. Gupta & Party. 1 male, 2 km. South of C.P.W.D. rest house Neemuch distt. Mandsour. 31.10.90. Coll. H.P. Agrawal & Party. 2 males, Khandri river 6 km. North of F.R.H. Kukra 30.3.90. Coll. H.S. Sharma & Party. 2 males, Chirmiri, distt. Sarguja. 13.4.92. Coll. R.K. Singh & Party. 1 male, Chandamata, distt. Chhindwara. 13.9.91. Coll. R.K. Singh. 1 female, Parasia, distt. Chhindwara. 15.9.91. Coll. R.K. Singh & Party. 2 males, Ujjain, distt. Ujjain. 6.11.90. Coll. H.P. Agrawal & Party. 1 male, Gayni river near Reghu Raha cave Patalkot, distt. Chhindwara. 26.2.94. Coll. H.S. Sharma & Party.

Distribution : India : Madhya Pradesh (Betul, Mandsour, Jabalpur, Sarguja, Chhindwara, Ujjain), Assam, Meghalaya, Uttar Pradesh, Sikkim and West Bengal.

Elsewhere : Java, Indonesia, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Tibet, Vietnam, Timor and Taiwan.

Remarks : This dragonfly usually on the small size. It prefers montanac stream. It is easily distinguishable from the other Indian species of the genus by having general violaceous colouration.

Subfamily TRAMEINAE

35. Genus *Rhyothemis* Hagen

This genus is represented by a single species in Madhya Pradesh, hence no key is provided.

65. *Rhyothemis variegata variegata* (Linnaeus)

1763. *Libellula variegata* Linnaeus, *Amoenitates Acad.* **6** : 412.

1913. *Rhyothemis variegata variegata* : Ris., *Cat. Coll. Selys. fasc.*, **15** : 931, 935, 936.

1936. *Rhyothemis variegata variegata* : Fraser, *Fauna Brit. India, Odon.*, **3** : 423-424.

Diagnostic characters : Head, thorax and abdomen black/dark metallic, frons mettalic above. Prothorax black. Wings generally broadly coloured

black or golden amber, Apical marking usually slightly less but nodal spot more extensive, in fore wing ; hind wings with basal fascial more extensive with additional a large spot at middle of IR iii, another similar spot and middle of MA. All markings subject to considerable variation.

Material examined : 1 male, 1 female, Chhipaghat, Patan Tehsil, distt. Jabalpur. 20.11.1980 coll. S.K. Mishra and Party. 2 females, Ganjtal, Katni Road, distt. Jabalpur. 24.10.90. coll. S.K. Mishra and Party.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Orissa and Tamil Nadu.

Elsewhere : Bangla Desh, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka and Tibet.

Remarks : This species can be easily distinguishable by varieginated pattern of colour on the wings.

36. Genus ***Zyxomma*** Rambur

This genus is represented by a single species, in not only Madhya Pradesh but whole of India, hence no key is provided.

66. ***Zyxomma petiolatum*** Rambur

1842. *Zyxomma petiolatum* Rambur. *Ins. Neurop.*, : 30.

1936. *Zyxomma petiolatum* : Fraser, *Fauna Brit. India, India. Odon.*, **3** : 409-410.

Distribution : India : Madhya Pradesh, Karnataka, Kerala, Lakhadive Islands, East Himalaya, Maharashtra, Tamil Nadu and West Bengal.

Elsewhere : Australia, Indonesia, Malaysia, Myanmar, Indo china, Sri Lanka and Thailand.

Remarks : This species is included on the basis of the literature.

37. Genus ***Tholymis*** Hagen

67. ***Tholymis tillarga*** (Fabricius)

1798. *Libellula tillarga* Fabricius, *Ent. Syst. Suppl.*, : 285.

1890. *Tholymis tillarga* : Kirby, *Syn. Cat. Neur. Odon.*, **1**.

1936. *Tholymis tillarga* : Fraser, *Fauna Brit. India, Odon.*, **3** : 411-413.

Distribution : India : Madhya Pradesh, Assam, Himachal Pradesh, Maharashtra, Meghalaya, Manipur, Karnataka, Kerala, Orissa, Punjab, Uttar Pradesh and West Bengal.

Elsewhere : Australia, Africa, Indonesia, Malaysia, Myanmar, Madagaskar, Philippines, Pacific Islands, Sri Lanka, Taiwan and Thailand.

Remarks : This species is included on the basis of the literature.

38. Genus ***Hydrobasileus*** Kirby

68. ***Hydrobasileus croceus*** (Brauer)

1867. *Tramea croceus* : Brauer, *Verh. Zool. -bot. Ges. Wien.*, **17** : 813.

1890. *Hydrobasileus croceus* : Karsch, *Berlin Ent. Zeit.*, **33** : 351.

1936. *Hydrobasileus croceus* : Fraser, *Fauna Brit. India, Odon.*, **3** : 429-430.

Distribution : India : Madhya Pradesh, Assam, Maharashtra, Meghalaya, Karnataka, Kerala and Rajasthan.

Elsewhere : Vietnam, Indonesia, Sri Lanka, Taiwan, Philippines, Malaysia and Myanmar.

Remarks : This species is included on the basis of the literature.

39. Genus ***Pantala*** Hagen

69. ***Pantala flavescens*** (Fabricius)

1798. *Libellula flavescens* Fabricius, *Ent. Syst. Suppl.*, : 285.

1861. *Pantala flavescens* : Hagen, *syn. Neur. N. Amer.*, : 142.

1936. *Pantala* flavescens : Fraser, *Fauna Brit. India. Odon.*, **3** : 414-416.

Material examined : 1 male, Jashpur, distt. Gwalior. 29.9.91. coll. H.P. Agrawal and Party. 1 male, Datia, distt. Datia. 23.9.94. coll. H.P. Agrawal and Party.

Diagnostic characters : Large and robust species (Abd. 29-35 mm). Coloured ocherous or

reddish; Prothorax rich ochreous, with a transverse belt of dark reddish brown between anterior and middle lobes; legs black, bases and extensor surface of all femora yellowish. Wings hyaline, base of hind wing pale golden yellow as for distal as anal loop, pterostigma bright ochreous or reddish-brown, abdomen bright orhreous, dorsum tinted with bright brick-red. Sides of segments 1 to 4 pale yellow; segments 8 to 10 with sharply defined black mid dorsal pyriform spots with narrow end of spot at base of segments. Anal appendages ochreous.

Distribution : India, Madhya Pradesh (Gwalior, Datia), Himachal Pradesh, Uttar Pradesh, Punjab, Rajasthan and West Bengal.

Elsewhere : Malaysia, Myanmar, Sri Lanka and Tibet.

Remarks : It is common species in Madhya Pradesh occuring abundantly throughout monsoon period.

40. Genus ***Tramea*** Hagen

70. ***Tramea basilaris burmeisteri*** Kirby

1839. *Libellula chinensis* Burmeister, *Handb. Ent.*, **2** : 852.

1889. *Tramea burmeisteri* Kirby ; *Trans. Zool. Soc. Lond.*, **12** : 316.

1936. *Tramea basilaris burmeisteri* : Fraser, *Fauna Brit. India, Odon.*, **3** : 432-434.

Diagnostic characters : Dragonflies of large size and robust build ; head with post clypeus and frons bright vermilon red with a fine basal black line, two large black spot at base of hind wing surrounded by a golden-yellow areola, one in the cubital space, the other lying obliquely in anal area of wing ; two narrowly confluent near base of discoidal cell in the male, abdomen bright reddish brown with black markings, apical joint of segments 7 to 9 bright yellow ; anal appendage very long, thrice the length of abdomen.

Material examined : 3 males, Jashpur, distt. Raigarh. 29.9.91. coll. H.P. Agrawall and Party. 1 male, Laxmi colony, distt. Gwalior. 20.9.94. coll. H.P. Agrawal and Party. 2 males, Sonagir, distt. Datia. 24.9.94. coll. H.P. Agrawal and Party.

Distribution : India : Madhya Pradesh (Raigarh, Gwalior, Datia), Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : China, Malaysia, Nepal, Sri Lanka, Tibet, Thailand, Vietnam and Myanmar.

Remarks : This is a common species throughout the plain. This species can easily be determined by the irregular duplicate shape of the basal markings to the hind wing.

CLASSIFIED LIST OF ODONATES

The classified list of odonates from Madhya Pradesh is provided, same inarrange systematically. Under Suborders, Super families, Families, Sub-families, genera species. This include all known species so far known, including those which are studies on the basis of material present in the National Zoological collection. Zoological Survey of India, C.R.S., Jabalpur, recent material collected by Z.S.I. survey parties time to time from the different parts of Madhya Pradesh.

Order ODONATA

Suborder A. ZYGOPTERA

Superfamily I. COENAGRIONOIDAE

Family I. COENAGRIONIDEA

Subfamily PSEUDAGRINAE

Genus (1) ***Ceriagrion*** Selys

1. *C. coromandelianum* (Fabricius)
2. *C. olivaceum* Laidlaw.
3. *C. cerinorubellum* (Brauer)

Genus (2) ***Pseudagrion*** Selys

4. *P. hypermelas* Selys
5. *P. rubriceps rubriceps* Selys
6. *P. decorum* (Rambur)
7. *P. microcephalum* (Rambur)
8. *P. spencei* Fraser
9. *P. laidlawi* Fraser

Subfamily ISCHNURINAE

Genus (3) ***Aciagrion*** Selys

10. *A. pallidum* Selys
11. *A. hisopa hisopa* Selys

Genus (4) ***Enallagma*** Charpentier

12. *E. parvum* Selys
13. *E. malayanum* Selys

Genus (5) ***Ischnura*** Charpentier

14. *I rufostigma rufostigma* Selys.
15. *I aurora aurora* (Brauer)
16. *I senegalensis* (Rambur)

Genus (6) ***Rhodischnura*** Laidlaw

17. *R nursei* (Morton)

Subfamily AGRIOCNEMINAE

Genus (7) ***Agriocnemis*** Selys

18. *A. pygmaea* (Rambur)
19. *A pieris* Laid law
20. *A. splendidissima* Laid law
21. *A d'abreui* Fraser

Subfamily COENAGRIONINAE

Genus (8) ***Cercion*** Navas

22. *C. calamorum dyeri* Fraser
23. *C. malayanum* Selys

Family 2 PROTONEURIDAE

Subfamily DISPARONEURINAE

Genus (9) ***Elattoneura*** Cowley

24. *E. nigerrima* Laidlaw
25. *E. nihari* Mitra

Genus (10) ***Disparoneura*** Selys

26. *D. quadrimaculata* Rambur

Family 3 PLATYCNEMIDIDAE

Subfamily PLATYCNEMININAE

Genus (11) ***Copera*** Kirby

27. *C. marginipes* (Rambur)

Superfamily II LESTIDOIDEA

Family 4 LESTIDAE

Subfamily SYMPECMATINAE

Genus (12) ***Indolestes*** Fraser

28. *I. Cyaneus* Selys

Subfamily LESTINAE

Genus (13) ***Lestes*** (Leach)

29. *L. Umbrinus* Selys
30. *L. Viridulus* Rambur
31. *L. praemorsus praemorsus* Selys

Superfamily III CALOPTERYGOIDEA

Family 5 CHLOROCYPHIDAE

Genus (14) ***Libellago*** Selys

32. *L. lineata lineata* (Burmeister)
33. *L. lineata indica* (Fraser)

Genus (15) ***Rhinocypha*** Rambur

34. *R. bisignata* Selys

Family 6 CALOPTERYGIDAE

Subfamily CALOPTERYGINAE

Genus (16) ***Vestalis*** Selys

35. *V. smaragdina* Selys

Suborder B. ANISOPTERA

Superfamily IV AESHNOIDEA

Family 7 AESHNIDAE

Subfamily AESHNINAE

Genus (17) ***Anax*** Leach

36. *A. guttatus* (Burmeister)

Subfamily GYNACANTHAGINAE

Genus (18) ***Gynacantha*** Rambur

37. *G. bayadera* Selys

Family 8 GOMPHIDAE

Subfamily GOMPHINAE

Genus (19) ***Cyclogomphus*** Selys

38. *C. ypsilon* Selys

Subfamily ONYCHOGOMPINAE

Genus (20) ***Onychogomphus*** Selys

39. *O. saundersi* Selys
40. *O. grammicus* (Rambur)

Subfamily ICTINOGOMPHINAE

Genus (21) ***Ictinogomphus*** Cowley

41. *I. Rapax* (Rambur)

Superfamily V LIBELLULOIDEA

Family 9 LIBELLULIDAE

Subfamily LIBELLULINAE

Genus (22) ***Orthetrum*** Newman

42. *O. pruinosum neglactum* (Drury)
43. *O. sabina sabina* (Drury)
44. *O. anceps* (Schneider)
45. *O. cancellatum cancellatum* (Linnaeus)
46. *O. glaucum* (Brauer)
47. *O. taeniolatum* (Schneider)

Genus (23) ***Potamarcha*** Karsch

48. *P. congener* (Rambur)

Genus (24) ***Lathrecista*** Kirby

49. *L. asiatica asiatica* (Fabricius)

Subfamily BRACHYDIPLACTINAE

Genus (25) ***Brachydiplax*** Brauer

50. *B. sobrina* Rambur

Subfamily SYMPETRINAE

Genus (26) ***Acisoma*** Rambur

51. *A. panorpoides panorpoides* Rambur

Genus (27) ***Brachythemis*** Brauer

52. *B. contaminata* (Fabricius)

Genus (28) ***Crocothemis*** Brauer

53. *C. servilia servilia* (Drury)

Genus (29) ***Diplacodes*** Kirby

54. *D. nebulosa* (Fabricius)
55. *D. trivialis* (Rambur)

Genus (30) ***Neurothemis*** Brauer

56. *N. tullia tullia* (Drury)
57. *N. fulvia* (Drury)
58. *N. intermedia intermedia* (Rambur)

Genus (31) ***Indothemis*** Ris

59. *I. Caesia* (Rambur)
60. *I. Limbata sita* Campion

Genus (32) ***Bradinopyga*** Kirby

61. *Bradinopyga geminata* (Rambur)

Genus (33) *Trithemis* Brauer

62. *T. pallidinervis* (Kirby)
63. *T. festiva* (Rambur)
64. *T. aurora* (Burmeister)

Subfamily TRAMEINAE

Genus (34) ***Rhyothemis*** Hagen

65. *R. variegata variegata* (Linnaeus)

Genus (35) ***Zyxomma*** Rambur

66. *Z. petiolatum* Rambur.

Genus (36) ***Tholymis*** Hagen

67. *T. tillarga* (Fabricius)

Genus (37) ***Hydrobasileus*** Kirby

68. *H. croceus* (Brauer)

Genus (38) ***Pantala*** Hagen

69. *Pantala flavescens* (Fabricius)

Genus (49) ***Tramea*** Hagen

70. *T. basilaris burmeisteri* Kirby

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INSECTA : COLEOPTERA : SCARABAEIDAE

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INTRODUCTION

The family Scarabaeidae is one of the largest family and includes 30,000 species throughout the world (Fincher 1981).These beetles are characterised by the presence of fore wings modified into more or less hardened, non-folding rigid elytra, which meet edge to edge, at rest, and partly or wholly cover the hind wings and abdomen. The hind wings, in contrast, are membranous, folded and alone used for propulsion in flight. The mouthparts are biting and chewing type.

The Linnaeus (1758) in the tenth edition of his famous book '*Systema Naturae*' brought all the known scarabaeid beetles under a single genus '*Scarabaeus*' of the order Coleoptera. Later on various workers felt the necessity of segregating this large and complex assemblage. Fabricius 1775) was another pioneer taxonomist, who reported several species of the scarabaeid beetles from different parts of the world. Nonfried (1891) reported firstly 3 species of subfamilies Rutelinae and Melolonthinae from Central India. The first comprehensive account of Scarabaeid beetles of the Indian region was published by Arrow (1910, 1917, 1931) in three volumes of *Fauna of British India*, where in 58 species were reported from Madhya Pradesh, which was the earlier part of Central India. Balthasar (1963a, 1963b, 1964) wrote monographs on the two subfamilies Scarabaeinae and Aphodiinae of Palaearctic and Oriental region. Frey (1971) reported 3 species of Genus *Holotrichia* from Central India. Kuitjen (1978, 1983) revised the species of subfamily Hybosorinae of genus *Phaeochrous*, *Hybosorus* and repoted 3 species from Central India. Newton and Malcolm (1985) studied the Dung beetles of Kanha Tiger Reserve and 22 species were recorded, of which 13 were only identified up to species level. Chandra (2000) published an inventory of scarabaeid beetles of Madhya Pradesh and Chhattisgarh, where in 94 species belonging to 30 genera under 9 subfamilies were included. While working on the faunal diversity of Pachmarhi Biosphere Reserve, Chandra and Singh (2004) recorded 18 species of Scarabaeid beetles belonging to 11 genera under 6 subfamilies, which were new record to the fauna of Hoshangabad.

The paper presents the comprehensive account on scarabaeid beetles of Madhya Pradesh along with their district-wise distribution and the different collection localities. In total, 124 species/ subspecies of Scarabaeid beetles belonging to 45 genera and 11 subfamilies are known from Madhya Pradesh. Of these, 27 species are the new record to the fauna of Madhya Pradesh. The classification is mainly followed by *Sensu* Arrow (1910, 1917, and 1931), Balthasar (1963a, 1963b, 1964) and Kuitjen (1978, 1983) and subsequent modifications in the families are also followed. The list of all the species, their district-wise distribution in Madhya Pradesh and the systematic account of each species are given in Annexure-I and Annexure-II respectively.

Table 1. The Scarabaeid Beetles of Madhya Pradesh

S.N.	Family/Scientific name	District-wise distribution in Madhya Pradesh	References
I	Subfamily HYBOSORINAE		
1.	*Hybosorus orientalis* Westwood	Jabalpur, Seoni, Mandla Hoshangabad	Kuitjen, 1978; Chandra & Singh,2004
2.	*Hybosorus illigeri* Reiche	M. P.	Kuitjen, 1978
3.	*Phaeochrous* sp.	Seoni, Jabalpur, Mandla Hoshangabad	NRMP
II	Subfamily BOLBOCERINAE		
4.	*Bolboceros quadridens* Fabricius	Seoni, Hoshangabad	NRMP
III	Subfamily ORPHNINAE		
5.	*Orphnus parvus* Wiedman	Jabalpur	NRMP
IV	Subfamily CHIRONINAE		
6.	*Chiron cylindrus* (Fabricius)	Jabalpur	NRMP
V	Subfamily APHODIINAE		
7.	*Aphodius haafi* Petrovitz	Central India	Balthasar, 1964
8.	*Aphodius* (*Calaphodius*) *moestus* Fabricius	Jabalpur, Mandla Hoshangabad	Balthasar, 1964
9.	*Aphodius* (*Loboparius*) *vitalisi* Boucomont	M. P.	Balthasar, 1964
10.	*Chaetopisthes* (*Chaetopisthes*) *fulvus* Westwood	M. P.	Balthasar, 1964
11.	*Termitopisthes laticollis* Wasmann	Hoshangabad	Balthasar, 1964
12.	*Termitopisthes wasmanni* (A. Schmidt)	Mandla	Balthasar, 1964
13.	*Rhyssemus germanus* (Linnaeus)	Jabalpur	NRMP
VI	Subfamily TROGINAE		
14.	*Trox* sp.	Jabalpur, Seoni,Umaria Hoshangabad, Mandla	NRMP
VII	Subfamily SCARABAEINAE		
15.	*Caccobius unicornis* (Fabricius)	Hoshangabad, Umaria, Mandla	Arrow, 1931
16.	*Catharsius pithecius* (Fabricius)	Jabalpur, Seoni, Hoshangabad, Umaria, Mandla	Newton & Malcolm, 1985; Chandra & Singh, 2004
17.	*Catharsius molossus* (Linnaeus)	Jabalpur, Seoni,Umaria Hoshangabad, Mandla	Newton & Malcolm, 1985; Chandra & Singh, 2004

Table 1. *Contd.*

S.N.	Subfamily/Species	District-wise distribution in Madhya Pradesh	References
18.	*Catharsius sagax* (Queensland)	Jabalpur, Seoni, Mandla, Hoshangabad, Umaria, Mandla	Arrow, 1931; Chandra & Singh, 2004
19.	*Chironitis indicus* Lansberg	Hoshangabad, Jabalpur	Arrow, 1931
20.	*Copris andrewesi* Waterhouse	Jabalpur, Seoni, Indore Hoshangabad, Umaria	Arrow, 1931
21.	*Copris carinicus* Gillet	Mandla	Newton & Malcolm, 1985
22.	*Copris davisoni* Waterhouse	Mandla	Newton & Malcolm, 1985;
23.	*Copris imitans* Felsche	Jabalpur, Seoni, Hoshangabad, Umaria, Indore Mandla, Riwa	Arrow, 1931; Balthasar, 1963a; Chandra & Singh,2004
24.	*Copris pedariodes* Lansberg	M.P.	Arrow, 1931; Balthasar, 1963a
25.	*Copris repertus* Walker	Mandla, Umaria, Indore	Arrow, 1931; Balthasar, 1963a
26.	*Copris signatus* Walker	M. P.	Arrow, 1931; Balthasar, 1963a
27.	*Copris surdus* Arrow	M. P.	Arrow, 1931
28.	*Drepanocerus setosus* (Wied.)	Hoshangabad, Umaria Shahdol , Panna	Arrow, 1931; Balthasar, 1963a
29.	*Drepanocerus sinicus* Harold	M. P.	Arrow, 1931; Balthasar, 1963a
30.	*Gymnopleurus cyaneus* (Fabricius)	Hoshangabad, Seoni, Mandla	Newton & Malcolm, 1985; Chandra & Singh,2004
31.	*Gymnopleurus dejeani* Castelnau	Indore	Arrow, 1931
32.	*Gymnopleurus gemmatus* (Fabricius)	Jabalpur	Arrow, 1931
33.	*Gymnopleurus maculosus* (Harold)	M. P.	Arrow, 1931
34.	*Gymnopleurus miliaris* (Fabricius)	Hoshangabad, Jabalpur, Mandla	Arrow, 1931; Chandra & Singh, 2004
35.	*Gymnopleurus mundus* Weid.	Hoshangabad, Mandla	Newton & Malcolm, 1985; Chandra & Singh, 2004
36.	*Gymnopleurus opacus* Redtenbacher	Hoshangabad	Chandra & Singh,2004
37.	*Gymnopleurus parvus* (Macleay)	Hoshangabad	Chandra & Singh,2004

Table 1. *Contd.*

S.N.	Subfamily/Species	District-wise distribution in Madhya Pradesh	References
38.	*Gymnopleurus sinuatus* (Olivier)	Hoshangabad, Seoni, Umaria, Mandla	Newton & Malcolm, 1985
39.	*Gymnopleurus sumputosus* Castelnau	Indore	Arrow, 1931
40.	*Heliocopris bucephalus* (Fabricius)	Jabalpur, Seoni Umaria, Mandla	Arrow, 1931
41.	*Heliocopris gigas* (Linnaeus)	Jabalpur, Shivpuri	NRMP
42.	*Liatongus rhadamistus* (Fabricius)	Hoshangabad, Umaria, Balaghat Jabalpur, Riwa	Arrow, 1931
43.	*Oniticellus spinipes* Roth	Umaria, Riwa Shahdol, Jabalpur	Arrow, 1931
44.	*Oniticellus cinctus* (Fabricius)	Hoshangabad, Panna, Umaria, Jabalpur, Riwa	Arrow, 1931; Chandra & Singh,2004
45.	*Onitis brahma* Lansberg	Hoshangabad, Riwa Seoni, Panna, Umaria, Betul, Jabalpur	Arrow, 1931
46.	*Onitis castaneus* Redtenbacher	M.P.	Balthasar, 1963b
47.	*Onitis crassus* Sharp	Jabalpur	Arrow, 1931; Balthasar,1963b
48.	*Onitis falcatus* (Wulfen)	Central India	Balthasar, 1963b
49.	*Onitis philemon* Fabricius	Hoshangabad, Seoni, Panna, Umaria, Jabalpur	Arrow, 1931
50.	*Onitis subopacus* Arrow	Mandla, Balaghat, Riwa	Arrow, 1931; Newton & Malcolm, 1985
51.	*Onitis virens* Lansberg	Balaghat, Mandla, Seoni	Arrow, 1931; Balthasar, 1963b
52.	*Onthophagus abreui* Arrow	Betul, Seoni	Arrow, 1931
53.	*Onthophagus agnus* Gillet	Indore, Seoni	Arrow, 1931
54.	*Onthophagus bonasus* (Fabricius)	Betul, Balaghat	Arrow, 1931
55.	*Onthophagus brevicollis* Arrow	Balaghat, Raigarh	Arrow, 1931
56.	*Onthophagus catta* (Fabricius)	Indore, Betul, Balaghat, Seoni, Hoshangabad, Jabalpur	Arrow, 1931
57.	*Onthophagus centricornis* (Fabricius)	Balaghat, Raigarh	Arrow, 1931
58.	*Onthophagus cervus* (Fabricius)	Balaghat, Riwa, Umaria, Jabalpur	Arrow, 1931
59.	*Onthophagus dama* (Fabricius)	Balaghat	Arrow, 1931
60.	*Onthophagus deflexicollis* Lansberg	Central India	Balthasar, 1963b

Table 1. *Contd.*

S.N.	Subfamily/Species	District-wise distribution in Madhya Pradesh	References
61.	*Onthophagus fasciatus* Boucomont	Riwa, Shahdol, Umaria	Arrow, 1931
62.	*Onthophagus furcilifer* Bates	Bilaspur	Arrow, 1931
63.	*Onthophagus griseosetosus* Arrow	Mandla, Balaghat,Raigarh	Arrow, 1931; Newton & Malcolm 1985
64.	*Onthophagus gulo* Arrow	M. P.	Arrow, 1931
65.	*Onthophagus hystrix* Boucomont	Mandla, Balaghat	Arrow, 1931
66.	*Onthophagus laborens* Arrow	M. P.	Arrow, 1931
67.	*Onthophagus orientalis* Harold	Balaghat, Raigarh	Arrow, 1931
68.	*Onthophagus pactolus* (Fabricius)	Hoshangabad, Umaria, Indore, Mandla	Arrow, 1931 Newton & Malcolm 1985; Chandra & Singh,2004
69.	*Onthophagus quadridentatus* (Fabricius)	Riwa, Umaria	Arrow, 1931
70.	*Onthophagus ramosellus* Bates	Betul, Hoshangabad	Arrow, 1931
71.	*Onthophagus ramosus* (Wied.)	Indore, Jabalpur, Sidhi, Mandla, Bhopal, Umaria	Arrow, 1931
72.	*Onthophagus sagittarius* (Fabricius)	Riwa, Umaria	Arrow, 1931
73.	*Onthophagus tarandus* (Fabricius)	Umaria, Seoni, Sidhi, Hoshangabad, Balaghat Riwa, Mandla	Arrow, 1931
74.	*Onthophagus zebra* Arrow	Indore	Arrow, 1931
75.	*Phalops candezi* Lansberg	Indore, Hoshangabad	Arrow, 1931
76.	*Phalops divisus* (Wied.)	Umaria, Seoni, Indore Hoshangabad	Arrow, 1931; Chandra & Singh,2004
77.	*Phalops olivaceous* Lansberg	Mandla	Newton & Malcolm, 1985
78.	*Scarabaeus sanctus* (Fabricius)	Hoshangabad, Seoni	Chandra & Singh,2004
79.	*Sisyphus hirtus* Wied.	Mandla	Newton & Malcolm, 1985
80.	*Sisyphus longipes* Olivier	Seoni, Umaria Hoshangabad	Biswas & Chatterjee, 1991
81.	*Sisyphus neglectus* Gory	M. P.	Biswas & Chatterjee, 1991
VIII	Subfamily MELOLONTHINAE		
82.	*Apogonia* sp.	Seoni, Mandla, Umaria	NRMP
83.	*Holotrichia ferinosa* Nonfried	Central India	Nonfried, 1891

Table 1. *Contd.*

S.N.	Subfamily/Species	District-wise distribution in Madhya Pradesh	References
84.	*Holotrichia rufoflava* Brenske	Central India	Brenske, 1894
85.	*Holotrichia sculupticollis* Blanchard	Seoni, Hoshangabad	NRMP
86.	*Schizonycha ruficollis* Fabricius	Hoshangabad, Jabalpur	Chandra & Singh,2004
87.	*Schizonycha hausseri* Nonfried	Central India	Nonfried, 1891
IX	Subfamily RUTELINAE		
88.	*Rhinyptia testacea* Nonfried	Central India	Nonfried, 1891
89.	*Adoretus bicaudatus* Arrow	Hoshangabad, Umaria	Chandra & Singh,2004
90.	*Adoretus bicolar* Brenske	Hoshangabad, Jabalpur	Arrow, 1931; Chandra & Singh, 2004
91.	*Adoretus duvauceli* Blanchard	Indore, Umaria, Sidhi, Mandla, Jabalpur	Arrow, 1931
92.	*Adoretus lasiopygus* Burmeister	Hoshangabad, Jabalpur, Seoni, Sidhi	Chandra & Singh,2004
93.	*Adoretus lobiceps* Arrow	Jabalpur	Arrow, 1917
94.	*Adoretus longiceps* Frey	Jabalpur	Machatschke, 1972
95.	*Adoretus stoliczkae* Ohaus	Betul, Jabalpur	Arrow, 1917
96.	*Adoretus versutus* Harold	Jabalpur	Arrow, 1917
97.	*Anomala bengalensis* Blanchard	Seoni, Hoshangabad	NRMP
98.	*Anomala biharensis* Arrow	Hoshangabad, Seoni, Jabalpur, Mandla	NRMP
99.	*Anomala dimidiata* (Hope)	Seoni, Hoshangabad	NRMP
100.	*Anomala dorsalis* (Fabricius)	Gwaliour, Jabalpur, Hoshangabad, Seoni	Arrow, 1917; Chandra & Singh,2004
101.	*Anomala dorsalis fraterna* Burmeister	Jabalpur, Hoshangabad	NRMP
102.	*Anomala ruficapilla* Burmeister	Seoni, Hoshangabad	NRMP
103.	*Anomala rugosa* Arrow	Seoni, Mandla, Hosnaganad	NRMP
104.	*Anomala varicolor* (Gyllenthal)	Hoshangabad, Seoni	Arrow,1917
105.	*Mimela macleayana* (Vigors)	Hoshangabad, Umaria, Seoni, Mandla	NRMP
106.	*Mimela xanthorrhina* Hope	Hoshangabad	NRMP
107.	*Oxyadoretus nasutus* Arrow	Shivpuri	Chandra,2000
108.	*Prodoretus indicus* Machatschke	Jabalpur	Machatschke; 1972
X	Subfamily DYNASTINAE		
109.	*Phyllognathus dionysius* (Fabricius)	Seoni, Hoshangabad	Chandra & Singh,2004
110.	*Alissonotum piceum* (Fabricius)	Jabalpur, Umaria	NRMP

Table 1. *Contd.*

S.N.	Subfamily/Species	District-wise distribution in Madhya Pradesh	References
111.	*Dipelicus cantator* Arrow	Seoni, Umaria	NRMP
112.	*Eophileurus platypterus* Wied.	Seoni, Hoshangabad	NRMP
113.	*Eophileurus perforatus* Arrow	Indore, Mandla	NRMP
114.	*Xylotrupes gideon* (Linnaeus)	Seoni, Balaghat, Umaria Hoshangabad, Mandla	NRMP
115.	*Heteronychus lioderes* Redtenbacher	Seoni, Jabalpur, Umaria, Bhopal	NRMP
XI	Subfamily CETONIINAE		
116.	*Anatona stillata* Newman	Indore, Bhopal	Arrow, 1910
117.	*Chiloloba acuta* G. & P.	Umaria, Bhopal Hoshangabad	Arrow, 1910
118.	*Clinteria klugi* (Hope)	Seoni, Umaria, Bhopal Hoshangabad, Mandla	NRMP
119.	*Clinteria hearseiana* Westwood	Hoshangabad	NRMP
120.	*Heterorrhina elegans* (Fabricius)	Seoni	NRMP
121.	*Oxycetonia versicolor* (Fabricius)	Seoni, Hoshangabad	Arrow, 1910
122.	*Protaetia aurichalcea* Fabricius	Jabalpur, Hoshangabad	NRMP
123.	*Protaetia alboguttata* (Vigors)	Jabalpur	Arrow, 1910
124.	*Protaetia terrosa* G. & P.	Indore	Arrow, 1910

ABBREVIATION USED

P.T.R. — Pench Tiger Reserve

P.B.R. — Pachmarhi Biosphere Reserve

B.N.P. — Bandhavgarh National Park

P.N.P. — Panna National Park

K.T.R. — Kanha Tiger Reserve

M.N.P. — Madhav National Park

Coll. — Name of Collector

exs., — Number of Examples

NRMP — New Record from M.P.

P. — Party

SYSTEMATIC ACCOUNT

Order COLEOPTERA

Family SCARABAEIDAE

Subfamily I HYBOSORINAE

Genus 1. ***Hybosorus*** M'Leay

1. ***Hybosorus orientalis*** Westwood

1845. *Hybosorus orientalis* Westwood, *Trans. Ent. Soc. Lond.*, **6** : 159.

1983. *Hybosorus orientalis*: Kuitjen, *Zool. Varh. Leiden*, **203** : 25.

1990. *Hybosorus orientalis*: Biswas & Chatterjee, *State Fauna Series* **1**, *Fauna of Orissa* (Part **3**) : 253.

Material examined : Hoshangabad, P.B.R., Bori Sanctuary, 12.vi.1999 (1ex.), Coll. K. Chandra & P.; Seoni, P.T.R., Ghat Kohka, 22. vi. 2001(1 ex.), Coll. K.Chandra & P.

Distribution : India : Bihar, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

Elsewhere : Pakistan, Nepal, U.S.A. and England.

2. ***Hybosorus illigiri*** Reiche

1853. *Hybosorus illigiri* Reiche, *Annals, Soc. Ent. Fr.*, (3) I : 87-88.

1912. *Hybosorus illigiri*: Arrow, *Col. Cat.*, **19**(43) : 36.

1983. *Hybosorus illigiri*: Kuitjen, *Zool. Varh. Leiden*, **203** : 12.

Material examined : Recorded from literature (Kuitjen, 1983).

Distribution : India : Haryana, Madhya Pradesh, Sikkim and Uttaranchal.

Elsewhere : Africa, England, France, Greece, Java, Pakistan, Sumatra and U.S.A.

Genus 2. ***Phaeochrous*** Castelnau

3. ***Phaeochrous*** sp.

1840. *Pahaeochrous* Castelnau, *Hist. nat. des. Insectes*, **2**(1) : 108.

1983. *Phaeochrous*: Kuitjen, *Zool. Varh. Leiden*, **165** : 8.

Material examined: Hoshangabad, P.B.R., Madai (1 ex.), 13.vi.1999, Coll. K. Chandra & P.; Seoni, P.T.R., Karmajhiri, 5. vi. 2001 (1 ex.), Coll. K. Chandra & P.; Seoni, P.T.R., Karmajhiri, 10.vii.2001 (1 ex.), Coll. R. K. Singh.

Distribution : India : Andaman's Island, Haryana, Madhya Pradesh, Uttar Pradesh and Uttaranchal.

Remarks : The species is new record from Madhya Pradesh.

Subfamily II BOLBOCERINAE

Genus 3. ***Bolboceras*** Kirby

4. ***Bolboceras quadridens*** Fabricius

1781. *Bolboceros quadridens* Fabricius, *Spec. Ins.*, I : 11.

1789. *Bolboceros quadridens* Olivier, *Ent.*, I, Gen., 3 : 62.

Material examined : Seoni, P.T.R., Karmajhiri, 26.vii.2001 (1 ex.), Coll. M.L Koshta & P.; Seoni, P.T.R., Totladoh, 20.viii.2001 (1 ex.), Coll. Y.N. Gupta & P.

Distribution : India : Haryana, Madhya Pradesh and Uttaranchal.

Elsewhere : Asia, Europe, N. America and S. America.

Remarks : The species is new record from Madhya Pradesh.

Subfamily III ORPHNINAE

Genus 4. ***Orphnus*** M'Leay

5. ***Orphnus parvus*** Wiedman

1823. *Orphnus parvus* Wiedman, *Zool. Mag.*, **6**(1) : 6.

1904. *Orphnus parvus*: Arrow, *Trans Ent. Soc. Lond.*, : 747.

1991. *Orphnus parvus*: Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part 3) : 253.

Material examined : Jabalpur, Pachpedi, 3.vii.1964 (9 exs.), Coll. J.S. Bhatti.

Distribution : India : Madhya Pradesh, Orissa and West Bengal.

Remarks : The species is new record from Madhya Pradesh.

Subfamily IV CHIRONINAE

Genus 5. ***Chiron*** M'Leay

6. ***Chiron cylindrus*** (Fabricius)

1798. *Scarites cylindrus* Fabricius, *Ent. Syst. Suppl.*, : 44.

1840. *Chiron digitatus* : Castelnau, *Hist. nat. Ins. Col.*, **2** : 177.

1991. *Chiron cylindrus*: Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part 3) : 252.

Material examined : Jabalpur, Pachpedi, 6.vii.1964, (1 ex.), Coll. J.S. Bhatti; Jabalpur, Garha, 19 & 21,viii.1964, (2 exs.), Coll. M.L. Koshta.

Distribution : India : Haryana, Madhya Pradesh, Rajasthan and Uttar Pradesh.

Remarks : The species is new record from Madhya Pradesh.

Subfamily V APHODIINAE

Genus 6. *Aphodius* Illiger

7. *Aphodius haafi* Petrovitz

1961. *Ahodius haafi* Petrovitz, *Ent. Arb. Mus. Frey*, **12** : 101.

1963b. *Aphodius haafi* : Balthasar, *Verl. Tschsl. Akad. Wissensch.*, **III** : 325.

Material examined : Recorded from literature (Bathasar, 1963b).

Distribution : India : Assam, Bihar, Central India, Maharashtra and Orissa.

Elsewhere : Sri Lanka.

8. *Aphodius* (*Calaphodius*) *moestus* Fabricius

1801. *Aphodius* (*Calaphodius*) *moestus* Fabricius, *Syst. Eleuth.*, **1** : 78.

1963a. *Aphodius moestus*: Balthasar, *Verl. Tschsl. Akad. Wissensch.*, **III** : 182.

1991. *Aphodius moestus*: Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **1**(Part 3) : 261.

Material examined : Jabalpur, Pachpedi, 27.i.1964 (1 ex.), Coll. H. Khajuria.

Distribution : India : Haryana, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and Uttaranchal.

Elsewhere : Afganistan, East and South Africa, Madagaskar & Sri Lanka.

9. *Aphodius (Loboparius) vitalisi* Boucomont

1921. *Aphodius (Loboparius) vitalisi* Boucomont & Gillet, *Col. Scarab, de'L Indo-Chin.*, : 62.

1964. *Aphodius (Loboparius) vitalisi*: Balthasar, *Verl. Tschsl. Akad.Wissensch.*, **III** : 59.

Material examined : Recorded from literature (Balthasar, 1964).

Distribution : India : Madhya Pradesh.

Genus 7. *Chaetopisthes* Westwood

10. *Chaetopisthes* (*Chaetopisthes*) *fulvus* Westwood

1847. *Chaetopisthes* (*C.*) *fulvus* Westwood, *Trans. Ent. Soc. London*, **4** : 242.

1964. *Chaetopisthes* (*C.*) *fulvus* : Balthasar, *Verl. Tschsl. Akad. Wissensch.*, **III** : 629.

Material examined : Recorded from literature (Balthasar, 1964).

Distribution : India : Madhya Pradesh.

Genus 8. *Termitopisthes* Wasmann

11. *Termitopisthes laticollis* Wasmann

1918. *Termitopisthes laticollis* Wasmann, *Wein. Ent. Zeit.*, **37** : 15.

1964. *Termitopisthes laticollis* : Balthasar, *Verl. Tschsl. Akad. Wissensch.*, **III** : 627.

Material examined : Recorded from literature (Balthasar, 1964).

Distribution : India : Madhya Pradesh.

12. *Termitopisthes wasmanni* (A. Schmidt)

1911. *Termitopisthes wasmanni* Schmidt, *Stett. Ent. Zeit.*, **72** : 33.

1964. *Termitopisthes wasmanni*: Balthasar, *Verl. Tschsl. Akad. Wissensch.*, **III** : 625.

Material examined : Recorded from literature (Balthasar, 1964).

Distribution : India : Madhya Pradesh.

Genus 9. *Rhyssemus* Mulsant

13. *Rhyssemus germanus* (Linnaeus)

1767. *Ptinus germanus* Linnaeus, *Syst. Nat. ed.*, **12**, 1, 2 : 566.

1775. *Scararabaeus asper* : Fabricius., *Syst. Ent.*, : 20.

1798. *Rhyssemus germanus* : Illiger, *Verz. Kaf. Preuss.*, : 21.

Material examined : Jabalpur, Bargi Rest House, 29.vi. 1965 (1ex.), Coll. H.P. Agrawal.

Distribution : India : Andaman's Island, Haryana, Madhya Pradesh and Uttarnchal.

Remarks : The species is new record from Madhya Pradesh.

Subfamily VI TROGINAE

Genus 10. *Trox* Fabricius

14. *Trox* sp.

1792. *Trox* Fabricius, *Syst. Ent.*, : 31.

1912. *Trox*: Arrow, *Col. Cat. Pars.*, **43** : 53.

1982. *Trox*: Scholtz, *Ent. Mem.*, **54** : 2.

Material examined : Seoni, P.T.R., Karmajhiri, 6.vi.2001 (1 ex.), Coll. K. Chandra; Jabalpur, Garha, 21.viii.1964 (1ex.), Coll. M.L. Koshta.

Distribution : India : Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh.

Elsewhere : Africa, Australia, U.S.A. and Itly.

Remarks : The species is new record from Madhya Pradesh.

Subfamily VII SCARABAEINAE

Genus 11. ***Caccobius*** Thomson

15. ***Caccobius unicornis*** (Fabricius)

1798. *Copris unicornis* Fabricius, *Ent. Syst. Suppl.*, : 33.

1931. *Caccobius unicornis*: Arrow *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 145.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : West Bengal, Haryana, Madhya Pradesh, Orissa, Uttar Pradesh and Uttaranchal.

Elsewhere : Borneo, China, Java, Malay, Philipines and Sri Lanka.

Genus 12. ***Catharsius*** Hope

16. ***Catharsius pithecius*** (Fabricius)

1775. *Scarabaeus pithecius* Fabricius, *Syst. Ent.*, : 21.

1931. *Catharsius pithecius* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 100.

1991. *Catharsius pithecius* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 254.

Material examined : Hoshangabad, P.B.R., Bori Sanctuary, Churna, 10.vi.1999 (2 exs.) Coll K.Chandra & P.; Hoshangabad, P.B.R., Madai, 14.vi.1999 (4 exs.), Coll. K.Chandra & P.; Jabalpur, Pachpedi, 7.vii.1964 (2 exs.), Coll. J.S. Bhatti; Seoni, P.T.R., Karmajhiri, 5.vi.2001(2 exs.), Coll. K.Chandra & P.; Umaria, B.N.P., Tala Guest Hosuse, 24.ix.2002 (2 exs.), Coll. M. L. Koshta & P.

Distribution : India : Andhra Pradesh, Bihar, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh.

Elsewhere : Sri Lanka.

17. ***Catharsius molossus*** (Linnaeus)

1758. *Scarabaeus molossus* Linnaeus, *Syst. Nat. ed.*, **10** : 347.

1931. *Catharsis molossus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 95-96.

1991. *Catharsius molossus*: Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 255.

Material examined : Chhindwara, P.B.R., Badi Anhoni, 23.x.2002 (2 exs.), Coll. Y.N. Gupta & P.; Jabalpur, Civil Lines, Railway hostel, 26.x.02 (4 exs.), Coll. Subhash Chandra; Narsinghpur, Kareli, Tinsar, 10.xii.1964 (2 exs.), Coll. H. Khajuria; Seoni, P.T.R., Turia Gate (1 ex.), Coll. R.K.Singh & P.; Umaria, B. N. P., Tala Guest Hosuse, 25.ix.2002 (10 exs.), Coll. M.L. Koshta & P.

Distribution : India : Anadaman's Island, Arunachal Pradesh, Assam, Bihar, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Meghalaya, Orissa, Sikkim, Uttar Pradesh, Uttaranchal and West Bengal.

18. ***Catharsius sagax*** (Queensland)

1806. *Copris sagax* Queensland, *Schonh. Syn. Ins.*, **I** : 43.

1931. *Catharsius sagax* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 96.

1991. *Catharsius sagax* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 255.

Material examined: Jabalpur, Pachpedi, 18. vii. 1964 (3 exs.), Coll. H.P.Agrawal; Seoni, P.T.R., Totladoh, 3, 17, 28.viii.2001 (3 exs), Coll. Y.N.Gupta & P.; Seoni, P.T.R., Karmajhiri, 25.vi.2001 (4 exs.), Coll. K.Chandra & P.; Umaria, B.N.P., Tala Guest House, 25.ix.2002 (4 exs.), Coll. M.L. Koshta & P.

Distribution : India : Andhra Pradesh, Bihar, Haryana, Himachal Pradesh, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Bhutan.

Genus 13. ***Chironitis*** Lansberg

19. ***Chironitis indicus*** Lansberg

1875. *Chironitis indicus* Lansberg, *Ann. Soc. Ent. Belg.*, **xviii** : 45.

1917. *Chironitis indicus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 95-96.

Material examined : Chhindwara, P.B.R., Parsia, 27. x. 2002 (4 exs.), Coll. Y. N. Gupta & P.; Jabalpur, Pachpedi, 13. x. 1965 (1 ex.), Coll. H. Khajuria.

Distribution : India : Haryana, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Tamil Nadu.

Genus 14. ***Copris*** Muller

20. ***Copris andrewesi*** Waterhouse

1891. *Copris andrewesi* Waterhouse, *Ann. Mag. Nat. Hist.*, **(6)** vii : 621.

1931. *Copris andrewesi*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 127.

Material examined : Jabalpur, Pachpedi, 2.vii. 1964 (1 ex.), Coll. J.S. Bhatti.

Distribution : India : Madhya Pradesh, Maharashtra, Mysore and West Bengal.

Elsewhere : Bhutan.

21. ***Copris carinicus*** Gillet

1910. *Copris carinicus* Gillet, *Notes Leyd., Mus.*, xxxii : 8.

1931. *Copris carinicus*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 109.

Material examined : Recorded from literature (Newton & Malcolm 1985).

Distribution : India : Assam, Madhya Pradesh, Manipur and Meghalaya.

Elsewhere : Myanmar.

22. ***Copris davisoni*** Waterhouse

1891. *Copris davisoni* Waterhouse, *Ann. Mag. Nat. Hist.*, **(6)** vii : 520.

1931. *Copris davisoni* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 132.

Material examined : Recorded from literature (Newton & Malcolm, 1985).

Distribution : India : Madhya Pradesh, Maharashtra and Tamil Nadu.

23. ***Copris imitans*** Felsche

1910. *Copris imitans* Felsche, *Deutsche Ent. Zeits.*, : 347.

1931. *Copris imitans* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 124.

Material examined: Seoni, P.T.R., Barelipar, 11.vi.2001 (1 ex.), Coll. R.K.Singh & P.

Distribution : India : Madhya Pradesh, Goa, Karnataka and Maharashtra.

24. ***Copris pedariodes*** Lansberg

1886. *Copris pedariodes* Lansberg, *Tijdschr. V. Entom.*, **xxix** : 23.

1963a. *Copris pedariodes* : Balthasar, *Verl.Tschsl. Akad. Wissensch.*, **II** : 374.

Material examined : Recorded from literature (Balthasar 1963a)

Distribution : India : Madhya Pradesh.

25. ***Copris repertus*** Walker

1858. *Copris repertus* Walker, *Ann. Mag. Nat. Hist.*, **(3)** ii: 208.

1931. *Copris repertus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 116.

1963a. *Copris pedariodes* : Balthasar, *Verl. Tschsl. Akad.Wissensch.*, **II** : 351.

Material examined: Recorded from literature (Arrow, 1931 and Balthasar in 1963a).

Distribution : India : Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Mysore, Uttar Pradesh and Tamil Nadu.

Elsewhere : Sri Lanka and Myanmar.

26. ***Copris signatus*** Walker

1858. *Copris signatus* Walker, *Ann. Mag. Nat. Hist.*, **(3)** II : 206.

1931. *Copris signatus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 131.

1963a. *Copris pedariodes* : Balthasar, *Verl. Tschsl. Akad. Wissensch.*, **II** : 371.

Material examined : Recorded from literature (Arrow, 1931 and Balthasar in 1963a).

Distribution : India : Madhya Pradesh, Maharashtra, Mysore and Tamil Nadu.

Elsewhere : Sri Lanka.

27. ***Copris surdus*** Arrow

1931. *Copris surdus* Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 132.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and Uttaranchal.

Elsewhere : Sri Lanka.

Genus 15. ***Drepanocerus*** Kirby

28. ***Drepanocerus setosus*** (Wied.)

1823. *Copris setosa* Wied., *Zool. Mag.*, **ii**, 1 : 19.

1931. *Drepanocerus setosus* : Arrow, *Faun. Brit. India*, (Lamellicornia: Coprinae) **3** : 381.

Material examined : Bastar, Jagdalpur, Dongargaon, 10.i.1974 (1 ex.), Coll. R.K.Singh & P.; Hoshangabad, P.B.R., Bori Sanctuary, 20.ii.2003 (8 exs.), Coll. M.L. Koshta & P.; Panna, P.N.P., Hinauta, Jhalar vill., 19.xi. 2000 (1 ex.), Coll. R.K. Singh & P.

Distribution : India : Chhattisgarh, Himachal Pradesh, Haryana, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and Uttaranchal.

Elsewhere : Sri Lanka.

Remarks : The species is new record from Madhya Pradesh.

29. ***Drepanocerus sinicus*** Harold

1868. *Drepanocerus sinicus* Harold, *Col. Hefte*, **IV** : 104.

1931. *Drepanocerus sinicus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 383.

Material examined : Recorded from literature (Arrow 1931).

Distribution : India : Madhya Pradesh and Uttaranchal.

Elsewhere : Myanmar, South China and Sri Lanka.

Genus 16. ***Gymnopleurus*** Illiger

30. ***Gymnopleurus cyaneus*** (Fabricius)

1798. *Copris cyaneus* Fabricius, *Ent. Syst. Suppl.*, : 34.

1931. *Gymnopleurus cyaneus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 49.

Material examined : Hoshangabad, P.B.R., Madai, 14.vi.1999 (3 exs.), Coll. K.Chandra & P.; Seoni, P.T.R., Khamareet, 24.vi.2001 (1ex.) Coll. K. Chandra & P.

Distribution : India : Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka.

31. ***Gymnopleurus dejeani*** Castelnau

1840. *Gymnopleurus dejeani* Castelnau, *Hist. Nat. Coll.*, **ii** : 70.

1931. *Gymnopleurus dejeani* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 59.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Kerala, Madhya Pradesh, Maharashtra and Uttaranchal.

32. ***Gymnopleurus gemmatus*** (Harold)

1871. *Gymnopleurus gemmatus* Harold, *Col. Hefte.*, **VIII** : 118.

1931. *Gymnopleurus gemmatus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 53.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Haryana, Karnataka, Kashmir, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

Elsewhere : Sri Lanka and Pakistan.

33. *Gymnopleurus maculosus* (Macleay)

1821. *Scarabaeus maculosus* Macleay, *Horae Ent.*, i : 517.

1931. *Gymnopleurus maculosus*: Arrow, *Faun. Brit. India*, (Lamellicornia: Coprinae) **3** : 56.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Himachal Pradesh, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttarnachal.

34. *Gymnopleurus miliaris* (Fabricius)

1775. *Scarabaeus miliaris* Fabricius, *Syst. Ent. App.*, : 817.

1931. *Gymnopleurus miliaris*: Arrow *Faun. Brit. India*, (Lamellicornia: Coprinae) **3** : 50.

Material examined : Hoshangabad, P.B.R., Madai, 14.vi.1999 (1ex.), Coll. K. Chandra & P.

Distribution : India : Haryana, Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Mysore, Orissa, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

Elsewhere : Sri Lanka and Pakistan.

35. *Gymnopleurus mundus* Weid

1819. *Gymnopleurus mundus* Weid., *Zool. Mag.*, i, **3** : 162.

1919. *Gymnopleurus mundus* : Boucomont, *Bull. Mus. Hist. Nat. Paris*, **25** : 605.

1931. *Gymnopleurus mundus*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 57.

Material examined : Hoshangabad, P.B.R., Bori Sanctuary, Churna Forest Rest House, 10,11.vi.1999 (2 exs.), Coll. K. Chandra & P.

Distribution : India : Bihar, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu and West Bengal.

Elsewhere : Sri Lanka.

36. *Gymnopleurus opacus* Redtenbacher

1848. *Gymnopleurus opacus* Redtenbacher, *Hugel's Kaschmir* IV, **2** : 516.

1931. *Gymnopleurus opacus* : Arrow, *Faun. Brit. India*, (Lamellicornia: Coprinae) **3** : 58.

Material examined : Hoshangabad, P.B.R., Bori sancturay, Churna Forest Rest House, 11.vi.1999 (1ex.), Coll. K.Chandra & P.

Distribution : India : Himachal Pradesh, Madhya Pradesh, Punjab and Uttaranchal.

Elsewhere : Bhutan and Sri Lanka.

37. *Gymnopleurus parvus* (Macleay)

1821. *Scarabaeus parvus* Macleay, *Horae Ent.*, : 517.

1931. *Gymnopleurus parvus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 52.

Material examined : Hoshangabad, P.B.R., Kakri vill.,11.vi.1999 (1 ex.), Coll. K.Chandra & P.

Distribution : India : Haryana, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

Elsewhere : Sri Lanka.

38. *Gymnopleurus sinuatus* (Olivier)

1789. *Scarabaeus sinuatus* Olivier, *Entom.*, I : 160, tf. 21, fig. 189.

1931. *Gymnopleurus sinuatus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 63.

Material examined : Seoni, P.T.R., Bodanala, 23.vii.2001 (8 exs.), Coll. M.L. Koshta & P.

Distribution : India : Haryana, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

39. *Gymnopleurus sumputosus* Castelnau

1840. *Gymnopleurus sumputosus* Castelnau, *Hist. Nat.*, II : 71.

1931. *Gymnopleurus sumputosus*: Arrow *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 61.

Material examined : Recorded from Literature (Arrow, 1931).

Distribution : India : Bihar, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar, Pakistan, Thailand and Vietnam.

Genus 17. ***Heliocopris*** Burmeister

40. ***Heliocopris bucephalus*** (Fabricius)

1775. *Scarabaeus bucephalus* Fabricius, *Syst. Ent.*, : 24.

1931. *Heliocopris bucephalus*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 88.

1991. *Heliocopris bucephalus*: Biswas & Chatterjee, *State Fauna Series 1, Fauna of Orissa* (Part **3**) : 255.

Material examined : Jabalpur, Hulki vill., 16.8.2002 (1 ex.), Coll. K.Chandra & P.; Seoni, P.T.R., Kalapahar, 11.vii.2001 (1 ex.), Coll. K. Chandra & P.; Seoni, P.T.R., Karmajhiri, 21.vii.2001 (1 ex.), Coll. R. K. Singh & P.; Umaria, B.N.P., Tala Guest House, 27.ix.2002 (3 exs.), Coll. R. K. Singh.

Distribution : India : Bihar, Haryana, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar, Malay Peninsula and Java.

41. ***Heliocopris gigas*** (Linnaeus)

1764. *Scarabaeus gigas* Linnaeus, *Mus. Lud. Ulr.*, : 64.

1928. *Heliocopris gigas*: Arrow, *Trans. Ent. Soc. Lond.*, p. 74, pl. 5.

1931. *Heliocopris gigas* Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 86.

Material examined : Shivpuri, Surrounding range, 3.x.1975 (2 ex.) Coll. R. K. Singh & P.

Distribution : India : Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan and Uttar Pradesh.

Elsewhere : Pakistan, Egypt and Africa.

Genus 18. ***Liatongus*** Reitter

42. ***Liatongus rhadamistus*** (Fabricius)

1775. *Scarabaeus rhadamistus* Fabricius, *Syst. Ent.*, : 22.

1931. *Liatongus rhadamistus*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 374-375.

Material examined : Hoshangabad, P.B.R., Tekapar, 26.ii.2003 (7 exs.), Coll. M. L. Koshta & P.

Distribution: India: Madhya Pradesh, Maharashtra and Tamil Nadu.

Elsewhere : Sri Lanka.

Genus 19. ***Oniticellus*** Serville

43. ***Oniticellus spinipes*** Roth

1851. *Oniticellus spinipes* Roth, *Arch. F. Nat.*, xvii, i : 128.

1908. *Oniticellus modestus*: Arrow, *Ann. Mag. Nat. Hist.*, (8), i : 182.

1931. *Oniticellus spinipes* : Arrow, *Faun. Brit. India*, (Lamellicornia: Coprinae) **3** : 378-379.

Material examined : Jabalpur, Dumna Road, 14.iii.2004 (1ex.), Coll. Subhash Chandra.

Distribution : India : Himachal Pradesh, Karnatka, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu and Uttaranchal.

Elsewhere : Uganda and Africa.

44. ***Oniticellus cinctus*** (Fabricius)

1775. *Scarabaeus cinctus* Fabricius, *Syst. Ent.*, : 30.

1931. *Oniticellus cinctus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 379.

Material examined: Jabalpur, T.F.R.I., 15.iii.2003, (2 exs.), Coll. Subhash Chandra; Hoshangabad, P.B.R., Bori Sanctuary, 26.ii.2003 (1 ex.), Coll. M.L. Koshta & P.; Panna, P.N.P., Jhalar vill.,19.xi. 2000 (1 ex.), Coll. R.K. Singh & P.

Distribution : India : Haryana, Himachal Pradesh, Madhya Pradesh, Maharashtra, Mysore, Tamil Nadu, Uttaranchal, Uttar Pradesh and West Bengal.

Genus 20. ***Onitis*** Fabricius

45. ***Onitis brahma*** Lansberg

1875. *Onitis brahma* Lansberg, *Ann. Soc. Ent. Belg.*, **xviii** : 142.

1931. *Onitis brahma* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 399-400.

Material examined: Hoshangabad, P.B.R., Bori Sanctuary, Sonbhadra river, 6.iii.2000 (1 ex.), Coll. K. Chandra & P; Panna, P.N.P., Jardhoba Hinauta,

16.ix.2001(1 ex.), Coll. R.K. Singh & P.; Seoni, P.T.R., Jamtara, 21.xi.2001 (1ex.), Coll. K.Chandra & P.

Distribution : India : Karnataka, Madhya Pradesh and Maharashtra

46. *Onitis castaneus* Redtenbacher

1848. *Onitis castaneus* Redtenbacher, *Hugel's Kaschmir*, iv, 2 : 517.

1931. *Onitis castaneus*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) 3 : 398.

1963b. *Onitis castaneus* : Balthasar, *Verl. Tschsl. Akad. Wissensch.*, III : 46.

Material examined : Recorded from literature (Balthasar, 1963 b).

Distribution : India : Assam, Bihar, Haryana, Madhya Pradesh, Punjab, Uttaranchal and West Bengal.

Elsewhere : Pakistan.

47. *Onitis crassus* Sharp

1875. *Onitis crassus* Sharp, *Col. Hefte.*, xiv :48.

1931. *Onitis crassus* : Arrow, *Faun. Brit. India*, (Lamellicornia: Coprinae) 3 : 400-401.

Material examined : Recorded from literature (Arrow1931, Balthasar 1963 b).

Distribution : India : Madhya Pradesh, Punjab and Uttaranchal.

48. *Onitis falcatus* (Wulfen)

1786. *Scarabaeus falcatus* Wulfen, *Descr. Cap. Ins.*, : 14, Tf. 2, fig. 17.

1875. *Onitis falcatus*: Lansberg, *Ann. Soc. Ent. Belg.*, : 126.

1848. *Onitis falcatus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) 3 : 392.

1963b *Onitis falcatus* : Balthasar, *Verl.Tschsl. Akad. Wissensch.*, III : 33.

Material examined : Recorded from literature (Balthasar, 1963 b).

Distribution : India : Bihar, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

49. *Onitis philemon* Fabricius

1801. *Onitis philemon* Fabricius, *Syst. Eleut.*, I : 30.

1931. *Onitis philemon*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) 3 : 393-394.

Material examined : Bastar, Konta, 16.i.1974 (1 ex.), Coll. R.K. Singh & P.; Seoni, P.T.R., Barelipar, 11.vii.2001 (1 ex.), Coll. R. K. Singh & P.

Distribution : India : Bihar, Chhattisgarh, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Tamil Nadu, Uttaranchal, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar, Pakistan, Sri Lanka, Vietnam and Thailand.

50. *Onitis subopacus* Arrow

1875. *Onitis philemon* Lansberg, *Ann. Soc. Ent.* Belg., xviii : 133.

1931. *Onitis subopacus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) 3 : 395-396.

Material examined : Recorded from literature (Arrow, 1931).

Distribution: India : Assam, Bihar, Haryana, Himachal Pradesh, Punjab, Tamil Nadu, Uttar Pradesh, Utaranchal and West Bengal.

51. *Onitis virens* Lansberg

1875. *Onitis virens* Lansberg, *Ann. Soc. Ent. Belg.*, xviii : 135.

1931. *Onitis virens* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) 3 : 396-397.

1991. *Onitis virens* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, I(Part 3) : 260.

Material examined : Recorded from literature (Balthasar, 1963).

Distribution : India : Bihar, Chhattisgarh, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Uttaranchal and West Bengal.

Genus 21. *Onthophagus* Latreille

52. *Onthophagus abreui* Arrow

1931. *Onthophagus abreui* Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) 3 : 239.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Haryana, Kerala, Madhya Pradesh and Uttaranchal.

53. ***Onthophagus agnus*** Gillet

1925. *Onthophagus agnus* Gillet, *Ann. Soc. Sci. Brux.*, **xiv** : 233.

1931. *Onthophagus agnus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 296-297.

Material examined : Recorded from literature (Arrow, 1931).

Distriution : India : Jaharkhand, Madhya Pradesh, Maharashtra and West Bengal

54. ***Onthophagus bonasus*** (Fabricius)

1775. *Scarabaeus bonasus* Fabricius, *Syst. Ent.*, : 23.

1931. *Onthophagus bonasus*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 231-232.

1991. *Onthophagus bonasus*: Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 257.

Material examined : Hoshangabad, P.B.R., Bori Sanctuary, 18.ii.2003 (6 exs.), Coll. M.L.Koshta.

Distribution : India : Bihar, Himachal Pradesh, Karnataka, Orissa, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu Uttar Pradesh, Uttaranchal and West Bengal.

Elsewhere : Myanmar, Pakistan, Thailand and Vietnam.

55. ***Onthophagus brevicollis*** Arrow

1907. *Onthophagus brevicollis* Arrow, *Ann. Mag. Nat. Hist.*, (**7**) xix : 422.

1931. *Onthophagus brevicollis* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 221-222.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Karnataka, Madhya Pradesh and Tamil Nadu.

56. ***Onthophagus catta*** (Fabricius)

1787. *Scarabaeus catta* Fabricius, *Mant. Ins.*, **i** : 12.

1931. *Onthophagus catta* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 230.

1991. *Onthophagus catta* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 257.

Material examined : Jabalpur, Pachpedi, 13. x.1965 (3 exs.),Coll. H. Khajuria; Seoni, P.T.R., Alikatta, 5.vi.2001 (3 exs.), Coll. K.Chandra & P.

Distribution : India : Andhra Pradesh, Delhi, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan and Tamil Nadu.

Elsewhere : Africa, Arabia, Medagaskar, Pakistan and Sri Lanka.

57. ***Onthophagus centricornis*** (Fabricius)

1798. *Copris centricornis* Fabricius, *Ent. Syst. Suppl.*, : 38.

1823. *Copris luteipennus* : (Wied.), *Zool. Mag.* **II**, 1 : 20.

1931. *Onthophagus centricornis* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 230.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttar Pradesh.

Elsewhere : Sri Lanka.

58. ***Onthophagus cervus*** (Fabricius)

1798. *Copris cervus* Fabricius, *Ent. Syst. Suppl.*, : 31.

1931. *Onthophagus cervus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 348.

Material examined : Hoshangabad, P.B.R, Madai, Tekapar village, 26.ii.2003 (1 ex.), Coll. M.L. Koshta & P. ; Jabalpur, University Campus, 10.v.03 (3 exs.), Coll. Subhash Chandra.

Distribution : India : Madhya Pradesh, Maharashtra, Tamil Nadu and West Bengal.

Elsewhere : Sri Lanka.

59. ***Onthophagus dama*** (Fabricius)

1798. *Copris dama* Fabricius, *Ent. Syst. Suppl.*, : 32.

1931. *Onthophagus dama* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 280.

1991. *Onthophagus dama* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series,* I(Part 3) : 257.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh and Uttaranchal.

Elsewhere : Bhutan and Sri Lanka.

60. *Onthophagus deflexicollis* Lansberg

1883. *Onthophagus deflexicollis* Lansberg, *Notes Leyden Mus.*, V : 72.

1931. *Onthophagus deflexicollis* : Arrow, *Faun. Brit. India,* (Lamellicornia : Coprinae) 3 : 327.

1963b. *Onthophagus deflexicollis* : Balthasar, *Verl.Tschsl. Akad.Wissensch.*, III : 327.

Material examined : Recorded from literature (Balthasar, 1963).

Distribution : India : Cental India, Sikkim and West Bengal.

Elsewhere : Myanmar, Thailand and Vietnam.

61. *Onthophagus fasciatus* Boucomont

1914. *Onthophagus fasciatus* Boucomont, *Ann. Mus. Civ. Genova,* xvi : 214.

1931. *Onthophagus fasciatus* : Arrow, *Faun. Brit. India,* (Lamellicornia : Coprinae) 3 : 311-312.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttaranchal and West Bengal.

62. *Onthophagus furcilifer* Bates

1891. *Onthophagus furcilifer* Bates, *Entom.*, xxiv : 11 (Suppl.)

1931. *Onthophagus furcilifer*: Arrow, *Faun. Brit. India,* (Lamellicornia : Coprinae) 3 : 273.

Material examined : Recorded from literature (Arrow, 1931).

Disribution : India : Assam, Chhattisgarh, Haryana, Himachal Pradesh, Kashmir, Kerala, Madhya Pradesh, Punjab, Uttar Pradesh and Uttaranchal.

63. *Onthophagus griseosetosus* Arrow

1931. *Onthophagus griseosetosus* Arrow, *Faun. Brit. India,* (Lamellicornia : Coprinae) 3 : 192.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Himachal Pradesh, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttarnchal.

64. *Onthophagus gulo* Arrow

1931. *Onthophagus gulo* Arrow, *Faun. Brit. India,* (Lamellicornia : Coprinae) 3 : 164-165.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Madhya Pradesh and Maharashtra.

65. *Onthophagus hystrix* Boucomont

1914. *Onthophagus hystrix* Boucomont, *Ann, Mus. Civ. Star. Nav. Genova,* 46 : 238.

1931. *Onthophagus hystrix* : Arrow, *Faun. Brit. India,* (Lamellicornia : Coprinae) 3 : 164-165.

1991. *Onthophagus hystrix* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series,* I(Part 3) : 258.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Bihar, Haryana, Karnatka, Madhya Pradesh, Maharashtra, Orissa, Uttaranchal and Tamil Nadu

66. *Onthophagus laborens* Arrow

1931. *Onthophagus laborens* Arrow, *Faun. Brit. India,* (Lamellicornia: Coprinae) 3 : 240.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Madhya Pradesh, Maharashtra, Uttaranchal and Tamil Nadu.

67. *Onthophagus orientalis* Harold

1868. *Onthophagus orientalis* Harold, *Col. Hefte,* IV : 83.

1931. *Onthophagus orientalis* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 213.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Assam, Bihar, Haryana, Madhya Pradesh, Maharashtra, Manipur, Sikkim and Uttarnchal.

68. ***Onthophagus pactolus*** (Fabricius)

1787. *Scarabaeus pactolus* Fabricius, *Mat. Ins.*, **I** : 12.

1931. *Onthophagus pactolus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 203.

Material examined : Hoshangabd, Bori Sanctuary, Churna Forest Rest House, 11.vi.1999 (1ex.), Coll. K.Chandra & P.; Seoni, P.T.R., Turiya, 23.vi.2001 (1 ex.) Coll. K.Chandra & P.; Umaria, B.N.P., Tala Guest House, 24.ix.2002 (1 ex.), Coll. M.L. Koshta & P.

Distribution : India : Haryana, Karnataka, Madhya Pradesh, Maharashtra, Mysore, Uttar Pradesh and Uttaranchal.

69. ***Onthophagus quadridentatus*** (Fabricius)

1798. *Copris quadridentatus* Fabricius, *Ent. Syst. Suppl.*, : 34.

1931. *Onthophagus quadridentatus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 282.

1991. *Onthophagus quadridentatus* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 258.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Arunachal Pradesh, Haryana, Himachal Pradesh, Karnaaka, Kerala, Madhya Pradesh, Maharashtra, Orissa Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka.

70. ***Onthophagus ramosellus*** Bates

1891. *Onthophagus ramosellus* Bates, *Entom.* **XXIV**, *Suppl.*, p. 11.

1931. *Onthophagus ramosellus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 217.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Bihar, Haryana, Himachal Pradesh, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttaranchal and Uttar Pradesh.

Elsewhere : Pakistan.

71. ***Onthophagus ramosus*** (Wied.)

1823. *Copris ramosa* Wied., *Zool. Mag.*, : 21.

1931. *Onthophagus ramosus*: Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 236-237.

1991. *Onthophagus ramosus* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 259.

Material examined : Jabalpur, Garha, 19.viii.1964 (1 ex.), Coll. M.L. Koshta; Seoni, P.T.R., Alikatta, 05.vi.2001 (1ex.), Dr. K. Chandra.

Distribution : India : Bihar, Haryana, Himachal Pradesh, Karnataka, Kashmir, Madhya Pradesh, Maharashtra, Orissa, Punjab, Uttaranchal, Uttar Pradesh and Tamil Nadu.

Elsewhere : Thailand.

72. ***Onthophagus sagittarius*** (Fabricius)

1775. *Copris sagittarius* Fabricius, *Syst. Ent.*, : 21.

1931. *Onthophagus sagittarius* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 304-305.

1991. *Onthophagus sagittarius* Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part-**3**) : 259.

Material examined : Hoshangabad, P.B.R., Bori Sanctuary, 18.ii.2003 (3 exs.), Coll. M.L.Koshta.

Distribution : India : Madhya Pradesh, Orissa, Uttar Pradesh and West Bengal.

Elsewhere : Java, Myanmar, Malay Peninsula and S. China.

73. ***Onthophagus tarandus*** (Fabricius)

1792. *Scarabaeus tarandus* Fabricius, *Ent. Syst.*, **I** : 48.

1931. *Onthophagus tarandus* Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 180.

Material examined : Jabalpur, Hulki vill., 16.viii.2002 (1 ex.), Coll. K.Chandra & P.; Sidhi, Mohania, Bansgaon, 23.vii. 1999 (1ex.), Coll.

K.Chandra & P.; Umaria, B.N.P., Tala Guest House, 24.ix.2002 (4 exs.), Coll. M. L. Koshta & P.

Distribution : India : Bihar, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttaranchal and West Bengal.

74. *Onthophagus zebra* Arrow

1931. *Onthophagus zebra* Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 249.

Material examined : Recorded from literature (Arrow, 1931).

Distribution : India : Karnataka, Madhya Pradesh and Maharashtra

Genus 22. *Phalops* Erichson

75. *Phalops candezi* Lansberg

1833. *Phalops candezi* Lansberg, *Stett. Ent. Zeit.*, **xiv** : 165.

1931. *Phalops candezi* Arrow, *Fauna Brit. India*, (Lamellicornia : Coprinae) **3** : 135.

Material examined : Recorded from literature (Arrow1931).

Distribution : India : Madhya Pradesh, Maharashtra and Tamil Nadu.

76. *Phalops divisus* (Wied.)

1823. *Copris divisus* Wied., *Zool. Mag.*, ii, I : 12.

1931. *Phalops divisus* Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 135.

Material examined : Hoshangabad, P.B.R., Bori Sanctuary, Churna, 11.vi.1999 (3exs.), Coll. K.Chandra & P.; Hoshangabad , P.B.R., Madai, 14.vi.1999 (15 exs.), Coll. K.Chandra & P.

Distribution : India : Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Uttar Pradesh and Tamil Nadu.

Elsewhere : Sri Lanka.

77. *Phalops olivaceus* Lansberg

1833. *Phalops olivaceus* Lansberg, *Stett. Ent. Zeit.*, **xiv** : 164.

1931. *Phalops olivaceus* Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 137.

Material examined : Recorded from literture (Newton & Malcolm 1985).

Distribution : India : Madhya Pradesh.

Genus 23. *Scarabaeus* Linnaeus

78. *Scarabaeus sanctus* (Fabricius)

1798. *Copris sanctus* Fabricius, *Ent. Syst. Suppl.*, : 34.

1913. *Scarabaeus sanctus* : Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 45.

1991. *Scarabaeus sanctus* Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 254.

Material examined : Hoshangabad, P.B.R., Pachmarhi,14.vi.1999 (1 ex.), Coll. K. Chandra & P.; Seoni, P.T.R., Murer,11.vi. 2001 (1ex.), Coll. K. Chandra & P.

Distribution : India : Bihar, Karnataka, Kerala, Madhya Pradesh, Orissa and Tamil Nadu.

Elsewhere : Sri Lanka.

Genus 24. *Sisyphus* Latreille

79. *Sisyphus hirtus* Wied.

1823. *Sisyphus hirtus* Wied., *Zool. Mag.*, **II** : 24.

1931. *Sisyphus hirtus* Arrow, *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 77.

Material examined : Recorded from literature (Newton & Malcolm 1985).

Distribution : India : Karnataka, Madhya Pradesh, Maharashtra and West Bengal.

Elsewhere : Sri Lanka.

80. *Sisyphus longipes* Olivier

1789. *Sisyphus longipes* Olivier, *Entom.*, **I**, 3 : 164. Tf. XIX, fig. 177.

1931. *Sisyphus longipes* : Arrow *Faun. Brit. India*, (Lamellicornia : Coprinae) **3** : 71.

1991. *Sisyphus longipes* Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 254.

Material examined : Seoni, P.T.R., Karmajhiri, 1.vii. 2001 (1ex.), Coll. K.Chandra & P.; Seoni, P.T.R., Baghdeo, 15.vii.2001 (1 ex.), Coll. K. Chandra & P.

Distribution : India : Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu and West Bengal.

Elsewhere : Sri Lanka and Myanmar.

81. ***Sisyphuus neglectus*** Gory

1833. *Sisyphuus neglectus* Gory, *Monog. Sisyphus,* : 14.

1931. *Sisyphus neglectus* Arrow, *Faun. Brit. India,* (Lamellicornia : Coprinae) **3** : 73.

1991. *Sisyphus neglectus* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series,* **I**(Part **3**) : 254.

Material examined : Recorded from Literature (Biswas and Chatterjee, 1991).

Distribution : India : Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Orissa and Uttar Pradesh.

Elsewhere : Pakistan.

Subfamily VIII MELOLONTHINAE

Genus 25. ***Apogonia*** Kirby

82. ***Apogonia*** sp.

1818. *Apogonia* Kirby, *Trans. Linn. Soc.*, **XII** : 401.

1855. *Apogonia*: Burmeister, *Handb. Ent.*, **IV**, 2 : 254.

1904. *Apogonia* : Pering., *Trans. Roy. Soc.*, 5, *Aust. Phil. Soc.*, **XIII** : 289.

Material examined: Seoni, P.T.R., Ghat Kohka, 22.vi.2001 (1ex.), Coll. K. Chandra & P.

Distribution : India : Haryana, Madhya Pradesh, Uttar Prash and Uttaranchal.

Genus 26. ***Holotrichia*** Hope

83. ***Holotrichia ferinosa*** Nonfried

1891. *Holotrichia ferinosa* Nonfried, *Berl. Ent. Zeitschr.*, **XXX** : 228.

1971. *Holotrichia ferinosa* : Frey, *Ent. Arb. Mus.*, : 209.

Material examined : Recorded from literature (Nonfr.,1891).

Distribution : India : South and Central India.

84. ***Holotrichia rufoflava*** Brenske

1894. *Holotrichia rufoflava* Brenske, *Mem. Soc. ent. Belg.*, II : 63.

1971. *Holotrichia rufoflava* : Frey, *Ent. Arb. Mus.*, : 210.

Material examined : Recorded from literature (Brenske, 1894).

Distribution : India : Central India.

Elsewhere : Sri Lanka.

85. ***Holotrichia sculupticollis*** Blanchard

1850. *Holotrichia sculupticollis* Blanchard, *Cat. Coll. Ent.*, **I** : 139.

Material examined : Seoni, P.T.R., Karmajhiri, 14.vi.2001 (1 ex.), Coll. K. Chandra & P.

Distribution : India : Madhya Pradesh and Maharashtra.

Remarks : The species is new record from Madhya Pradesh.

Genus 27. ***Schizonycha*** Blanchard

86. ***Schizonycha ruficollis*** (Fabricius)

1781. *Melolontha ruficollis* Fabricius, *Spec. Ins.*, **7** : 39.

1850. *Schizonycha ruficollis*: Blanchard, *Cat. Coll. Ent.*, **1** : 151.

1923. *Schizonycha ruficollis*: Arrow, *Rec. Indian Mus.*, **25**(2) : 250.

1991. *Schizonycha ruficollis*: Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series,* **I**(Part **3**) : 251.

Material examined : Jabalpur, Pachpedi, 2.vii.1964 (7 exs.), Coll. J. S. Bhatti.

Distribution: India: Bihar. Madhya Pradesh, Orissa, Uttar Pradesh, Uttaranchal and West Bengal.

87. ***Schizonycha hausseri*** Nonfried

1891. *Schizonycha hauseri* Nonfried, *Berl. Ent. Zeitschr.*, **XXXVI** : 226.

Material examined : Recorded from literature (Nonfr, 1891).

Distribution : India : Central India.

Subfamily IX RUTELINAE

Genus 28. ***Rhinyptia*** Burm

88. ***Rhinyptia testacea*** Nonfried

1891. *Rhinyptia testacea* Nonfried, *Berl. Ent. Zeitschr.*, **XXXVI** : 230.

Material examined : Recorded from literature (Nonfried, 1891).

Distribution : India : Central India.

Genus 29. ***Adoretus*** Castelnau

89. ***Adoretus bicaudatus*** Arrow

1914. *Adoretus bicaudatus* Arrow, *Ann, Mag. Nat. Hist.*, (8), xiii : 587.

1917. *Adoretus bicaudatus* Arrow, *Faun. Brit. India*, (Lamellicornia: Rutelinae) 2 : 310.

Material examined : Hoshangabad, P.B.R., Madai, 13.vi.1999 (31 exs.), Coll. K.Chandra & P.; Umaria, B.N.P., Tala Guest House, 29.ix.2002 (3 exs.) Coll. R.K. Singh & P.

Distribution : India : Madhya Pradesh, West Bengal and Tamil Nadu.

Elsewhere : Bangladesh and Sri Lanka.

90. ***Adoretus bicolar*** Brenske

1893. *Adoretus bicolar* Brenske, *Ann. Soc. Ent. Belg.*, xxxvii : 142.

1917. *Adoretus bicolar* Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) 2 : 347.

Material examined : Hoshangabad, P.B.R., Churna Forest Rest house, 10.vi.1999 (1ex.) Coll.K.Chandra & P.; Hoshangabad, P.B.R., Madai, 13.vi.1999 (3 exs.), Coll. K. Chandra & P.

Distribution : India : Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Sikkim, Tamil Nadu and West Bengal.

91. ***Adoretus duvauceli*** Blanchard

1851. *Adoretus duvauceli* Blanchard, *Cat. Coll. Ent. Mus. Paris*, : 432.

1917. *Adoretus duvauceli* Arrow, *Faun. Brit. India*, (Lamellicornia: Rutelinae) 2 : 343.

Material examined : Umaria, Tala Guest house, 26.ix.2002 (1ex.), Coll. R. K. Singh & P.

Distribution : India : Haryana, Madhya Pradesh, Uttar Pradesh and West Bengal.

92. ***Adoretus lasiopygus*** Burmeister

1855. *Adoretus lasiopygus* Burmeister, *Handb. Ent.*, 12(6) : 530.

1910. *Adoretus lasiopygus* Arrow, *Faun. Brit. India*, (Lamellicornia: Rutelinae) 2 : 349.

1991. *Adoretus lasiopygus*: Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, I(Part 3) : 250.

Material examined : Hoshangabad, P.B.R., Bori Sanctuary, Churna Forest Rest House, 13.vi. 1999 (1ex.), Coll. K.Chandra & P.; Seoni, P.T.R., Karmajhiri, 6.vi. 2001 (1ex.), Coll. K.Chandra & P.

Distribution : India : Assam, Bihar, Haryana, Jharkhand, Karnataka, Madhya Pradesh Maharashtra, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Bangladesh and Sri Lanka.

93. ***Adoretus lobiceps*** Arrow

1917. *Adoretus lobiceps* Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) 2 : 303.

Material examined: Recorded from literature (Arrow 1917).

Distribution : India : Gujarat, Madhya Pradesh and Maharashtra.

94. ***Adoretus longiceps*** Frey

1971. *Adoretus longiceps* Frey, *Ent. Arb. Mus. Frey*, xxii : 119.

Material examined : Recorded from literature (Machatsche, 1972).

Distribution : India : Madhya Pradesh.

95. ***Adoretus stoliczkae*** Ohaus

1914. *Adoretus stoliczkae* Ohaus, *Deutsche Ent. Zeits.*, : 400.

1917. *Adoretus stoliczkae* Arrow, *Faun. Brit. India*, (Lamellicornia: Rutelinae) 2 : 336.

Material examined : Recorded from literature (Arrow 1917).

Distribution : India : Gujarat, Madhya Pradesh and Maharashtra.

96. ***Adoretus versutus*** Harold

1869. *Adoretus versutus* Harold, *Col. Hefte.*, V : 124.

1917. *Adoretus versutus* Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) 2 : 350-351.

Material examined : Jabalpur, Railway hostel, 02.07.2003 (1ex.), Coll. Subhash Chandra.

Distribution : India: Haryana, Madhya Pradesh (Jabalpur), Uttar Pradesh and West Bengal.

Genus 30. ***Anomala*** Samouelle

97. ***Anomala bengalensis*** Blanchard

1850. *Anomala bengalensis* Blanchard, *Cat. Coll. Ent. Mus. Paris*, : 182.

1917. *Anomala bengalensis* : Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 143.

Material examined : Seoni, P.T.R., Ghat Kohka, 22.vi.2001 (8 exs.), Coll. K. Chandra & P.; Seoni, P.T.R., Karmajhiri, 9.vi. 2001 (4 exs.), Coll. K. Chandra & P.

Distribution : India : Andhra Pradesh, Bihar, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

Elsewhere : Myanmar.

Remarks : The species is new record from Madhya Pradesh.

98. ***Anomala biharensis*** Arrow

1917. *Anomala biharensis* Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 166.

Material examined : Hoshangabad, P.B.R., Bori Sanctuary, Churna Forest Rest House, 16.iv.2001 (1ex.), Coll. Y.N. Gupta & P.; Seoni, P.T.R., Karmajhiri, 6,8,9.vi. 2001 (6 exs.), Coll. K.Chandra & P.

Distribution : India : Bihar, Haryana, Madhya Pradesh, Uttar Pradesh and Uttaranchal.

Remarks : The species is new record from Madhya Pradesh.

99. ***Anomala dimidiata*** (Hope)

1831. *Euchlora dimidiata* Hope, *Gray Zool. Misc.*, : 23.

1840. *Euchlora sulcata* : Hope, *Mag. Nat. Hist. Soc.*, **(2)** iv : 349.

1917. *Anomala dimidiata* : Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 232.

Material examined : Seoni, P.T.R., Totladoh, 30.viii.2001 (1 ex.), Coll. K. Chandra & P.

Distribution : India: Assam, Kashmir, Madhya Pradesh, Meghalaya, Punjab, Sikkim, Uttar Pradesh and Uttaranchal.

Remarks : The species is new record from Madhya Pradesh.

100. ***Anomala dorsalis*** (Fabricius)

1775. *Melolontha dorsalis* Fabricius, *Syst. Ent.*, : 35.

1844. *Anomala dorsalis* : Fabricius, *Handb. Ent.*, **IV**, i : 232.

1917. *Anomala dorsalis* : Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 136.

Material examined : Hoshangabad, P.B.R., Madai,14.vi. 1999 (1 ex.), Coll. K.Chandra & P.

Distribution : India : Andaman Island, Assam, Bihar, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Sikkim, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

Remarks : The species is new record from Madhya Pradesh.

101. ***Anomala dorsalis fraterna*** Burmeister

1844. *Anomala fraterna* Burmeister, *Handb. Ent.*, **IV**,i : 232.

1917. *Anomala dorsalis fraterna* : Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 137.

Material examined : Jabalpur, Pachpedi, 2.vi.1964 (1 exs.), Coll. J. S. Bhatti; Jabalpur, Pachpedi, 25.vii.1964 (2 ex.), Coll. J.S.Bhatti.

Distribution : India : Bihar, Haryana, Madhya Pradesh, Punjab and West Bengal.

Remarks : The subspecies is new record from Madhya Pradesh.

102. ***Anomala ruficapilla*** Burmeister

1855. *Anomala ruficapilla* Burmeister, *Handb. Ent.*, **IV**, 2 : 49.

1917. *Anomala ruficapilla*: Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 153.

Material examined : Seoni, P.T.R., Alikatta, 20.vi.2001 (1 ex.), Coll. R.K.Singh & P.

Distribution : India : Haryana, Madhya Pradesh, Maharashtra, Mysore and Uttar Pradesh.

Elsewhere : Sri Lanka.

Remarks : The species is new record from Madhya Pradesh.

103. *Anomala rugosa* Arrow

1899. *Anomala rugosa* Arrow, *Trans .Ent. Soc. Lond.*, : 263.

1917. *Anomala rugosa* Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 150.

Material examined : Seoni, P.T.R., Turiya, 23.vi. 2001 (2 exs.), Coll. K.Chandra & P.; Seoni, P.T.R., Karmajhiri, 8.viii.2001 (2 exs.), Coll. K.Chandra & P.

Distribution : India : Himachal Pradesh, Madhya Pradesh, Punjab, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere: Nepal.

Remarks : The species is new record from Madhya Pradesh.

104. *Anomala varicolor* (Gyllenthal)

1817. *Melolontha vericolar* Gyllenthal, *Schonh. Syn. Ins.*, I, 3, App. : 114.

1917. *Anomala vericolar*: Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 152.

1991. *Anomala varicolor*: Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, I(Part 3) : 250.

Material examined : Hoshangabad, P.B.R., Madai,14.vi. 1999 (2 exs.), Coll. K.Chandra & P.

Distribution : India : Bihar, Karnataka, Madhya Pradesh, Sikkim, Uttar Pradesh, Tamil Nadu and West Bengal.

Elsewhere : Sri Lanka and South China.

Genus 31. *Mimela* Kirby

105. *Mimela macleayana* (Vigors)

1825. *Euchlora macleayana* Vigors, *Zool. Journ.*, I : 540.

1844. *Mimela macleayana* Burmeister, *Handb. Ent.*, iv, 1 : 291.

1910. *Mimela macleayana* Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 105

Material examined : Seoni, P.T.R., Karmajhiri, 10.vi.2001 (2 exs.), Coll. K. Chandra & P. : Umaria, B.N.P., Tala Guest House, 24.ix.2002 (1 ex.), Coll. M.L. Koshta & P.

Distribution : India : Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra and Mysore.

Elsewhere : Sri Lanka.

Remarks : The species is new record from Madhya Pradesh.

106. *Mimela xanthorrhina* Hope

1937. *Mimela xanthorrhina* Hope, *Coleopterist's Manual*, i : 120.

1917. *Mimela xanthorrhina*: Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 122.

Material examined : Hoshangabad, P.B.R., Mahadev Forest Guest House, 4.vi.1999 (3 exs.), Coll. K. Chandra & P.

Distribution : India : Kerala, Madhya Pradesh and Tamil Nadu.

Remarks : The species is new record from Madhya Pradesh.

Genus 32. *Oxyadoretus* Arrow

107. *Oxyadoretus nasutus* Arrow

1931. *Oxyadoretus nasutus* Arrow, *Faun. Brit. India*, (Lamellicornia : Rutelinae) **2** : 282.

Material examined : Shivpuri, S.S.S. Club, 27.ix.1975 (1 ex.), Coll. R.K. Singh & P.

Distribution : India : Madhya Pradesh.

Genus 33. *Prodoretus* Brenske

108. *Prodoretus indicus* Machatschke

1959. *Prodoretus indicus* Machatschke, *Ent. Arb. Mus. Frey*, X, I : 274.

Material examined : Recorded from literature (Machatschke, 1972).

Distribution : India : Madhya Pradesh.

Subfamily X DYNASTINAE

Genus 34. ***Phyllognathus*** Eschscholtz

109. ***Phyllognathus dionysius*** (Fabricius)

1792. *Scarabaeus dionysius* Fabricius, *Ent. Syst.*, **1** : 20.

1910. *Phyllognathus dionysius* : Arrow, *Faun. Brit. India*, (Lamellicornia : Dynastinae) **I** : 307.

1991. *Phyllognathus dionysisus* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 249.

Material examined: Hoshangabad, P.B.R., Bori Sanctuary, 8, 9.vi.1999 (3 exs.), Coll. K.Chandra & P.; Seoni, P.T.R., Karmajhiri, 6.vi.2001 (1 ex.), Coll. K.Chandra & P.

Distribution : India : Andhra Pradesh, Bihar, Himachal Pradesh, Haryana, Karnataka, Madhya Pradesh (Hoshangabad, Seoni), Maharashtra, Mysore, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh, Uttaranchal and West Bengal.

Elsewhere : Sri Lanka.

Genus 35. ***Alissonotum*** Arrow

110. ***Alissonotum piceum*** (Fabricius)

1775. *Scarabaeus piceus* Fabricius, *Syst. Ent.*, **1** : 14.

1910. *Alissonotum piceum*: Arrow, *Faun. Brit. India*, (Lamellicornia : Dynastinae) **I** : 299.

1991. *Alissonotum piceum* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 248.

Material examined : Narsinghpur, Gadarwara, Mankawara, 3.viii.2000 (5 exs.), Coll. Prayag Raj.

Distribution : India : Kerala, Madhya Pradesh, Orissa, Tamil Nadu and West Bengal.

Elsewhere : Sri Lanka and Bangladesh.

Remarks : The species is new record from Madhya Pradesh.

Genus 36. ***Dipelicus*** Hope

111. ***Dipelicus cantator*** Arrow

1910. *Dipelicus cantator* Arrow, *Faun. Brit. India*, (Lamellicornia : Dynastinae) **I** : 313.

1991. *Dipelicus cantator* Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 249.

Material examined : Narsinghpur, Kareli Guest House,8.xii.1964 (1ex.),Coll. A.N.T. Joseph; Umaria, B.N.P., Tala Guest House, 22.ix. 2002 (1ex.), Coll. M.L. Koshta & P.

Distribution: India : Madhya Pradesh and Orissa.

Remarks : The species is new record from Madhya Pradesh.

Genus 37. ***Eophileurus*** Arrow

112. ***Eophileurus platypterus*** (Wied.)

1823. *Geotrupes platypterus* Wied., *Zool. Mag.*, **ii**, 1 : 5.

1910. *Eophileurus platypterus* Arrow, *Faun. Brit. India*, (Lamellicornia : Dynastinae) **I** : 289.

1991. *Eophileurus platypterus* Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, **I**(Part **3**) : 248.

Material examined : Seoni, P.T.R., Ghat Kohka, 22.vi.2001 (1ex.), Coll. K.Chandra & P.

Distribution: India: Haryana, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal.

Remarks : The species is new record from Madhya Pradesh.

113. ***Eophileurus perforatus*** Arrow

1908. *Eophileurus perforatus* Arrow, *Trans. Ent. Soc. Lond.*, : 332

1910. *Eophileurus perforatus* Arrow, *Faun. Brit. India*, (Lamellicornia : Dynastinae) **I** : 289.

Material examined: Mandla, K.N.P., Kanha, 17.ix.2003 (1 ex.), Coll. M. Limje & P.

Distribution : India : Karnataka, Madhya Pradesh and Maharashtra.

Genus 38. ***Xylotrupes*** Hope

114. ***Xylotrupes gideon*** (Linnaeus)

1767. *Scarabaeus gideon* Linnaeus, *Syst. Nat.*, 12th ed. **1**(2) : 541.

1910. *Xylotrupes gideon* Arrow, *Faun. Brit. India*, (Lamellicornia : Dynastinae) **I** : 262.

Material examined : Hoshangabad, P.B.R.,

Pachmarhi, Mahadev Forest Guest House, 1.ix.2000 (1ex.), Coll. Y.N Gupta & P.; Hoshangabad, P.B.R., Pachmarhi Forest Guest House, 2.ix.2000 (1 ex.), Coll. Y.N. Gupta & P.; Umaria, B.N.P., Tala Guest House, 28.ix.2002 (2 exs.), Coll. R. K. Singh & P.

Distribution : India : Andaman and Nicobar Islands, Assam, Kerala, Himachal Pradesh, Madhya Pradesh, Maharashtra, Meghalaya and Sikkim.

Elsewhere : Sri Lanka.

Remarks : The species is new record from Madhya Pradesh.

Genus 39. ***Heteronychus*** Burmeister

115. ***Heteronychus lioderes*** Redtenbacher

1867. *Heteronychus lioderes* Redtenbacher, *Reise der Novara, Zool. Col.*, II : 75

1910. *Heteronychus lioderes* Arrow, *Faun. Brit. India*, (Lamellicornia : Dynastinae) I : 295.

1991. *Heteronychus lioderes* : Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, I(Part 3) : 248.

Material examined : Jabalpur, 2.vii. 1964 (1 ex.), Coll. J.S. Bhatti; Seoni, P.T.R., Turiya, 23.vi.2001 (1 ex.), Coll. K. Chandra & P.

Distribution : India : Assam, Haryana, Madhya Pradesh, Maharashtra and West Bengal.

Elsewhere : Bangladesh, Celebes, Java, Myanmar, Malaya Peninsula and Nepal.

Remarks : The species is new record from Madhya Pradesh.

Subfamily XI CETONIINAE

Genus 40. ***Anatona*** Burmeister

116. ***Anatona stillata*** (Newman)

1838. *Cetonia stillata* Newman, *Ent. Mag.*, V : 169.

1842. *Cetonia lignea* Blanchard, *Liste Cet. Mus.* Paris, : 8.

1910. *Anatona stillata* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 114.

Material examined : Bhopal, V.V.N.P., Park Campus, 12.x.2003 (1 ex.) Coll. Subhash Chandra.

Distribution : India : Madhya Pradesh, Maharashtra, Uttar Pradesh, Uttaranchal and West Bengal.

Genus 41. ***Chiloloba*** Burmeister

117. ***Chiloloba acuta*** (Wied.)

1823. *Cetonia acuta* Wied., *Zool. Mag.*, II, 1 : 8.

1910. *Chiloloba acuta* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 172.

Material examined : Chhindwara, P.B.R., Around Parsia, 25.x. 2002 (1 ex.), Coll. Y.N. Gupta & P.; Umaria, B.N.P., 30.ix.2002 (2 exs.), Coll. R. K. Singh & P.

Distribution : India : Haryana, Karnataka, Madhya Pradesh, Maharashtra, Sikkim, Tamil Nadu, Uttar Pradesh and Uttaranchal.

Genus 42. ***Clinteria*** Burmeister

118. ***Clinteria klugi*** (Hope)

1831. *Cetonia klugi*, Hope, *Gray's Zool. Misc.*, : 25.

1842. *Clinteria hilaris* : Burmeister *Handb. Ent.*, iii : 601.

1910. *Clinteria klugi* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 187.

1991. *Clinteria klugi* Biswas & Chatterjee, *Fauna of Orissa, State Fauna Series*, I(Part 3) : 247.

Material examined : Jabalpur, Katni Road, Adhartal, 3. ix. 1975 (3 exs.), Coll. H. Khajuria; Hoshangabad, P.B.R., Pachmarhi, Mahadev Forest Guest House, 7. vi. 1999 (21 exs.), Coll. K.Chandra & P.; Umaria, B.N.P., Tala Guest House, 26.ix.2002 (2 exs.), Coll. R.K. Singh & P.

Distribution : India : Bihar, Haryana, Madhya Pradesh, Maharashtra, Uttar Pradesh, Uttaranchal, Tamil Nadu and West Bengal.

Remarks : The species is new record from Madhya Pradesh.

119. ***Clinteria hearsiana*** Westwood

1849. *Clinteria hearsiana* Westwood, *Trans. Ent. Soc. Lond.*, V : 149, pl. 16.

1910. *Clinteria hearsiana* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 188.

Material examined : Hoshangabad, P.B.R.,

Pachmarhi, Nandia vill.,7.vi. 1999 (2 exs.), Coll. K.Chandra & P.

Distribution : India : Bihar, Karnataka, Madhya Pradesh, Maharashtra, Mysore, Orissa, Tamil Nadu, Uttaranchal and West Bengal.

Remarks : The species is new record from Madhya Pradesh.

Genus 43. ***Heterorrhina*** Westwood

120. ***Heterorrhina elegans*** (Fabricius)

1781. *Cetonia elegans* Fabricius, *Spec. Ins.*, I : 56.

1910. *Heterorrhina elegans* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 93.

Material examined : Seoni, P.T.R., Bodanala, 20.vi.2001 (2 exs.), Coll. K.Chandra & P.; Seoni, P.T.R., Chhindimatta, 20.vi.2001 (1 ex.), Coll. K.Chandra & P.

Distribution : India : Bihar, Jharkhand, Madhya Pradesh, Mysore and Tamil Nadu.

Elsewhere : Sri Lanka.

Remarks : The species is new record from Madhya Pradesh.

Genus 44. ***Oxycetonia*** Arrow

121. ***Oxycetonia versicolor*** (Fabricius)

1775. *Cetonia versicolar* Fabricius, *Syst. Ent.*, : 51.

1833. *Cetonia luctuosa* G. & P., *Monogr. Cet.*, : 283.

1910. *Oxycetonia versicolar* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 164.

Material examined : Seoni, P.T.R., Katangi, 12.vi.2001 (1 ex.), Coll. K. Chandra & P.; Seoni, P.T.R., Karmajhiri, 5.vi.2001 (1 ex.), Coll. K. Chandra & P.

Distribution : India : Assam, Karnataka, Madhya Pradesh, Tamil Nadu and West Bengal.

Elsewhere : Bhutan, Mauritius, Madagascar, Pakistan and Sri Lanka.

Genus 45. ***Protaetia*** Burmeister

122. ***Protaetia aurichalcea*** Fabricius

1775. *Protaetia aurichalcea* Fabricius, *Syst. Ent.*, : 45.

1910. *Protaetia aurichalcea* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 143.

Material examined: Jabalpur, Hulki vill., 16.viii.2002 (1 ex.), Coll. K.Chandra & P.; Jabalpur, Garha, 29.ix,.1968 (1 ex.), Coll. M. L Koshta; Hoshangabad, P.B.R., Pachmarhi, 18.ii.2003 (1ex.), Coll. M. L. Koshta.

Distribution : India : Bihar, Madhya Pradesh, Tamil Nadu and West Bengal.

Elsewhere : Mauritius and Sri Lanka.

Remarks : The species is new record from Madhya Pradesh.

123. ***Protaetia alboguttata*** (Vigors)

1826. *Cetonia alboguttata* Vigors, *Zool. Journ.*, ii : 238.

1910. *Protaetia alboguttata* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 162.

Material examined : Jabalpur, Tilwaraghat, 21.vii. 1999 (1 ex.), Coll. M. L. Koshta; Jabalpur, Railway Hostel, 22.vii.2003 (1ex.), Coll. Subhash Chandra.

Distribution : India : Bihar, Gujarat, Madhya Pradesh, Maharashtra, Mysore, Uttar Pradesh and Uttaranchal.

Elsewhere : Sri Lanka.

124. ***Protaetia terrosa*** G. & P.

1833. *Cetonia terrosa*, G & P, *Monogr. Ceto.*, : 264, pl. 51, fig 1.

1888. *Cetonia irrorata* Wallace, *Trans. Ent. Soc. Lond.*, (8) iv : 588.

1910. *Protaetia terrosa* Arrow, *Faun. Brit. India*, (Lamellicornia : Cetoniinae) I : 157.

Material examined : Recorded from literature (Arrow 1931).

Distribution : India : Gujarat, Madhya Pradesh, Maharashtra and West Bengal.

SUMMARY

The paper presents a comprehensive account on scarabaeid beetles of Madhya Pradesh, which

includes the annotated list and also incorporates the information on district-wise localities. In total, 124 species/subspecies of scarabaeid beetles belonging to 45 genera and 11 subfamilies are known from Madhya Pradesh. Of these, 27 species are recorded for the first time from Madhya Pradesh.

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Fauna of Madhya Pradesh (including Chhattisgarh), State Fauna Series, **15**(Part-1) : 301-345, 2007

INSECTA : LEPIDOPTERA : RHOPALOCERA (BUTTERFLIES)

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INTRODUCTION

Butterfly fauna of the state has been previously studied by Betham (1891), Marshall and De Niceville (1882), Evans (1932), Gupta and Shukla (1987), Talbot, (1939, 1947), Swinhoe (1886), Singh (1977a, 1977b, 1995), Singh and Koshta (1997), Witt (1909), Wynter-Blyth (1957) and Chaudhury (1995).

The present work is an attempt to provide a comprehensive account of Rhopalocera from Madhya Pradesh based on collections present in the National Zoological Collection of Central Regional Station, Jabalpur. The species which recorded from the literature and are not available for study have been included in the paper (mark-*). Altogether 135 species belonging to 78 genera and 9 families are reported from Madhya Pradesh.

SYSTEMATIC ACCOUNT

Order LEPIDOPTERA

Suborder RHOPALOCERA

Family PAPILIONIDAE

1. *Graphium nomius nomius* (Esper)
2. *Papilio demoleus demoleus* Linnaeus
3. *Papilio polytes romulus* Cramer
4. *Papilio polymnestor polymnestor* Cramer

Family PIERIDAE

5. *Anapheis aurota aurota* (Fabricius)
6. *Appias libythea libythea* (Fabricius)
*7. *Appias lycinda latifasciata* Moore
8. *Catopsilia florella gnoma* (Fabricius)
9. *Catopsilia pomona* (Fabricius)
10. *Catopsilia pyranthe pyranthe* (Linnaeus)
11. *Cepora nerissa phryne* (Fabricius)
12. *Colotis calais amata* (Fabricius)
*13. *Colotis danae danae* (Fabricius)
14. *Colotis etrida etrida* (Boisduval)
*15. *Colotis eucharis* (Fabricius)
16. *Colotis fausta fausta* (Olivier)
17. *Colotis vestalis vestalis* (Butler)
18. *Delias eucharis* (Drury)
*19. *Delias hyparete ethire* Doherty
20. *Eurema brigitta rubella* (Wallace)
21. *Eurema hecabe simulata* (Moore)
22. *Eurema laeta laeta* (Boisduval)
23. *Ixias marianne* (Cramer)
24. *Ixias pyrene sesia* (Fabricius)
*25. *Pieris canidia indica* Evans
26. *Valeria ceylanica ceylanica* (C. & R. Felder)
27. *Valeria valeria hippia* (Fabricius)

Family DANAIDAE

28. *Danaus chrysippus chrysippus* (Linnaeus)
29. *Danaus genutia* (Cramer)
30. *Euploea core core* (Cramer)
31. *Tirumala limniace leopardus* (Butler)

Family SATYRIDAE

*32. *Elymnias hypermnestra undularis* (Drury)
*33. *Lethe rohria neelgheriensis* (Guerin)

34. *Melanitis leda ismene* (Cramer)
35. *Melanitis phedima bethami* de Niceville
*36. *Melanitis zitenius zitenius* (Herbst)
*37. *Mycalesis igilia mercea* Evans
*38. *Mycalesis lepcha bethami* (Moore)
*39. *Mycalesis perseus tabitha* (Fabricius)
*40. *Mycalesis visala visala* Moore
*41. *Orsotrioena medus medus* (Fabricius)
*42. *Ypthima baldus satpura* Evans
*43. *Ypthima ceylonica hubneri* Kirby
*44. *Ypthima lisandra singala* R. Felder

Family NYMPHALIDAE

45. *Ariadne merione* (Cramer)
46. *Athyma perius* (Linnaeus)
47. *Byblia ilithyia* Drury
48. *Cynthia cardui* (Linnaeus)
49. *Euthalia garuda anagama* Fruhstorfer
*50. *Euthalia lepidea lepidea* (Butler)
51. *Hypolimnas bolina* (Linnaeus)
52. *Hypolimnas misippus* (Linnaeus)
53. *Junonia almana almana* (Linnaeus)
54. *Junonia atlites* (Linnaeus)
55. *Junonia hierta hierta* (Fabricius)
56. *Junonia lemonias vaisya* (Fruhstorfer)
57. *Junonia orithya swinhoei* Butler
*58. *Kallima inachus huegeli* (Kollar)
59. *Moduza procris procris* (Cramer)
60. *Neptis hylas astola* Moore
61. *Neptis soma soma* Moore
*62. *Pantoporia hordonia hordonia* (Stoll)
*63. *Parathyma ranga* (Moore)
*64. *Parathyma selenophora* (Crakollarmer)
*65. *Phalanta alcippe* (Cramer)
66. *Phalanta phalantha phalantha* (Drury)
67. *Precis iphita pluviatilis* Fruhstorfer
68. *Symphaedra nais* (Forster)

Family ACRAEIDAE

69. *Acraea violae* (Fabricius)

Family RIODINIDAE

70. *Abisara echerius suffusa* Moore

Family LYCAENIDAE

*71. *Amblypodia amantes amantes* Hewitson
*72. *Amblypodia atrax* Hewitson
*73. *Apharitis lilacinus* (Hewitson)
*74. *Azanus jesous gamra* (Lederer)
*75. *Azanus ubaldus* (Cramer)
*76. *Azanus uranus* Butler
*77. *Castalius caleta decidia* (Hewitson)
*78. *Castalius rosimon rosimon* (Fabricius)
*79. *Catochrysops ella* Butler
*80. *Catochrysops hapalina* Butler
*81. *Catochrysops strabo strabo* (Fabricius)
*82. *Cureits dentata dentata* Moore
*83. *Euchrysops cnejus* (Fabricius)
*84. *Euchrysops contracta contracta* (Butler)
*85. *Euchrysops pandava* (Horsfield)
*86. *Iraota timoleon timoleon* (Stoll)
*87. *Jamides celeno aelianus* (Fabricius)
*88. *Lampides boeticus* (Linnaeus)
*89. *Loxura atymnus continentalis* Fruhstorfer
*90. *Narathura atrax* (Hewitson)
*91. *Pratapa deva deva* (Moore)
92. *Rapala melampus* (Cramer)
*93. *Spindasis elima elima* (Moore)
*94. *Spindasis ictis ictis* (Hewitson)
*95. *Syntarucus plinius* (Fabricius)
*96. *Tajuria jehana* Moore
*97. *Tarucus alteratus* Moore
*98. *Tarucus balkanica nigra* (Bethune-Baker)
*99. *Tarucus callinara* Butler
*100. *Tarucus nara* (Kollar)
*101. *Tarucus theophrastus* (Fabricius)
*102. *Zizeeria gaika* (Trimen)
*103. *Zizeeria knysna karsandra* (Moore)
*104. *Zizeeria maha maha* (Kollar)
*105. *Zizeeria maha ossa* Swinhoe
*106. *Zizeeria otis decreta* Butler
*107. *Zizina otis indica* (Murray)
*108. *Zizina otis sangra* (Moore)

*109. *Zizula hylax* (Fabricius)

Family HESPERIIDAE

*110. *Baoris farri* (Moore)

*111. *Borbo cinnara* (Wallace)

*112. *Caprona ransonnettii ransonnettii* (Felder)

*113. *Celaenorrhinus leucocera* (Kollar)

*114. *Coladenia indrani* (Moore)

*115. *Matapa aria* (Moore)

*116. *Parnara naso* (Fabricius)

*117. *Parnara naso bada* (Moore)

*118. *Pelopidas mathias* (Fabricius)

*119. *Pelopidas mathias mathias* (Fabricius)

*120. *Potanthus confucius* (Felder)

*121. *Spialia galba* (Fabricius)

*122. *Suastus gremius* (Fabricius)

*123. *Taractocera maevius* (Fabricius)

*124. *Telicota ancilla* Herrich Schaffer

*125. *Telicota ancilla bambusae* (Moore)

*126. *Udaspes folus* (Cramer)

List of additional species occuring in the region as per Evans (1932), but details of each species not provided in the manuscript.

*127. *Arnetta vindhiana* Moore

*128. *Astycus pythias bambusae* Moore

*129. *Baoris bevani bevani* Moore

*130. *Padraona cato cato* Evans

*131. *Padraona pseudomaesa pseudomaesa* Moore

*132. *Sarangesa dasahara dasahara* Moore

*133. *Sarangesa purendra* Moore

*134. *Sarangesa sati sati* De N.

*135. *Tagiades atticus khasiana* Moore.

Family PAPILIONIDAE

1. ***Graphium nomius nomius*** (Esper)
The Spot Swordtail

1785-98. *Papilio nomius* Esper, *Die auslandische Schmetterlinge*, : 210, t. 52, fig. 3.

1939. *Graphium nomius nomius* : Talbot, *The Fauna of British India*, Butterflies, **1** : 207.

Fore wing length : 78 mm.

Material examined : 1 ex., Nandiya village, Pachmarhi, dist. Hoshangabad, 07.06.1999. coll. K. Chandra.

Diagnostic characters : Upper side bluish white. Forewing crossed by five broad black bands, the basal and subbasal bands reach the inner margin, the discal band is generally extended into area 2, the fourth band ends on the median vein, the fifth extends from the costa on both sides of the discocellulars and terminates at lower angle of cell; beyond the fifth band is a short macular transverse bar of the ground colour that terminates on vein 5, followed by a very broad black marginal band that occupies about one-third of the width of the wing. Hind wing with the ground colour whitish along the inner margin and above vein 7, vide Talbot (1939).

Distribution : India : Madhya Pradesh (Hoshangabad), South India to Sikkim.

Elsewhere : Sri Lanka.

Host plants : *Saccopetalum tomentosum* and *Polyalthia longifolia.*

Remarks : This is the first report of the species from Madhya Pradesh.

2. ***Papilio demoleus demoleus*** Linnaeus
The Lime Butterfly

1758. *Papilio demoleus* Linnaeus, *Syst. Nat.*, (ed.x) : 464.

1939. *Papilio demoleus demoleus* : Talbot, *The Fauna of British India*, Butterflies, **1** : 189.

Fore wing length : 71-99 mm.

Material examined : 1 ex., Konta, dist. Bastar, 20.1.74, coll. R. K. Singh; 3 exs., Phoop, dist. Bhind, 19.9.94, coll. R.K. Singh; 2 exs., Mehgaon, dist. Bhind, 21.9.94, coll. R.K. Singh; 4 exs., Awasthi farm house, dist Bhind, 5.10.93, coll. R.K. Singh; 1 ex., On Naogaon road Chattarpur, dist Chattarpur, 6.10.93, coll. R. K. Singh; 1 ex., Amarvada, dist. Chattarpur, 12.9.91, coll. R.K. Singh; 1 ex., Chandameta, dist. Chhindwara, 13.9.91, coll. R.K. Singh; 1 ex., Tamia, dist. Chhindwara, 18.9.91, coll. R.K. Singh; 1 ex., Khutama, dist. Chhindwara, 19.9.91, coll. R.K. Singh; 4 exs., Patalkot, dist. Chhindwara between

11-19.10.92, coll. R.K. Singh; 2 exs., Mandav, dist. Dhar, 28.9.99, coll. K. Chandra; 4 exs., Yashwant sagar, dist. Indore, 5.9.80, coll H. P. Agrawal; 2 exs., Sirpur, dist. Indore, 6.9.80, coll. H.P. Agrawal; 7 exs., Amkhas., dist. Jabalpur, 25.9.64, coll. H.P. Agrawal; 1 ex., Gandhigram, dist. Jabalpur, 5.8.66, coll. V.V. Rao; 3 exs., Tilwaraghat, dist. Jabalpur, 6.8.69, coll. V.V. Rao; 1 ex., Agriculture collage, dist. Jabalpur, 23.3.74, coll. R.K. Singh; 1 ex., Adhartal, dist. Jabalpur, 3.9.75, coll. H. Khajuria; 1 ex., Tilwaraghat, dist. Jabalpur, 29.9.75, coll. Rana, N.K. Sinha; 1 ex., Indore vill., dist Jabalpur, 3.10.75, coll. N.K. Sinha; 2 exs., Namola vill., dist. Jabalpur, 26.10.75, coll. H.P. Agrawal; 3 exs., Mohania vill., dist. Jabalpur, 29.10.75, coll. H. P. Agrawal; 1 ex., Bachani tank, dist. Jabalpur, 3.4.76, coll. H. Khajuria; 1 ex., Silua vill., dist. Jabalpur, 24.7.80, coll. H.S. Sharma; 1 ex., Patna, dist. Jabalpur, 10.10.80, coll. S. K. Mishra; 1 ex., Shalipura, dist. Jabalpur, 23.10.80, coll. H. P. Agarwal; 2 exs., Todi vill., dist. Mandsaur, 10.8.90; coll. R. K. Singh; 1 ex., Laduna vill., dist. Mandsaur, 12.8.90, coll. R. K. Singh; 1 ex., Mudali vill., Malhargarh, dist. Mandsaur, 14.8.90, coll. R.K. Singh; 1 ex., Dhanpura vill., dist. Mandsaur, 16.8.90, coll. R.K. Singh; 1 ex., Gandhi sagar, dist. Mandsaur, 17.8.90, coll. R. K. Singh; 3 exs., Rampura, Manasa, dist. Mandsaur, 17.8.90, coll. R. K. Singh; 1 ex., Garod, dist. Mandsaur, 18.8.90, coll. R.K. singh; 1 ex., Ambah, dist. Morena, 7.9.94, coll. R.K. Singh; 1 ex., Porsa, dist. Morena, 8.9.94, coll. R.K. Singh; 3 exs., Dimni, dist. Morena, 9.9.94, coll. R.K. Singh; 5 ex., Mahua, dist. Morena, 12.9.94, coll. R.K. Singh; 1 ex., Samai, dist. Mandsaur, 13.9.94, coll. R.K. Singh; 34 exs., Mandi, Morena, dist. Morena, 14.9.94, coll. R.K. Singh; 7 exs., Pahadgarh, dist. Morena, 15.9.94, coll. R.K. Singh; 2 exs., Dharmjaygarh, dist. Raigarh, 6.4.92, coll. R.K. Singh; 4 exs., Jaora, dist. Ratlam, 11.4.91 coll. R.K. Singh; 1 ex., Motinagar, dist. Ratlam, 13.4.94, coll. R.K. Singh; 5 exs., Rebli, dist. Sagar, 17.10.92, coll. H. P. Agrawal; 1 ex., Punjab garden, Ambikapur, dist. Sarguja, 9.4.92, coll. R. K. Singh; 1 ex., Pench National Park, dist. Seoni, 8.1.73, coll. N. K. Sinha; 1 ex., Pench National Park, dist. Seoni, 10.1.73, coll. R.K. Singh; 2 exs., Bandavgarh National Park, dist. Shahdol, 4.3.76, coll. N. K. Sinha; 7 exs., Madhav National Park, dist. Shivpuri, 24.9.75, coll. R. K. Singh; 5 exs., Madhav National Park, dist. Shivpuri, 11.9.76, coll. H. P. Agrawal; 1 ex., Kundleshwar, dist. Tikamgarh, 24.9.93, coll. R. K. Singh; 2 exs., 2 exs., Majara vill, dist. Tikamgarh, 26.9.93, coll. R. K. Singh; 1 ex., Near Bharthari cave, dist. Ujjain, 29.8.90, coll. R. K. Singh; 1 ex., Khachrod, dist. Ujjain, 31.8.90, coll. R. K. Singh; 3 exs., Mangalnath, dist. Ujjain, 1.9.90, coll. R.K. Singh; 2 exs., Jaisinghpura vill., dist. Ujjain 4.9.90, coll. R.K. Singh; 2 exs., Badnagar, dist. Ujjain 5.9.90, coll. R. K. Singh; 1 ex., Birlagram, Nagda, dist. Ujjain, 4.4.91, coll. R. K. Singh.

Diagnostic characters : Antennae dark reddish brown; head, thorax, and abdomen dusky black. The base below cell and basal half of forewing form more or less complete transverse dotted lines; two outwardly oblique yellow spots in the cell and a curved spot at its upper apex; a spot at the base and another beyond it in area 8; a discal transverse series of creamy yellow spots, irregular in arrangement and size, extends from area 1a to 8, interrupted in area 5, and the spot in area 7 double. Hind wing with the base, and an edging that decreases in width along the inner margin, irrovated with yellow scales.

Distribution : India : Madhya Pradesh (Bastar, Bhind, Chhatarpur, Chhindwara, Dhar, Indore, Jabalpur, Mandsaur, Morena, Raigarh, Ratlam, Sagar, Seoni, Shahdol, Shivpuri, Sarguja, Tikamgarh, Ujjain), Bihar, Delhi, Orissa, Uttar Pradesh and almost throughout India.

Elsewhere : Sri Lanka, North Myanmar, Pakistan.

Host plants : Cultivated *Citrus: Citrus aurantium; C. hystrix; C. maxima; C. medica; Faronia elephantum; Zanthoxylum rhetsa; Ziziphus mauritiana; Glycosmis pentaphylla; Ruta graveoleus; Aegle marmelos; Murraya koenigii;* and *Chloroxylon swietenia.*

Remarks : Its status is 'very common' Singh (1977a) reported the species from Madhav

National Park, Shivpuri. Singh (1977b) and Gupta and Shukla (1987) reported the species from Bastar district. This is the first report of the species from Bhind, Chhatarpur, Chhindwara, Dhar, Indore, Jabalpur, Mandsaur, Morena, Rajgarh, Ratlam, Sagar, Sarguja, Seoni, Shahdol, Tikamgarh and Ujjain districts of Madhya Pradesh.

3. *Papilio polytes romulus* Cramer
The Common Mormon

1775. *Papilio romulus* Cramer, *Pap. Exot.*, 1 : 67.

1939. *Papilio polytes romulus* : Talbot, *The Fauna of Brit. India*, Butterflies, 1 : 178.

Fore wing length : 78-107 mm.

Material examined : 4 exs., Mandav, dist. Dhar, 1.3.99, coll. K. C. Chandra 1 ex., Pachpedi, dist. Jabalpur, 4.9.67, coll. M. L. Koshta; 1 ex., Pachpedi, dist. Jabalpur, 19.1.73, coll. M. Kashyap; 1 ex., Madan Mahal, dist. Jabalpur, 7.9.73, coll. R. K. Singh; 1 ex., Soopatal, dist. Jabalpur, 9.10.73, coll. L. P. Dubey; 1ex., Lametaghat, dist. Jabalpur, 10.7.74, coll. B. S. Gurm; 2 exs., Amkhas, dist. Jabalpur, 13.8.74, coll. B. S. Gurm; 1 ex., Adhartal, dist. Jabalpur, 17.10.75, coll. H. Khajuria· 1 ex., Deotal, dist. Jabalpur, 1.12.76, coll. M. Kashyap; 1 ex., tilwaraghat dist., Jabalpur, 4.3.76, coll. N. K. Sinha; 3 exs., Amkhas, dist. Jabalpur, 23.9.78, coll. L. P. Dubey; 1 ex., Shahpura vill., dist. Jabalpur 20.9.79, coll. S. K. Mishra; 1 ex., Dongaghat, dist. Bastar, 10.1.74, coll. R. K. Singh; 6 exs., Phoop, dist. Bhind, 19.9.94, coll. R. K. Singh; 6 exs., Mehgaon, dist. Bhind, 21.9.94, coll. R. K. Singh; 1 ex., Katuriya vill., dist. Chhatarpur, 30.9.93, coll. R. K. Singh; 1 ex., Shohara vill., dist. Chhatarpur, 3.10.93, coll. R. K. Singh; 2 exs., Hama Depo, dist. Chhatarpur, 4.10.93, coll. R. K. Singh; 1 ex., Patalkot dist. Chhindwara 26.2.94, coll. H. S. Sharma; 1 ex., Jobat, dist. Jhabua, 4.3.99, coll. K. Chandra; 1 ex., Thandla, dist. Jhabua, 3.1.99, coll. K. Chandra; 4 ex., Jagved Nagar, dist. Morena, 6.9.94, coll. R. K. Singh; 2 exs., Ambah, dist. Morena, 7.9.94, coll. R. K. Singh; 2 exs., Badokhar, dist. Morena, 11.9.94, coll. R. K. Singh; 1 ex., Mahua, dist. Morena, 10.9.94, coll. R. K. Singh; 1 ex., Samai, dist. Morena, 13.9.94, coll. R. K. Singh; 1 ex., Mandi dist. Morena 14.9.94, coll. R. K. Singh; 8 exs., Burman, dist. Narsinghpur, 5.2.71, coll. V. V. Rao; 1 ex., Amanganj, dist. Panna, 18.2.87, coll. R. K. Singh; 1 ex., Punjab garden, Ambikapur, dist. Sarguja, 9.4.92, coll. R. K. Singh; 1 ex., Rajpura, dist. Sarguja, 9.4.92, coll. R. K. Singh; 1 ex., Rajpura, dist. Sarguja, 10.4.92, coll. R. K. Singh; 1 ex., Chirmari, dist. Sarguja, 13.4.92, coll. R. K. Singh; 1 ex., Pench National Park, dist. Seoni, 8.1.73, coll. N. K. Sinha; 4.3.76, coll. N. K. Sinha; 10 ex., Madhav National Park, dist. Shivpuri, 16.9.75-2.10.75, coll. R. K. Singh; 1 ex., Madhav National Park, dist. Shivpuri 14.9.76, coll. H. P. Agarwal; 1 ex., Orchha, dist. Tikamgarh, 19.9.93, coll. R. K. Singh; 1 ex., Patha, dist. Tikamgarh, 18.3.94, coll. U. A. Gajbe; 1 ex., Newori, dist. Tikamgarh, 20.3.94, coll. U.A. Gajbe; 1 ex., Near Kal Bhairao, dist. Ujjain, 1.4.91, Coll. R. K. Singh.

Diagnostic characters : Antennae, head, thorax and abdomen black. Outer margin of forewing with a series of white spots which are narrower at the edge of the wing. Hind wing with a transverse discal series of elongate white spots from inner margin to area 7.

Distribution : India : Madhya Pradesh (Bastar, Bhind, Chhatarpur, Chhindwara, Dhar, Jabalpur, Jhabua, Morena, Narsinghpur, Panna, Sarguja, Seoni, Shahdol, Shivpuri, Tikamgarh, Ujjain), Andaman and Nicobar, Assam, Bihar, Delhi, Goa, Kerala, Lakshadweep, Sikkim, Tamil Nadu, Uttar-Pradesh.

Elsewhere : Sri Lanka, Myanmar and Bangla Desh.

Host plants : Cultivated *Citrus; Citrus medica, Glycosmis pentaphylla; Zanthoxylum rhetsa, Aegle marmelos; Murraya koenigii.*

Remarks : Its status is 'common' Singh (1977a) reported the species from Madhav National Park, Shivpuri and Singh (1977b) reported the species from Bastar district. This is the first report of the species from Bhind, Chhatarpur, Chhindwara, Dhar, Jabalpur, Jhabua, Morena, Narsinghpur, Panna, Sarguja, Seoni,

Shahdol, Tikamgarh, Ujjain districts of Madhya Pradesh.

4. *Papilio polymnestor polymnestor* Cramer
The Blue Mormon

1775. *Papilio polymnestor* Cramer, *Pap. Exot.*, **1** : 83.

1939. *Papilio polymnestor polymnestor* : Talbot, *The Fauna of Brit. India,* Butterflies, **1** : 126.

1987. *Papilio polymnestor polymnestor* : Gupta and Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 3-4.

Fore wing length : 146 mm.

Material examined : 1 ex., Tilwaraghat, dist. Jabalpur, 16.11.98, coll. M. L. Koshta.

Diagnostic characters : A discal series of elongate and broader black spots, followed by a submarginal series of almost rounded and small black spots on upperside of hindwing in male. But in female the upperside of hindwing, bears a discal series of rounded and smaller black spots being followed by a series of elongate and broader black spots.

Distribution : India : Madhya Pradesh (Bastar and Jabalpur), Assam, Sikkim, West Bengal, and Peninsular India.

Host plants : *Atlantia sp., Citrus maxima; Garciniaxanthochymus; Glycosmis pentaphylla* and *Parammanophylla* sp.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district. This is the first report of the species from Jabalpur district.

Family PIERIDAE

5. *Anapheis aurota aurota* (Fabricius)
The Pioneer

1793. *Papilio aurota* Fabricius, *Syst. Ent.*, **3** : 197.

1939. *Anapheis aurota aurota* : Talbot, *The Fauna of Brit. India,* Butterflies, **1** : 380.

Fore wing length : 37-63 mm.

Material examined : 1 ex., Gohad; dist. Bhind, 15.1.1995, coll. H. S. Sharma; 1 ex., Barhi, dist. Bhind, 18.9.1994, coll. R. K. Singh; 1ex., Phoop, dist. Bhind, 19.9.1994, coll. R. K. Singh; 9 exs., Madan Mahal, dist. Jabalpur, 16.7.1965, coll. M. L. Koshta; 1 ex., Bargi, dist. Jabalpur, 3.5.1973, coll. N. K. Sinha; 3 exs., Amkher, Jabalpur dist. Jabalpur 12.7.1974; B. S. Gurmi; 2 exs., Jaod, dist. Mandsaur, 6.4.1991, coll. R. K. Singh; 2 exs., Manasa, dist. Mandsaur, 7.4.1991, coll. R. K. Singh; 1 exs., Fish Nursery, Morena, dist. Morena, 12.9.1994, coll. R. K. Singh; 1 ex., Samai, dist. Morena, 13.9.1994, coll. R. K. Singh; 1 ex., Nehru park, Morena, dist. Morena, 9.1.1995, coll. H. S. Sharma; 1 ex., Jaora, dist. Ratlam, 11.4.1991, coll. R. K. Singh; 1 ex., Nawagarh, dist. Sarguja, 11.4.1992, coll. R. K. Singh; 1 ex., Nagda, dist. Ujjain, 28.8.1990, coll. R. K. Singh; 1 ex., Near Bharthari cave, dist. Ujjain, 29.8.1990, coll. R. K. Singh; 1 ex., Tilkeshwar, dist. Ujjain, 2.9.1990, coll. R. K. Singh; 2 exs., Badnagar, dist. Ujjain, 3.4.1991, coll. R. K. Singh.

Diagnostic characters : Upper side white. Fore wing with a prominent curved jet-black discocellular bar; a broad black apical area; six white spots in the apical area of which the anterior four are elongate. Hind wing with a marginal black border, bearing four round white spots in areas 2 to 5.

Distribution : India : Madhya Pradesh (Bhind, Jabalpur, Mandsaur, Morena, Ratlam, Sarguja, and Ujjain), Andaman & Nicobar Islands, Delhi, Karnataka, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Pakistan and Sri Lanka.

Host plants : *Capparis aphylla, C. sepiaria, C. heyneana; Cadaba indica; Maerua arenaria.*

Remarks : This is the first report of the species from Madhya Pradesh.

6. *Appias libythea libythea* (Fabricius)
The Striped Albatross

1775. *Pipilio libythea* Fabricius, *Syst. Ent.*, : 471.

1939. *Appias libythea libythea* : Talbot, *The fauna of Brit. India,* Butterflies, **1** : 394.

Fore wing length : 60 mm.

Material examined : 1 ex., Patalkot, dist. Chhindwara, 11.10.1992, coll. R. K. Singh; 1ex., Mandav, dist. Dhar, 28.2.1999, coll. K. Chandra.

Diagnostic characters : Upper side of male white. Fore wing with costa, apex and outer margin anteriorly shaded with dusky black. But in female, cell largely black; costa, apical areas and outer margin broadly black. Hind wing with outer margin more or less broadly black.

Distribution : India : Madhya Pradesh (Chhindwara and Dhar), Bihar, Delhi, Gujarat, Himachal Pradesh, Maharashtra, Punjab and Uttar Pradesh.

Elsewhere : Sri Lanka.

Host plants : *Crataeva religiosa; Capparis sepiaria, C. roxburghii and C. horrida.*

Remarks : This is the first report of the species from Madhya Pradesh.

7. *Appias lycinda latifasciata* Moore
The Choclate Albatross

1881. *Appias latifasciata* Moore, *Trans. ent. Soc. Lond.*, (3) : 312.

1939. *Appias lycinda latifasciata* : Talbot, *The Fauna of Brit. India*, Butterflies, 1 : 398.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Assam, Orissa, Sikkim, Uttar Pradesh, Peninsular India.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district of Madhya Pradesh.

8. *Catopsilia florella gnoma* (Fabricius)
The African Emigrant

1775. *Papilio gnoma* Fabricius, *Syst. Ent.*, : 828.

1939. *Catopsilia florella gnoma* : Talbot, *The Fauna of Brit. India*, Butterflies, 1 : 500-501.

Fore wing length : 45-62 mm.

Material examined : 1 ex., Supkhar, Balaghat, 2.12.1986, coll. R. K. Singh; 1 ex., Forest Nursery, Bhind, dist. Bhind, 11.1.95, coll. H.S. Sharma; 3 exs., Patalkot, dist. Chhindwara, 13.10.1992, coll. R. K. Singh; 2 exs., Patalkot, dist. Chhindwara, 23.2.1994, coll. H.S. Sharma; 1 ex., Piplapara, dist. Indore, 4.9.1980, coll. H. P. Agrawal; 2 exs., Jhabua, dist. Jhabua, 05.03.1999, coll. K. Chandra; 6 exs., Megh Nagar, dist. Jhabua, 06.03.1999, coll. K. Chandra; 1ex., Devjhiri, dist. Jhabua, 08.03.1999, coll. K. Chandra; 1 ex., Rampurkala, dist. Morena, 10.9.1994, coll. R. K. Singh; 1 ex., Ajaygarh, dist. Panna, 13.02.1987, coll. R. K. Singh; 3 exs., Sarangarh, dist. Raigarh, 28.3.1992, coll. R. K. Singh; 3 exs., Dharmjaigarh, dist. Raigarh, 4.4.1992, coll. R. K. Singh; 1 ex., Mahendra Bag, dist. Tikamgarh, 23.9.1993, coll. R. K. Singh; 1 ex., Orchha, dist. Tikamgarh, 18.9.1993, coll. R. K. Singh.

Diagnostic characters : Male : Upper side white with reddish brown or blackish markings; the outer border having reddish-brown or blackish spots which are free or connected only at the margin. Upper side of hind wing with larger discocellular spots having prominent silvery centres. Female : Upper side, greenish yellow to white. Forewing with prominent discocellular spot.

Distribution : India : Madhya Pradesh (Bastar, Balaghat, Bhind, Chhindwara, Indore, Jhabua, Morena, Panna, Raigarh, Tikamgarh), Andaman and Nicobar Islands, Bihar, Delhi, Goa, Himachal Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, West Bengal, N.W. Himalayas.

Elsewhere : Pakistan, Sri Lanka and Myanmar.

Host plants : *Cassia tora, C. auriculata, C. occidentalis.*

Remarks : Its status is 'common' Gupta and Shukla (1987) recorded the species from Bastar. Singh & Koshta (1997) recorded the species from Kanha National Park. This is the first report of the species from Bhind, Chhindwara, Indore, Jhabua, Morena, Panna, Raigarh and Tikamgarh districts of Madhya Pradesh.

9. *Catopsilia pomona* (Fabricius)
The Lemon Emigrant

1775. *Pipilio pomona* Fabricius, *Syst. Ent.*, : 479.

1939. *Catopsilia pomona* : Talbot, The *fauna of Brit. India*, Butterflies, 1 : 493.

1993. *Catopsilia crocale* : Varshney, *Oriental Ins.*, 27 : 362.

Fore wing length : 52-74 mm.

Material examined : 1 ex., Mukki, dist. Balaghat, 30.11.1986, coll. R. K. Singh; 1 ex., Mukki, dist. Balaghat, 21.1.1991, coll. R. K. Ghosh; 1 ex., Phoop, dist. Bhind, 19.9.94, coll. R. K. Singh; 2 exs., Mehgaon, dist. Bhind, 21.9.1994, coll. R. K. Singh; 1 ex., Khajuraho, dist. Chhatarpur, 2.10.1993, coll. R. K. Singh; 3 exs., Patalkot, dist. Chhindwara, 11.10.1992, coll. R. K. Singh, 2 exs., Junardeo, dist. Chhindwara, 16.9.1991, coll. R. K. Singh; 1 ex., Mandav, dist. Dhar, 01.03.1999, coll. K. Chandra; 3 exs., Panniar, dist. Gwalior, 14.9.1994, coll. H. P. Agrawal; 3 exs. Piplapara, Indore, 4.9.1980. coll. H. P. Agrawal; 2 exs., Near Yashwant Sagar, dist. Indore, 5.9.1980, coll. H. P. Agrawal; 2 exs. Pachpedi, dist. Jabalpur, 17.8.1965, coll. M. L. Khosta; 3 exs., Belkhare, dist. Jabalpur, 17.8.1965, coll. H. P. Agrawal; 1 ex., Bandha vill. dist. Jabalpur, 3.8.1966, coll. H. P. Agrawal; 1 ex., Rani Durgavati Samadhi, dist. Jabalpur, 16.8.1967, coll. V. S. Durve; 4 exs. Tilwaraghat, dist. Jabalpur, 6.8.1975, coll. R. K. Singh; 3 exs., Bargi vill., dist. Jabalpur, 01.07.1980, coll. H. P. Agrawal; 2 exs., Selua vill., dist. Jabalpur 24.7.1980, coll. H. S. Sharma; 1 ex., Meghnagar, dist. Jhabua, 06.3.1999, coll. K. Chandra, 6 exs., Kisli dist. Mandla, 28.5.1964, coll. H. Khajuria; 1 ex., Fish Breeding Centre, dist. Morena, 4.9.1994, coll. R. K. Singh; 1 ex., Jagvednagar, dist. Morena, 6.9.1994, coll. R. K. Singh; 2 exs. Porsa, dist. Morena, 8.9.1994, coll. R. K. Singh; 1 ex., Dimni, dist. Morena, 9.9.1994, coll. R. K. Singh; 2 exs., Rampurkala, dist. Morena, 10.9.1994, coll. R. K. Singh, 1 ex., Badokhar, dist. Morena. 11.9.1994, coll. R. K. Singh, 1 ex., Mahua, dist. Morena, 12.9.1994, coll. R. K. Singh, 2 exs., Pahadgarh, dist. Morena, 15.9.1994, coll. R. K. Singh; 1 ex., Bhondar, dist. Raigarh, 24.9.1991, coll. H. P. Agrawal; 7 exs., Jashpur, dist. Raigarh 24.9.1991, coll. H. P. Agrawal; 1 ex., Dharmjaygarh, dist. Raigarh, 2.10.1991, coll. H. P. Agrawal; 1 ex., Pathalgaon, dist. Raigarh, 3.10.1991, coll. H. P. Agrawal; 1 ex., Alot, dist. Ratlam, 22.8.1990, coll. R. K. Singh; 3 exs., Jaora, dist. Ratlam, 24.8.1990, coll. R. K. Singh; 1 ex., Piplod, dist. Ratlam, 23.10.1990, coll. H. P. Agrawal; 3 exs., Motinagar garden, Ratlam, dist. Ratlam, 13.4.1991, coll. R. K. Singh; 1 ex., Bandhavgarh National Park, dist. Shahdol, 1.3.1976, coll. N. K. Sinha; 1 ex., Orchha, dist. Takamgarh 19.9.1993, coll. R. K. Singh; 1 ex., Kundleshwar, dist. Tikamgarh, 24.9.1993, coll. R. K. Singh; 2 exs., Kaliadeh, dist. Ujjain, 30.8.1990, coll. R. K. Singh; 1 ex., Mangal Nath, dist. Ujjain, 1.9.1990, coll. R. K. Singh; 2 exs., Tilkeshwar, dist. Ujjain, 2.9.1990, coll. R. K. Singh; 2 exs., Badnagar, dist. Ujjain, 5.9.90, coll. R. K. Singh; 2 exs., Near Kal Bhairav, dist. Ujjain, 1.4.1991, coll. R. K. Singh; 1 ex., Birlagram, Nagda, dist. Ujjain, 4.4.1991, coll. R. K. Singh.

Diagnostic characters : Costal margin only black at apex on upper side of forewing and outer marginal narrow border mascular. Ground colour of both wings white. Under side of both wings with silvery red-ringed spots at ends of cells. Antenna red.

Distribution : India : Madhya Pradesh (Balaghat, Bastar, Bhind, Chhatarpur, Chhindwara, Dhar, Gwalior, Indore, Jabalpur, Jhabua, Mandla, Morena, Raigarh, Ratlam, Shahdol, Tikamgarh, and Ujjain), Assam, Andaman and Nicobar Island, Bihar, Delhi, Gujarat, Tamil Nadu, Uttar Pradesh, Maharashtra, West Bengal and North-West Himalayas.

Elsewhere : Sri Lanka, Myanmar and Pakistan.

Host plants : *Cassia fistula, C. siamea; C. tora, C. auriculata, C. grandis, C. javanica, C. nodosa, C. occidentalis, Buteafrondosa, Bauhinia racemosa, Diospyros discolor.*

Remarks : Its status is 'very common', Singh (1995) and Singh and Koshta (1997) recorded the species from Kanha National Park. Gupta and Shukla (1987) treated this species as synonym to C. crocale (Cramer) as per Wheeler (1943). Varshney (1993) included f. crocale Cramer under species pomona Fabr. This is the first report of the species from Bhind, Chhatarpur, Chhindwara, Dhar, Gwalior, Indore, Jabalpur, Jhabua, Morena, Raigarh, Ratlam, Shahdol, tikamgarh, and Ujjain, districts of Madhya Pradesh.

10. *Catopsilia pyranthe pyranthe* (Linnaeus) **The Mottled Emigran**

1758. *Papilio pyranthe* Linnaeus, *Syst. Nat.* ed. 10, 1 : 469.

1939. *Catopsilia pyranthe pyranthe* : Talbot, *The Fauna of Brit. India*, Butterflies, 1 : 497.

Forewing length : 44-63 mm.

Material examined : 1 ex., Phoop, dist. Bhind, 19.9.1994, coll. R. K. Singh; 1 ex., Central Semen Centre, dist. Chhatarpur, 1.10.1993 and 1 ex., Khajuraho, dist. Chhatarpur, 2.10.1993, coll. R. K. Singh; 1 ex., Khutama, dist. Chhindwara, 10.9.1991; 1 ex., Amarwada, dist. Chhindwara, 12.9.1991 and 1 ex., Junnardeo, dist. Chhindwara, 16.9.1991, coll. R. K. Singh; 1 ex., Sirpur, dist. Indore, 6.9.1980, coll. H. P. Agarwal; 1 ex., Near Gour river, Jabalpur; 6.2.1965, coll. H. Khajuria; 2 ex., Belkhera, dist. Jabalpur, 17.8.1965, coll. H. P. Agarwal; 1 ex., Gandhigram dist. Jabalpur, 26.8.1965, coll. H. Khajuria; 4 exs., Belkharu, dist. Jabalpur, 17.8.1966, coll. H. P. Agarwal; 1 ex., Bargi, dist. Jabalpur, 29.7.1967, coll. V. S. Durve; 1 ex., Barela tank Jabalpur 14.8.1974, coll. N. K. Sinha; 1 ex., Bheraghat, Jabalpur, 17.12.1975, coll. N. K. Sinha; 6 exs., Namila vill., dist. Jabalpur, 26.10.1975, coll. H. P. Agarwal; 2 exs., Mohania vill., dist. Jabalpur, 27.10.1975, coll. H. P. Agarwal; 2 exs., Adhartal, Jabalpur, 17.10.1975, coll. H. Khajuria; 1 ex., Silua vill., dist. Jabalpur, 20.7.1980, coll. H. S. Sharma; 2 exs., Kisli, dist. Mandla, 28.5.1964, coll. H. Khajuria; 1 ex., Kilsi, dist. Mandla, 21.9.1975, coll. R. K. Singh; 2 exs., Fish breeding centre, Morena, 4.9.1994, coll. R. K. Singh; 6 exs., Sabalgarh, Morena, 5.9.1994, coll. R. K. Singh; 1 ex., Ambah, Morena, 7.9.1994, coll. R. K. Singh; 5 exs., Rampurkala, Morena, 10.9.1994, coll. R. K. Singh; 2 exs., Badokhar, Morena, 11.9.1994, coll. R. K. Singh; 1 ex., Mahua, dist. Morena, 12.9.1994, coll. R. K. Singh; 1 ex., Mandi, Morena, 14.9.1994, coll. R. K. Singh; 15 exs., Pahadgarh, Morena, 15.9.1994, coll. R. K. Singh; 1 ex., Jaora, Ratlam, 24.8.1990, coll. R. K. Singh; 2 exs., Piplod, Ratlam, 23.10.1990, coll. H. P. Agarwal; 2 exs., Khurai, Sagar, 10.10.1992; 1 ex., Singogarh, Sagar, 22.10.1992, coll. H. P. Agarwal; 1 ex., Baikunthpur, Sarguja, 9.10.1991, coll. H. P. Agrawal; 15 exs., Madhav National Park, Shivpuri, between 11.9.1975 to 20.10.1975, coll. R. K. Singh.

Diagnostic characters : Upper side chalky white or greenish in male but in female black margins a little broader. Forewing with apical and marginal narrow black border, with (or without) cell spot. Hind wing either unmarked or with a marginal series of black vein-dots or spots which may form a continuous line.

Distribution : India : Madhya Pradesh (Bastar, Bhind, Chhindwara, Chhatarpur, Indore, Jabalpur, Mandla, Morena, Ratlam, Sagar, Sarguja, and Shivpuri), Andamans, Assam, Gujarat, Tamil Nadu, Uttar Pradesh, West Bengal, N. W. Himalayas.

Elsewhere : Sri Lanka, Myanmar and Pakistan.

Host plants : *Cassia tora, C. auriculata, C. occidentalis, C. nadosa; Sesbania aegyptiaca.*

Remarks : Its status is 'very common' Singh (1977a) recorded the species from Madhav National Park, Shivpuri. Singh and Koshta (1997) recorded from Kanha National Park, Mandla. Gupta and Shukla (1987) recorded the species from Bastar district. This is the first report of the species from Bhind, Chhatarpur, Chhindwara, Indore, Jabalpur, Morena, Ratlam, Sagar and Sarguja districts of Madhya-Pradesh.

11. *Cepora nerissa phryne* (Fabricius) **The Common Gull**

1775. *Papilio Phryne* Fabricius, *Syst. Ent.*, : 473.

1939. *Cepora nerissa phryne* : Talbot, *The Fauna of Brit. India*, Butterflies, 1 : 362.

Forewing length : 46-58 mm.

Material examined : 3 ex., Barhi, dist. Bhind, 18.9.1994, coll. R. K. Singh; 11 ex., Phoop, dist. Bhind, 19.9.1994 coll. R. K. Singh; 7 exs., Mehgaon, dist. Bhind, 21.9.1991; coll. R. K. Singh; 1 ex., Katuria vill., dist. Chhatarpur, 30.9.1993, coll. R. K. Singh; 2 exs., Bhartadeo, dist. Chhindwara, 10.9.1991, coll. R. K. Singh; 6 exs., Mandav, dist. Dhar, 1.3.1999, coll. K. Chandra; 2 exs., Gwalior dist. Gwalior, 13.9.1994,

coll. H. P. Agrawal; 1 ex., Panniar, dist. Gwalior, 14.9.1994; coll. H. P. Agarwal; 2 exs., Yashwant Sagar, dist. Indore, 5.9.1980, coll. H. P. Agarwal; 1 ex., Nagpur road, dist. Jabalpur, 29.9.1964, H. P. Agarwal; 2 exs., Near Gour river, dist. Jabalpur, 6.2.1965, coll. H. P. Agarwal; 1 ex., Bhita vill. dist. Jabalpur, 20.2.1965, coll. H. Khajuria; 2 exs., Lametaghat, dist. Jabalpur, 29.10.1973, coll. H. Khajuria; 1 ex., Tilwaraghat, dist. Jabalpur, 29.11.1975, coll. R. K. Singh; 1 ex., Bachani tank, dist. Jabalpur, 3.4.1976, coll. H. Khajuria; 1 ex., Manegaon, dist. Jabalpur, 15.12.1979, coll. L. P. Dubey; 1 ex., Sukri vill., dist. Jabalpur, 14.10.1980, coll. H. P. Agrawal; 1 ex., Manasa dist. Mandsaur, 7.4.1991, coll. R. K. Singh; 10 exs., Jagved nagar, dist. Morena, 6.9.1994, coll. R. K. Singh; 1 ex., Ambah, Dist. Morena, 7.9.1994, coll. R. K. Singh; 1 ex., Dimni, dist. Morena, 9.9.1994, coll. R. K. Singh; 1 ex., Rampurkala, dist. Morena, 10.9.1994, coll. R. K. Singh; 2 ex., Badokhar, dist. Morena, 11.9.1994, coll. R. K. Singh; 1 ex., Mahua, dist. Morena, 12.9.1994, coll. R. K. Singh; 8 exs., Samai, dist. Morena, 13.9.1994, coll. R. K. Singh; 4 exs., Pahadgarh, dist. Morena, 15.9.1994, coll. R. K. Singh; 1 ex., Jain garden, Morena, dist. Morena, 2.1.1995, coll. H. P. Sharma; 1 ex., Near Shank river, dist. Morena, 6.1.1995; coll. H. S. Sharma; 1 ex., Nehru park, Morena, dist. Morena; 9.1.1995, coll. H. S. Sharma; 1 ex., Nehru Park, Morena, dist. Morena; 9.1.1995, coll. H. S. Sharma; 1 ex., Govt. garden, Morena, dist. Morena, 12.1.1995, coll. H. S. Sharma; 1 ex., Punjab garden, Ambikapur, dist. Sarguja, 9.4.1992, coll. R. K. Singh; 1 ex., Madhva National Park, dist. Shivpuri, 13.9.1975, coll. R. K. Singh; 1 ex., Near Chintamani Ganesh, dist. Ujjain, 3.9.1990, coll. R. K. Singh; 1 ex., Lekoda, dist. Ujjain, 4.11.1990, coll. H. P. Agrawal.

Diagnostic characters : Upperside of forewing with apical black area bearing prominent white spots. Hind wing with marginal black border dentate on the inner edge.

Distribution : India : Madhya Pradesh (Bastar, Bhind, Chhatarpur, Chhindwara, Dhar, Gwalior, Indore, Jabalpur, Mandsaur, Morena, Sarguja, Shivpuri, Ujjain), Assam, Bihar, Maharashtra, Sikkim, Tamil Nadu, Uttar Pradesh, North-West Himalayas.

Elsewhere : Nepal and Sri Lanka.

Host plants : *Capparis aphylla; C. sepiaria, C. heyneana, C. horrida, C. decidua, and C. zeylanica.*

Remarks : Its status is 'very common' Gupta and Shukla (1987) has reported the species from Bastar district. This is the first report of the species from Bhind, Chhatarpur, Chhindwara, Dhar, Gwalior, Indore, Jabalpur, Mandsaur, Morena, Sarguja, Shivpuri and Ujjain districts of Madhya Pradesh.

12. *Colotis calais amata* (Fabricius)
The Small Salmon Arab

1775. *Papilio amata* Fabricius, *Syst. Ent.*, : 476.

1939. *Colotis calais amata* : Talbot, *The Fauna of Brit. India*, Butterflies, **1** : 454.

Forewing length : 52 mm.

Material examined : 1 ex., Barhi, dist. Bhind, 18.9.1994, coll. R. K. Singh.

Diagnostic characters : Upper side salmon-pink. Forewing with dark costal border; a black discocellular spot, which may be large and quadrate or smaller and lunate; outer margin broadly black, bearing a double series of spots of the ground-colour. Hind wing with a band of dense black specialized scales on the costal margin; this band joins a broad, similarly coloured marginal band of ordinary scales that becomes more or less diffuse posteriorly, and enclose a double series of small spots of the ground-colour.

Distribution : India : Madhya Pradesh (Bhind), Delhi, Gujarat, Maharashtra, Punjab, Uttar Pradesh.

Elsewhere : Sri Lanka and Pakistan.

Host plants : *Salvadora persica, S. oleoides, Azima tetracantha.*

13. *Colotis danae danae* (Fabricius)
The Crimson Tip

1775. *Papilio danae* Fabricius, *Syst. Ent.*, : 476.

1939. *Colotis danae danae* : Talbot, *The Fauna of Brit. India*, Butterflies, **1** : 469.

Material examined : Recorded from the literatures.

Remarks : Evans (1932) has shown the distribution of the species from Central provinces.

14. *Colotis etrida etrida* (Boisduval)
The Little Orange Tip

1836. *Anthocharis etrida* Boisduval, *Spec. Gen. Lep.*, **1** : 576.

1939. *Colotis etrida etrida* : Talbot, *The Fauna of Brit. India*, Butterflies, **1** : 465.

Forewing length : 32-40 mm.

Material examined : 1 ex., Horticulture garden, Bhind, dist. Bhind, 17.9.1994, coll. R. K. Singh; 1 ex., Barhi, dist. Bhind, 18.9.1994, coll. R. K. Singh,; 5 exs., Ater, dist. Bhind, 20.9.1994, coll. R. K. Singh; 2 exs., Manasa, dist. Mandsaur, 7.4.1991, coll. R. K. Singh; 4 exs., Samai, dist. Morena, 13.9.1994, coll. R. K. Singh.

Diagnostic characters : Upperside white, the base of both wings sparsely dusted with black. Fore wing with a small black discocellular spot; apical area broadly black, bearing an oval, curved, rich orange patch placed obliquely. Hind wing with a series of marginal block spots.

Distribution : India : Madhya Pradesh (Bhind, Mandsaur and Morena), Assam, Delhi, Himachal Pradesh, Karnataka, Jammu & Kashmir, Punjab, Tamil Nadu, Uttar Pradesh, North-West Himalayas.

Elsewhere : Pakistan.

Host plants : *Cadaba indica.*

15. *Colotis eucharis* (Fabricius)
The Plain Orange Tip

1775. *Papilio eucharis* Fabricius, *Syst. Ent.*, : 472.

1939. *Colotis eucharis* : Talbot, *The Fauna of Brit. India*, Butterflies, **1** : 467.

Material examined : Recorded from literatures.

Distribution : India : Central India, Karnataka, Maharashtra, Tamil Nadu.

Elsewhere : Sri Lanka.

Remarks : Evans (1932) and Talbot (1939) has shown the distribution from Central India.

16. *Colotis fausta fausta* (Olivier)
The Large Salmon Arab

1801. *Papilio fausta* Olivier, *Voy. L'Emp. Oth. Atlas* : pl. 33, figs, 4a, 4b.

1939. *Colotis fausta fausta* : Talbot, *The Fauna of Brit. India*, Butterflies, **1** : 461.

Forewing length : 48 mm.

Material examined : 1 ex., Barhi, dist. Bhind, 18.9.1994, coll. R. K. Singh; 2 exs. Samai, dist. Morena, 13.9.1994, coll. R. K. Singh.

Diagnostic characters : The black marginal border of the forewing does not reach the tornus. Upperside of forewing with basal and costal areas more or less dusted with black; an oval annular discocellular spot of variable size; a broad black apical area bearing a macular band of the ground colour, usually posteriorly merged with the ground-colour. Hind wing with marginal black spots.

Distribution : India : Madhya Pradesh (Bhind, Morena), Central India, Delhi, Maharashtra, Punjab.

Elsewhere : Pakistan and Sri Lanka.

Host plants : *Maerua arenaria.*

Remarks : This is the first report of the species from Bhind and Morena districts of Madhya Pradesh.

17. *Colotis vestalis vestalis* (Butler)
The White Arab

1876. *Teracolus vestalis* Butler, *Proc. zool. Soc. Lond.*, : 135.

1939. *Colotis vestalis vestalis* : Talbot, *The Fauna of Brit. India*, Butterflies, **1** : 457.

Forewing length : 41 mm.

Material examined: 1 ex., Pipalia, dist. Mandsaur, 29.10.1990, coll. H. P. Agrawal.

Diagnostic characters : Upperside white; both wings with broad outer black borders. Fore wing with the base, coastal margin broadly, and the cell, except at its lower angle, heavily dusted with dusky grey; two small white subapical spots; a large submerginal white spot in Area 3. Hind wing more uniform, very slightly dusted with grey at the base, the black outer border immaculate.

Distribution : India : Madhya Pradesh (Mandsaur), Gujarat, Punjab, Rajasthan, Uttar Pradesh.

Elsewhere : Pakistan.

Host plant : *Salvadora persica.*

18. ***Delias eucharis*** (Drury)
The Common Jezebel

1773. *Papilio eucharis* Drury, *Illustr. Nat. Hist.*, **2** : pl. x, figs. 5, 6.

1939. *Delias eucharis* : Talbot, *The Fauna of Brit. India,* Butterflies, **1** : 352.

Forewing length : 64-79 mm.

Material examined: 3 exs., Lougur, dist. Balaghat, 18.12.1983, coll. U.A. Gajbe; 1ex., Konta, dist. Bastar, 7.1.1974, coll. R. K. Singh; 1ex., Dongaghat, Jagdalpur dist. Bastar, 8.1.1974, coll. R. K. Singh; 1 ex., Konta, dist. Bastar, 17.1.1974, Coll. R. K. Singh; 1 ex., Mutai West, dist. Betul, 25.11.1989, coll. Y. N. Gupta; 2 exs., Patalkot, dist. Chhindwara, 2.11.1994, coll. H.S. Sharma; 2 exs., Pachmarhi, dist. Hoshangabad, 5.4.1979, coll. P.D. Rane; 2 exs. Yashwant Sagar, dist. Indore, 5.9.1980, coll. H. P. Agrawal; 1 ex., Madan Mahal, dist. Jabalpur, 20.10.1964, coll. H. P. Agrawal; 1 ex., Near Gour river, dist. Jabalpur, 6.2.1965, coll. H. P. Agrawal; 1 ex., Gandhi Samarak, Tilwaraghat, dist. Jabalpur, 16.4.1969, coll. H. P. Agrawal; 1 ex., Gandhi Smark, dist. Jabalpur, 25.4.1972, coll. R. K. Singh, 1 ex., Budagar tank, dist. Jabalpur, 30.10.1973, coll. N. K. Sinha; 1 ex., Lametaghat, dist. Jabalpur, 29.12.1973, coll. H. Khajuria; 1 ex., Mohania village, dist. Jabalpur, 27.10.1975, coll. H. P. Agrawal, 2 exs., Majholi chilna tank, dist. Jabalpur, 28.10.1975, coll. H. P. Agrawal, 3 exs., Barman dist. Narsinghpur, 19.12.1964, coll. H. Khajuria, 1 ex., Dharmjaygarh, dist. Raigarh, 4.4.1992, coll. R. K. Singh; 4 exs. Basani nala, dist. Sarguja, 3.1.1975, coll. D. S. Mathur; 2 exs., Haratikkura village, dist. Sarguja, 4.1.1975, coll. D. S. Mathur; 1 ex., Manpus village, dist. Shahdol, 27.2.1976, coll. N. K. Sinha; 5 exs., Madhav National Park, dist. Shivpuri, 12.9.1975, coll. R. K. Singh.

Diagnostic characters : Under side of hind wing being yellow with black veins and bearings a submarginal row of large brick-red spots.

Distribution : India : Madhya Pradesh (Balaghat, Bastar, Betul, Chhindwara, Hoshangabad, Indore, Jabalpur, Narsinghpur, Raigarh, Sarguja, Shahdol and Shivpuri), Bihar, Uttar Pradesh; Peninsular India extending upto lower slopes of Himalaya.

Elsewhere : Myanmar and Sri Lanka.

Host plants : *Loranthus elasticus; Lscurrula; L. Longiflours; Dalbergia sisoo; Ficus glomerata; and Magnifera indica.*

Remarks : Its status is "very common" Singh (1977a) reported the species from Madhav National Park, Shivpuri, Singh (1977b) and Gupta & Shukla (1987) reported the species from Bastar district. This is the first report of the species from Balaghat, Betul, Chhindwara, Hoshangabad, Indore, Jabalpur, Narsinghpur, Raigarh, Sarguja, and Shahdol districts of Madhya Pradesh.

19. ***Delias hyparete ethire*** Doherty
The Painted Jezbel

1886. *Delias ethire* Doherty, *J. Asiat. Soc. Beng.*, **55**(2) : 262.

1939. *Delias hyparete ethire* : Talbot, *The Fauna of Brit. India,* Butterflies, **1** : 357.

1987. *Delias hyparete ethire* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 6-7.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar),

Peninsular India including West Bengal and Orissa (Khurdha).

Remarks : Gupta and Shukla (1987) reported this species from Bastar district.

20. *Eurema brigitta rubella* (Wallace) The Small Grass Yellow

1867. *Terias rubella* Wallace, *Trans. ent. Soc. Long.*, (3)4 : 323.

1939. *Eurema brigitta rubella* : Talbot, *The Fauna of Brit. India*, Butterflies, 1 : 515.

Forewing length : 33 mm.

Material examined : 1 ex., Mukki, dist. Balaghat, 30.11.1986, coll. R. K. Singh; 1 ex., Mandav, dist. Dhar, 01.03.199, coll. K. Chandra; 1 ex., Lametaghat, dist. Jabalpur, 2.2.1973, coll. R. K. Singh; 1 ex., Jobat, dist. Jhabua 4.3.1999, coll. K. Chandra; 5 exs., Megh nagar, dist. Jhabua, 06.03.1999, coll. K. Chandra.

Diagnostic characters : Bright Yellow. The outer border and apical third of forewing are black. The inner edge of this area more or less regularly incurved from costa to inner margin; basal area dusted with black. Hind wing with a black outer border that is broader anteriorly; basal area dusted with black.

Distribution : India : Madhya Pradesh (Bastar, Balaghat, Dhar, Jabalpur and Jhabua); Bihar; Karnataka; Maharashtra; Nicobars; Punjab; Tamil Nadu; Uttar Pradesh; West Bengal; and N.W. Himalayas.

Elsewhere : Sri Lanka and Myanmar.

Host plants : *Cassia kleinii, C. koenigii, and Homonoia sp.*

Remarks : Its status is 'common' Gupta and Shukla (1987) recorded the species from Bastar district, Singh and Koshta (1997) recorded the species from Kanha National Park. This is the report from Dhar, Jabalpur and Jhabua districts of Madhya Pradesh.

21. *Eurema hecabe simulata* (Moore) The Common Grass Yellow

1881. *Terias simulata* Moore, *Lep. Ceylon*, 1 : 119.

1939. *Eurema hecabe simulata* : Talbot, *The Fauna of Brit. India*, Butterflies, 1 : 530-531.

Forewing length : 31-42 mm.

Material examined : 3 exs., Mukki, dist. Balaghat, 30.11.1986, coll. R. K. Singh; 4 exs., Dongaghat, dist. Bastar, 10.01.1974, coll. R. K. Singh; 1 ex., Near Indrawati river, Jagdalpur, dist. Bastar, 6.1.1974, coll. R. K. Singh; 1 ex., Nehru Park, Betul, dist. Betul, 26.11.1989, coll. Y. N. Gupta; 1 ex., Multai North, dist. Betul, 27.11.1989, coll. Y. N. Gupta; 1 ex., Near Sampna Lake, dist. Betul, 28.11.1989, coll. Y.N. Gupta; 6 exs., Horticulture garden, Bhind, dist. Bhind, 17.9.1994, coll. R. K. Singh; 6 exs., Barhi, dist. Bhind, 18.9.1994, coll. R. K. Singh; 9 exs., Phoop, dist. Bhind, 19.9.94, coll. R. K. Singh, 3 exs., Ater, dist. Bhind, 20.9.94, coll. R. K. Singh, 1 ex., Mehgaon, dist. Bhind, 21.9.94, coll. R. K. Singh; 1 ex., Near Kumvari river, dist. Bhind, 13.01.1995, coll. H. S. Sharma; 1 ex., Central Semen Centre, dist. Chhatarpur, 1.10.1993, coll. R. K. Singh, 1 ex., Chandangaon, dist. Chhindwara, 18.11.1989, coll. Y. N. Gupta; 1 ex., Dhimradham. dist. Chhindwara, 20.11.1989, coll. Y. N. Gupta; 1 ex., Pandurna, dist. Chhindwara 24.11.1989, coll. Y. N. Gupta; 1 ex., Patalkot, dist. Chhindwara, 14.9.1991, coll. R. K. Singh; 6 exs., Patalkot, dist. Chhindwara, 27.2.1994, coll. H.S. Sharma; 1ex., Dharampura, dist. Damoh, 21.1.1994, coll. H. P. Agrawal; 1 ex., Indargarh, dist. Datia, 26.9.1994, coll. H. P. Agrawal; 5 exs., Sardarpur, dist. Dhar, 27.02.1999, coll. K. Chandra; 2 exs., Madhav nagar, dist. Dhar, 01.03.1999, coll. K. Chandra, : 1 ex., Gwalior, dist. Gwalior, 13.9.1994, coll. H. P. Agrawal; 1 ex., Panniar, dist. Gwalior, 14.9.1994, coll. H. P. Agrawal; 3 exs. Antri, dist. Gwalior, 15.9.1994, coll. H. P. Agrawal; 5 exs., Pachpedi, dist. Jabalpur, 28.4.1964, coll. H. Khajuria; 3 exs., Lametaghat, dist. Jabalpur, 27.10.1964, coll. H. P. Agrawal; 2 exs., Richhai vill., dist. Jabalpur, 20.10.1965, coll. Raja Ram; 3 exs., Tilwaraghat, dist. Jabalpur, 6.8.1975, coll. R. K. Singh, 6 exs., Adhartal, dist. Jabalpur, 3.9.1975, coll. H. Khajuria; 2 exs. Indrana vill., dist. Jabalpur, 31.10.1975, coll. D. K. Harshey; 2 exs., Ganjtal, Dist. Jabalpur, 24.10.1980, coll. S. K. Mishra; 2 exs., Patan, dist. Jabalpur,

20.10.1980, coll. S. K. Mishra; 6 exs., Jobat, dist. Jhabua, 4.3.1999, coll. K. Chandra; 1 ex., Jhabua, dist. Jhabua, 5.3.1999, coll. K. Chandra; 2 exs., Thandla, dist. Jhabua, 9.3.1999, coll. K. Chandra; 1 ex., Kisli, dist. Mandla, 27.11.1986, coll. R. K. Singh; 1 ex., Kanha, dist. Mandla, 18.1.1991, coll, R. K. Ghosh; 2 exs., Pipalia, dist. Mandsaur, 29.10.1990, coll. H. P. Agrawal; 2 exs., Nimach, dist. Mandsaur, 31.10.1990, coll. H. P. Agrawal; 14 exs., Fish Nursery Morena, dist. Morena, 4.9.1994, coll. R. K. Singh; 1 ex., Sabalgarh, dist. Morena, 5.9.1994, coll. R. K. Singh, 1 ex., Jagvednagar, dist. Morena, 6.9.1994, coll. R. K. Singh; 8 exs., Ambah, dist. Morena, 7.9.94, coll, R. K. Singh; 1 ex., Porsa, dist. Morena, 8.9.94, coll. R. K. Singh, 6 exs., Dimni, dist. Morena, 9.9.94, coll. R. K. Singh; 1 ex., Rampurkala, dist. Morena, 10.9.1994, coll. R. K. Singh; 1 ex., Badokhar, dist. Morena, 11.9.94, coll. R. K. Singh, 3 exs., Samai, dist. Morena, 13.9.1994, coll. R. K. Singhl 2 exs., Mandi, Morena, dist. Morena, 14.9.94, coll. R. K. Singh, 3 exs., Bhondar, dist. Rajgarh, 24.9.91, coll. H. P. Agrawal; 1 ex., Kosowari, dist. Raigarh, 25.9.1991, coll. H. P. Agrawal; 2 exs., Kapur, Pathalgaon, dist. Raigarh, 28.9.91, coll. H. P. Agrawal; 1 ex., Dharmjaigarh, dist. Rajgarh, 2.10.91, coll. H. P. Agrawal; 2 exs., Pathalgaon, dist. Raigarh, 3.10.91, coll. H. P. Agrawal; 3 exs., Khurai, dist. Sagar, 10.10.92, coll. H. P. Agrawal : 3 exs. Banda, dist. Sagar, 15.10.1992, coll. H. P. Agrawal; 2 exs., Ambikapur, dist. Sarguja, 5.10.1991, coll. H. P. Agrawal; 2 exs., Rajpur, dist. Sarguja, 6.10.91, coll. H. P. Agrawal; 2 exs., Manendragarh, dist. Sarguja, 8.10.91, coll. H. P. Agrawal; 12 exs., Madhav National Park, Shivpuri, 11-24.9.1975, coll. R. K. Singh; 5 exs., Orchcha, dist. Tikamgarh, 17.9.1993, coll. R. K. Singh; 2 exs., Tikamgarh, dist. Tikamgarh, 22.9.1993, coll. R. K. Singh, 1 ex., Kuwarpur, dist. Tikamgarh, 25.9.93, coll. R. K. Singh, 1 ex., Majava village dist. Tikamgarh, 27.9.93, coll. R. K. Singh; 1 ex., Mangalnath, dist. Ujjain, 1.9.90, coll. R. K. Singh; 1 ex., Lekoda, dist. Ujjain, 4.11.90, coll. H. P. Agrawal; 2 exs., Unhela, dist. Ujjain, 6.11.90, coll. H. P. Agrawal; 4 exs., Biriagram Nagada dist. Ujjain, 4.4.91 coll. R. K. Singh.

Diagnostic characters : Bright Yellow in colour. Upper side of forewing has a blackish, narrow border varying in width, sometimes very thin and almost attenuated anteriorly and posteriorly. Under side of forewing is with or without a subapical prominent and elongate brown spot, the latter extending downwards from the costa but never reaches the anal margin; this spot (when present) is irregular and varies in width.

Distribution : India : Madhya Pradesh (Bastar, Balaghat, Betul, Bhind, Chhatarpur, Chhindwara, Damoh, Datia, Dhar, Gwalior, Jabalpur, Jhabua, Mandsaur, Morena, Raigarh, Sagar, Sarguja, Shivpuri, Tikamgarh and Ujjain), Andaman & Nicobar Island; Bihar; Delhi, Himachal Pradesh; Lakshadweep, Karnataka, Maharashtra, Tamil Nadu, Uttar Pradesh, West Bengal, South India.

Elsewhere : Myanmar, Pakistan and Sri Lanka.

Host plants : *Cassia tora, C. fistula, C. mimosoides, Pithecellobium dulce, Sesbania aculeata, S. aegyptiaca, S. grandiflora, Albizzia procera, Wagatea spicata; Acacia sp., and Caesalpinia sp.*

Remarks : Its status is 'common' Singh (1977b), Gupta and Shukla (1987) recorded the species from Bastar Singh (1977a) recorded the species from Madhav National Park, Shivpuri. Singh (1995), Singh and Koshta (1997) recorded the species from Kanha National Park. Now this is the first report of the species from Betul, Bhind, Chhatarpur, Chhindwara, Damoh, Datia, Dhar, Gwalior, Jabalpur, Mandsaur, Morena, Raigarh, Sagar, Sarguja, Tikamgarh and Ujjain districts of Madhya Pradesh.

22. ***Eurema laeta laeta*** (Boisduval)
The Small Grass Yellow

1836. *Terias laeta* Boisduval, *Spec. Gen. Lep.*, **1** : 674.

1939. *Eurema laeta laeta* : Talbot, *The Fauna of Brit. India,* Butterflies, **1** : 517.

Forewing length : 35-39 mm.

Material examined : 6 exs., Near Sagar pond, Mandav, dist., Dhar, 28.02.1999, coll. K. Chandra; 3 exs. Mandav, dist. Dhar, 01.03.1999, coll. K. Chandra., 6 exs., Pachpedi, Jabalpur, dist. Jabalpur, 21.11.1967, coll. V. V. Rao; 2 exs., Sasan village,

dist. Jabalpur, 20.12.1967, coll. H. Khajuria; 1 ex., Shahpura, dist. Jabalpur, 8.2.1968, coll. V. S. Durve; 2 exs., Lametaghat, dist. Jabalpur, 2.2.1973, coll. R. K. Singh; 1 ex., Jobat, dist. Jhabua, 04.03.1999, coll. K. Chandra; 2.2.1973, coll. R. K. Singh; 1 ex., Jobat, dist. Jhabua, 04.03.1999, coll. K. Chandra; 1 ex., Megh Nagar, dist. Jhabua, 06.03.1999, coll. K. Chandra; 1 ex., Thandla, dist. Jhabua, 09.03.1999, coll. K. Chandra; 1 ex., Badokhar, dist. Morena, 11.9.1994, coll. R. K. Singh; 2 exs., Rahatgarh, dist. Sagar, 13.1.1994, coll., H. P. Agrawal; 1 ex., Jaisingh nagar, dist. Sagar, 14.1.1994, coll. H. P. Agrawal; 2 exs. Rehli, dist. Sagar, 15.1.1994, Coll. H. P. Agrawal.

Diagnostic characters : Bright Yellow in colour. Forewing much more pointed at apex, outer margin sharply cut and straight. Forewing with basal half of costa broadly dusted with black; outer black border stopping abruptly at vein 2; the tornus, except for a very fine black anticiliary line, yellow. Hind wing with black border reduced to a black subapical patch and posteriorly to a series of black spots, or the latter or all these markings absent.

Distribution : India : Madhya Pradesh (Bastar, Dhar, Jabalpur, Jhabua, Morena, Sagar); Bihar; Delhi; Himachal Pradesh; Karnataka; Maharashtra; Punjab; Tamil Nadu; Uttar Pradesh; West Bengal; Peninsular India to North-west Himalayas.

Elsewhere : Myanmar, Nepal, Pakistan and Sri Lanka.

Host plants : *Grasses and plants of family Leguminosae.*

Remarks : Its status is 'common' Gupta and Shukla (1987) recorded the species from Bastar. This is the first report of the species from Dhar, Jabalpur, Jhabua, Morena and Sagar districts of Madhya Pradesh.

23. *Ixias marianne* (Cramer)
The White Orange Tip

1779. *Pipilio marianne* Cramer, *Pap. Exot.*, 3 : 41.

1939. *Ixias marianne* : Talbot, *The Fauna of Brit. India,* Butterflies, 1 : 440.

Forewing length : 46-55 mm.

Material examined : 1 ex., Barhi, dist. Bhind, 18.9.1994, coll. R. K. Singh; 1 ex., Horticulture garden, Bhind, dist. Bhind, 17.9.1994; coll. R. K. Singh; 9 exs., Phoop dist. Bhind, 19.9.1994, coll. R. K. Singh, 4 exs., Ater, dist. Bhind, 20.9.1994, coll. R. K. Singh; 2 exs., Forest Nursery Bhind, dist. Bhind, 11.1.1995, coll. H. S. Sharma; 1 ex., Chhatarpur, dist. Chhatarpur, 6.10.1993, coll. R. K. Singh; 1 ex., Datia, dist. Datia, 23.9.1994, coll. H. P. Agrawal; 17 exs., Mandav, Dhar Dist., 28.2.99, coll. K. Chandra; 2 exs. Gwalior, dist. Gwalior 13.9.1994, coll. H. P. Agrawal; 1 ex., Simaria, dist. Gwalior, 21.9.1994 coll. H. P. Singh, 3 exs., Jobat dist. Jhabua, 4.3.1999, coll. K. Chandra; 1 ex., Devjhiri, dist. Jhabua, 8.3.1999, coll. K. Chandra; 1 ex., Mainpura village, dist. Mandsaur, 11.8.1990, coll. R. K. Singh; 1 ex., Sitamau, dist. Mandsaur 12.8.1990, coll. R. K. Singh, 1 ex., Pipalia, dist. Mandsaur, 29.10.1990, Coll. H. P. Agrawal; 1 ex., Manasa, dist. Mandsaur, 7.4.1991, coll. R. K. Singh, 1 ex., Jagved, dist. Morena, 6.9.1994, coll. R. K. Singh, 2 exs., Ambh, dist. Morena, 7.9.1994; 3 exs., Rampurkala, dist. Morena, 10.9.94, coll. R. K. Singh 1 ex., Mahua, dist. Morena, 12.9.1994, coll. R. K. Singh; 6 exs., Samai, dist. Morena, 13.9.1994, coll. R. K. Singh; 1 ex., Mandi Morena, dist. Morena, 14.9.1994; coll. R. K. Singh; 2 exs., Bus stand Morena, dist. Morena, 4.1.1995, coll. H.S. Sharma, 1 ex., Noorabad, dist. Morena, 6.1.1995, coll. H.S. Sharma, 1 ex., Pilua Dam, dist. Morena, 8.1.1995; coll. H. S. Sharma; 2 exs., Jaora dist. Ratlam, 11.4.1991, coll. R. K. Singh; 2 exs., Badri, dist. Sihore, 23.7.1964, coll. H. Khajuria; 5 exs., Madhav National Park, dist. Shivpuri, 29.8.1990; coll. R. K. Singh.

Diagnostic characters : Upper side chalk white. Forewing with apical half back, a broad apical patch of rich orange, which extends to the upper angle of cell. Antennae reddish brown; head and thorax anteriorly with reddish brown hairs.

Distribution : India : Madhya Pradesh (Bhind, Chhatarpur, Datia, Dhar, Gwalior, Jhabua and

Mandsaur, Morena, Ratlam, Sihore, Shivpuri, Ujjain), Delhi, Gujarat, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Sri Lanka.

Host plants : *Capparis sepiaria, C. divaricata, C. aphylla, C. grandis.*

Remarks : Its status is 'common' Singh (1977a) recorded the species from Madhav National Park, Shivpuri, This is the first report of the species from Bhind, Chhatarpur, Datia, Dhar, Gwalior, Jhabua, Mandsaur, Morena, Ratlam, Sihore, and Ujjain districts of Madhya Pradesh.

24. ***Ixias pyrene sesia*** Fabricius
The Yellow Orange Tip

1777. *Papilio sesia Fabricius, Gen. Ins.,* : 257.

1939. *Ixias pyrene sesia* : Talbot, *The Fauna of Brit. India,* Butterflies, **1** : 445.

Forewing length : 42-54 mm.

Material examined : 1 ex., Manasa, dist. Mandsaur, 7.4.1991, coll. R. K. Singh; 1 ex., Mangalnath, dist. Ujjain, 01.09.90, coll. R. K. Singh.

Diagnostic characters : Upper side yellow with apical half of forewing black, bearing a large orange band. Hind wing with black border.

Distribution : India : Madhya Pradesh (Mandsaur and Ujjain dists.), Karnataka, Maharashtra, Tamil Nadu, West Bengal.

Host plants : *Capparis sepiaria.*

Remarks : This is the first report of the species from Madhya Pradesh.

25. ***Pieris canidia indica*** Evans
The Indian Cabbage White

1926. *Pieris canidia indica* Evans, *J. Bombay nat. Hist. Soc.*, **31** : 712.

1987. *Pieris canidia indica* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.*, **106** : 7.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Uttar Pradesh, Arunachal Pradesh, North India upto Assam, Plains of Himalayas.

Elsewhere : Pakistan, Myanmar.

Host plants : *Cruciferae* (Cabbage etc.)

Remarks : Gupta & Shukla (1987) reported the species from Bastar district.

26. ***Valeria ceylanica ceylanica*** (C&R. Felder)
The Dark Wanderer

1865. *Eronia ceylanica* C. & R. Felder, *Reise Novara, Lep.*, **2** : 91.

1939. *Valeria ceylanica ceylanica* : Talbot, *The Fauna of Brit. India,* Butterflies, **1** : 483.

Forewing length : 70 mm.

Material examined : 1 ex., Chandrapura vill., dist. Mandsaur, 11.8.1990, coll. R. K. Singh; 1 ex., near Bharthari cave, dist. Ujjain, coll. R. K. Singh.

Diagnostic characters : Upperside of wing ground colour of a deeper blue. Fore wing with outer black border much broader generally, without submarginal spots, or only one or two present, Hind wing with outer black border very broad, narrowing slightly to the tornus.

Distribution : India : Madhya Pradesh (Mandsaur, Ujjain), Karnataka, Tamil Nadu, Central India, Peninsular India.

Elsewhere : Sri Lanka.

Host plants : *Capparis heyneana.*

Remarks : This is the first report of the species from Mandsaur and Ujjain dist. of Madhya Pradesh.

27. ***Valeria valeria hippia*** (Fabricius)
The Common Wanderer

1787. *papilio hippia* Fabricius, *Montissa Ins.*, **2** : 55.

1939. *Valeria valeria hippia* : Talbot, *The Fauna of Brit. India,* Butterflies, **1** : 486.

Forewing length : 65-69 mm.

Material examined : 1 ex., Mukki, dist. Balaghat, 21.01.1991, coll. R. K. Ghosh; 2 exs.,

Mandav, dist. Dhar, 01.3.1999, coll. K. Chandra; 1 ex., Indrana vill., dist. Jabalpur, 31.10.1975, coll. N. K. Sinha.

Diagnostic characters : Upper side of forewing ground colour with costa broadly, apex and outer margin very broadly, black. Hind wing with costal and inner margins broadly whitish. Under side paler blue, the outer margins obscurely fuscous.

Distribution : India : Madhya Pradesh (Balaghat, Bastar, Dhar, Jabalpur): Karnataka; Maharashtra, Sikkim, Tamil nadu, Uttar Pradesh, and West Bengal.

Elsewhere : Myanmar and Thailand.

Host plants : *Capparis heyneana* and *C.zeylanica.*

Remarks : Status is 'Common' Gupta and Shukla (1987) reported the species from Bastar district. Singh (1995) reported the species from Balaghat dist. Singh and Koshta (1997) reported the species from Kanha National Park, dist. Mandla and Balaghat. This is the first report of the species from Dhar and Jabalpur dist. of Madhya Pradesh.

Family DANAIDAE

28. ***Danaus chrysippus chrysippus*** (Linnaeus)
The Plain Tiger

1758. *Papilio chrysippus* Linnaeus, *Syst. Nat. ed.* 10; 1 : 471.

1947. *Danaus chrysippus chrysippus* : Talbot, *The Fauna of Brit. India,* Butterflies, 2 : 20.

Forewing length : 55-85 mm.

Material examined : 1 ex., Dongaghat, Jagdalpur, dist. Bastar, 10.01.1974, coll. R.K. Singh; 1 ex., Konta, dist. Bastar, 17.01.1974, coll. R. K. Singh; 1 ex., Betul dist. Betul, 31.12.1964, Coll. H. Khajuria; 7 exs., Horticulture garden, Bhind, dist. Bhind. 17.09.1994, coll. R. K. Singh; 9 exs., Phoop, dist. Bhind, 19.09.1994, coll. R. K. Singh; 10 exs., Ater, dist. Bhind, 20.09.1994, coll. R. K. Singh., 1 ex., Hama Depo, Chhatarpur, dist. Chhatarpur, 04.10.1993, coll. R. K. Singh; 17 exs., Awasthi Farm House, Chhatarpur, dist. Chhatarpur, 06.10.1993, coll. R. K. Singh; 1 ex., Chandamata, dist. Chhindwara, 13.09.1991, coll. R. K. Singh, 1 ex., Parasia, dist. Chhindwara, 15.09.1991, coll. R. K. Singh; 2 exs., Junardeo, dist. Chhindwara, 16.09.1991, coll. R. K. Singh; 2 exs., Rater village, Patalkot, dist. Chhindwara, 19.10.1992, coll. R. K. Singh; 2 exs., Patalkot, dist. Chhindwara, 25.02.1994, coll. H.S. Sharma; 1 ex., Singorgarh, dist., Damoh, 22.10.1992, coll. H. P. Agrawal; 3 exs., Saradarpur, dist. Dhar, 27.02.1999, coll. K. Chandra; 3 exs., Mandav, dist. Dhar, 28.02.1999, coll. K. Chandra; 1 ex., Dabra, dist. Gwalior, 20.09.1994, coll. H. P. Agrawal; 1 ex., Simaria, dist. Gwalior, 21.09.1994, coll. H. P. Agrawal; 2 exs., Piplapara, dist. Indore 4.9.1980, coll. H. P. Agrawal, 1 ex., Yaswant Sagar, dist. Indore, 05.09.1980, coll. H. P. Agrawal; 1 ex., Pachpedi, dist. Jabalpur, 13.04.1964, coll. H. Khajuria; 2 exs., Gouriaghat, dist. Jabalpur, 13.04.1965, coll. H. P. Agrawal; 5 exs., Banda village, dist. Jabalpur, 01.04.1967, coll. V. S. Durve; 18 exs., Adharthal, dist. Jabalpur, 16.12.1972, coll. N. K. Sinha; 1 ex., Pariat tank, dist. Jabalpur, 01.04.1973, coll. R. K. Singh; 2 exs., Madan Mahal, dist. Jabalpur, 07.02.1973, coll. R. K. Singh; 6 exs., Near Barela tank, dist. Jabalpur, 04.05.1974, coll. R. K. Singh; 3 exs., Majholi, dist. Jabalpur, 28.10.1975, coll. H. P. Agrawal; 2 exs., Indrana village, dist. Jabalpur, 31.10.1975, coll. N. K. Sinha; 6 exs., Tilwaraghat, dist. Jabalpur, 29.11.1975, coll. N. K. Sinha; 3 exs., Bachani tank, dist. Jabalpur, 03.04.1976, coll. H. Khajuria; 1 ex., Jobat, dist. Jhabua, 04.03.1999, coll. K. Chandra; 6exs., Mandav dist. Jhabua, 08.03.1999, coll. K. Chandra; 1 ex., Thandla, dist. Jhabua, 09.03.1999, coll. K. Chandra; 1 ex., Joga village, dist. Khargaon, 10.01.1966, coll. H. Khajuria; 3 exs., Gangli village, dist. Khargaon, 10.02.1971, coll. V.V. Rao; 1 ex., Mandla, dist. Mandla, 20.11.1963, coll. H. Khajuria; 2 exs., Mainpur village, dist. Mandsaur, 11.08.1990, coll. R. K. Singh; 1 ex., Manasa, dist. Mandsaur, 07.04.1991, coll. R. K. Singh; 8 exs., Fish Nursery, Morena, dist. Morena, 04.09.1994, coll. R. K. Singh; 1 ex., Jagved nagar, dist. Morena, 06.09.1994, coll. R. K. Singh; 3 exs., Ambah, dist. Morena, 07.09.1994, coll. R.

K. Singh; 9 exs., Porsa, dist. Morena, 08.09.94, coll. R. K. Singh, 4 exs., Dimni, dist. Morena, 09.09.1994, coll. R. K. Singh; 10 exs., Badokhar, dist. Moren, 11.09.1994, coll. R. K. Singh; 8 exs., Mahua village dist. Morena, 12.09.04, coll. R. K. Singh; 1 ex., Samai, dist. Morena, 13.09.1994, coll. R. K. Singh; 5 exs., Mandi, Morena dist. Morena, 14.09.94, coll. R. K. Singh; 4 exs., Pahadgarh, dist. Morena, 15.09.94, coll. R. K. Singh; 2 exs., Jain Garden dist. Morena, 02.01.1995, coll. H. S. Sharma; 2 exs., Near Kwari river, dist. Morena, 05.01.1995, coll. H. S. Sharma; 2 exs., Pilua dam, dist. Morena, 08.01.1995, coll. H. S. Sharma; 3 exs., Amanganj, dist. Panna, 18.02.1987, coll. R. K. Singh; 1 ex., Bhondar, dist. Raigarh, 24.02.91, coll. H. P. Agrawal; 1 ex., Jashpur, dist. Raigarh, 29.09.1991, coll. H. P. Agrawal; 11 exs., Sarangarh, dist. Raigarh, 28.03.1992, coll. R. K. Singh; 2 exs., Amapali, dist. Raigarh, 01.04.1992, coll. R. K. Singh; 3 exs., Dhramjaigrh, dist. Raigarh, 05.04.92, coll. R. K. Singh; 3 exs. Jaora, dist. Ratlam, 11.04.1991, coll. R. K. Singh; 2 exs., Malthan dist. Sagar, 12.10.1992, coll. H. P. Agrawal; 1 ex., Mainpat, dist. Sarguja, 16.01.1975, coll. R. K. Singh; 7 exs., Madhav National Park, Shivpuri, dist. Shivpuri, 24.09.1975, coll. R. K. Singh; 1 ex., Madhav National Park, Shivpuri, dist. Shivpuri, 11.09.1976, coll. H. P. Agrawal; 3 exs., Orchha, dist. Tikamgarh, 20.09.1993, coll. R. K. Singh; 3 exs., Tikamgarh, dist. Tikamgarh, 22.09.1993, coll. R. K. Singh; 7 exs., Mahendra Bag, dist. Tikamgarh, 23.09.1993, coll. R. K. Singh; 1 ex., Nagda, dist. Ujjain, 28.08.1990, coll. R. K. Singh; 3 exs., Ujjain, dist. Ujjain, 03.11.1990, coll. H. P. Agrawal; 1 ex., Damdama tank, dist. Ujjain, 05.11.1990, coll. H. P. Agrawal; 10 exs., Birla Nagar, Nagda, dist. Ujjain, 04.04.1991, coll. R. K. Singh.

Diagnostic characters : Upper side of forewing tawny, darkening towards the coastal margin, apical third of wing black; one or two white spots beyond and above apex of cell, a subapical white band, with one inner and two submarginal, white spots below its lower end a more or less complete series of antemarginal white spot and dots of varying size. Hind wing with paler ground-colour; outer margin some what narrowly black, with an incomplete series of white spots; discocellulars with three black marks. Antennae black; head and thorax black, spotted with white.

Distribution : India : Madhya Pradesh (Bastar, Betul, Bhind, Chhatarpur, Chhindwara, Damoh, Dhar, Gwalior, Indore, Jabalpur, Jhabua, Khargaon, Mandla, Mandsaur, Morena, Panna, Raigarh, Ratlam, Sagar, Sarguja, Shivpuri, Tikamgarh, and Ujjain), Assam, Andaman & Nicobar Islands, Bihar, Delhi, Gujarat, Himachal Pradesh, Maharashtra, Manipur, Orissa, Sikkim, Tamil Nadu and Uttar Pradesh.

Elsewhere : China, Indonesia, Myanmar, Nepal, Pakistan and Sri Lanka.

Host plants : *Calotropis gigantea, C. procera; and Asclepias curassavica.*

Remarks : Singh (1977a) recorded the species from Madhav National Park, Shivpuri. Singh (1977b) recorded the species from Bastar. Gupta and Shukla (1987) also reported the species from Bastar. This is the first report of the species from Betul, Bhind, Chhatarpur, Chhindwara, Damoh, Dhar, Gwalior, Indore, Jabalpur, Jhabua, Khargaon, Mandla, Mandsaur, Sarguja, Tikamgarh and Ujjain dists. of Madhya Pradesh.

29. ***Danaus genutia*** (Cramer)
The Common Tiger

1779. *Papilio genutia* Cramer, *Pap. Exot.*, **3** : 23.

1886. *Danaus genutia* : Doherty, *J. Asiat. Soc. Beng.*, **55**(2) : 114.

1947. *Danaus plexippus plexippus* : Talbot, *The fauna of Brit. India.*, (Butterflies), **2** : 25.

1987. *Danaus genutia* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **196** :17.

Forewing length : 65-86 mm.

Material examined : 1 ex. Hanumanghat, dist. Balaghat, 17.12.1983, coll. U.A. Gajbe; 3 exs., Mukki, dist. Balaghat, 21.01.1991, coll. R. K. Ghosh; 2 exs., Supkhar, dist. Balaghat, 30.01.1991, coll. R. K. Ghosh; 1 ex., Jagdalpur, dist. Bastar, 07.01.1974, coll. R. K. Singh; 1 ex., Jagdalpur,

dist. Bastar, 8.1.1974, coll. R. K. Singh; 1 ex., Katuriya village, Chhatarpur, dist. Chhatarpur, 30.09.1993, coll. R. K. Singh; 1 ex., Awasthi Farm House, Chhatarpur dist. Chhatarpur, 5.10.1983, coll. R. K. Singh; 1 ex., Parasia, dist. Chhindwara, 15.09.1991, coll. R. K. Singh; 2 ex., Amamai village, Patalkot, dist. Chhindwara. 12.10.1992, coll. R. K. Singh; 1 ex., Raghuraja cave, Patalkot, dist. Chindwara, 14.10.92 coll. R. K. Singh; 1 ex., Rater village, Patalkot, dist. Chhindwara, 19.10.1992, coll. R. K. Singh; 1 ex., Dabra, dist. Gwalior, 20.09.1994, coll. H. P. Agrawal; 1 ex., Pansapani, dist. Hoshangabad, 26.12.1964, coll. H. Khajuria; 2 exs., Pariat dist. Jabalpur, 5.12.1963, coll. V. V. Rao; 1 ex., Budagar tank, dist. Jabalpur, 20.12.1969, coll. H. P. Agrawal; 1 ex., Lametaghat, dist. Jabalpur, 2.2.1973, coll. R. K. Singh; 2 exs., Majholi, dist. Jabalpur, 28.10.1975, coll. R. K. Singh; 1 ex. Devjhiri, dist. Jhabua, 8.3.1999, coll. K. Chandra; 1 ex., Jaleshwar, dist., Mandla, 31.5.1962, coll. S. Chakrapany; 1 ex., Mainpura village, dist. Mandsaur, 11.08.1990, coll. R. K. Singh; 1 ex., Garha Kota, dist. Sagar, 16.10.1992, coll. H. P. Agrawal, 2 exs. Bandaogarh National Park, dist. Shahdol. 3.3.1976, coll. N. K. Sinha; 5 exs., Madhav National Park, dist. Shivpuri, 24.10.1975, coll. R. K. Singh; 1 ex., Tikamgarh, dist. Tikamgarh, 22.9.1993, coll. R. K. Singh; 1 ex., Mangalnath, dist. Ujjain, 1.09.1990, coll. R. K. Singh.

Diagnostic characters : Upper side of the forewing tawny and veins with broad black margins, three post-discal white spots and subapical white band crossed by the veins, an irregular submarginal and marginal series of white spots.

Distribution : India : Madhya Pradesh (Balaghat, Bastar, Chhatarpur, Chhindwara. Gwalior, Hoshangabad, Jabalpur, Jhabua, Mandla, Mandsaur, Sagar, Shahdol, Shivpuri, Tikamgarh and Ujjain), Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka Manipur, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Afganistan, Pakistan, Nepal, Myanmar, Sri Lanka, Thailand, and China.

Host plants : *Cynanchum dalhousieae; Ceropegia intermedia; Stephanotis floribunda; Raphistemma pulchellum.*

Remarks : Singh (1977a) recorded the species from Madhav National Park, Shivpuri. Singh (1977b) recorded the species from Bastar dist. Gupta and Shukla (1987) also recorded the species from Bastar dist. Singh (1995) recorded the species from Balaghat dist. for the first time. This is the first report of the species from Chhatarpur, Chhindwara, Gwalior, Hoshangabad, Jabalpur, Jhabua, Mandla, Mandsaur, Sagar, Shahdol, Tikamgarh and Ujjain districts of Madhya Pradesh.

30. ***Euploea core core*** (Cramer)
The Common Crow

1780. *Papilio core* Cramer, *Pap, Exot.*, **3** : 133.

1947. *Euploea core core* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 67.

Forewing length : 74-90 mm.

Material examined : 1 ex. Lougur, dist. Balaghat, 18.12.1983, coll. U.A. Gajbe; 1 ex., Mukki, dist. Balaghat, 30.11.1986, coll. R. K. Singh; 2 exs., Supkhar, dist. Balaghat, 2.12.1986, coll. R. K. Singh; 2 exs., Mukki, Kanha National Park, 21.1.1991, coll. R. K. Ghosh; 1 ex., Supkhar, Kanha National Park, 30.1.1991, coll. R. K. Ghosh; 6 exs., Bank of Indrawati river, Jagdalpur, dist. Bastar, 6.1.1974, coll. R. K. Singh; 3 exs., Jagdalpur, dist. Bastar. 7.1.1974, coll. R. K. Singh; 7 exs., Dongaghat, dist. Bastar, 8.1.1974, coll. R. K. Singh, 4 exs., Konta, dist. Bastar, 17.1.1974, coll. R. K. Singh; 4 exs., Phoop, dist. Bhind, 18.9.1974, coll. R. K. Singh; 5 exs., Mehgaon, dist. Bhind, 21.9.1994, coll. R. K. Singh; 1 ex., Patalkot, Dist. Chhindwara, 14.9.1991, coll. R. K. Singh; 1 ex., Junardeo, dist. Chhindwara, 16.9.1991, coll. R. K. Singh; 1 ex., Tamia, dist. Chhindwara, 18.9.1991, coll. R. K. Singh; 2 exs., Chimatipur, Patalkot, dist. Chhindwara, 11.10.1992, coll. R. K. Singh, 3 exs., Dauripatha, Pathalkot, dist. Chhindwara, 16.10.92, coll. R. K. Singh; 3 exs., Rater, Patalkot dist. Chhindwara,

19.10.1992. coll. R. K. Singh; 3 exs., Patalkot, dist. Chhindwara, 26.2.1999, coll. H. S. Sharma; 1 ex., Mandav, dist. Dhar, 28.2.1999, coll. K. Chandra; 1 ex., Sirpur, dist. Indore, 6.9.1980, coll. H. P. Agrawal; 1 ex., Medical College, Jabalpur, 18.9.1964, coll. M. L. Koshta; 1 ex., Military Grass Farm, Jabalpur, 27.9.1964, coll. Raja Ram; 1 ex., Madan Mahal, Jabalpur, 20.10.1964, coll. H. P. Agrawal; 1 ex., Banda village, Jabalpur, 3.8.1966, coll. H. P. Agrawal; 1 ex., Rani Durgavati Samadhi, Jabalpur, 15.8.1967, coll. V. S. Durve; 2 exs., Lametaghat, Jabalpur, 2.2.1973, coll. R. K. Singh, 1 ex., Budagar tank, Jabalpur, 30.10.1973, coll. N. K. Sinha; 1 ex., Pachpedi, Jabalpur 23.7.1975, coll. M. L. Dhimar; 6 exs., Gandhi Smarak, Tilwaraghat, Jabalpur, 6.8.1975, coll. R. K. Singh; 1 Amkhas, Jabalpur, 23.9.1978, coll. R. K. Singh; 1 Amkhas Jabalpur, 23.9.1978, coll. L. P. Dubey; 1 ex., Shahpura village, Jabalpur, 20.9.1979, coll. S. K. Mishra; 1 ex., Mandla, dist. Mandla, 18.11.1963, coll. H. Khajuria, 2 exs., Motinala, Kanha National Park, dist. Mandla 1.2.1991, coll. R. K. Singh; 1 ex., Jagrednagar, Morena, 6.9.1994, coll. R. K. Singh, 3 exs., Ambah dist. Morena, 7.9.1994, coll. R. K. Singh; 3 exs., Badokhar, dist. Morena, 1.9.1994, coll. R. K. Singh; 1 ex., Pathalgaon, dist. Raigarh, 28.9.1991, coll. H. P. Agrawal; 1 ex., Jashpur, dist. Raigarh, 29.9.1991, coll. H. P. Agrawal; 1 ex., Dharamjaygarh, dist. Raigarh, 2.10.1991, coll. H. P. Agrawal; 2 exs., Sarangarh, dist. Raigarh, 28.3.1992, coll. R. K. Singh; 4 exs., Madhav National Park, dist. Shivpuri, 17.9.1975, coll. R. K. Singh; 1 ex., Madhav National Park, Shivpuri, 14.9.1976, coll. H. P. Agrawal; 1 ex., Budani, dist. Sihore, 2.1.1964, coll. H. Khajuria.

Diagnostic characters: Upper side glossy brown with marginal and terminal white spots. Forewing with the series of submarginal spots curved inwards opposite the apex. Hind wing with inner series of spots elongate, the outer conical.

Distribution: India : Madhya Pradesh (Balaghat, Bastar, Bhind, Chhindwara, Dhar, Indore, Jabalpur, Jhabua, Mandla, Morena, Raigarh, Shivpuri and Sihore), Andaman & Nicobar Islands, Bihar, Delhi, Karnataka, Lakshadweep, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar; Pakistan and Nepal.

Host plants : *Streblus asper; Ficus indica; F. bengalensis, F. glomerata, F. religiosa; Holarrhena antidysenterica; Nerium odorum, N. oleander; Ichnocarpus frutescens; Hemidesmus indicus; Cryptolepis elegans; Anodendron paniculatum; cryptostegia grandiflora and Holigarna arnottiana.*

Remarks : Sing (1977a) recorded the species from Madhav National Park, Shivpuri and Singh (1977b) recorded from Bastar district. Gupta and Shukla (1987) again reported the species from Bastar district. Singh (1995) and Singh & Koshta (1997) recorded the species from Kanha National Park. This is the first report of the species from Bhind, Chhindwara, Dhar, Indore, Jabalpur, Jhabua, Morena, Raigarh, and Sihore districts of Madhya Pradesh.

31. ***Tirumala limniace leopardus*** (Butler)
The Blue Tiger

1866. *Danais limniace* var. *leopardus* Butler, *Proc. zool, Soc. Lond.*, : 52.

1947. *Danaus limniace leopardus* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 31.

1991. *Tirumala limniace leopardus* : Mandal & Maulik, *Fauna of Orissa, State Fauna Series,* **1** (Part 3) : *Zool Surv. India* : 235.

Forewing length : 90-96 mm.

Material examined : 1 ex., Dongaghat, Jagdalpur, dist. Bastar, 10.01.1974, coll. R. K. Singh; 1 ex., Mandav, dist. Dhar, 28.2.1999, coll. K. Chandra; 1 ex., Piplapara, dist. Indore, 04.09.1980, coll. H. P. Agrawal; 1 ex., Motinala, dist. Mandla, 01.02.1991, coll. R. K. Ghosh;1 ex., Devjhiri, dist. Jhabua, 08.03.1999, coll. K. Chandra.

Diagnostic characters : Upper side black, with bluish-white semihyaline spots and streaks. Fore wing in area 1b, with two streaks; cell with a basal streak and an outwardly indented distal

spot; at base of area 2a large oval spot, another at base of area 3, with a smaller post discal spot beyond it, five obliquely placed subapical streaks, post discal and submarginal series of somewhat irregularly placed spots, the latter the smaller. Hind wing in areas 1a, 1b and 1c With basal streaks, double in 1b and 1c, cell with a forked broad streak, the lower branch with a hook, or spur like short projection; at the base of area 2 and 3 a slender loop, at the base of 4 and 5 a broad elongate streak, and at the base of 6 quadriate spot; an irregular series of post-discal and submarginal spots, the latter the smaller vide Talbot (1947).

Host plants : *Dregea volubilis; Marsdenia tenacissima; Calotropis sp.; Hoya* sp.

Distribution : India : Madhya Pradesh (Bastar, Dhar, Indore, Jhabua and Mandla), Andaman and Nicobar, Assam, Bihar, Delhi, Himachal Pradesh, Karnataka, Lakshadweep, Manipur, Nagaland, Orissa, Punjab, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : China, Myanmar, Pakistan, Sri Lanka, Taiwan and Thailand.

Remarks : Singh (1977b) recorded the species from Bastar district. Singh (1995) recorded the species from Mandla district. Singh and Koshta (1997) recorded the species from Kanha National Park. district Mandla. Gupta and Shukla (1987) also reported the species from Bastar. This is the first report of the species from Dhar, Indore and Jhabua districts of Madhya Pradesh.

Family SATYRIDAE

32. *Elymnias hypermnestra undularis* (Drury) **The Common Palmfly**

1773. *Pipilio undularis* Drury, *Ill. exot. Ins.*, **2** : pl, 10. fig 1, 2.

1947. *Elymnias hypermnestra undularis* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 386.

1987. *Elymnias hypermnestra undularis* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 22.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Assam, Nagaland, Orissa, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar.

Host plants : *Palms.*

Remarks : Gupta and Shukla (1987) reported the species from Bastar district.

33. *Lethe rohria neelgheriensis* (Guerin) **The Common Treebrown**

1843. *Satyrus neelgheriensis* Guerin, in Delessert, *Souv. Voy. Ind.*, **2** : 74.

1947. *Lethe rohria neelgheriensis* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 201.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Hoshangabad), Bihar and Peninsular India.

Elsewhere : Sri Lanka.

Remarks : Evans (1932) recorded the species from Pachmarhi, which comes under Hoshangabad district of Madhya Pradesh.

34. *Melanitis leda ismene* (Cramer) **The Common Evening Brown**

1775. *Papilio ismene* Cramer, *Pap. Exot.*, **1** : 40.

1947. *Melanitis leda ismene* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 366.

1987. *Melanitis leda ismene* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 23.

Forewing length : 60-72 mm.

Material examined : 4 exs., Hanumanghat, dist. Balaghat, 17.12.1983, coll. U.A. Gajbe; 1 ex., Lougur, dist. Balaghat, 18.2.1983, coll. U.A. Gajbe; 1 ex., Mukki, dist. Balaghat, 30.11.1986, coll. R. K. Singh; 5 exs., Near Indravati river, Jagdalpur, dist. Bastar, 06.01.1974, coll. R. K. Singh; 2 exs., Awasthi farm house, Chhatarpur, dist. Chhatarpur, 05.10.93, coll. R. K. Singh; 1 ex., Lametaghat, dist. Jabalpur, 20.10.1973, coll. H. Khajuria; 6 exs., Phootatal, Jabalpur, dist. Jabalpur, 01.11.1973, coll. M. L. Dhimer; 2 exs. Tilwaraghat, Jabalpur, dist. Jabalpur, 06.8.1975, coll. R. K. Singh; 1 ex., Adhartal, Jabalpur, dist. Jabalpur, 03.9.1975, coll. H. Khajuria; 2 exs.,

Majholi, dist. Jabalpur, 27.10.1975, coll. H. P. Agrawal; 1 ex., Shahpura village, dist. Jabalpur, 20.9.1979, coll. S. K. Mishra; 1 ex., Kanha, dist. Mandla, 18.01.1991, coll. R. K. Ghosh; 1 ex., Rampura, Manasa, dist. Mandsaur, 17.8.1990, coll. R. K. Singh; 1 ex., Samai village, dist. Morena, 13.9.1994, coll. H. P. Agrawal; 2 exs., Hanatikura village, Ambikapur, dist. Sarguja, 04.01.1975, coll. D. S. Mathur; 1 ex., Baikunthpur, dist. Sarguja, 9.10.1991, coll. H. P. Agrawal; 3 exs., Madhav National Park, dist. Shivpuri, 26.9.1975, coll. R. K. Singh; 1 ex., Orcha, dist. Tikamgarh, 20.9.1993, coll. R. K. Singh; 1 ex., Birlagram, Nagda, dist. Ujjain, 4.4.1991, coll. R. K. Singh.

Diagnostic characters : Fore wing with apex obtuse and more or less falcate; outer margin below vein 5 straight or sinuous. Upper side brown; markings especially the ochraceous lunules inwardly bordering the black subapical spots on forewing, larger than in the wet form, and more extended below and above the black costa. Hind wing without an ocellus in area 2, but posteriorly replaced by three or four minute white submarginal spots vide Talbot (1947).

Distribution : India : Madhya Pradesh (Balaghat, Bastar, Chhatarpur, Jabalpur, Mandla, Mandsaur, Morena, Ratlam, Sarguja, Tikamgarh, Ujjain), Andaman & Nicobar, Assam, Bihar, Delhi, Himachal Pradesh, Lakshadweep, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Pakistan, China, Nepal, Myanmar, Sri Lanka.

Host plants : *Oryza sativa;* Grasses.

Remarks : Singh (1977a) recorded the species from Madhav National Park, Shivpuri, Singh (1977b) recorded the species from bastar district. Singh (1995) recorded the species from Kanha National Park, dist. Mandla. Singh and Koshta (1997) recorded the species from Kanha National Park. Gupta and Shukla (1987) also reported the species from Bastar district. this is the first report of the species from Chhatarpur, Jabalpur; Mandsaur, Morena, Ratlam, Sarguja, Tikamgarh and Ujjain dist. of madhya Pradesh.

35. *Melanitis phedima bethami* de Niceville
The Dark Evening Brown

1887. *Melanitis bethami* de Niceville, *Proc. zool. Soc. Lond.*, : 451.

1947. *Melanitis phedima bethami* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 371.

Forewing length : 60-72 mm.

Material examined : 1 ex., Hanumanghat, dist. Balaghat, 17.12. 1983, coll. U.A. Gajbe; 2 exs., Mukki, dist. Balaghat, 30.11.1986, coll. R. K. Singh.

Diagonistic characters : Forewing falcate. Upper side a warmer richer brown; outer margins broadly ashy. Forewing apical area broadly ochraceous, in female entering cell and reaching outer margin; subapical black spots, bearing a distal white spot, always present and prominent though small, within the ochraceous area. Hind wing with one or two white spots near tornus, vide Talbot (1947).

Distribution : India : Madhya Pradesh (Balaghat, Hoshangabad).

Host plants : Grasses.

Remarks : Evans (1932) has shown the distribution from Pachmarhi. Singh and Koshta (1997) recorded the species from Kanha National Park.

36. *Melanitis zitenius zitenius* (Herbst)
The Great Evening Brown

1796. *Papilio zitenius* Herbst, *Nat. Syst. Schmett.*, **8** : 5, pl. 182, figs. 1, 2.

1947. *Melanitis zitenius zitenius* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 374.

1987. *Melanitis zitenius zitenius* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 23-24.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar); Manipur, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh.

Elsewhere : Myanmar.

Remarks : Gupta and Shukla (1987) reported the species from Bastar dist.

37. *Mycalesis igilia mercea* Evans
The Pachmarhi Bushbrown

1920. *Mycalesis mercea* Evans, *J. Bombay. nat. Hist. Soc.* (2) **27** : 356.

1947. *Mycalesis igilia mercea* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 138.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Hoshangabad).

Remarks : Evans (1920 & 1932) shown the distribution of the species from Pachmarhi which comes under Hoshangabad district.

38. *Mycalesis lepcha bethami* (Moore)
The Lepcha Bushbrown

1891. *Samnta bethami* Moore, *Lep. Indica,* **1** : 226.

1947. *Mycalesis lepcha bethami* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 161.

1993. *Mycalesis lepcha bethami* : Nandi, *Fauna of Orissa, State Fauna Series,* **1**(Part-4): 182. *Zool Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Hoshangabad), Orissa.

Remarks : Evans (1932) recorded the species from Pachmarhi, which comes under Hoshangabad district of Madhya Pradesh.

39. *Mycalesis perseus tabitha* (Fabricius)
The Common Bushbrown

1793. *Papilio tabitha* Fabricius, *Syst. Ent.,* **3**(1) : 243.

1947. *Mycalesis perseus tabitha* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 131-132.

1987. *Mycalesis perseus tabitha* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 20-21.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Kerala, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Sri Lanka.

Remarks : Gupta and Shukla (1987) reported the species from Bastar dist.

40. *Mycalesis visala visala* Moore
The Long-brand Bushbrown

1857. *Mycalesis visala* Moore, *Cat. lep. Mus. Ins. East India Coy,* **1** : 230.

1947. *Mycalesis visala visala* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 140-143.

1987. *Mycalesis visala visala* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 21.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar, Hoshangabad, Pachmarhi), Assam, South India, Sikkim, Uttar Pradesh, West Bengal.

Elsewhere : Myanmar.

Remarks : Gupta and Shukla (1987) and Chaudhury (1995) reported the species from Bastar district.

41. *Orsotrioena medus medus* (Fabricius)
The Migger

1775. *Papilio medus* Fabricius, *Syst. Ent.,* : 488.

1947. *Orsotrioena medus medus* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 349-350.

1987. *Orsotrioena medus medus* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 25.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Andaman and Nicobar, Assam, Bihar, Hariyana, Nagaland, Orissa, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : Australia, China, Myanmar, Nepal, New Guinea and Tohgking.

Remarks : Gupta and Shukla (1987) and Chaudhury (1995) reported the species from Bastar dist.

42. *Ypthima baldus satpura* Evans
The Common Five ring

1923. *Ypthima baldus satpura* Evans, *J. Bombay nat. Hist. Soc.,* **29** : 787.

1947. *Ypthima baldus satpura* : Talbot, *The Fauna of Brit. India,* Butterflies, **2** : 338.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Hoshangabad).

Remarks : Evans (1932) recorded the species from Pachmarhi which comes under Hoshangabad district of Madhya Pradesh.

43. ***Ypthima ceylonica hubneri*** Kirby
The Common Fourring

1871. *Ypthima hubneri* Kirby, *Cat. Diurn, lep.*, : 95.

1947. *Ypthima ceylonica hubneri* : Talbot, *The Fauna of Brit. India*, Butterflies, **2** : 329.

1987. *Ypthima ceylonica hubneri* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 24.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Assam, Bihar, Maharashtra, Nagaland, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar and Malaya.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar dist.

44. ***Ypthima lisandra singala*** R. Felder
The Jewel Fourring

1868. *Ypthima (sic) singala* R. Felder, *Verh. zool. bot. Ges. Wien.*, **18** : 283.

1947. *Ypthima lisandra singala* : Talbot, *The Fauna of Brit. India*, Butterflies, **2** : 333.

Material examined : Recorded from literatures.

Distribution : India : Central Provinces and South India.

Elsewhere : Sri Lanka.

Family NYMPHALIDAE

45. ***Ariadne merione*** (Cramer)
The Common Coster

1777. *Papilio merione* Cramer, *Pap, Exot.*, **2** : 76, pl. 144, figs, G.H.

1987. *Ergolis merione* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 28.

1994. *Ariadne merione* : Varshney, *Oriental Ins.*, **28** : 167.

Forewing length : 51-53 mm.

Material examined : 1 ex., Hamirpur, dist. Raigarh, 26.9.1991, coll. H. P. Agrawal; 1 ex., Bagicha, dist. Raigarh, 30.9.1991, coll. H. P. Agrawal.

Diagnostic characters : Forewing with a subapical white spot placed above the bifurcation of the fourth and fifth subcostal nervules, and with the following blackish markings–two lines crossing the cell near the base, two waved and zigzag lines crossing the middle of the cell; three waved lines at the end of the cell; a pair of curved and very zigzag lines crossing the disc at about the middle of the wing, followed by the another very waved line, commencing near the subapical white spot. Hind wing with the markings similar and generally continous with those of the forewing, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar and Raigarh), Delhi, Kashmir, Orissa and Uttar Pradesh.

Elsewhere : Myanmar and Sri Lanka.

Host plants : *Tragia involucrata, T. cannabina* and *Ricinus communis.*

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district. This is the first report of the species from Raigarh district of Madhya Pradesh.

46. ***Athyma perius*** (Linnaeus)
The Common Sergeant

1758. *Papilio perius* Linnaeus, *Syst. Nat. ed.*, **10** : 471.

1987. *Pantoporia perius* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* 106 : 31.

1994. *Athyma perius* : Varshney, *Oriental Ins.*, **28** : 180.

Forewing length : 38-57 mm.

Material examined : 1 ex., Jagdalpur, dist. Bastar, 6.1.1974, coll. R. K. Singh; 1 ex., Patalkot, dist. Chhindwara, 28.2.1994, coll. H.S. Sharma.

Diagnostic characters : Upper side dark fuscous, with the following lemon-white spots and markings : forewing with a basal streak and two spots in cell; a subtriangular spot at end of

cell. two elongated subapical spots; a submarginal series of six very small spots, the third, fourth and fifth contiguous to the upper three discal spots. Hind wing with a wide transverse macular fascia near base, and an outer discal series of six small spots, vide DeNiceville (1886).

Distribution : India : Madhya Pradesh (Bastar and Chhindwara); Arunachal Pradesh; Bihar; Himachal Pradesh; Orissa; Uttar Pradesh; and West Bengal.

Elsewhere : Myanmar.

Host plants : *Glochidon velutinum, G. lanceolarum, G. arboreum; Terminalia myriocarpa.*

Remarks : Gupta and Shukla (1987) reported the species from Bastar district. This is the first report of the species from Chhindwara district.

47. *Byblia ilithyia* Drury
The Joker

1773. *Papilio ilithyia* Drury, *Ill. Ex. Ins.*, **2** : 29.

1932. *Byblia ilithyia* : Evans, *The identification of Indian Butterflies*, : 190.

Material examined : Recorded from literatures.

Distribution : India : Central Provinces to S. India.

Elsewhere : Sri Lanka.

48. *Cynthia cardui* (Linnaeus)
The Painted Lady

1758. *Papilio cardui* Linnaeus, *Syst. Nat.* ed. 10, **1** : 475.

1987. *Cynthia cardui* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 27.

Forewing length : 63 mm.

Material examined : 1 ex., Supkhar, dist. Balaghat, 1.12.1986; coll. R. K. Singh; 1ex., Madhav National Park, dist. Shivpuri, 11.9.1975, coll. R. K. Singh.

Diagnostic characters : Upperside, both wings ochreous red. Forewing with the basal area ochreous brown; an oblique irregular shaped angular band, the apical area and exterior border black, before the apex is a short white oblique band and a curved series of four spots; a pale marginal line. Hind wing with ochreous brown basal area; a transverse discal row of five black spots, each spot with slightly paler outer ring, a submarginal row of lunular spots, and marginal row of larger spots, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Balaghat, Bastar, Shivpur), Andamans, Arunachal Pradesh, Bihar, Lakshadweep, Meghalaya, Uttar Pradesh; and West Bengal.

Elsewhere : Myanmar and Sri Lanka.

Host plants : *Zornia diphylla; Debregeasia bicolor, D. hypoleuca; Girardinia heterophylla; Artemisia sp.; Blumea sp.*

Remarks : Singh (1977a) recorded the species from Madhav National Park, dist. Shivpuri. Singh and Koshta (1997) recorded the species from Kanha National Park, dist. Mandla and Balaghat. Gupta and Shukla (1987) recorded the species from Bastar district.

49. *Euthalia garuda anagama* Fruhstorfer
The Baron

1913. *Euthalia anagama* Fruhstofer, In seitz: *The macrolepidoptera of the World*, **9** : 667.

1987. *Euthalia garuda anagama* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 39.

Forewing length : 35 mm.

Material examined : 1 ex., Haratikuma village, Ambikapur, dist. Sarguja, 04.01.1975, Coll. D.S. Mathur.

Diagnostic characters : Upperside of forewing has a submarginal band of black spots, vide Gupta and Shukla (1987).

Distribution : India : Madhya Pradesh (Bastar and Sarguja), Himachal Pradesh, Maharashtra, Orissa and Uttar Pradesh.

Host plants : *Annacardium occidentale; Mangifera indica; Streblus asper; Trophis asper; Bryonia sp., Morus sp.*

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district. This is the first

report of the species from Sarguja district of Madhya Pradesh.

50. ***Euthalia lepidea lepidea*** (Butler)
The Grey Count

1868. *Adolias lepidea* Butler, *Ann. Mag. nat. Hist.*, (4)1 : 71.

1987. *Euthalia lepidea lepidea* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 38.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar); Orissa, South India, and Uttar Pradesh, Kumaon to Assam.

Elsewhere : Myanmar.

Remarks : Endangered species. Gupta and Shukla (1987) recorded the species from Bastar district.

51. ***Hypolimnas bolina*** (Linnaeus)
The Great Eggfly

1758. *Papilio bolina* Linnaeus, *Syst. Nat.*, (ed. 10) **1** : 479.

1987. *Hypolimnas bolina* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 29.

Forewing length : 78-92 mm.

Material examined : 1 ex., Amarwada, dist. Chhindwara, 12.9.1991, coll. R. K. Singh; 1 ex., Chandmaeta, dist. Chhindwara, 13.9.1991, coll. R. K. Singh; 3 exs., Patalkot, dist. Chindwara, 11.10.1992, coll. R. K. Singh; 1 ex., Yaswant Sagar, dist. Indore, 5.9.1980, coll. H. P. Agrawal; 2 exs., Sirpur, dist. Indore, 6.9.1980, coll. H. P. Agrawal; 4 exs., Adharthal, dist. Jabalpur, 03.9.1975, coll. H. Khajuria; 1 ex., Budhagar, dist. Jabalpur, 02.12.1975, coll. M. L. Dhimar; 1 ex., Boria village, dist. Jabalpur, 22.6.1979, coll. L.P. Dubey; 1ex., Jaora, dist. Ratlam, 20.8.1979, coll. R. K. Singh; 1ex., Chirimiri, dist. Sarguja, 13.4.1992, coll. R. K. Singh; 2 exs., Bandavgarh National Park, 01.3.1976, coll. N.K. Sinha; 6 exs., Madhav National Park, dist. Shivpuri, 23.9.1975, coll. R. K. Singh; 1 ex., Madhav National Park, dist. Shivpuri, 11.9.1976, coll. H. P. Agrawal.

Diagnostic characters : 'Male'–Upperside very dark indigo-blue. Forewing with a large elongate and macular white spot at end of cell; two or three small subapical white spots. Hind wing with a large medial white spot; a series of minute and frequently subobsolete submarginal white spots placed between the nervules. 'Female'–Upperside dark olivaceous brown. Forewing with a few small bluish subcostal spots above cell; a submarginal series of white spots placed between the nervules. Hindwing with a submarginal series of greyish spots., followed by a series of subconical spots of the same colour; marginal spots as on forewing, but more lunulate, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Indore, Jabalpur, Ratlam, Sarguja, Shahdol, and Shivpuri); Andaman and Nicobar; Arunachal Pradesh; Bihar; Delhi; Meghalaya; Orissa; Uttar Pradesh; and West Bengal.

Elsewhere : Myanmar, Pakistan and Sri Lanka.

Host plants : *Fleurya interrupta; Elatostemma cuneatum; Portulaca oleracea.*

Remarks : Singh (1977a) reported the species from Madhav National Park, Shivpuri dist., Gupta and Shukla (1987) recorded the species from Bastar district. This is the first report of the species from Chhindwara, Indore, Jabalpur, Ratlam, Sarguja, and Shahdol district of Madhya Pradesh.

52. ***Hypolimnas misippus*** (Linnaeus)
The Danaid Eggfly

1764. *Papilio misippus* Linnaeus, *Mus. Ulr.*, : 264.

1987. *Hypolimnas misippus* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 28.

Forewing length : 64-78 mm.

Material examined : 1 ex., Supkhar, dist. Balaghat, 30.01.1991, coll. R. K. Ghosh; 1 ex., Konta, dist. Bastar, 17.01.1974, coll. R. K. Singh; 6exs., Barhi, dist. Bhind, 18.9.1994, coll. R. K. Singh; 1 ex., Kautilya village, dist. Chhatarpur, 30.9.1993, coll. R. K. Singh; 2 exs., on Naogaon road, Chhatarpur, dist. Chhatarpur, 6.10.1993, coll.

R. K. Singh; 1 ex., Parasia dist. Chhindwara, 15.9.1991, coll. R. K. Singh; 1 ex., Sirpur, dist. Indore, 6.9.1980, coll. H. P. Agrawal; 1 ex., Madan Mahal, dist. Jabalpur, 12.7.1974, coll. H. P. Agrawal; 1 ex., Amkhas, dist. Jabalpur, 12.7.1974, coll. B. S. Gurm; 1 ex., Silua village, dist. Jabalpur, 24.7.1980, coll. H. S. Sharma; 1 ex., Thandla, dist. Jhabua, 9.3.1999, coll. K. Chandra; 1 ex., Mainpura village, dist. Mandsaur, 11.8.90, coll. R. K. Singh; 4 exs., Fish breeding Centre, Morena, dist. Morena, 4.9.1994, coll. R. K. Singh; 1ex., Samai village, dist. Morena, 13.9.94, coll. R. K. Singh; 1exs., Amanganj, dist. Panna, 18.02.1987, coll. R. K. Singh; 2ex., Bhonder village, dist. Raigarh, 24.9.1991, coll. H. P. Agrawal; 1 ex., Kosowari village, dist. Raigarh, 25.9.1991, coll. H. P. Agrawal; 1 ex., Dharamjaigarh, dist. Raigarh, 02.10.1991, coll. H. P. Agarwal; 1 ex., Pathalgaon, dist. Raigarh, 03.10.1991, coll. H.P. Agarwal; 2 exs., Dongaghat, Dharamjaigarh, dist. Raigarh, 03.04.1992, coll. R. K. Singh; 1ex., Alot, dist. Ratlam, 22.8.1990, coll. R. K. Singh. 2 exs., Punjab garden, Ambikapur, dist. Sarguja, 09.4.1992, coll. R. K. Singh; 1 ex., Bandavgarh National Park, dist. Shahdol, 05.03.1976, coll. N.K. Sinha; 7 exs., Madhav National Park, dist. Shivpuri, 11.9.1975, coll. R. K. Singh 4 exs., Madhav National Park, dist. Shivpuri, 11.9.1976, coll. H. P. Agrawal; 1 ex., Orchha, dist. Tikamgarh, 19.9.1993, coll. R. K. Singh; 1 ex., Kaliadeh, dist. Ujjain, 30.8.1990, coll. R. K. Singh; 1 ex., Mangalnath, dist. Ujjain, 01.9.1990, coll. R. K. Singh; 1ex., Ujjain, dist. Ujjain, 03.11.1990, coll. H. P. Agrawal.

Diagnostic characters : Male : Upperside very dark indigo blue. Forewing with an ablong subapical white spot; a large elongated white spot on disc beyond apex of cell. Hindwing with a large irregularly rounded discal white spot; these spots on both wings are surrounded by bright blue. Female upper side reddish ochraceous. Forewing with less than apical half black, containing a waved series of five white spots preceded by about two small subcoastal white spots and followed by a waved series of four small subapical white spots. Hindwing with a large medial black spot beneath are costal nervure, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Balaghat, Bastar, Bhind, Chhatarpur, Chhindwara, Indore, Jabalpur, Jhabua, Mandsaur, Morena, Panna, Raigarh, Ratlam, Sarguja, Shahdol, Shivpuri, Tikamgarh and Ujjain), Arunachal Pradesh; Andaman and Nicobar, Bihar, Delhi, Orissa; Sikkim; Tamil Nadu; Uttar Pradesh; and West Bengal.

Elsewhere : Sri Lanka, Pakistan and Myanmar.

Host plants : *Portulaca oleracea, P. grandiflora; Abutillon sp., Hibiscus sp.*

Remarks : Singh (1977a) reported the species from Madhav National Park, Shivpuri district. Singh (1977b) reported the species from Bastar district. Gupta and Shukla (1987) again reported the species from Bastar district. Singh and Koshta (1997) recorded the species from Kanha National Park. This is the first report of the species from Bhind, Chhatarpur, Chhindwara, Indore, Jabalpur, Jhabua, Mandsaur, Morena, Panna, Raigarh, Ratlam, Sarguja, Shahdol, Tikamgarh and Ujjain districts of madhya Pradesh.

53. ***Junonia almana almana*** (Linnaeus)
The Peacock Pansy

1758. *Papilio almana* Linnaeus, *Syst. Nat.*, ed **10** : 472.

1987. *Precis almana almana* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 35.

1994. *Junonia almana* : Varshney, *Oriental Ins.*, **28** : 176.

Forewing length : 50-55 mm.

Material examined : 1 ex., Patalkot, dist. Chhindwara, 11.10.1992, coll. R. K. Singh; 1ex., Shahpura village, dist. Jabalpur, 20.9.197, coll. S. K. Mishra; 1ex., Kanha, dist. Mandla, 28.11.1986, coll. R. K. Singh; 2 exs., Fish Breeding Centre, Morena, dist. Morena, 04.9.1994, coll. R.K. Singh; 3 exs., Porsa, dist. Morena, 08.9.1994, coll. R.K. Singh; 1 ex., Mandi, dist. Morena, 14.9.1994, coll. R.K. Singh; 1ex., Manendragarh, dist. Sarguja, 10.10.1991, coll. H.P. Agrawal; 1ex., Nawagarh, dist. Sarguja; 11.4.1992, coll. R. K. Singh; 1ex., Bandavgarh National Park, dist.

Shahdol, 18.02.1976, coll. N. K. Sinha; 2 exs., Madhav National Park, Shivpuri, dist. Shivpuri, 12.9.1975, coll. R. K. Singh.

Diagnostic characters : Apex of the forewing being usually much more truncate, the outer margin angled at the third median nervule and the anal angel of the hindwing produced into a longer blunt tipped tail. On the underside all the markings are less prominent, the discal ocelli very obscure, often obsolete, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Jabalpur, Mandla, Morena, Sarguja, Shahdol and Shivpuri), Andamans, Bihar, Delhi, Orissa, West Bengal, Widely distributed in India.

Elsewhere : Myanmar and Sri Lanka.

Remarks : Singh (1977a) reported the species from Madhav National Park, dist. Shivpuri. Gupta and Shukla (1987) recorded the species from Bastar. Singh and Koshta (1997) reported the species from Kanha National Park, dist. Mandla. This is the first report of the species from Chhindwara, Jabalpur, Morena, Sarguja and Shahdol districts, of Madhya Pradesh.

54. ***Junonia atlites*** (Linnaeus)
The Grey Pansy

1763. *Papilio atlites* Linnaeus, *Centur, Ins.*, 24.

1987. *Precis atlites* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 34.

1994. *Junonia atlites* : Varshney, *Oriental Ins.*, **28** : 176.

Forewing length : 48-50 mm.

Material examined : 1 ex., Junardeo, dist. Chhindwara, 16.9.1991, coll. R.K. Singh; 1ex., Bhita village, dist. Jabalpur, 20.02.1965, coll. H. Khajuria; 2 exs., Kanha, dist. Mandla. 28.11.1986, coll. R. K. Singh; 2 exs., Amapali, dist. Raigarh, 01.4.1992, coll. R. K. Singh; 2exs., Dharmjaigarh, dist. Raigarh, 06.4.1992, coll. R.K. Singh.

Diagnostic characters : Male : Upperside grey. Forewing with two waved black lines crossing the middle of the cell, and two similar ones at the end of the cell, and is marked with a series of six ocellated spots placed between the nervules. Hind wing with two waved fuscous lines crossing end of cell. Female: larger in size and generally darker in colour than the male, the ocellated spots above larger and more distinct, with the area on which they are placed much paler, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Jabalpur, Mandla and Raigarh), Andaman and Nicobar, Orissa, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar and Sri Lanka.

Host plants : *Asteracantha longifolia; Barleria sp.*

Remarks : Gupta and Shukla (1987) reported the species from Bastar district. Singh & Koshta (1997) reported the species from Kanha National Park. This is the first report of the species from Chhindwara, Jabalpur and Raigarh dists. of Madhya Pradesh.

55. ***Junonia hierta hierta*** (Fabricius)
The Yellow Pansy

1798. *Papilio hierta* Fabricius; *Ent. Syst.* Suppl., **4** : 424.

1987. *Precis hierta hierta* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 33.

1994. *Junonia hierta* : Varshney, *Oriental Ins.*, **28** :176.

Forewing length : 42-47 mm.

Material examined : 1 ex., Pachpedi, dist. Jabalpur, 19.3.1965, coll. M.L. Koshta; 1 ex., Patan village dist. Mandla, 21.10.1963, coll. J.S. Bhatti.

Diagnostic characters : Male : Upperside black. Forewing with a broad medial yellow patch, extending from the base to beyond the disc, and thence narrowed and bent downward; two short paler streaks before the apex. Hindwings black, with a large broad subanal yellow patch, and a large distinct blue subbasal spot. Female: Upperside, forewing dark, yellow brown, with the yellow patch paler, shortened basally, and crossed by two black lines on middle of the cell, and a broader disco-cellular band; a black upper

ocellus and a larger lower discal ocellus, and two marginal lunular yellow lines; vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar, Jabalpur and Mandla), Bihar, Delhi, Orissa and Uttar Pradesh.

Elsewhere : Sri Lanka and Pakistan.

Host plants : *Asteracantha longifolia; Barleria alata, B. rubra.*

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district. This is the first report of the species from Jabalpur and Mandla districts of Madhya Pradesh.

56. *Junonia lemonias vaisya* (Fruhstofer) **The Lemon Pansy**

1912. *Precis vaisya* Fruhstorfer, In Seitz; *The Macrolepidoptera of the World,* **9** : 520.

1987. *Precis lemonias vaisya* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 34.

1994. *Junonia lemonias* : Varshney, *Oriental Ins.*, **28** : 176.

Forewing length : 51-74 mm.

Material examined : 1 ex., Mukki, dist. Balaghat, 30.11.1986, coll. R. K. Singh; 2 exs., Supkhar, Kanha National Park, dist. Balaghat, 02.12.1986, coll. R. K. Singh; 2 exs., Dongaghat, Jagdalpur, dist. Bastar, 08.01.1974, coll. R. K. Singh; 1ex., Amla dist. Betul, 30.11.1989, coll. Y.N. Gupta; 2exs., Katuriya village, dist. Chhatarpur, 30.9.1993, coll. R.K. Singh; 1 ex., Shohara village, dist. Chhatarpur, 03.10.1993, coll. R.K. Singh; 2 exs., On Naogaon road, Chhatarpur, dist. Chhatarpur, 06.10.1993, coll. R.K. Singh; 1 ex., Bhartadeo, dist. Chhindawara, 10.9.1991, coll. R.K. Singh; 1ex., Amarwada, dist. Chhindwara, 12.9.1991, coll. R.K. Singh; 8 exs., Parasia, dist. Chhindwara, 15.9.1991, coll. R.K. Singh; 3 exs., Patalkot, dist. Chhindwara, 12.10.1992, coll. R.K. Singh; 3 exs., Patalkot, dist. Chhindwara, 22.02.1994, coll. H.S. Sharma; 1ex., Manot, dist. Hoshangabad, 22.11.1953, coll. H. Khajuria 2 exs., Bhita village, dist. Jabalpur, 20.2.1965, coll. H. Khajuria; 2 exs., Garhatal, dist. Jabalpur, 20.03.1965, coll. M.L. Koshta; 2exs., Nunsar, dist. Jabalpur, 6.9.1965, coll. H.P. Agarwal; 1ex., Pachpedi, dist. Jabalpur, 01.12.1965, coll. M. L. Koshta; 1 ex., Lametaghat, dist. Jabalpur, 02.021973, coll. R.K. Singh; 1ex., Dhangaon, dist. Jabalpur, 26.9.1973, coll. L.P. Dubey; 1ex., Barela tank, dist. Jabalpur, 14.8.1974, coll. N.K. Sinha; 1ex., Mohania village, dist. Jabalpur, 27.10.1975, coll. H. P. Agarwal; 6 exs., Tilwaraghat, dist. Jabalpur, 29.11.1975, coll. N. K. Sinha; 1 ex., Bacheri tank, dist. Jabalpur, 03.04.1976, coll. H. Khajuria; 2 exs., Kanha, dist. Mandla, 29.3.1964, coll. H. Khajuria; 3exs., Kisli, dist. Mandla, 28.5.1964, coll. H. Khajuria; 1 ex., Agriculture college campus, dist. Mandsaur, 8.4.1991, coll. R.K. Singh; 15 exs., Madhav National Park, Shivpuri, dist. Shivpuri, 11.9.75 to 3.10.1975, coll. R.K. Singh; 6 exs., Madhav National Park, dist. Shivpuri, 11.9.1976, coll. H.P. Agarwal; 5 exs., Orchha, dist. Tikamgarh, 17-20.9.1993, coll. R.K. Singh; 1ex., Mahendra Bag, dist. Tikamgarh, 23.9.1993, coll. R.K. Singh; 2 exs., Kundleshwar, dist. Tikamgarh, 24.9.1993, coll. R.K. Singh; 2 exs., Kuwarpur village, dist. Tikamgarh, 25.9.1993, coll. R.K. Singh; 1 ex., Bandnagar, dist. Ujjain, 03.4.1991, coll. R.K. Singh.

Diagnostic characters : Upperside of forewing with the cell crossed by the following markings:- a slender waved black line near base, two waved black lines enclosing a pale ochraceous fascia; the ground colour is darker and marked with pale ochraceous spots. Hindwing with a large elongated and duplex ocellated spot, the smaller portion of which is situated between the sub costal nervules, the larger portion extending over the discoidal nervule, and a very small and indistinct ocellated spot between the second and first median nervules, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Balaghat, Bastar, Betul, Chhatarpur, Chhindwara, Hoshangabad, Jabalpur, Mandla, Mandsaur, Shivpuri, Tikamgarh and Ujjain), Bihar, Orissa, South India.

Elsewhere : Sri Lanka.

Host plants : *Nelsonia campestris;*

Asteracantha longifolia; Sida rhombifolia; Strobilanthes sp.

Remarks : Singh (1977a) reported the species from Madhav National Park, Shivpuri Singh (1977b) reported the species from Bastar district. Gupta and Shukla (1987) also reported the species from Bastar dist. Singh and Koshta (1997) recorded the species from Kanha National Park. This is the first report of the species from Betul, Chhatarpur, Chhindwara, Hoshangabad, Jabalpur, Mandsaur, Tikamgarh, and Ujjain districts of Madhya Pradesh.

57. ***Junonia orithya swinhoei*** Butler
The Blue Pansy

1885. *Junonia swinhoei* Butler; *Ann. Mag. nat. Hist.*, (5)**16** : 309.

1987. *Precis orithya swinhoei* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 33.

1994. *Junonia orithya* : Varshney, *Oriental Ins.*, **28** :176.

Forewing length : 44-53 mm.

Material examined : 1 ex., Horticulture garden, Bhind, dist. Bhind, 17.9.1994, coll. R.K. Singh; 1ex., Barhi, dist. Bhind, 18.9.1994, coll. R.K. Singh; 2 exs., On Naogaon road, Chhatarpur, dist. Chhatarpur, 06.10.1993, coll. R.K. Singh; 1 ex., Medical college, Jabalpur, dist. Jabalpur, 20.8.1964, coll. M.L. Koshta; 1 ex., Adhartal, dist. Jabalpur, 16.12.1972, coll. N.K. Sinha; 2 exs., Pachpedi dist. Jabalpur, 19.1.1973, coll. M.L. Dhimar; 1 ex., Kanha, dist. Mandla, 28.11.1986, coll. R.K. Singh; 3 exs., Fish breeding Centre, Morena dist. Morena, 04.9.1994, coll. R.K. Singh; 4 exs., Porsa, dist. Moena, 08.9.1994m, coll. R.K. Singh; 1ex., Mahua village dist. Morena, 12.9.1994, coll. R.K. Singh; 1ex., Pench National Park, dist. Seoni, 10.1.1973, coll. R.K. Singh; 1 ex., Madhav National Park, dist. Shivpuri, 01.10.1975, coll. R.K. Singh; 1 ex., Orchha, dist. Tikamgarh, 19.9.1993, coll. R.K. Singh; 1ex., Birlagam, Nagda, dist. Ujjain, 04.4.1991, coll. R.K. Singh.

Diagnostic characters : Male : Upperside forewing dark blue-black from Base to the disc, outer area fuliginous black; a purple-tinted ochreous-white short oblique subapical band and two transverse submarginal narrow lunular fascial; on the inner fascia are two small red-ringed ocelli. Hindwing blue; suffused with purple; a black basal angular patch curving across the cell towards the anal angle, and merging into brown on the abdominal margin; two ocelli near the outer margin, the lower one red and ringed with black, the upper one almost black and blind; two pale-bordered marginal lines. Female : differes on the upper side in having the basal half of the hind wing entirely black, both the ocelli being large and of a bright red, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar, Chhatarpur, Jabalpur, Mandla, Morena, Bhind, Seoni, Shivpuri, Tikamgarh, and Ujjain), Bihar, Delhi, Himachal Pradesh, Orissa, South India, and Uttar Pradesh.

Elsewhere : Pakistan, Myanmar and Sri Lanka.

Host plants : *Justicia procumbens, J. micrantha; Lepidagathis prostrata.*

Remarks : Singh (1977a) reported the species from Madhav National Park, Shivpuri dist. Gupta and Shukla (1987) reported the species from Bastar dist. Singh and Koshta (1997) reported the species from Kanha National Park, Mandla dist. This is the first report of the species from Bhind, Chhatarpur, Jabalpur, Morena, Seoni, Tikamgarh and Ujjain dists. of Madhya Pradesh.

58. ***Kallima inachus huegeli*** (Kollar)
The Orange Oakleaf

1848. *Paphia hugelii* Kollar, in *Hugel's Kaschmir*, **4**(2) : 432.

1932. *Kallima inachus huegeli* : Evans, *The identifications of Indian Butterflies*, : 175.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Pachmarhi), Jammu & Kashmir, Uttar Pradesh.

59. ***Moduza procris procris*** (Cramer)
The Commander

1777. *Papilio procris* Crames, *Pap. Exot.*, **2** : pl. 106, figs E, F.

1932. *Limenitis procris procris* : Evans, *The Identification of Indian Butterflies*, : 161.

1994. *Moduza procris* : Varshney, *Oriental Ins.*, **28** : 181.

Forewing length : 34 mm.

Material examined : 1 ex., Jagdalpur, dist. Bastar, 07.01.1974, coll. R. K. Singh.

Diagnostic characters : Upperside forewing with the cell crossed by three black lines, and with the same number between the first median nervule and the submedian nervure; beyond the cell the whole disc of the wing is triangularly blackish, containing an oblique series of five white spots; a broad submarginal waved black fascia and two narrower marginal fascial of the same colour. Hind wing with the cell crossed by two pairs of blackish lines and with a few small black markings above the cell, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar); Assam, Arunachal Pradesh, Bihar, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar.

Host plants : *Sarcocephalus missionis; Mussoenda frondosa; Wendlandia exserta, W.notoniana, Stephegyne parvifolia, Anthocephalus cadamba; Cinchona sp.*

Remarks : This is the first report of the species from Madhya Pradesh.

60. *Neptis hylas astola* Moore
The Common Sailer

1872. *Neptis astola* Moore, *Proc. zool. Soc. Lond.*, : 560.

1987. *Neptis hylas astola* : Gupta and Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 36.

Forewing length : 44-51 mm.

Material examined : 1 ex., Dongaghat, Jagdalpur, dist. Bastar, 10.01.1974, coll. R.K. Singh; 1 ex., Konta, dist. Bastar, 20.01.1974, coll. R.K. Singh; 4exs., Patalkot, dist. Chhindwara, 26.02.74, coll. H.S. Sharma; 2 exs., Pachpedi, dist. Jabalpur, 09.3.1964, coll. H. Khajuria; 2exs., Adhartal, dist. Jabalpur, 17.10.1975, coll. H. Khajuria; 1ex., Amanganj dist. Panna, 18.02.1987, coll. R.K. Singh; 2exs., Pench National Park, dist. Seoni, 10.011973, coll. R.K. Singh; 3 exs., Bandavgarh National Park, dist. Shahdol, 19.02.1976, coll. N.K. Sinha.

Diagnostic characters : Wings shorter and broader, the markings on the upperside more prominent. The submarginal series of white spots on the forewing five in number towards apex; the white subbasal band of the hindwing straighter and more even width throughout.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Jabalpur, Panna, Seoni, and Shahdol), Assam, Himachal Pradesh, Maharashtra, Uttar Pradesh, Kashmir to Karen Hills, Myanmar.

Elsewhere : Myanmar.

Host plants : *Canavalia ensiformis; Vigna catjang; Mappia foetida; Bombax malabaricum; Dalbergia sissoo; Spatholobus roxburghii, Cylista sp. Flemingia sp., Mucuna sp., Xylia sp., Grewia sp., Triumfetta sp., Corchorus sp., Bombax sp., Holicteres sp.*

Remarks : Singh (1977b) recorded the species from Bastar district. Gupta and Shukla (1987) also reported the species from Bastar dist. This is the first report of the species from Chhindwara, Jabalpur, Panna, Seoni and Shahdol districts of Madhya Pradesh.

61. *Neptis soma soma* Moore
The Sullied Sailer

1858. *Neptis soma* Moore, *Proc. zool. Soc.* Lond., : 9.

1932. *Neptis soma soma* : Evans, *The Identification of Indian Butterflies*, : 166.

1997. *Neptis soma* : Singh & Koshta, *Rec. zool. Surv. India*, **96**(1-4) : 20.

Forewing length : 44 mm.

Material examined : 2 exs., Mukki, dist. Balaghat, 30.11.1986, coll. R.K. Singh; 1ex., Supkhar, Dist. Balaghat, 02.12.1986, coll. R.K. Singh; 1ex., Adarsh Colony, Jabalpur dist. Jabalpur, 14.02.1996, coll. S. Fadnavis.

Diagnostic characters : Upper side black. markings white. Forewing with discoidal streak

narrower and the seven spots of the curved row are smaller. All the markings are very small and narrow and more or less sullied, not clear pure white, the submarginal series of small white spots; the bands on the hind wing are also narrower. Underside deep maroon, the markings as on upper side, but those of the hind wing less straight; vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Balaghat and Jabalpur), Assam, Sikkim and Uttar Pradesh.

Elsewhere : Myanmar, Bhutan and Bangla Desh.

Host plants : Not known.

Remarks : Singh and Koshta (1997) recorded the species from Kanha National Park. This is the first report of the species from Jabalpur district.

62. ***Pantoporia hordonia hordonia*** (Stoll)
The Common Lascar

1791. *Papilio hordonia* Stoll, In *Cramer's Pap. exot. Suppl.*, : pl. 33, figs. 4, 4D.

1987. *Neptis hordonia hordonia* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 37.

1994. *Pantoporia hordonia* : Varshney, *Oriental Ins.*, **28** : 180.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Arunachal Pradesh, Assam, Orissa, Uttar Pradesh, West Bengal and South India, Uttar Pradesh to Arunachal Pradesh.

Elsewhere : Myanmar.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

63. ***Parathyma ranga*** (Moore)
The Sergeant

1857. *Athyma ranga* Moore, *Cat. Lep. Mus. E.I.C.*, **1** : 175.

1995. *Parathyma ranga* : Chaudhury, *Fauna of Indravati Tiger Reserve, Fauna of conservation Areas*, **6** : 49. *Zool. Surv. India*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Assam, Southern India to Uttar Pradesh through Sikkim.

Elsewhere : Bhutan and Myanmar.

64. ***Parathyma selenophora*** (Kollar)
The Staff Sergeant

1844. *Limenitis selenophora* Kollar, *Hungels Kaschmir*, **4**(2) : 426.

1995. *Parathyma selenophora* : Chaudhury, *Fauna of Indravati Tiger Reserve, Fauna of conservation Areas*, **6** : 49. *Zool. Surv. India.*

Material examined : Recorded from literatrue.

Distribution : India : Madhya Pradesh (Bastar), Assam, Southern India and Himalayas.

Elsewhere : Myanmar.

65. ***Phalanta alcippe*** (Cramer)
The Small Leopard

1782. *Papilio alcippe* Cramer, *Pap. Exot.*, **43** : pl. 389, fig. G.H.

1995. *Phalanta alcippe* : Chaudhury, *Fauna of Indravati Tiger Reserve, Fauna of conservation Areas*, **6** : 48. *Zool. Surv. India.*

Material examined : Recorded from literature.

Distribution : India : Madhya Pradesh (Bastar), Assam and Sikkim.

Elsewhere : Myanmar, Tenasserim and extending Malaya Peninsula.

66. ***Phalanta phalantha phalantha*** (Drury)
The Common Leopard

1770. *Papilio phalantha* Drury, *Exot. Inst.*, **1** : 41.

1987. *Phalanta phalantha phalantha* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 30.

Forewing length : 46-54 mm.

Material examined : 6 exs., Konta, dist. Bastar, 17.01.1994, coll. R.K. Singh; 2 exs., Katuriya village, dist. Chhatarpur, 30.9.1993, coll. R. K. Singh; 1ex., Bargi village, dist. Jabalpur, 03.5.1973, coll. N.K. Sinha; 3exs., Tilwaraghat, dist. Jabalpur, 06.8.1975, coll. R.K. Singh; 2 exs., Silua village, dist. Jabalpur, 24.7.1980, coll. H.S.

Sharma; 1ex., Bandavgarh National Park, dist. Shahdol, 07.3.1976, coll. N.K. Sinha; 4 exs., Madhav National Park, dist. Shivpuri, 12.9.1975, coll. R.K. Singh.

Diagnostic characters : Upperside bright ochraceous, with the following blackish markings:- forewing with the apical half of the costal margin, four narrow waved fascial (arranged in pairs) crossing cell, a waved and broken spot beyond cell extending from costa to thelower discoidal nervule, an oblique series of four spots divided by the median nervules; a straight discal series of six spots placed between the nervules, followed by a similar series of four spots. Hind wing with some transversely waved linear fascial on basal area; a discal series of four rounded spots; two waved submarginal fascial; vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar, Chhatarpur, Jabalpur, Shahdol and Shivpuri), Arunachal Pradesh, Bihar, Delhi, Maharastra, Nicobar, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka, Pakistan and Myanmar.

Host plants : *Flacourtia ramontchi, F. montana; Aberia gardner; Salix pentandra; S. tetrasperma; Smilax sp., Salix sp.*

Remarks : Singh (1977a) reported the species from Madhav National Park, Shivpuri district. Singh (1977b) reported the species from Bastar district. Gupta and Shukla (1987) also reported the species from Bastar district. This is the first report of the species from Chhatarpur, Jabalpur and Shahdol districts of Madhya Pradesh.

67. ***Precis iphita pluviatilis*** Fruhstorfer
The Chocolate Pansy

1900. *Precis pluviatilis* Fruhstorfer, *Berl, ent. Z. Berlin,* **45** : 22.

1987. *Precis iphita pluviatilis* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 32.

Forewing length : 52-58 mm.

Material examined : 1 ex., Parasia, dist. Chhindwara, 15.9.1991, coll. R.K. Singh; 1ex., Khutama village, dist. Chhindwara, 19.9.1991, coll. R.K. Singh; 1ex., Patalkot, dist. Chhindwara, 12.10.1992, coll. R.K. Singh; 1ex., Patalkot, dist. Chhindwara, 26.02.1994, coll. H.S. Sharma; 3 exs., Tilwaraghat, dist. Jabalpur, 29.11.1975, coll. N.K. Sinha; 1 ex., Budagar tank, dist. Jabalpur, 22.12.1975, coll. D.S. Mathur; 1ex., Shahpura road, dist. Jabalpur, 31.12.1975, coll. P.D. Rane.

Diagnostic characters : Forewing with two transverse fascial crossing cell, the first situated about middle and the second near apex; the apical half of wing is somewhat paler, and inwardly bounded by a dark fascia; between this and outer margin is a somewhat similar fascia, followed by two very dark submarginal lines. Hindwing with the apical half paler and with the fasical on the forewing continued, the first terminating near abdominal margin about one third from anal angle, the second broader and more outwardly curved than on forewing; vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar, Chhindwara and Jabalpur) Kashmir, Orissa, South India, Uttar Pradesh.

Elsewhere : Maldives and Sri Lanka.

Host plants : *Strobilanthes callosus; Justicia micrantha; Asteracantha longifolia.*

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district. This is the first report of the species from Chhindwara and Jabalpur districts of Madhya Pradesh.

68. ***Symphaedra nais*** (Forster)
The Baronet

1771. *Papilio nais* Forster, *Nov. Spec. Ins. Cent.,* **1** : 73.

1987. *Euthalia nais* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 38.

1994. *Symphaedra nais* : Varshney, *Oriental Ins.,* **28** : 184.

Forewing length : 61-67 mm.

Material examined : 1 ex., Supkhar, dist. Balaghat (Kanha National Park), 01.12.1986, coll. R.K. Singh; 1ex., Jagdalpur, dist. Bastar, 07.01.1974, coll. R.K. Singh; 1ex., Patalkot, dist. Chhindwara, 02.3.1994, coll. H.S. Sharma; 1ex.,

Madan Mahal, dist. Jabalpur, 20.10.1964, coll. H.P. Agrawal; 1ex., Tilwaraghat, dist. Jabalpur, 06.08.1975, coll. R. K. Singh; 1ex., Bandavgarh National Park, dist. Shahdol, 19.02.1976, coll. N.K. Sinha.

Diagnostic characters : Upper side of forewing with a broad black disco-cellular spot, a contiguous discal spot, an oblique sub apical streak, and transverse submarginal and marginal narrow lunular band, the two joined by streaks on the veins. Hindwing with a large black medial costal spot; a submarginal row of small round spots, and broad marginal band; vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Bastar, Balaghat, Chhindwara, Jabalpur, Shahdol), Bihar, Goa, Gujarat, Orissa, Sikkim and South India.

Elsewhere : Sri Lanka.

Host plants : *Diospyros melanoxylon; Shovea robusta.*

Remarks : Gupta and Shukla (1987) reported the species from Bastar, Singh, and Koshta (1997) reported the species from Kanha National Park. This is the report of the species from Chhindwara, Jabalpur and Shahdol districts of Madhya Pradesh.

Family ACRAEIDAE

69. *Acraea violae* (Fabricius)
The Tawny Coster

1775. *Papilio violae* Fabricius, *Syst. Ent.*, (3)**1** : 460.

1947. *Acraea violae* : Talbot, *The Fauna of Brit. India,* (Butterflies) **2** : 466-469.

Forewing length : 42-53 mm.

Material examined : 1 ex., Dongaghat, Jagdalpur, dist. Bastar, 17.1.1974, coll. R.K. Singh; 3exs., Konta dist. Bastar, 17.1.1974, coll. R.K. Singh; 1ex., Katuriya village, dist. Chhatarpur, 30.9.1993, coll. R.K. Singh; 1 ex., Khajurao, dist. Chhatarpur, 2.10.1993, coll. R.K. Singh; 3 exs., Awasthi farm house, Chhatarpur, dist. Chhatarpur, 5.10.1993, coll. R.K. Singh; 6exs., Patalkot, dist. Chhindwara, 28.2.1994, coll. H.S. Sharma; 1ex., Hoshangabad, dist. Hoshangabad, 30.3.1979, coll. P.D. Rame; 1ex., Richhai village, dist. Jabalpur, 16.2.1965, coll. H. Khajuria; 1ex., Orchha, dist. Tikamgarh, 17.9.1993, coll. R. K. Singh; 1 ex., Ujjain near Sipra river, dist. Ujjain, 8.11.1990, coll. H.P. Agrawal.

Diagnostic characters : Upperside of male and female brick-red. Forewing with a transverse black cell-spot; apex and outer margin narrowly black. Hind wing with a broad black marginal border, bearing a sub-marginal series of small spots of the ground colour. Antennae, head and thorax black.

Distribution : India : Madhya Pradesh (Bastar, Chhatarpur, Chhindwara, Hoshangbad, Jabalpur, Tikamgarh and Ujjain), Bihar, Gujarat, Lakshadweep, Punjab, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka and Pakistan.

Host plants : *Modecca palmata; Passiflora foetida; Hibiscus cannabinus;* Cultivated Passion flowers, Cucumbers.

Remarks : Singh (1977b) and Gupta & Shukla (1987) recorded the species from Bastar district. This is the first report of the species from Chhatarpur, Hoshangabad, Jabalpur, Tikamgarh and Ujjain districts of Madhya Pradesh.

Family RIODINIDAE

70. *Abisara echerius suffusa* Moore
The Plum Judy

1882. *Abisara suffusa* Moore, *Proc. zool. Soc. Lond.,* : 244.

1987. *Abisara echerius suffusa* : Gupta and Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 40.

Forewing length : 46 mm.

Material examined : 1 ex., Dauripatha, Patalkot, dist. Chhindwara, 02.3.1994, coll. H.S. Sharma.

Diagnostic characters : Upperside and underside of hind wing bear black spots of variable size at the apices of interspaces 4, 5 and 6; vide Gupta and Shukla (1987).

Distribution : India : Madhya Pradesh (Bastar

and Chhindwara), Karnataka, Kanara to Western Himalayas.

Host plants : ***Ardisia humilis; Embelia robusta and Rhynchosia cyanosperma.***

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district. This is the first report of the species from Chhindwara district.

Family LYCAENIDAE

71. *Amblypodia amantes amantes* Hewitson
The Large Oak Blue

1862. *Amblypodia amantes* Hewitson, *Cat. Lycaenidae B.M.*, : 4.

1890. *Arhopala amantes* : de Niceville, *The Butterflies of India. Burmah and Ceylon*, 3 : 239-240.

1932. *Amblypodia amantes amantes* : Evans, *The Identification of Indian Butterflies*, : 264.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Andamans, Central Province, Maharashtra and thence southwards to Travencore, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka and Myanmar.

72. *Amblypodia atrax* Hewitson
The Dark Brokenband Oakblue

1862. *Amblypodia atrax* Hewitson, *Cat. Lycaenidae B.M.*, : 13.

1890. *Arhopala atrax*: de Niceville. *The Butterflies of India, Burmah and ceylon*, 3 : 246.

1932. *Amblypodia atrax* : Evans, *The identification of Indian Butterflies*, : 260.

Material examined : Recorded from literatures.

Distribution : India : Central Provinces, Bihar, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar.

73. *Apharitis lilacinus* (Hewitson)
The Lilac Silverline

1857. *Apharitis lilacinus* Hewitson, *J. Asiat. Soc. Beng.*, 53(2) : 28.

1997. *Apharitis lilacinus* : Gupta, *Fauna of West Bengal, State Fauna Series*, 3 : 465. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Assam, Himachal Pradesh, Karnataka, Uttar Pradesh and West Bengal.

74. *Azanus jesous gamra* (Lederer)
The African Babul Blue

1855. *Lycaena gamra* Lederer, *Verh. zool.-bot. Gesellsch. Wien*, 5 : 189.

1890. *Azanus gamra*: de Niceville, *The Butterflies of India, Burmah and Ceylon*, 3 : 125.

1932. *Azanus jesous gamra* : Evans, *The Identification of Indian Butterflies*, : 217.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Maharashtra, Orissa, Punjab, South India, Tamil Nadu and Uttar Pradesh.

Elsewhere : Sri Lanka and Myanmar.

75. *Azanus ubaldus* (Cramer)
The Bright Babul Blue

1782. *Papilio ubaldus* Cramer, *Pap. Ex.*, 4 : 209.

1890. *Azanus ubaldus* : de Niceville, *The Butterflies of India, Burmah and Ceylon*, 3 : 123-124.

1932. *Azanus ubaldus* : Evans, *The Identification of Indian Butterflies*, : 217.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Gujarat, Maharashtra, North West Himalayas, Punjab, Tamil Nadu and Uttar Pradesh.

Elsewhere : Pakistan, Sri Lanka and Myanmar.

76. *Azanus uranus* Butler
The Dull Babul Blue

1886. *Azanus uranus* Butler, *Proc. zool. Soc. Lond.*, : 366.

1997. *Azanus uranus* : Gupta, *Fauna of West Bengal, State Fauna Series*, 3(Part-7) : 438. *Zool Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Central India; Sikkim; Southern India; Uttar Pradesh; and West Bengal.

Elsewhere : Pakistan.

77. *Castalius caleta decidia* (Hewitson)
The Angled Pierrot

1876. *Lycaena decidia* Hewitson, *Exot. Butl.*, **5** : pl. 1, fig. 4.

1987. *Castalius caleta decidia* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 45.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Assam, Bihar, Karnataka, Kerala, Maharashtra, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Nepal, Sri Lanka and Myanmar.

Remarks : Gupta and Shukla (1987) reported the species from Bastar district.

78. *Castalius rosimon rosimon* (Fabricius)
The Common Pierrot

1775. *Papilio rosimon* Fabricius, *Syst. Ent.*, : 523.

1997. *Castalius rosimon rosimon* : Gupta, *Fauna of West Bengal, State Fauna Series*, **3**(Part-7) : 434. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), West Bengal, widely distributed in India.

Elsewhere : Myanmar, Pakistan and Sri Lanka.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

79. *Catochrysops ella* Butler

1881. *Catochrysops ella* Butler, *Proc. zool. Soc. Lond.*,: 606.

1890. *Catochrysops ella* : De Niceville, *The Butterflies of India, Burmah and Ceylon,* vol. **3** : 180-181.

Material examined : Recorded from Literatures.

Distribution : India : Madhya Pradesh (Mhow), Tamil Nadu.

Elsewhere : Pakistan.

80. *Catochrysops hapalina* Butler

1883. *Catochrysops hapalina* Butler, *Proc. zool. Soc. Lond.*, : 148.

1890. *Catochrysops hapalina* : de Niceville, *The Butterflies of India, Burmah and Ceylon,* **3** : 182-183.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Maharashtra.

81. *Catochrysops strabo strabo* (Fabricius)
The Forget-Me-Not

1793. *Hesperia strabo* Fabricius, *Syst. Ent.*, **3** : 287.

1987. *Catochrysops strabo strabo* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 52.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Bihar, Maharashtra, South India and West Bengal.

Elsewhere : Myanmar.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

82. *Curetis dentata dentata* Moore
The Toothed Sunbeam

1879. *Curetis dentata* Moore, *Proc. zool. Soc. Lond.*, : 137.

1932. *Curetis acuta dentata* : Evans, *The Identification of Indian Butterflies*, : 254.

1997. *Curetis dentata dentata* : Gupta, *Fauna of West Bengal, State Fauna Series*, **3** : 458. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Sikkim, South India, Uttar Pradesh and West Bengal.

Elsewhere : Nepal and Myanmar.

83. *Euchrysops cnejus* (Fabricius)
The Gram Blue

1798. *Hesperia cnejus* Fabricius, *Syst. Ent.*, : 430.

1987. *Euchrysops cnejus* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 47.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Andaman and Nicobar and West Bengal.

Elsewhere : Myanmar, Nepal, Pakistan and Sri Lanka.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

84. *Euchrysops contracta contracta* (Butler) The small Cupid

1880. *Lampides contracta* Butler, *Proc. zool. Soc. Lond.*, : 406.

1932. *Euchrysops contracta contracta*: Evans, *The Identification of Indian Butterflies*, : 235.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Gujarat, Tamil Nadu.

Elsewhere : Pakistan.

Remarks : De Niceville (1890) mentioned the distribution of the species from Mhow, Madras and Kutch.

85. *Euchrysops pandava* (Horsfield) The Plains Cupid

1829. *Lycaena pandava* Horsfield, *Cat. Lep. Ins. East India Coy*, : 84.

1987. *Euchrysops pandava* : Gupta and Shukla, *Rec. zool. Surv. India., Occ, Pap, No.* **106** : 47.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Andaman and Nicobars, Karnataka and West Bengal.

Elsewhere : Myanmar, Pakistan and Nepal.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

86. *Iraota timoleon timoleon* (Stoll) The Silver Streak Blue

1790. *Papilio timoleon* Stoll, *Suppl. Cramer, Pap. exot.*, **5** : pl. 32, figs 4, 4D, female.

1997. *Iraota timoleon timoleon* : Gupta, *Fauna of West Bengal, State Fauna Series*, **3** : 459. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Andamans, Orissa, Sikkim, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar.

Remarks : Evans (1932) has shown the distribution of the species from Pachmarhi, which comes under Hoshangabad district.

87. *Jamides celeno aelianus* (Fabricius) The Common Cerulean

1793. *Hesperia aelianus* Fabricius, *Ent. Syst.*, **3**(1) : 280, no. 79.

1987. *Jamides celeno aelianus* : Gupta and Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 51.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Assam and West Bengal;

Elsewhere : Pakistan and Myanmar.

Remarks : Gupta and Shukla (1987) reported the species from Bastar district.

88. *Lampides boeticus* (Linnaeus) The Peablue

1767. *Papilio boeticus* Linnaeus, *Syst. Nat.*, ed. **12** : 789.

1987. *Lampides boeticus* : Gupta & Shukla, *Rec. zool. Surv. India. Occ, Pap. No.* **106** : 53.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Andaman & Nicobar, Arunachal Pradesh, North East India, Uttar Pradesh and West Bengal.

Elsewhere : Nepal, Pakistan and Sri Lanka.

Remarks : Gupta and Shukla (1987) reported the species from Bastar district.

89. *Loxura atymnus continentalis* Frushtorfer The Yamfly

1911. *Loxura atymnus continentalis* Fruhstorfer, *Berl. Ent. Z.* Berlin, **56** : 221.

1987. *Loxura atymnus continentalis*: Gupta and Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 42.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar),

Assam, Bihar, Orissa, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

90. *Narathura atrax* (Hewitson)
The Indian Oakblue

1862. *Amblypodia atrax* Hewitson, *Cat. Lycaenidae Brit. Mus.*, : 13, no. 58, pl. 7, figs. 80, 82 female.

1890. *Arhopala atrax*: De Niceville, *The Butterflies of India, Burma and Ceylon*, **3** : 246.

1997. *Narathura atrax* Gupta, *Fauna of West Bengal, State Fauna Series*, **3** : 462. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Bihar, Orissa, South India, Uttar Pradesh and West Bengal.

Elsewhere : Bhutan and Myanmar.

91. *Pratapa deva deva* (Moore)
The White Royal

1857. *Amblypodia deva* Moore, Horsfield and Moore, *Cat. Lep. Mus. East India Coy*, **1** : 46, no. 74.

1997. *Pratapa deva deva* : Gupta, *Fauna of West Bengal, State Fauna Series*, **3** : 471. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Meghalaya, South India, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka and Myanmar.

92. *Rapala melampus* (Cramer)
The Indian Red Flash

1781. *Papilio melampus* Cramer, *Pap. Ex.*, **4** : 142.

1932. *Rapala melampus* : Evans, *The Identification of Indian Butterflies*, : 299.

Forewing length : 34-37 mm.

Material examined : 1ex., Thandla, dist. Jhabua, 09.3.1999, coll. K. Chandra; 2 exs., Sangera, Patalkot, dist. Chhindwara, 21.02.1994, coll. H.S. Sharma.

Diagnostic characters : Male : Upperside both wings scarlet. Forewing with the costa widely the apex broadly, and the outer margin decreasingly black, the black border on the outer margin not ending in a point; the veins black, the median nervules and the outer portion of the median nervure not bordered with black. Hindwing with the costa dusky, the abdominal margin pale, the anal lobe black bearing anteriorly towards the abdominal margin a patch of ochreous scales, and outwardly a few scatter metallic greenish ones. Female: Upperside both wings much duller, more brick red than in the male, especially on the hindwing, where the costa and outer margines are distinctly suffused with dusky, vide De Niceville (1890).

Distribution : India : Madhya Pradesh (Jhabua), Orissa, Tamil Nadu, Uttar Pradesh.

Elsewhere : Sri Lanka, Pakistan and Indonesia.

Remarks : De Niceville (1890) it is found almost throughout India (except the desert tracts, Sikkim, Assam). This is the first report of the species from Jhabua and Chhindwara districts of Madhya Pradesh.

93. *Spindasis elima elima* (Moore)
The Scarce Shot Silverline

1877. *Aphnaeus elima* Moore, *Ann. Mag. nat. Hist.*, (4)**20** : 51.

1997. *Spindasis elima elima*: Gupta, *Fauna of West Bengal, State Fauna Series*, **3** : 468. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Haryana, Himachal Pradesh, Maharashtra, Manipur, Orissa, Sikkim, South India, Uttar Pradesh and West Bengal.

Elsewhere : Pakistan.

94. *Spindasis ictis ictis* (Hewitson)
The Common Shot Silverline

1865. *Aphaenus ictis* Hewitson, Ill. *Diurn. Lep.*, : 61.

1997. *Spindasis ictis ictis*: Gupta, *Fauna of West Bengal, State Fauna Series*, **3** : 458. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh; Jammu & Kashmir; Karnataka; Orissa; Uttar Pradesh and West Bengal.

Elsewhere : Pakistan.

95. *Syntarucus plinius* (Fabricius)
The Blue Zebra

1793. *Hesperia plinius* Fabricius, *Syst. Ent.*, **3** : 284.

1987. *Syntarucus plinius* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 43.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Arunachal Pradesh, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar, Nepal, Sri Lanka and Pakistan.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

96. *Tajuria jehana* Moore
The Plains Royal Blue

1883. *Tajuria jehana* Moore, *Proc. zool. Soc. Lond.*, : 529.

1987. *Tajuria jehana* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 42.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Bihar, Himachal Pradesh, Maharashtra, Orissa, South India, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka.

Remarks : Gupta and Shukla (1987) reported the species from Bastar district.

97. *Tarucus alteratus* Moore
The Rusty Pierrot

1882. *Tarucus alteratus* Moore, *Proc. zool. Soc. Lond.*, : 245.

1890. *Tarucus lateratus*: De Niceville, *The Butterflies of India, Burmah and Ceylon,* **3** : 192.

1932. *Tarucus alteratus* : Evans, *The identification of Indian Butterflies,* : 216.

Material examined : Recorded from literatures.

Distribution : India : Central India, Gujarat, Himachal Pradesh, Punjab and West Bengal.

Elsewhere : Pakistan.

98. *Tarucus balkanica nigra* (Bethune-Baker)
The Black Spotted Pierrot

1913. *Hypolycaena nigra* Bethune-Baker, *Trans. ent. Soc. Lond.*, : 502.

1957. *Tarucus nigra*: Wynter-Blyth, *Butterflies of the Indian Region,* : 264.

1997. *Tarucus balkanica nigra*: Gupta, *Fauna of West Bengal, State Fauna Series,* **3**(Part-7) : 437. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Delhi, Gujarat, Himachal Pradesh, Uttar Pradesh and West Bengal.

Elsewhere : Pakistan.

99. *Tarucus collinara* Butler
The Spotted Pierrot

1886. *Tarucus callinara* Butler, *Ann. Mag. nat. Hist.*, (5)**18** : 185.

1987. *Tarucus callinara*: Gupta and Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 46.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), North West India to West Bengal.

Elsewhere : Myanmar, Pakistan and Sri Lanka.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

100. *Tarucus nara* (Kollar)
The Striped Pierrot

1848. *Lycaena nara* Kollar, Hugel's *Kaschmir,* **4** : 421.

1890. *Tarucus nara* : De Niceville, *The Butterflies of India, Burmah and Ceylon,* **3** : 190-191.

1932. *Tarucus nara* : Evans, *The identification of Indian Butterflies,* : 216.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Maharashtra, North West Himalayas and Uttar Pradesh.

Elsewhere : Pakistan.

101. *Tarucus theophrastus* (Fabricius)
The Pointed Pierrot

1793. *Hesperia theophrastus* Fabricius, *Ent. Syst.*, **3**(1) : 281.

1890. *Tarucus theophrastus*: De Niceville, *The Butterflies of India, Burmah and Ceylon*, **3** : 187-190.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Canara, Bengal, Maharashtra, North India and Uttar Pradesh.

Elsewhere : Sri Lanka and Pakistan.

102. *Zizeeria gaika* (Trimen)
The Tiny Grass Blue

1862. *Lycaena gaika* Trimen, *Trans. ent. Soc. Lond.*, **1**(3) : 403.

1890. *Zizera gaika*: De Niceville, *The Butterflies of India, Burmah and Ceylon*, **3** : 118.

1932. *Zizeeria gaika*: Evans, *The identification of Indian Butterflies*, : 234.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), Andamans, Arunachal Pradesh, Himachal Pradesh, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal and Western Himalayas.

Elsewhere : Sri Lanka, Myanmar, Pakistan, Indonesia and Malay Peninsula.

103. *Zizeeria knysna karsandra* (Moore)
The Dark Grass Blue

1865. *Polyommatus karsandra* Moore, *Proc. zool. Soc. Lond.*, : 505.

1987. *Zizeeria knysna karsandra* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 50.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Andamans, Arunachal Pradesh and West Bengal.

Elsewhere : Myanmar, Pakistan and Sri Lanka.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

104. *Zizeeria maha maha* (Mollar)
The Pale Grass Blue

1848. *Lycaena maha* Kollar, *In Huegel's kaschmir*, **4** : 422.

1987. *Zizeeria maha maha* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 49.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar, Mhow), Assam, Kashmir, Punjab, Uttar Pradesh, Central to Northern India and West Bengal.

Elsewhere : Myanmar, Nepal and Pakistan.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

105. *Zizeeria maha ossa* Swinhoe
The Pale Grass Blue

1885. *Zizera ossa* Swinhoe, *Proc. zool. Soc. Lond.*, : 132.

1890. *Zizera ossa*: De Niceville, *The Butterflies of India, Burmah and Ceylon*, **3** : 115-116.

1932. *Zizeeria maha ossa*: Evans, *The identification of Indian Butterflies*, : 234.

Material examined : Recorded from literatures.

Distribution : India : Central India, Maharashtra, South India and Tamil Nadu.

106. *Zizeeria otis decreta* Butler
The Lesser Grass Blue

1883. *Zizera indica., var. decreta* Butler, *Proc. zool. Soc. Lond.*, : 150.

1890. *Zizera decreta*: De Niceville, *The Butterflies of India, Burmah and Ceylon*, **3** : 122.

1932. *Zizeeria otis decreta* : Evans, *The identification of Indian Butterflies*, : 234.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Mhow), South to Central India.

Elsewhere : Sri Lanka.

107. *Zizina otis indica* (Murray)
The Lesser Grass Blue

1874. *Lycaena indica* Murray, *Trans. ent. Soc. Lond.*, (4) : 525.

1987. *Zizina otis indica*: Gupta & Shukla, *Rec. zool. Surv. India. Occ. Pap. No.* **106** : 48.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Andaman & Nicobars, Bihar, North India.

Elsewhere : Myanmar.

Remarks : Gupta and Shukla (1987) reported the species from Bastar district.

108. *Zizina otis sangra* (Moore)
The Lesser Grass Blue

1865. *Polyommatus sangra* Moore, *Proc. zool. Soc. Lond.*, : 772.

1997. *Zizina otis sangra* : Gupta, *Fauna of West Bengal, State Fauna Series*, 3(Part-7) : 445. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Andaman and Nicobars, Assam, Sikkim and West Bengal.

Elsewhere : Myanmar and South East Asia.

109. *Zizula hylax* (Fabricius)
The Tiny Grass Blue

1775. *Papilio hylax* Fabricius, *Syst. Ent.*, : 526.

1987. *Zizula hylax* : Gupta and Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 50.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Andaman and Nicobars and West Bengal.

Elsewhere : Myanmar, Pakistan and Sri Lanka.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

Family HESPERIIDAE

110. *Baoris farri* (Moore)
The Paintbrush Swift

1878. *Hesperia farri* Moore, *Proc. zool. Soc. Lond.*, : 688.

1997. *Baoris farri*: Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, 3 : 314. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Central India, Andaman and Nicobar, Assam, Sikkim, South India, Uttar Pradesh and West Bengal.

Elsewhere : Oriental region.

111. *Borbo cinnara* (Wallace)
The Rice Swift

1866. *Hesperia cinnara* Wallace, *Proc. zool. Soc. Lond.*, : 361.

1997. *Borbo cinnara*: Ghosh and Chaudhury, *Fauna of West Bengal, State Fauna Series*, 3 : 312. *Zool. Surv. of India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Andaman and Nicobars, Himachal Pradesh, Manipur, Sikkim, South India and West Bengal.

Elsewhere : Palaearctic, Oriental, Papuan and Australian regions.

112. *Caprona ransonnettii ransonnettii* (Felder)
The Golden Angle

1949. *Caprona ransonnettii ransonnettii* (Felder), Evans, *A Catalogue of the Hesperiidae from Europe, Asia and Australia in the Brit. Mus., (nat. Hist.)* : 166.

1997. *Caprona ransonnettii ransonnettii* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, 3 : 284. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : South India to Dun to Assam, West Bengal.

Elsewhere : Oriental region.

Remarks : Evans (1932) reported the species from South India to Dun to Assam from India.

113. *Celaenorrhinus leucocera* (Kollar)
The Common Spotted Flat

1848. *Hesperia leucocera* Kollar, *In Hugel, Kaschmir*, 4 : 454.

1997. *Celaenorrhinus leucocera* : Ghosh and Chaudhury, *Fauna of West Bengal, State Fauna Series*, 3 : 282. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Assam, Andamans, North West Himalayas, South India and West Bengal.

Elsewhere : Oriental region.

114. *Coladenia indrani* (Moore)
The Tricolour Pied Flats

1865. *Plesioneura indrani* Moore, *Proc. zool. Soc. Lond.*, : 789.

1997. *Coladenia indrani* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 285. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Assam, Himachal Pradesh, Karnataka, Manipur, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Palaearctic and Oriental region.

115. *Matapa aria* (Moore)
The Common Redeye

1865. *Ismene aria* Moore, *Proc. zool. Soc. Lond.*, : 784.

1997. *Matapa aria* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 302. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Assam, Sikkim, South India, Uttar Pradesh and West Bengal.

Elsewhere : Oriental region.

116. *parnara naso* (Fabricius)
The Swift

1798. *Hesperia naso* Fabricius, *Ent. Syst. Supplement*, : 431.

1997. *Parnara naso*: Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 311. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Central India, Assam, Kashmir, Sikkim, South India and West Bengal.

Elsewhere : Palaearctic, Oriental and Australian regions.

117. *Parnara naso bada* (Moore)
The Straight Swift

1878. *Hesperia bada* Moore, *Proc. zool. Soc. Lond.*, : 685.

1997. *Parnara naso bada* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 312. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Central India; Kashmir, Sikkim, South India and West Bengal.

Elsewhere : Palaearctic and Oriental regions.

Remarks : Only this subspecies is so far reported from India.

118. *Pelopidas mathias* (Fabricius)
The Branded Swift

1798. *Hesperia mathias* Fabricius, *Ent. Syst. Suppl.*, : 433.

1997. *Pelopidas mathias* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 313. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Central India, Assam, Central Nicobars, Jammu and Kashmir, Maharashtra, Punjab, Rajasthan, Sikkim, South India, Uttar Pradesh and West Bengal.

Elsewhere : Palaearctic, Oriental, Papuau and Australian regions.

119. *Pelopidas mathias mathias* (Fabricius)
The Small Branded Swift

1949. *Pelopidas mathias mathias* (Fabricius). Evans, *A Catalogue of the Hesperiidae from Europe, Asia and Australia in Brit. Mus. (nat. Hist.)*, : 441.

1997. *Pelopidas mathias mathias* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 313. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Central India, Assam, Central Nicobars, Himachal Pradesh, Jammu and Kashmir, Orissa, Punjab, Rajasthan, Sikkim, South India and West Bengal.

Elsewhere : Oriental and Australian regions.

Remarks : Only this subspecies is so far known from India.

120. *Potanthus confucius* (Felder)
The Chinese Dart

1862. *Pamphila confucius* Felder, *Wien. Ent. Mon.*, **6** : 62.

1997. *Potanthus confucius* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 305. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh; Andamans, Assam, Sikkim, South India and West Bengal.

Elsewhere : Palaearctic and Oriental region.

121. *Spialia galba* (Fabricius)
The Indian Skipper

1793. *Hesperia galba* Fabricius, *Ent. Syst.*, **3**(1) : 352.

1987. *Spialia galba* : Gupta & Shukla, *Rec. zool. Surv. India, Occ. Pap. No.* **106** : 54.

1932. *Tarucus alteratus* : Evans, *The identification of Indian Butterflies*, : 216.

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh (Bastar), Throughout India.

Elsewhere : Sri Lanka and Myanmar.

Remarks : Gupta and Shukla (1987) recorded the species from Bastar district.

122. *Suastus gremius* (Fabricius)
The Indian Palm Bob

1798. *Hesperia gremius* Fabricius, *Ent. Syst. Suppl.*, : 433.

1997. *Suastus gremius*: Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 297. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Central India-North and West Himalayas, Assam. Sikkim, South India and West Bengal.

Elsewhere : Oriental region.

123. *Taractocera maevius* (Fabricius)
The Common Grass Dart

1793. *Hesperia maevius* Fabricius, *Ent. Syst.*, **3** : 352.

1997. *Taractocera maevius* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 303. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Assam, North West India, Sikkim, South India and West Bengal.

Elsewhere : Oriental region.

124. *Telicota ancia* Herrich-Schaffer
The Dark Palmdart

1869. *Telicota ancilla* Herrich-Schaffer, *Stett. Ent. Ztg.*, 79.

1997. *Telicota ancilla*: Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 307. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, North West Himalayas, Orissa, Sikkim, South India and West Bengal.

Elsewhere : Palaearctic, Oriental, Papuan and Australian regions.

125. *Telicota ancilla bambusae* (Moore)
The Dark Palmdart

1878. *Pamphila bambusae* Moore, *Proc. zool. Soc. Lond.*, 691.

1997. *Telicota ancilla bambusae* : Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 307. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh; Assam; North West Himalayas, Orissa, Sikkim, South India and West Bengal.

Elsewhere : Oriental region.

126. *Udaspes folus* (Cramer)
The Grass Demon

1775. *Papilio folus* Cramer, *Pap. Exot.*, **1** : 118, pl. 74, fig. F.

1997. *Udaspes folus*: Ghosh & Chaudhury, *Fauna of West Bengal, State Fauna Series*, **3** : 294. *Zool. Surv. India.*

Material examined : Recorded from literatures.

Distribution : India : Madhya Pradesh, Assam, North West Himalaya, Orissa, South India, Sikkim and West Bengal.

Elsewhere : Palearctic and Oriental region.

SUMMARY

The paper incorporates the account of 135 species in 78 genera distributed over 9 families from Madhya Pradesh, 8 species amongst a total of 48 species examined constitute the new records from Madhya Pradesh. The species which are recorded from literature but not studied at present have been included in this paper.

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INSECTA : LEPIDOPTERA : HETEROCERA
(MOTHS)

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INTRODUCTION

Madhya Pradesh and Chhattisgarh occupy the very heartland of India. The total area of these two states is 4,43,446 sq. km. and lies between latitudes 21°- 25° N and longitudes 74°-84° E., which covers 13.5% of the total area of India. The area of these two states lies on the table land of Central India bounded by upper Gangetic plains in the north and Godavari valley in the south, the plains of Gujarat in the west and Orissa and Bihar in the east. The important hill ranges of these states are the Aravallis, Vindhyas, Satpuras, Sinhwa and Bastar hills. The low–lying parts are in Mahanadi valley in the north east and in the narrow Narmada valley in the central and southern portions. Five major rivers i.e. Narmada, Tapti, Mahanadi, Chambal and Indravati flows from highlands of the Central India, which feeds the rivers of North, the East, the South and West. The recorded forest area of Madhya Pradesh is 30.9% of the total geographical area, while in Chhattisgarh it is 43.9%. The forests in these two states are well distributed over all the agro-climatic zones. The forest types found in the area are classified as sub-tropical hill forests, moist deciduous forests, tropical dry deciduous forests and thorn forests.

The order Lepidoptera belong to holometabolous endopterygotes, scale-winged insects, which includes butterflies and moths. Recent estimates reveal the report of over 1,27000 species of Moths from the world. Of which, over 12,000 species are recorded from India. The comprehensive work on moths of different region of Central India was mostly carried out before independence. Cotes and Swinhoe (1886, 1887, 1888, and 1889) in six volumes of "*A Catalogue of Moths of India*" included 119 species from Madhya Pradesh and Chhattisgarh. Hampson (1892,1894,1895 and 1896) and Bell and Scott (1937) in five volumes of "*Fauna of British India*" included 77 species from Central India (Madhya Pradesh and Chhattishgarh). Since then, no comprehensive work has been carried out on Moth fauna of Madhya Pradesh. Only scattered papers on pest species and in other regional studies are available through the works of Mandal and Bhattacharya (1980), Rawat and Verma (1980), Singh and Rawat (1980), Vaishampayan and Veda (1980), Verma *et al.* (1980), Gupta *et al.* (1984), Singh (1987), Khan *et al.* (1988), Joshi and Meshram (1989), Mandal and Ghosh (1991,1997), Mandal and Maulik (1991,1997), Singh *et al.* (1991), Gujrati *et al.* (1993), Bhattacharya (1997), Ghosh and Chaudhury (1997), Kulkarni and Joshi (1998), Arora (2000) and Agrawal (2002), who added 69 species from these two states.

The present paper gives the information on Moth Fauna of Madhya Pradesh and Chhattisgarh, alongwith their district-wise distribution and the references on the basis of available literature and the studies carried out during last four years in different localities of Madhya Pradesh, which reveals the new record of 48 species of moths pertaining to genera and families. In total, 313 species / subspecies of moths belonging to 221 genera and 25 families are known from Madhya

Pradesh and Chhattisgarh. Of which, 299 species/ subspecies pertaining to 213 genera and 24 families are known from Madhya Pradesh, however, only 13 species belonging to 10 genera and 6 families are so far included from Chhattisgarh. The list of all the species and their district-wise distribution is given in Annexure-1. The classification is mainly followed *sensu* Hampson (1892,1894,1895,1896) and subsequent modifications in the families are also followed.

Table : List of Moths of Madhya Pradesh and Chhattisgarh

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
	Order LEPIDOPTERA Suborder HETEROCERA			
A.	Superfamily TINEOIDEA			
I	Family TINEIDAE			
1.	*Tinea subochraceella* Walsingham	Indore		Cotes & Swinhoe, 1889
2.	*Hapsifera deviella* Walker	Indore		Cotes & Swinhoe, 1889
II	Family SESIIDAE			
3.	*Melittia astarte* (Westwood)	C. I.		Hampson, 1892
4.	*Melittia chalciformis* Fabricius	C. I.		Hampson, 1892
5.	*Melittia eurytion* Westwood	Seoni	PTR	New Record
B.	Superfamily - COSSOIDEA			
III	Family COSSIDAE			
6.	*Cossus acronyctoides* (Moore)	Indore		Hampson, 1892
7.	*Phragmataecia castaneae* Hubner	Indore		Cotes & Swinhoe, 1887
8.	*Xyleutes persona* (Le Guillou)	Seoni	PTR	New Record
9.	*Xyleutes strix* (Linnaeus)	Seoni	PTR	New Record
C.	Superfamily PSYCHOIDEA			
IV	Family LIMACODIDAE			
10.	*Altha nivea* Walker	Indore		Mandal & Ghosh, 1991
11.	*Contheyla melanosticta* Hampson	Jabalpur		Hampson 1892
12.	*Miresa albipuncta* (Herr-Schaffer)	Indore		Cotes & Swinhoe, 1887
13.	*Natada basalis* Walker	Indore		Cotes & Swinhoe, 1887
14.	*Natada nararia* (Moore)	Indore		Hampson 1892
15.	*Parasa hilaris* (Westwood)	Indore		Cotes & Swinhoe, 1887

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
16.	*Parasa lipida* (Cramer)	Indore		Cotes & Swinhoe, 1887
17.	*Thosea tripartita* Moore	Jabalpur, Indore		Hampson 1892
V.	Family PSYCHIDAE			
18.	*Acanthopsyche (Brachycyttarus) subteralbata* Hampson	Bastar, Bilaspur, Durg, Raipur, Rajnadgaon		Agrawal, 2002
19.	*Acanthopsyche (Metisa) plana* Walker	Bastar, Bilaspur, Durg, Raipur, Rajnadgaon		Agrawal, 2002
20.	*Acanthopsyche (Pteroma) plagiophleps* Hampson	Bastar, Bilaspur, Durg, Raipur, Rajnadgaon		Agrawal, 2002
21.	*Eumeta crameri* (Westwood)	Bastar, Bilaspur, Durg, Raipur, Rajnadgaon		Agrawal, 2002
22.	*Psyche (Manatha) albipes* Moore	Bastar,Bilaspur, Durg, Raipur, Rajnadgaon		Agrawal, 2002
D.	Superfamily TORTRICOIDEA			
VI.	Family SIMAETHIDAE			
23.	*Phyeodes hirudinicornis* Guen'ee	Indore		Cotes & Swinhoe, 1889
VII.	Family TORTRICIDAE			
24.	*Dichrorampha subsequana* Walker	Indore		Cotes & Swinhoe, 1889
E.	Superfamily PYRALIDOIDEA			
VIII.	Family PYRALIDAE			
25.	*Analyta sigulalis* (Guen'ee)	Indore		Hampson, 1896
26.	*Ancylolomia chrysographella* (Kollar)	Narsinghpur, Jabalpur		Arora, 2002
27.	*Ancylolomia responsella* (Walker)	Indore		Hampson, 1896
28.	*Antigastra catalaunalis* (Duponchel)	Gwalior, Indore		Bhattacharya, 1997
29.	*Bocchoris acamasalis* Walker	Indore		Cotes & Swinhoe, 1889
30.	*Charltona cervinella* Moore	Indore		Hampson, 1896
31.	*Charltona kala* Swinhoe	Indore		Hampson, 1896
32.	*Charltona ortella* Swinhoe	Jabalpur, Indore		Hampson, 1896
33.	*Chilo simplex* Butler	Indore		Cotes & Swinhoe, 1889
34.	*Cirrhochrista brizoalis* (Walker)	Seoni, Umaria	PTR, BNP	New Record
35.	*Crambus nigriciliellus* (Zeller)	Indore		Cotes & Swinhoe, 1889

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
36.	*Crocidolomia binotalis* Zeller	Jabalpur		Singh & Rawat, 1980
37.	*Crypsiptya coclesalis* (Walker)	Jabalpur		Kulkarni & Joshi, 1998
38.	*Diaphania bicolor* (Swainson)	Seoni	PTR	New Record
39.	*Diaphania indica* (Saunders)	Jabalpur, Indore, Seoni	PTR, PBR	Bhattacharya, 1997 (Indore)
40.	*Diaphania vertumnalis* (Guen'ee)	M. P.		Bhattacharya, 1997
41.	*Dichocrocis leptalis* Hampson	Jabalpur		Kulkarni & Joshi, 1998
42.	*Dichocrocis punctiferalis*(Guen'ee)	Jabalpur		Kulkarni & Joshi, 1998
43.	*Dioryctria abeitella* (Schiff.)	Jabalpur		Kulkarni & Joshi, 1998
44.	*Dioryctria amatella* Hulst.	Jabalpur		Kulkarni & Joshi, 1998
45.	*Dioryctria auranticella* Grote	Jabalpur		Kulkarni & Joshi, 1998
46.	*Diptychophora griseolalis* Hampson	Jabalpur		Hampson, 1896
47.	*Epicrocis aegnusalis* (Walker)	Indore		Bhattacharya, 1997
48.	*Epicrocis uberalis* Swinhoe	Indore		Cotes & Swinhoe, 1889
49.	*Eromene ocellea* Haw.	Indore		Hampson, 1896
50.	*Euclasta defamatalis* Walker	Indore		Cotes & Swinhoe, 1889
51.	*Eutectona machaeralis* (Walker)	Jabalpur		Kulkarni & Joshi, 1998
52.	*Euzophera cedrella* Hampson	Jabalpur		Kulkarni & Joshi, 1998
53.	*Hymenia recurvalis* (Fabricius)	Hoshangabad, Jabalpur, Seoni, Shivpuri, Umaria.	PBR, PTR, MNP, BNP	New Record
54.	*Hypsipyla robusta* Moore	Jabalpur		Kulkarni & Joshi, 1998
55.	*Hypsopygia mauritialis* (Boisduval)	Indore		Bhattacharya, 1997
56.	*Lamprosema cha[illegible]'s* (Walker)	Indore		Hampson, 1896

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
57.	*Lepyrodes neptis* (Cramer)	Seoni	PTR	New Record
58.	*Leptoglossus occidentalis* Heid.	Jabalpur		Kulkarni & Joshi, 1998
59.	*Lygropia obrinusalis* (Walker)	Indore		Hampson, 1896
60.	*Marasmia trapezalis* Guen'ee	Indore		Cotes & Swinhoe, 1889
61.	*Maruca testulalis* (Geyer)	Seoni, Umaria	PTR, BNP, PBR	New Record
62.	*Microthrix omichleuta* Mey.	Jabalpur		Kulkarni & Joshi, 1998
63.	*Nephopteryx rhodobasalis* Hampson	Jabalpur		Kulkarni & Joshi, 1998
64.	*Nomophila noctuella* Schiffermuller	Indore		Cotes & Swinhoe, 1889
65.	*Noorda fessalis* (Swinhoe)	Indore		Hampson, 1896
66.	*Noorda moringae* Tams.	Jabalpur		Kulkarni & Joshi, 1998
67.	*Nymphula affinialis* (Guen'ee)	Indore		Hampson, 1896
68.	*Pachyzancla aegrotalis* Zeller	Indore		Cotes & Swinhoe, 1889
69.	*Pagyda salvalis* Walker	Jabalpur		Kulkarni & Joshi, 1998
70.	*Patissa virginea* Zeller	Indore		Hampson, 1896
71.	*Polyocha aurifusella* Walker	Indore		Cotes & Swinhoe, 1889
72.	*Poujadia inficita* Walker	Indore		Hampson, 1896
73.	*Psara licarsisalis* (Walker)	Indore		Bhattacharya, 1997
74.	*Psara phaeopteralis* (Guen'ee)	Indore		Mandal & Bhattacharya, 1980
75.	*Psara stultalis* (Walker)	Indore		Mandal & Bhattacharya, 1980
76.	*Pygospila tyres* (Cramer)	Indore, Seoni	PTR	Bhattacharya, 1997
77.	*Pyrausta bambucivora* Moore	Jabalpur		Hampson, 1896
78.	*Pyrausta incoloralis* (Guen'ee)	Indore		Bhattacharya, 1997

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
79.	*Pyrausta phaenicealis* Hubner	Indore		Cotes & Swinhoe, 1889
80.	*Salebria paurosema* (Meyr.)	Jabalpur		Kulkarni & Joshi, 1998
81.	*Sameodes cancellalis* (Zeller)	Hoshangabad, Seoni, Jabalpur, Umaria.	PBR, PTR, BNP	New Record
82.	*Scirpophaga bisignata* (Swinhoe)	Indore		Hampson, 1896
83.	*Surattha fuscilella* Swinhoe	Raipur		Hampson, 1896
84.	*Surattha invectalis* Walker	Indore		Cotes & Swinhoe, 1889
85.	*Sylepta arctalis* Guen'ee	Indore		Cotes & Swinhoe, 1889
86.	*Sylepta aurantiacalis* Fisch	Indore		Cotes & Swinhoe, 1889
87.	*Sylepta luctuosalis* Guen'ee	Indore		Cotes & Swinhoe, 1889
88.	*Syngamia latimarginalis* (Walker)	Seoni	PTR	New Record
89.	*Trachylepidia fructicassiella* Rag.	Jabalpur		Kulkarni & Joshi, 1998
90.	*Tyndis hypotialis* Swinhoe	Indore		Hampson, 1896
91.	*Tyndis plana* Walker	Indore		Hampson, 1896
IX.	Family THYRIDIDAE			
92.	*Dixoa albatalis* Swinhoe	Raipur		Hampson, 1892
93.	*Dysodia ignita* (Walker) 1886	C. I.		Cotes & Swinhoe,
F.	Superfamily- BOMBYCOIDEA			
X.	Family- LASIOCAMPIDAE			
94.	*Chilena strigula* (Walker)	Indore		Hampson, 1892
95.	*Metanastria hyrtaca* Cramer	Indore		Hampson, 1892
96.	*Taragama siva* (Lef.)	Indore		Cotes & Swinhoe, 1887
XI.	Family EUPTEROTIDAE			
97.	*Eupterote citrina* Walker	C. I.		Hampson, 1892
98.	*Eupterote undata* (Blanch.)	Indore, Jabalpur		Cotes & Swinhoe, 1887
99.	*Ganisa plana* Walker	Seoni	PTR	New Record
XII.	Family SATURNIIDAE			
100.	*Actias selene* (Hubner)	Seoni, Umaria	PTR, BNP	New Record

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
101.	*Antheraea paphia* (Linnaeus)	Chhindwara	PTR	New Record
XIII.	Family BOMYCIDAE			
102.	*Ocinara varians* (Walker)	Indore		Cotes & Swinhoe, 1887
G.	Superfamily GEOMETROIDEA			
XIV.	Family GEOMETRIDAE			
103.	*Acidalia chotaria* Swinhoe	Indore		Hampson, 1895
104.	*Anonychia grisea* Butler	Indore		Cotes & Swinhoe, 1888
105.	*Antitrygodes cunceilinea* (Walker)	Hoshangabad	PBR	New Record
106.	*Aporandria specularia* Guen'ee	Seoni	PTR	New Record
107.	*Biston varianaria* Swinhoe	Indore		Hampson, 1895
108.	*Boarmia acaciaria* Boisd.	Indore		Cotes & Swinhoe, 1888
109.	*Boarmia selenaria* (Schiffermuller)	M. P.		Mandal & Ghosh, 1997
110.	*Craspedia addictaria* Walker	Indore		Cotes & Swinhoe, 1888
111.	*Craspedia idearia* Swinhoe	Indore		Hampson, 1895
112.	*Craspedia relictata* (Walker)	Indore		Hampson, 1895
113.	*Craspedia remotata* (Guen'ee)	Indore		Cotes & Swinhoe, 1888
114.	*Dilinia medardaria* Herr.-Schiiffer	Indore		Cotes & Swinhoe, 1888
115.	*Ephyra invexata* Walker	Indore		Cotes & Swinhoe, 1888
116.	*Euchloris uvidula* Swinhoe	Jabalpur		Hampson, 1895
117.	*Eupithecia rajata* Guen'ee	Indore		Hampson, 1895
118.	*Hyperythra swinhoei* Butler	Jabalpur, Indore		Hampson, 1895.
119.	*Hyposidra successaria* Walker	Indore		Cotes & Swinhoe, 1888.
120.	*Hyposidra talaca* (Walker)	Hoshangabad, Seoni, Umaria	PBR, PTR, BNP	New Record
121.	*Macaria arenaria* Swinhoe	Indore		Hampson, 1895
122.	*Macaria fasciata* Fabricius	Hoshangabad, Seoni	PBR, PTR	New Record
123.	*Macaria frugaliata* Guen'ee	Indore		Cotes & Swinhoe, 1888
124.	*Macaria sufflata* Guen'ee	Indore		Cotes & Swinhoe, 1888

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
125.	*Nemoria directa* Walker	Indore		Hampson, 1895
126.	*Nemoria solidaria* Guen'ee	Indore		Hampson, 1895
127.	*Plutodes transmutata* Walker	Seoni	PTR	New Record
128.	*Prionia squalidaria* Cotes & Swinhoe	Raipur		Cotes & Swinhoe, 1889
129.	*Pseudoterpna dispensata* Walker	Jabalpur, Indore		Hampson, 1895
130.	*Scopula fibulata* (Guen'ee)	M. P.		Mandal & Ghosh, 1997
131.	*Scopula walkeri* (Butler)	Indore		Cotes & Swinhoe, 1888, Mandal & Ghosh, 1997
132.	*Somatina anthophilata* Guen'ee	Raipur		Cotes & Swinhoe, 1889
133.	*Sterrha paulula* Swinhoe	Indore		Hampson, 1895
134.	*Sterrha sacraria* Linnaeus	Indore		Cotes & Swinhoe, 1888
135.	*Tephrina disputaria* Guen'ee	Indore		Cotes & Swinhoe, 1888
136.	*Timandra mundissima* Walker	Indore		Cotes & Swinhoe, 1888
XV.	Family CYMATOPHORIDAE			
137.	*Risoba obstructa* Moore	Indore		Cotes & Swinhoe, 1888
XVI.	Family URANIIDAE			
138.	*Micronia aculeata* Guen'ee	Hoshangabad, Umaria	PBR, BNP	New Record
H.	Superfamily SPHINGOIDEA			
XVII.	Family SPHINGIDAE			
139.	*Acherontia lachesis* (Fabricius)	Indore, Seoni	PTR,	Bell & Scott, 1937
140.	*Acherontia styx styx* (Westwood)	Indore, Jabalpur, Seoni	PTR	Bell & Scott, 1937
141.	*Agnosia orneus* (Westwood)	C. I.		Bell & Scott, 1937
142.	*Celerio lineata livrnica* (Esper)	Indore		Cotes & Swinhoe, 1886
143.	*Cephonodes hylas hylas* Hubner	Indore		Cotes & Swinhoe, 1886
144.	*Cephonodes picus* (Cramer)	Indore		Bell & Scott, 1937

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
145.	*Clanis phalaris* (Cramer)	Indore		Bell & Scott, 1937
146.	*Deilephila nerii* (Linnaeus)	Indore, Hoshangabad	PBR	Bell & Scott, 1937
147.	*Gurelca hyas hyas* (Walker)	Indore		Bell & Scott, 1937
148.	*Hippotion boerhaviae* (Fabricius)	Indore, Seoni, Umaria	PTR, BNP	Bell & Scott, 1937 Indore. Mandal & Maulik, 1997
149.	*Hippotion celerio* Linnaeus	Indore		Bell & Scott, 1937
150.	*Herse convolvuli convolvuli* (Linnaeus)	Jabalpur		New Record
151.	*Leucophlebia emittens* Walker	Indore		Bell & Scott, 1937
152.	*Macroglossum belis* (Linnaeus)	M. P.		Mandal & Maulik, 1997
153.	*Macroglossum gyrans* (Walker)	Indore		Bell & Scott, 1937
154.	*Marumba dyras dyras* (Walker)	Hoshangabad, Seoni	PBR, PTR	New Record
155.	*Nephele didyma* (Fabricius)	Indore, Seoni, Shivpuri, Umaria	PTR, MNP, BNP	Bell & Scott, 1937
156.	*Polyptychus dentatus* (Cramer)	Indore, Seoni	PTR	Bell & Scott, 1937
157.	*Psilogramma menephron menephron* (Cramer)	Seoni, Sidhi, Umaria	PTR, BNP	New Record
158.	*Theretra alecto alecto* (Linnaeus)	Indore, Hoshangabad, Jabalpur, Umaria	PBR, BNP	Bell & Scott, 1937
159.	*Theretra nessus* (Drury)	Jabalpur		New Record
160.	*Theretra oldenlandiae oldenlandiae* (Fabricius)	Indore, Hoshangaba , Umaria	PBR, BNP	Bell & Scott, 1937
161.	*Theretra silhetensis* Walker	Jabalpur		New Record
I.	Superfamily NOCTUOIDEA			
XVIII	Family NOCTUIDAE			
162.	*Achaea janata* Linnaeus	Jabalpur, Seoni, Sidhi	PTR	New Record
163.	*Acantholipes circumdatus* Walker	Indore		Cotes & Swinhoe, 1888

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
164.	*Acantholipes miser* Butler	Indore		Hampson, 1894
165.	*Acontia transversa* Guen'ee	Seoni	PTR	New Record
166.	*Adisura atkinsoni* Moore	Indore		Cotes & Swinhoe, 1888. Singh & *et al.*, 1991
167.	*Agrotis biconica* Kollar	Indore		Cotes & Swinhoe, 1888
168.	*Agrotis segetis* (Schiffermuller)	Indore		Cotes & Swinhoe, 1888
169.	*Amyna octo* Guen'ee	Indore		Cotes & Swinhoe, 1888. Singh, 1987
170.	*Anua tirhaca* (Cramer)	Seoni, Sidhi.		Mandal & Maulik, 1991
171.	*Argyrothripa occulta* Swinhoe	Indore		Cotes & Swinhoe, 1888
172.	*Athetis cognata* (Moore)	M. P.		Mandal & Maulik, 1991
173.	*Brevipecten captatus* Butler	Hoshangabad	PBR	New Record
174.	*Callopistria maillardi* Moore	Seoni	PTR	New Record
175.	*Caradrina exigua* (Hubner)	Indore		Cotes & Swinhoe, 1888
176.	*Caradrina furtive* Swinhoe	Indore		Cotes & Swinhoe, 1888
177.	*Caradrina variana* Swinhoe	Indore		Hampson, 1894
178.	*Catada suffuscalis* Swinhoe	Indore		Hampson, 1895
179.	*Catephia acronyctoides* (Guen'ee)	Indore		Cotes & Swinhoe, 1888
180.	*Cetola dentata* Walker	Indore		Hampson, 1894
181.	*Chariclea aureola* (Walker)	Indore		Hampson, 1894
182.	*Chariclea beatrix* Moore	Indore		Hampson, 1894
183.	*Chariclea bivittata* (Walker)	Indore		Cotes & Swinhoe, 1888
184.	*Chariclea lanceolata* (Walker)	Jabalpur, Indore		Hampson, 1894
185.	*Chrysodeixis eriosoma* (Doubleday)	Jabalpur, Seoni Umaria	PTR, BNP, PBR	Singh & Rawat, 1980
186.	*Cosmophila erosa* Hubner	M. P.		Mandal & Maulik, 1991
187.	*Echana plicalis* Moore	Jabalpur		Kulkarni & Joshi, 1998

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
188.	*Entomogramma tortum* Guen'ee	Seoni	PTR	New Record
189.	*Episparis varialis* Walker	Indore, Seoni, Umaria	PTR, BNP	Cotes & Swinhoe, 1888
190.	*Ercheia cyllaria* (Cramer)	Indore		Cotes & Swinhoe, 1888
191.	*Eublemma pulchra* Swinhoe	Indore		Hampson, 1894
192.	*Eublemma roseana* Moore	Indore		Cotes & Swinhoe, 1888
193.	*Eublemma trifasciata* Moore	Indore		Hampson, 1894
194.	*Euclidisema mygdon* (Cramer)	Seoni	PTR	Mandal & Maulik, 1991
195.	*Euplexia conducta* Walker	Indore		Cotes & Swinhoe, 1888
196.	*Euplexia indistans* Guen'ee	C. I.		Cotes & Swinhoe, 1888
197.	*Glottula dominica* Cramer	Indore		Cotes & Swinhoe, 1888
198.	*Grammodes geometrica* (Fabricius)	M. P.	PTR	Mandal & Maulik, 1991
199.	*Hadena scotochlora* Kollar	C. I.		Cotes & Swinhoe, 1888
200.	*Heliothis armigera* (Hubner)	Jabalpur, Shivpuri	MNP	Mandal & Maulik, 1991 Kulkarni & Joshi, 1998 Vaishampayan, 1980 Vaishampayan & Veda, 1980, Vaishampayan & Verma, 1987.
201.	*Heliothis peltigera* (Schiffermuller)	Indore		Cotes & Swinhoe, 1888
202.	*Homaea clathrum* Guen'ee	Indore, Chhindwara	PTR	Cotes & Swinhoe, 1888
203.	*Homoptera glaucinans* Guen'ee	Indore		Cotes & Swinhoe, 1888
204	*Homoptera umbrina* Guen'ee	Indore		Cotes & Swinhoe, 1888

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205.	*Hyblaea puera* Cramer	Jabalpur, Seoni	PTR	Verma *et al.*, 1980, Khan *et al*, 1988
206.	*Hyela quadripartita* Walker	Indore		Cotes & Swinhoe, 1888
207.	*Hyelopsis frausa* Swinhoe	Indore		Cotes & Swinhoe, 1888
208.	*Hyelopsis herbaria* Swinhoe	Indore		Hampson, 1894
209.	*Hypaetra remigioides* Guen'ee	C. I.		Hampson, 1894
210.	*Hyphilare loreyi* (Duponche)	M. P.		Mandal & Maulik, 1991
211.	*Ischyja manlia* Cramer	Seoni	PTR	New Record
212.	*Labanda semipars* Walker	Indore		Cotes & Swinhoe, 1888
213.	*Lagoptera dotata* (Fabricius)	M. P.		Mandal & Maulik, 1991
214.	*Leucania byssima* Swinhoe	Indore		Hampson, 1894
215.	*Leucania fragilis* Butler	Chhindwara		Hampson, 189
216.	*Leucania unipucta* Haw.	Indore		Cotes & Swinhoe, 1888
217.	*Metachrostis acervalis* Swinhoe	Indore		Hampson, 1894
218.	*Metachrostis badia* Swinhae	Indore		Hampson, 1894
219.	*Metachrostis quinaria* Moore	Indore		Cotes & Swinhoe, 1888
220.	*Mocis undata* (Fabricius)	Seoni	PTR	Mandal & Maulik, 1991
221.	*Nodaria externalis* Guen'ee	Indore		Cotes & Swinhoe, 1888
222.	*Nonagria inferens* (Walker)	Indore		Hampson, 1894
223.	*Nonagria pallida* Butler	Indore		Hampson, 1894
224.	*Nyctipao hieroglyphia* Drury	Seoni	PTR	New Record
225.	*Nyctipao macrops* Linnaeus	Seoni	PTR	New Record
226.	*Odontodes aleuca* Guen'ee	Indore		Cotes & Swinhoe, 1888
227.	*Ophideres fullonica* Linnaeus	Indore		Cotes & Swinhoe, 1888
228.	*Ophideres materna* Linnaeus	Indore, Seoni	PTR	Cotes & Swinhoe, 1888

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229.	*Ophiusa algira* Linnaeus	Indore, Seoni	PTR	Cotes & Swinhoe, 1888, Mandal & Maulik, 1991
230	*Ophiusa analis* Guen'ee	Raipur		Cotes & Swinhoe, 1889
231.	*Ophiusa arctotaenia* Guen'ee	Indore		Cotes & Swinhoe, 1888
232.	*Ophiusa coronata* Fabricius	Seoni, Sidhi	PTR	Gujrati *et al*, 1993.
233.	*Ophiusa cuprea* Moore	C. I.		Hampson, 1894
234.	*Ophiusa honesta* Hubner	Raipur, Umaria	BNP	Cotes & Swinhoe, 1888
235.	*Ophiusa joviana* (Cramer)	Indore, Chhindwara	PTR	Cotes & Swinhoe, 1888
236.	*Ophiusa melicerte* Drury	Indore		Cotes & Swinhoe, 1888
237.	*Ophiusa serva* Fabricius	Raipur		Cotes & Swinhoe, 1888
238.	*Ophiusa triphaenoides* Walker	Indore		Cotes & Swinhoe, 1888
239.	*Paectes subapicalis* (Walker)	M. P.		Mandal & Maulik, 1991
240.	*Pandesma quenavadi* Guen'ee	Raipur		Cotes & Swinhoe, 1889, Mandal & Maulik, 1991
241.	*Parallelia illibata* (Fabricius)	M. P.		Mandal & Maulik, 1991
242.	*Pericyma umbrina* (Guen'ee)	Jabalpur, Indore		Mandal & Ghosh, 1991
243.	*Platyja/Ischyja torsilinea* Guen'ee	C. I.		Hampson, 1894
244.	*Plecoptera reflexa* Guen'ee	Indore		Cotes & Swinhoe, 1888
245.	*Plusia circumflexa* Linnaeus	Indore,		Cotes & Swinhoe, 1888
246.	*Plusia ni* Hubner	Indore		Cotes & Swinhoe, 1888
247.	*Plusia orichalcea* Fabricius	Jabalpur Chhindwara	PBR	Singh & Rawat, 1980
248.	*Polydesma inangulata* Guen'ee	Indore		Cotes & Swinhoe, 1888

S.N.	Scientific Name	Distribution M.P. & C.G.	Conservation Areas	Reference
249.	*Polydesma mundata* Walker	Indore		Cotes & Swinhoe, 1888
250.	*Polydesma umbricola* Boisduval	Indore		Cotes & Swinhoe, 1888
251.	*Polydesma vetusta* Walker	Indore		Hampson, 1894
252.	*Polytela gloriosae* Fabricius	Seoni	PTR	New Record
253.	*Prodenia litura* (Fabricius)	Hoshangabad	PBR	Veda *et al.* 1979. Rawat & Verma, 1980
254.	*Prodenia littoralis* Boisduval	Indore		Cotes & Swinhoe, 1888
255.	*Pseudaletia separata* (Walker)	Jabalpur, Indore		Mandal & Ghosh, 1991
256.	*Pseudocalpe angulifera* Moore	Indore		Cotes & Swinhoe, 1888
257.	*Raparna digramma* Walker	Indore		Cotes & Swinhoe, 1888
258.	*Raparna tantilla* Swinhoe	Indore		Cotes & Swinhoe, 1888
259.	*Remigia archesia* (Cramer)	Indore		Cotes & Swinhoe, 1888
260.	*Rhynchina abducalis* Walker	Indore		Cotes & Swinhoe, 1888
261.	*Rhynchina pervulgaris* Swinhoe	Indore		Hampson, 1894
262.	*Selepa celtis* (Moore)	Jabalpur		Joshi & Meshram, 1989
263.	*Serrodes inara* Cramer	Seoni	PTR	New Record
264.	*Spiredonia suffumosa* Guen'ee	M. P.		Mandal & Maulik, 1991
265.	*Sphingomorpha chlorea* (Cramer)	Narsinghpur		New Record
266.	*Spirama retorta* Cramer	Seoni, Umaria	PTR, BNP	New Record
267.	*Spodoptera mauritia* (Boisduval)	Indore		Cotes & Swinhoe, 1888. Mandal & Maulik, 1991
268.	*Sypna omicronigera* Guen'ee	C. I.		Cotes & Swinhoe, 1888
269.	*Tarache crocata* (Guen'ee)	Indore		Cotes & Swinhoe, 1888
270.	*Tarache imbuta* Walker	Indore		Cotes & Swinhoe, 1888
271.	*Tarache olivea* Guen'ee	Indore		Cotes & Swinhoe, 1888

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272.	*Thermesia rubricans* Boisduval	Jabalpur, Seoni	PTR	New Record
273.	*Trigonodes hyppasia* Cramer	Seoni, Umaria	PTR, BNP	New Record
274.	*Trisula variegata* Moore	Seoni	PTR	New Record
275.	*Westermannia argentea* Hampson	Seoni	PTR	New Record
276.	*Xanthoptera excisa* Swinhoe	Indore		Cotes & Swinhoe, 1888
277.	*Xanthoptera nigripalpis* Walker	Indore		Cotes & Swinhoe, 1888
278.	*Xanthoptera veprecola* Swinhoe	Indore		Cotes & Swinhoe, 1888
XIX.	Family AMATIDAE			
279.	*Amata cyssea* (Cramer)	Indore		Mandal & Ghosh, 1991
280.	*Syntomis confinis* (Walker)	Indore		Cotes & Swinhoe, 1887
281.	*Syntomoides hydatina* (Butler)	C. I.		Hampson, 1892
XX.	Family LYMANTRIIDAE			
282.	*Dasychira mendosa* Hubner	Indore		Cotes & Swinhoe, 1887
283.	*Euproctis lunata* Walker	Indore		Cotes & Swinhoe, 1887
284.	*Laelia testacea* (Walker)	Indore		Mandal & Maulik, 1997
285.	*Lymantria incerta* (Walker)	Indore		Cotes & Swinhoe, 1887
286.	*Lymantria semicincta* (Walker)	Balaghat		Gupta *et.al,* 1984
287.	*Lymantria serva* (Fabricius)	Indore		Mandal & Maulik, 1997
288.	*Perina nuda* (Fabricius)	Indore		Cotes & Swinhoe, 1887. Mandal& Maulik, 1997
289.	*Porthesea xanthorrhoea* (kollar)	Indore		Cotes and Swinhoe 1887, Mondal & Maulik, 1997.
XXI.	Family NOTODONTIDAE			
290.	*Antheua servula* (Drury)	Indore		Cotes & Swinhoe, 1887
291.	*Cerura liturata* Walker	Seoni, Umaria	PTR, BNP	New Record
292.	*Cetola dentata* Walker	Indore		Cotes & Swinhoe, 1887
293.	*Ichthyura restitura* Walker	Indore		Cotes & Swinhoe, 1887

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294.	*Oraesia emarginata* (Fabricius)	Indore		Cotes & Swinhoe, 1887
295.	*Phalera raya* Moore	Hoshangabad, Seoni, Umaria	PBR, PTR, BNP	New Record
296.	*Pydna galbana* (Swinhoe)	Indore		Cotes & Swinhoe, 1887
297.	*Spatalia argentifera* (Walker)	Seoni, Umaria	PTR, BNP	New Record
XXII.	Family AGARISTIDAE			
298.	*Eusemia adulatrix* (Kollar)	Indore		Mandal & Ghosh, 1991
299.	*Zalissa transiens* (Walker)	Seoni	PTR	New Record
XXIII	Family Hypsiidae			
300.	*Asota caricae* (Fabricius)	Seoni, Umaria	PTR, BNP	New Record
XXIV	Family ARCTIIDAE			
301.	*Aemene tenebrosa* Moore	Indore		Hampson, 1894
302.	*Amsacta lineola* (Fabricius)	Jabalpur		Ghosh & Chaudhury, 1997
303.	*Argina astraea* (Drury)	Indore, Seoni	PTR	Cotes & Swinhoe, 1886.
304.	*Creatonotus emittens* Walker	Indore		Cotes & Swinhoe, 1887
305.	*Creatonotus gangis* (Linnaeus)	Indore, Chhindwra, Hoshngabad, Umaria	PTR, BNP, PBR	Mandal & Ghosh, 1991
306.	*Creatonotus interruptus* Gmel.	Indore		Cotes & Swinhoe, 1887
307.	*Creatonotus lactineus* Cramer	Seoni, Umaria	PTR, BNP	New Record
308.	*Earias fabia* Stoll	M. P.		Mandal & Maulik, 1991
309.	*Estigmene perrotteti* (Guen'ee)	Jabalpur		Ghosh & Chaudhury, 1997
310.	*Olepa ricini* (Fabricius)	M. P.		Ghosh & Chaudhury, 1997
311.	*Phissama transiens* (Walker)	Hoshangabad	PBR	New Record
312.	*Utetheisa pulchelloides* Hampson	Indore, Seoni, Hoshangabad	PTR, PBR	New Record
XXV.	Family HYPANIDAE			
313.	*Hypena iconicalis* Cotes & Swinhoe	Raipur		Cotes & Swinhoe, 1889

Conservtion areas codes : Madhya Pradesh M.P., Central India – C. I., Pench Tiger Reaserve PTR, Madhav National Park MNP, Pachmarhi Biosphere Reaserve PBR, Bandhavgarh National Park BNP

SYSTEMATIC ACCOUNT

Order LEPIDOPTERA

Suborder HETEROCERA

A. Superfamily TINEOIDEA

I. Family TINEIDAE

1. *Tinea subochraceella* Walsingham

1886. *Tinea subochraceella* Walsingham. *P. Z. S. Lond.*, : 464.

1889. *Tinea subochraceella*, Cotes & Swinhoe, *Cat. Moths of India*, : 704.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Distribution : India : Madhya Pradesh (Indore).

2. *Hapsifera deviella* Walker

1863. *Hapsifera deviella* Walker, *Cat. Lep. Het. B. M.*, xxviii : 520.

1889. *Hapsifera deviella, Cotes* & Swinhoe, *Cat. Moths of India*, : 701.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Pune).

II. Family SESIIDAE

3. *Melittia astarte* (Westwood)

1848. *Trochilium astarte* Westwood, *Cab. Or. Ent.*, : 61

1892. *Melittia astarte*, Hampson, *Fauna Brit. India*, Moths, 1 : 202.

Material examined : Recorded from literature. (Hampson, 1892)

Wing expanse : 25 mm.

Distribution : India : Central India.

4. *Melittia chalciformis* Fabricius

1753. *Melittia chalciformis* Fabricius, *Ent. Syst.*, iii : 382.

1848. *Trochilium phorcus*, Westwood, *Cab. Or Ent.*, : 62

1892. *Melittia chalciformis*, Hampson, *Fauna Brit. India*, Moths, 1 : 204.

Material examined : Recorded from literature. (Hampson, 1892)

Wing expanse : Male : 32 mm., Female : 34-36 mm.

Distribution. : India : Central India, Maharashtra (Mumbai) and Orissa (Ganjam).

Elsewhere : Java and Sri Lanka.

5. *Melittia eurytion* Westwood

1848. *Melittia eurytion* Westwood, *Cab. Or. Ent.*, : 62.

1892. *Melittia eurytion*, Hampson, *Fauna Brit. India*, Moths, 1 : 203.

Material examined : Seoni, PTR, Karmajhiri, 24 .6.2001(1 ex.), Coll. K. Chandra.

Wing expanse : Female : 24-30 mm.

Distribution : India : Madhya Pradesh (Seoni), Maharashtra (Pune), Throughout North East India.

Elsewhere : Gilolo, Java, Myanmar.

Remarks : A new record for Madhya Pradesh.

B. Superfamily COSSOIDEA

III. Family COSSIDAE

6. *Cossus acronyctoides* (Moore)

1879. *Brachylia acronyctoides* Moore, *Proc. Zool. Soc. London*, : 411.

1892. *Cossus acronyctoides*, Hampson, *Fauna Brit. India*, Moths, 1 : 305.

Material examined : Recorded from literature. (Hampson, 1892)

Wing expanse : Male/Female : 36-53 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai), Orissa (Ganjam), Tamil Nadu (Nilgiris), Punjub, Bengal, and Sikkim.

Elsewhere : Pakistan.

7. *Phragmataecia castaneae* Hubner

1790. *Phragmataecia castaneae* Hubner, *Beitr.* ii. i c. : 9.

1887. *Phragmataecia minor*, Cotes & Swinhoe, *Cat. Moths of India*, : 234.

1892. *Phragmataecia castaneae* Hampson, *Fauna Brit. India*, Moths, 1 : 313.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Wing expanse : Male : 22-38 mm., Female : 54 mm.

Distribution : India : Madhya Pradesh (Indore) and Tamil Nadu (Nilgiris).

Elsewhere : Sri Lanka.

8. ***Xyleutes persona*** (Le Guillou)

1841. *Cossus persona* Le Guillou, *Revue. Zool.*, **6** : 257.

1892. *Duomitus leuconotus*, Hampson, *Fauna Brit. India*, Moths, **1** : 308.

1986. *Xyleutes persona*, Holloway, *The Malayan Nature Journal*, **40**(1&2) : 35.

Material examined : Seoni dist., PTR, Karmarjhiri, 19.6.2001 (1 ex.), 21.6.2001 (3 ex.), Coll. K. Chandra.

Wing expanse : Male : 98-128 mm., Female : 180 mm.

Distribution : India : Madhya Pradesh (Seoni), Himachal Pradesh (Simla), Kashmir, Sikkim and West Bengal (Kolkata).

Elsewhere : Bangladesh, and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

9. ***Xyleutes strix*** (Linnaeus)

1758. *Phalaena noctua strix* Linnaeus, *Syst. Nat.*, (edn. 10) **1** : 508.

1986. *Xyleutes strix*, Holloway, *The Malayan Nature Journal*, **40**(1&2) : 35.

Material examined : Seoni dist., PTR, Tikari, 24.7.2001 (1 ex.), Coll. R. K. Singh.

Wing expanse : Male : 110-130 mm., Female : 170-188 mm.

Distribution : India : Madhya Pradesh (Seoni), Manipur, North India, Sikkim and West Bengal.

Elsewhere : Bangladesh, Bhutan, Indochina, Indonesia, Malya, New Britain, New Ireland and Taiwan.

Remarks : A new record for Madhya Pradesh.

C. Superfamily PSYCHOIDEA

IV. Family LIMACODIDAE

10. ***Altha nivea*** Walker

1862. *Altha nivea* Walker, *J. Linn. Soc. Lone.*, **6** : 173.

1892. *Altha nivea*, Hampson, *Fauna Brit. India*, Moths, **1** : 397.

1991. *Altha nivea*, Mandal & Ghosh, *Rec. zool. Surv. India*, **88** (3&4) : 309.

Material examined : Recorded from literature. (Mandal & Ghosh, 1991)

Wing expanse : 30 mm.

Distribution : India : Madhya Pradesh (Indore), Assam, Himachal Pradesh (Simla, Solan, Kulu), Jammu & Kashmir, Sikkim, Tripura, Jharkhand (Ranchi), Maharashtra (Pune), Orissa (Ganjam), and Southern Penninsula.

Elsewhere : Sri Lanka.

11. ***Contheyla melanosticta*** Hampson

1892. *Contheyla melanosticta* Hampson, *Fauna Brit. India*, Moths, **1** : 385.

Material examined : Recorded from literature. (Hampson, 1892)

Wing expanse : 27 mm.

Distribution : India : Madhya Pradesh (Jabalpur) and North West Himalayas.

12. ***Miresa albipuncta*** (Herr. - Schaffer)

1843-56. *Nyssia albipuncta* Herr- Schaffer, *samml.avssereur. schmett*, i, fig. 179.

1855. *Miresa albipuncta*, Walker *Cat. Lep. Het. B. M.* **v** : 1123.

1887. *Miresa albipuncta*, Cotes & Swinhoe, *Cat. Moths of India*, : 193.

1892. *Miresa albipuncta*, Hampson, *Fauna Brit. India*, Moths, **1** : 386.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Wing expanse : Male : 32-43 mm., Female : 46 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore),

13. ***Natada basalis*** Walker

1855. *Natada basalis* Walker, *Cat. Lep. Het. B. M.* v : 1110.

1887. *Natada basalis*, Cotes & Swinhoe, *Cat. Moths of India*, : 188.

1892. *Natada basalis* Hampson, *Fauna Brit. India*, Moths, 1 : 402.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Mumbai).

14. ***Natada nararia*** (Moore)

1859. *Parasa nararia* Moore, *Cat. Lep. Mus. E. C.*, ii : 415.

1886 *Susica cosmiana*, Swinhoe, *P. Z. S.*, : 440.

1888. *Susica suffuse* Moore, *P. Z. S.*, : 403.

1892. *Natada nararia*, Hampson, *Fauna Brit. India*, Moths, 1 : 381-382.

Material examined : Recorded from literature. (Hampson, 1892)

Wing expanse : Male : 12-20 mm., Female : 22 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Dharmsala) and Tamil Nadu (Nilgiris).

Elsewhere : Sri Lanka.

15. ***Parasa hilaris*** (Westwood)

1848. *Limacodes hilaris* Westwood, *Cab. Or. Ent.*, : 50

1887. *Parasa hilaris*, Cotes & Swinhoe, *Cat. Moths of India*, : 190.

1892. *Parasa hilaris*, Hampson, *Fauna Brit. India* Moths, 1 : 389.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Wing expanse : Male : 26 mm, Female : 30-34 mm.

Distribution : India : Madhya Pradesh (Indore), West Bengal (Kolkata) and Maharashtra (Mumbai).

Elsewhere : Sri Lanka.

16. ***Parasa lipida*** (Cramer)

1777. *Phalaena noctua lipida* Cramer *Pap. Exot.*, 2 : 130.

1887. *Parasa lipida*, Cotes & Swinhoe, *Cat. Moths of India*, : 190.

1892. *Parasa lipida*, Hampson, *Fauna Brit. India* Moths, 1 : 388.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Wing expanse : Male : 30 mm., Female : 42-50 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai) and West Bengal (Kolkata).

Elsewhere : Sri Lanka.

17. ***Thosea tripartita*** Moore

1884. *Thosea tripartita* Moore, *Trans. Ent. Soc.*, : 376.

1892. *Thosea tripartita*, Hampson, *Fauna Brit. India*, Moths, 1 : 378.

Material examined : Recorded from literature. (Hampson, 1892)

Wing expanse : 26 mm.

Distribution : India : Madhya Pradesh (Jabalpur, Indore), Himachal Pradesh (Dharmsala), Orissa (Ganjum), and Sikkim.

V. Family PSYCHIDAE

18. ***Acanthopsyche (Brachycyttarus) subteralbata*** Hampson

1892. *Acanthopsyche (Brachycyttarus) subteralbata* Hampson, *Fauna Brit. India*, Moths, 1 : 295.

2002. *Brachycyttarus subteralbata*, Agrawal, *Curr. Science*, 82(11) : 1322.

Material examined : Recorded from literature (Agrawal, 2002).

Wing expanse : 15 mm.

Distribution : India : Chhattisgarh (Raipur, Durg, Rajnandgaon, Bilaspur and Bastar).

Elsewhere : Sri Lanka (Colombo).

19. *Acanthopsyche (Metisa) plana* Walker

1855. *Acanthopsyche (Metisa) plana* Walker *Cat.*, **4** : 958.

1892. *Acanthopsyche (Metisa) plana*, Hampson, *Fauna Brit. India*, Moths, **1** : 296.

2002. *Metisa plana*, Agrawal, *Curr. Science*, **82**(11) : 1322.

Material examined : Recorded from literature. (Agrawal, 2002)

Wing expanse : 16 mm.

Distribution : India : Chhattisgarh (Raipur, Durg, Rajnandgaon, Bilaspur and Bastar).

Elsewhere : Sri Lanka (Colombo).

20. *Acanthopsyche (Pteroma) plagiophleps* Hampson

1892. *Acanthopsyche (Pteroma) plagiophleps* Hampson, *Fauna Brit. India*, Moths, **1** : 296.

2002. *Pteroma plagiophleps*, Agrawal, *Curr. Science*, **82**(11) : 1322.

Material examined : Recorded from literature. (Agrawal, 2002)

Wing expanse : 16 mm.

Distribution : India : Chhattisgarh (Raipur, Durg, Rajnandgaon, Bilaspur and Bastar).

Elsewhere : Sri Lanka (Nawala-Pitta).

21. *Eumeta crameri* (Westwood)

1854. *Clania crameri* Westwood, *P. Z. S.*, : 236.

1892. *Clania crameri*, Hampson, *Fauna Brit. India*, Moths, **1** : 291.

2002. *Eumeta crameri*, Agrawal, *Curr. Science*, **82**(11) : 1322.

Material examined : Recorded from literature. (Agrawal, 2002)

Wing expanse : 30 mm.

Distribution : India : Chhattisgarh (Raipur, Durg, Rajnandgaon, Bilaspur and Bastar).

Elsewhere : Sri Lanka.

22. *Psyche (Manatha) albipes* Moore

1877. *Psyche (Manatha) albipes* Moore, *A. M. N. H.*, (4)**20** : 347

1892. *Psyche (Manatha) albipes*, Hampson, *Fauna Brit. India*, Moths, **1** : 298.

2002. *Manatha albipes*, Agrawal, *Curr. Science*, **82**(11) : 1322.

Material examined : Recorded from literature. (Agrawal, 2002)

Wing expanse : 20 mm.

Distribution : India : Chhattisgarh (Raipur, Durg, Rajnandgaon, Bilaspur and Bastar).

Elsewhere : Sri Lanka (Colombo).

D. Superfamily TORTRICOIDEA

VI. Family SIMAETHIDAE

23. *Phyeodes hirudinicornis* Guen'ee

1857. *Phyeodes hirudinicornis* Guen'ee, *Noct.*, **ii** : 389.

1889. *Phyeodes hirudinicornis*, Cotes & Swinhoe, *Cat. Moths of India*, : 701.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune) and Panjab.

VII. Family TORTRICIDAE

24. *Dichrorampha subsequana* Walker

1863. *Dichrorampha subsequana* Walker, *Cat. Lep. Het. B. M.*, **xxvii** : 281.

1889. *Dichrorampha subsequana*, Cotes & Swinhoe, *Cat. Moths of India*, : 699.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Mumbai, Pune).

Elsewhere : Europe.

E. Superfamily PYRALIDOIDEA

VIII. Family PYRALIDAE

25. *Analyta sigulalis* (Guen'ee)

1854. *Leucinodes sigulalis* Guenee, *Delt. & Pyr.*, : 223.

1863. *Analyta abbicilalis*, *Led. Wien. Ent. Mon.*, : 406.

1886. *Leucinldes auxialis*, Swinhoe. *P. Z. S.*, : 458.

1896. *Analyta sigulalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 369.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore) and Himachal Pradesh (Kulu)

Elsewhere : Borneo, Amboina.

26. *Ancylolomia chrysographella* (Kollar)

1844. *Chilo chrysographella* Kollar, *In Hugel's Kashmir Und. Das Reich Siek*, **4** : 494.

1896. *Ancylolomia taprobanensis*, *Zell. Hor. Ent. Ross.*, : 25.

2000. *Ancylolomia chrysographella*, Arora, *Rec. zool. Surv. India, Occ. Paper*, **181** : 11.

Material examined : Jabalpur dist., Pachpedi, 7. 9. 1964, (1 ex.), Coll. H. Khajuria.

Wing expanse : Male : 20-30 mm, Female : 30- 40 mm.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Narsinghpur),

Elsewhere : Aden, Japan, China Formosa, Myanmar, Sri Lanka and S. Africa.

27. *Ancylolomia responsella* (Walker)

1863. *Jartheza responsella* Walker, *Cat.*, **xxvii** : 184.

1886. *Jartheza cassimella*, Swinhoe, *P. Z. S.*, : 461.

1896. *Ancylolomia responsella*, Hampson, *Fauna Brit. India*, Moths, **4** : 34.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : Male : 28-32 mm, Female : 34-40.

Distribution : India : Madhya Pradesh (Indore) and Himachal Pradesh (Simla).

Elsewhere : Nepal.

28. *Antigastra catalaunalis* (Duponchel)

1830. *Botys catalaunalis* Duponchel, *Hist. Nat. Lep. Fr.*, **8** : 330.

1896. *Antigastra catalaunalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 412.

1997. *Antigastra catalaunalis*, Bhattacharya, *Fauna of West Bengal*, Part, **7** : 395

Material examined : Recorded from literature. (Bhattacharya, 1997)

Wing expanse : Male : 28-32 mm., Female : 34-40 mm.

Distribution : India : Madhya Pradesh (Indore, Gwalior), Andamans, Maharashtra (Mumbai, Pune), Rajasthan (Khandala) and West Bengal (Kolkata, Chinsura).

Elsewhere : Myanmar, Easrern and Western Africa, Europe, Mexico, Pakistan (Karachi), Sri Lanka, Southern Yemen (Aden) and Syria.

29. *Bocchoris acamasalis* Walker

1859. *Bocchoris acamasalis* Walker, *Cat.*, **xix** : 970.

1889. *Chabula acamasalis*, Cotes & Swinhoe, *Cat. Moths of India*, **5** : 637.

1896. *Bocchoris acamasalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 284.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889).

Wing expanse : 24-26 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Celebes, Java, Myanmar and Sri Lanka.

30. *Charltona cervinella* Moore

1872. *Charltona cervinella* Moore, *P. Z. S.*, : 581.

1896. *Charltona cervinella*, Hampson, *Fauna Brit. India*, Moths, **4** : 35.

Material examined : Recorded from literature (Hampson, 1896).

Wing expanse : Male : 40 mm. Female : 46-52 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune) and Karnataka (Bangalore), Tamil Nadu (Nilgiris), Kerala (Pirnad, Travancore).

31. ***Charltona kala*** Swinhoe

1885. *Charltona kala* Swinhoe, *P. Z. S.*, : 879.

1896. *Charltona kala*, Hampson, *Fauna Brit. India*, Moths, **4** : 35.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : Male : 30 mm, Female : 40 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Satara).

Elsewhere : Sri Lanka.

32. ***Charltona ortella*** Swinhoe

1886. *Charltona ortella* Swinhoe, *P. Z. S.*, : 461.

1896. *Charltona ortella*, Hampson, *Fauna Brit. India*, Moths, **4** : 37.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : Male : 40 mm, Female : 40 mm.

Distribution : India : Madhya Pradesh (Jabalpur, Indore), Himachal Pradesh (Simla), and Sikkim.

33. ***Chilo simplex*** Butler

1880. *Chilo simplex* Butler *P. Z. S.*, : 690.

1889. *Cramus partellus*, Cotes & Swinhoe, *Cat. Moths of India*, : 690.

1896. *Chilo simplex*, Hampson, *Fauna Brit. India*, Moths, **4** : 26.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore) and Panjab.

Elsewhere : Formosa, Japan and Pakistan (Karachi).

34. ***Cirrhochrista brizoalis*** (Walker)

1859. *Margaronia brizoalis* Walker, *Cat.*, **xix** : 976.

1865. *Cirrhochrista figuratalis*, Walker, *Cat.*, **xxxiv** : 1369.

1896. *Cirrhochrista brizoalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 50.

Material examined : Seoni, PTR, Karmajhiri 10.6.2001(1ex.), Coll. K. Chandra. 12.7.2001 (1ex.), Coll. R.K. Shingh. Umaria, BNP, Tala, 3.10.2002, (1ex.), Coll. R. K. Singh.

Wing expanse : Male : 22-28 mm.

Distribution : India : Madhya Pradesh (Seoni, Umaria), Maharashtra (Mumbai), Tamil Nadu (Nilgiris), and N. W. Himalayas.

Elsewhere : Australia, Borneo, Celebes, China, Japan and Taiwan.

Remarks : A new record for Madhya Pradesh.

35. ***Crambus nigriciliellus*** (Zeller)

1863. *Argyria nigriciliellus* Zeller, *Mon. Chil. & Cramb.*, : 52.

1889. *Urola inclaralis*, Cotes & Swinhoe, *Cat. Moths of India*, : 685.

1896. *Crambus nigriciliellus*, Hampson, *Fauna Brit. India*, Moths, **4** : 17.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 22-28 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Dharmsala) and Maharashtra (Mumbai).

Elsewhere : Japan, and China.

36. ***Crocidolomia binotalis*** Zeller

1852. *Crocidolomia binotalis* Zeller, *K. Vet. – AK, Handl.*, : 66.

1896. *Crocidolomia binotalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 372.

1980. *Crocidolomia binotalis*, Singh & Rawat, *Indian Jour. of Entomology*, **42** (2) : 324-326.

Material examined : Recorded from literature. (Singh & Rawat, 1980)

Wing expanse : 26 mm.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).

Elsewhere : Australia, Java, Myanmar, Norfolk Island, Sri Lanka and S. Africa.

37. *Crypsiptya coclesalis* (Walker)

1865. *Botys itemalesalis*, Walker, *Cat.*, **xviii** : 701.

1896. *Pyrausta coclesalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 441.

1998. *Crypsiptya coclesalis*, Kulkarni & Joshi, *Allelopathy Journal*, **5** (1) : 93-96.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998).

Wing expanse : Male : 28 mm., Female : 30 mm.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).

Elsewhere : Borneo, China, Formosa, Java, Myanmar and Sumbawa.

38. *Diaphania bicolor* (Swainson)

1821. *Botys bicolor* Swainson, *Zool. Illustr.*, **1**(2) : 77.

1896. *Glyphodes bicolor*, Hampson, *Fauna Brit. India*, Moths, **4** : 358.

1980. *Diaphania bicolor*, Mandal & Bhattacharya, *Rec. zool. Surv. India*, **77**(1-4) : 324.

Material examined : Seoni dist., PTR, Karmajhiri 12.7.2001, (1ex.), Coll. R. K. Singh.

Wing expanse : Male : 22 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Australia, Malayan subregion, Myanmar, Sri Lanka.

Remarks : A new record for Madhya Pradesh.

39. *Diaphania indica* (Saunders)

1851. *Eudioptes indica* Saunders, *Trans. Ent. Soc. Lond.*, **2**(1) : 163.

1896. *Glyphodes indica*, Hampson, *Fauna Brit. India*, Moths, **4** : 360.

1939. *Diaphania indica*, Klima, *Lep. Cat.*, : 94.

Material examined : Jabalpur, Katanga Colony, 13.8.1999 (1ex.), Coll. K. Chandra. Seoni, PTR, Karmajhiri, 27.6.2001 (1ex.), Coll. K. Chandra.

Wing expanse : Male : 24-28 mm.

Distribution : India : Madhya Pradesh (Indore, Jabalpur, Seoni), Bihar, Great Nicobar, Haryana, Himachal Pradesh, Maharashtra (Mumbai, Pune), Punjab, Tamil Nadu (Nilgiris), Sikkim and West Bengal.

Elsewhere : Australia, Celebes, China, Ethiopian, Myanmar, Java, Pakistan, and Oriental regions.

Remarks : First time record for Jabalpur and Seoni.

40. *Diaphania vertumnalis* (Guen'ee)

1854. *Margarodes vertumnalis* Guen'ee, *Delt. Edt. Pyral.*, : 309.

1896. *Glyphodes vertumnalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 349.

1997. *Diaphania vertumnalis*, Bhattacharya, *Fauna of West Bangal*, Part **7** : 383.

Material examined : Recorded from literature. (Bhattacharya, 1997)

Wing expanse : 26 mm.

Distribution : India : Madhya Pradesh, Andamans & Nicobar, Himachal Pradesh (Simla), Maharashtra (Mumbai), Sikkim, Tamil Nadu, Uttar Pradesh and West Bangal (Kolkata).

Elsewhere : Australia, Borneo, Java, Malaya, Myanmar, Philippines and Sri Lanka.

41. *Dichocrocis leptalis* Hampson

1998. *Dichocrocis leptalis*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 454.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998).

Distribution : India : Madhya Pradesh (Jabalpur).

42. ***Dichocrocis punctiferalis*** (Guen'ee)

1854. *Astura punctiferalis* Guen. *Delt. & Pyr.*, : 320

1896. *Dichocrocis punctiferalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 307.

1998. *Dichocrocis punctiferalis* Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 454.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Wing expanse : 24-32 mm.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).

Elsewhere : Australian region, China, Japan, Malayan subregion, Sri Lanka and Myanmar.

43. ***Dioryctria abeitella*** (Schiffermuller)

1776. *Phycita abietella* Schiffermuller, *Wien. Verz.*, : 138.

1896. *Phycita abietella*, Hampson, *Fauna Brit. India*, Moths, **4** : 91.

1998. *Dioryctria abeitella*, Kulkarni & Joshi, *J. Trop. Foress. Scien.*, **10**(4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Wing expanse : 22-34 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Himachal Pradesh (Simla).

Elsewhere : Europe, Japan and United States.

44. ***Dioryctria amatella*** Hulst.

1998. *Dioryctria amatella*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10** (4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur).

45. ***Dioryctria auranticella*** Grote

1998. *Dioryctria auranticella*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur).

46. ***Diptychophora griseolalis*** Hampson

1895. *Diptychophora griseolalis* Hampson, *P. Z. S.*, : 943.

1896. *Diptychophora griseolalis* Hampson, *Fauna Brit. India*, Moths, **4** : 19.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 14 mm.

Distribution : India : Madhya Pradesh (Jabalpur).

47. ***Epicrocis aegnusalis*** (Walker)

1859. *Pyralis aegnusalis* Walker, *Cat. Lep. Het. Brit. Mus.*, **19** : 905.

1896. *Epicrocis aegnusalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 85.

1997. *Epicrocis aegnusalis*, Bhattacharya, *Fauna of West Bangal*, **7** : 338.

Material examined : Recorded from literature. (Bhattacharya, 1997)

Wing expanse : 18-20 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune), West Bangal (Haorah, Hugli and South 24- Parganas).

Elsewhere : Australian region, China Madagscar, Myanmar, Sri Lanka and Sumatra.

48. ***Epicrocis uberalis*** Swinhoe

1884. *Epicrocis uberalis* Swinhoe, *P. Z. S.*, : 523.

1889. *Pyralis uberalis*, Cotes & Swinhoe, *Cat. Moths of India*, : 685.

1896. *Epicrocis uberalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 86.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 20 mm.

Distribution : India : Madhya Pradesh (Indore).

Elsewhere : Pakistan (Karachi), St. Vincent.

49. *Eromene ocellea* Haw.

1852. *Eromene ocellea* Haw. *Lep. Brit.*, : 486.

1896. *Eromene ocellea*, Hampson, *Fauna Brit. India*, Moths, **4** : 24.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 20 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune).

Elsewhere : Aden, Afghanistan, Europe and Pakistan (Karachi).

50. *Euclasta defamatalis* Walker

1859. *Euclasta defamatalis* Walker, *Cat. Lep. Het, B. M.*, **xviii** : 544.

1889. *Euclasta defamatalis*, Cotes & Swinhoe *Cat. Moths of India*, : 622.

1896. *Euclasta defamatalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 364.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : Male : 24 mm., Female : 30 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Myanmar, Nepal and Sri Lanka.

51. *Eutectona machaeralis* (Walker)

1859. *Scopula machaeralis* Walker, *Cat.*, **xix** : 1013.

1896. *Pyrausta machaeralis*, Hampson, *Fauna Brit. India*, Moths, **4** : 432.

1998. *Eutectona machaeralis*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10** (4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur) and Maghalaya (Khasis).

Elsewhere : Australia, Formosa, Java, Myanmar and Sri Lanka.

52. *Euzophera cedrella* Hampson

1998. *Euzophera cedrella*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur).

53. *Hymenia recurvalis* (Fabricius)

1782. *Phalaena recurvalis* Fabricius, *Ent. Syst. Iii*, pt. **2** : 237.

1896. *Zinckenia fascialis*, Hampson, *Fauna Brit. India*, Moths, **4** : 262.

1939. *Hymenia recurvalis*, Klima, *Lep. Cat.*, **89** : 31.

Material examined : Hoshangabad, Mahadev F. G. H. Pachmarhi, 5.6.1999 (2ex.) Coll. K. Chandra. Seoni, PTR, Karmajhiri, 27.6.2001(1ex.), Coll. K. Chandra. Shivpuri, MNP, Rest House, 27.11.2001(1ex.), Coll. Dinesh Nema. Jabalpur, Nagpur Road Hulki, 16.8.2002 (4ex.), Coll. K. Chandra. Umaria, BNP, Tala, 27.9.2002 (1ex.), Coll. R. K. Singh.

Wing expanse : 24 mm.

Distribution : India : Madhya Pradesh (Hoshangabad, Seoni, Jabalpur, Umaria).

Elsewhere : Syria, Japan, , Australia and regions Palacastic Asia from whole Orientatal.

Remarks : A new record for Madhya Pradesh.

54. *Hypsipyla robusta* Moore

1887. *Hypsipyla robusta* Moore, *Lep, Ceyl.*, **3** : 365.

1896. *Hypsipyla robusta*, Hampson, *Fauna Brit. India*, Moths, **4** : 89

1998. *Hypsipyla robusta*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Wing expanse : Male : 26-32 mm, Female : 28-42 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Sikkim and Himachal Pradesh (Simla, Dharmsala).

Elsewhere : Sri Lanka.

55. ***Hypsopygia mauritialis*** (Boisduval)

1834. *Asopia mauritialis* Boisduval, *Fauna. Ent. Madag. Lep.*, : 119.

1896. *Hypsopygia mauritialis*, Hampson, *Fauna Brit. India*, Moths, **4** : 148.

1997. *Hypsopygia mauritialis*, Bhattacharya, *Fauna of West Bangal*, Part **7** : 344.

Material examined : Recorded from literature. (Bhattacharya, 1997)

Wing expanse : Male : 20 mm, Female : 24 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Kulu, Solan) Maharashtra (Pune), Manipur, North West Himalayas and West Bangal (Kolkata).

Elsewhere : Celebes, China, Java, Madagascar, Myanmar, and Sumatra.

56. ***Lamprosema charesalis*** (Walker)

1859. *Botys molusalis*, Walker, *Cat.*, **xix** : 993.

1896. *Nacoleia charesalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 319.

1938. *Lamprosema charesalis*, Klima, *Lep. Cat.*, **89** : 166.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore).

Elsewhere : Sri Lanka, Borneo.

57. ***Lepyrodes neptis*** (Cramer)

1779. *Phalaena (Noctua) neptis* Cramer, *Pap. Exot.* iii, pl. : 264.

1896. *Lepyrodes neptis*, Hampson, *Fauna Brit. India*, Moths, **4** : 368.

Material examined : Seoni, PTR, Karmajhiri, 12.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 32 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Australia, Malayan subregin, Myanmar, Sri Lanka.

Remarks : A new record for Madhya Pradesh.

58. ***Leptoglossus occidentalis*** Heid

1998. *Leptoglossus occidentalis*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur).

59. ***Lygropia obrinusalis*** (Walker)

1859. *Astura obrinusalis* Walker, *Cat.*, **xviii** : 549.

1886. *Haritala graphicalis*, Swinhoe, *P. Z. S.*, : 459.

1896. *Lygropia obrinusalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 341-342

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 24 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Kulu, Simla), Punjab and Tamil Nadu (Nilgiri).

Elsewhere : Amboina, Borneo.

60. ***Marasmia trapezalis*** Guen'ee

1854. *Marasmia trapezalis* Guen'ee, *Delt. & Pyr.*, : 200.

1889. *Ravanoa creonalis*, Cotes & Swinhoe, *Cat. Moths of India*, : 603.

1896. *Marasmia trapezalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 277.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore), Tamil Nadu (Nilgiri hills) and Sikkim.

Elsewhere : Pakistan (Karachi), South Africa.

61. ***Maruca testulalis*** (Geyer)

1832. *Crochiphora testulalis* Geyer, *Hubn. Sammal. Exot. Schmett.*, **4**(4) : 12.

1896. ***Maruca testulalis*** Hampson, *Fauna Brit. India*, Moths, **4** : 393.

Material examined : Seoni, PTR, Karmajhiri, 30.6.2001 (1ex.), Coll. K. Chandra. Umaria, BNP Tala, 27.9.2002, (3 ex.), Coll. R. K. Singh.

Wing expanse : 26-30 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Umaria),

Elsewhere : Australian and oriental regions, Neotropical and Ethiopian regions and Japan.

Remarks : A new record for Madhya Pradesh.

62. *Microthrix omichleuta* Meyr.

1998. *Microthrix omichleuta*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur).

63. *Nephopteryx rhodobasalis* Hampson

1998. *Nephopteryx rhodobasalis*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur).

64. *Nomophila noctuella* Schiffermuller

1776. *Nomophila noctuella* Schiffermuller, *Wien. Verz.*, **136** : 35.

1889. *Nomophila noctuella*, Cotes & Swinhoe, *Cat. Moths of India*, : 666.

1896. *Nomophila noctuella*, Hampson, *Fauna Brit. India*, Moths, **4** : 404.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 24-34 mm.

Distribution : India : Madhya Pradesh (Indore), Haryana (Ambala), Sikkim and Tamil Nadu (Nilgiri hills).

Elsewhere : Pakistan (Karachi).

65. *Noorda fessalis* (Swinhoe)

1886. *Glyphodes fessalis* Swinhoe, *P. Z. S.*, : 459.

1896. *Noorda fessalis* Hampson, *Fauna Brit. India*, Moths, **4** : 415.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 16-18 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman, Assam, Karnataka (Kanara), Manipur, Meghalaya (Khasis), and Nagaland.

Elsewhere : Myanmar, Pakistan (Karachi) and West Africa.

66. *Noorda moringae* Tams.

1998. *Noorda moringae*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 450.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur).

67. *Nymphula affinialis* (Guen'ee)

1854. *Paraponyx affinialis* Guen'ee, *Delt. & Pyr.*, : 270.

1881. *Oligostigma incommoda*, Butler, *P. Z. S.*, : 180.

1896. *Nymphula affinialis*, Hampson, *Fauna Brit. India*, Moths, **4** : 193.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 20 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla), Maharashtra (Mumbai, Pune), Nicobars and Sikkim.

Elsewhere : Pakistan (Karachi).

68. *Pachyzancla aegrotalis* Zeller

1852. *Pachyzancla aegrotalis* Zeller, *K. Vet. AK. Handl.*, : 38.

1889. *Pachyzancla mutualis*, Cotes & Swinhoe, *Cat. Moths of India*, : 638.

1896. *Pachyzancla aegrotalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 405.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889).

Wing expanse : 22-30 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune, Mumbai), Andaman Islands and West Bengal (Kolkata).

Elsewhere : Celebes, Myanmar, Pakistan (Karachi) and Sumatra.

69. ***Pagyda salvalis*** Walker

1859. *Pagyda salvalis* Walker, *Cat.*, **xvii** : 487.

1896. *Pagyda salvalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 270-271.

1998. *Pagyda salvalis*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 455.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Wing expanse : 22-26 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Sikkim, W. and S. India.

Elsewhere : Borneo, Myanmar, Pulo Laut, and Sri Lanka.

70. ***Patissa virginea*** Zeller

1863. *Patissa virginea* Zeller, *Mon. Chil. & Cramb.*, : 2.

1886. *Crambus multivagllus*, Swinhoe, *P. Z. S.*, : 462.

1896. *Patissa virginea*, Hampson, *Fauna Brit. India*, Moths, **4** : 45.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore) and Tamil Nadu (Nilgiris).

Elsewhere : Sri Lanka.

71. ***Polyocha aurifusella*** Walker

1866. *Polyocha aurifusella* Walker, *Cat.*, **xxxv** : 1756.

1889. *Polyocha aurifusella*, Cotes & Swinhoe, *Cat. Moths of India*, : 678.

1896. *Polyocha aurifusella*, Hampson, *Fauna Brit. India*, Moths, **4** : 62.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889).

Wing expanse : 26-32 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai), and Punjab.

72. ***Poujadia inficita*** Walker

1859. *Poujadia inficita* Walker, *Cat.*, **xxvii** : 30.

1896. *Poujadia inficita*, Hampson, *Fauna Brit. India*, Moths, **4** : 58.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 20 mm.

Distribution : India : Madhya Pradesh (Indore) and Uttar Pradesh (Allahabad).

Elsewhere : Sri Lanka.

73. ***Psara licarsisalis*** (Walker)

1859. *Pachyzancla licarsisalis* Walker, *Cat.*, **xviii** : 686.

1896. *Pachyzancla licarsisalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 402.

1997. *Psara licarsisalis*, Bhattacharya, *Fauna of West Bengal, State Fauna Series*, **3** (Part-7) : 393.

Material examined : Recorded from literature. (Bhattacharya, 1997)

Wing expanse : 24-26 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla), Jharkhand (Ranchi), Kerala, Maharashtra (Mahabaleswar, Mumbai, Pune), Sikkim, Tamil Nadu, Uttar Pradesh (Chakrata), Uttaranchal (Dehradun) and West Bangal (Kolkata, Darjiling).

Elsewhere : Australia, Syria and Sri Lanka.

74. ***Psara phaeopteralis*** Guen'ee

1854. *Psara phaceoptreralis* Guen'ee, *Delt, & Pyr.*, : 349.

1896. *Pachyzandla phaeopteralis*, Hampson, *Fauna Brit. India*, Moths, **4** : 402.

1980. *Psara phaceoptreralis*, Mandal & Bhattacharya, *Rec. zool. Surv. India*, **77** : 335.

Material examined : Recorded from literature. (Mandal & Bhattacharya, 1980)

Wing expanse : 22-30 mm.

Distribution : India : Thoroughout India including Madhya Pradesh (Indore).

Elsewhere : Aden, Ethiopian regions, Myanmar, Neotropical, Sri Lanka, and Solomons.

75. ***Psara stultalis*** (Walker)

1859. *Botys stultalis* Walker, *Cat. Lep. Het. Brit. Mus.*, **18** : 669.

1896. *Pachyzansla stultalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 405.

1980. *Psara stultalis*, Mandal & Bhattacharya, *Rec. zool. Surv. India*, **77** : 336.

Material examined : Recorded from literature. (Mandal & Bhattacharya, 1980)

Wing expanse : 22-28 mm.

Distribution : India : Madhya Pradesh (Indore), Great Nicobar, , Haryana (Ambala), Himachal Pradesh (Kulu, Solan), Jammu, Karnataka (Coorg), Maharashtra (Mumbai, Pune), Punjab (Hoshiarpur), Tamil Nadu and West Bangal (Kolkata, Kurseong).

Elsewhere : Australia, Borneo, Celebes, Java, Myanmar, Pakistan (Karachi), Sri Lanka and Sumatra.

76. ***Pygospila tyres*** (Cramer)

1779. *Phalaena (Pyralis) tyres* Cramer, *Pap. Exot.*, **3** : 263.

1997. *Pygospila tyres*, Bhattacharya, *Fauna of West Bangal, State Fauna Series*, **3**(Part-7) : 386.

Material examined : Seoni, PTR, Karmajhiri, 8.7.2001(1ex.), Coll. R. K. Singh. 27.6.2001 (2ex.), Coll. K. Chandra.

Wing expanse : 42-46 mm.

Distribution : India : Madhya Pradesh (Indore, Seoni), Bihar (Buxar), Himachal Pradesh (Kulu), Jharkhand (Ranchi), Maharashtra (Mumbai, Pune), Rajasthan (Khandela), Tamil Nadu (Nilgiri hills) and West Bangal (Kolkata, Murshidabad).

Elsewhere : Borneo, Java, Myanmar, Pakistan (Karachi) and Sri Lanka.

Remarks : First time record for Seoni.

77. ***Pyrausta bambucivora*** Moore

1887. *Pyrausta bambucivora* Moore, *Lep. Atk.*, : 224.

1896. *Pyrausta bambucivora*, Hampson, *Fauna Briti. India*, Moths, **4** : 442.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 32 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Meghalaya (Khasis).

Elsewhere : Shri Lanka.

78. ***Pyrausta incoloralis*** (Guen'ee)

1854. *Botys incoloralis* Guen'ee, *Delt. Et. Pyral.*, : 332.

1997. *Pyrausta incoloralis*, Bhattacharya, *Fauna of West Bengal, State Fauna Series*, **3**(Part-7) : 399-401.

Material examined : Recorded from literature. (Bhattacharya, 1997).

Wing expanse : 30 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune) and West Bangal (Kurseong, Darjiling).

Elsewhere : Australia, Celebes, Congo, Java, Malayan subregion, South Africa, South Yemen and Syria.

79. ***Pyrausta phaenicealis*** Hubner

1818. *Pyrausta phaenicealis* Hubner, *Zutr.*, **i** : 22.

1889. *Rhodaria juncturalis*, Cotes & Swinhoe, *Cat. Moths of India*, **5** : 642.

1896. *Pyrausta phaenicealis*, Hampson, *Fauna Brit. India*, Moths, **4** : 431.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 20 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai) and Tamil Nadu (Nilgiris).

Elsewhere : America, West Indies, Africa, China, Sikkim and Australia.

80. ***Salebria paurosema*** (Meyr.)

1885. *Nephopteryx paurosema* Meyr. *Ent. Mo. Mag.*, **xxii** : 106.

1896. *Nephopteryx paurosema*, Hompson, *Fauna Brit. India*, Moths, 4 : 81.

1998. *Salebria paurosema*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 452.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Wing expanse : 20-24 mm.

Distribution : India : Madhya Pradesh (Jabalpur) and Assam.

Elsewhere : Cape verd Islands, Sri Lanka, West Africa.

81. ***Sameodes cancellalis*** (Zeller)

1852. *Botys cancellalis* Zeller, *K. Vet. A. K. Handl. P.*, : 34.

1896. *Sameodes cancellalis*, Hampson, *Fauna Briti. India*, Moths, **4** : 375.

Material examined : Hoshangabad, Mahadev F. G. H. Pachmarhi, 5.6.1999 (2ex.), 6.6.1999 (1ex.), Coll. K. Chandra. Seoni, PTR, Karmajhiri, 12.6.2001(2ex.), 29.6.2001(1ex.), Coll. K. Chandra. Umaria, BNP Tala, 3.10.2002 (4ex.), Coll. R. K. Singh.

Wing expanse : 22 mm.

Distribution : India : Throughout India including Madhya Pradesh (Hoshangabad, Seoni).

Elsewhere : Africa, Australia, Fiji, Java, Myanmar and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

82. ***Scirpophaga bisignata*** (Swinhoe)

1885. *Schoenobius bisignata* Swinhoe, *Proc. Zool Soc. Lond.*, : 878.

1896. *Scirpophaga bisignata*, Hampson, *Fauna Briti. India*, Moths, **4** : 47.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 16 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra and West Bangal (Kolkata, Barrakpore Narth 24-Parganas).

Elsewhere : Pakistan (Karachi).

83. ***Surattha fuscilella*** Swinhoe

1897. *Surattha fuscilella* Swinhoe, *A. M. N. H.*, (6) **xvi** : 301

1896. *Surattha fuscilella*, Hampson, *Fauna Brit. India*, Moths, **4** : 32.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : 18 mm.

Distribution : India : Chhattisgarh (Raipur) and Maharashtra (Mumbai).

84. ***Surattha invectalis*** Walker

1863. *Surattha invectalis* Walker, *Cat. Lip. Lep. Het. B. M.*, **xxvii** : 76

1889. *Surattha invectalis*, Cotes & Swinhoe, *Cat. Moths of India*, : 693.

1896. *Surattha invectalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 31.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 22-30 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Satara, Pune).

Elsewhere : Sri Lanka.

85. ***Sylepta arctalis*** Guen'ee

1854. *Sylepta arctalis* Guen'ee, *Delt. & Pyr.*, : 290.

1889. *Coptobasis opisalis*, Cotes & Swinhoe, *Cat. Moths of India* : 629.

1896. *Sylepta arctalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 340.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 26 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Mumbai, Pune, Khandala).

86. *Sylepta aurantiacalis* Fisch

Sylepta aurantiacalis, Fisch. v *Rostl. Schmett.*, : 213.

1889. *Botys aurea*, Cotes & Swinhon, *Cat. Moths of India* : 593.

1896. *Sylepta aurantiacalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 337.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 34-36 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore). Elsewhere: Sri Lanka and Myanmar.

87. *Sylepta luctuosalis* Guen'ee

1854. *Sylepta luctuosalis* Guen'ee, *Delt. & Pyr.*, : 290.

1889. *Coptobasis aenealis*, Cotes & Swinhoe, *Cat. Moths of India*, : 628.

1896. *Sylepta luctuosalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 340.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : 22-30 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune, Khandala) and Tamil nadu (Nilgiri hills).

88. *Syngamia latimarginalis* (Walker)

1859. *Asopia latimarginalis* Walker, *Cat. Lep. Het. Brit. Mus.*, **17** : 370.

1896. *Syngamia latimarginalis*, Hampson, *Fauna Brit. India*, Moths, **4** : 279.

Material examined : Seoni, PTR, Karmajhiri, 12.7.2001(1ex.), 19.7.2001(2ex.), R. K. Singh.

Wing expanse : 20-22 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni), Meghalaya (Khasis) and West Begal (Kolkata).

Elsewhere : Java, Myanmar, Sri Lanka, Taiwan, Vietnam (Tong-King), West and East tropical Africa.

Remarks : A new record for Madhya Pradesh.

89. *Trachylepidia fructicassiella* Rag.

1887. *Trachylepidia fructicassiella* Rag, *Ann. Soc. Ent. Fr.*, : 260.

1896. *Trachylepidia fructicassiella*, Hompson, *Fauna Brit. India*, Moths, **4** : 4.

1998. *Trachylepidia fructicassiella*, Kulkarni & Joshi, *J. Trop. Forest. Scien.*, **10**(4) : 452.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Wing expanse : Male: 20-27 mm., Female: 29-34 mm.

Distribution : India : Madhya Pradesh (Jabalpur) and Punjab.

Elsewhere : Beyrout and Egypt.

90. *Tyndis hypotialis* Swinhoe

1885. *Tyndis hypotialis* Swinhoe, *P. Z. S.*, : 866.

1896. *Tyndis hypotialis*, Hampson, *Fauna Briti. India*, Moths, **4** : 185.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : Male : 20-24 mm, Female : 26 mm.

Distribution : India : Madhya Pradesh (Indore), Kerala (Travancore), Maharashtra (Pune) and Punjab (Campbellpur).

Elsewhere : Pakistan (Karachi) and Sri Lanka.

91. *Tyndis plana* Walker

1888. *Tyndis plana* Walker, *Trans. Ent. Soc.*, **3** : 92.

1896. *Tyndis plana*, Hampson, *Fauna Briti. India*, Moths, **4** : 186.

Material examined : Recorded from literature. (Hampson, 1896)

Wing expanse : Male : 18 mm, Female : 22 mm.

Distribution : India : Madhya Pradesh (Indore).

Elsewhere : Pakistan (Karachi).

IX. Family THYRIDIDAE

92. ***Dixoa albatalis*** Swinhoe

1889. *Dixoa albatalis* Swinhoe, *P. Z. S.*, : 422.

1892. *Dixoa albatalis*, Hampson, *Fauna Brit. India*, Moths, **1** : 355.

Material examined : Recorded from literature. (Hampson, 1892).

Wing expanse : Male : 30 mm, Female : 40 mm.

Distribution : India : Chhattisgarh (Raipur), Karnataka (Canara) and Maharashtra (Pune).

93. ***Dysodia ignita*** (Walker)

1865. *Varnia ignita* Walker, *Cat.*, **xxxiii** : 825.

1875. *Pachythiris rajah*, Boisd. *Lep. Het.*, **1** : 492.

1886. *Pachythiris rajah*, Cotes & Swinhoe, *Cat. Moths of India*, : 43.

1892. *Dysodia ignita*, Hampson, *Fauna Brit. India*, Moths, **1** : 368.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1886)

Wing expanse : 32-38 mm.

Distribution : India : Central India.

Eleswhere : Sri Lanka, Java.

F. Superfamily BOMBYCOIDEA

X. Family LASIOCAMPIDAE

94. ***Chilena strigula*** (Walker)

1865. *Lesiocampa strigula* Walker, *Cat.*, **xxxii** : 563.

1892. *Chilena strigula*, Hampson, *Fauna Briti. India*, Moths, **1** : 417.

Material examined : Recorded from literature. (Hampson, 1892)

Wing expanse : Male : 34 mm, Female : 50 mm.

Distribution : India : Madhya Pradesh (Indore) and Punjab (Campbellur).

Elsewhere : Sri Lanka.

95. ***Metanastria hyrtaca*** Cramer

1779. *Metanastria hyrtaca* Cramer, *Pap., Exot.*, **3** : 249

1879. *Lasiocampa bhira*, Moore, *P. Z. S.*, : 410.

1892. *Metanastria hyrtaca*, Hampson, *Fauna Brit. India*, Moths, **1** : 410.

Material examined : Recorded from literature (Hampson, 1892)

Wing expanse : Male : 48 mm. Female : 74 mm.

Distribution : India : Madhya Pradesh (Indore), Assam, E. Himalayas, Maharashtra (Mumbai) Orissa (Ganjam) and Tamil Nadu (Chennai).

Elsewhere : Sri Lanka.

96. ***Taragama siva*** (Lef.)

1827. *Bombyx ganesa* Lef., *Zool. J.*, **iii** : 211.

1859. *Taragama ganesa*, Moore, *Cat. Lep. Mus. E. I. C.*, **2** : 427

1887. *Taragama ganesa*, Cotes & Swinhoe, *Cat. Moths of India*, : 219.

1892. *Taragama siva*, Hampson, *Fauna Brit. India*, Moths, **1** : 405.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Wing expanse : Male : 48 mm, Female : 66-84 mm.

Distribution : India : Madhya Pradesh (Indore), Haryana (Amballa), Karnaraka (Kanara), Maharashtra (Mumbai, Pune, Mahableshwar), and Tamil Nadu (Chennai).

Elsewhere : Java, Pakistan (Karachi), Philippine Islands and Sri Lanka.

XI. Family EUPTEROTIDAE

97. ***Eupterote citrina*** Walker

1855. *Eupterote citrina* Walker, *Cat.*, **4** : 905.

1892. *Eupterote citrina*, Hampson, *Fauna Brit. India*, Moths, **1** : 62.

Material examined : Recorded from literature (Hampson, 1892)

Wing expanse : Male : 84 mm, Female : 50-86 mm.

Distribution : India : Central India, Deccan, Maharashtra (Mumbai) and Sikkim.

98. ***Eupterote undata*** (Blanch)

1844. *Bombyx undatus* Blanch, *Jacq. Voy. Inde, Zool. Ins.*, : 23.

1884. *Eupterpte caliginosa*, Moore, *Trans., Ent. Soc. Lond.*, : 367.

1887. *Eupterpte caliginosa*, Cotes & Swinhoe, *Cat. Moths of India*, : 202.

1892. *Eupterote undata*, Hampson, *Fauna Brit. India*, Moths, 1 : 54.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Wing expanse : 74-110 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore, Jabalpur).

99. ***Ganisa plana*** Walker

1856. *Ganisa plana* Walker, *List Specimens lipid. Insects Colln. Br. Mus.*, 5 : 1191.

1892. *Ganisa postica*, Hampson, *Fauna Briti. India*, Moths, 1 : 49.

1987. *Ganisa plana*, Holloway, *The Moths of Borneo*, : 69.

Material examined : Seoni, PTR, Karmajhiri, 8.6.2001(1ex.), 20.6.2001(1ex.), Coll. K. Chandra.

Wing expanse : 68 mm.

Distribution : India : Madhya Pradesh (Seoni), Himachal Pradesh (Kulu, Kangra), Nagas and Sikkim.

Elsewhere : Sri Lanka, Pakistan.

Remarks : A new record for Madhya Pradesh.

XII. Family SATURNIIDAE

100. ***Actias selene*** (Hubner)

1806. *Echidna caudate selene* Hubner, *Samml. Exot. Schmett.*, 1 : 3 pl. : 172 (M), pl : 174 (F).

1892. *Actias selene*, Hampson, *Fauna Brit. India*, Moths, 1 : 13.

Material examined : Seoni, PTR, Karmajhiri, 8.6.2001. (1ex.), 20.6.2001, (1ex.), Coll. K. Chandra. Umaria, BNP, Tala, 2.10.2002 (1ex.), Coll. R. K. Singh.

Wing expanse : Male : 132-166 mm, Female : 140-182 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Umaria).

Elsewhere : China, Myanmar, and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

101. ***Antheraea paphia*** (Linnaeus)

1758. *Phalaena bombyx paphia* Linnaeus, *Syst. Nat. Ed.* x, 1 : 596.

1892. *Antheraea paphia*, Hampson, *Fauna Briti. India*, Moths, 1 : 18.

Material examined : Chhindwara, PTR, Totladoh 13.8.2001(1ex.), 15.8.2001(2ex.), Coll. Y. N. Gupta.

Wing expanse : 140-174 mm.

Distribution : India : Throughout India including Madhya Pradesh (Chhindwara).

Elsewhere : China and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

XIII. Family BOMYCIDAE

102. ***Ocinara varians*** (Walker)

1855. *Naprepa varians* Walker, *Cat. Lep. Het.*, v : 1153.

1887. *Trilocha varians*, Cotes & Swinhoe, *Cat. Moths of India*, : 165.

1892. *Ocinara varians*, Hampson, *Fauna Brit. India*, Moths, 1 : 35.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Wing expanse : Male : 26 mm, Female : 32 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune, Munbai, Satara).

Elsewhere : Sri Lanka and Hongkong.

G. Superfamily GEOMETROIDEA

XIV. Family GEOMETRIDAE

103. *Acidalia chotaria* Swinhoe

1885. *Acidalia chotaria* Swinhoe, *P. Z. S.*, : 858.

1895. *Acidalia chotaria*, Hampson, *Fauna Brit. India*, Moths, **3** : 436.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : 14 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Mumbai, Pune).

Elsewhere : Sri Lanka.

104. *Anonychia grisea* Butler

1883. *Anonychia grisea* Butler, *P. Z. S.* : 172

1888. *Onychia lativitta*, Cotes & Swinhoe, Cat. *Moths of India* : 574.

1895. *Anonychia grisea*, Hampson, *Fauna Brit. India*, Moths, **3** : 178.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 32 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla), Sikkim, N. W. Himalayas and West Bengal (Darjiling).

105. *Antitrygodes cunceilinea* (Walker)

1862. *Geometra cunceilinea* Walker, *Cat.*, **xxvi** : 1752.

1895. *Trygodes cunceilinea*, Hampson, *Fauna Brit. India*, Moths, **3** : 461.

1982. *Antitrygodes cunceilinea*, Barlow, *An introduction to the Moths of South East Asia*, : 124.

Material examined : Hoshangabad, Mahadev, Pachmarhi 6.6.1999(1ex.), Coll. K. Chandra.

Wing expanse : 32 mm.

Distribution : India : Throughout India including Madhya Pradesh (Hoshangabad).

Remarks : A new record for Madhya Pradesh.

106. *Aporandria specularia* Guen'ee

1857. *Aporandriaa specularia* Guen'ee, *Histoire. Natural. Des. Insectes*, Lepidopteres, : 342.

1895. *Aporandria specularia*, Hampson, *Fauna Briti. India*, Moths, **3** : 495.

Material examined : Seoni dist., PTR, Karmajhiri, 21.6.2001(1ex.), Coll. K. Chandra.

Wing expanse : Male : 54 mm, Female : 60 mm.

Distribution : India : Madhya Pradesh (Seoni), Assam, Kerala (Travancore) and Tamil Nadu (Nigiris).

Elsewhere : Sri Lanka and Sumatra.

Remarks : A new record for Madhya Pradesh.

107. *Biston varianaria* Swinhoe

1886. *Buzura panterinaria* Swinhoe. *P. Z. S.*, : 454.

1895. *Biston varianaria*, Hampson, *Fauna Briti. India*, Moths, **3** : 247.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : Male : 52 mm, Female : 80 mm.

Distribution : India : Madhya Pradesh (Indore), Karnataka (N. Canara) and Maharashtra (Pune).

108. *Boarmia acaciaria* Boisduval

1834. *Boarmia acaciaria* Boisduval. *Faun. Ent. Madag., Lep.*, : 116.

1888. *Boarmia cornaria*, Cotes & Swinhoe, *Cat. Moths of India*, : 499.

1895. *Boarmia acaciaria*, Hampson, *Fauna Brit. India*, Moths, **3** : 264.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 36-50 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Australia, Java, Borneo, and New Caledonia, Myanmar and Sri Lanka.

109. ***Boarmia selenaria*** (Schiffermuller)

1776. *Geometra selenaria* Schiffermuller, *Syst. Verz. Schmettwien. Geg.*, : 101.

1997. *Boarmia selenaria*, Mandal & Ghosh, *Fauna of West Bengal, State Fuauna Series*, 3(Part-7) : 497.

Material examined : Recorded from literature. (Mandal & Ghosh, 1997)

Wing expanse : Male : 45-50 mm, Female : 45-56 mm.

Distribution : India : Madhya Pradesh, Meghalaya, Northwest Himalaya and Sikkim and West Bengal (Darjiling).

Elsewhere : China, Ethiopian Region, Europe, Japan, Korea, Middle-East, Nepal, Sri Lanka and U.S.S.R.

110. ***Craspedia addictaria*** Walker

1861. *Craspedia addictaria* Walker, *Cat. Lep. Het. B. M.*, xxii : 749.

1888. *Craspedia addictaria*, Cotes & Swinhoe *Cat. Moths of India*, : 579.

1895. *Craspedia addictaria*, Hampson, *Fauna Brit. India*, Moths, 3 : 429.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 22-26 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla, Solun), Maharashtra (Pune), Tamil nadu (Nilgiris), Alibagh.

Eleswhere : Sri Lanka and Myanmar.

111. ***Craspedia idearia*** Swinhoe

1885. *Craspedia idearia* Swinhoe, *P. Z. S.*, : 857.

1895. *Craspedia idearia*, Hampson, *Fauna Briti. India*, Moths, 3 : 429.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune).

112. ***Craspedia relictata*** (Walker)

1866. *Acidalia relictata* Walker, *Cat.*, xxxv. : 1629.

1886. *Lycauges demissus*, Swinhoe, *P. Z. S.*, : 456.

1895. *Craspedia relictata*, Hampson, *Fauna Briti. India*, Moths, 3 : 436.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore), Punjab (Campbellpur), Tamil Nadu (Nilgiris).

Elsewhere : Pakistan (Karachi).

113. ***Craspedia remotata*** (Guen'ee)

1857. *Acidalia remotata* Guen'ee, *Phal.* I : 458.

1888. *Idaea abscomditaria*, Cotes & Swinhoe, *Cat. Moths of India*, : 574.

1895. *Craspedia remotata*, Hampson, *Fauna Brit. India*, Moths, 3 : 433.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : Male : 25 mm, Female : 28 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Borneo, China, Formosa, Japan, Myanmar and Sri Lanka.

114. ***Dilinia medardaria*** Herr.–Schiiffer

1850-1869. *Dilinia medardaria* Herr. - Schiiffer, *Exot. Schm.*, Pl. 94, Fig. 534.

1888. *Petelia medardaria*, Cotes & Swinhoe, *Cat. Moths of India*, : 512.

1895. *Dilinia medardaria*, Hampson, *Fauna Brit. India*, Moths, 3 : 216.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 40 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Myanmar and Sri Lanka.

115. *Ephyra invexata* Walker

1862. *Ephyra invexata* Walker, *Cat. Lep. Het. B. M.*, **xxvi** : 1497.

1888. *Ephyra invexata* Cotes & Swinhoe, *Cat. Moths of India*, : 529.

1895. *Ephyra invexata*, Hampson, *Fauna Brit. India*, Moths, **3** : 445.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 32 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Dharmsala), Karnataka (Belgaum) and Maharashtra (Pune, Mumbai).

Eleswhere : Sri Lanka and Java.

116. *Euchloris uvidula* Swinhoe

1885. *Euchloris uvidula* Swinhoe, *P. Z. S.*, : 860.

1895. *Euchloris uvidula*, Hampson, *Fauna Brit. India*, Moths, **3** : 498.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : Male : 22 mm, Female : 30 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra (Mumbai, Pune).

Elsewhere : Sri Lanka.

117. *Eupithecia rajata* Guen'ee

1857. *Eupithecia rajata* Guen'ee, *Phal.*, **ii** : 328.

1888. *Eupithecia infestata*, Swinhoe, *P. Z. S.*, : 430.

1895. *Eupithecia rajata*, Hampson, *Fauna Briti. India*, Moths, **3** : 399.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : 20-24 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Dharmsala), Meghalaya (Khasis) and Tamil Nadu (Nilgiris).

Elsewhere : Sri Lanka.

118. *Hyperythra swinhoei* Butler

1880. *Hyperythra swinhoei* Butler, *A. M. N. H.*, (5) **v** : 223.

1881. *Hyperythra phantasma*, Butler, *P. Z. S.*, : 615.

1895. *Hyperythra swinhoei*, Hampson, *Fauna Briti. India*, Moths, **3** : 219.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : Male : 34 mm, Female : 38 mm.

Distribution : India: Madhya Pradesh (Jabalpur, Indore), Punjab (Campbellpur).

Elsewhere : Pakistan (Karachi).

119. *Hyposidra successaria* Walker

1860. *Hyposidra successaria* Walker, *Cat. Lip. Het. B. M.*, **xx** : 60.

1888. *Lagyra Successaria*, Cotes & Swinhoe, *Cat. Moths of India*, : 476.

1895. *Hyposidra successaria*, Hampson, *Fauna Brit. India*, Moths, **3** : 214.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : Male : 42 mm, Female : 60 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Sri Lanka, Myanmar and Java.

120. *Hyposidra talaca* (Walker)

1860. *Lagyra talaca* Walker, *Cat. Lep. Het. Brit. Mus.*, **20** : 59.

1895. *Hyposidra talaca*, Hampson, *Fauna Briti. India*, Moths, **3** : 213.

Material examined : Hoshangabad, Mahadev, Pachmarhi 5.6.1999(1ex.), Coll. K. Chandra. Chhindwada Dist. PTR, Chhediaghat, 24.11. 2001(1ex.), Coll. K. Chandra.

Wing expanse : Male : 44 mm, Female : 54-60 mm.

Distribution : India : Throughout India including Madhya Pradesh (Hoshangabad) and Andamans.

Elsewhere : Borneo, Celebes, Java, Myanmar, Philippines and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

121. *Macaria arenaria* Swinhoe

1884. *Macaria arenaria* Swinhoe, *P. Z. S.*, : 527.

1895. *Macaria arenaria*, Hampson, *Fauna Brit. India*, Moths, **3** : 202.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : 32 mm.

Distribution : India : Madhya Pradesh (Indore).

Elsewhere : Pakistan (Karachi).

122. *Macaria fasciata* Fabricius

1775. *Macaria fasciata* Fabricius, *Syst. Ent.*, : 629.

1895. *Macaria fasciata*, Hampson, *Fauna Briti. India*, Moths, **3** : 202-203.

Material examined : Hoshangabad, Dhoopgarh, Pachmarchi, 31.8.2000 (1ex.), Coll. Y. N. Gupta. Seoni Dist. PTR, Karmajhiri, 28.6.2001, (1ex.), Coll. K. Chandra.

Wing expanse : 42 mm.

Distribution : India : Throughout India including Madhya Pradesh (Hoshangabad, Seoni), and Andamans.

Elsewhere : Myanmar, Sri Lanka.

Remarks : A new record for Madhya Pradesh.

123. *Macaria frugaliata* Guen'ee

1857. *Macaria frugaliata* Guen'ee, *Phal.*, **ii** : 78.

1888. *Macaria peremptaria*, Cotes & Swinhoe, *Cat. Moths of India*, : 538.

1895. *Macaria frugaliata*, Hampson, *Fauna Brit. India*, Moths, **3** : 202.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 28 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Dharmsala), Maharashtra (Pune, Mumbai) and Tamil Nadu (Chennai).

Eleswhere : Pakistan (Karachi) and Sri Lanka.

124. *Macaria sufflata* Guen'ee

1857. *Macaria sufflata* Guen'ee, *Phal.*, **ii** : 88.

1888. *Gonodela hebesata*, Cotes & Swinhoe, *Cat. Moths of India*, : 540.

1895. *Macaria sufflata*, Hampson, *Fauna Brit. India*, Moths, **3** : 204.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 30-34 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Sri Lanka, Myanmar and China.

125. *Nemoria directa* Walker

1861. *Nemoria directa* Walker, *Cat.*, **xxii** : 535.

1885. *Geometra aperta*, Swinhoe *P. Z. S.*, : 855.

1895. *Nemoria directa*, Hampson, *Fauna Brit. India*, Moths, **3** : 503.

Material examined : Recorded from literature (Hampson, 1895).

Wing expanse : 18 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune) and Tamil Nadu (Nilgiris).

Elsewhere : Pakistan (Karachi) and Sri Lanka.

126. *Nemoria solidaria* Guen'ee

1857. *Nemoria solidaria* Guen'ee, *Phal.*, **i** : 348.

1879. *Nemoria frequens*, Butler, *P. Z. S.*, : 616.

1895. *Nemoria solidaria*, Hampson, *Fauna Briti. India*, Moths, **3** : 502-503.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore), and Andamans.

Elsewhere : Abyssinia, Pakistan (Karachi), and Sri Lanka.

127. ***Plutodes transmutata*** Walker

1861. *Plutodes transmutata* Walker, *Cat.*, **xxiii** : 976.

1895. *Plutodes transmutata*, Hampson, *Fauna Briti. India*, Moths, **3** : 162.

Material examined : Seoni, PTR, Karmajhiri, 18.7.2001(1ex.), 19.7.2001(1ex.), Coll. R.K. Singh.

Wing expanse : 28 mm.

Distribution : India : Madhya Pradesh (Seoni), Maharashtra, and North India.

Elsewhere : Sri Lanka.

Remarks : A new record for Madhya Pradesh.

128. ***Prionia squalidaria*** Hubner

1889. *Prionia squalidaria*, Çotes & Swinhoe, *Cat. Moths of India*, : 772.

1895. *Prionia squalidaria*, Hampson, *Fauna Brit. India*, Moths, **3** : 175.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889).

Wing expanse : ♂ 26-34 mm, ♀ 30 mm.

Distribution : India : Throughout India including Chhattisgarh (Raipur).

Eleswhere : Java, Myanmar (Rangoon) and Sri Lanka.

129. ***Pseudoterpna dispensata*** Walker

1860. *Pseudoterpna dispensata* Walker, *Cat.*, **xxi** : 435.

1895. *Pseudoterpna dispensata*, Hampson, *Fauna Brit. India*, Moths, **3** : 473.

Material examined : Recorded from literature. (Hampson, 1895)

Wing expanse : 40 mm.

Distribution : India : Madhya Pradesh (Jabalpur, Indore).

Elsewhere : Java and Philippines.

130. ***Scopula fibulata*** (Guen'ee)

1857. *Acidalia fibulata* Guen'ee, *Hist. Nat. Ins. Lep.*, **1** : 490.

1895. *Craspedia fobulata*, *Fauna Briti. India*, Moths, **3** : 432.

1997. *Scopula fibulata*, Mandal & Ghosh, *Fauna of West Bengal, Zool. Surv. India*, **7** : 508.

Material examined : Recorded from literature. (Mandal & Ghosh, 1997)

Wing expanse : 26-28 mm.

Distribution : India : Madhya Pradesh, Maharashtra, Meghalaya, Punjab, Tamil Nadu and West Bengal (Darjiling).

Elsewhere : Myanmar, Hainan, Pakistan, Sri Lanka and Tonkin.

131. ***Scopula walkeri*** (Butler)

1882. *Idaea walkeri* Butler, *P. Z. S.*, : 170.

1888. *Idaea walkeri*, Cotes & Swinhoe, *Cat. Moths of India*, : 579.

1895. *Craspedia walkeri*, Hampson, *Fauna Brit. India*, Moths, **3** : 427.

1997. *Scopula walkeri*, Mandal & Ghosh, *Fauna of West Bengal, Zool. Surv. India*, **7** : 507.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888, Mandal & Ghosh, 1997)

Wing expanse : 34 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman Islanda, Bihar, Maharashtra, Meghalaya, Narth-West Himalaya, Sikkim, Tamil Nadu and West Bengal (Darjiling).

Elsewhere : Myanmar and Sri Lanka.

132. ***Somatina anthophilata*** Guen'ee

1857. *Somatina anthophilata* Guen'ee, *Phal.*, **ii** : 11.

1889. *Somatina anthophilata*, Cotes & Swinhoe, *Cat. Moths of India*, : 776.

1895. *Somatina anthophilata*, Hampson, *Fauna Brit. India*, Moths, **3** : 464.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Wing expanse : ♂ 34 mm, ♀ 36 mm.

Distribution : India : Through out India including Chhattisgarh (Raipur).

Eleswhere : Sri Lanka and Myanmar (Rangoon).

133. ***Sterrha paulula*** Swinhoe

1886. *Sterrha paulula* Swinhoe, *P. Z. S.*, : 456.

1895. *Sterrha paulula*, Hampson, *Fauna Brit. India*, Moths, **3** : 424.

Material examined : Recorded from literature (Hampson, 1895)

Wing expanse : Male : 18 mm, Female : 22 mm.

Distribution : India : Madhya Pradesh (Indore) and Punjab (Campbellpur).

134. ***Sterrha sacraria*** Linnaeus

1766. *Sterrha sacraria* Linnaeus, *Syst. Nat.*, i, **2** : 863.

1888. *Sterrha sacraria* Cotes & Swinhoe, *Cat. Moths of India*, : 544.

1894. *Sterrha sacraria*, Hampson, *Fauna Brit. India*, Moths, **3** : 424.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 24-30 mm.

Distribution : India : Madhya Pradesh (Indore), Alibagh, Himachal Pradesh (Kulu), Jacobabad, Maharashtra (Mahableshwar) and N. W. Himalayas.

Eleswhere : Africa, Europe and Pakistan (Karachi).

135. ***Tephrina disputaria*** Guen'ee

1857. *Tephrina disputaria* Guen'ee. *Phal.*, **ii** : 480.

1888. *Tephrina pulinda*, Cotes & Swinhoe, *Cat. Moths of India*, : 588.

1895. *Tephrina disputaria*, Hampson, *Fauna Brit. India*, Moths, **3** : 209.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : Male : 28 mm, Female : 30 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Aden, Egpt, Myanmar and Persia.

136. ***Timandra mundissima*** Walker

1861. *Timandra mundissima* Walker, *Cat.*, **xxiii** : 759.

1888. *Thalera diatomata*, Cotes & Swinhoe, *Cat. Moths of India*, : 519.

1895. *Timandra mundissima*, Hampson, *Fauna Brit. India*, Moths, **III** : 460.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 26 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Sri Lanka and Myanmar.

XV. Family CYMATOPHORIDAE

137. ***Risoba obstructa*** Moore

1881. *Risoba obstructa* Moore, *P. Z. S. Lands*, : 328.

1888. *Risoba obstructa*, Cotes & Swinhoe, *Cat. Moths of India*, : 259.

1892. *Risoba obstructa*, Hampson, *Fauna Brit. India*, Moths, **1** : 186.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Distribution : India : Madhya Pradesh (Indore) and West Bengal (Kolkata).

Elsewhere : Sri Lanka.

XVI. Family URANIIDAE

138. ***Micronia aculeata*** Guen'ee

1857. *Micronia aculeata* Guen'ee, *Hist. Nat. Des. Ins.*, : 26.

1895. *Micronia aculeata*, Hampson, *Fauna Briti. India*, Moths, : 117.

Material examined : Hoshangabad, Beefall, Pachmarhi, 5.9.2000(1ex.), Coll. Y.N. Gupta. Hoshangabad, Singanama, 8.9.2000(1ex.) Coll. Y.N. Gupta. Seoni dist. PTR, Karmajhiri, 10.7.2001 (1ex.), Coll. R.K. Singh. Umaria, BNP, Tala, 3.10.2002, (1ex.), Coll. R.K. Singh.

Wing expanse : ♂ ♀ 42-55 mm.

Distribution : India : Throughout India

including Madhya Pradesh (Hoshangabad, Seoni, Umaria) and Andamans.

Elsewhere : China, Formosa, Myanmar, Java, Sri Lanka, and Borneo.

Remarks : A new record for Madhya Pradesh.

H. Superfamily SPHINGOIDEA

XVII. Family SPHINGIDAE

139. ***Acherontia lachesis*** (Fabricius)

1798. *Sphinx lachesis* Fabricius, *Syst. Ent. Suppl.*, : 434.

1937. *Acherontia lachesis*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 55.

Material examined : Seoni dist. PTR, Karmajhiri, 20.6.2001(1ex.), Coll. K. Chandra. 9.7.2001(1ex.), Coll. R. K. Singh.

Wing expanse : ♂ ♀ 102-132 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore, Seoni).

Elsewhere : China, Eastwards to Southern Moulaccas, Myanmar and Sri Lanka.

Remarks : First time record for Seoni.

140. ***Acherontia styx styx*** (Westwood)

1848. *Sphenx (Acherontia) styx* Westwood, *Cab. Or. Ent.*, : 88.

1937. *Acherontia styx styx*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 58.

Material examined : Jabalpur, Garha, 20.3.1969(1ex.), Coll. M. L. Koshta. Jabalpur, ZSI, CRS, Campus, 4.9.2000(1ex.), Coll. B. D. Singh. Seoni, PTR, Karmajhiri, 10.6.2001(1ex.) Coll. K. Chandra.

Wing expanse : ♂ ♀ 90-130 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore, Jabalpur, Seoni).

Elsewhere : Myanmar and Sri Lanka.

Remarks : First time record for Jabalpur and Seoni.

141. ***Agnosia orneus*** (Westwood)

1848. *Ambulyx ornea* Westwood, *Cab. Or. Ent.*, : 13.

1892. *Ambulyx ornea*, Hampson, *Fauna Brit. India*, Moths, **1** : 80.

1937. *Agnosia orneus*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 210.

Material examined : Recorded from literature (Hampson, 1892, Bell & Scott, 1937).

Wing expanse : Male : 54 mm., Female : 80 mm.

Distribution : India : Central India and Uttar Pradesh (Almoraha).

142. ***Celerio lineata livrnica*** (Esper)

1779. *Sphinx livornica* Esper, *Ausl. Schmett.*, **2** : 88.

1886. *Deilephila livornica*, Cotes & Swinhoe, *Cat. Moths of India*, : 20.

1937. *Celerio lineata livrnica*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 408.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1886, Bell & Scott, 1937)

Wing expanse : Male : 84 mm, Female : 60-90 mm.

Distribution : India : Madhya Pradesh (Indore), Haryana (Ambala), Himachal Pradesh (Simla) and Maharashtra (Mumbai).

Eleswhere : Pakistan (Karachi).

143. ***Cephonodes hylas hylas*** Hubner

1816. *Cephonodes hylas* Hubner, *Verz. Bek. Schmett.*, : 131.

1886. *Hemaris hylas*, Cotes & Swinhoe, *Cat. Moths of India*, : 2.

1937. *Cephonodes hylas hylas*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 247.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1886, Bell & Scott, 1937)

Wing expanse : 60-73 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Kulu), Karnataka (Bangalore, Belgaum), Sikkim, Maharashtra (Mumbai, Pune, Satara) and West Bengal (Kolkata & Darjiling).

Eleswhere : Africa, Australia, Japan, China, Pakistan (Karachi) and Sri Lanka.

144. *Cephonodes picus* (Cramer)

1777. *Sphinx picus* Cramer, *Pap. Exot.*, **3** : 38.

1937. *Cephonodes picus*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 250.

Material examined : Recorded from literature. (Bell & Scott, 1937)

Wing expanse : Male : 50-66 mm, Female : 70 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune), Tamil Nadu (Niligiris) and Uttar Pradesh (Musooree).

Elsewhere : Myanmar, Pakistan, Sri Lanka, Bangladesh to China to Australia and Marshall Islands.

145. *Clanis phalaris* (Cramer)

1777. *Sphinx phalaris* Cramer, *Pap. Exot.*, **2** : 83.

1937. *Clanis phalaris*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 142.

Material examined : Recorded from literature. (Bell & Scott, 1937)

Wing expanse : Male : 102-130 mm, Female : 102-160 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman Islands, Andhra Pradesh, Sikkim, Southern Peninsula and West Bengal.

Elsewhere : Sri Lanka.

146. *Deilephila nerii* (Linnaeus)

1758. *Shinx nerii* Linnaeus, *Syst. Nat. Ed.*, **10** : 490.

1937. *Deilephila nerii*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 268.

Material examined : Hoshangabad Rest House, Pachmarhi, 8.9.2000 (1ex.), Coll. Y. N. Gupta.

Wing expanse : Male : 84-116 mm, Female : 84-126 mm.

Distribution : India : Madhya Pradesh (Indore, Hoshangabad), throughout the rest of mainland and West Bengal (Kolkata).

Elsewhere : Europe, Myanmar, Pakistan, Sri Lanka, the West Asia and Ethiopian Region.

Remarks : First time record for Hoshangabad.

147. *Gurelca hyas hyas* (Walker)

1865. *Lophura hyas* Walker, *Cat. Lep. Het. Brit. Mus.*, **8** : 107.

1937. *Gurelca hyas hyas*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 331.

Material examined : Recorded from literature. (Bell & Scott, 1937)

Wing expanse : 38-40 mm.

Distribution : India : Madhya Pradesh (Indore), Throughout the rest of mainland and West Bengal (Darjiling).

Elsewhere : Bangladesh, Bhutan, China, Malaya, Myanmar and Philippines.

148. *Hippotion boerhaviae* (Fabricius)

1775. *Sphinx boerhaviae* Fabricius, *Syst. Ent. P.*, : 542.

1937. *Hippotion boerhaviae*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 424.

1997. *Hippotion boerhaviae*, Mandal & Maulik, *Fauna of West Bengal, Zool. Surv. India*, **7** : 637.

Material examined : Seoni dist. PTR, Karmajhiri, 21.7.2001 (1ex.), Umaria dist. BNP, Tala, 3.10.2002 (2exs.), Coll. R. K. Singh.

Wing expanse : ♂ ♀ 50-58 mm.

Distribution : India : Madhya Pradesh (Indore, Seoni and Umaria), Andhra Pradesh, Gujrat, Maharashtra, Orissa, Sikkim, Southern Pennisula, West Himalaya and West Begal.

Elsewhere : Bhutan, Malaya, Pakistan, Philippines, South China, and Sri Lanka.

Remarks : First time record for Seoni and Umaria.

149. *Hippotion celerio* Linnaeus

1758. *Hippotion celerio* Linnaeus, *Syst. Nat. Ed.*, **10** : 491.

1937. *Hippotion celerio*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 417.

Material examined : Recorded from literature. (Bell & Scott, 1937).

Wing expanse : 60-80 mm.

Distribution : India : Madhya Pradesh (Indore), Gujrat (Cutch), Maharashtra (Mumbai, Pune), Sikkim, Southern India, West Begal and West and East Himalaya.

Elsewhere : Pakistan (Karachi) and Bhutan.

150. ***Herse convolvuli convolvuli*** (Linnaeus)

1758. *Sphinx convolvuli* Linnaeus, *Syst. Nat. Ed.*, **10** : 490.

1937. *Herse convolvuli convolvuli*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 61.

Material examined : Jabalpur, ZSI, CRS, Campus, 3.9.1998 (1ex.), Coll. K. Chandra.

Wing expanse : 90-120 mm.

Distribution : India : Madhya Pradesh (Jabalpur) throughout the rest of mainland and West Bengal (Kolkata, Darjiling and Medinipur).

Elsewhere : Eastern hemisphere except the higher latitudes, rate in Siberia and Europe.

Remarks : A new record for Madhya Pradesh.

151. ***Leucophlebia emittens*** Walker

1866. *Leucophlebia emittens* Walker, *List. Lep. Ins.*, **35** : 1858.

1937. *Leucophlebia emittens*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 159.

Material examined : Recorded from literature. (Bell & Scott, 1937)

Wing expanse : Male : 50-56 mm, Female : 60 mm.

Distribution : India : Madhya Pradesh (Indore), Karnaraka (Belgaum, N. Kanara) Maharashtra, Sikkim and Uttar Pradesh (Almora).

Elsewhere : Myanmar and Sri Lanka.

152. ***Macroglossum belis*** (Linnaeus)

1758. *Sphinx belis* Linneaus, *Syst. Nat. Ed.*, **10** : 493.

1937. *Macroglossum belis*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 365.

1997. *Macroglossum belis*, Mandal & Maulik, *Fauna of West Bengal, Zool. Surv. India*, **7** : 634.

Material examined : Recorded from literature. (Mandal & Maulik, 1997)

Wing expanse : 46-60 mm.

Distribution : India : Madhya Pradesh, Assam, Gujrat, Sikkim, Southern Pennisula, West Himalaya, Maharashtra, Uttar Pradesh and West Begal.

Elsewhere : Pakistan, Sri Lanka, Bhutan, Bangladesh, and China.

153. ***Macroglossum gyrans*** (Walker)

1856. *Macroglossum gyrans* Walker, *Cat.*, **8** : 91.

1937. *Macroglossum gyrans*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 356.

Material examined : Recorded from literature. (Bell & Scott, 1937)

Wing expanse : Male : 38-52 mm, Female : 54 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune, Mumbai), Tamil Nadu (Chennai).

Elsewhere : Myanmar, Pakistan (Karachi) and Sri Lanka.

154. ***Marumba dyras dyras*** (Walker)

1869. *Smerinthus dyras* Walker, *Cat. Lep. Het. Brit. Mus.*, **8** : 250.

1937. *Marumba dyras dyras*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 179.

Material examined : Hoshangabad, Mahadev, Pachmarhi, 6.6.1999(1ex.). Seoni dist. PTR, Karmajhiri, 8.6.2001(1ex.), Coll. K. Chandra.

Wing expanse : Male : 90-92 mm, Female : 90-119 mm.

Distribution : India : Madhya Pradesh (Hoshangabad, Seoni), Andaman Islands, Western and Eastern Himalayas and South India.

Elsewhere : Sri Lanka.

Remarks : A new record for Madhya Pradesh.

155. ***Nephele didyma*** (Fabricius)

1777. *Sphinx didyma* Fabricius, *Syst. Ent.*, : 543.

1937. *Nephele didyma*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 325.

Material examined : Seoni dist. PTR, Karmajhiri, 21.6.2001(1ex.), Coll. K. Chandra. 18.7.2001 (1ex.), 12.7.2001(1ex.), 14.7.2001(1ex.), 22.7.2001(1ex.), Coll. R. K. Singh. Shivpuri dist MNP, Rest House, 6.12.2001 (2ex.), Coll. D. K. Nema. Umaria, BNP, Tala, 19.9.2002, (1ex.), Coll. M. L. Koshta.

Wing expanse : Male : 70-78 mm, Female : 72-86 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore, Seoni, Shivpuri, Umaria), Andaman Islands, Western and Eastern Himalayas, South India.

Elsewhere : Sri Lanka, Myanmar, extending to Malaya.

Remarks : First time record for Seoni and Shivpuri.

156. ***Polyptychus dentatus*** (Cramer)

1777. *Sphinx dentatus* Cramer, *Pap. Exot.*, **2** : 42.

1937. *Polyptychus dentatus*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 169.

Material examined : Seoni dist. PTR, Karmajhiri, 21.6.2001 (1ex.), Coll. K. Chandra.

Wing expanse : Male : 92-108 mm, Female : 116-120 mm.

Distribution : India : Madhya Pradesh (Indore, Seoni), South India and Uttar Pradesh (Allahabad).

Elsewhere : China, Pakistan and Sri Lanka.

Remarks : First time record for Seoni.

157. ***Psilogramma menephron menephron*** (Cramer)

1780. *Sphinx menephron* Cramer, *Pap. Exot.*, **3** : 164.

1937. *Psilogramma menephron menephron*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 77.

Material examined : Seoni dist. PTR, Karmajhiri, 9.6.2001 (4 exs.), Coll. K. Chandra. 6.7.2001 (2exs.), 7.7.2001 (2exs.), 9.7.2001 (1ex.), Coll. R.K. Singh. Umaria, BNP, Tala, 19.9.2002, (1ex.), Coll. R.K. Singh.

Wing expanse : Male : 82-122 mm, Female : 108-138 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Sidhi, Umaria).

Elsewhere : China and eastwards to the Solomon Islands.

Remarks : A new record for Madhya Pradesh.

158. ***Theretra alecto alecto*** (Linnaeus)

1758. *Sphinx alecto* Linnaeus, *Syst. Nat. Ed.*, 10 : 492.

1937. *Theretra alecto alecto*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 440.

Material examined : Jabalpur, Pachpedi, 23.7.1963(1ex.), Coll. J. S. Bhatti. Hoshangabad, P. W. D. Rest House, Pachmarhi, 8.9.2000(1ex.), Coll. Y. N. Gupta. Jabalpur dist. Hulki, Nagpur Road, 16.8.2002(1ex.), Coll. K. Chandra. Umaria, BNP, Tala, 29.9.2002, (1ex.), Coll. R.K. Singh.

Wing expanse : Male : 84-92 mm., Female : 75-106 mm.

Distribution : India : Madhya Pradesh (Indore, Jabalpur, Hoshangabad, Umaria), South India, Western and Eastern Himalayas.

Elsewhere : Myanmar, Northward to Formosa, and Eastward to the key Islands.

Remarks : First time record for Jabalpur and Hoshangabad.

159. ***Theretra nessus*** (Drury)

1773. *Sphinx nessus* Drury, *Illustr. Exot. Ins.*, **2** : 46

1937. *Theretra nessus*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 430-433.

Material examined : Jabalpur, New Adarsh colony, Z. S. I. C. R. S. Campus, 2.10.2002 (1ex.), Coll. K. Chandra.

Wing expanse : Male : 90-120 mm., Female : 94-130 mm.

Distribution : India : Madhya Pradesh (Jabalpur), South India and Western and Eastern Himalayas.

Elsewhere : Australia, Japan, Malaya, Myanmar, Papuasia and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

160. ***Theretra oldenlandiae oldenlandiae*** (Fabricius)

1775. *Sphinx oldenlandiae* Fabricius, *Syst. Ent.*, : 542.

1937. *Theretra oldenlandiae oldenlandiae*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 448.

Material examined : Hoshangabad, P. W. D. Rest House, Pachmarhi, 8.9.2000(1ex.), Coll. Y. N. Gupta. Umaria, BNP, Tala, 1.10.2002 (1ex.), Coll. R.K. Singh.

Wing expanse : Male : 54-74 mm, Female : 80 mm.

Distribution : India : Madhya Pradesh (Indore, Hoshangabad, Umaria), South India, Western and Eastern Himalayas.

Elsewhere : Guinea, Myanmar to Japan and Sri Lanka.

Remarks : First time record for Hoshangabad.

161. ***Theretra silhetensis*** Walker

1856. *Theretra silhetensis* Walker : 143 (partim).

1937. *Theretra pinastrina pinastrina*, Bell & Scott, *Fauna Brit. India*, Moths, **5** : 451.

1987. *Theretra silhetensis* Holloway, *The Moths of Borneo*, : 179.

Material examined : Jabalpur, New Adarsh Colony, 2.11.2001(1ex.), Coll. M. L. Dhimar.

Wing expanse : Male : 60-70 mm., Female : 72 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Eastern Himalayas, South India and West Bengal.

Elsewhere : Sri Lanka, Myanmar to Japan and Malaya.

Remarks : A new record for Madhya Pradesh.

I. Superfamily NOCTUOIDEA

XVIII. Family NOCTUIDAE

162. ***Achaea janata*** Linnaeus

1758. *Achaea janata* Linnaeus, *Syst. Nat.*, **10** : 527.

1985. *Achaea janata*, Kobes, *Heterocera Sumatrana*, Band, **4** : 39.

Material examined : Jabalpur, Pachpedi 7.9.1964(1ex.), Coll. H. Khajuria. Mohania, Sidhi, 21.7.1999(3ex.), Coll. K. Chandra Seoni Dist. PTR, Karmajhiri 14.7.2001(1ex.), 18.7.2001(1ex.), Coll. R. K.Singh. Jabalpur dist. Hulki, Nagpur Road, 16.8.2002 (1ex.), Coll. K. Chandra.

Wing expanse : ♂ ♀ 42-46 mm.

Distribution : India : Madhya Pradesh (Jabalpur, Seoni, Sidhi).

Elsewhere : Africa, China, Europe, Japan, Mauritis, Myanmar, and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

163. ***Acantholiopes circumdatus*** Walker

1858. *Acantholipes circumdatus* Walker, *Cat.*, **xv** : 1763.

1888. *Acantholipes affinis*, Cotes & Swinhoe, *Cat. Moths of India*, : 413.

1895. *Acantholipes circumdatus*, Hampson, *Fauna Brit. India*, Moths, **2** : 520.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 24-28 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune) and Assirgarh.

Eleswhere : Pakistan (Karachi).

164. ***Acantholipes miser*** Butler

1883. *Acantholipes miser* Butler, *P. Z. S.*, : 166.

1894. *Acantholipes miser*, Hampson, *Fauna Brit. India*, Moths, **2** : 522.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore) and Himachal Pradesh (Simla).

165. *Acontia transversa* Guen'ee

1852. *Acontia transversa* Guen'ee, *Noct.*, **2** : 211.

1894. *Acontia transversa*, Hampson, *Fauna Brit. India*, Moths, **2** : 323.

Material examined : Seoni Dist. PTR, Karmajhiri, 14.7.2001 (1ex.), 18.7.2001 (1ex.), Coll. K. Chandra.

Wing expanse : 40-44 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : China, Java, Myanmar, and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

166. *Adisura atkinsoni* Moore

1879. *Adisura atkinsoni* Moore, *P. Z. S.*, : 36

1888. *Adisura leucanioides*, Cotes & Swinhoe, *Cat. Moths of India*, : 274.

1991. *Adisura atkinsoni*, Singh *et al.*, *Indinan J. Agri. Scien.*, **61**(1) : 65-69.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888. Singh, *et al.*, 1991)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai), and Tamil Nadu.

Elsewhere : Pakistan (Karachi) and Sri Lanka.

167. *Agrotis biconica* Kollar

1848. *Agrotos biconica* Kollar, *Hiigel's Kaschmir*, **iv** : 480.

1888. *Agrotis aristifera*, Cotes & Swinhoe, *Cat. Moths of India*, : 306.

1894. *Agrotis biconica*, Hampson, *Fauna Brit. India*, Moths, **2** : 182.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 38 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Solun, Kulu), Maharashtra (Pune) and Tamil Nadu (Nilgiri hills).

Eleswhere : Australia, New Zealand and Sri Lanka.

168. *Agrotis segetis* (Schiffermuller)

1776. *Noctua segetum* Schiffermuller, *Wien. Verz.*, : 252.

1888. *Agrotis lassa*, Cotes & Swinhoe, *Cat. Moths of India*, : 308.

1894. *Agrotis segetis*, Hampson, *Fauna Brit. India*, Moths, **2** : 181.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 42-48 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Europe and Sri Lanka.

169. *Amyna octo* Guen'ee

1852. *Amyna octo* Guen'ee, *Noct.*, **i** : 233.

1888. *Ilattia cephusalis*, Cotes & Swinhoe, *Cat. Moths of India*, : 321.

1894. *Amyna octo*, Hampson, *Fauna Brit. India*, Moths, **2** : 251.

1987. *Amyna octo*, Singh, *Indian J. Plant Prote.*, **15** (1) : 95-96.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888. Singh, 1987)

Wing expanse : 20-30 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Africa, Arabia, China, Japan, Myanmar, Sri Lanka and S. America.

170. *Anua tirhaca* (Cramer)

1780. *Noctua tirhaca* Cramer, *Pap. Exot.*, **2** : 116.

1894. *Ophiusa tirrhaca*, Hampson, *Fauna Brit. India*, Moths, **2** : 503.

1991. *Anua tirhaca*, Mandal and Maulik, *Fauna of Orissa*, *Zool. Surv. India*, Part-**3** : 218.

Material examined : Sidhi dist. Mohania, 21.7.1999 (7ex.), Coll. K. Chandra. Seoni Dist. PTR, Karmajhiri, 12.7.2001 (1ex.), Coll. R.K. Singh.

Wing expanse : 64-80 mm.

Distribution : India : Madhya Pradesh (Seoni, Sidhi), Assam, Himachal Praedsh, Maharashtra, Meghalaya, Orissa, Punjab, Sikkim, Tamil Nadu, Uttar Pradesh and West Begal.

Elsewhere : Phillippines and Sri Lanka.

Remarks : First time record for Seoni and Sidhi.

171. ***Argyrothripa occulta*** Swinhoe

1885. *Argyrothripa occulta*, Swinhoe, *P. Z. S.*, : 461.

1888. *Selepa occulta*, Cotes & Swinhoe., *Cat. Moths of India*, : 368.

1894. *Argyrothripa occulta*, Hampson, *Fauna Brit. India*, Moths, **2** : 381.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 30 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Pune).

172. ***Athetis cognata*** (Moore)

1882. *Graphiphora cognata* Moore, *Lep. Atk.*, : 119.

1991. *Athetis cognata*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-3 : 213.

Material examined : Recorded from literature. (Mandal and Maulik, 1991)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu and West Begal.

173. ***Brevipecten captatus*** Butler

1889. *Brevipecten captatus* Butler, *Ill. Het.*, **7** : 79

1894. *Brevipecten captatus*, Hampson, *Fauna Brit. India*, Moths, **2** : 361.

Material examined : Hoshangabad, Mahadeo, Pachmarhi, 5.6.1999(1ex.), Coll. K. Chandar.

Wing expanse : 32 mm.

Distribution : India : Madhya Pradesh (Hoshangabad), Tamil Nadu (Nilgiris) and Uttar Pradesh (North-West Himalayas).

Remarks : A new record for Madhya Pradesh.

174. ***Callopistria maillardi*** Moore

1879-88. *Callopistria recurvata* Moore, *Lep. Atk.*, : 144.

1894. *Callopistria recurvata*, Hampson, *Fauna Brit. India*, Moths, **2** : 257.

1988-89. *Callopistria maillardi*, Holloway, *The Moths of Borneo, The Malayan Nature Journal*, **42**(2&3) : 166.

Material examined : Seoni Dist. PTR, Karmajhiri, 19.7.2001(1ex.), Coll. K. Chandra.

Wing expanse : 40 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Java, Myanmar, New Hebrides and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

175. ***Caradrina exigua*** (Hubner)

1822. *Noctua exigua* Hubner, *Samml. Eur. Schmett. Noct.*, : 362.

1852. *Spodoptera cilium*, Guen. *Noct.*, **1** : 156.

1887. *Spodoptera cilium*, Cotes & Swinhoe, *Cat. Moths of India*, : 325.

1894. *Caradrina exigua*, Hampson, *Fauna Brit. India*, Moths, **2** : 263.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 26-32 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman Islands, Haryana (Amballa), Himachal Pradesh (Solun) and Maharashtra (Pune).

Elsewhere : Java and Pakistan (Karachi).

176. ***Caradrina furtive*** (Swinhoe)

1885. *Axylia furtive* Swinhoe, *P. Z. S.*, : 448.

1888. *Axylia furtive*, Cotes & Swinhoe, *Cat. Moths of India* : 268.

1894. *Caradrina furtive*, Hampson, *Fauna Brit. India*, Moths, **2** : 263.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 24 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Pune).

177. *Caradrina variana* Swinhoe

1886. *Caradrina variana* Swinhoe, *P. Z. S.*, : 444.

1894. *Caradrina variana*, Hampson, *Fauna Brit. India*, Moths, **2** : 266.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : 26 mm.

Distribution : India : Madhya Pradesh (Indore).

178. *Catada suffuscalis* Swinhoe

1886. *Catada suffuscalis* Swinhoe *P. Z. S.*, : 460.

1895. *Catada suffuscalis*, Hampson, *Fauna Brit. India*, Moths, **3** : 62.

Material examined : Recorded from literature. (Hampson, 1895)

Wing expanse : 14 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Mumbai, Pune).

179. *Catephia acronyctoides* (Guen'ee)

1852. *Anophia acronyctoices* Guen'ee, *Noct.*, **3** : 47.

1888. *Anophia olivescens*, Cotes & Swinhoe, *Cat. Moths of India*, : 359.

1894. *Catephia acronyctoides*, Hampson, *Fauna Brit. India*, Moths, **2** : 482.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 40 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman Islands, Jharkhand (Ranchi), Haryana (Ambala) and Maharashtra (Pune, Mumbai).

Eleswhere : Sri Lanka.

180. *Cetola dentata* Walker

1855. *Cetola dentata* Walker, *Cat.*, **v** : 1016.

1894. *Cetola dentata*, Hampson, *Fauna Brit. India*, Moths, **2** : 434.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : Male : 35mm., Female : 46mm.

Distribution : India : Madhya Pradesh (Indore).

Eleswhere : Nepal.

181. *Chariclea aureola* (Walker)

1856. *Leuconia aureola* Walker, *Cat. Lep. Het. B. M.*, **ix** : 108.

1891. *Dorika curta*, Swinhoe, *Trans, Ent. Soc.*, : 146.

1894. *Chariclea aureola*, Hampson, *Fauna Brit. India*, Moths, **2** : 179.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : 30-36 mm.

Distribution : India : Madhya Pradesh (Indore), Karnataka (Kanara) and Maharashtra (Mumbai, Pune).

182. *Chariclea beatrix* Moore

1881. *Chariclea beatrix* Moore, *P. Z. S.*, : 365.

1894. *Chariclea beatrix*, Hampson, *Fauna Brit. India*, Moths, **2** : 178.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : 22-30 mm.

Distribution : India : Madhya Pradesh (Indore), Karnataka (Kanara), Tamil Nadu (Nilgiris) and Uttar Pradesh (North-West Himalayas).

Elsewhere : Baluchistan.

183. *Chariclea bivittata* (Walker)

1856. *Leucahia bivittata* Walker, *Cat. Lep. Het. B. M.*, **ix** : 108.

1888. *Pradatta bivittata*, Cotes & Swinhoe, *Cat. Moths of India*, : 270.

1894. *Chariclea bivittata*, Hampson, *Fauna Brit. India*, Moths, **2** : 177.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 30 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Khandala) and South India.

184. *Chariclea lanceolata* (Walker)

1857. *Alaria lanceollata* Walker, *Cat, Lep. Het. B. M.*, **xii** : 767.

1891. *Curubasa depicta*, Swinhoe *Trans. Ent. Soc.*, : 146.

1894. *Chariclea lanceolata*, Hampson, *Fauna Brit. India*, Moths, **2** : 177.

Material examined : Jabalpur, Pachpedi, 9.9.1964 (1ex.), Coll. H. Khajuria.

Wing expanse : Male : 30 mm, Female : 30-40 mm.

Distribution : India : Madhya Pradesh (Indore, Jabalpur), Himachal Praedesh (Simla), and Tamil Nadu (Nilgiris).

Remarks : First time record for Jabalpur.

185. *Chrysodeixis eriosoma* (Doubleday)

1843. *Plusia eriosoma* Doubleday, *Dieffenbach's New Zealand*, **2** : 285.

1894. *Plusia eriosoma*, Hampson, *Fauna Brit. India*, Moths, **2** : 569-570.

1976. *Chrysodeixis eriosoma* Doubleday, Holloway, : 32.

1980. *Plusia acuta*, Singh & Rawat, *Schaedlingskunde Pflanzenschutz Umweltschutz*, **53**(2) : 25.

Material examined : Jabalpur dist. Hulki, Nagpur Road, 16.8.2002(1ex.), Coll. K. Chandra. Seoni Dist. PTR, Karmajhiri, 2.7.2001(1ex.), Coll. R. K. Singh. Umaria, BNP, Tala, 3.10.2002, (1ex.), Coll. R. K. Singh.

Wing expanse : 42 mm.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Seoni, Umaria).

Elsewhere : Australasian regions, China, Japan and North and South America.

Remarks : A new record for Madhya Pradesh.

186. *Cosmophila erosa* Hubner

1818. *Cosmophila erosa* Hubner, *Zutr, Samml. Exot. Schmet.*, **2** : 19.

1991. *Cosmophila erosa*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-**3** : 221.

Material examined : Recorded from literature. (Mandal and Maulik, 1991)

Wing expanse : 38 mm.

Distribution : India : Madhya Pradesh, Himachal Pradesh, Jammu & Kashmir, Maharashtra, Orissa, Punjab and Tamil Nadu.

187. *Echana plicalis* Moore

1867. *Echana plicalis* Moore, *P. Z. S. Lond.*, : 86.

1998. *Echana plicalis*, Kulkarni & Joshi, *J. Trop. Fores. Scie.*, **10**(4) : 438-455.

Material examined : Recorded from literature. (Kulkarni & Joshi, 1998)

Distribution : India : Madhya Pradesh (Jabalpur).

188. *Entomogramma tortum* Guen'ee

1852. *Entomogramma tortum* Guen'ee, *Noct.*, **3** : 204.

1894. *Entomogramma tortum*, Hampson, *Fauna Brit. India*, Moths, **2** : 533.

Material examined : Seoni Dist. PTR, Karmajhiri, 22.7.2001, (1ex.), Coll. R. K. Singh.

Wing expanse : 54 mm.

Distribution : India : Madhya Pradesh (Seoni), Western and Southern India.

Elsewhere : Java and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

189. *Episparis varialis* Walker

1858. *Episparis varialis* Walker, *Cat. Lep. Het. B. M.*, **xvi** : 7.

1888. *Episparis varialis*, Cotes & Swinhoe, *Cat. Moths of India*, : 435.

1894. *Episparis varialis*, Hampson, *Fauna Brit. India*, Moths, **2** : 543.

Material examined : Seoni Dist. PTR, Karmajhiri, 9.7.2001 (3exs.), Umaria dist. BNP, Tala, 2.10.2002(1ex.), Coll. R. K. Singh.

Wing expanse : 60 mm.

Distribution : India : Peninsular India Including

Madhya Pradesh (Indore, Seoni and Umaria) and Andamans.

Elsewhere : Sri Lanka.

Remarks : First time record for Seoni and Umaria.

190. ***Ercheia cyllaria*** (Cramer)

1885. *Phalaena (Noctua) cyllaria* Cramer, *Pap. Exot.*, iii : 251.

1888. *Melipotis diversipennis*, Cotes & Swinhoe, *Cat. Moths of India*, : 396.

1894. *Ercheia cyllaria*, Hampson, *Fauna Brit. India*, Moths, 2 : 451.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 50-60 mm.

Distribution : India : Throughout India Including Madhya Pradesh (Indore).

Elsewhere : Sri Lanka.

191. ***Eublemma pulchra*** Swinhoe

1886. *Eublemma pulchra* Swinhoe, *P. Z. S.*, : 451.

1894. *Eublemma pulchra*, Hampson, *Fauna Brit. India*, Moths, 2 : 339.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : 23 mm.

Distribution : India : Madhya Pradesh (Indore).

192. ***Eublemma roseana*** Moore

1881. *Eublemma roseana* Moore, *P. Z. S.*, : 370.

1888. *Thalpochaers roseana*, Cotes & Swinhoe, *Cat. Moths of India*, : 295.

1894. *Eublemma roseana*, Hampson, *Fauna Brit. India*, Moths, 2 : 340.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 14 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai), Sikkim, and Himachal Pradesh (Dharmsala).

193. ***Eublemma trifasciata*** Moore

1881. *Eublemma trifasciata* Moore, *P. Z. S.*, : 370.

1894. *Eublemma trifasciata*, Hampson, *Fauna Brit. India*, Moths, 2 : 343-344.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mahableshwar) and Orissa (Ganjum).

Elsewhere : Sri Lanka.

194. ***Euclidisema mygdon*** (Cramer)

1777. *Noctua mygdon* Cramer, *Pap Exot.*, 2 : 94.

1985. *Chalciope mygdon*, Kobes, *Heterocera Sumatrana*, Band, 4 : 48.

1991. *Euclidisema mygdon*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-3 : 220.

Material examined : Seoni Dist. PTR, Karmajhiri, 9.7.2001(1ex.), Coll. K. Chandra.

Wing expanse : 36-40 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Borneo, Java, Myanmar and Sri Lanka.

Remarks : First time record for Seoni.

195. ***Euplexia conducta*** Walker

1857. *Euplexia conducta* Walker, *Cat. Lep. Het. B. M.*, x : 296.

1888. *Mamestra dolorosa*, Cotes & Swinhoe, *Cat. Moths of India*, : 319.

1894. *Euplexia conducta*, Hampson, *Fauna Brit. India*, Moths, 2 : 211.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 36-38 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Sri Lanka.

196. ***Euplexia indistans*** Guen'ee

1852. *Euplexia indistans* Guen'ee, *Noct.*, **ii** : 87.

1888. *Hadena distans*, Cotes & Swinhoe, *Cat. Moths of India*, : 300.

1894. *Euplexia indistans*, Hampson, *Fauna Brit. India*, Moths, **2** : 208.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 34 mm.

Distribution : India : Central India and Maharashtra (Mumbai).

Elsewhere : Sri Lanka.

197. ***Glottula dominica*** Cramer

1782. *Glottula dominica* Cramer, *Pap. Exot.*, **iv** : 399.

1888. *Glottula dominica*, Cotes & Swinhoe, *Cat. Moths of India*, : 279.

1894. *Glottula dominica*, Hampson, *Fauna Brit. India*, Moths, **2** : 167.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 36-38 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Myanmar, Java, South Africa and Sri Lanka,

198. ***Grammodes geometrica*** (Fabricius)

1775. *Noctua geometrica* Fabricius, *Syst. Ent.*, : 599.

1991. *Grammodes geometrica*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-**3** : 219.

Material examined : Recorded from literature. (Mandal and Maulik, 1991)

Wing expanse : 26-38 mm.

Distribution : India : Madhya Pradesh, Assam, Andman & Nicobar Islands, Karnataka, Maharashtra, Orissa (Cuttack and Puri), Punjab, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Bangladesh, Java, Southern Myanmar, Pulo Laut, Taiwan and Sri Lanka, Singapore.

199. ***Hadena scotochlora*** Kollar

1848. *Hadena scotochlora* Kollar, *Hugel's Kaschmir*, **iv** : 482.

1888. *Plataplecta stevensii*, Cotes & Swinhoe, *Cat. Moths of India*, : 277.

1894. *Hadena scotochlora*, Hampson, *Fauna Brit. India*, Moths, **2** : 203.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 55 mm.

Distribution : India : Central India, Kashmir and Punjab.

200. ***Heliothis armigera*** (Hubner)

1804. *Noctua armigera* Hubner, *Noct.*, **ii** : 180.

1896. *Heliothis armigera*, Hampson, *Fauna Brit. India*, Moths, **2** : 174-175.

1980. *Helicoverpa armigera*, Vaishampayan, *Indian J. of Entomology*, **42**(3) : 453-459.

1998. *Heliothis armigera*, Kulkarni & Joshi, *J. Trop. Fores. Scie.*, **10**(4) : 455.

Material examined : Shivpuri dist MNP, Rest House, 1.12.2001 (1ex.), 4.12.2001 (1ex.), Coll. D.K. Nema.

Wing expanse : 31-41 mm.

Distribution : India : Universally distributed including Madhya Pradesh (Jabalpur, Shivpuri).

Remarks : First time record for Shivpuri.

201. ***Heliothis peltigera*** (Schiffermuller)

1776. *Noctu peltigera* Schiffermuller, *Wien, Verz.*, **89** : 2.

1888. *Heliothis peltigera*, Cotes & Swinhoe, *Cat. Moths of India*, : 272.

1894. *Heliothis peltigera*, Hampson, *Fauna Brit. India*, Moths, **2** : 175.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 40 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune) and Panjab (Campbellpur).

Eleswhere : Africa, Europe, Beluchistan, New Zealand and Pakistan (Karachi).

202. ***Homaea clathrum*** Guen'ee

1852. *Homaea clathrum* Guen'ee, *Noct.*, **iii** : 207.

1888. *Homaea clathrum*, Cotes & Swinhoe, *Cat. Moths of India*, : 390.

1894. *Homaea clathrum*, Hampson, *Fauna Brit. India*, Moths, **2** : 551.

Material examined : Chhindwara dist. PTR, Totladoh, 4.9.2001(1ex.), Coll. Y. N. Gupta

Wing expanse : 40-44 mm.

Distribution : India : Madhya Pradesh (Indore, Chhindwara), Maharashtra (Mumbai) and N. W. India.

Eleswhere : Nepal.

Remarks : First time record for Chhindwara.

203. ***Homoptera glaucinans*** Guen'ee

1852. *Homoptera glaucinans* Guen'ee, *Noct.*, **iii** : 6.

1888. *Homoptera solita*, Cotes & Swinhoe, *Cat. Moths of India*, : 374.

1894. *Homoptera glaucinans*, Hampson, *Fauna Brit. India*, Moths, **2** : 475.

Material examined : Recorded from literature (Cotes & Swinhoe, 1888).

Wing expanse : 36-42 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Eleswhere : Java, Myanmar, Sri Lanka and S. Africa.

204. ***Homoptera umbrina*** Guen'ee

1852. *Homoptera umbrina* Guen'ee, *Noct.*, **iii** : 4.

1888. *Alamis continua*, Cotes & Swinhoe, *Cat. Moths of India*, : 372.

1894. *Homoptera umbrina*, Hampson, *Fauna Brit. India*, Moths, **2** : 474.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : Male : 30-38 mm, Female : 38-48 mm

Distribution : India : Throughout India including Madhya Pradesh (Indore).

205. ***Hyblaea puera*** Cramer

1779-83. *Hyblaea puera* Cramer, *Pap. Exot.*, : 103.

1894. *Hyblaea puera*, Hampson, *Fauna Brit. India*, Moths, **2** : 371.

Material examined : Seoni Dist. PTR, Karmajhiri 12.6.2001 (1ex.), Coll. K. Chandra. Seoni dist. PTR, Kala Pahar, 11.7.2001 (1ex.), Coll. R.K. Singh. Jabalpur dist. Hulki, Nagpur Road, 16.8.2002, (6 exs.), Coll. K. Chandra.

Wing expanse : 32-40 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Jabalpur).

Elsewhere : Australia, Borneo, China, Malacca, Myanmar and Sri Lanka.

Remarks : First time record for Jabalpur and Seoni.

206. ***Hyela quadripartita*** Walker

1865. *Hyela quadripartita* Walker, *Cat. Lep. Het. B. M.*, **xxxiii** : 786.

1888. *Acontia quadripartita*, Cotes & Swinhoe, *Cat. Moths of India*, : 288.

1894. *Hyela quadripartita*, Hampson, *Fauna Brit. India*, Moths, **2** : 308.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 18 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Mumbai, Pune).

207. ***Hyelopsis frausa*** Swinhoe

1886. *Hyelopsis frausa* Swinhoe, *P. Z. S.*, : 446.

1888. *Phothedes frausa*, Cotes & Swinhoe, *Cat. Moths of India*, : 292.

1894. *Hyelopsis frausa*, Hampson, *Fauna Brit. India*, Moths, **2** : 306.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 18 mm.

Distribution : India : Madhya Pradesh (Indore).

208. ***Hyelopsis herbaria*** Swinhoe

1886. *Hyelopsis herbaria* Swinhoe, *P. Z. S.*, : 446.

1894. *Hyelopsis herbaria*, Hampson, *Fauna Brit. India*, Moths, **2** : 306.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : 18 mm.

Distribution : India : Madhya Pradesh (Indore).

209. ***Hypaetra? remigioides*** Guen'ee

1852. *Hypaetra? remigioides* Guen'ee, *Noct.*, **iii** : 230.

1894. *Hypaetra? remigioides*, Hampson, *Fauna Brit. India*, Moths, **2** : 508.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : 55 mm.

Distribution : India : Central India.

210. ***Hyphilare loreyi*** (Duponche)

1827. *Noctua loreyi* Duponche, *Hist. Nat. Lep. Fr.*, **7** : 81.

1991. *Hyphilare loreyi*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-**3** : 210-211.

Material examined : Recorded from literature. (Mandal and Maulik, 1991)

Wing expanse : 34-42 mm.

Distribution : India : Madhya Pradesh, Karnataka, Orissa, Punjab, Uttar Pradesh and Tamil Nadu.

Elsewhere : Australia, Myanmar, Philippines and Taiwan.

211. ***Ischyja manlia*** Cramer

1779. *Ischyja manlia* Cramer, *Pap. Exot.*, : 92.

1894. *Ischyja manlia*, Hampson, *Fauna Brit. India*, Moths, **2** : 537.

Material examined : Seoni dist. PTR, Karmajhiri 20.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : Male : 80-100 mm., Female : 96-112 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Java, Myanmar and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

212. ***Labanda semipars*** Walker

1858. *Labanda semipars* Walker, *Cat. Lep. Het. B. M.*, **xv** : 1647.

1888. *Labanda semipars*, Cotes & Swinhoe, *Cat. Moths of India*, : 457.

1894. *Labanda semipars*, Hampson, *Fauna Brit. India*, Moths, **2** : 375.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 28-30 mm.

Distribution : India : Madhya Pradesh (Indore), Kerala (Travancore), Maharashtra (Khandalla, Pune) and Sikkim.

Elsewhere : Sri Lanka.

213. ***Lagoptera dotata*** (Fabricius)

1794. *Noctua dotata* Fabricius, *Ent. Syst.*, **3**(2) : 55.

1991. *Lagoptera dotata*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, **3** : 217.

Material examined : Recorded from literature. (Mandal and Maulik, 1991)

Wing expanse : 72-82 mm.

Distribution : India : Madhya Pradesh, Assam, Himachal Pradesh, Kerala, Maharashtra, Meghalaya, Orissa, Sikkim, Tamil Nadu and West Bengal.

Elsewhere : Myanmar, Sri Lanka, Singapore and Taiwan.

214. ***Leucania byssima*** Swinhoe

1886. *Leucania byssima*, Swinhoe, *P. Z. S.*, : 442.

1894. *Leucania byssima*, Hampson, *Fauna Brit. India*, Moths, **2** : 272.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : 28 mm.

Distribution : India : Madhya Pradesh (Indore).

215. ***Leucania fragilis*** Butler

1883. *Leucania fragilis* Butler, *P. Z. S.*, : 160.

1894. *Leucania fragilis*, Hampson, *Fauna Brit. India*, Moths, **2** : 275.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : 30-32 mm.

Distribution : India : Madhya Pradesh (Chhindwara), Himachal Pradesh (Dharmsala, Simla).

216. ***Leucania unipucta*** Haw.

1803. *Leucania unipucta* Haw. *Lep. Brit.*, : 174.

1888. *Leucania extranea*, Cotes & Swinhoe, *Cat. Moths of India*, : 263.

1894. *Leucania unipucta*, Hampson, *Fauna Brit. India*, Moths, **2** : 275.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 44-50 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla, Kulu), Maharashtra (Mumbai, Pune), Meghalaya (Shillong) and Sikkim.

Elsewhere : Australia and China and New Zealand.

217. ***Metachrostis acervalis*** Swinhoe

1886. *Metachrostis acervalis* Swinhoe, *P. Z. S.*, : 451.

1894. *Metachrostis acervalis*, Hampson, *Fauna Brit. India*, Moths, **2** : 327.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : 20 mm.

Distribution : India : Madhya Pradesh (Indore).

218. ***Metachrostis badia*** Swinhoe

1886. *Metachrostis badia* Swinhoe, *P. Z. S.*, : 445.

1894. *Metachrostis badia*, Hampson, *Fauna Brit. India*, Moths, **2** : 330.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : 18 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Mumbai).

219. ***Metachrostis quinaria*** Moore

1881. *Metachrostis quinaria* Moore, *P. Z. S.*, : 371.

1888. *Leptosia quinaria*, Cotes & Swinhoe, *Cat. Moths of India*, : 296.

1894. *Metachrostis quinaria*, Hampson, *Fauna Brit. India*, Moths, **2** : 326.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888, Hampson, 1894)

Wing expanse : 23 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Solun), Punjab and and N. W. Himalayas and Uttar Pradesh (Allahabad).

220. ***Mocis undata*** (Fabricius)

1775. *Noctua undata* Fabricius, *Syst. Ent.*, : 600.

1991. *Mocis undata*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, **3** : 220.

Material examined : Seoni Dist. PTR, Karmajhiri, 18.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 50 mm.

Distribution : India : Madhya Pradesh (Seoni), Andaman & Nicobar Islends, Assam, Bihar, Himachal Pradesh, Kerala, Maharashtra, Meghalaya, Orissa, Punjab, Tripura, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Bangladesh, Ethiopio-Malagassic, Hainan of oriental, Malaysia, Myanmar, Philippines, Palaearctic Regions, Sundaland, Sri Lanka and Taiwan.

Remarks : First time record for Seoni.

221. ***Nodaria externalis*** Guen'ee

1854. *Nodaria externalis* Guen'ee, *Delt. Et. Pyr.*, : 64.

1888. *Nodaria externalis*, Cotes & Swinhoe, *Cat. Moths of India*, : 453.

1895. *Nodaria externalis*, Hampson, *Fauna Brit. India*, Moths, **2** : 326.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 26-30 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Japan, Mauritius, Myanmar, Sri Lanka and S. Africa.

222. ***Nonagria inferens*** (Walker)

1856. *Leucania inferens* Walker, *Cat. Lep. Het. B. M.*, **ix** : 105.

1894. *Nonagria inferens*, Hampson, *Fauna Brit. India*, Moths, **2** : 284.

Material examined : Recorded from literature (Hampson, 1894).

Wing expanse : 28 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai).

Elsewhere : Myanmar and Sri Lanka.

223. ***Nonagria pallida*** Butler

1883. *Nonagria pallida* Butlar, *P. Z. S.*, : 155.

1894. *Nonagria pallida*, Hampson, *Fauna Brit. India*, Moths, **2** : 286.

Material examined : Recorded from literature. (Hampson, 1894)

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore).

224. ***Nyctipao hieroglyphia*** Drury

1770-82. *Nyctipao hieroglyphia* Drury, *Ill. Exot Ins.*, **2** : 3.

1894. *Nyctipao hieroglyphia*, Hampson, *Fauna Brit. India*, Moths, **2** : 459.

Material examined : Seoni Dist. PTR, Karmajhiri, 9.7.2001 (1ex.), 14.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 88 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Java, Myanmar, Malacca, Phillippinds and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

225. ***Nyctipao macrops*** Linnaeus

1766. *Nyctipao macrops* Linnaeus, *Syst. Nat.*, xii, **3** : 225.

1894. *Nyctipao macrops*, Hampson, *Fauna Brit. India*, Moths, **2** : 459.

Material examined : Seoni Dist. PTR, Karmajhiri, 10.7.2001 (1ex.), 8.7.2001 (1ex.), 13.7.2001 (1ex.), 14.7.2001 (1ex.), Coll. R.K. Singh.

Wing expanse : 134-160 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Africa, Java, Myanmar, Madagascar and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

226. ***Odontodes aleuca*** Guen'ee

1852. *Odontodes aleuca* Guen' ee, *Noct.*, **iii** : 51.

1888. *Odontodes bolinoides*, Cotes & Swinhoe, *Cat. Moths of India*, : 361.

1894. *Odontodes aleuca*, Hampson, *Fauna Brit. India*, Moths, **2** : 400.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 48 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Myanmar.

227. *Ophideres fullonica* Linnaeus

1767. *Ophideres fullonica* Linnaeus, *Syst. Nat.*, I, 2 : 812.

1888. *Othreis fullonica*, Cotes & Swinhoe, *Cat. Moths of India*, : 377.

1894. *Ophideres fullonica*, Hampson, *Fauna Brit. India*, Moths, 2 : 560.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : Male : 80-94 mm, Female : 90-110 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Kulu), Maghalaya (Shillong), Maharashtra (Mumbai) and Sikkim.

Elsewhere : Africa, Australia and Pakistan (Karachi).

228. *Ophideres materna* Linnaeus

1767. *Ophideres materna* Linnaeus, *Syst. Nat.*, I, 2 : 840.

1888. *Argadesa materna*, Cotes & Swinhoe, *Cat. Moths of India*, : 376.

1894. *Ophideres materna*, Hampson, *Fauna Brit. India*, Moths, 2 : 561.

Material examined : Seoni Dist. PTR Karmajhiri, 12.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 96 mm.

Distribution : India : Madhya Pradesh (Indore, Seoni), Himachal Pradesh (Solun), Karnataka (Belgaum, Canara), Maharashtra (Mumbai, Pune, Satara), Uttar Pradesh (Lucknow, Allahabad) and West Bengal (Kolkatta).

Elsewhere : Java, Pakistan (Karachi) and Sri Lanka.

Remarks : First time record for Seoni.

229. *Ophiusa algira* Linnaeus

1766. *Ophiusa algira* Linnaeus, *Syst. Nat.*, 1 : 836.

1894. *Ophiusa algira*, Hampson, *Fauna Brit. India*, Moths, 2 : 500.

Material examined : Seoni Dist. PTR Karmajhiri, 27.6.2001 (1ex.), Coll. K. Chandra. 12.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 42-46 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore, Seoni).

Elsewhere : Africa, China, Europe, Japan, Mauritius, Myanmar and Sri Lanka.

Remarks : First time record for Seoni.

230. *Ophiusa analis* Guen'ee

1852. *Ophiusa analis* Guen'ee, *Noct.*, iii : 271.

1889. *Ophiusa analis*, Cotes & Swinhoe, *Cat. Moths of India*, : 760.

1894. *Ophiusa analis*, Hampson, *Fauna Brit. India*, Moths, 2 : 501.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889)

Distribution : India : Chhattisgarh (Raipur), Tamil Nadu (Nilgiri hills).

Elsewhere : Java, Myanmar and Sri Lanka.

231. *Ophiusa arctotaenia* Guen'ee

1852. *Ophiaua arctotaenia* Guen'ee, *Noct.*, iii : 272.

1888. *Ophiusa arctotaenia*, Cotes & Swinhoe, *Cat. Moths of India*, : 272.

1894. *Ophiusa arctotaenia*, Hampson, *Fauna Brit. India*, Moths, 2 : 501.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 52 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Pakistan (Karachi).

232. *Ophiusa coronata* Fabricius

1792-98. *Ophiusa coronata* Fabricius, *Syst. Ent.*, 1 : 596.

1894. *Ophiusa coronata*, Hampson, *Fauna Brit. India*, Moths, 2 : 502.

1993. *Ophiusa coronata*, Gujrati *et al.*, *J. Insect science*, 2 : 264-266.

Material examined : Sidhi, Mohania, 21.7.1999 (1ex.), Coll. K. Chandra. Seoni, PTR, Karmajhiri, 17.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 82-96 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Sidhi), Andaman & Nicobar Islands.

Elsewhere : Australia, Java, Myanmar and Sri Lanka.

Remarks : First time record for Seoni and Sidhi.

233. ***Ophiusa cuprea*** Moore

1867. *Ophiusa cuprea* Moore, *P. Z. S.*, : 74.

1894. *Ophiusa cuprea*, Hampson, *Fauna Brit. India*, Moths, **2** : 497.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : 60 mm.

Distribution : India : Central India, Bengal, Northwest and East Himalayas.

234. ***Ophiusa honesta*** Hubner

1820-1826. *Ophiusa honesta* Hubner, *Samml. Exot. Schmett.*, **II** Index : 4.

1888. *Thyas honesta*, Cotes & Swinhoe, *Cat. Moths of India*, : 398.

1894. *Ophiusa honesta*, Hampson, *Fauna Brit. India*, Moths, **2** : 504.

Material examined : Umaria, TGH, BNP, 24.9.2002 (1ex.), Gate of BNP, 22.9.2002 (1ex.), Coll. M. L. Koshta.

Wing expanse : 84-104 mm.

Distribution : India : Throughout India including Madhya Pradesh (Umaria), Chhattisgarh (Raipur).

Elsewhere : Sri Lanka.

235. ***Ophiusa joviana*** (Cramer)

1782. *Phalaena joviana* Cramer, *Pap. Exot.*, **iv** : 399.

1888. *Ophiusa joviana*, Cotes & Swinhoe, *Cat. Moths of India*, : 410.

1894. *Ophiusa joviana*, Hampson, *Fauna Brit. India*, Moths, **2** : 499.

Material examined : Chhindwara Dist. PTR, Totladoh, 23.8.2001 (1ex.), Coll. Y. N. Gupta.

Wing expanse : 50-54 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore, Chhindwara).

Elsewhere : Sri Lanka and Myanmar.

Remarks : First time record for Chhindwara.

236. ***Ophiusa melicerte*** Drury

1770. *Ophiusa melicerte* Drury, *Exot. Ins.*, **I** : 46.

1888. *Achaea melicerte*, Cotes & Swinhoe, *Cat. Moths of India*, : 402.

1894. *Ophiusa melicerte*, Hampson, *Fauna Brit. India*, Moths, **2** : 494.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 60-70 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman and Nicobar Islands, Andhra Pradesh (Hydradbad), Assam (North Khasi hills), Himachal Pradesh (Kulu), Jharkhand (Ranchi), Karnataka (Belgaum), Maharashtra (Pune, Mumbai), Panjab (Campbellpore), Sikkim and West Bengal (Kolkatta).

Elsewhere : Sri Lanka.

237. ***Ophiusa serva*** Fabricius

1775. *Ophiusa serva* Fabricius, *Syst. Ent.*, : 593.

1888. *Achaea serva*, Cotes & Swinhoe, *Cat. Moths of India*, : 403.

1894. *Ophiusa serva*, Hampson, *Fauna Brit. India*, Moths, **2** : 495.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 50-76 mm.

Distribution : India : Chhattisgarh (Raipur) and Maharashtra (Khandala).

Elsewhere : Australia, Borneo, Celebes, Java, Myanmar, New Hebrides and Sri Lanka.

238. *Ophiusa triphaenoides* Walker

1858. *Ophiusa triphaenoides* Walker, *Cat. Lep. Het. B. M.*, xiv : 1358.

1888. *Minucia triphaenoides*, Cotes & Swinhoe, *Cat. Moths of India*, : 400.

1894. *Ophiusa triphaenoides*, Hampson, *Fauna Brit. India*, Moths, **2** : 504.

Material examined. : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 60 mm.

Distribution : India : Madhya Pradesh (Indore), Jharkhand (Ranchi), Maharashtra (Khandala, Mumbai), and Sikkim.

239. *Paectes subapicalis* (Walker)

1837. *Abrostola subapicalis* Walker, *Cat. Lep. Het. Brit. Mus.*, **12** : 833.

1991. *Paectes subapicalis*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, **3** : 215.

Material examined : Recorded from literature. (Mandal and Maulik, 1991)

Wing expanse : Male : 28 mm., Female : 36 mm.

Distribution : India : Madhya Pradesh, Himachal Pradesh, Meghalaya, Punjab, Orissa, Uttar Pradesh and West Bengal.

Elsewhere : Pakistan.

240. *Pandesma quenavadi* Guen'ee

1852. *Pandesma quenavadi* Guen'ee, *Hist, Nat. Ins. Lip. Noct.*, **2** : 438.

1889. *Pandesma quenavadi*, Cotes & Swinhoe, *Cat. Moths of India*, : 756.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1889).

Wing expanse : 40-56 mm.

Distribution : India : Chhattisgarh (Raipur), Himachal Pradesh, Jammu & Kashmir, Maharashtra, Punjab and Orissa.

Elsewhere : Pakistan and Bangladsh.

241. *Parallelia illibata* (Fabricius)

1775. *Parallelia illibata* Fabricius, *Syst. Ent.*, : 592.

1991. *Parallelia illibata*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-**3** : 218.

Material examined. : Recorded from literature. (Mandal and Maulik, 1991).

Wing expanse : 72 mm.

Distribution : India : Madhya Pradesh, Assam, Orissa, Sikkim and West Bengal.

Elsewhere : Bangladesh, Hong Kong of oriental, Palaearctic Reigons, Southern Myanmar, Sri Lanka and Western Malaysia.

242. *Pericyma umbrina* (Guen'ee)

1852. *Alamis umbrina* Guen'ee, *Hist. Nat. Ins. Noct.*, **3** : 4.

1991. *Pericyma umbrina*, Mandal & Ghosh, *Moths of Tripura, Rec. zool. Surv. India*, **88**(3&4) : 319.

Material examined : Recorded from literature. (Mandal & Ghosh, 1991).

Wing expanse : Male : 30-38 mm, Female : 38-48 mm.

Distribution : India : Madhya Pradesh (Jabalpur, Indore), Assam, Jammu & Kashmir, Himachal Pradesh (Kulu, Dharmsala, Simla), Maharashtra (Mumbai), Manipur, Punjab (Sultanpur, Cambellpur), Sikkim, Tripura and Uttar Pradesh (Dehradun, Almorah, Mughalsarai).

Elasewhere : Bagladesh.

243. *Platyja? torsilinea* Guen'ee

1852. *Platyja? torsilinea* Guen'ee, *Noct.*, iii : 240.

1894. *Platyja? torsilinea*, Hampson, *Fauna Brit. India*, Moths, **2** : 540.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : 48 mm.

Distribution : India : Central India.

244. *Plecoptera reflexa* Guen'ee

1852. *Plecoptera reflexa* Guen'ee, *Noct.*, ii : 230.

1888. *Poaphila reflexa*, Cotes & Swinhoe, *Cat. Moths of India*, : 353.

1894. *Plecoptera reflexa*, Hampson, *Fauna Brit. India*, Moths, **2** : 519.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 30 mm.

Distribution : India : Madhya Pradesh (Indore), Andhra Pradesh (Hydrabad), Himachal Pradesh (Solun) and Maharashtra (Pune) and Panjab (Amballa, Campbellpur).

Elsewhere : Pakistan (Karachi).

245. ***Plusia circumflexa*** Linnaeus

1857. *Plusia circumflexa* Linnaeus, *Syst. Nat.*, I, **2** : 844.

1888. *Plusia circumflexa*, Cotes & Swinhoe., *Cat. Moths of India*, **III** : 332.

1894. *Plusia circumflexa*, Hampson, *Fauna Brit. India*, Moths, **2** : 571.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 40 mm.

Distribution : India : Madhya Pradesh (Indore) and Tamil Nadu (Nilgiri hills).

Elasewhere : Europe, Teneriffe and S. Africa.

246. ***Plusia ni*** Hubner

1804. *Plusia ni* Hubner, *Noct.*, : 284.

1888. *Plusia exterhens*, Cotes & Swinhoe, *Cat. Moths of India*, : 333.

1894. *Plusia ni*, Hampson, *Fauna Brit. India*, Moths, **2** : 570.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 38 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune) and Tamil Nadu (Nilgiri hills).

Elasewhere : China, Europe and Japan.

247. ***Plusia orichalcea*** Fabricius

1781. *Plusia orichalcea* Fabricius, *Sp. Ins.*, **2** : 227.

1894. *Plusia orichalcea*, Hampson, *Fauna Brit. India*, Moths, **2** : 573-574.

1980. *Plusia orichalcea*, Singh & Rawat, *Indian Anzeiger Fuer. Schaedlingskunde Pflanzenschutz Umweltschutz*, **53**(2) : 25.

Material examined : Chhindwara Dist. PBR, Patalkot near Tamia, 22.10.2002 (1ex.), Coll. Y.N. Gupta.

Wing expanse : 44 mm.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Chhindwara).

Elsewhere : China, Japan, South Africa and Sri Lanka.

Remarks : First time record for Chhindwara.

248. ***Polydesma inangulata*** Guen'ee

1852. *Polydesma inangulata* Guen'ee, *Noct.*, **iii** : 210.

1888. *Girpa inangulata*, Cotes & Swinhoe, *Cat. Moths of India*, **3** : 375.

1894. *Polydesma inangulata*, Hampson, *Fauna Brit. India*, Moths, **2** : 470.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888)

Wing expanse : 48-54 mm.

Distribution : India : Madhya Pradesh (Indore), Andamans, Gujarat (Ahmedabad), Himachal Pradesh (Solan), Maharashtra (Mumbai, Pune) and Tamil Nadu (Nilgiri hills, Chennai).

Elasewhere : Sri Lanka, Myanmar, Australia and China.

249. ***Polydesma mundata*** Walker

1858. *Polydesma mundata* Walker, *Cat.* **xv**., : 1701.

1888. *Bamra acronyctoides*, Cotes & Swinhoe, *Cat. Moths of India*, : 376.

1894. *Polydesma mundata*, Hampson, *Fauna Brit. India*, Moths, **2** : 465.

Material examined. : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 44 mm.

Distribution : India : Madhya Pradesh (Indore), Haryana (Amballa), Maharashtra (Pune) and Sikkim.

250. ***Polydesma umbricola*** Boisduval

1834. *Polydesma umbricola* Boisduval, *Faun. Ent. Madag., Lep.*, : 108.

1888. *Polydesma boarmoides*, Cotes & Swinhoe, *Cat. Moths of India*, **III** : 371.

1894. *Polydesma mundata*, Hampson, *Fauna Brit. India*, Moths, **2** : 468.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 50 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman Islands, Maharashtra (Pune) and Sikkim.

Elsewhere : Sri Lanka and Sylhet.

251. ***Polydesma vetusta*** Walker

1865. *Polydesma vetusta* Walker, *Cat. Lep. Het. B. M.*, **xxxiii** : 875.

1894. *Polydesma vetusta*, Hampson, *Fauna Brit. India*, Moths, **2** : 467-468.

Material examined. : Recorded from literature. (Hampson, 1894).

Wing expanse : 84 mm.

Distribution : India : Madhya Pradesh (Indore).

Elsewhere : Pakistan (Karachi).

252. ***Polytela gloriosae*** Fabricius

1781. *Polytela gloriosae* Fabricius, *Sp. Ins.*, **2** : 205.

1894. *Polytela gloriosae*, Hampson, *Fauna Brit. India*, Moths, **2** : 168.

Material examined : Seoni dist. PTR, Karmajhiri, 10.6.2001 (2exs.), 30.6.2001 (1ex.), 1.7.2001 (1ex.), 2.7.2001 (1ex.), Coll. K. Chandra. 12.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 28-42 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Sri Lanka.

Remarks : A new record for Madhya Pradesh.

253. ***Prodenia litura*** (Fabricius)

1775. *Noctua litura* Fabricius, *Syst. Ent.*, : 601.

1980. *Spodoptera litura*, Rawat & Verma, *Jnkvv Research J.*, **10**(4) : 413.

1991. *Prodenia litura*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-3 : 212.

1979. *Prodenia litura*, Veda *et al.*, *Bulletin of Entomology*, **20**(1-2) : 162.

Material examined : Hoshangabad dist. Mahadev, F. G. H., Pachmarhi, 5.6.1999 (1ex.), Coll. K. Chandra.

Wing expanse : 36-40 mm.

Distribution : India : Madhya Pradesh (Hoshangabad), Himachal Pradesh, Karnataka, Kerala, Maharashtra, Orissa, Punjab, Sikkim, Tripura, Tamila Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Autralo-Papuan, Borneo Java, Nepal, Southern Myanmar, Sri Lanka, Singapore, Ethippian, Taiwan of orienttal and also Palaearctic and Hawaiian Reigons.

Remarks : First time record for Hoshangabad.

254. ***Prodenia littoralis*** Boisduval

1834. *Prodenia littoralis* Boisduval, *Faun. Ent. Madag. Lep.*, : 91.

1888. *Prodenia littoralis*, Cotes & Swinhoe., *Cat. Moths of India*, : 326.

1894. *Prodenia littoralis*, Hampson, *Fauna Brit. India*, Moths, **2** : 247.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 30-45 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman & Nicobar Islands, Meghalaya (Shillong), Maharashtra (Mumbai, Pune) and West Bengal (Kolkata).

Elsewhere : Africa, Europe, Madagascar, Madeira, Asia Minor, Formosa Mauritius and Sri Lanka.

255. *Pseudaletia separata* (Walker)

1865. *Leucania separata* Walker, *Cat. Lep. Het. Brit. Mus.*, **32** : 626.

1991. *Pseudaletia separata*, Mandal & Ghosh, *Moths of Tripura, Rec. zool Surv. India*, **88**(3&4) : 315-316.

Material examined : Recorded from literature. (Mandal & Ghosh, 1991).

Wing expanse : 44-50 mm.

Distribution : India : Madhya Pradesh (Jabalpur, Indore), Assam (Sibsagar), Himachal Pradesh (Kulu, Kasauti, Solan, Simla), Jammu & Kashmir, Meghalaya (Shillong, Khasis), Maharashtra (Mumbai, Pune), Manipur, Punjab (Sultanpur, Campbellpur, Murree), Sikkim, Tamil Nadu (Nilgiris) Tripura and West Bengal (Darjeling, Kolkata).

Elasewhere : Australia, China, Europe, Java, Japan, Korea, Neotropical and Nearctic regions, Pakistan, Papua and U.S.S.R.

256. *Pseudocalpe angulifera* Moore

1881. *Pseudocalpe angulifera* Moore, *P. Z. S.*, : 373.

1888. *Anthophila innubila*, Cotes & Swinhoe, *Cat. Moths of India*, : 294.

1894. *Pseudocalpe angulifera*, Hampson, *Fauna Brit. India*, Moths, **2** : 566.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 23-28 mm.

Distribution : India : Madhya Pradesh (Indore), Tamil nadu (Nilgiris).

257. *Raparna digramma* Walker

1865. *Raparna digramma* Walker, *Cat. Lep. Het. Brit. Mus.*, **xxxiv** : 1170.

1888. *Byturna digrama*, Cotes & Swinhoe., *Cat. Moths of India*, **III** : 456.

1894. *Raparna digramma*, Hampson, *Fauna Brit. India*, Moths, **3** : 24.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 22-28 mm.

Distribution : India : Madhya Pradesh (Indore), N. W. Himalayas, and W. & S. India.

Elsewhere : Sri Lanka.

258. *Raparna tantilla* Swinhoe

1885. *Raparna tantilla* Swinhoe, *P. Z. S.*, : 470.

1888. *Hingula unicoloris*, Cotes & Swinhoe, *Cat. Moths of India*, : 417.

1894. *Raparna tantilla*, Hampson, *Fauna Brit. India*, Moths, **3** : 26.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 22-28 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune), and Tamil Nadu (Nilgiris).

259. *Remigia archesia* (Cramer)

1780. *Pholaena (Noctua) archesia* Cramer, *Pap. Exot.*, **iii** : 273.

1888. *Cauninda archesia*, Cotes & Swinhoe, *Cat. Moths of India*, : 417.

1894. *Remigia archesia*, Hampson, *Fauna Brit. India*, Moths, **2** : 526.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 42-54 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla), Jharkhand (Ranchi), Karnataka (Belgaum), Meghalaya (Shillong), Maharashtra (Mumbai, Pune, Ratnagiri), Sikkim and West Bengal (Kolkata).

Elsewhere : , China , Java, Pakistan (Karachi) and South Africa.

260. *Rhynchina abducalis* Walker

1858. *Rhynchina abducalis* Walker, *Cat. Lep. Het. Brit. Mus.*, **xvi** : 66.

1888. *Hypena abducalis*, Cotes & Swinhoe, *Cat. Moths of India*, : 438.

1895. *Rhynchina abducalis*, Hampson, *Fauna Brit. India*, Moths, 3 : 438.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 36-38 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : China, Japan and Java.

261. *Rhynchina pervulgaris* Swinhoe

1885. *Rhynchina pervulgaris* Swinhioe, *P. Z. S.*, : 471.

1894. *Rhynchina pervulgaris*, Hampson, *Fauna Brit. India*, Moths, 3 : 75.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : 16-18 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Mumbai, Pune).

Elsewhere : Maynmar.

262. *Selepa celtis* (Moore)

1887. *Plotheia celtis* Moore, *Lep. Ceyl.*, 3 : 158.

1894. *Plotheia celtis*, Hampson, *Fauna Brit. India*, Moths, 2 : 370.

1989. *Selepa celtis*, Joshi & Meshram, Research Notes (II), "*The Indian Forester*" vol. 115, (11) : 847.

Material examined : Recorded from literature. (Joshi & Meshram, 1989).

Wing expanse : 24 mm.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).

Elsewhere : Java and Sri Lanka.

263. *Serrodes inara* Cramer

1779-83. *Serrodes inara* Cramer, *Pap. Exot.*, 3 : 239.

1894. *Serrodes inara*, Hampson, *Fauna Brit. India*, Moths, 2 : 510.

Material examined : Seoni dist. PTR, Karmajhiri, 13.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 52-74 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Africa, Australia, Borneo, Java, Myanmar and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

264. *Speiredonia suffumosa* Guen'ee

1852. *Speiredonia suffumosa* Guen'ee, *Hist. Nat. Fins. Lep. Noct.*, 3 : 195.

1991. *Speiredonia suffumosa*, Mandal and Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-3 : 217.

Material examined : Recorded from literature. (Mandal and Maulik, 1991).

Wing expanse : 67 mm.

Distribution : India : Madhya Pradesh, Andaman & Nicobar Islands (Andamans), Assam, Himachal Pradesh, Haryana, Karnataka, Kerala, Maghalaya, Orissa, Punjab, Sikkim, Tamil Nadu and West Bengal.

Elsewhere : Bangladesh, Java, Hong Kong of oriental, Palaearctic Reigons, Phillippines, Southern Myanmar, Sri Lanka and Western Malaysia.

265. *Sphingomorpha chlorea* (Cramer)

1777. *Phalaena (Noctua) chlorea* Cramer, *Pap. Exot.*, ii : 104.

1894. *Sphingomorpha chlorea*, Hampson, *Fauna Brit. India*, Moths, 2 : 490-491.

Material examined : Narsinghpur dist. Barman Kala. Vill. 14.12.1964 (1ex.), Coll. H. Khajuria.

Wing expanse : 60-84 mm.

Distribution : India : Throughout India including Madhya Pradesh (Narsinghpur).

Elsewhere : Africa, Myanmar and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

266. *Spirama retorta* Cramer

1779-83. *Spirama retorta* Cramer, *Pap Exot.*, 2 :116.

1894. *Spirama retorta*, Hampson, *Fauna Brit. India*, Moths, 2 : 553.

Material examined : Seoni dist., PTR, Karmajhiri, 12.7.2001 (1ex.), 19.7.2001 (1ex.), 18.7.2001 (2exs.), 7.7.2001 (1ex.), Coll. R.K. Singh. Umaria, BNP, Tala, 29.9.2002 (1ex.), Coll. R.K. Singh.

Wing expanse : Male : 64-76 mm, Female : 66-88 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Umaria).

Elsewhere : China, Japan, Java, Myanmar and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

267. ***Spodoptera mauritia*** (Boisduval)

1833. *Hadena mauritia* Boisduval, *Fauna Ent. Madag. Lep.*, : 92.

1991. *Spodoptera mauritia*, Mandal & Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-3 : 212-213.

Material examined : Recorded from literature. (Mandal & Maulik, 1991).

Wing expanse : 38 mm.

Distribution : India : Madhya Pradesh (Indore), Andaman & Nicobar Islands, Himachal Pradesh, Maharashtara, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Australo-Papuan, Borneo, Ethiopio-Malagassic, Hawaiian Reigons, Java, Pakistan, Phillippines of Oriental, Southern Myanmar, Sri Lanka and Western Malaysia.

268. ***Sypna omicronigera*** Guen'ee

1852. *Sypna omicronigera* Guen'ee, *Noct.*, **3** : 145.

1888. *Sypna omicronigera*, Cotes & Swinhoe, *Cat. Moths of India*, : 384.

1894. *Sypna omicronigera*, Hampson, *Fauna Brit. India*, Moths, **2** : 446.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 55-86 mm.

Distribution : India : Central India, Meghalaya (Shillong) and Sikkim.

269. ***Tarache crocata*** (Guen'ee)

1852. *Acontia crocata* Guen'ee, *Noct.*, **ii** : 218.

1888. *Acontia crocata*, Cotes & Swinhoe, *Cat. Moths of India*, : 286.

1894. *Tarache crocata*, Hampson, *Fauna Brit. India*, Moths, **2** : 314.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 22 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla, Dharmsala), Maharashtra (Mumbai, Pune) and Tamil nadu (Coimbatore).

270. ***Tarache imbuta*** Walker

1865. *Tarache imbuta* Walker, *Cat. Lep. Het. B. M.*, **xxxiii** : 786.

1888. *Tarache inda*, Cotes & Swinhoe, *Cat. Moths of India*, : 290.

1894. *Tarache imbuta*, Hampson, *Fauna Brit. India*, Moths, **2** : 314.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 24 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore),

Elsewhere : Sri Lanka and Myanmar.

271. ***Tarache olivea*** Guen'ee

1852. *Tarache olivea* Guen'ee, *Noct.*, **ii** : 218.

1888. *Tarache nivosa*, Cotes & Swinhoe, *Cat. Moths of India*, : 290.

1894. *Tarache olivea*, Hampson, *Fauna Brit. India*, Moths, **2** : 313.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : Male : 20 mm, Female : 22 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Solan, Dharmsala, Simla) and Maharashtra (Pune).

272. ***Thermesia rubricans*** Boisduval

1833. *Thermesia rubricans* Boisduval, *Fauna Ent. Madag. Lep.*, : 106.

1894. *Thermesia rubricans*, Hampson, *Fauna Brit. India*, Moths, **2** : 534.

Material examined : Jabalpur dist. Pachpedi, 9.9.1964 (1ex.), Coll. H. Khajuria. Seoni dist. PTR, Karmajhiri, 9.7.2001 (2ex.), 18.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : 40-46 mm.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Seoni).

Elsewhere : Africa, Java and Pacific Islands.

Remarks : A new record for Madhya Pradesh.

273. ***Trigonodes hyppasia*** Cramer

1770-83. *Trigonodes hyppasia* Cramer, *Pap. Exot.*, **3** : 250.

1894. *Trigonodes hyppasia*, Hampson, *Fauna Brit. India*, Moths, **2** : 527.

Material examined : Seoni dist. PTR, Karmajhiri, 12.7.2001, (1ex.), Coll. R. K. Singh. Umaria, BNP, Tala, 19.9.2002, (1ex.), Coll. M. L. Koshta.

Wing expanse : 46 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Umaria).

Remarks : A new record for Madhya Pradesh.

274. ***Trisula variegata*** Moore

1857. *Trisula variegata* Moore, *Lep., E. I. Co.*, : 420.

1894. *Trisula variegata*, Hampson, *Fauna Brit. India*, Moths, **2** : 438.

Material examined : Seoni dist. PTR, Karmajhiri, 21.6.2001 (1ex.), Coll. K. Chandra.

Wing expanse : Male : 78 mm, Female : 80-104 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni).

Elsewhere : Sri Lanka.

Remarks : A new record for Madhya Pradesh.

275. ***Westermannia argentea*** Hampson

1891. *Westermannia argentea* Hampson, *Ill. Het.*, **8** : 80.

1894. *Westermannia argentea* Hampson, *Fauna Brit. India*, Moths, **2** : 359.

Material examined : Seoni dist. PTR, Karmajhiri, 12.7.2001 (2exs.), Coll. R. K. Singh.

Wing expanse : 50 mm.

Distribution : India : Madhya Pradesh (Seoni) and Tamil Nadu (Nilgiris).

Remarks : A new record for Madhya Pradesh.

276. ***Xanthoptera excisa*** Swinhoe

1885. *Xanthoptera excisa* Swinhoe, *P. Z. S.*, : 455.

1888. *Acontia excisa*, Cotes & Swinhoe., *Cat. Moths of India*, : 287.

1894. *Xanthoptera excisa*, Hampson, *Fauna Brit. India*, Moths, **2** : 318.

Material examined : Recorded from literature (Cotes & Swinhoe, 1888).

Wing expanse : 18-22 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Dharmsala, Simla), Maharashtra (Pune, Khandalla), and Tamil nadu (Coimbatore).

277. ***Xanthoptera nigripalpis*** Walker

1866. *Xanthoptera nigripalpis* Walker, *Cat. Lep. Het. Brit. Mus.*, **xxxv** : 1965.

1888. *Acontia nigripalpis*, Cotes & Swinhoe, *Cat. Moths of India*, : 288.

1894. *Xanthoptera nigripalpis*, Hampson, *Fauna Brit. India*, Moths, **2** : 318.

Material examined : Recorded from literature (Cotes & Swinhoe, 1888).

Wing expanse : 18 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

278. ***Xanthoptera veprecola*** Swinhoe

1885. *Xanthoptera veprecola* Swinhoe, *P. Z. S.*, : 456.

1888. *Plothedes veprecola*, Cotes & Swinhoe, *Cat. Moths of India*, : 292.

1894. *Xanthoptera veprecola*, Hampson, *Fauna Brit. India*, Moths, **2** : 319.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 20 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Pune, Mumbai).

XIX. Family AMATIDAE

279. ***Amata cyssea*** (Cramer)

1782. *Sphinx cysseus* Cramer, *Pap. Exot.*, **4** : 124.

1991. *Amata cyssea*, Mandal & Ghosh, *Fauna of Tripura*, *Rec. zool. Surv. India*, **88**(3&4) : 306-307.

Material examined : Recorded from literature (Mandal & Ghosh, 1991).

Wing expanse : 32 mm.

Distribution : India : Madhya Pradesh (Indore), Andhra Pradesh (Coromandel Coast), Himachal Pradesh (Kangra), Jammu & Kashmir (Kashmir), Maharashtara (Mumbai), Nagaland, Sikkim, Tripura and West Bengal (Kolkata).

Elsewhere : Nepal, Pakistan and Sri Lanka.

280. ***Syntomis confinis*** (Walker)

1854. *Glaucopis confinis* Walker, *Cat. Lep. Het. B. M.*, **1** : 149.

1887. *Eressa confinis*, Cotes & Swinhoe, *Cat. Moths of India*, : 52.

1892. *Syntomis confinis*, Hampson, *Fauna Brit. India*, Moths, **1** : 223.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1888).

Wing expanse : 24 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Kulu), N. W. Himalayas and Uttar Pradesh (Almora).

Elsewhere : Sri Lanka.

281. ***Syntomoides hydatina*** (Butler)

1876. *Syntomis hydatina* Butler, *J. Linn. Soc. Lond.*, : 346.

1892. *Syntomoides hydatina*, Hampson, *Fauna Brit. India*, Moths, **1** : 210-212.

Material examined : Recorded from literature. (Hampson, 1892).

Wing expanse : 24 mm.

Distribution : India : Central India and West Bengal (Kolkata).

XX. Family LYMANTRIDAE

282. ***Dasychira mendosa*** Hubner

1818. *Dasychira mendosa*, Hubner, *Zutr.*, **ii** : 19.

1855. *Nioda fusiformis* Walker, *Cat. Lep. Het. B. M.*, **V** : 1070.

1887. *Olene fusiformis*, Cotes & Swinhoe, *Cat. Moths of India*, : 157.

1892. *Dasychira mendosa*, Hampson, *Fauna Brit. India*, Moths, **1** : 452.

Material examined : Recorded from literature (Cotes & Swinhoe, 1887).

Wing expanse : Male : 34-42 mm, Female : 46-54 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla), Mahatashtra (Pune, Mumbai) and Uttar Pradesh (Kanpur).

Elsewhere : Sri Lanka and Pakistan (Karachi).

283. ***Euproctis lunata*** Walker

1855. ***Euproctis lunata*** Walker *Cat. Lep. Het. B. M.*, **iv** : 837.

1887. ***Euproctis lunata,*** Cotes & Swinhoe, *Cat. Moths of India*, : 145.

1894. ***Euproctis lunata***, Hampson, *Fauna Brit. India*, Moths, **1** : 472.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887).

Wing expanse : Male : 34 mm, Female : 38 mm.

Distribution : India : Madhya Pradesh (Indore),

Maharashtra (Pune), Punjab (Jalandhar) and West Bengal (Kolkata).

284. *Laelia testacea* (Walker)

1855. *Cycnia testacea* Walker, *Cat. Lep. Het. Brit. Mus.*, 3 : 683.

1997. *Laelia testacea*, Mandal & Maulik, *Fauna of West Bengal, Zool. Surv. India*, Part-7 : 306-307.

Material examined : Recorded from literature (Mandal & Maulik, 1997).

Wing expanse : Male : 40-42 mm., Female : 40-48 mm.

Distribution : India : Madhya Pradesh (Indore), Kerala, Meghalaya, Maharashtara, Tamil Nadu and West Bengal (Bardhaman).

Elsewhere : Pakistan and Sri Lanka.

285. *Lymantria incerta* (Walker)

1894. *Lymantria incerta*, Hampson, *Fauna Brit. India*, Moths, 1 : 460.

1865. *Lymantria detersa* Walker, *Cat. Lep. Het. Brit. Mus.*, xxxii : 365.

1887. *Enome detersa*, Cotes & Swinhoe, *Cat. Moths of India*, : 156.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887).

Wing expanse : 36-54 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune, Satara) and Karnataka (Belgaum).

Elsewhere : Sri Lanka.

286. *Lymantria semicincta* (Walker)

1855. *Alope semicincta* Walker, *Cat. Lep. Het. Brit. Mus.*, 3 : 620.

1984. *Lymantria semicincta*, Gupta *et. al.*, *Reichenbzchia Mus. Tierk. Dresden* 22, Nr. 2 : 27.

1997. *Lymantria semicincta* Mandal & Maulik, *Fauna of West Bengal, Zool. Surv. India*, Part-7 : 667-668.

Material examined : Recorded from literature. (Gupta *et al.*, 1984)

Wing expanse : 60 mm.

Distribution : India : Madhya Pradesh (Balaghat), Himachal Pradesh, Sikkim and West Bengal.

287. *Lymantria serva* (Fabricius)

1793. *Bombyx serva* Fabricius, *Syst. Ent.*, 3(1) : 474.

1997. *Lymantria serva*, Mandal & Maulik, *Fauna of West Bangal, Zool. Surv. India*, Part-7 : 667.

Material examined : Recorded from literature. (Mandal & Maulik, 1997).

Distribution : India : Madhya Pradesh (Indore), Assam, Himachal Pradesh, Jammu & Kashmir (Kashmir), Karnataka, Kerala, Meghalaya, Maharashtara, Sikkim, Tamil Nadu and West Bengal.

Elsewhere : China, Hongkong, Malaya, Phillippines, Sri Lanka and Taiwan.

288. *Perina nuda* (Fabricius)

1787. *Bombyx nuda* Fabricius, *Mant. Ins.*, 2 : 117.

1887. *Perina nuda*, Cotes & Swinhoe, *Cat. Moths of India*, : 134.

1997. *Perina nuda*, Mandal & Maulik, *Fauna of West Bangal, Zool. Surv. India*, Part-7 : 670.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887, Mandal & Maulik, 1997)

Wing expanse : Male : 38 mm, Female : 50 mm.

Distribution : India : Madhya Pradesh (Indore), Assam, Maharashtara and West Bengal.

Elsewhere : China, Hongkong, Japan, Nepal, Sri Lanka and Taiwan.

289. *Porthesia xanthorrhoea* (Kollar)

1842. *Liparis xanthorrhoea* Kollar, *In Hugel, Kash, Reich. Seik*, 4(2) : 470.

1887. *Porthesia marginalis*, Cotes & Swinhoe., *Cat. Moths of India*, II : 143.

1997. *Porthesia xanthorrhoea*, Mandal & Maulik, *Fauna of West Bangal, Zool. Surv. India*, Part-7 : 671.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887. Mandal & Maulik, 1997).

Wing expanse : Male : 28 mm, Female : 37 mm.

Distribution : India : Madhya Pradesh (Indore), Assam, Himachal Pradesh, Jammu & Kashmir (Kashmir), Meghalaya, Maharashtara, Punjab, Sikkim, Uttar Pradesh and West Bengal (Birbhumi).

Elsewhere : Java, Myanmar, Nepal and Sri Lanka.

XXI. Family NOTODONTIDAE

290. ***Antheua servula*** (Drury)

1773. *Phalaena servula* Drury, *Ins Exot.*, **ii** : 20.

1855. *Anticyra combusta*, Walker *Cat. Lep. Het. Brit. Mus.*, **V** : 1092.

1887. *Antheua discalis*, Cotes & Swinhoe, *Cat. Moths of India*, **II** : 171.

1892. *Antheua servula*, Hampson, *Fauna Brit. India*, Moths, **1** : 145.

Material examined : Recorded from literature (Cotes & Swinhoe, 1887).

Wing expanse : 46-50 mm.

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla), Mahatashtra (Mumbai) and Tamil Nadu (Nilgiri hills).

Elsewhere : Java, Myanmar and Sri Lanka.

291. ***Cerura liturata*** Walker

1859. *Cerura liturata* Walker, *Cat. Lep. Hetero. Brit. Mus.*, **v** : 988.

1892. *Cerura liturata*, Hampson, *Fauna Brit. India*, Moths, **1** : 155.

Material examined : Seoni dist. PTR, Karmajhiri, 8.6.2001 (1ex.), 9.6.2001 (1ex.), Coll. K. Chandra. Umaria, BNP, Tala, 20.9.2002, (1ex.), Coll. M. L. Koshta.

Wing expanse : Male : 46-70 mm, Female : 62-90 mm.

Distribution : India : Madhya Pradesh (Seoni, Umaria), Assam, Maharashtra (Mumbai), Sikkim and Tamil Nadu (Chennai).

Elsewhere : China and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

292. ***Cetola dentata*** Walker

1855. *Cetola dentata* Walker, *Cat. Lep. Hetero. Brit. Mus.*, **v** : 1016.

1887. *Cetola dentata*, Cotes & Swinhoe, *Cat. Moths of India*, : 174.

1892. *Cetola dentata*, Hampson, *Fauna Brit. India*, Moths, **1** : 145.

Material examined : Recorded from literature (Cotes & Swinhoe, 1887).

Wing expanse : 46-50 mm.

Distribution : India : Madhya Pradesh (Indore).

Elsewhere : Nepal.

293. ***Ichthyura restitura*** Walker

1865. *Ichthyura restitura* Walker *Cat. Lep. Het. Brit. Mus.*, **xxxii** : 433.

1887. *Ichthyura restitura* Cotes & Swinhoe, *Cat. Moths of India*, : 178.

1892. *Ichthyura restitura*, Hampson, *Fauna Brit. India*, Moths, **1** : 174.

Material examined : Recorded from literature (Cotes & Swinhoe, 1887).

Wing expanse : 26-34 mm.

Distribution : India : Madhya Pradesh (Indore), Maharashtra (Pune) and S. India.

Elsewhere : Sri Lanka.

294. ***Oraesia emarginata*** (Fabricius)

1794. *Noctua emarginata* Fabricius, *Ent. Syst.*, **iii** : 240.

1887. *Oraesia emarginata*, Cotes & Swinhoe, *Cat. Moths of India*, : 178.

1892. *Oraesia emarginata*, Hampson, *Fauna Brit. India*, Moths, **1** : 176.

Material examined : Recorded from literature (Cotes & Swinhoe, 1887).

Distribution : India : Madhya Pradesh (Indore), Himachal Pradesh (Simla) and Maharashtra (Pune, Mumbai).

Elsewhere : Sri Lanka.

295. ***Phalera raya*** Moore

1857-59. *Phalera raya* Moore, *Lep. E. I. Co.*, : 433.

1892. *Phalera raya*, Hampson, *Fauna Brit. India*, Moths, **1** : 134.

Material examined : Hoshangabad, P. W. D. Rest House, 8.9.2000 (1ex.), Coll. Y. N. Gupta. Seoni dist. PTR, Karmajhiri, 5.6.2001 (1ex.), 6.6.2001 (1ex.), 9.6.2001 (3exs.), 10.6.2001 (1ex.), Coll. K. Chandra. Umaria, BNP, Tala, 2.10.2002, (1ex.), Coll. R.K. Singh.

Wing expanse : Male : 76 mm, Female : 82 mm.

Distribution : India : Madhya Pradesh (Seoni, Hoshangabad, Umaria), Himachal Pradesh, Maharashtra (Mumbai), Nagaland, Sikkim, Tamil Nadu (Nilgiris) and West Bengal (Kolkata).

Elsewhere : China and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

296. ***Pydna galbana*** (Swinhoe)

1886. *Bireta galbana* Swinhoe, *P. Z. S. Lond.*, : 438.

1887. *Bireta galbana*, Cotes & Swinhoe, *Cat. Moths of India*, : 177.

1892. *Pydna galbana*, Hampson, *Fauna Brit. India*, Moths, **1** : 140.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887).

Wing expanse : 34 mm.

Distribution : India : Madhya Pradesh (Indore) and Sikkim.

297. ***Spatalia argentifera*** (Walker)

1862. *Allata argentifera* Walker, *J. Linn. Soc. Lond. Zool.*, **6** : 140.

1892. *Spatalia argentifera*, Hampson, *Fauna Brit. India*, Moths, **1** : 169.

Material examined : Seoni dist. PTR, Karmajhiri, 10.6.2001 (1ex.), Coll. K. Chandra. Umaria, BNP, Tala, 24.9.2002, (1ex.), Coll. M. L. Koshta.

Wing expanse : 50-54 mm.

Distribution : India : Madhya Pradesh (Seoni, Umaria), Karnataka (Canara, Banglore) and Sikkim.

Elsewhere : Myanmar.

Remarks : A new record for Madhya Pradesh.

XXII. Family AGARISTIDAE

298. ***Episteme adulatrix*** (Kollar)

1848. *Eusemia adulatrix* Kollar, *Hugel' Kaschmir*, **4** : 464.

1991. *Episteme adulatrix*, Mandal & Ghosh, *Fauna of Tripura, Rec. zool. Surv. India*, **88**(3&4) : 315.

Material examined : Recorded from literature. (Mandal & Ghosh, 1991).

Wing expanse : 80 mm.

Distribution : India : Madhya Pradesh (Indore), Assam (Cachar), Bihar, Himachal Pradesh (Kangra), Jammu & Kashmir (Kashmir), Karnataka (Belgaum, Kanara), Kerala (Calicut), Meghalaya (Cherrapunji), Maharashtara (Mumbai, Pune, Ratanagiri), Nagaland, Sikkim, Tamil Nadu (Nilgiris), Tripura and Uttar Pradesh (Mussourie).

Elsewhere : Bhutan, Myanmar and Sri Lanka.

299. ***Zalissa transiens*** (Walker)

1855. *Sarbanissa transiens* Walker, *List Specimens lipid. Insects Colln Br. Mus.*, **7** : 1588.

1894. *Zalissa transiens*, Hampson, *Fauna Brit. India*, Moths, **2** : 155.

Material examined : Seoni dist. PTR, Karmajhiri, 18.7.2001(1ex.), Coll. K. Chandra.

Wing expanse : 50 mm.

Distribution : India : Madhya Pradesh (Seoni), Maharashtra (Mumbai), and Sikkim.

Elsewhere : Borneo, Java and Myanmar.

Remarks : A new record for Madhya Pradesh.

XXIII. Family HYPSIIDAE

300. ***Asota caricae*** (Fabricius)

1792. *Noctua caricae* Fabricius, *Syst. Ent.*, **3**,2 : 27.

1892. *Hypsa alciphron*, Hampson, *Fauna Brit. India*, Moths, **1** : 502.

1982. *Asota caricae*, Barlow, *An introduction to the Moths of South East Asia*, : 77.

Material examined : Seoni dist. PTR, Karmajhiri, 2.7.2001 (1ex.), 3.7.2001 (1ex.), Coll. K. Chandra. 7.7.2001 (1ex.), 9.7.2001 (2exs.), 12.7.2001 (1ex.), 13.7.2001(1ex.), 4.7.2001 (1ex.), 17.7.2001 (1ex.), 20.7.2001(3ex.), 21.7.2001(1ex.), Coll. K. Chandra. Umaria, BNP, Tala, 26.9.2002, (1ex.), Coll. R.K. Singh.

Wing expanse : Male : 62-67 mm, Female : 72-76 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Umaria).

Elsewhere : Amboina, Ceram, Java, Myanmar, New Ireland, New Guinea, New Hebrides, Penang, Solomons and Sri Lanka.

Remarks : A new record for Madhya Pradesh.

XXIV. Family ARCTIIDAE

301. ***Aemene tenebrosa*** Moore

1878. *Aemene tenebrosa* Moore, *P. Z. S.*, : 34.

1894. *Aemene tenebrosa*, Hampson, *Fauna Brit. India*, Moths, **2** : 93.

Material examined : Recorded from literature. (Hampson, 1894).

Wing expanse : Male : 18 mm, Female : 20 mm.

Distribution : India : Madhya Pradesh (Indore) and Maharashtra (Mumbai).

302. ***Amsacta lineola*** (Fabricius)

1796. *Bombyx lineola* Fabricius, *Ent. Syst.*, **3**(1) : 465.

1997. *Amsacta lineola*, Ghosh & Chauchury, *Fauna of West Bengal*, Part-7 : 251-252.

Material examined : Recorded from literature. (Ghosh & Chaudhury, 1997).

Wing expanse : Male : 28 mm, Female : 35 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Gujrat (Katch), Jammu & Kashmir, Kerala (Tranvancore), Maharashtra (Mumbai), North West Himalayas (Kulu), Punjab and West Bengal (Kolkata, Darjiling).

Elsewhere : Nepal and Sri Lanka.

303. ***Argina astraea*** (Drury)

1770-82. *Phalaena astraea* Drury, *Ill. Exot. Ins.*, **2** : 11.

1886. *Argina cribraria*, Cotes & Swinhoe., Cat. Moths of India, **II** : 1117.

1892. *Argina cribraria*, Hampson, *Fauna Brit. India*, Moths, **1** : 502.

1988. *Argina astraea*, Holloway, *The Moths of Borneo*, : 54.

Material examined : Seoni dist. PTR, Karmajhiri, 12.7.2001 (1ex.), 14.7.2001 (1ex.), Coll. R.K. Singh.

Wing expanse : Male : 35-44 mm, Female : 35-50 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore, Seoni).

Elsewhere : China, Myanmar, New Guinea and Sri Lanka.

Remarks : A new record for Seoni.

304. ***Creatonotus emittens*** Walker

1855. *Creatonolus emittens* Walker, *Cat. Lep. Het. B. M.*, **iii** : 638.

1887. *Aloa emittens*, Cotes & Swinhoe, *Cat. Moths of India* : 127-128.

1892. *Creatonolus emittens*, Hampson, *Fauna Brit. India*, Moths, **1** : 28-29.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887)

Wing expanse : Male : 30 mm, Female : 38 mm.

Distribution : India : Madhya Pradesh (Indore), Karnataka (Belgaum, Kanara), Maharashtra (Pune, Mumbai, Satara) and West Bengal (Kolkata).

Elsewhere : Sri Lanka.

305. ***Creatonotus gangis*** (Linnaeus)

1764. *Phalaena gangis* Linnaeus, *Amoen. Acad.*, **6** : 410.

1991. *Creatonotus gangis*, Mandal & Ghosh, *Fauna of Tripura, Rec. zool. Surv. India*, **88**(3&4) : 313-314.

Material examined : Chhindwara dist. PTR, **Totladoh**, 13.8.2001 (1ex.), Hoshngabad dist. PBR, **Singanama**, 14.2.2002(1ex.), Coll. Y. N. Gupta. **Umaria, BNP**, Tala, 27.9.2002, (1ex.), Coll. R.K. **Singh.**

Wing expanse : 39 mm.

Distribution : India : Madhya Pradesh (Indore,Hoshngabad, Chhinwara and Umaria), Andhra Pradesh (Hydrabad), Arunachal Pradesh, Assam, Gujrat (Ahmedabad), Kerala (Coromandal), Meghalaya (Cherrapunji), Maharashtara (Mumbai, Pune, Ratanagiri), Tamil Nadu (Nilgiris), Tripura and West Bengal (Kolkata).

Elsewhere : Australia, China, Java, Myanmar, Pakistan, Sri Lanka, Western Malaysia and Nepal.

306. ***Creatonotus interruptus*** Gmel

1758. *Creatonotus interruptus* Gmel. *Syst. Nat.*, I. v : 2553.

1777. *Phalaena interruptus*, Cramer, *Pap. Exot.*, II : 185.

1887. *Creatonotus interruptus*, Cotes & Swinhoe, *Cat. Moths of India*, : 124.

1892. *Creatonotus interruptus*, Hampson, *Fauna Brit. India*, Moths, **1** : 26-28.

Material examined : Recorded from literature. (Cotes & Swinhoe, 1887).

Wing expanse : 42 mm.

Distribution : India : Throughout India including Madhya Pradesh (Indore).

Elsewhere : Sri Lanka.

307. ***Creatonotus lactineus*** Cramer

1779-83. *Creatonotus lactineus* Cramer, *Pap. Exot.*, **2** : 133.

1894. *Creatonotus lactineus*, Hampson, *Fauna Brit. India*, Moths, **2** : 27.

Material examined : Seoni dist. PTR, Karmajhiri, 9.6.2001 (4exs.), Coll. K. Chandra. Umaria, BNP, Tala, 28.9.2002 (1ex.), Coll. R.K. Singh.

Wing expanse : Male : 56 mm, Female : 66 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Umaria).

Elsewhere : China, Java, Myanmar and Sri Lanka,

Remarks : A new record for Madhya Pradesh.

308. ***Earias fabia*** Stoll

1782. *Earias hugenh* Stoll, *Cram. Pap. Exot.*, **iv** : 355.

1870. *Earias hugely*, Rogenh, *Verh. Zool. Bot. Ges. Wien.*, : 872.

1894. *Earias fabia*, Hampson, *Fauna Brit. India*, Moths, **2** : 133.

1991. *Earias fabia*, Mandal & Maulik, *Fauna of Orissa, Zool. Surv. India*, Part-**3** : 216.

Material examined : Recorded from literature. (Mandal & Maulik, 1991).

Wing expanse : 32 mm.

Distribution : India : Madhya Pradesh, Orissa (Ganjam), Punjab, South India and West Bengal (Kolkata).

Elsewhere : Sri Lanka and Java.

309. ***Estigmene perrotteti*** (Guen'ee)

1844. *Chelonia perrotteti* Guen'ee. *Icon. R. Anim. Ins.*, : 515.

1997. *Estigmene perrotteti*, Ghosh & Chaudhury, *Fauna of West Bengal, Zool. Surv. India*, Part-7 : 252.

Material examined : Recorded from literature. (Ghosh & Chaundhury, 1997).

Distribution : India : Madhya Pradesh (Jabalpur), Karnataka, Maharashtra (Mumbai), Tamil Nadu (Nilgiris) and Western Slopes.

310. ***Olepa ricini*** (Fabricius)

1775. *Bombyx ricini* Fabricius, *Syst. Entom.*, : 583.

1892. *Arctia ricini*, Hampson, *Fauna Brit. India*, Moths, **2** : 17-18.

1997. *Olepa ricini*, Ghosh & Chaudhury, *Fauna of West Bengal, Zool. Surv. India*, Part-7 : 257.

Material examined : Recorded from literature. (Ghosh & Chaudhury, 1997).

Wing expanse : Male : 38-50 mm, Female : 60-68 mm.

Distribution : India : Madhya Pradesh, Arunachal Pradesh, Assam, Karnataka, Maharashtra (Mumbai), Punjab, Sikkim, Tamil Nadu and West Bengal (Kolkata).

Elsewhere : Bangladesh and Sri Lanka.

311. ***Phissama transiens*** (Walker)

1855. *Spilosoma transiens* Walker, *List lep. Insects Brit. Mus.*, **3** : 675.

1894. *Phissama transiens*, Hampson, *Fauna Brit. India* Moths, **2** : 29-30.

1997. *Phissama transiens*, Ghosh & Chaudhury, *Fauna of West Bengal, Zool. Surv. India*, Part-7 : 255.

Material examined : Hoshangabad dist. Mahadev, PBR, F.G.H., Pachmarhi, 5.6.1999 (1ex.), Coll. K. Chandra.

Wing expanse : Male : 38-48 mm, Female : 48-55 mm.

Distribution : India : Madhya Pradesh (Hoshangabad), Assam, Arunachal Pradesh, Sikkim and West Bengal (Nadia, Bankura, Jalpaiguri, Darjiling).

Elsewhere : China (Formosa), Indonesia (Borneo) and Philippines.

Remarks : A new record for Madhya Pradesh.

312. ***Utetheisa pulchelloides*** Hampson

1907. *Utetheisa pulchelloides* Hampson, *Ann. Mag. nat. Hist.*, (7)**19** : 239.

1939. *Utetheisa pulchelloides* Hampson, Jordan, *Novit. Zool.*, **41** : 281-3.

1988. *Utetheisa pulchelloides* Holloway, *The Moth of Borneo*, **6** : 56.

Material examined : Seoni dist. PTR, Karmajhiri, 10.6.2001 (1ex.), 1.7.2001(1ex.), Coll. K. Chandra. 20.7.2001 (1ex.), Coll. R. K. Singh.

Wing expanse : Male : 40-46 mm, Female : 45 mm.

Distribution : India : Throughout India including Madhya Pradesh (Seoni) and West Bengal (Kolkata).

Elsewhere : Africa, Australia, Europe, Malay Archipeloge, New Guinea, Philppines and Sri Lanka.

Remarks : A new record for M.P.

XXV. Family HYPANIDAE

313. ***Hypena iconicalis*** Cotes & Swinhoe

1889. *Hypena iconicalis* Cotes & Swinhoe, *Cat. Moths of India*, : 764.

Material examined : Recorded from literature (Cotes & Swinhoe, 1889).

Distribution : India : Chhattisgarh (Raipur) and West Bengal (Kolkata).

SUMMARY

The paper presents a comprehensive account on Moths of Madhya Pradesh and Chhattisgarh, which includes the annotated–list of moths so far recorded from these two states and incorporates the information on district-wise localities. In all 313 species/subspecies of moths belonging to 221 genera and 25 families are reported from Chhattisgarh and Madhya Pradesh. Of which, 299 species/subspecies are known from Madhya Pradesh, whereas 13 species/subspecies are included from Chhattisgarh and 1 species included from Madhya Pradesh and Chhattisgarh.

ACKNOWLEDGEMENTS

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ARANEAE : ARACHNIDA

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INTRODUCTION

Spiders have attracted the attention of workers from early times and enormous amount of literature has accumulated, especially in recent years, containing descriptions of species and accounts of their habits, instincts, behaviour and ecology. It is outside the scope of the present paper to attempt a review of this vast literature. Particularly attention may, however be drawn to some the more outstanding and recent work, which has proved extremely valuable in my studies.

The classification now universally followed, and also adopted in this paper is based essentially on that proposed by Petrunkevitch in 1928 in his *Systema Aranearum*. Numerous workers particularly Comstock, Gertsch, Chamberlin, Kaston, Platnick, Brady Levi and others have materially contributed to our knowledge of American spiders. Malaysian spiders were largely described by Workman. Locket and Millidge described the taxonomy of British spiders; the account of which are still of considerable importance. Above from all E. Simon did a monumental work on taxonomy of spiders. It is the most valuable contribution towards the science of arachnology.

Although spiders are extremely abundant throughout the country, our knowledge of the Indian forms is extremely fragmentary. One of the earliest contributions of Indian spiders was by Stoliczka 1869, Thorell 1895 published a descriptive catalogue of over two hundred species of Burmese spiders, including about 150 new species. In 1900 Pocock recorded hardly 200 species from India, Burma and Sri Lanka. Many common and well known forms like Thomisidae and Gnaphosidae are not reported as occurring in India. Sherriff described numerous interesting species from South India. Gravely added considerably to our knowledge of Indian spiders, but particularly on Lycosidae, Ctenidae, Tetragnathidae etc. A number of species from Lahore were described by Dyal 1935. Some studies on the Lycosidae and Araneidae by Sinha may also be mentioned as important contributions to our knowledge of arachnology of India. Recently Tikader 62-108 described numerous new species of the families Thomisidae, Oxyopidae, Theridiiae, Hahnidae, Selenopidae, and Platoridae.

The spiders of the families Thomisidae, Gnaphosidae, Oxyopidae, Lycosidae, and Araniedae were practically unknown from Madhya Pradesh before Tikader 1960. He has published two Fauna of India volumes on spiders. Very recently Gajbe described many species of the family Gnaphosidae from India. So far twenty six species under seventeenth genera belonging to families Eresidae, Tetragnathidae, Theraphosidae, Thomisidae, Lycosidae, Araneidae and Gnaphosidae are known from Madhya Pradesh.

MATERIAL AND METHODS

All the collection of spiders is very easy as they are available in variety of habitats. One of the oldest methods for getting spiders in large numbers is by using a sweep net through tall grass and weeds and picking out the spiders from among

the insects and by dropping the debris gathered with them. An effective method is to hold an inverted umbrella underneath the flowering shoots or bushes and to shake thoroughly the plants, then spiders along with a variety of insects mites etc., fall in the inverted umbrella. After removing the leaves etc., from the umbrella, the spiders can be transferred into collecting tubes containing rectified spirit or 70% alcohol with the help of a fine brush. It is found that the rectified spirit is the best preservative. It is very essential to see that only a smaller number of specimen of spiders are kept in a single tube, otherwise spider specimens may be deformed or damaged due to the pressure of too many specimens.

If the specimens are to be preserved permanently the bottles should be provided with rubber stoppers as to prevent the evaporation of alcohol which is the preservative used for. In some of the larger collections the specimens are put in small corked tubes and these are stored in larger bottles filled with alcohol and tightly closed.

The smaller spiders especially those belonging to the families of Oonopidae, Tetrablemidae, Oecobiidae, which live under bark of trees, corners of wall and debris, need careful search to locate them. A brush dipped in alcohol should be used to transfer the small spiders from under the bark to the tubes containing alcohol. In all cases, too many specimens should be put in one bottle and as far as possible the specimens should be arranged in their normal body form before preservation.

Spiders can be arranged in a petri dish or cavity block filled in alcohol for studies under the binocular microscope. The female epigynum and male pedipalps are very important characters and for the study of internal genitalia it is required to dissect under binocular microscope with the help of very sharp scalpels or pointed tipped razor blade. After dissecting epigynum of the epigyne it should be cleared and studied in clove oil. After the studies are over, the dissected epigynum should be kept permanently in a micro-vial corked with tissue paper, along with same specimen in a larger tube preserved with a rectified spirit or 75% alcohol. The male pedipalp is also to be kept in same way along with male specimen. Each such tube of spider specimens must be properly labelled with collection data.

After the specimens are identified the members of each species are transferred to a smaller vial with a label bearing name and sex.

MORPHOLOGY AND GENERAL TAXONOMIC CHARACTERS OF SPIDERS

(Figs. 1-10)

The body of the spider is divisible into distinctive parts. Cephalothorax and *abdomen* joined together by a narrow *pedicel.* The *Cephalothorax* is covered dorsally by a hard slerotic shield, the carapace and ventrally by *sternum* as in fig. 1 & 2. The anterior margin of sternum articulates movably with *labium.* With few exceptions there is a deep transverse groove, forming a kind of hinge, between the sternum and the labium. The legs are articulated in the pleural membrane between the lateral edges of the *carapace* and *sternum.* On the cephalic region are present six to eight simple eyes. The eyes are generally of two kinds, viz. Black or *diurnal* and white or *nocturnal* eyes. when only one type is present the condition is described as *homogenous* in contrast to the *heterogenous,* when both the types are present. The eyes are usually arranged in a double row, viz the *anterior row* and the *posterior row.* Each row is described as recurved, when the concavity of the curve is directed backward, and as *procurved* when the concavity is turned forward as in fig. 9. According to their position the eyes are described as the *anterior medians, the posterior medians, the anterior laterals, and the posterior laterals.* The cephalic area, occupied by the eyes, is known as *ocular area.* The area margined by the four median eyes termed the median *ocular quadrangle.* The area between the anterior row of eyes and the base of chelicerae is the clypeus. The space between the anterior median eyes and the margin of clypeus represents the *width of clypeus.* There is often a depression in the middle of the thorax, called the *thoracic groove.*

The *chelicerae* are the first pair of appendages of the cephaothorax. Each chelicera bears a curved *fang* as its apex. The inner surface of Chelicera may be finely denticulate and may have a groove, into which the fang can be closed when not in use. This groove may also be armed with tooth on each side, the outer row of these teeth is described as *promargin* and the inner row as *retromargin*. There are sometimes long stout hairs on the promargin to constitute the so-called *fang-scopulae*, as in fig. 5.

The pedipalps are the second pair of appendages. The palp proper is composed of six segments, *viz. coxa, trochanter, femur, patella, tibia and tarsus* as in fig. 4. The female tarsus is simple and may or may not have a single claw. In mature males the tarsus of palp is modified to carry a more or less complicated copulatory organ. Generally the tibia, sometimes also called the patella carry apophyses (which may be of different variety or shapes in different species) which is of important taxonomic value. In many spiders the tarsus has a bowl shaped cavity on its ventral surface and is called *cymbium*. In many groups mature males are provided with an appendage, the *paracymbium*. The structure of mature male palp is very important for generic or specific identification of spiders. The complicated palpal organ has many parts, but that is the matter beyond the scope of this paper. There are four pairs of legs designated, I, II, III, IV respectively. Each leg is composed of seven segments, viz *coxa, trochanter, femur, patella, tibia, metatarsus and tarsus*. The legs are variously clothed with spines,

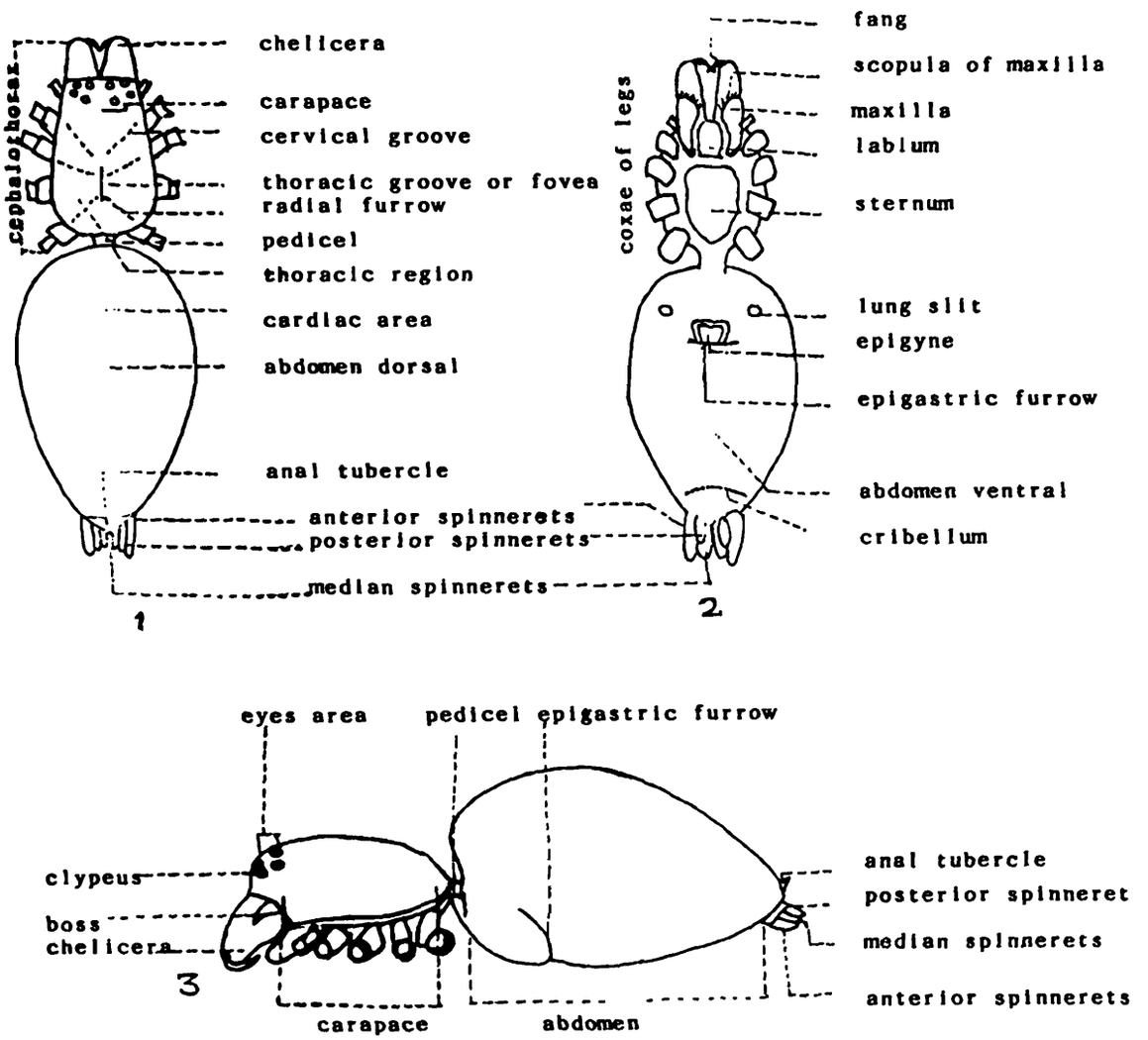


Fig. 1-3 : 1. Dorsal view of typical spider, legs omitted; 2. Ventral view of typical spider, legs omitted; 3. Lateral view of a typical spider, legs omitted.

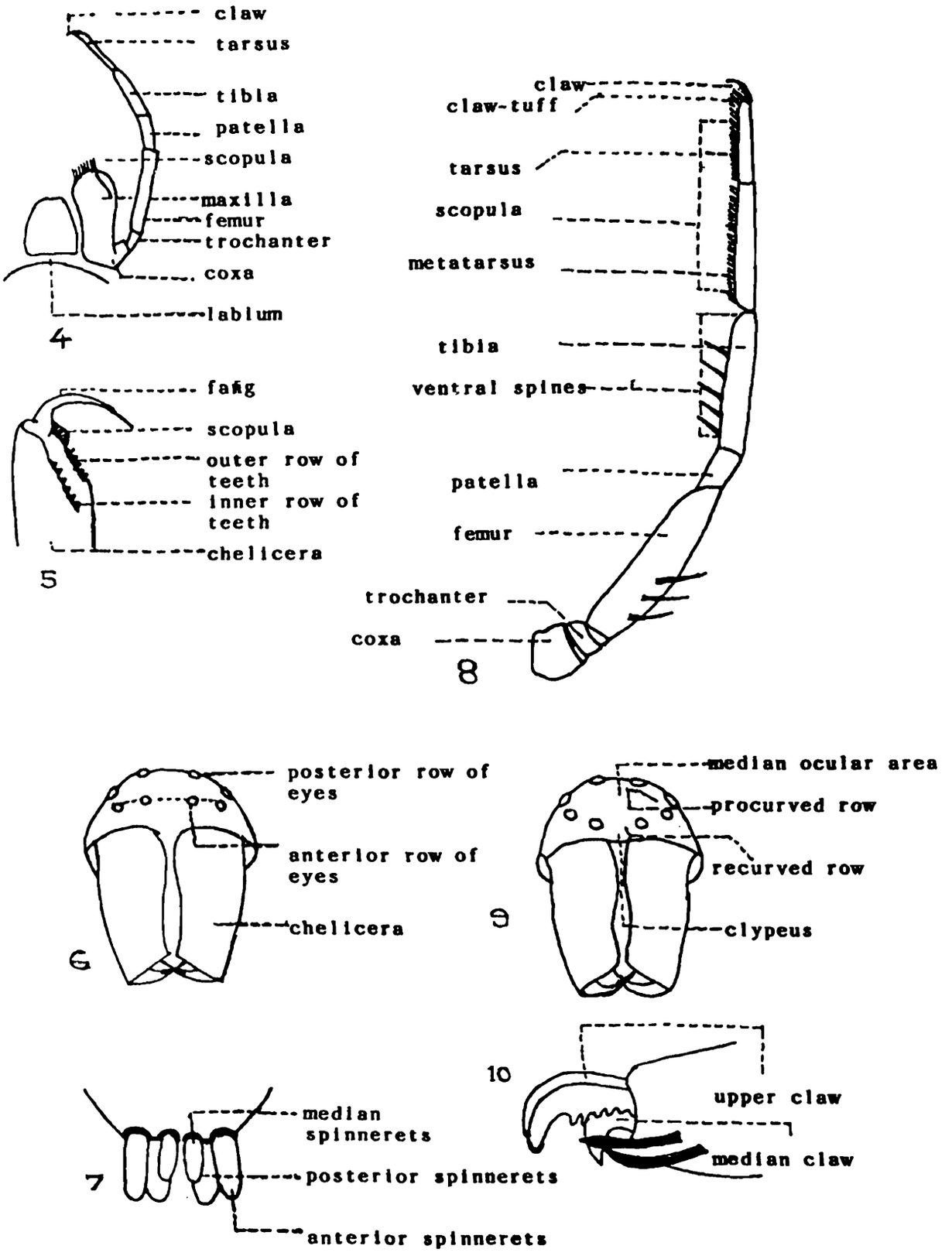


Fig. 4-10 : 4. Labium, maxillae and pedipalp of female; 5. Inner view of chelicera; 6. Face, front view of typical spider; 7. Spinnerets; 8. Ventral view of a leg; 9. Face, front view of a typical spider showing arrangement of eyes; 10. Distal end of tarsus showing claws.

spinules, bristles and hair of various types. The tarsus ends are provided with two or three claws. A characteristic tuft of hairs called *claw-tuft* is sometimes found just above the claw. In the Gnaphosidae there are dense rows of hairs called *leg-scopulae* below the material and tarsi as in fig. 8. Spines on the dorsal sides of legs are distinguished as *dorsal spines* and those on the ventral side as *ventral spines* as in fig. 8.

The abdomen is produced posteriorly into a conical *anal tubercle* and bears three pairs of spinnerets ventrally viz. the first of the *anterior pair*, the second or the *median* and third or the *posterior pair* of spinnerets as in fig. 7. In a number of families there is present in front of the anterior ventral spinnerets, a sieve-like plate, called the *cribellum*. The special type of silk emitted from this organ is combed by the *calamistrum* borne on metatarsus IV. In many families of spiders which do not possess the cribellum a conical appendage called the *colulus*. lies between the bases of the anterior spinnerets.

The ventral surface of abdomen is provided with one or two pairs of lung books, followed by one or two paired spiracles. The females genital opening is the *vulva or epigyne*, with a transverse fold, known as *epigastric furrow* as in fig. 2. The female genital opening is neither the *epigyne* nor the vulva. The opening is simply a pair of orifices. The epigyne is a sclerotised structure lying over or around the opening and structures (i.e. internal genitalia, receptacles and ducts).

The tarsi of spider are often armed with hairs of type known as *tenent hairs*, i.e. hairs dilated at their tips, and as in insects, secrete an adhesive fluid Araneidae and Gnaphosidae have fine hairs called as *pubescene*. Some times the hairs are modified as *spiny hairs* or mousy hairs.

KEY FOR IDENTYFYING THE COMMON INDIAN SPIDERS TO FAMILY LEVEL

1. Chelicerae paraxial, i.e. projecting in a vertical plane and movable in a plane more or less parallel to the median plane of the body; fang clossing backward. With two pairs of book lungs .... Suborder ORTHOGNATHA-2

1b. Chelicerae diaxial i.e. projecting downward and fang articulated with chelicerae in a horizontal plane and movable in a more or less transverse plane. Commonly with one pair of book lungs .... Suborder LABIDOGNATHA-7

2. Abdomen with one to nine sclerotized tergites Furrow of cheliceral fang indistrict. Anal tubercle not immediately behind spinnerets but separated from the spinnerets by considerable distance .... The typical trantulas-3

2b. Abdomen without sclerotized tergites. Anal tubercle immediately behind four spinnerets. Furrow of cheliceral fang distinct ....Typical tarantula-4

3a. Abdomen furnished with nine distinct tergites. Maxillae normal. Eight spinnerets situated in the Lower middle of abdomen ..... Family LIPHISTIDAE

3b. Abdomen not furnished with distinct tergites. Maxillae strongly developed and labium fused with sternum. Six spinnerets situated in the lower end of abdomen ....Family ATYPIDAE

4a. Tarsi with a small median claw and two large lateral claws and without claw tufts.. 5

4b. Tarsi with only two claw tufts .... Family THERAPHOSIDAE

5a. Chelicerae with a rastellum. Posterior spinnerets short or moderatety long. Anterior spinnerets close together at base 6

5b. Chelicerae without rastellum. Posterior spinnerets very long, anterior spinnerets separated by at least their length .... Family DIPLURIDAE

6a. Head region much higher than the thoracic region. Tarsi without unequal tufts..... ..... Family CTENIZIDAE

6b. Head region much higher than the thoracic region. Tarsi with distinct unequal tufts ... . Family BARYCHELIDAE

7a. With a cribellum in front of spinnerets and a calamistrum on metarsus IV, varying from just a few bristles to a row along the entire length of the metatarsus .... Section CRIBELLATAE-8

7b. With two pairs of lungs .... Family HYPOCHILIDAE

8b. With only one pair of lungs 9

9a. Anal tubercle large and prominent, two segmented with a fringe of long hairs. Posterior mediam eyes trangular or irregular in shape. Small spiders 2 to 2.50 mm. long with carapace sub-circular ....Family OECOBIDAE

9b. Anal tubercle of the usual type, without a conspicuous fringe of hairs. Posterior median eyes circular.....10

10a. Head region large, rounded, high, posterior lateral eyes remote from the rest ....Family ERESIDAE

10b. Head low, narrowed, posterior laterals eyes very rarely remote from the others 11

11a. Tarsi furnished with ungual tufts and an inferior claw..... Family PSECHRIDAE

11b. Tarsi without ungual tufts and inferior claw 12

12a. Chelicerae fused together at the base. Labium fused to sternum. Tracheal spiracle considerably in advance of the spinnerets. Calamistrum short..... .....Family FILISTATIDAE

12b. Chelicerae not fused at base Labium free. Tracheal spiracle in the usual position close to the spinnerets. Calamistrum much longer 13

13a. Tarsi with a dorsal row of trichobothria. Eight eyes, all light in colour, homogenous ..... Family AMAUROBIIDAE

13b. Tarsi without trichobothria. Eight eyes, either all dark or heterogenous 14

14a. Eyes eight, homogenous, dark, both row recurved. Metatarsus IV compressed and concave above..... Family ULOBORIDAE

14b. Eyes eight, heterogeous, the anterior median alone dark. Metatarsus IV of the usual shape ..... Family DICTYNIDAE

15a. Tibia and metatarsus I and II with a prolateral row of long spines, at the intervals between which is a row of much spines, curved near their ends and increasing in length distally ..... Family MIMETIDAE

15b. Tibia and metatarsus I and II without prolateral row of spiners 16

16a. Sternum much wider than long, posterior coxae not widely separated .... Family PLATORIDAE

16b. Sternum not wider than long, posterior coxae not widely separated.....17

17a. Posterior spinnerets absent or much shorter than anterior .....Family ZODARIDAE

17b. Posterior spinnerets present, not shorter than anterior 18

18a. Posterior spinnerets enormously long, usually longer than the abdomen .... Family HERSILIIDAE

18b. Posterior spinnerets shorter and thick ...19

19a. Anal tubercle very large, fringed with long hairs, ocular group compact..... .....Family UROCTEIDAE

19b. Anal tubercle small, not fringed, ocular group not compact.....20

20a. Tarsi long and flexible. Labium broader than long, legs very long and slender..... ..... Family PHOLCIDAE

20b. Tarsi of the usual type. Labium longer than wide, legs not very long 21

21a. With less than eight eyes 22

21b. With eight eyes 25

22a. Eyes six in three groups 23

22b. Eyes six in one groups.....24.

23a. Carapace round and high behind. Sternum round behind ..... Family SCYTODIDAE.

23b. Carapace flat and depressed. Sternum pointed behind Family LOXOSCELIDAE.

24a. Small spiders, 1 to 3 mm. long Eyes six, median eyes larger than the laterals. Labium not joined with sternum. Epigastric furrow at the normal region. ....Family OONOPIDAE

24b. Small but larger than oonopids. Eyes two, four, six or eight, almost equal in size. Labium jointed with sternum. Epigastric furrow far behind the normal region..... .....Family CAPONIDAE

25a. Anterior row with six eyes ....Family SELENOPIDAE

25b. Anterior row with four or two eyes 26

26a. Tarsi with two claws, with claw tufts ...27

26b. Tarsi with three claws, without claw tufts 37

27a. Tarsal claws without teeth ....Family HOMALONYCHIDAE

27b. Tarsal claws with usual teeth.....28

28a. Eyes in three or four rows.....29

28b. Eyes in the more common arrangement of two rows.....32

29a. Eyes in four rows, the front eyes very large .....Family LYSSOMANIDAE

29b. Eyes in three rows.....30

30a. Front row of eyes more or less vertical face, median eyes enormously large, second row of eyes very small, often minute, third row of two eyes of medium size ....Family SALTICIDAE

30b. Front row of eyes not vertical, and eyes of this row smaller than those of the second, eyes of third row as large as second row 31

31a. First row of two eyes, second row with four and third row with two. Anterior laterals much closer to the posterior laterals than to the anterior medians. Retromargin of cheliceral fang furrow with at-least three teeth ..... Family CTENIDAE

31b. First row with four eyes, second and third row each with two. Anterior laterals much closer to anterior medians than to the posterior laterals. Retromargin of cheliceral fang furrow with two teeth .... Family ZORIDAE

32a. Tracheal spiracle in advance of the spinnerets at least one-third of the distance between the latter and epigastric furrow ....Family ANYPHAENIDAE

32b. Tracheal spiracle in the usual place just in front of spinnerets 34

33a. Legs, at least, I and II laterigrade, crab-like 37

34a. Colulus absent. Retromargin of cheliceral fang furrow armed with teeth 36

34b. Colulus present. Retromargin of cheliceral fang furrow smooth 35

35a. Colulus present. Hair over body simple and erect. Legs I and II much longer and stouter than III and IV. Promargin of cheliceral fang furrow unarmed .... Family THOMISIDAE

35b. Colulus absent. Hair over body feathery or scaly, and prone. All legs about the same length or leg II along much longer. Promargin with one or two teeth ....Family PHILODROMIDAE

36a. Cephalothorax as long as wide. Posterior row of eyes recurved, anterior row straight or procurved lateral eyes larger. Apex of metatarsus without a soft trilobate membrane .....Family HETEROPODIDAE

36b. Cephalothorax as long as wide or slightly longer than wide. Posterior row eyes straight or slightly procurved, anterior row usually straight and subequal, lateral not larger than

medians. Apex of metatarsus with a soft trilobate membrane ..... Family EUSPARASSIDAE

37a. Anterior spinnerets conical, contiguous. Maxillae without a transverse or oblique depression. Eyes homogenous or almost so (With few exceptions) ..... Family CLUBIONIDAE

37b. Anterior spinnerets cylindrical, and seperated by a distance about equal diameter of one. Maxillae with oblique depression. Eyes distinctly heterogenous, the anterior medians dark, the posterior medians often oblique oval or triangular 38

38a. Anterior lateral spinnerets without sub-distal sclerotized ring and unmodified piriform gland spigots ..... Family GNAPHOSIDAE

38b. Anterior lateral spinnerets with sub-distal sclerotized ring and unmodified piriform gland spigots Family CITHAERONIDAE

39a. The six spinnerets in a more or less transverse row. Tracheal spiracle removed from the spinnerets at least one third of the distance to epigastric furrow ..... Family HAHNIIDAE

39b. The six spinnerets not in a transverse row, but of the subequal arrangement. Tracheal spiracle in the usual place in front of the spinnerets 40

40a. Eyes group hexagonal, the posterior row procurved and anterior row recurved, with the clypeus high. Abdomen pointed behind and legs with very conspicuous spines ..... Family OXYOPIDAE

40b. Eyes group not forming a hexagon, and clypeus much lower. Abdomen not pointed and legs without conspicuous spines..... 41

41a. Tarsus IV. usually provided with a ventral row of 6 to 10 serrated bristles 42

41b. Tarsus IV, without a ventral row of 6 to 10 serrated bristles 46

42a. Tarsi with trichobothria 43

42b. Tarsi without trichobothria 45

43a. Tarsi with single row of trichobothria. Trochantres not notched (most species living in sheet webs with as funnel, over which they run rapidly in an upright position) ... Family AGELENIDAE

43b. Tarsi with numerous trichobothria, but irregularly distributed. All trochanters with a curve 44

44a. Posterior row of eyes so strongly recurved that it may be considered too form two rows. Median claw smooth or with a single tooth. Anterior piece of lorum rounded behind and fitting into a notch of the posterior piece. Egg sac attached to a spinnerets and young carried on mother's back ..... Family LYCOSIDAE

44b. Posterior row of eyes not forming two distinct rows but only slightly recurved. Median claw with two or there teeth. Anterior piece of lorum with a notch into which the posterior piece fits. Egg sac held under cephalothroax. Young not carried by mother ..... Family PISAURIDAE

45a. Clypeus, in most, lower than the height of the median ocular area. Eyes homogenous (most are orb-weaves) 45

45b. Clypeus usually as high as or more commonly higher than height of the median ocular area. Eyes heterogenous (the majority are not orb-weavers) 47

46a. Epigastric furrow between lungslits procurved. No boss on chelicerae. In most cases the chelicerae are large and powerful ..... Family TETRAGNATHIDAE

46b. Epigastric furrow nearly straight. Boss present on chelicerae though rudimentary in some cases. Chelicerae not very large... Family ARGIOPIDAE OR ARANEIDAE

47. Tibia of male pedipalp without apophyses (though the tibia may be dilated distally.) Palp of female in most species with a claw at the end of the tarsus. Tirbia IV in most

species with two dorsal spines, or if only one spine is present then there is one short spine or metatarsi I, II .... Family LINYPHIDAE

Family 1 OECOBIIDAE

Genus 1 *Oecobius* Lucas

1845. *Oecobius* Lucas, *Expl. Alg. Ar.*, : 101.

Diagnosis : This is the best known genus of the family. The cephalothorax is convex and moderately elevated. The legs are proportionately long, the metatarsus and tarsus together of each of the legs far exceeding the carapace in length. Median ocular quadrangle as long as, or longer than broad.

This spider makes small flat webs on window skills, and over cracks on the walls of buildings.

Type-species : *Oecobius domesticus* Lucas.

Distribution : India.

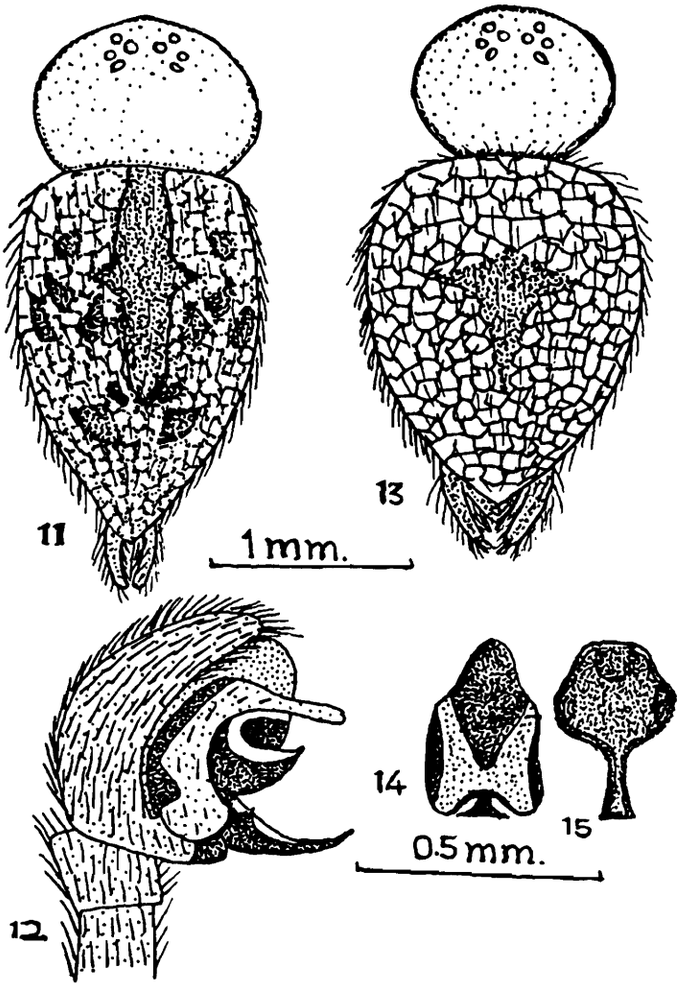
Elsewhere : America, Arabia, Japan.

1. ***Oecobius putus*** O.P. Cambridge. (Figs. 11-15)

1876. *Oecobius putus* Cambridge, *Proc. Zool. Soc.*, : 544.

1962. *Oceobius putus* : Tikader, *J. Bombay nat. Hist. Soc.*, **59**(2) : 682.

Material examined : 5 ♀♀, Office premises, Napier town, Jabalpur, Coll. *U.A. Gajbe*, 6.IV.1985 (Reg. No. A/1793). 1♀, P.W.D. Rest House, Piparia, Hoshangabad distt., Coll. *U.A. Gajbe*, 7.1.1990. (Reg. No. A/1794). 5 ♀♀, Amanpur, Madan Mahal, Jabalpur, Coll. *U.A. Gajbe*, 28.VI.1982. (Reg. No. A/1795).



Figs. 11-15 : *Oecobius putus* O. P. Cambridge. 11. Dorsal view of female, legs omitted; 12. Male palp, lateral view; 13. Dorsal view of male, legs omitted; 14. Epigyne; 15. Internal genitalia.

General: Cephalothorax and abdomen light deep to brown, legs pale green. Total length 2.60 mm. Carapace 0.90 mm. long, 1.10 mm. wide, abdomen 1.80 mm. long, 1.10 mm. wide.

Cephalothorax: Wider than long, depressed in the centre but cephalic region slightly high and eyes groups situated on the top, margin encircled by a deep brown line as in fig. 11. Eyes unequal in size and dissimilar in form. The anterior medians and posterior lateral eyes dark in colour and others pearly white; posterior medians triangular in size, both rows procurved but anterior row more procurved than posterior. Legs long, clothed with fine long hairs and all legs transversely banded with dark brown bands but in male no such bands.

Abdomen: Long slightly pointed behind, clothed with long hairs, dorsum ornamented by dark and chalk-white irregular patches, middorsally with a spear-shaped black area extending from base to behind the middle as in fig. 11. The hind spinnerets long and two joined the second segment longer than the first and furnished with a comb of long spinning tubes on the inner side. Epigyne as in fig. 14, internal genitalia as in fig. 15, male palp as in fig. 12.

Distribution: India: Chennai, Tamil Nadu, Poona, Maharashtra, Kolkata, West Bengal, Jabalpur, Hoshangabad, Madhya Pradesh.

Elsewhere: Egypt, Tripoli, Yemen, Tanjanyika, Lahore.

Remarks: This species is being reported here for the first time from Madhya Pradesh.

Family II ERESIDAE

Genus 2. ***Stegodyphus*** Simon

1873. *Stegodypus* Simon, *Ann. Soc. Ent. Fr.*, **3**(5) : 336.

1963. *Stegodypus* Tikader, *J. Univ. Poona Sci. & Tech.*, **23** : 32.

Diagnosis: Cephalic region large, rounded high, posterior lateral eyes remote from other eyes, anterior lateral eyes situated at the edge of clypeus, clypeus low, mandibles flat in front fang groove scarcely toothed, legs strong and stout, spiny, abdomen oval, anterior spinnerets thick.

The species of the genus occur on bushes or branches of trees, where they spin either large sheet-like webs, accompanied by a tubular retreat, or a large saccular nest, in which many individuals live, gregariously habits among spiders.

Type-species: *Stegodyphus lineatus* Latreille.

Distribution: India.

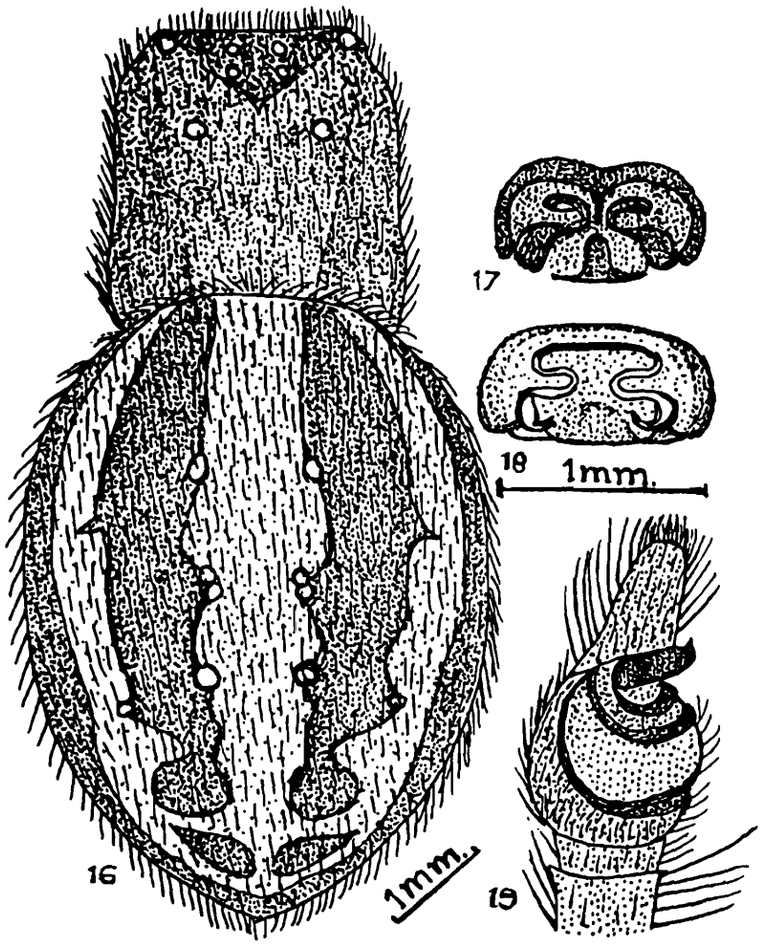
Elsewhere: Asia, Arabia, Africa.

2. ***Stegodyphus sarasinorum*** Karsch (Figs. 16-19)

1892. *Stegodyphus sarasinorum* Karsch. *Ent. Z. Berlin*, **36** : 275.

1981. *Stegodyphus sarasinorum*: Tikader & Biswas. *Rec. zool. Surv. India, Occ. Pap.*, **30** : 14.

Material examined: 1♂, Dauripatha village (Patalkot) Chhindwara dist. Coll. *R. K. Singh* 16.X.1992. (Reg. No. A/2302). 37♀♀, around Semal Jhil, Rater village (Patalkot). Chhindwara dist, Coll. *R.K. Singh,* 20.X.1992 (Reg. No. A/2303). 12♀♀, 2♂♂, around Chitawal Mata (Patalkot), Chhinadwra distt., Coll. *R.K. Singh* 15.X.1992 (Reg. No. A/2304). 29♀♀, on the bank of Ramdohu river on way to Chhindwara-Chand Road, Chhindwara dist., Coll., *H.S. Sharma,* 3.IV.1990 (Reg. No. A/2306) 10♀♀, 6♂♂, Khutama, Chhindwara dist, Coll. *R.K. Singh.* 19.IX.1990 (Reg. No. A/2307). 6♀♀, 7♂♂, Around Chitawal Mata (Patalkot). Chhindwara dist, Coll. *R.K. Singh.* 15.X.1992. (Reg. No. A/2305). 12♀♀, 2♂♂, Chandameta, Chhindwara dist. Coll. *R.K. Singh,* 13.IX.1991. (Reg. No. A/2335) 10♀♀, 2♂♂, Bhartadeo, Chhindwara, dist, Coll. *R.K. Singh* 10.IX.1991 (Reg. No. A/2356) 1♀, Horticulture Garden, Bhind dist., Coll. *R.K. Singh* 17.IX.1994 (Reg. No. A/3544). 44♀♀, Niwari, Tikamgarh, dist., Coll. *U.A. Gajbe,* 20.III.1994. (Reg. No. A/3545). 12♀♀, Patha Big Talab, Tikamgarh, Coll. *U.A. Gajbe,* 18.III.1994 (Reg. No. A/3546) 1♂, fish breeding centre, Morena, Morena dist, Coll. *R.K. Singh,* 4.IX.1994 (Reg. No. A/3547). 3♀♀, Badokhar, 4km from Morena, Morena dist., Coll. *R.K. Singh,*



Figs. 16-19 : *Stegodyphus sarasinorum* Karsch. 16. Dorsal view of female, legs omitted; 17. Epigyne; 18. Internal genitalia; 19. Left male palp, ventral view.

11.IX.1990. (Reg. No. A/3548). 15♀♀, Badnagar Ujjain dist, Coll. *R.K. Singh,* 3.IV.1991 (Reg. No. A/3549). 9♀♀, Ghosla village, Ujjain dist. Coll. *R.K. Singh,* 3.IV.1991 (Reg. No. A/3550). 19♀♀, Alot, Ratlam dist., Coll. *R.K. Singh,* 12.IV.1991. (Reg. No. A/3551). 40♀♀, 4 km from Bus Stand on Sagar Road, Chhatarpur, chhatarpur dist, Coll. *R.K. Singh,* 7.X.1993 (Reg. No. A/3552). 18♀♀, Jamunakhera, Patalkot, Chhindwara dist, Coll. *H.S. Sharma,* 23.II.1994. (Reg. No. A/3553) 70♀♀, Nawagarh, Sarguja dist., Coll. *R. K. Singh,* 11.IV.1992. (Reg. No. A/3554) 20♀♀, Jaora, Ratlam District, Coll. *R. K. Singh,* 11.IV.1991. (Reg. No. A/3555). 56♀♀, Near Kalbherao, Ujjain dist., coll., *R.K. Singh,* 1.IV.1991. (Reg. No. A/3556). 38♀♀, on the bank of Brindaban Talab, Tikamgarh, Coll. *U.A. Gajbe.* 15.III.1994 (Reg. No. A/3557). 67♀♀, on the bank of Jamini River, Kundeshwar, Tikamgarh dist., Coll. *U.A. Gajbe,* 19.III.1994. (Reg. No. A/3558). 46♀♀, Pujarpali, Sari, Raigarh dist., Coll., *R.K. Singh* 29.III.1992. (Reg. No. A/3559). 14♀♀, 4♂♂, Chorai, Chhindwara dist., Coll. *R.K. Singh,* 11.IX.1991. (Reg. No. A/3560). 38♀♀, Manasa, Mandsaur dist., Coll. *R.K. Singh,* 7.IV.1991. (Reg. No. A3561). 20♀♀, Awasti farm house Chhatarpur, Coll. *R.K. Singh,* 5.X.1993. (Reg. No. A/3562). 58♀♀, 3 km from Bus stand on Naogaon Road, Chhatarpur, Coll. *R.K. Singh,* 6.X.1993. (Reg. No. A/3563). 65♀♀, 7♂♂, Katuria village, Chhatarpur dist., Coll. *R.K. Singh,* 30.IX.1993. (Reg. No. A/3598). 25♀♀, 2♂♂, Kuwarpur village, Tikamgarh dist., Coll. *R.K. Singh,* 25.IX.1993. (Reg. No. A/3599). 46♀♀, 2♂♂, Majara village, Tikamgarh dist., Coll., *R.K. Singh* 27.IX.1993. (Reg. No. A/3600).

General : Cephalothorax and legs reddish brown, abdomen blackish white. Total length 8.00 mm. Carpace 2.80 mm. long, 2.70 mm. wide; abdomen 5.60 mm. long, 4.40 mm. wide.

Cephalothorax: Longer than wide, clothed with fine hairs and spines, cephalic region elevated. Anterior row of eyes procurved, posterior row highly recurved, anterior medians and posterior medians close to each other and larger than the anterior laterals and posterior laterals. Strenum heart-shaped pointed below clothed with spine like hairs. Labium longer than wide, labium and maxillae clothed with spine like hairs. Chelicerae moderately strong. Legs strong, I and IV pairs longer than the others, clothed with hairs and spines. Males are smaller than the female but similar in appearance. Male palp as in fig. 19.

Abdomen: Longer than wide, nearly oval, widest in the middle, clothed with spine like hairs a dirty white band running from the anterior end to the base of spinnerets as in fig 16. Ventral side blackish white, two whitish bands running from the base of the epigastric furrow to the base of spinnerets. Epigyne as in fig. 17. Internal genitalia as in fig. 18.

The spider is gregarious in its habits. It spins a labyrinthine tube, which ends blindly at one end and the other end expands into a broad sheet, which however is smaller than that spun by the genus *Hippasa*. This species does not sting the prey to death, but feeds on the captive alive. All members of the colony sharing the same victim. Spiderlings hatch in the month of October and November and feed on their parents, hibernating in the web tubes in winter.

Distribution: India: Travancore, Bangalore, Chingleput, Bilaspur, Poona, Uran, Kolkata, Barkuda Islands, Punjab and Madhya Pradesh.

Remarks: This species is commonly found every where in India on thorny bushes and trees like Acacia, Zizyphus.

3. ***Stegodyphus pacificus*** Pocock

1900. *Stegodyphus pacificus* Pocock, *Fauna Brit. India. Arach.*, : 209.

1935. *Stegodyphus pacificus*: Dyal, *Bull. Zool. Punjab, Univ.*, **1** : 129.

Material examined: 2♀♀, Parasia, Chhindwara dist., Coll. *R.K. Singh,* 15.IX.1991 (Reg. No. A/3564). 1♂, Banda, Sagar dist., Coll. *H.P. Agrawal,* 15.X.1992. (Reg. No. A/3565). 1♀, Near Manai 4 km. From Morena, Morena dist., Coll. *R.K. Singh,* 14.IX.1994. (Reg. No. A/3566). 1♀, Awasti farm house, Chhatrapur Coll. *R.K. Singh,* 5.X.1993. (Reg. No. A/3567).

Distribution: India: Maharashtra, Punjab, Rajasthan, Madhya Pradesh.

Remarks: This species is being reported here for the first time from Madhya Pradesh.

4. ***Stegodyphus socialis*** Pocock

1900. *Stegodyphus socialis* Pocock, *Fauna Brit. India. Arach.*, : 209.

1969. *Stegodyphus socialis*: Tikader, *J. Univ Poona Sci. & Tech.*, **24** : 35.

Material examined: 1♀, Dauripatha village (Patalkot) Chhindwara dist., Coll. *R.K. Singh,* 16.X.1992 (Reg. No. A/2302). 1♀, forest rest House, Hoshangabad, Coll. *U.A. Gajbe,* 13.1.1990. (Reg. No. A/1792). 2♀♀, Near cave of Raghu Raja, Patalkot, Chhindwara dist., Coll. *R.K. Singh,* 14.X.1992. (Reg. No. A/3568). 1♀, 3km. From Bus stand on Naogaon Road, Chhatarpur, Coll. *R.K. Singh,* 6.X.1993. (Reg. No. A/3569).

Distribution: India: Karnataka, Maharashtra, Madhya Pradesh.

Remarks: This species is being reported here for the first time from Madhya Pradesh.

Family III FILISTATIDAE

Genus 3. ***Pritha*** Lehtinen

1967. *Pritha* Lehtinen, *Ann. Zool. Fennici*, **4** : 260.

1978. *Pritha*: Patel, *J. Bombay nat. Hist. Soc.*, **75**(1) : 184.

Diagnosis: Cephalothorax with light coloured designed and well defined clusters of white hairs. Tarsal claws without spines, some times a small ventral spine on the metatarsus 1 present. Thoracic fovea absent. Cribellum triangular and divided. Calamistrum biserrate.

Male: Cymbium horse-shoe shaped. Tibia of

palp strongly bulged, the ejaculatory duct very broad and "U" shaped with embolus end sharp and slightly arched. The palp of the female is more swollen than in other genera.

Type-species : *Pritha mana* (Simon)

Distribution : India.

Elsewhere : Palaearctic region, Malayasia.

5. *Pritha poonaensis* (Tikader)

1963. *Filistata poonaensis* Tikader, *J. Univ. Poona, Sci & Tech.*, **24** : 35.

1978. *Pritha poonaensis* : Patel, *J. Bombay nat. Hist. Soc.*, **75**(1) : 184.

Material examined : 1♀, Junnardeo, Chhindwara dist., Coll. *R.K. Singh,* 16.IX.1991. (Reg. No. A/2300). 3♀♀, Dhuma, Seoni dist., Coll. *U.A. Gajbe,* 10.V.1982. (Reg. No. A/3387). 2♀♀, Shelter cave Hoshangabad, Coll. *U.A. Gajbe,* 10.I.1990. (Reg. No. A/3388). 1♂, Badnagar Ujjain dist., Coll. *R.K. Singh,* 3.IV.1991. (Reg. No. A/3389). 1♀, Napier Town, Jabalpur, Coll. *U.A. Gajbe,* 8.IX.98 (Reg. No. A/3390). 2♀♀, 1♂, Chitrakote, Bastar dist., Coll. *U.A. Gajbe,* 1.1.1984. (Reg. No. A/3391).

Distribution : India : Poona (Type-Locality) Maharashtra, Gujrat.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

6. *Pritha nicobarensis* (Tikader)

1977. *Filistata nicobarensis* Tikader, *Rec. zool. Surv. India,* **72** : 160.

1978. *Pritha nicobarensis* : Patel, *J. Bombay nat. Hist. Soc.*, **75**(1) : 184.

Material examined : 1♀, Gobardhan, village near Chhotedonger, Bastar dist., Coll. *U.A. Gajbe,* 25.XII.1983. (Reg. No. A/3386).

Distribution : India : Andaman, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Family IV ULOBORIDAE

Genus 4 *Uloborus* Latreille

1806. *Uloborus*, Latreille, *Gen. Crust. Ins., etc.* **1** : 109.

1970. *Uloborus* : Tikader, *Rec. zool. Surv. India,* **64**(1-4) : 4.

Diagnosis : Anal tubercle prominent in the female diminished in the male. Legs 1 pair much longer and stronger than the rest. Male tibia of 1 with six to seven dorsal spines, almost in the form of teeth.

Type-species : *Uloborus walckenaerius* latreille.

Distribution : India.

Elsewhere : Europe, America, Madagascar, Asia, Malaysia.

7. *Uloborus danolius* Tikader
(Figs. 20-22)

1967. *Uloborus danolius* Tikader, *Proc. Indian Acad. Sci.*, **70**(3) : 129.

Material examined : 1♀, 1♂, Vijay Nagar, Jabalpur, M.P., Coll. *Pawan Gajbe,* 30.IV.1995. (Reg. No. A/2252). 3♀♀, 1♂, Motinagar Garden, Ratlam, Coll. *R.K. Singh,* 13.IV.1991. (Reg. No. A/3383). 9♀♀, Napier Town, Jabalpur, Coll. *U.A. Gajbe,* 22.IX.1984. (Reg. No. A/3384). 1♀, Tanhai village, Panna dist. Coll. *R.K. Singh,* 17.II.1987. (Reg. No. A/3385).

General : Cephalothorax and legs light yellowish-green. Abdomen yellowish green. Total length 4.80 mm. Carapace 2.40 mm. long, 2.10 mm. wide; abdomen 3.60 mm. long, 2.30 mm. wide.

Cephalothorax : Slightly longer than wide, narrow in front, two conspicuous longitudinal deep brown broad patches on the cephalothorax as in fig. 20. Eyes black in two rows, anterior row slightly longer than the posterior row. Anterior rows of eyes slightly recurved, anterior medians larger than the laterals and closer to each other than to adjacent laterals. Posterior row of eyes almost equal in size, posterior medians slightly closer to adjacent laterals than to each other. Median ocular quadrangle longer than wide and wider behind than in front. Clypeus narrow, length of clypeus is little smaller than the diamenter of

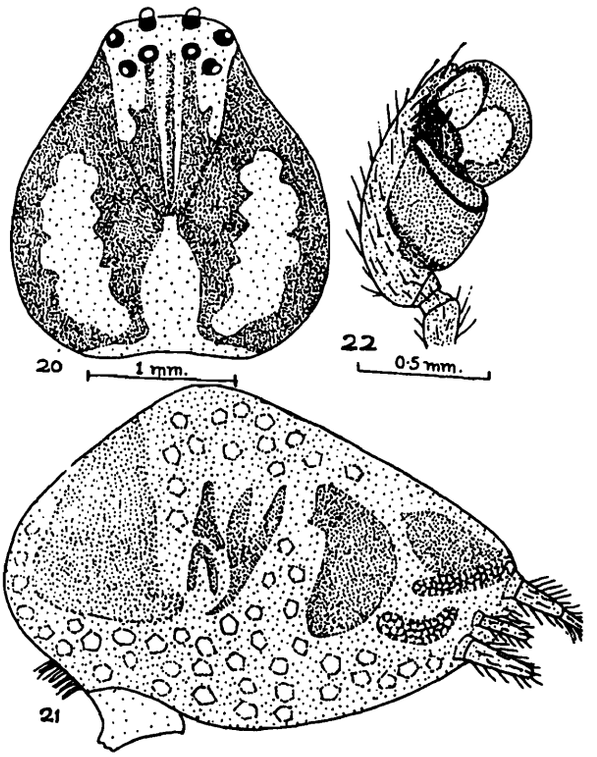


Fig. 20-22 : *Uloborus danolius* Tikader. 20. Dorsal view of cephalothorax of female, legs omitted; 21. Lateral view of abdomen of female, legs omitted; 22. Left male palp, lateral view.

anterior median eyes. Sternum heart-shaped pointed behind and rebordered at coxae of all legs and deep brown in colour. Legs long and strong, clothed with hairs and conspicuously banded with transverse black patches. Legs 1 and IV longer than II and III. Male palp as in fig. 22.

Abdomen : Longer than wide, high and broad in front, clothed with pubescence and decorated with brownish patches and fine netlike structure as in fig. 21. Anterior dorsal side of abdomen provided with a hump, Midventral side provided with longitudinal deep brown band extending from epigastic fold to above the calamistrum.

Distribution : India : Maharashtra, Danoli, dist. Ratnagiri (Type-locality), Poona, Nagpur, West Bengal, Kolkata, Car-Nicobar, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

8. ***Uloborus khasiensis*** Tikader

1968. *Uloborus khasiensis* Tikader, *Proc. Indian Acad. Sci.*, **70**(3) : 127.

Material examined : 2♀♀ Junnardeo, Chhindwara dist., Coll. *R.K. Singh,* 16.IX.1991. (Reg. No. A/2299). 3♀♀, 3♂♂, Khutama Chhindwara dist., M.P. Coll. *R.K. Singh,* 19.IX.1991. (Reg. No. A/2294).

Distribution : India : Meghalaya, Madhya Pradesh.

Remark : This species is being reported here for the first time from Madhya Pradesh.

Family V. MIMETIDAE

General : Mimetids are often called Pirate spiders because they generally prey on other spiders. Mimetids are generally recognized by the characters stically modified prolateral spinnation of tibiae and metatarsi I and II in which a series of short spines, the most distal in each other series of which are the longest.

Genus 5 ***Mimetus*** Simon

1832. *Mimetus Hentz. Amer. J. Sci.*, **21** : 104.

1966. *Mimetus* : Unzicker, *J. Kansas Entomol. Soc.*, **39**(3) : 510.

Diagnosis : Labium extends to more than one-half the length of the endites. Posterior lateral eyes separated from posterior median eyes by

about one and one-third the diameter of a posterior median eyes. Height of clypeus from one-third to one-half the length of the median ocular area. Leg 1 from one-half to one and two-third as long as leg IV.

Type-species : *Mimetus syllepsicus* Hentz.

Distribution : India.

Elsewhere : America, Africa.

9. *Mimetus tikaderi* Gajbe
(Figs. 23-25)

1991. *Mimetus tikaderi* Gajbe, *Rec. zool. Surv. India*, 91(3-4) : 427.

Material examined: 1♀, Bargaon village, Narayanpur Tahsil, Bastar dist., Coll. *U.A. Gajbe*, 24.XII.1983.

General: Cephalothorax and legs light yellowish green, abdomen deep yellowish-green. Total length 6.20mm. Carapace 2.50 mm long, 2.00 mm wide; abdomen; 3.80 mm long 2.40 mm wide.

Cephalothorax : Longer than wide, narrow in front, convex clothed with pubescence and some long hairs, with inconspicuous short fovea at posterior middle, laterally bordered by black patch and middorsally provided with five pairs of black irregular patches. Ocular region dark; eyes compact on ocular region, posterior row of eye slightly longer than anterior row, anterior row slightly recurved (as seen from in front), with medians black, rounded, larger than laterals, closer to laterals than to each other, and with laterals light in colour and oval in shape; posterior row of eyes slightly procurved (as seen from in front), with medians dark, larger than laterals and equidistant to laterals and with laterals light oval in shape, median ocular quadrangle longer than wide and wider behind than in front Clypeus clearly shorter than length of the eye region. Labium triangular, as long as wide, provided with

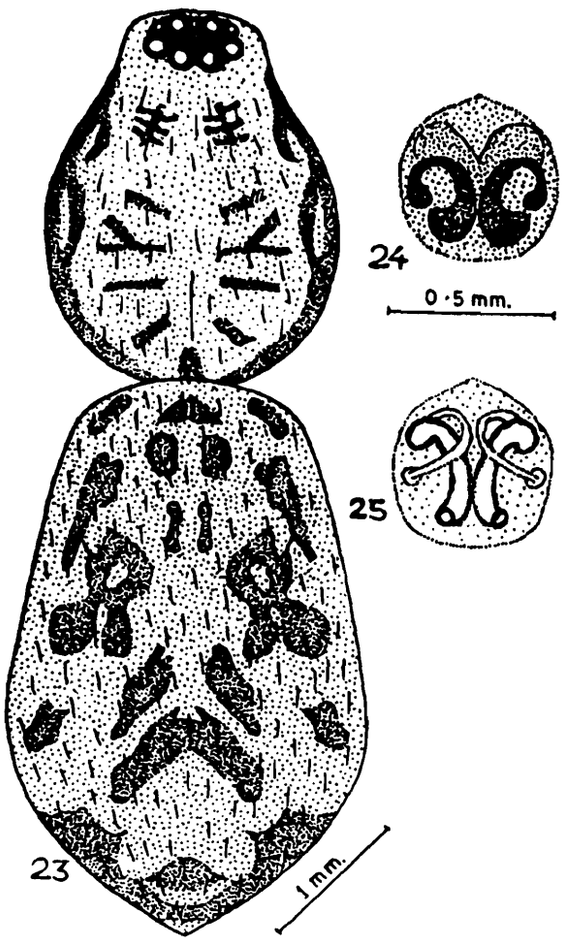


Fig. 23-25 : *Mimetus tikaderi* Gajbe. 23. Dorsal view of female, legs omitted; 24. Epigyne; 25. Internal genitalia.

scopulae, maxillae vertical, yellowish, with anterior portion provided with black scopulae. Chelicerae vertical, provided with conspicuous heavy bristles on inner margin about two-thirds the distance from base to fang grove. Sternum light yellow, heart-shaped smooth, ending with an obtuse point and with small hairs. Legs moderately long, with black patches on patella and tibia, provided with long spines and hairy, tibia and metatarsus 1 and II with a prolateral row of long spines in the intervals between which is a row of much shorter spines.

Abdomen : Longer than wide, nearly pentagonal, widest behind, middle clothed with hairs and provided with some black patches as in fig. 23. Ventral side slightly lighter than dorsal, provided with orange coloured patches. Epigyne as in fig. 24. Internal genitalia as in fig. 25.

Distribution : India : Bargaon (Type-locality) Bastar dist. Madhya Pradesh.

Remarks : This species is known only from its type-locality.

Family VI HERSILIIDAE

Genus 6 ***Hersilia*** Audouin

1826. *Hersilia* Audouin, *Dercr Egypte Arachn.*, : 114.

1977. *Hersilia* : Tikader, *Rec. zool. Surv. India*, **72**(1-4) : 184.

Diagnosis : Ocular quadrangle parallel sided, head flat, angular laterally clypeus usually very high prominent, protarsi of I, II and IV legs bisegmented.

Type-species : *Hersilia caudata* Audouin.

Distribution : India.

Elsewhere : Africa, Madagascar, Oriental region.

10. ***Hersilia savignyi*** Lucas
(Figs. 26-30)

1836. *Hersilia savignyi* lucas, Mag. Zool., **8** : 10.

1981. *Hersilia savignyi* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, **30** : 47.

Material examined : 1♀, Bharatadeo, Chhindwara dist., Coll. *R.K. Singh*, 10.IX.1991. (Reg. No. A/2396). 1♀, Sarangarh, Raigarh dist., Coll. *R.K. Singh*, 28.III.1992. (Reg. No. A/3377). 1♀, Chandia village, Shahdol dist., Coll. *R.K. Singh*, 14.III.1991. (Reg. No. A/3378). 2♀, 2♂♂, Agriculture college, Mandsaur, Coll. *R.K. Singh*, 8.IV.1991. (Reg. No. A/3379).

General : Cephalothorax and legs brown, abdomen brownish, Total length 9.00 mm. Carapace 4.00 mm. long, 3.80 mm. wide abdomen 5.50 mm long, 4.80 mm wide.

Cephalothorax : Longer than wide, slightly narrowing in front, clothed with pubescence. Cephalic area very high, black. Both eye row recurved. Anterior median eyes are black larger than the other eyes laterals small and oval euqally spaced. Posterior row of eyes slightly recurved, equal in size and equidistant from each other. Median ocular quadrangle longer than wide, widest in front than behind. Clypeal height much greater than the diameter of the anterior median eyes. Chelicerae strong, vertical, narrowing in front, inner margin without tooth, outer margin with one tooth. Labium broad than long, triangular, maxillae oblique, longer than wide and provided with black setae. Sternum heart shaped, pointed behind, clothed with long black setae. Legs long, clothed with hairs and some spines, protarsi I, II and IV bisegmented.

Abdomen : Longer than wide, subpentagonal, narrowing behind with black rim, transeverse stripes, three pairs of sigilla as in fig. 26. Ventral side very lighter than the dorsal, midventrally provided with brown coloured dots extents upto the spinnerets. Epigyne bilobate, the lobes seperated by deep emargination. Spinnerets widely seperated, posterior spinnerets very long and longer than the abdomen as in fig 27. Males smaller in size, same in colour as female. The male palp as in fig. 30. Females larger in size, same in colour as male. Epigyne bilobate, the lobes separated by deep emargination as in fig. 28. Internal genitalia as in fig. 29.

This species is active hunting spiders, living on tree trunks and wall of old houses. The body colour varies according to the colour of the

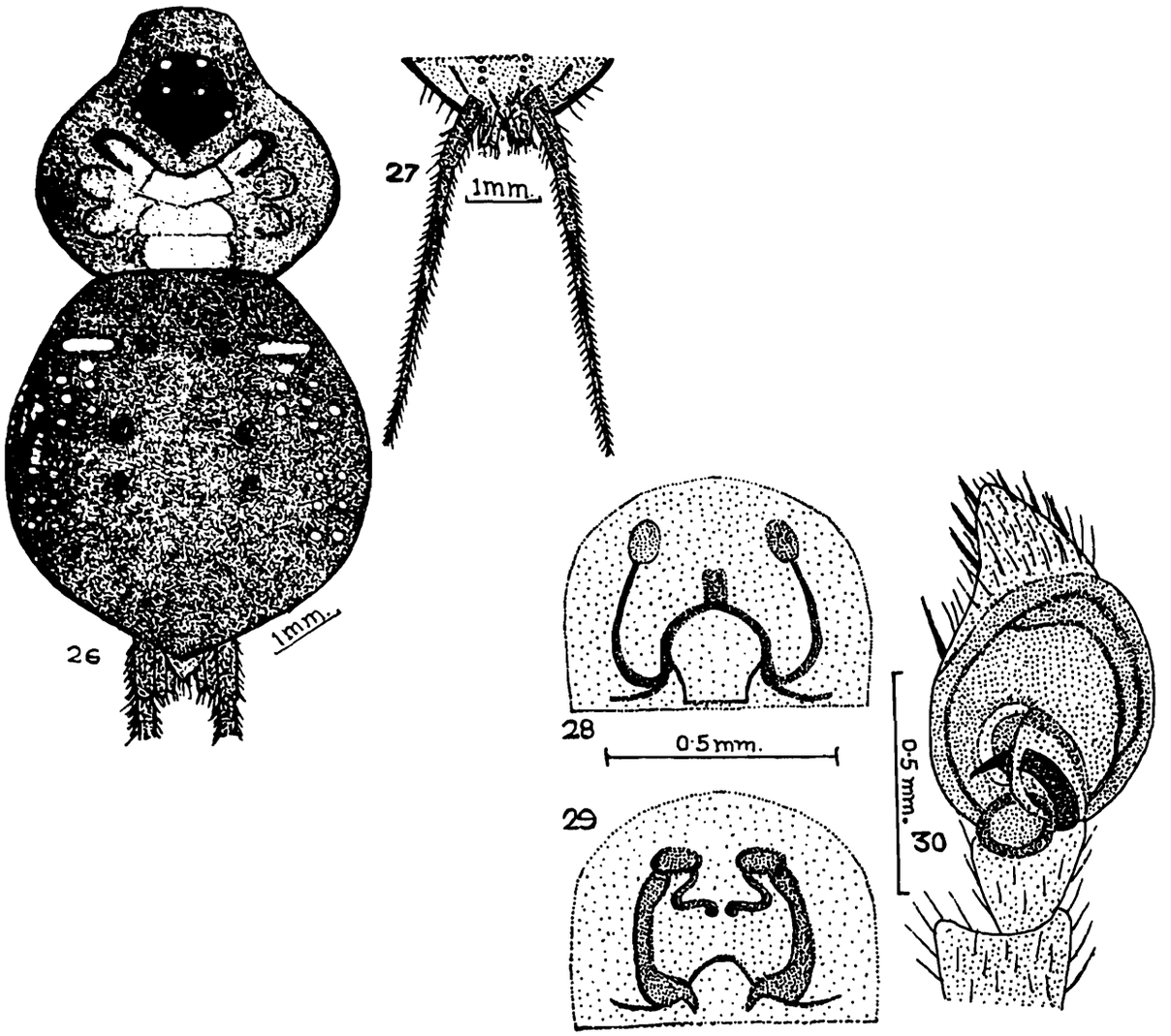


Fig. 26-30. : *Hersilia savigyni* Lucas. 26. Dorsal view of female, legs omitted; 27. Ventral view of abdomen, showing spinnerets; 28. Epigyne; 29. Internal genitalia; 30. Left male palp, ventral view.

substratum and spinning a scanty web of irregular threads.

Distribution : India : Nilgiri Hills, Chennai, Tamilnadu, Bangalore, Karnataka, Poona, Maharashtra, Allhabad, Dehradun, Uttar Pradesh, Kolkata. Serampur, Howrah, West Bengal, Assam, Ranchi, Chota Nagpur, Chakradharpur, Dinapur Siripur, Pusa, Bihar, Puri, Orissa, Mandla, Bastar, Rajnangaon, Balaghat, Madhya Pradesh.

Elsewhere : Sri Lanka, Myanmar, Pakistan.

Remarks : This is a common species found every where in India on the bark of the trees and changes the colour according to the colour of the bark. It is being reported for the first time from Chhindwara, Raigarh, Shahdol, and Mandsaur districts of Madhya Pradesh.

Family VII UROCTEIDAE

Genus 7 *Uroctea* Dufour

1820. *Uroctea* Dufour, *Ann. Sci. Phys.*, 5 : 198.

1978. *Uroctea* Gajbe & Bhadra. *J. Bombay nat. Hist. Soc.*, 75(3) : 933.

Diagnosis : These spiders live under stone, where they spine a small accular tent-like web attached to the under side of the stone by about five subradially arranged bands of silk.

Type-species : *Uroctea durandi* Latreille.

Distribution : India.

Elsewhere : Mediterranean Region, China, Japan, South Africa.

11. *Uroctea indica* Pocock
(Fig. 31-35)

1900. *Uroctea indica* Pocock, *Fauna Brit. India. Arach.*, 243.

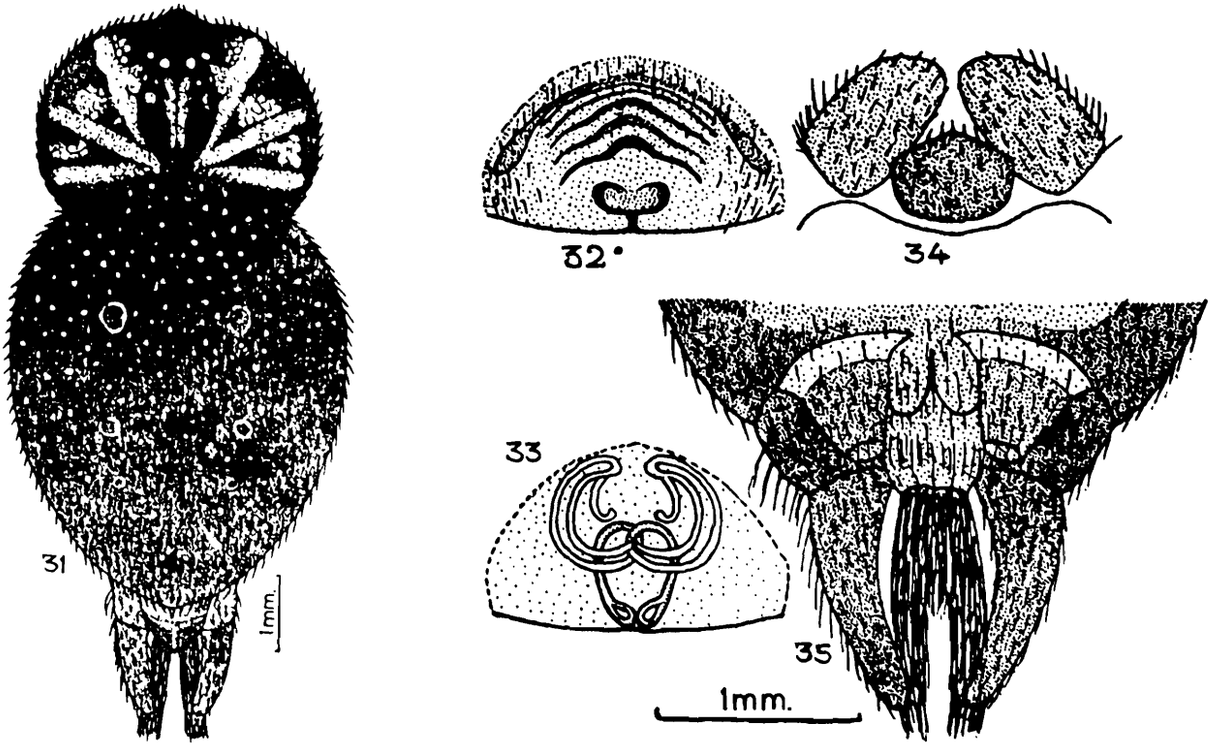
1978. *Uroctea indica* : Gajbe & Bhandra, *J. Bombay nat., Hist. Soc.*, 75(3) : 933.

Material examined : 1♀, Shelter caves, Hoshangabad, Coll. *U. A. Gajbe*, 10.I.1990. (Reg. No. A/1796).

General : Cephalothorax and legs reddish-brown, abdomen brownish-black. Total length 8.50 mm. Carapace 2.80 mm. long, 3.70 mm. wide: abdomen 6.30 mm. long. 4.30 mm. wide.

Cephalothorax : Transversely reuniform, strongly rebordered clothed with hairs. Radiating black stripes diverges from foveal region to lateral sides of cephalothorax. Eyes compact, pearly white, arranged in two distinct rows. Anterior row of eyes slightly procurved; medians longer than the laterals and closer to laterals than to each other. Posterior row of eyes slightly procurved, medians slighty smaller than the laterals, widely separated from each other, closer to the adjacent laterals. Median ocular quadrangle wider than long and wider behind than in front. Chelicerae weak, vertical, dorsally clothed with hair, inner and outer margin without tooth. Labium wider than long, pentagonal in shape, maxillae convergent, clothed with hair and some spine like hair shape as in fig. 34. Strunum heart-shaped, pointed behind, clothed with long hairs. Legs long, stout, clothed with hairs and spines. Femur of all legs dorsally provided with black and pale patches.

Abdomen : Longer than wide, oval with spine like hair, dorsally provided with three pairs of sigilla and some round white spots as in fig. 31. Ventral side slightly lighter than the dorsal, clothed with hairs and provided with four longitudinal white bands starting from epigastric furrow to the anal tubercle. Epigyne consisting of transversely ellipitical plate and marked with nearly semi-circular groove, as in fig. 32. Internal genitalia with oval spermathecae and three spermathecal ducts as in fig. 33. Spinnerets six, clothed with hairs, posterior spinnerets longer than others, bisegmented, anterior spinnerets short and clylindrical as in fig. 35. The anal tubercle large thick, bisegmented and clothed with long hair. The apical segment provided with a lateral fringe of long flexible hair.



Figs. 31-35 : *Uroctea indica*. 31. Dorsal view of female, legs omitted; 32. Epigyne; 33. Internal genitalia; 34. Labium and maxillae; 35. Ventral view of abdomen showing spinnerets.

Distribution : India : Poona Maharashtra; Nagpur, Rajasthan, Hoshangabad, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Family VIII SCYTODIDAE

Genus 8 *Scytodes* Latreille

1804. *Scytodes* Latreille, *Nouv. Dict. Etc.*, **24** : 134.

1981. *Scytodes* : Tikader & Biswas, *Rec. zool. Surv. India, Occ. Pap.*, **30** : 16.

Diagnosis : Cephalothorax high and subglobose behind and slopes forward. Eyes six, small and light-coloured arranged in three widely-separated pairs. Anterior row of eyes strongly recurved.

Type-species : *Scytodes thoracica* latreille.

Distribution : India.

Elsewhere : Europe, Africa, America.

12. *Scytodes kinsukus* Patel

1975. *Scytodes kinsukus* Patel, *Oriental Ins.*, **9**(4) : 427.

Material examined : 1♀, Khutama, Chhindwara dist. Coll., *R.K. Singh*, 19.IX.1991. (Reg. No. A/2393).

Distribution : India : Gujarat, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

13. *Scytodes thoracica* (Latreille)

1804. *Aranea thoracica* Latreille, *Hist. Nat. Insce, Paris*, **7** : 249.

1864. *Scytodes thoracica* : Blackwal, *History of British Spinders*, : 350.

1981. *Scytodes thoracica* : Tikader & Biswas, *Rec. zool. Surv. India. Occ. Pap.*, **30** : 17.

Material examined : 1♀, 1♂, Amlai, Shahdol dist., Coll. *H.P. Agrawal*, 4.II.1997. (Reg. No. A/3380). 1♀, Munali village, Malhargarh, Mandsaur dist., Coll. *R.K. Singh*, 14.VIII.1990. (Reg. No. A/3381). 1♀, Rampura, Manasa, Mandsaur dist., Coll. *R.K. Singh*, 17.VIII.1990. (Reg. No. A/3382).

Distribution : India.

Elsewhere : Australia, Europe, America and Africa.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

14. *Scytodes propinqua* Stoliczka

1869. *Scytodes propinqua* Stoliczka, *J. Asiat. Soc. Bengal*, **38** : 232.

1981. *Scytodes propinqua* : Tikader & Biswas, *Rec. zool. Surv. India. Occ. Pap.*, **30** : 16.

Specimen examined : 1♂, Khutama, Chhindwara dist., Coll. *R.K. Singh*, 19.IX.1991. (Reg. No. A/2392).

Distribution : India : Punjab, West Bengal.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Family IX THOMISIDAE

Key to the genera of the family THOMISIDAE

1. Lateral eyes on strong conical protuberence 2
– Lateral eyes are not on conical protuberence 3
2. Abdomen widened and truncated behind .. .. *Thomisus* Walckenaer
– Abdomen long, lateral sides with longitudinal muscular corrugation .... *Runcinia* Simon
3. Integument clothed with some clavate setae ..... *Oxyptila* Simon
– Ingument not clothed with clavate setae... 4
4. Anterior median eyes closer to the lateral eyes than to each other ..... *Xysticus* Koch.
– Anterior median eyes not closer to lateral eyes 5
5. Tarsal claws of 1 leg with 6-12 teeth. Abdomen not produced beyond the spinnerets ..... *Synaema* Simon
– Tarsal claws of 1 leg without 6-12 teeth. Abdomen produced well beyond the spinneretes ..... *Monaeses* Thorell

Genus 9 *Thomisus* Walckenaer

1805. *Thomisus* Walckenaer. *Tabl. Aron.*, 28.

19[illegible]. *Thomisus* : Tikader, *Fauna of India, Spiders,* **1**(1) : 30.

Diagnosis : Cephalothorax truncated in front, with the upper forecorners strongly and conically protruberant and divergent bearing the lateral eyes. Eyes very small. Abdomen narrow and truncated in front, enlarging to a considerable width behind, where at either corner of the dorsal side is a short blunt conical protruberance. Legs long, I and II much longer than III and IV. Typical crab-like appearance.

Type-species : *Thomisus albus* (Gmelin)

Distribution : India.

Elsewhere : Europe, Africa, Asia, Australia and America.

Key to species of the genus *Thomisus* Walckenaer

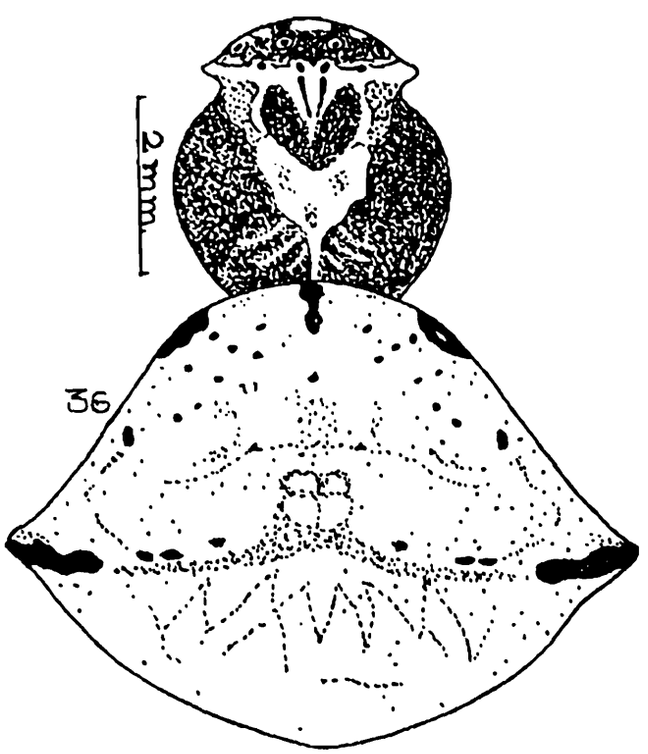
1. Abdomen wider than long 2
– Abdomen longer than wide.....5
2. First pair of legs with conspicuous black spots.....3
– First pair of legs without black spots 4
3. Abdomen provided anteriolaterally with some black spots ..... *labosus* Tikader
– Abdomen basically with a triangular black marking .....*katrajghatus* Tikader
4. Abdomen tuberculated laterally with black spots on the tubercle .... *projectus* Tikader.
– Abdomen with a pair of shoulder tubercles, each with a black spot situated inwardly in the middle ..... *pugillis* Stoliczka
5. Cepohalothorax with lateral longitudinal deep brown bands... *cherapunjeus* Tikader
– Cephalothorax without lateral longitudinal bands..... *elongatus* Tikader

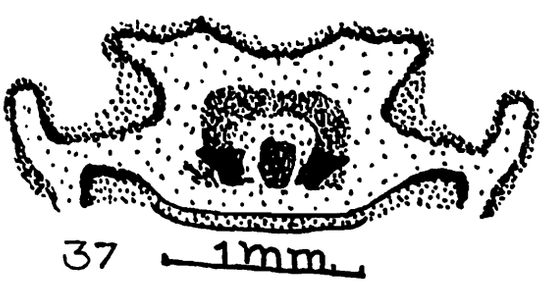
15. *Thomisus lobosus* Tikader
(Figs. 36-37)

1964. *Thomisus lobosus* Tikader, *Proc., Indian Acad. Sci.,* **61**(5) : 285.

1980. *Thomisus lobosus* : Tikader, *Fauna of India spiders,* **1**(1) : 36.

Material examined : 1♀, Konta, Bastar dist., Coll. *Y.N. Gupta,* 25.XI.1998. (Reg. No. A/1755).





Figs. 36-37 : *Thomisus lobosus* Tikader. 36. Dorsal view of female, legs omitted; 37. Epigyne.

General : Cephalothorax brown, legs light green and abdomen chalk-white. Total length 8.50mm. Carapace 3.50mm. long, 3.00mm. wide; abdomen 5.50mm. long, 7.00mm. wide.

Cephalothorax : High, as long as wide. Anterior lateral sides with longitudinal light brown to deep brown patches and on the centre a V. Shaped white conspicuous marking as in fig. 36. Eyes round, black, ocular area chalk-white and provided with a transverse yellow line from left lateral eyes to right laterals. Clypeus long. Sternum pale, heart-shaped with a black dot near the anterior end. Legs long and stout, I and II longer than III and IV legs. I and II legs with black or dark brown band apically on tibia. Tibiae of I and II apically with two pairs and metatarsi with four pairs of ventral spines.

Abdomen : Nearly round, slightly overlapping the posterior region of cephalothroax in front, broadest just behind the middle, laterally on the broadest portion with muscular elevation and this portion provided with a transverse conspicuous black line. Anterolateral border of abdomen with some black spots. Ventral side uniform pale colour. Epigyne as in fig. 37.

Distribution : India : Poona, (Type-locality) Maharashtra.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

16. ***Thomisus katrajghatus*** Tikader

1981. *Thomisus katrajghatus* Tikader, *Proc, Indian. Acad. Sci.*, **58**(5) : 259.

1982. *Thomisus katrajghatus* : Tikader, *Fauna of India, Spiders*, **1**(1) : 38.

Material examined : 1♀, Banda, Sagar dist. Coll. *H. P. Agrawal*, 15.X.1992. (Reg. No. A/3503).

Distribution : India : Maharashtra, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

17. ***Thomisus projectus*** Tikader

1960. *Thomisus projectus* Tikader, *J. Bombay nat. Hist. Soc.*, **57** : 182.

1979. *Thomisus projectus* : Tikader, *Fauna of India Spiders*, **1**(1) : 40.

Material examined : 1♀, Sauncer, Chhindwara Dist., Coll. *Y.N. Gupta*, 20.XI.1989. (Reg. No. A/2415). 1♂, Umaranala, Chhindwara dist., Coll. *R.K. Singh*, 17.IX.1991. (Reg. No. A/2416). 1♂, Parasia, Chhindwara dist., Coll. *R.K. Singh*, 15.IX.1991. (Reg. No. A/2417). 2♀♀, on the bank of ken river, Marha, Panna dist., Coll. *H.P. Agrawal*, 22.XI.1988. (Reg. No. 1757). 1♀, near Alot, Ratlam Dist., Coll. *R.K. Singh*, 22.VIII.1990. (Reg. No. A/3504). 1♀, Near Garad, Mandsaur dist. Coll. *R.K. Singh*, 18.VIII.1990. (Reg. No. A/3505). 1♀, Ratlam town, Ratlam dist., Coll. *R.K. Singh*, 23.VIII.1990. (Reg. No. A/3507). 1♀, Amapali Raigarh dist., Coll. *R.K. Singh*, 11.IV.1992.

Distribution : India : West Bengal, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

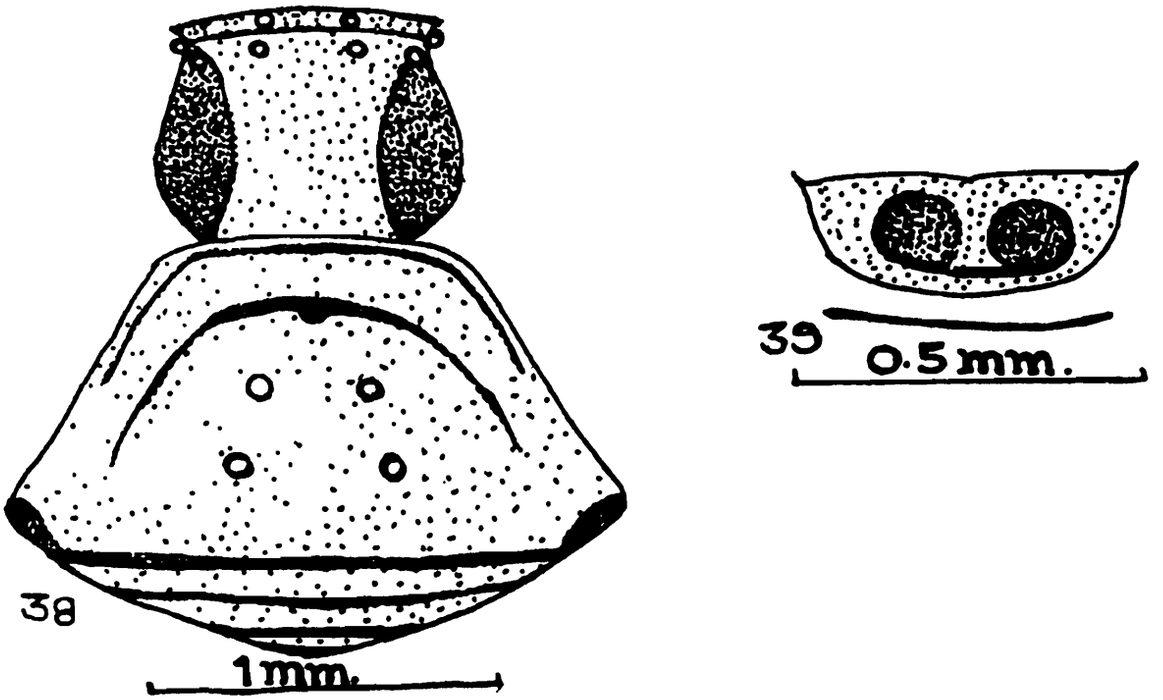
18. ***Thomisus pugilis*** Stoliczka (Figs. 38-39)

1869. *Thomisus (Xysticus) (Sic) pugilis Stoliczka, J. Asiat. Soc. Bengal*, **38** : 225.

1980. *Thomisus pugilis* : Tikader, *Fauna of India, Spiders*, **1**(1) : 48.

Material examined : 1♀ Amarwada, Chhindwara dist., Coll. *R.K. Singh*, 12.IX.1991. (Reg. No. A/2418). 1♀, on the bank of Hiran river near Patan, Jabalpur district, Coll. *U.A. Gajbe*, 29.II.1981. (Reg. No. A/1756). 1♀, P.W.D. Rest House, Amanaganj, Panna District, Coll. *R.K. Singh*, 19.II.1987. 1♀, Alot Ratlam dist., Coll. *R.K. Singh*, 12.V.1991. (Reg. No. A/3506). 2♂♂, Jaora, Ratlam dist., Coll. *R.K. Singh*, 11.IV.1991. (Reg. No. 3508). 1♀, Patan, Jabalpur dist. Coll. *U.A. Gajbe*, 29.IX. 1981. (Reg. No. A/3509). 2♂♂, Near Munali village, Malhargarh, Mandsaur dist. Coll. *R.K. Singh*, 14.VIII.1990. (Reg. No. A/3510), 10♂♂, Bhuiwada, Mandsour dist. Coll. *R.K. Singh*, 9.IV.1991. (Reg. No. A/3511).

General : Cephalothorax and legs yellowish, abdomen chalk white. Total length 1.80 mm.



Figs. 38-39 : *Thomisus pugilis* Stoliczka. 38. Dorsal view of female, legs omitted; 39. Epigyne.

Carapace 0.60 mm. long, 0.80 mm. wide; abdomen 1.20 mm. long, 1.80 mm. wide.

Cephalothorax : Broader than long, produced forward into two lateral conical processes, pale brown in colour, and light in the middle. Anterior-lateral eyes larger and situated on the antero-lateral edge on the cones, posterolateral midway on the posterior face of the cones; ocular quad slightly wider than long and narrower anteriorly. Clypeus very high and a pair of white streaks extending up to the top of the cephalic prominence as in fig. 38. Sternum broadly oval. Anterior metatarsi provided with five pairs of ventral spines; posterior legs without spine.

Abdomen : Subquadrate, and a pair of conical shoulder tubercles each with a black spot situated inwardly in the middle. Colour of the abdomen white or yellowish-white with transverse grooves in the posterior half of abdomen. Average length about 5mm. Epigyne as in fig. 39.

Male is very small, its abdomen coloured with dark reddish brown, interspersed sparsely with white.

Female is commonly found on light coloured rose which it resembles so closely that it is neither detected by enemies nor evaded by flower-visiting insects on which it preys. During mating season the male pursues the female who flees rather than attacting it. The male, as it gets near the female, jumps on her back and settles on the posterior half of her abdomen. At first the female tries to shake off the male, but as her attempt is usually unsuccessful, she submit and the male is seen riding her till copulation takes place in the course of three or four days. The male has also been sometimes seen riding on the back of a young female till she casts her last molt and is ready for copulation.

Distribution : India : West Bengal, Chennai, Punjab.

Elsewhere : Pakistan : Lahore.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

19. ***Thomisus cherapunjeus*** Tikader
(Figs. 40-41)

1966. *Thomisus cherapunjeus* Tikader, *Proc. Indian Acad, Sci.*, 64(1) : 54.

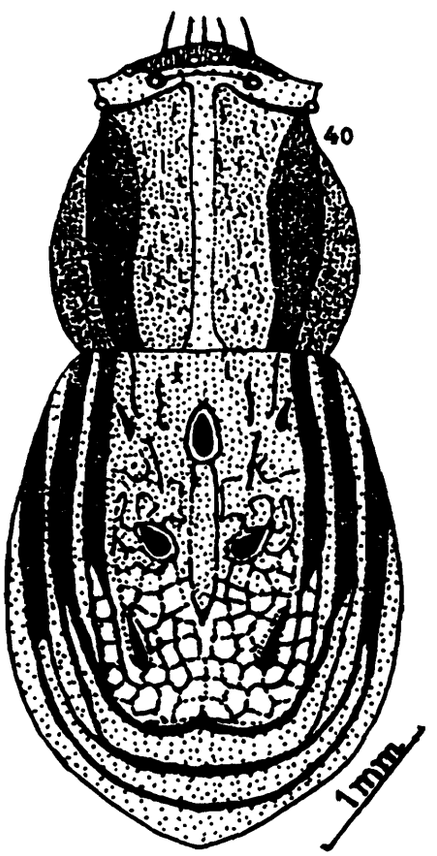
1980. *Thomisus cherapunjeus* : Tikader, *Fauna of India, Spiders*, 1(1) : 54.

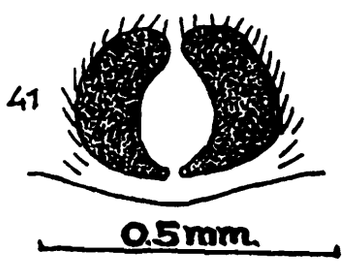
Material examined : 1 ♀, on the bank of Aloni

river, shahnagar, Panna dist., Coll. *R.K. Singh*, 26.II.1987. (Reg. No. A/1753). 1♀, P.W.D. Rest House, Amanganj, Panna dist., Coll. *R.K. Singh*, 19.II.1987. (Reg. No. A/1754). 1♀, on the bank of Hiran river near Patan, Jabalpur dist., Coll. *U.A. Gajbe*, 29.IX.1981. (Reg. No. A/3490). 2♀♀, Kachnara, Mandsaur dist., Coll. *H.P. Agrawal*, 20.X.1990 (Reg. No. A/3491), 1♀, Motinagar Garden, Ratlam, Coll. *R. K. Singh*, 13.IV.1991 (Reg. No. A/3492). 2♀♀, Manasa Mandsour dist. Coll. *R.K. Singh* 7.IV.1991. (Reg. No. A/3493), 1♀, Unhela, Ujjain dist., Coll. *H.P. Agrawal*, 16.XI.1990. (Reg. No. A/3494), 1♀, Amlai, Shahdol dist., Coll. *H.P. Agrawal*, 4.11.1997 (Reg. No. A/3495). 1♀, Near Central Semen centre, chhatarpur, Coll. *R.K. Singh*, 1.X.1993 (Reg. No. A/3496). 1♀, Bandakpur, Damoh dist., Coll. *H.P. Agrawal*. 20.X.1992. (Reg. No. A/3497). 1♀, Singorgarh, Damoh dist., Coll. *H.P. Agrawal*, 22.X.1992. (Reg. No. A/3498). 2♀, Badokhar, 4km. From Morena, Morena dist., Coll. *R.K. Singh*, 11.IX.1994 (Reg. No. A/3499). 1♀, Nawabgarh, Sarguja dist., Coll. *R.K. Singh* 11.IV.1192. (Reg. No. A/3500). 1♀, Damas village, Dharamjaigarh, Raigarh dist., Coll. *R.K. Singh*. 5.IV.1992. (Reg. No. A/3501). 1♀, Awasti form house, Chhatarpur, Coll. *R.K. Singh*, 5.X.1993. (Reg. No. A.3502), 1♀, Phoop, Bhind dist., Coll. *R.K. Singh*, 19.IX.1994. 1♂, (Sub adult), Amapali, Raigarh dist., Coll. *R.K. Singh*, 11.IV.1992. 1♀, 1♂, Dharamjaigarh , Raigarh Colony, Raigarh Coll. *R.K. Singh*, 6.IV.1992.

General : Cephalothorax and legs deep to light green, abdomen brown and mixed with dirty white. Total length 5.20 mm. Carapace 2.20mm. long 2.00mm. wide, abdomen 3.40mm. long 2.50mm. wide.

Cephalothorax : Slightly longer than wide, clothed with fine hairs, cephalic region slightly high and narrow, lateral two sides provided with conspicous longitudinal broad deep brown patch extending from base of lateral eyes to base of thorax as in fig. 40. Ocular tubercle high and laterally pointed and transversely joined with an elevated ridge and chalk white in colour





Figs. 40-41 : *Thomisus cherapunjeus* Tikader. 40. Dorsal view of female, legs omitted; 41. Epigyne.

middorsally provided with a narrow longitudinal chalk white line extending from ocular area to base of thorax as in fig. 40. Eyes black, both rows recurved but posterior row less recurved and longer than anterior row both lateral eyes situated on the base of opposite side of lateral conical tubercle, anterior lateral eyes larger than others. Ocular quad longer than wide and narrow in front. Clypeus moderate, margion of clypeus provided with seven small spines directed forward except the middle one which is directed upward. Sternum heart-shaped, pointed behind, clothed with hairs. Legs I and II pairs very long and stout tibiae of 1 with five and metalarsi with eight pairs of robust ventral spines.

Abdomen : Longer than wide, nearly elliptical in shape maximum width behind the middle, Dorsal side provided with five sigilla marked with deep brown or black. Lateral sides of abdomen provided with three or four longitudinal deep brown thin lines and all lines joined respectively on the posterior sides of abdomen. Ventral side uniform pale green colour and two sides provided with longitudinal parallel muscular elevations. Epigyne as in fig. 41.

Distribution : India : Meghalaya, Shillong, (Type-loçality), Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

20. ***Thomisus elongatus*** Stoliczka

1869. *Thomisus (Xysticus)* (Sci.) *elongatus* Stoliczka, *J. Asiat. Soc. Bengal*, **38** : 227.

1980. *Thomisus elongatus* : Tikader, *Fauna of India, Spiders*, **1**(1) : 56.

Material examined : 4♀♀, 1♂, on the bank of Ganga Mund Pond, Jagadalpur, Baster dist., Coll. *Y.N. Gupta*, 28.XI.1988. (Reg. No. A/1752). 1♀, 1♂, Amapali Rajgarh dist., Coll. *R.K. Singh*, 11.IV.1992.

Distribution : India : Kolkata, West Bengal, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 10 ***Runcinia*** Simon

1875. *Runcinia Simon*, Ar. Fr., **2** : 254.

1979. *Runcinia* : Tikader, *Fauna of India, Spiders*, **1**(1) : 58.

Diagnosis : Cephalothorax slightly wider than long, cephalic region with prominent ocular tubercle, clothed with hairs and spines. Legs long and stout, I and II remarkably longer than others. Abdomen long, spined, narowing behind. Lateral sides with conspicuous longitudinal muscular corrugations.

Type-species : *Runcinia laterals* (Koch).

Distribution : India.

Elsewhere : Europe, Africa, Asia and Australia.

21. ***Runcinia escheri*** Reimoser

1934. *Runcinia escheri* Reimoser, *Revue Suisc Zool.*, **41**(32) : 487.

1980. *Runcinia escheri* : Tikader, *Fauna of India, Spider*, **1**(1) : 59.

Material examined : 1♀, Bargahat, Seoni dist., Coll. *U.A. Gajbe*, 7.III.1987. (Reg. No. A/1766).

Distribution : India : Andhra Pradesh; Seoni, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 11 ***Oxyptila*** Simon

1964. *Oxyptila* Simon. *Hist. Nat. Ar.*, **1** : 439.

1980. *Oxyptila* Tikader, *Fauna of India, Spiders*, **1**(1) : 79.

Characters : Cephalothorax, abdomen and legs clothed withsome clavate or spatulate hairs, clypeus with a row of clavate hairs. The number of clavate hairs varies somewhat from species to species but is not a very reliable character as the hairs are broken off readily. Eyes black, median ocular trapezium longer than broad, posterior medians closer to one another than to laterals. Legs stout and short, tibiae I and II armed ventrally with two pairs of spines. The cuticle clothed with setae of various types some of them pointed while other clavate or spatulate. These spider are found on low plants or bushes and under stones.

Type-species : *Oxytila brevipes* (Hahn)

Distribution : All tropical and sub-tropical countries and North temperate regions of the world.

22. *Oxyptila amkhasensis* Tikader (Figs. 42-43)

1980. *Oxyptila amkhasensis* Tikader, *Fauna of India, Spiders*, 1(1) : 86.

Material examined : 1♀, Amkhas, Jabalpur, Coll. *V.S. Durve*, 4.IV.1967.

General : Cephalothorax deep brown, abdomen and legs light brownish pale. Total length 5.70mm. Carapace 3.00mm. long, 3.00mm. wide, abdomen 3.20mm. long, 3.20mm. wide.

Cephalothorax : As long as wide, bearing clavate hairs on the cephalic region. Eyes ringed with whitish tubercles except posterior medians Ocular quad longer than wide, both rows of eyes recurved but anterior row strongly recurved Clypeus high, margin bearing 13 clavate hairs directed forward but middle one directed upwards. Lateral margin of cephalothorax provided with longitudinal light patches as in fig. 42. Sternum heart-shaped, slightly pointed behind, clothed with fine hairs and light in colour. Legs I and II robust and longer than III and IV, some dark brown patches on the legs. Femur I with three short spines on the front and base of spines encircled by dark ring. Tibiae and metatarsi I and II with four pairs of strong ventral spines.

Abdomen : Ovate, as long as wide, broadest behind the middle, densely clothed with hairs and spines, ventral side slightly lighter than dorsal Epigyne as in fig. 43.

Distribution : India : Jabalpur, (Type-locality) Madhya Pradesh.

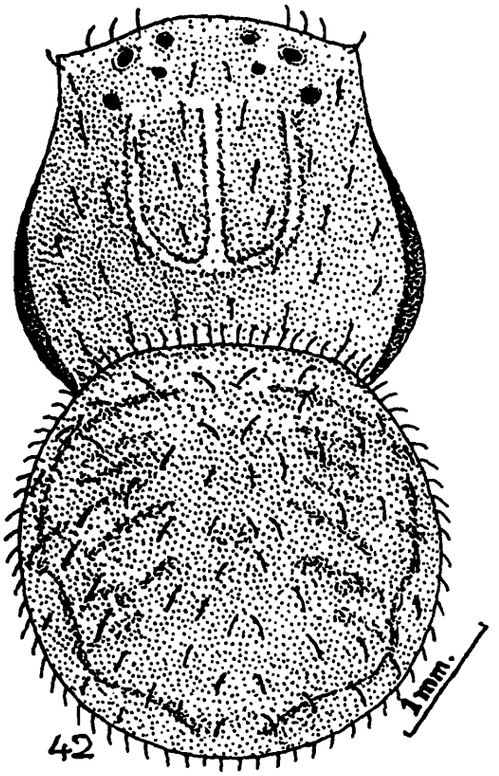
Remarks : This species is so far known only from its type-locality.

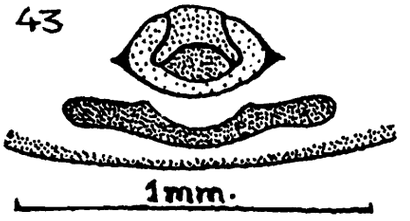
Genus 12 *Xysticus* Koch

1835. *Xysticus* Koch., *H. Schaeft. Deutech ins.*, : 135.

1980. *Xysticus* Tikader, *Fauna of India, Spiders*, 1(1) : 107.

Diagnosis : Cephalothorax rather square fronted clothed with simple isolated hairs and





Figs. 42-43 : *Oxyptila amkhasensis* Tikader. 42. Dorsal view of female, legs omitted; 43. Epigyne.

spines which are usually pointed rarely blunt, but never clavate. Posterior eyes nearly equidistant, median smaller than laterals, the anterior medians usually a little farther from each other than from the anterior laterals. The lateral eyes situated in low sub confluent tubercles. The tibiae and metatarsi of the anterior legs usually furnished with more than three pairs of inferior spines. Tarsal claws furnished with five or six isolated teeth. Abdomen much wider behind than in front, usually bearing dentate band on its dorsal surface. These live under stones and leaves or under loose bark, a few live on small plants and bushes.

Type-species : *Xysticus critatus* (Clerck)

Distribution : India.

Elsewhere : Africa, Europe, Asia and America.

Key to species of the genus *Xysticus* Koch

1. Cephalothorax with dark brown patches .2
– Cephalothorax without dark brown patches 4
2. Abdomen laterally with incomplete broad longitudinal deep brown lines..... ..... *shyamrupus* Tikader
– Abdomen laterally with complete broad longitudinal black or deep brown lines...3
3. Abdomen with a single transverse complete deep brown line ..... *minutes* Tikader
– Abdomen mid-ventrally with two longitudinal brown lines extending from base to spinnerets ..... *jayantius* Tikader.
4. *Cephalothorax* with light to deep brown-patches..... *bengalensis* Tikader & Biswas
– Cephalothorax without light to deep brown patches..... *kali* Tikader & Biswas

23. *Xysticus shyamrupus* Tikader

1966. *Xysticus shyamrupus* Tikader, *Proc. Indian Acad. Sci.*, **64**(1) : 57.

1980. *Xysticus shyamrupus* : Tikader, Fauna of India Spiders, **1**(1) : 113.

Material examined : 1♀, Near Tilkeshwar, Tarana, Ujjain dist., Coll. *R.K. Singh*, 2.IX.1990. (Reg. No. A/3523).

Distribution : India : Meghalaya, Madhya Pradesh.

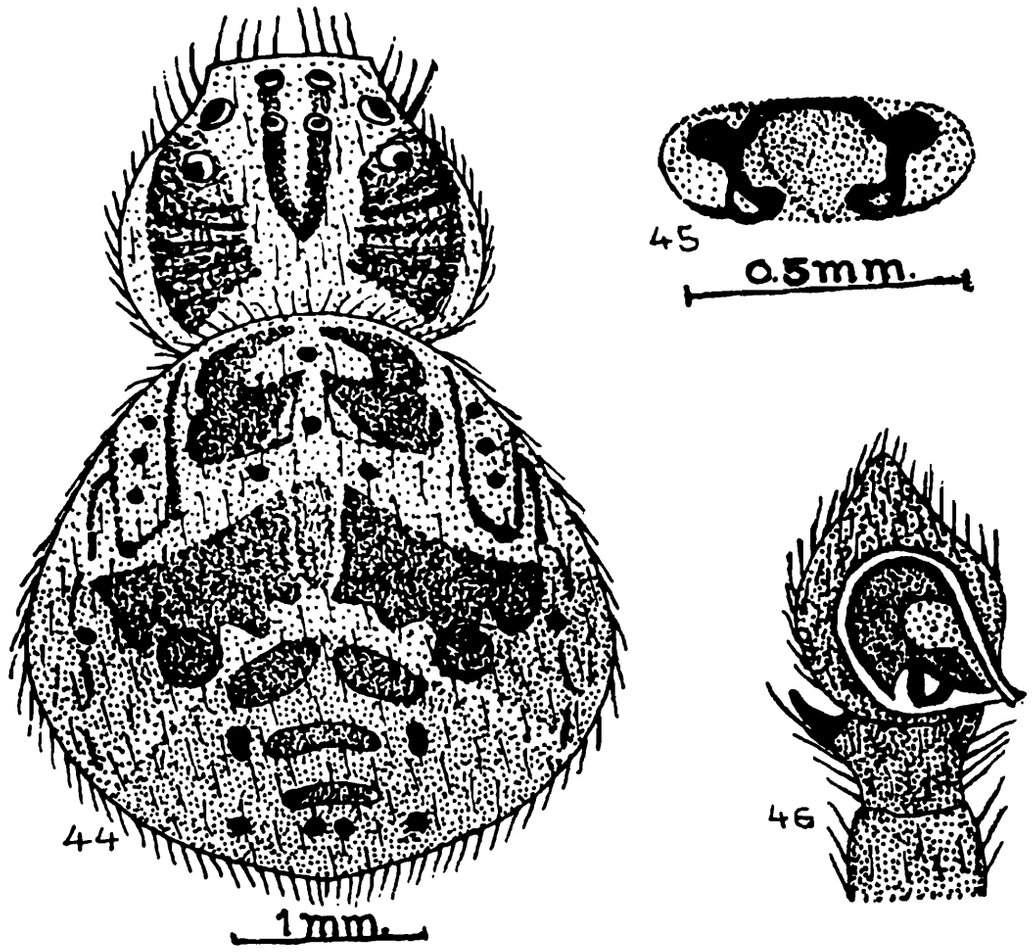
Remarks : This species is being reported here for the first time from Madhya Pradesh.

24. *Xysticus minutes* Tikader
(Figs. 44-46)

1970. *Xysticus minutes* Tikader, *J. Bombay nat. Hist. Soc.*, **57**(1) : 120.

1980. *Xysticus minutes* : Tikader, *Fauna of India, Spiders*, **1**(1) : 120.

Material examined : 1♀, Gwari village, Mandla dist. Coll. *U.A. Gajbe*, 23.XIII.1981. (Reg. No. A/1761). 1♀, Lametaghat, Jabalpur, dist. Coll. *R.K. Singh*, 26.IX.1974. (Reg. No. A/1762). 3♀♀, 1♂, Bhesdehi, Betul dist. Coll. *H.S. Sharma*, 31.II.1990. (Reg. No. A/1763). 3♀♀, Singhapur, Panna dist., Coll. *R.K. Singh*, 16.II.1987. (Reg. No. A/1764). 1♀, Supkhar, Kanha National Park, Mandla dist., Coll. *R.K. Singh*, 1.XII.1986. (Reg. No. A/1765). 1♂, Dhaura village, Bastar dist., Coll. *Y.N. Gupta*, 4.XII.1986. 1♀, on the bank of Ken river, Marha Coll. *H.P. Agrawal*, 22.XI.1988. 1♀, 2♂♂, Junardeo, Chhindwara dist., Coll. *R.K. Singh* 16.IX.1991 (Reg. No. A/2406). 1♀, Patalkot, Chhindwara dist., Coll. *R.K. Singh*, 14.IX.1991 (Reg. No. A/2407). 1♀, Around Mahuakhera, Rater village, Patalkot, Chhindwara dist., Coll. *R.K. Singh*, 19.X.1992. (Reg. No. A/2408). 1♀, 2♂♂, chorai, Chhindwara dist., Coll. *R.K. Singh*, 11.IX.1991. (Reg. No. A/2410). 1♀, Parasia, Chhindwara dist., Coll. *R.K. Singh*, 15.IX.1991. (Reg. No. A/2411) 1♀, Around Mahuakhera Rater village Patalkot, Chhindwara dist., Coll. *R.K. Singh* 19.X.1992. (Reg. No. A/2412). 1♀, Bhartadeo, Chhindwara dist., Coll. *R.K. Singh*, 10.IX.1991 (Reg. No. A/2413). 1♀, Tamia, Chhindwara dist., Coll. *R.K. Singh*, 18.IX.1991. (Reg. No. A/2414). 1♀, Lamhetaghat, Jabalpur dist., Coll. *R.K. Singh*. 26.XI.1974. (Reg. No. A/3512). 1♂, Gwari village, Mandla dist., Coll. *U.A. Gajbe*, 22.XII.1981 (Reg. No. A/3513). 3♀♀, Manasa, Mandsaur dist., Coll. *R.K. Singh*, 7.XI.1991 (Reg. No. A/3514). 3♀♀, Birlagram,



Figs. 44-46 : *Xysticus minutes* Tikader. 44. Dorsal view of female, legs omitted; 45. Epigyne; 46. Left male palp, ventral view.

Nadga, Ujjain dist., Coll. *R.K. Singh,* 4.IV.1991. (Reg. No. A/3515). 4♀♀, Bhuiwada. Mandsaur dist., Coll. *R.K. Singh,* 9.IV.1991. (Reg. No. A/ 3516). 1♀, Ama village, Shahnagar Tahsil, Panna Dist. Coll. *R.K. Singh,* 27.II.1987. (Reg. No. A/ 3517) 1♀, Punjab Garden, Ambikapur, Sarguja dist., Coll. *R.K. Singh,* 9.IV.1992. (Reg. No. A/ 3518). 1♀, Shrinagar near Gotegaon, Jabalpur dist., Coll. *U.A. Gajbe,* 10.III.1983.

General: Cephalothorax light brown, legs greenish, abdomen light brown. Total length 4.40 mm. Carapace 3.00 mm. long, 2.90 mm. wide, abdomen 1.60 mm. long, 1.90 mm. wide.

Cephalothorax: As long as wide, spined the sides with broad longitudinal dark brown patches, a pair of long pale brown irregular lines from the base of posterior median eyes, extending to middle of the thorax. Clypeus median, margin with seven strong spines, directed forward except the median which is directed upward. Eyes black, round, ringed with dirty white tubercles; ocular quad slightly wider than long, space of the anterior median eyes a little wider than that of posterior, lateral eyes larger, posterior median eyes smaller than anterior median. Legs spined with brown transverse bands, tibiae I and II with two pairs of ventral spines. The apex of tibiae I and II with broad dark brown patches. Male palp as in fig. 46.

Abdomen: Oval, dorsum spined, slightly overlapping the posterior region of cephalothorax, dorsal surface with dentate bands beautifully coloured with admixture of white, dark brown and red as in fig. 44. Epigyne as in fig. 45.

Distribution: India: West Bengal Poona Shillong, Gujrat, Madhya Pradesh.

Remarks: This species is being reported here for the first time from Madhya Pradesh.

25. *Xysticus jayantius* Tikader

1966. *Xysticus jayantius* Tikader, *J. Asiat. Soc. Bengal,* **8**(4) : 250.

1980. *Xysticus jayantius* : Tikader, *Fauna of India, Spiders,* **1**(1) : 124.

Material examined : 1♀ Gupt Mahadeo, Hoshangabad dist., Coll. *U.A. Gajbe,* 5.I.1990. (Reg. No. A/3520). 1♀, on the bank of Tetha Jhot nala, Patalkot, Chhindwara dist., Coll. *H.S. Sharma,* 3.III.1994. (Reg. No. A/3521). 2♀♀, Punjab Garden, Ambikapur, Sarguja dist., Coll. *R.K. Singh,* 9.IV.1992. (Reg. No. A/3522).

Distribution : India : Meghalaya, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

26. *Xysticuas bengalensis* Tikader & Biswas. (Figs. 47-49)

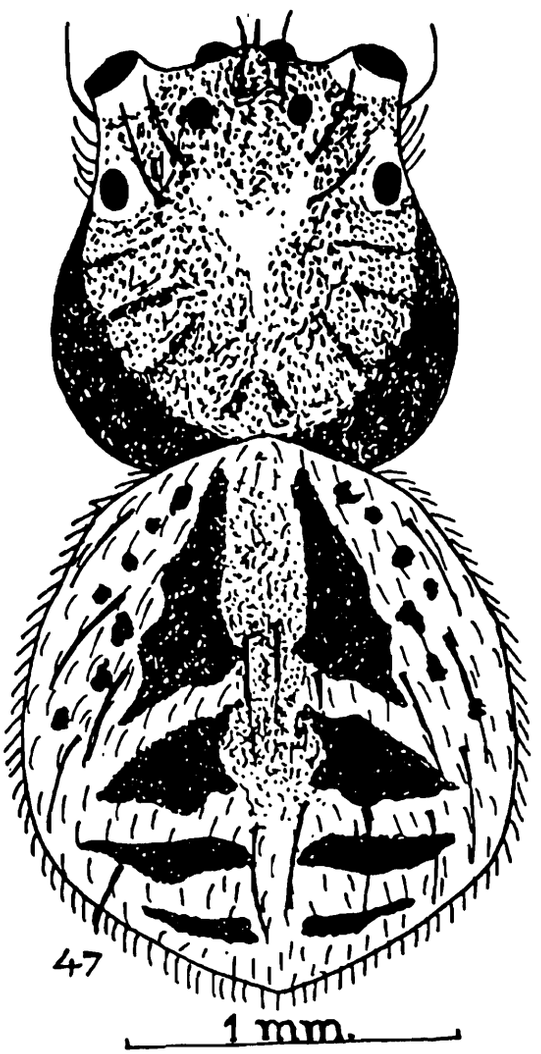
1974. *Xysticus bengalensis* Tikader & Biswas, *Proc. Indian Acad. Sci.,* **80**(6) : 262.

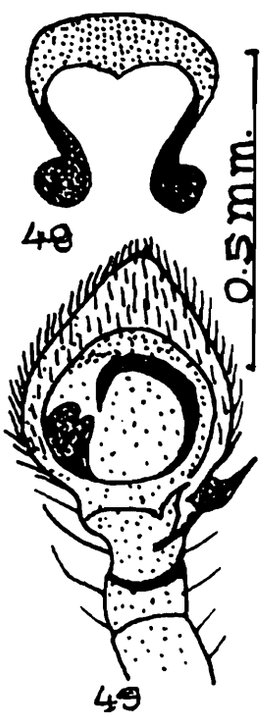
1980. *Xysticus bengalensis*: Tikader, *Fauna of India Spiders,* **1**(1) : 127.

Material examined : 1♂, Genour village Panna dist., Coll. *R.K. Singh,* 22.II.1987. (Reg. No. A/1760). 1♀, Birlagram, Nagda, Ujjain dist. Coll. *R.K. Singh,* 4.IV.1991. (Reg. No. A/3519).

General : Cephalothorax light to deep brown, legs green, abdomen light brown. Total length 3.00mm. Carapace 1.30 mm. long 1.10 mm. wide; abdomen 1.80 mm. long, 1.50 mm. wide.

Cephalothorax : Nearly as long as wide, broader in front, clothed with spine-like hairs.





Figs. 47-49 : *Xysticus bengalensis* Tikader & Biswas. 47. Dorsal view of female, legs omitted; 48. Epigyne; 49. Left male palp, ventral view.

Eyes round, black and ringed with dirty white tubercles; ocular quad slightly longer than wide narrowing in front. Both rows recurved but posterior row strongly recurved. Lateral eyes larger and conspicuous. Legs strong and stout clothed with spines and hairs. I and II pairs of legs more dark in colour and stronger than III and IV. Tibiae and metatarsi of I and II provided with two pairs of ventral spines. Sternum heart-shaped, pointed behind, clothed with fine hairs. Male nearly the same colour as female, male palp as in fig. 49.

Abdomen : Longer than wide, broader in behind, the middle clothed with conspicuous hairs and spine like hairs. Anterior dorsal side provided with two longitudinal deep brown incomplete bands as in fig. 47. Ventral side pale colour with deep brown dots. Epigyne as in fig. 48.

Distribution : India : Darjeeling (Type-locality) West Bengal.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

27. *Xysticus kali* Tikader & Biswas

1974. *Xysticus kali* Tikader & Biswas, *Proc. Indian Acad. Sci.*, **80**(6) : 265.

1980. *Xysticus kali* : Tikader, *Fauna of India, Spiders*, **1**(1) : 130.

Material examined : 1♂, P.W.D. Rest House, Amanganj, Panna dist., Coll. *R.K. Singh*, 18.II.1987. (Reg. No. A/1759).

Distribution : India : Darjeeling, West Bengal, Panna, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 13 *Synaema* Simon

1864. *Synaema* Simon, *Hist. Nat. Ar.*, 1 : 70.

1980. *Synaema* : Tikader, *Fauna of India, Spiders*, **1**(1) : 134.

Diagnosis : The genus is closely allied to *Xysticus* but differs in the following characters. The median ocular area is a little more narrow in front than behind, the anterior eyes equidistant or even with the median nearer to each other than to the lateral eyes. The tarsal claws of the first two pairs of legs furnished with more than five-six teeth and the teeth extend beyond the middle of the claws, the cuticle smooth. Abdomen dorsoventrally compressed. These spiders are found on the foldings of leaves of lower plants and bushes.

Type-species : *Synaema globosus* (Fabr.)

Distribution : Asia, America and Africa.

28. *Synaema brunettii* Tikader

1962. *Synaema brunettii* Tikader, *J. Linn. Soc. London*, **44**(300) : 578.

1980. *Synaema brunettii* : Tikader, *Fauna of India, Spiders*, **1**(1) : 134.

Material examined : 2♀♀, Umaranala, Chhindwara dist., Coll. *R.K. Singh*, 17.IX.1991. (Reg. No. A/2419).

Distribution : India : West Bengal, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

29. *Synaema decorata* Tikader
(Figs. 50-53)

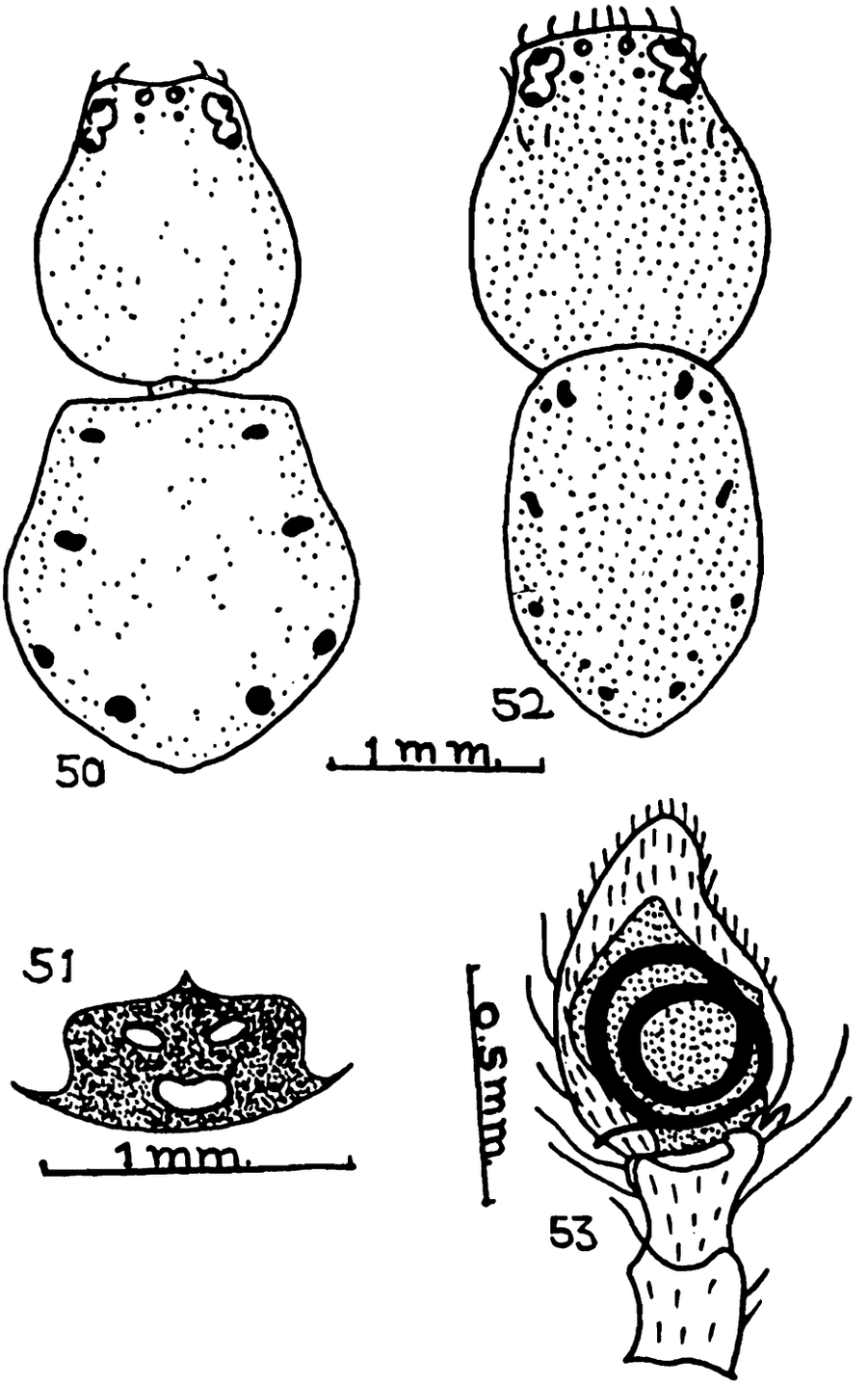
1960. *Synaema decorata* Tikader, *J. Bombay nat. Hist. Soc.*, **57**(1) : 174.

1980. *Synaema decorate* : Tikader, *Fauna of India spiders*, **1**(1) : 174.

Material examined : 1♀, Chhotedonger, Narayanpur Tashil, Bastar dist. Coll. *U.A. Gajbe*, 24.XII.1983. (Reg. No. A/1768). 1♀, Singhpur Panna dist., Coll. *R.K. Singh*, 16.II.1987. (Reg. No. A/1769). 4♀♀, Kotwa, Shahdol dist., Coll. *H.P. Agrawal*, 5.II.1997 (Reg. No. A/3525).

General : Cephalothorax green, ocular tubercles chalkwhite, eyes black, legs and abdomen green. Total length 3.40 mm. Carapace 1.40 mm. long 1.40 mm. wide; abdomen 2.00 mm. long, 1.80 mm. wide.

Cephalothorax : As long as wide, eyes four pairs, lateral eyes larger, posterior median eyes smaller than the anterior medians, except the



Figs. 50-53 : *Synaema decorata* Tikader. 50. Dorsal view of female, legs omitted; 51. Epigyne; 52. Dorsal view of male, legs omitted; 53. Left male palp, ventral view.

posterior median eyes all ringed with chalk-white, ocular tubercles contiguous; ocular quad slightly wider than long, space of anterior median eyes a little smaller than that of the posterior medians as in fig. 50. Clypeus narrow, margin of clypeus bearing slender spines. Legs 1 and II pairs longer than the III and IV, tibiae of legs with four pairs of ventral spines base of spines, black, the first pair of spines shortest. Male palip as in fig. 53.

Abdomen : More or less elliptical, dorsoventrally flattened. Very slightly overlapping the cephalothrax, four pairs of circular blackspots on the dorsum near the lateral margin, the posterior pair largest. Epigyne as in fig. 51.

Distribution : India : Kolkata (Type-locality), West Bengal, Karnataka, Maharashtra.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

30. *Synaema mysorensis* Tikader

1980. *Synaema mysorensis* Tikader, *Fauna of India, spiders,* **1(1) : 188.**

Material examined : 1♀, on the bank of **Machna river, Banka village, Betul dist., Coll. *H. S. Sharma,* 20.III.1990. (Reg. No. A/1767)**

Distribution : India : Bangalore, Karnataka, **Betul, Madhya Pradesh.**

Remarks : This species is being reported here **for the first time from Madhya Pradesh.**

Genus 14 *Monaeses* Thorell

1870. *Monaeses* Thorell, *Eur. Spiders etc.,* **1&2** : 182.

1980. *Manaeses* Tikader, *Fauna of India, Spiders,* **1(1)** : **143.**

Diagnosis : Cephalothorax longer than wide, slightly wider in front. Eyes black and round, both rows nearly straight of slightly recurved, lateral eyes with prominent tubercles. Legs I and II conspicuously long and strong. Abdomen very long and narrowing posteriorly, clothed with conspicuous spines.

Type-species : *Monaeses paradoxus* (Lucas)

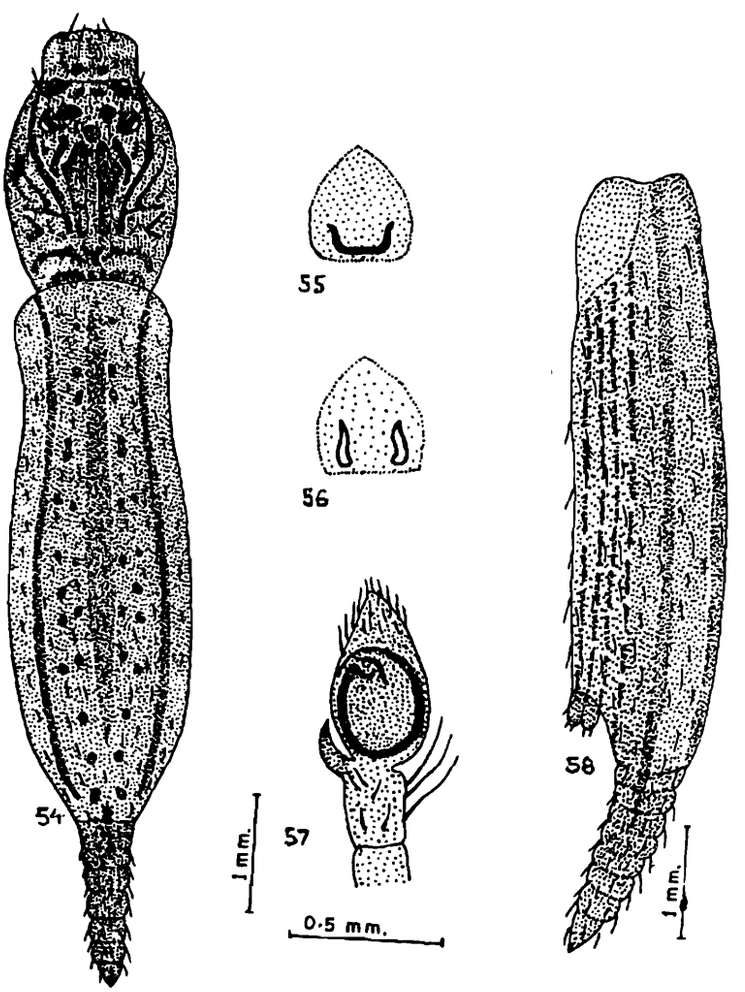
Distribution : India : Throughout.

Elsewhere : Japan, Burma, Holland, Asia and Africa.

31. *Monaeses jabalpurensis* Gajbe & Rane (Figs. 54-58)

Material examined : 2♀♀, 1♂, Barella village, Jabalpur. Coll. *U.A. Gajbe,* 15.IX.1991.

General : Cephalothorax and legs light brownish green, abdomen yellowish green. Total length 8.90 mm. Carapace 2.30 mm long 1.60 mm wide; Abdomen 6.70 mm long. 1.70 wide.



Figs. 54-58 : *Monaeses jabalpurensis* Gajbe & Rane. 54. Dorsal view of female, legs omitted; 55. Epigyne; 56. Internal genitalia; 57. Left male palp, ventral view; 58. Lateral view of abdomen of female.

Cephalothorax : Longer than wide, convex and sparsely spined, clypeus long rectangular and provided with two pairs of spines. Eyes dark, in two rows with lateral eyes larger and ringed with white tubercles; anterior row slightly recurved and posterior slightly more recurved than the anterior, median ocular area longer than wide and wider behind than in front as in fig. 54. Chelicerae long and directed forward, provided dorsally with long spines. Legs long, slender, especially I and II clothed with spiny hairs.

Abdomen : Very long and slender, slightly overlapping base of cephalothorax in front dorsally clothed with short spines and provided with three longitudinal black bands as in fig. 54. Ventral side slightly lighter than dorsal side and provided laterally with brownish longitudinal discontinous bands. Lateral side provided with four brown longitudinal almost parallel lines extending from the anterior extremity to near the spinnerets as in fig. 58. Caudal part of abdomen extending much past the spinnerets and covered with numerous folds, clothed with short spines. Epigyne as in fig 55. Internal genitalia as in fig. 56. Male specimen nearly one third length of female, dark in colour. Male palp as in fig. 57.

Distribution : India : Madhya Pradesh. Jabalpur district (Type-locality).

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Family X PHILODROMIDAE

Key to genera of the Family PHILODROMIDAE

1. Anterior lateral eyes nearer to the anterior median eyes than to the posterior median eyes. Cephalothorax not much longer than wide ..... *Philodromus* Walck
– Anterior lateral eyes nearer to the posterior median eyes than to the anterior median eyes. Cephalothorax much longer than wide 2
2. Cephalothorax much longer than wide. Posterior lateral eyes conspicuously removed behind ..... *Tibellus* Simon
– Cephalothorax not much longer than wide. Posterior lateral eyes not removed behind ..... *Dieta* Simon

Genus 15 ***Philodromus*** Walckenaer

1825. *Philodromus* Walckenaer, *Ent. Fr. Ar.*, 86.

1980. *Philodromus* : Tikader, *Fauna of India, Spiders*, **1**(1) : 181.

Diagnosis : Cephalothorax broader than long, relatively narrow in front. Eyes small and uniform in size and in smaller crescent-shaped group with the anterior row shortest, posterior strongly recurved, the medians farther from each other than the laterals. Abdomen usually oval, not appreciably widened or truncated behind. Legs relatively long, II pair of legs generally longer than I pair, III and IV pairs a little shorter than I and II pairs.

Most of the species of this genus live on plants over which they can run very rapidly and their flat bodies enable them to get under cracks in bark. They are protectively coloured and difficult to see except when they move.

Type-species : *Philodromus aureolus* (Clerck)

Distribution : India.

Elsewhere : All over the world.

Key to species of the genus *Philodromus* Walckenaer

1. Posterior half of abdomen with cheverons 2
– Posterior half of abdomen with out cheverons 4
2. Cephalothorax with a hammer-shaped white band ..... *domesticus* Tikader
– Cephalothorax without white band 3
3. Abdomen flat and white triangular patch on either side ..... *betrabatai* Tikader.
– Abdomen with irregular deep brown dots ..... *bhagirathi* Tikader
4. Femora provided with four conspicuous dorsal spines and without patches. ..... *durvei* Tikader

– Femora provided with irregular white patches ..... *barmani* Tikader

32. *Philodromus domesticus* Tikader

1962. *Philodromus domesticus* Tikader, *Proc. Zool. Soc. Calcutta*, **15**(1) : 39.

1986. *Philodromus domesticus* : Tikader, *Fauna of India, Spiders*, **1**(1) : 183.

Material examined : 2♀♀, Ajaygarh forest, Panna dist., Coll. *R.K. Singh*, 13.II.1987. (Reg. No. A/1772).

Distribution : India : Shillong, Meghalaya, Panna dist., Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

33. *Philodromus betrabatai* Tikader

1966. *Philodromus betrabatai* Tikader, *Proc. Linn. Soc. London*, **177**(1) : 35.

1980. *Philodromus betrabatai* : Tikader, *Fauna of India Spiders*, **1**(1) : 187.

Material examined : 2♀♀, Around Amamai village, Patalkot, Chhindwara dist., Coll. *R.K. Singh*, 12.X.1992. (Reg. No. A/2399). 1♀, Around Lohsar, Patalkot, Chhindwara dist., Coll. *R.K. Singh*, 17.IX.1992. (Reg. No. A/2400). 1♀, Around Mahuakhera, Rater village, Patalkot, Chhindwara dist., Coll. *R.K. Singh*, 19.X.1992. (Reg. No. A/2401). 2♂♂, Manasa, Mandsaur dist., Coll. *R.K. Singh*, 7.IV.1991. (Reg. No. A/3526).

Distribution : India : Maharashtra, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

34. *Philodromus bhagirathai* Tikader

1966. *Philodromus bhagirathai* Tikader, *Proc. Linn. Soc. London*, **177**(1) : 36.

1980. *Philodromus bhagirathai* : Tikader, *Fauna of India spiders*, **1**(1) : 200.

Material examined : 1♀, Around chimtipur village, Patalkot, chhindwara dist., Coll. *R.K. Singh*, 11.X.1992. (Reg. No. A/2398).

Distribution : India : Uttarpradesh, Tamil Nadu, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

35. *Philodromus durvei* Tikader
(Figs. 59-61)

1980. *Philodromus durvei* Tikader, *Fauna of India, Spiders*, **1**(1) : 204.

Material examined : 1♀, 1♂, Jabalpur city, Jabalpur, Coll. *V.S. Durve*, 5.II.1968. 1♂, Supkhar, Mandla dist., Coll. *R.K. Singh*, 1.XII.1986. (Reg. No. A/1771).

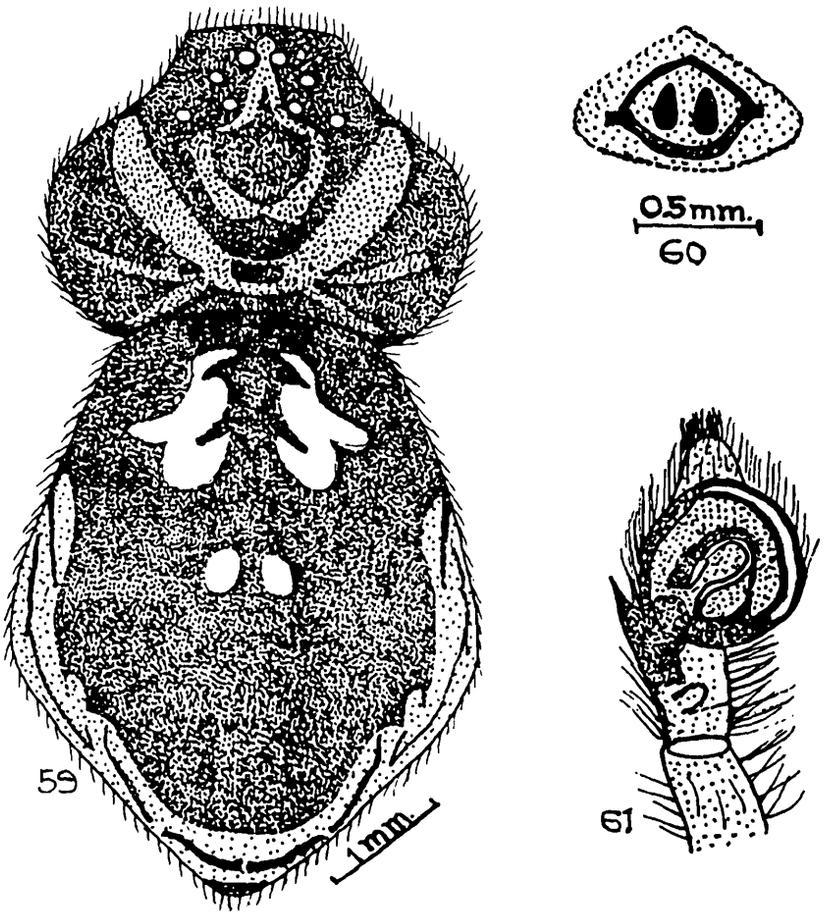
General : Cephalothorax, abdomen and legs light to deep brownish-green. Total length 6.30 mm. Carapace 2.50 mm. long, 3.00 mm. wide; abdomen 4.00mm. long 3.30 mm. wide.

Cephalothorax : Depressed but cephalic region slightly high, wider than long, narrowing in front, lateral sides and cephalic region provided with pigmented dots. Clypeus narrow, margin provided with hairs. Eyes round and black, both rows recurved, all eyes form a crescent shaped group, anterior median and posterior laterals slightly larger than others, the anterior row short, the posterior median further from each other than from the adjacent laterals. Ocular quad longer than wide and narrowing in front. Sternum pale, clothed with hairs, nearly oval shaped, pointed behind. Legs relatively long, II leg slightly longer than I, clothed with fine hairs and provided with brown dots. Femora provided with four conspicuous dorsal spines. Tarsal scopulae well developed and claw tuft prominent. Male palp as in fig. 61.

Abdomen : Longer than wide, depressed, clothed with hairs, posterior end obtusely pointed, dorsal side provided with deep-brown patches as in fig. 59. Ventral side light pale but provided with a conspicuous broad longitudinal band extending from epigastric fold to near the base of spinnerets. Epigyne as in fig. 60.

Distribution : India : Jabalpur (Type-locality).

Remarks : This species is being reported here for the first time from Madhya Pradesh.



Figs. 59-61 : *Philodromus durvei* Tikader. 59. Dorsal view of female, legs omitted; 60. Epigyne; 61. Left male palp, ventral view.

36. ***Philodromus barmani*** Tikader

1980. *Philodromus barmani* Tikader, *Fauna of India. Spiders,* **1**(1) : 208.

Material examined : 4♀♀ 1♂, Around Chimtipur village Patalkot, Chhindwara dist., Coll. *R.K. Singh,* 11.X.1992. (Reg. No. A/2397). 1♀, Shankarghat, Balaghat, Coll. *U.A. Gajbe,* 16.XII.1983.

Distribution : India : Madhya Pradesh and Meghalaya.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 16 ***Tibellus*** Simon

1875. *Tibellus* Simon, *Ar. Fr.,* **2** : 307.

1980. *Tibellus* : Tikader, *Fauna of India, Spiders,* **1**(1) : 213.

Diagnosis : Cephalothorax appreciably longer than wide. The change in position of the eyes have gone further than the genue *Thanatus* and the eyes of the anterior row, with a posterior median pair, form a small compact hexagonal group from which the posterior laterals conspicuously removed. Abdomen long and cylindrical or cigar-shaped. Legs relatively long, bearing scopulae on both tarsi and metatarsi. These spiders are found in grass and on bushes, when at rest the legs are stretched out longitudinally, two pairs forward and two pairs backward.

Type-species : *Tibellus oblongus* (Walckenaer)

Distribution : India.

Elsewhere : Europe, America, Africa and Asia.

37. ***Tibellus poonaensis*** Tikader

1962. *Tibellus poonaensis* Tikader, *J.Univ. Poona Sci* and *Tech.,* **22** : 135.

1980. *Tibellus poonaensis* : Tikader, *Fauna of India, Spiders,* **1**(1) : 215.

Material examined : 1♀, Mura village, Betul dist., Coll. *H.S. Sharma,* 24.II.1990. (Reg. No. A/1773).

Distribution : India : Poona, Maharashtra, Betul, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

38. *Tibellus elongatus* Tikader

1960. *Tibellus elongatus* Tikader, *J. Bombay nat. Hist. Soc.*, **57**(1) : 177.

1980. *Tibellus elongatus* : Tikader, *Fauna of India, Spiders,* **1**(1) : 127.

Material examined : 3♀♀, Singhpur, Panna dist., Coll. *R.K. Singh,* 16.I.1987. (Reg. No. A/1774). 1♀, Shikara village, Seoni dist., Coll. *U.A. Gajbe,* 26.XI.1986. (Reg. No. A/1775). 1♀ Manasa, Mandsaur dist., Coll. *R.K. Singh,* 7.IV.1991. (Reg. No. A/3527). 1♀, on the bank of Gayani river, Patalkot, Chhindwara dist., Coll. *H.S. Sharma,* 28.II.1994. 1♀, on the bank of Jetha Jhot nalla, Patalkot, Chhindwara dist., Coll. *H.S. Sharma,* 3.III.1994.

Distribution : India : Kolkata, West Bengal, Panna, Seoni Chhindwara, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 17 *Dieta* Simon

1880. *Dieta* Simon, *Ann. Soc. ent. Fr.*, **10**(5) : 108.

1980. *Deita* : Tikader, *Fauna of India, Spiders,* **1**(1) : 233.

Diagnosis : Cephalothorax flat, longer than wide and abruptly narrowing anteriorly on the ocular area. Eyes prominently tuberculated, lateral eyes larger than medians, both row recurved but anterior row more recuved than the posterior row. The four median eyes form a recatangular area as wide behind as in front. Legs 1 and II remarkably long and spinnerets situated at the posterior end of abdomen.

Type-species : *Dieta paranasia* Simon.

Distribution : India.

Elsewhere : Africa, Asia, Oriental region.

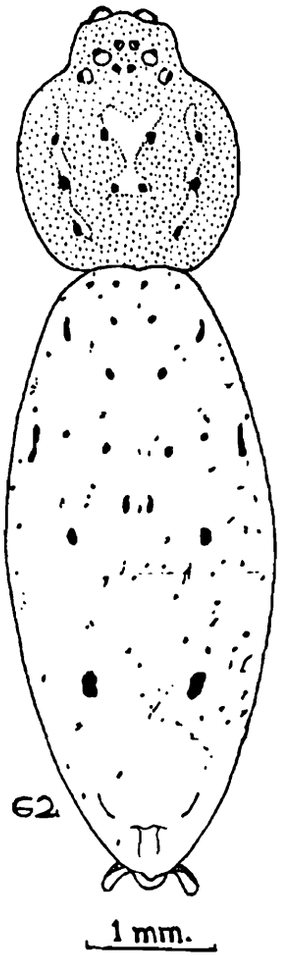
39. *Dieta elongata* Tikader
(Figs. 62-63)

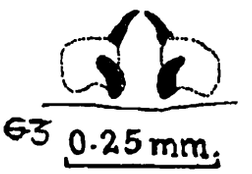
1980. *Dieta elongata* Tikader, *Fauna of India, Spiders,* 1(1) : 234.

Material examined : 1♀, 1♂, Amarawada, Chhindwara dist., Coll. *R.K. Singh,* 12.IX.1991. (Reg. No. A/2402). 1♂, Umaranala, Chhindwara dist., Coll. *R.K. Singh,* 15.IX.1991. (Reg. No. A/2404). 2♀♀, Lohsur, Patalkot, Chhindwara dist., Coll. *R.K. Singh,* 17.X.1992. (Reg. No. A/2405). 2♀♀, on the bank of Meghariver, 7km. from forest rest house, kukru, Betul dist., Coll. *H.S. Sharma,* 1.IV.1990. (Reg. No. A/1776). 1♀, Patehi village on Kotawadi-shahpur road, Betul dist., Coll. *H.S. Sharma,* 21.III.1990 (Reg. No. A/1777). 1♀, Near Sailana, Ratlam dist., Coll. R.K. Singh, 21.VIII.1990. (Reg. No. A/3528). 2♀♀ Agriculture college Mandsaur, Coll. *R.K. Singh,* 8.IV.1991. (Reg. No. A/3529).

General : Cephalothorax and legs light brownish and abdomen dirty chalk-white. Total length 8.00mm. Carapace 2.50 mm. long, 2.30 mm. wide; abdomen 6.00mm. long, 2.50 mm. wide.

Cephalothorax : Slightly longer than wide, cephalic region abruptly narrowing infront and at the base of cephalothorax comparatively narrow; thoracic region provided with conspicuous pink spots and lateral margins of thoracic region also lined with pink colour as in fig. 62. Eyes black and bases of all eyes provided with prominent silvery tubercles. Anterior row of eyes strongly recurved and shorter than the posterior row, anterior-medians smaller than the anterior laterals; posterior medians also smaller than the posterior laterals. Ocular quad slightly longer than wide and as wide behind as in front as in fig. 62. Clypeus with two spines directed forward. I and II pair of legs remarkably longer and cylindrical and all legs clothed with hairs and spines. Tibiae and metatarsi of I and II legs provided with four pairs of ventral robust spines. End of tarsi provided with well developed claw-tufts. The prolateral distal extremity of I tibiae provided with a brown conspicuous patch.





Figs. 62-63 : *Dieta elongata* Tikader. 62. Dorsal view of female, legs omitted; 63. Epigyne.

Abdomen : Long, narrow, tapering behind, slightly overlapping in front on cephalothorax, clothed with fine hairs. Dorsally provided with inconspincous brown markings. Spinnerets situated at the posterior tip of the abdomen. Ventral side uniform light coloured. Epigyne as in fig. 63. Live specimens light greenish in colour and easily comouflaged with green leaves.

Distribution : India : Poona (Type-locality), Maharshtra, Chhindwara, Betul dist., of Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Family XL GNAPHOSIDAE

Key to the genera of the family GNAPHOSIDAE

1. Inner margin of cheliceral fang furrow with a keeled lamina 2
– Inner margin of cheliceral fang furrow smooth or with one or more distint teeth or denticles 3
2. Inner margin of chelicera with a wide serrated lamina. Posterior row of eyes much larger than the anterior, with the medians nearer to each other than to the laterals ... . *Gnaphosa* Latreille
– Inner margin of chelicera with a broad keel or a narrow lamina. Posterior median eyes oval in shape .... *Callilepis* Westring
3. Posterior row of eyes very strongly procurved as nearly semicircular 4
– Posterior row of eyes not strongly procurved 5
4. Inner margin of furrow of chelicera with one tooth. Bulb of palpus of male with a

stout median apophysis .... *Scopodes* Chamberlin.

– Inner margin of furrow of chelicera without tooth. Bulb of palpus of male simple with no ture apophysis.....*Megamyrmecion* Reuss

5. Eyes of posterior row nearly equal in size and equidistant from each other. .... *Scotophaeus* Simon,

– Eyes of posterior row nearly equal in size and not equidistant from each other 6

6. Tibia IV with two or more median dorsal spines 7

– Tibia IV with a single median dorsal spine or with none 10

7. Posterior median eyes much larger than the posterior laterals and closer to laterals than to each other. Inner margin of cheicera without tooth..... *Liodrassus* Chamberlin

– Posterior median eyes not much larger than the posterior laterals and closer to each other than to the posterior laterals. Inner margin of chelicera with tooth or teeth ..8

8. Inner margin of furrow of chelicera with a single tooth ..... *Geodrassus* Chamberlin.

– Inner margin of furow of chelicera with two or three teeth 9

9. Eyes row widely separated, posterior median eyes much nearer to each other than to the laterals ..... *Drassodes* Westring

– Eyes row close together but equidistantly seperated with each other, posterior median eyes well seperated being only little further from the laterals than from each other .... *Sosticus* Chamberlin

10. Upper margin of furrow of chelicera unarmed or provided with a keel or with three teeth, rarely more 11

– Upper margin of furrow of chelicera with three to six teeth 14

11. Posterior row of eyes more or less recurved 12

– Posterior row of eyes more or less procurved or sometimes straight. 13

12. Tibia III with a median dorsal spines, carapace without district median furow .... *Sergiolus* Simon

– Tibia III with no median dorsal spines, carapace with a distinct median furrow .... *Poecilochroa* Westring

13. Lower margin of furrow of chelicera smooth, without any tooth, anterior median eyes usually obviously smaller than the laterals. Posterior median eyes slightly larger than the laterals ..... *Nodocion* Chamberlin

– Lower margin of furrow of chelicera with one tooth or nodule, anterior median eyes usually as larger as or larger than the laterals. Posterior median eyes always well seperated from each other and smaller than or at most as large as the laterals..... *Herpyllus* Hentz

14. Upper margin of furrow of chelicera with three teeth, the lower margin provided with two, all well developed. Posterior median eyes large and oblique, typically close together but well seperated from the laterals ..... *Haplodrassus* Chamberlin

– Upper margin of furrow of chelicera provided with four to six teeth, the lower margin with two to three small teeth or nodule or rarely the upper margin armed with only three weak teeth 15

15. Posterior row of eyes straight or slightly procurved, the eyes are equidistant, the posterior medians are small and slightly larger than the laterals..... *Zelotes* Gistel

– Posterior median eyes are very close together or contiguous, larger than the laterals..... ..... *Drassyllus* Chamberlin

Genus 18 ***Gnaphosa*** Latreille

1804. *Gnaphosa* Latreille, *Nouv. Dict. Hist. Nat.*, 24:134.

1966. *Gnaphosa*: Tikader, *Rec. zool. Surv. India*, 59(4):439.

Diagnosis : Cephalothorax nearly oval and broader in front, not attenuatd. Pattern of widening

streaks diverging from short fovea. Anterior row of eyes procurved and posterior row considerably longer than anterior and rather strongly recurved, medians irregular in outline. Chelicerae not very strong, vertical bearing numerous long bristles which form a scopula on inner part of apical surface. Inner margin with a prominent chitinous ridge, whose edge is concave and serrated outer margin with two teeth.

Type-species : *Gnaphosa lucifuga* (Walckenaer)

Distribution : India.

Elsewhere : Europe, Asia, Africa and America.

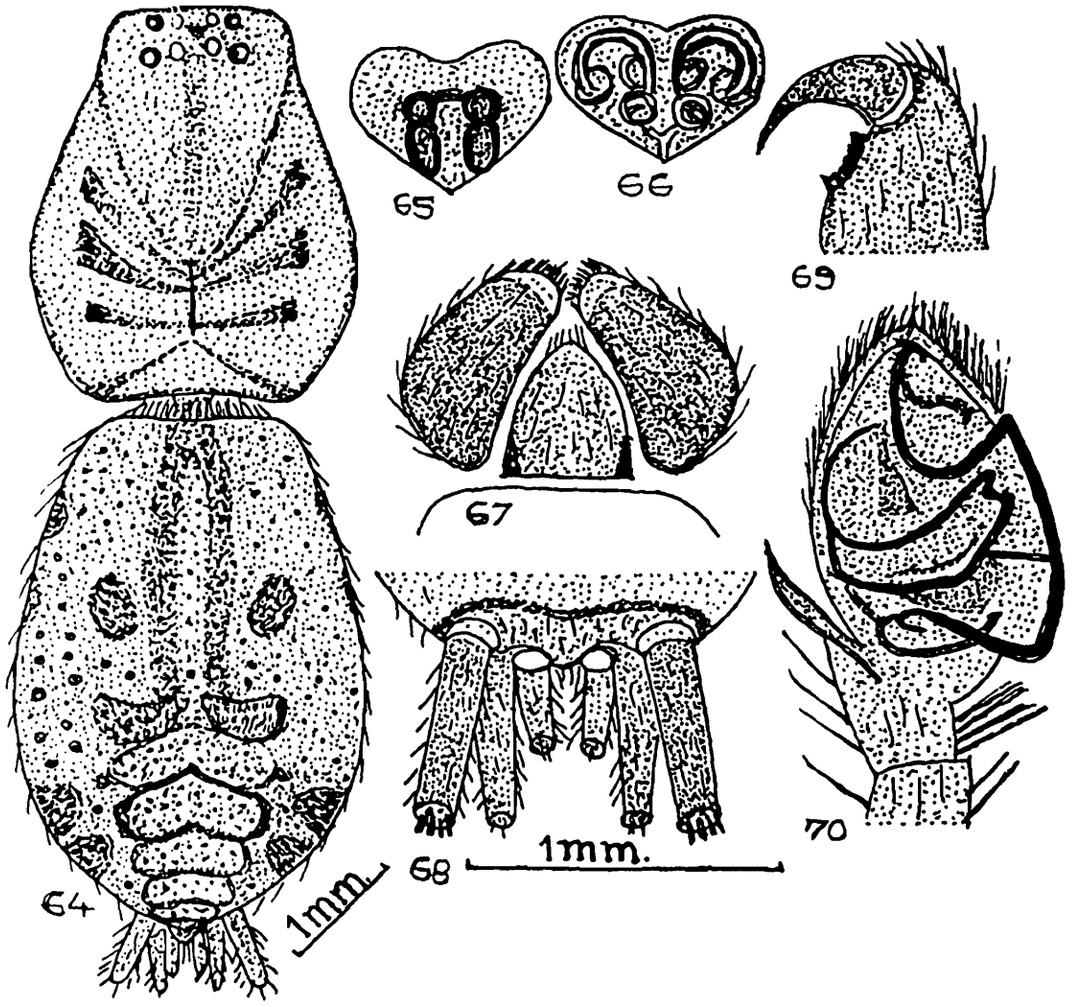
40. *Gnaphosa poonaensis* Tikader
(Figs. 64-70)

1973. *Gnaphosa poonaensis* Tikader. *Proc. Indian Acad. Sci.*, 77(5) : 188.

Material examined : 1♂, Barvani, dist. Khargone, Coll. *V.V. Rao,* 9.II.1971. 1♀, Kaladehi village on Jabalpur Nagpur Road, Jabalpur dist. Coll. *U.A Gajbe,* 30.X.1985. (Reg. No. A/1716). 1♂, on the bank of sipnanada at Bhodla kund Forest village Betul dist., Coll. *H.S. Sharma,* 29.III.1990. (Reg. No. A/1717). 1♀, Pratappur village Panna dist. Coll. *R.K. Singh,* 15.II.1987. (Reg. No. A/1718). 1♀, Madla village Panna dist., Coll. *R.K. Singh* 14.11.1987. (Reg. No. 1/1719).

General : Cephalothorax and legs reddish green, abdomen brownish-green. Total length 7.80 mm. Carapace 3.20 mm. long 2.60 mm. wide, abdomen 4.40 mm. long. 2.80 mm. wide.

Cephalothorax : Longer than wide, narrowing in front slightly convex, posterior middle provided



Figs. 64-70 : *Gnaphosa poonaensis* Tikader. 64. Dorsal view of female, legs omitted; 65. Epigyne; 66. Internal genitalia; 67. Labium and maxillae; 68. Spinnerets; 69. Chelicera; 70. Left male palp, ventral view.

with a conspicuous fovea, clothed with fine hairs and a deep brown narrow line encircling almost the entire border of cephalothorax, the tufts of dark brownish hairs on the cephalothorax as in fig. 64. Eyes pearly white except the anterior median. Anterior row of eyes slightly procurved (as seen from in front); medians more or less equal in size to laterals and slightly closer to laterals than to each other. Posterior row of eyes slightly recurved and sligtly longer than the anterior row of eyes. Posterior median eyes conspicuously silvery white in colour oval, slightly larger than the laterals and closer to laterals than to each other. Sternum heart-shaped pointed, behind, clothed with hairs. Labium and maxillae as in fig. 67. Chelicerae vertical strong inner margin provided with chitinous ridge as in fig. 69. Legs relatively long, stout, clothed with hairs and some spines. Legs fromula 4132. Male same in colour as female but slightly smaller than the female, male palp as in fig. 70.

Abdomen : Nearly elliptical, clothed with brown hairs and posterior half of abdomen provided with a whitish chevrons as in fig. 64. Ventral side lighter than the dorsal. Epigyne as in fig. 65. Internal genitalia as in fig. 66. Spinnerets very prominent, anterior spinnerets cylindrical, longer than others and provided with three spigots as in fig. 68.

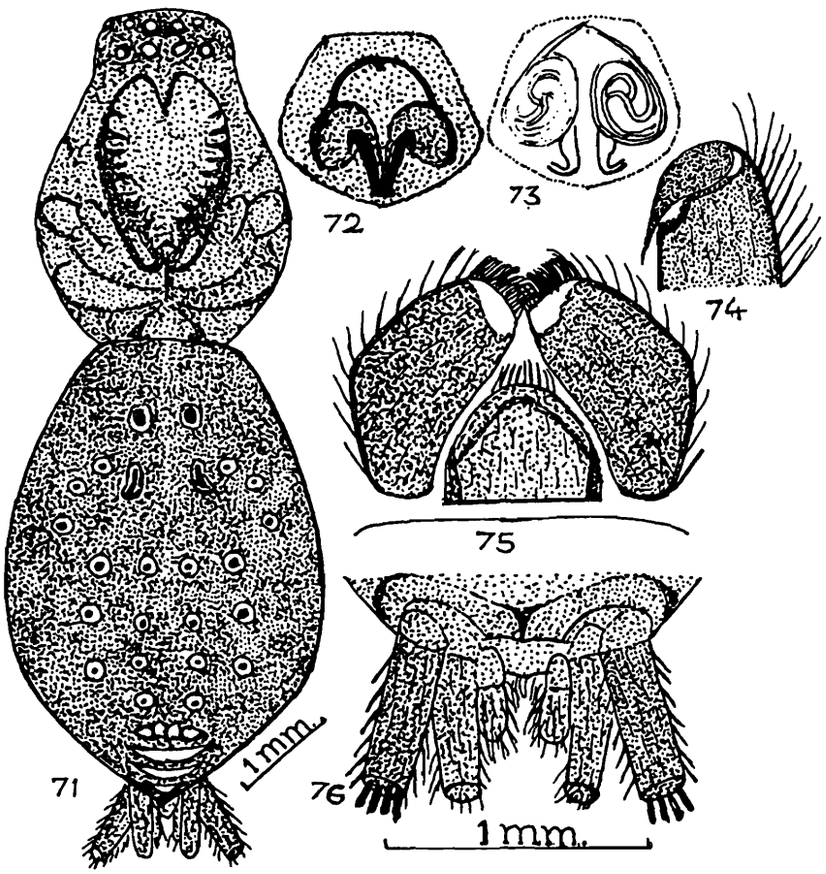
Distribution : India : Maharashtra, Poona (Type-locality), Rajasthan, Jodhpur, Uttar Pradesh, Saharanpur, Himachal Pradesh, Kulu.

Remarks : This species is being reported here for the first time from Khargone, Jabalpur, Betul and Panna districts of Madhya Pradesh.

41. ***Gnaphosa pauriensis*** Tikader & Gajbe (Figs. 71-76)

1977. *Gnaphosa pauriensis* Tikader & Gajbe, *Rec. zool. surv. India,* **73**(1-4) : 44.

Material examined : 4♀♀, Tondabeda village near Orchha, Bastar district, Coll. *U.A. Gajbe,* 29.XII.1983. (Reg. No. A/1983). 1♂, University



Figs. 71-76 : *Gnaphosa pauriensis* Tikader & Gajbe. 71. Dorsal view of female, legs omitted; 72. Epigyne; 73. Internal genitalia; 74. Chelicera; 75. Labium and maxillae; 76. Spinnerets.

Guest House Gwalior Coll. *P.D. Gupta,* 25.VIII.1984. (Reg. No. A/1720). 1♀, Gupt Mahadev. Piparia Tahsil, Hoshangabad district, Coll. *U.A. Gajbe,* 5.I.1990. (Reg. No. A/1721).

General : Cephalothorax and legs deep brown; abdomen brownish black. Total length 7.00mm. Carapace 3.00mm. long, 2.10mm. wide, abdomen 4.20mm. long, 2.60 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea with a V-shaped conspicuous brown marking starting form fovea, clothed with fine hairs. Anterior row of eyes slightly procurved (as seen from in front) median more or less equal in size to laterals and slightly closer to laterals than to each other. Posterior row of eyes slightly recurved and longer than anterior row of eyes. Posterior median eyes conspicuously silvery white in colour, oval, larger than the laterals and slightly close to each other than to the adjacent laterals. Sternum heart-shaped, pointed behind, clothed with hairs. Labium and maxillae as in fig. 75. Chelicera vertical, not strong, inner margin provided with chitinous ridge as in fig. 74. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123.

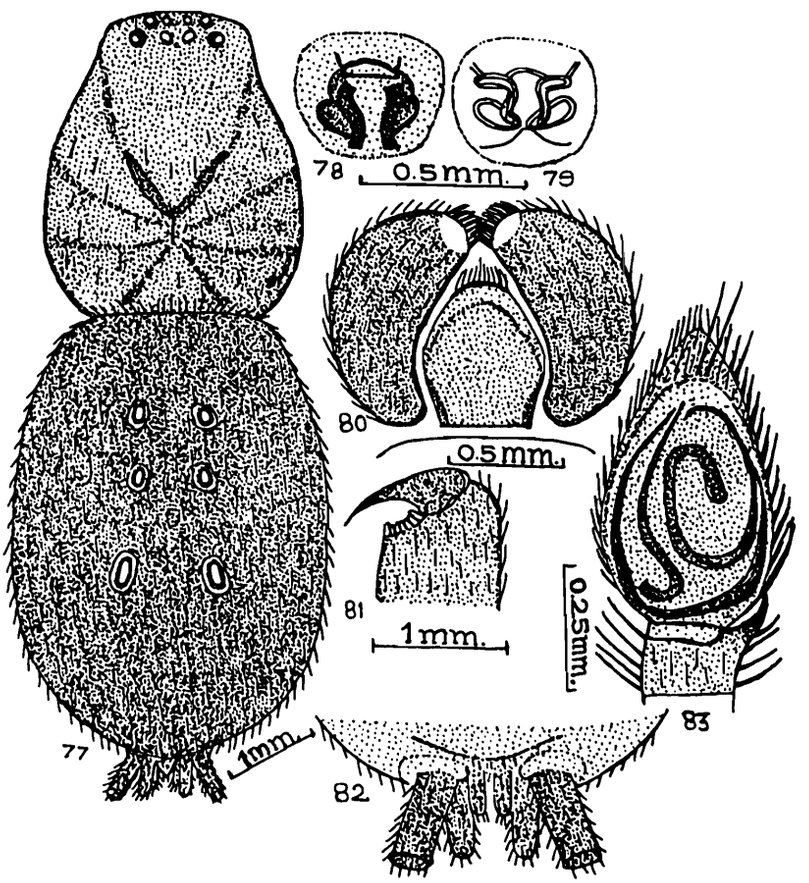
Abdomen : Nearly elliptical, clothed with hairs and provided with some rounded chalk-white spots as in fig. 71. Ventral side lighter than the dorsal. Epigyne as in fig. 72. Internal genitalia as in fig. 73. Spinnerets very prominent, anterior spinnerets cylindrical, slightly longer and darker in colour than other as in fig. 76.

Distribution : India : Pauri (Type-locality), Uttar Pradesh, Bihar, Himachal Pradesh, Orissa, Punjab, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Bastar, Gwalior, Hoshangabad districts of Madhya Pradesh.

42. ***Gnaphosa jodhpurensis*** Tikader & Gajbe (Figs. 77-83)

1977. *Gnaphosa jodhpurensis* Tikader & Gajbe, *Rec. zool. Surv. India,* **73**(1-4) : 45.



Figs. 77-83 : *Gnaphosa jodhpurensis* Tikader & Gajbe. 77. Dorsal view of female, legs omitted; 78. Epigyne; 79. Internal genitalia; 80. Labium and maxillae; 81. Chelicera; 82. Spinnerets; 83. Left male palp, ventral view.

Material examined : 1 ♀ Barwani dist., Khargone, Coll. *H. Khajuria,* 22.II.1971. 1 ♂, Narayanpur, Mandla dist., Coll. *U.A. Gajbe,* 23.I.1985.

General : Cephalothorax and legs brownish green, abdomen brown. total length 8.50 mm. Carapace 3.50 mm. long 3.00 mm. wide; abdomen 5.10 mm. long, 3.20 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea and V-shaped brown patch starting from fovea, clothed with fine hairs as in fig. 77. Anterior row of eyes slightly procurved (as seen from in front), medians smaller than laterals and little closer to laterals than to each other. Posterior row of eyes slightly recurved and longer than the anterior row of eye. Posterior median eyes conspicuously silvery white in colour, oval, larger than the laterals and close to each other than to the adjacent laterals. Labium and maxillae as in fig. 80. Chelicerae vertical, not strong, inner margion provided with a chitinous ridge as in fig. 81. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123. Male same in colour as female, male palp as in fig. 83.

Abdomen : Nearly elliptical, clothed with hairs. Ventral side lighter than the dorsal. Epigyne as in fig. 78. Internal genitalia as in fig. 79. Spinnerets very prominent, anterior spinnerets cylindrical, slightly longer and dark in colour than others as in fig. 82.

Distribution : India : Jodhpur (Type-locality), Rajasthan, Uttar Pradesh, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Khargone and Mandla districts of Madhya Pradesh.

Genus 19 ***Callilepis*** Westring

1874. *Callilepis Westring Goteb. Kongl. Vet. Handl.,* **14** : 43.

1974. *Callilepis : Platnick, Amer. Mus. Novit.,* 2573 : 1-32.

Diagnosis : The lower margin of furrow of the chelicerae armed with a broad keel or a narrow lamina, without cerrated edge, Posterior row of eyes a little longer than the anterior row and straight or only slightly recurved. The eyes nearly equidistant or the medians little farther from each other than from laterals. The Posterior lateral eyes fairly larger than the posterior median eyes.

Type-species : *Callilepis nocturna* (Linnaeus)

Distribution : India.

Elsewhere : Europe, Arabia, Ethiopia, Africa, Australia America.

43. ***Callilepis lambai*** Tikader & Gajbe (Figs. 84-89)

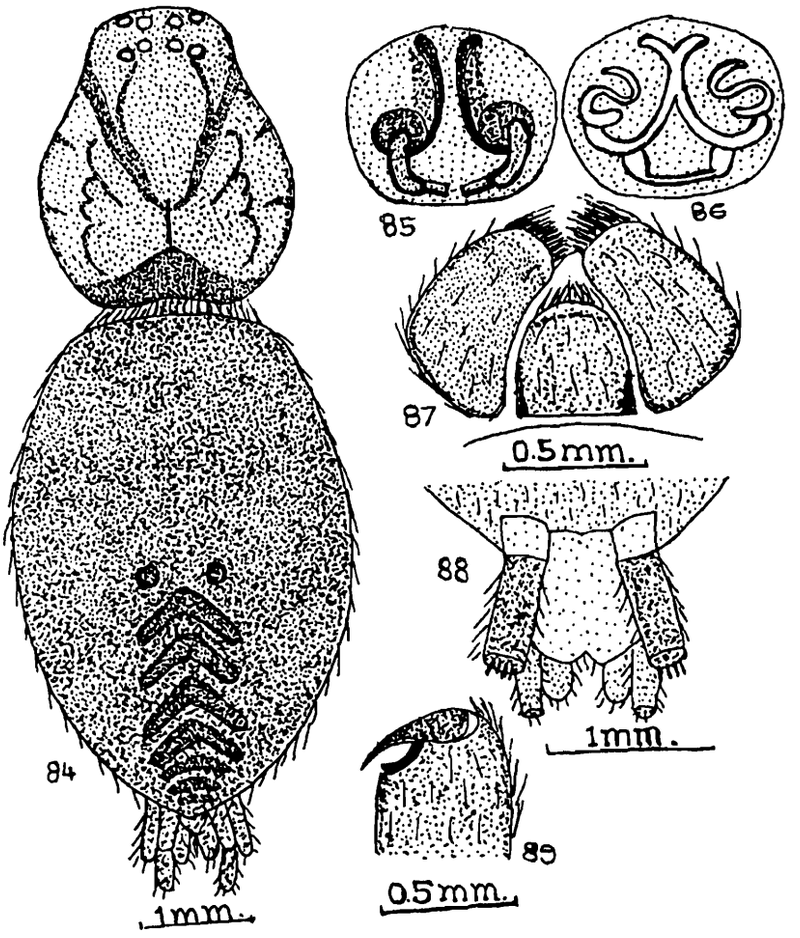
1976. *Callilepis lambai* Tikader & Gajbe, *Rec. zool. Surv. India,* **73**(1-4) : 50.

Material examined : 1 ♀, Amkhas, Jabalpur dist. Coll. *P.D. Rane* 6.V.1975. 1 ♀, Kondagaon, Bastar district Coll. *R.K. Ghose,* 22.I.1990. (Reg. No. A/2226). 2 ♀ ♀ Hanumanghat, Balaghat district. Coll. *U.A. Gajbe,* 12.XII.1983. (Reg. No. A/1584).

General : Cephalothorax and legs brownish-green abdomen brown. Total length 8.00 mm. Carapace 2.80 mm. long, 2.20 mm. wide; abdomen 5.00 mm. long, 3.20 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea and V-shaped brown patch starting from fovea; clothed with fine hairs. Anterior row of eyes slightly procurved (as seen from in front); medians more or less equal in size to laterals and closer to laterals than to each other. Posterior row of eyes slightly recurved and slightly longer than anterior row of eyes. Posterior median eyes conspicuously silvery white, oval, smaller than the laterals and little closer to laterals than to each other. Sternum heart-shaped, pointed behind and clothed with hairs. Labium and maxillae as in fig 87. Chelicerae vertical, not strong, inner margin provided with a narrow lamina without serrated ridge as in fig. 89. Legs relatively long stout, clothed with hairs and spines. Legs formula 4123.

Abdomen : Nearly elliptical, clothed with hairs, dorsally posterior half provided with light



Figs. 84-89 : *Callilepis lambai* Tikader & Gajbe. 84. Dorsal view of female, legs omitted; 85. Epigyne; 86. Internal genitalia; 87. Labium and maxillae; 88. Spinnerets; 89. Chelicera.

chevrons as in fig. 84. Ventral side lighter than the dorsal. Epigyne as in fig. 85. Internal genitalia as in fig. 86. Spinnerets very prominent, anterior spinnerets cylindrical and darker than others as in fig. 88.

Distribution : India : Kudgiri (Type-locality) Shimoga district, Karnataka, Punjab, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Jabalpur, Balaghat and Bastar districts of Madhya Pradesh.

44. ***Callilepis chakanensis*** Tikader

1982. *Callilepis chakanensis* Tikader, *Fauna of India, Spiders*, **2**(2) : 354.

Material examined : 1♀ 1♂, Around Mahuakhera, Rater village (Patalkot), Chhindwara dist., Coll. *R.K. Singh*, 19.X.1992. (Reg. No. A/2294).

Distribution : India : Poona, (Type-locality), Maharashtra, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

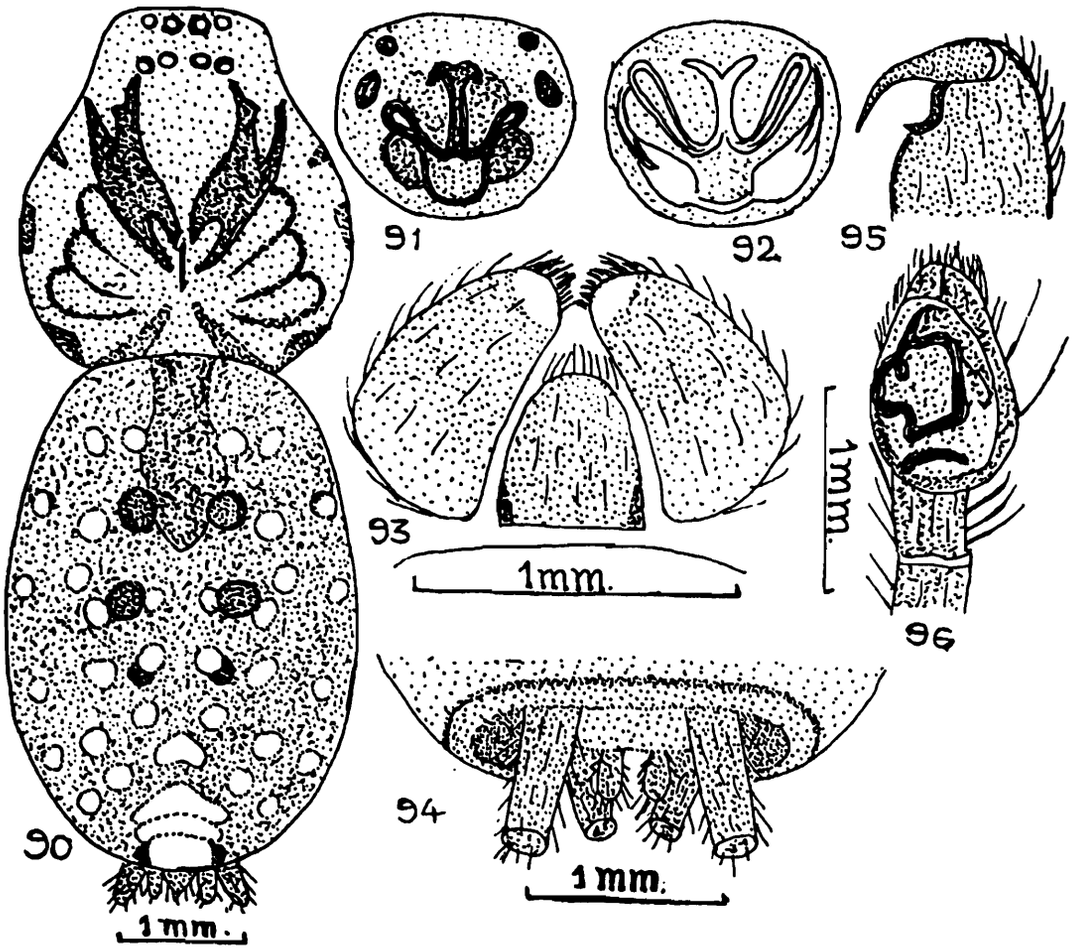
45. ***Callilepis rukminiae*** Tikader & Gajbe (Figs. 90-96)

1977. *Callilepis rukminiae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 49.

Material examined : 1♀, Near Pariat Tank, Jabalpur, Coll. *U. A. Gajbe*, 16.IX.1980.

General : Cephalothorax and legs brownish, abdomen brownish-black. Total length 7.20 mm. Carapace 3.00 mm. long, 2.60 mm. wide; abdomen 4.40 mm. long, 3.00 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, slightly convex, posterior middle provided with a conspicuous fovea and V-shaped brown patch starting from fovea, clothed with fiine hairs.



Figs. 90-96 : *Callilepis rukminiae* Tikader & Gajbe. 90. Dorsal view of female, legs omitted; 91. Epigyne; 92. Internal genitalia; 93. Labium and maxillae; 94. Spinnerets; 95. Chelicera; 96. Left male palp, ventral view.

Anterior row of eyes procurved (as seen from in front); median smaller than the laterals and little closer to laterals than to each other. Posterior row of eyes recurved and slightly longer than the anterior row of eyes. Posterior median eyes conspicuously silvery white in colour, oval, smaller than the laterals and little close to laterals than to each other. Sternum heart-shaped, pointed behind, clothed with fine hairs. Labium and maxillae as in fig. 93. Chelicerae vertical, not strong, inner margin provided with a narrow lamina without serrated ridge as in fig. 95. Legs relatively long, stout, clothed with hairs and spines. Legs formula 4123. Male same in colour as female but slightly larger than the female, male palp as in fig. 96.

Abdomen : Nearly elliptical, clothed with hairs and some round whitish spots as in fig. 90. Ventral side lighter than the dorsal. Epigyne as in fig. 91. Internal genitalia as in fig. 92. Spinnerets very prominent, anterior spinnerets cylindrical, slightly longer and darker in colour as in fig. 94.

Distribution : India : Poona (Type-locality), Maharashtra, Rajasthan, Tamil Nadu, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 20 ***Scopodes*** Chamberlin

1922. *Scopodes* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 156.

1940. *Scopodes* Comstock, *The Spider Book*, New York., 328.

Diagnosis : The cephalothorax is ovate and much narrow in front. The anterior row of eyes close together in a strongly procurved line, the anterior medians larger than the laterals. The posterior row of eyes very strongly procurved in a semicircular line. The chelicerae of moderate

size, the inner margin is armed with a single minute tooth. The spinnerets are comparatively long. The bulb of the male palpus has a stout median apophysis.

Type-species : *Scopodes catharius* Chamberlin.

Distribution : India.

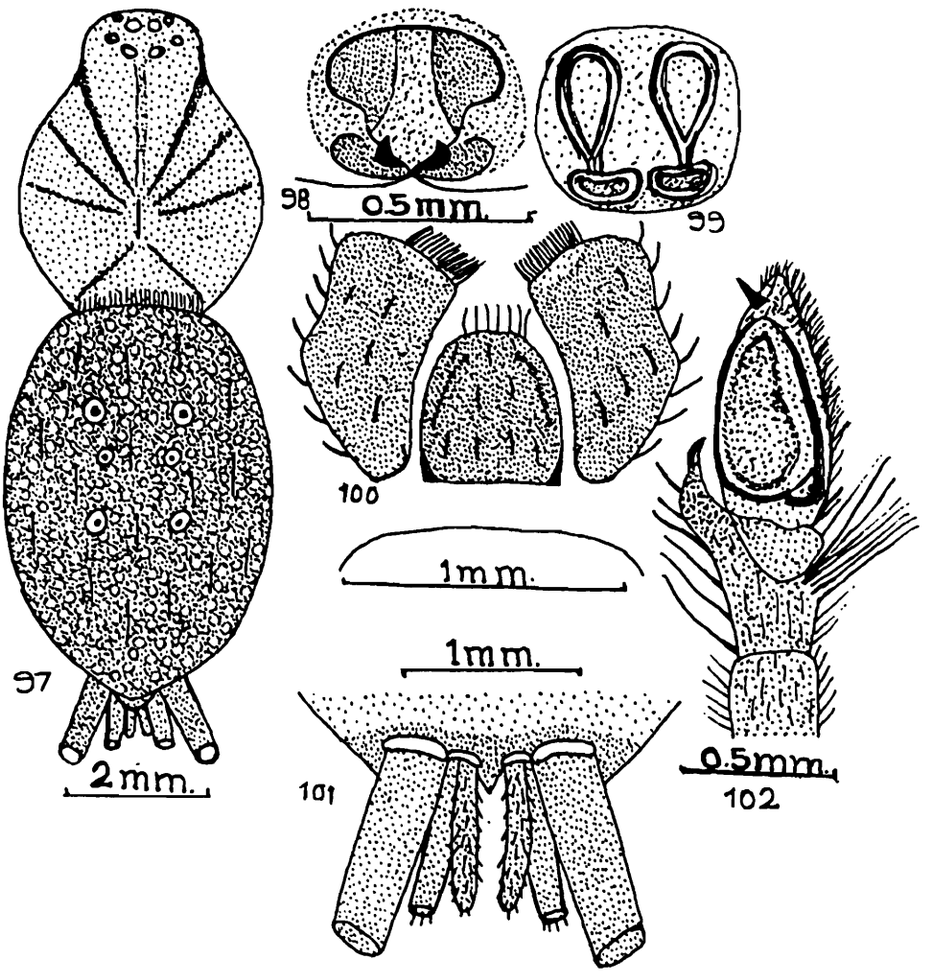
Elsewhere : Claremont, America.

46. ***Scopodes maitraiae*** Tikader & Gajbe (Figs. 97-102)

1977. *Scopodes maitraiae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 14.

Material examined: 1♀, Kondagaon, Bastar district. Coll. *R.K. Ghose,* 22.I.1990. (Reg. No. A/2225). 1♀, Budagarh, Jabalpur, dist., Coll. *V.V. Rao,* 14.IV.1970. 1♀, Shikara village, Seoni dist. Coll. *U.A. Gajbe,* 19.X.1981. 1♀, Mazoli Jabalpur dist., Coll. *S.K. Mishra,* 30.IX.1980. 1♀, Lalitpur, Jabalpur dist. Coll. *Laxman Prasad,* 14.X.1980. 1♀, Narayanganj, Mandla dist., Coll. *U.A. Gajbe,* 23.1.1985. (Reg. No. A/1592), 19♀♀, 3♂♂, Ganjatal village, Jabalpur dist., Coll. *D.S. Mathur,* 4.1X.1985. (Reg. No. A/1737). 1♀, Hathital colony, Jabalpur, Coll. *P.D. Rane,* 28.1.1986. 1♀, Shelter caves, Hoshangabad, Coll. *U.A. Gajbe,* 10.1.1990. (Reg. No. A/1736). 3♀♀, On the bank of Sanpna tank, Betul dist., Coll. *H.S. Sharma,* 27.II.1990. (Reg. No. A/1738). 1♀, Near cave of Raghu Raja (Patalkot), Chhindwara dist. Coll. *R.K. Singh,* 14.X.1992. (Reg. No. A/2295). 1♀, Amarwada, Chhindwara dist., Coll. *R.K. Singh,* 12.IX.1991. (Reg. No. A/2316). 1♀ Near Dauripatha village (Patalkot) Chhindwara dist., Coll. *R.K. Singh,* 16.X.1992 (Reg. No. A/2395).

General : Cephalothorax and legs reddish green, abdomen brown. Total length 9.80 mm. Carapace 4.20 mm. long 3.20 mm. wide; abdomen 5.80 mm. long. 3.80 mm. wide.



Figs. 97-102 : *Scopodes maitraiae* Tikader & Gajbe. 97. Dorsal view of female, legs omitted; 98. Epigyne; 99. Internal genitalia; 100. Labium and maxillae; 101. Spinnerets; 102. Left male palp, ventral view.

Cephalothorax : Longer than wide, convex, narrow in front, cephalic region slightly high, posterior middle provided with a conspicous fovea and clothed with fine hairs. Eyes of anterior row slightly procurved, anterior medians circular, black and much larger than laterals. Posterior row of eyes slightly longer than the anterior row, procurved, more or less equal and equidistant from each other, posterior medians silvery white, elliptical in shape. Clypeus narrow Sternum oval, pointed behind and clothed with hairs. Labium longer than wide, not contiguous with the maxillae. Anterior margin of maxillae provided with conspicuous scopulae as in fig. 100. Chelicerae vertical, inner margin with one tooth and outer margin with three small teeth. Legs relatively long and strong, clothed with spines and hairs, legs IV longer than others, scopulae extent upto the base of metatarsi I and II. the colour and size of male almost like female, male palp as in fig. 102.

Abdomen : Longer than wide, oval narowed behind, clothed with fine and some long hair and provided with small whitish spots as in fig. 97. Ventral side lighter than the dorsal. Epigyne as in fig. 98. Internal genitalia as in fig. 99. Spinnerets very prominent, anterior spinnerets cylindrical and longer than others as in fig. 101.

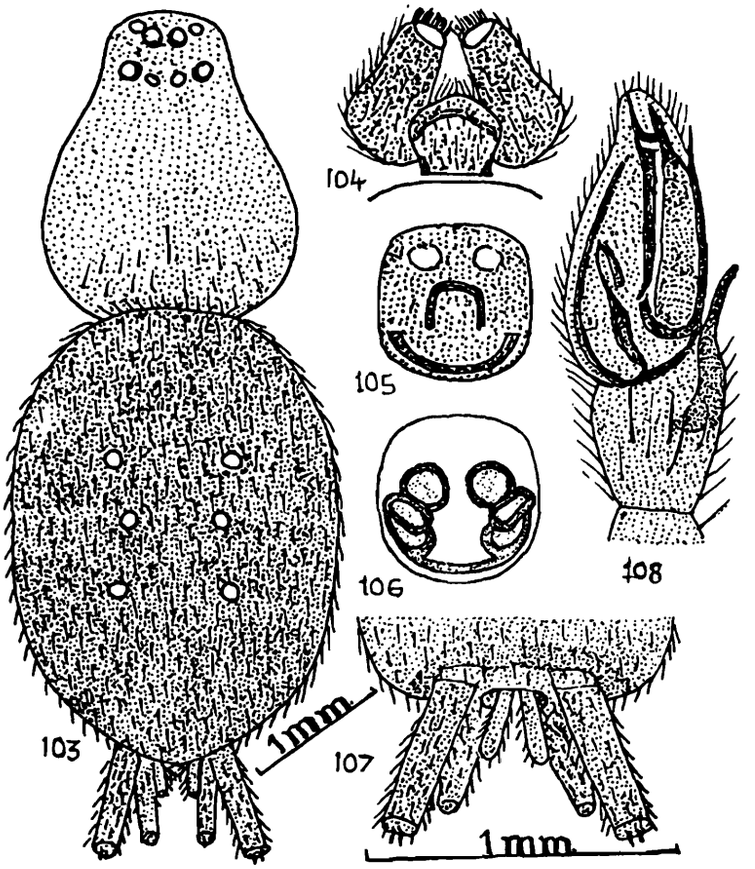
Distribution : India : Kopargaon (Type-locality), Ahmednagar and Poona district. Maharashtra, Gujarat, Orissa, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Mandla, Hoshangabad, Bastar, Betul, Chhindwara, Seoni and Jabalpur districts of Madhya Pradesh.

47. *Scopodes tikaderi* Gajbe
(Figs. 103-108)

1987. *Scopodes tikaderi* Gajbe, *Bull. zool. Surv. India*, 8(1-3) : 285.

Material examined : 1♀, Hatakachora, Bastar Coll. *U.A. Gajbe*, 2.I.1984. 4♂♂, Orccha village, Bastar dist. Coll. *U.A. Gajbe*, 28.XII.1983.



Figs. 103-108 : *Scopodes tikaderi* Gajbe. 103. Dorsal view of female, legs omitted; 104. Labium and maxillae; 105. Epigyne; 106. Internal genitalia; 107. Spinnerets; 108. Left male palp, ventral view.

General : Cephalothorax and legs light reddish-green, abdomen brown. Total length 5.50 mm. Carapace 2.30 mm. long, 1.80 mm. wide; abdomen 3.20 mm. long, 2.00 mm. wide.

Cephalothorax : Longer than wide, convex narrow in front, cephalic region slightly high, posterior middle provided with a conspicous fovea, clothed with pubescence and below fovea there are some spine like hairs. Eyes pearly white in colour except anterior medians which are slightly black, posterior row of eyes same in length as the anterior row. Anterior row of eyes slightly procurved, anterior medians are larger than all eyes, circular and closer to adjacent laterals than to each other. Posterior row of eyes modereately procurved, more or less equal and equidistant from each other, medians elliptical in shape as in fig. 103 Clypeus narrow. Sternum oval, pointed behind and clothed with long spine like hairs. Labium and maxillae longer than wide, anteriorly provided with scopulae, shape as in fig. 104. Chelicerae vertical, inner margin with three bigger teeth. Legs relatively long and strong, clothed with hairs and spines, legs formula 4123.

Abdomen : Longer than wide, oval, narrowed behind, clothed with fine hairs and provided with three pairs of sigilla. Ventral side lighter than the dorsal, clothed with fine hairs. Epigyne as in fig. 105. Internal genitalia as in fig. 106. Spinnerets very prominent, anterior spinnerets cylindrical and longer than others as in fig. 107. The colour and size of the male almost like female, male palp as in fig. 108.

Distribution : India : Madhya Pradesh, Bastar district (Type-locality).

Remarks : So far this species is only known from its type-locality.

Genus 21 ***Megamyrmecion*** Reuss

1834. *Megamyrmecion Reuss. Zool. Miscell. Mus. Ar.*, 217.

1922. *Megamyrmecion* : Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 155.

Diagnosis : The cephalothorax is ovate and much narrow in front. The anterior row of eyes are close together in a strongly procurved line, the anterior medians are larger than the laterals. The posterior row of eyes are very strongly procurved in a semi-circular line. The chelicerae are of moderare size, inner margin of the furrow unarmed. Bulb of palpus of male simple with no true apophysis.

Type-species : *Megamyrmecion caudatum* Reuss.

Distribution : India.

Elsewhere : Africa, America.

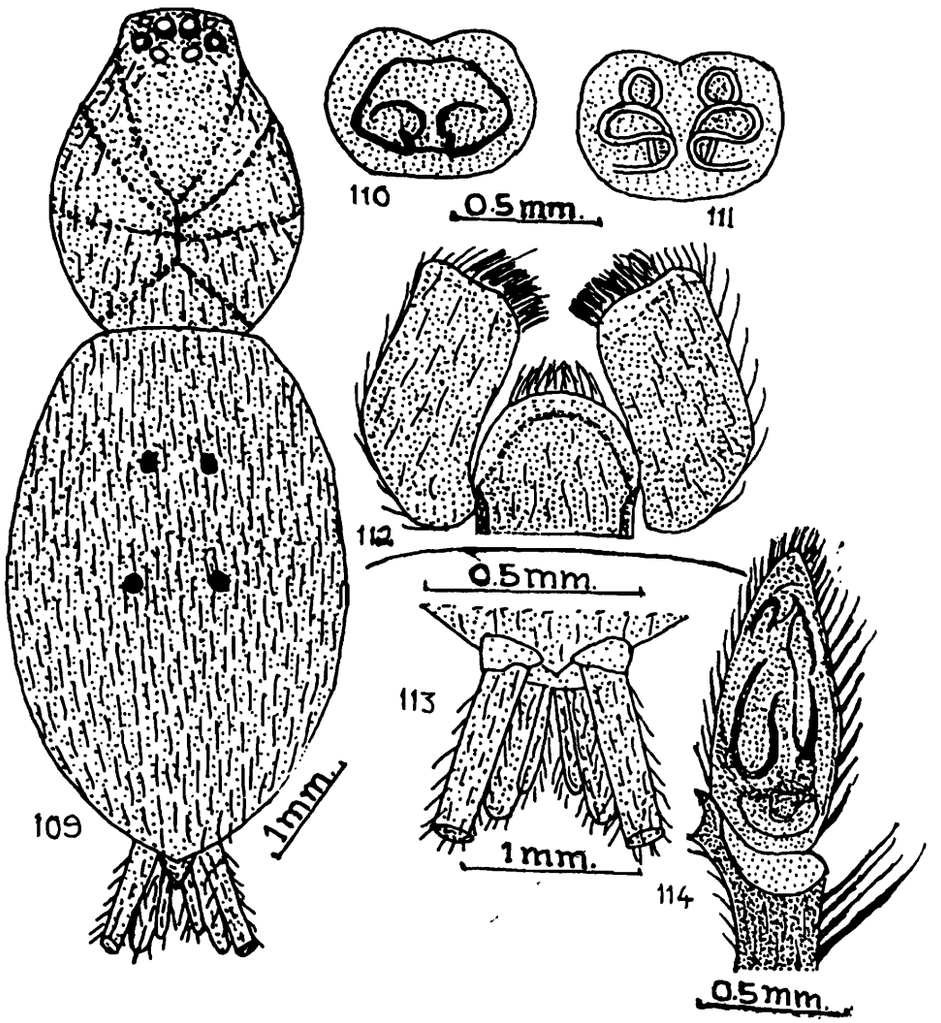
48. ***Megamyrmecion ashae*** Tikader & Gajbe (Figs. 109-114)

1977. *Megamyrmecion ashae* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 16.

Material examined : 1♀, Muza village, Betul district Coll. *H.S. Sharma*, 14.III.1990. (Reg. No. A/1739). 1♀, Singhpur village, Panna district, Coll. *R.K. Singh*, 16.II.1987. (Reg. No. A/1740). 1♀, Left bank of Narmada River beyond shahdol, district, Khargone, Coll. *V.V. Rao*, 8.11.1971.

General : Cephalothorax, abdomen and legs light brownish-green. Total length 7.80 mm. Carapace 3.00 mm. long, 2.40 mm. wide, abdomen 5.00 mm. long, 3.00 mm. wide.

Cephalothorax : Longer than wide, convex narrow in front, cephalic region slightly high, posterior middle provided with a conspicuous fovea and clothed with fine hairs as in fig. 109. Eyes of anterior row procurved, anterior medians circular, black and larger than laterals, laterals elliptical in shape. Posterior row of eyes slightly longer than the anterior row, strongly procurved, more or less equal and equidistant from each other, posterior medians silvery white, elliptical in shape. Clypeus narrow. Sternum oval, pointed behind and not clothed with fine hairs. Labium longer than wide and not contiguous with the maxillae. Anterior margin of maxillae provided with conspicuous scopulae as in fig. 112. Chelicerae vertical, inner margion with out tooth but outer margin with two small teeth. Legs relatively long and strong clothed with spines and



Figs. 109-114 : *Megamyrmecion ashae* Tikader & Gajbe. 109. Dorsal view of female, legs omitted; 110. Epigyne; 111. Internal genitalia; 112. Labium and maxillae; 113. Spinnerets; 114. Left male palp, ventral view.

hairs, legs IV longer than others and scopulae extend upto the base of metatarsi I and II. The colour and size of male almost like female, male palp as in fig. 114.

Abdomen : More or less elliptical in shape, narrowed behind, clothed with pubescence. Ventral side lighter in colour than dorsal. Epigyne as in fig. 110. Internal genitalia as in fig. 111. Spinnerets very prominent, anterior spinnerets cylindrical and longer than others as in fig. 113.

Distribution : India : Poona (Type-locality), Maharashtra, Rajasthan, Khargone, Betul and Panna districts of Madhya Pradesh.

Remarks : This species is being reported here for the first time from Betul and Panna districts of Madhya Pradesh.

Genus 22 *Scotophaeus* Simon

1893. *Scotophaeus* Simon *Hist. Nat. Agraign,* **1** : 371.

1966. *Scotophaeus* : Tikader, *Rec. Indian Mus.,* **59**(4) : 440.

Diagnosis : General appearance very similar with *Drassodes.* Carapace narrower in front than in *Drassodes* with fovea. Eyes of anterior medians larger than the laterals the medians are circular and anterior laterals elliptical. Posterior row slightly longer than anterior, very slightly procurved, eyes equidistant and nearly equal, posterior medians elliptical in shape.

Type-species : *Scotophaeus quadripunctatus* Latreille.

Distribution : Oriental and Temperate regions of the world.

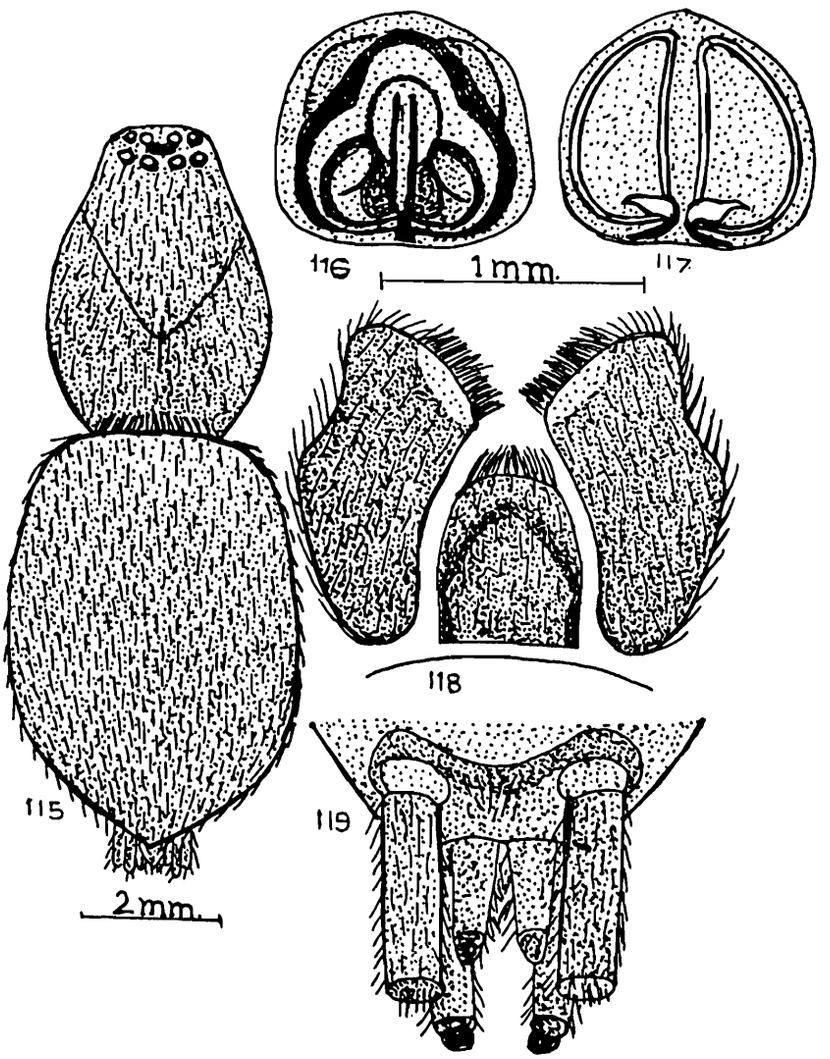
49. *Scotophaeus poonaensis* Tikader (Figs. 115-119)

1982. *Scotophaeus poonanensis* Tikader, *Fauna of India, Spiders*, 2(2) : 380.

Material examined : 1 ♀, Bargi village, Jabalpur dist., Coll. *U.A. Gajbe*, 10.VI.1982. (Reg. No. A/1588). 1 ♀ Dokrikhera, Piparia Tahsil, Hoshangabad dist. Coll. *U.A. Gajbe*, 4.1.1990. (Reg. No. A/1733).

General : Cephalothorax reddish-brown, legs reddish-green. Abdomen light brownish-green. Total length 10.80 mm. Carapace 4.80 mm. long, 3.40 mm. wide, abdomen 6.20 mm. long, 4.20 mm. wide.

Cephalothorax : Longer than wide, convex, narrow in front, clothed with pubescence, posterior middle provided with an conspicuous fovea. Eyes of anterior row slightly procurved (as seen from infront), anterior medians circular, black, larger than laterals, and closer to the adjacent laterals than to each others. Posterior row of eyes slightly longer than the anterior row, procurved, more or less equal and equidistant from each other. Posterior medians silvery white, elliptical in shape as in fig. 115. Clypeus narrow. Sternum nearly elliptical, pointed behind, clothed with hairs. Labium nearly triangular, longer than wide, anterior margin of maxillae provided with conspicuous scopulae as in fig. 118. Chelicerae moderately strong, vertical, inner margin with one minute tooth and outer margin with three teeth. Legs relatively long and strong, clothed with hairs and some spines, scopulae extend upto the base of metatarsi I and II. Legs formula 4123.



Figs. 115-119 : *Scotophaeus poonaensis* Tikader. 115. Dorsal view of female, legs omitted; 116. Epigyne; 117. Internal genitalia; 118. Labium and maxillae; 119. Spinnerets.

Abdomen : Longer than wide, more or less elliptical, slightly narrowed behind, clothed with mousy hairs. Ventral side slighty pale in colour. Epigyne as in fig. 116. Internal genitalia as in fig. 117. Spinnerets as in fig. 119.

Distribution : India : Poona (Type-locality), Maharashtra, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 23 ***Liodrassus*** Chamberlin

1936. *Liodrassus* Chamberlin, *Amer. Mus. Novit.*, **841** : 4

1977. *Liodrassus* : Tikader & Gajbe, *Rec. zool. Surv. India*, **73** : 20.

Diagnosis : The cephalothorax is oval and much narrow in front. The anterior row of eyes slightly procurved, the anterior medians are larger than laterals. The posterior row of eyes slightly procurved, close together, the medians are much larger than the laterals. The inner margin of the furrow of the chelicera is completely devoid of teeth.

Type-species : *Liodrassus arizonicus* Chamberlin.

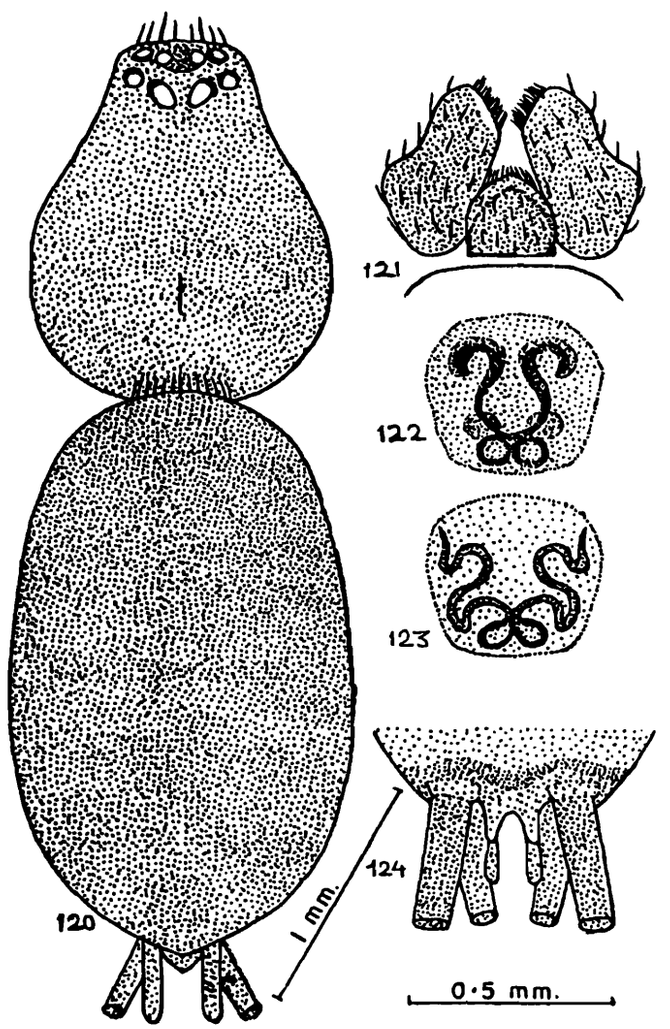
Distribution : India.

Elsewhere : America.

50. ***Liodrassus*** tikaderi Gajbe (Figs. 120-124)

1992. *Liodrassus tikaderi* Gajbe, *Rec. zool. Surv. India*, **91**(2) : 247.

Material examined : 1 ♀, Amjharghati, Jabalpur, Coll. *U.A. Gajbe*, 27.XI.1965.



Figs. 120-124 : *Liodrassus tikaderi* Gajbe. 120. Dorsal view of female, legs omitted; 121. Labium and maxillae; 122. Epigyne; 123. Internal genitalia; 124. Spinnerets.

General: Cephalothorax and legs reddish-green, abdomen brown. Total length 3.80 mm. Carapace 1.50 mm. long, 1.20 mm. wide; abdomen 2.40 mm. long, 1.40 mm. wide.

Cephalothorax: Longer than wide, convex, narrow in front, with cephalic region slightly high; posterior middle provided with a inconspicuous fovea and clothed with pubescence. Eyes pearly white except anterior medians which are circular and black; posterior row of eyes slightly longer than anterior row. Anterior row of eyes slightly procurved (as seen from in front), with median slightly larger than laterals; laterals elliptical in shape, and medians closer to adjacent laterals than to each other, posterior row of eyes procurved, medians silvery white, elliptical in shape, much larger than laterals and closer to adjacent laterals than to each other as in fig. 120. Median ocular quadrangle slightly longer than wide and narrower infront than behind. Clypeal height large as diameter of anterior median eyes. Sternum oval, slighity narrowed behind, rebordered, clothed with fine hairs. Labium triangular, not contiguous with maxillae; anterior margin of maxillae provided with socpulae as in fig. 121. Chelicerae vertical; inner margin without tooth but outer margin provided with three small teeth. Legs relatively long and strong, clothed with hairs and some spines; scopulae extending to base of metatarsi I and II; leg formula 4123. Male unknown.

Abdomen: More or less elliptical in shape, narrowed behind, clothed with pubescance, ventral side lighter than dorsal. Epigyne as in fig. 122. Internal genitalia as in fig. 123. Spinnerets prominent as in fig-124.

Distribution: India: Madhya Pradesh, Jabalpur (Type-locality).

Remarks: So far this species is only known from its type-locality.

Genus 24 ***Geodrassus*** Chamberlin

1922. *Geodrassus* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 159.

1977. *Gerodrassus*: Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 71.

Diagnosis: This genus is closely allied to *Drassodes*. The lower margin of the furrow of chelicera is armed with a single small tooth. The eyes of the anterior row are subequal in size. The palpus of the male is very short, and the tibia completely lacks of apophysis.

Type-species: *Geodrassus gosiutus* (Chamberlin)

Distribution: India.

Elsewhere: Utah, America.

51. ***Geodrassus sirmourensis*** Tikader & Gajbe

1977. *Geodrassus sirmourensis* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 71.

Material examined: 1♀, Keshala village, Hoshangabad dist. Coll. *U.A. Gajbe*, 11.I.1990. (Reg. No. A/1732).

Distribution: India: Renuka Lake, Sirmour dist. (Type-Locality) Himachal Pradesh, Madhya Pradesh.

Remarks: This species is being reported here for the first time from Madhya Pradesh.

Genus 25 ***Drassodes*** Westring

1861. *Drassodes* Westring, *Goteb, Kongl. Vet. Handl.*, **2** : 25.

1988. *Drassodes*: Gajbe, *Rec. zool. Surv. India*, **85**(1) : 67.

Diagnosis: Cephalothorax flat, broad in front with fovea and covered with pubescence. Eyes of anterior row slightly procurved, medians slightly larger than laterals. Posterior row longer, procurved medians oval, slightly larger than laterals. Chelicerae strong, inner margin normally with two teeth and two on the outer margin. Abdomen longer then wide, narrowing behind, covered with pubescence with a 'mousy' appearance.

Type-species: *Drassodes lapidosus* (Walckenaer)

Distribution: Oriental.

Elsewhere: Sub-tropical and temperate regions of the world.

Key to species of the genus *Drassodes* Westring

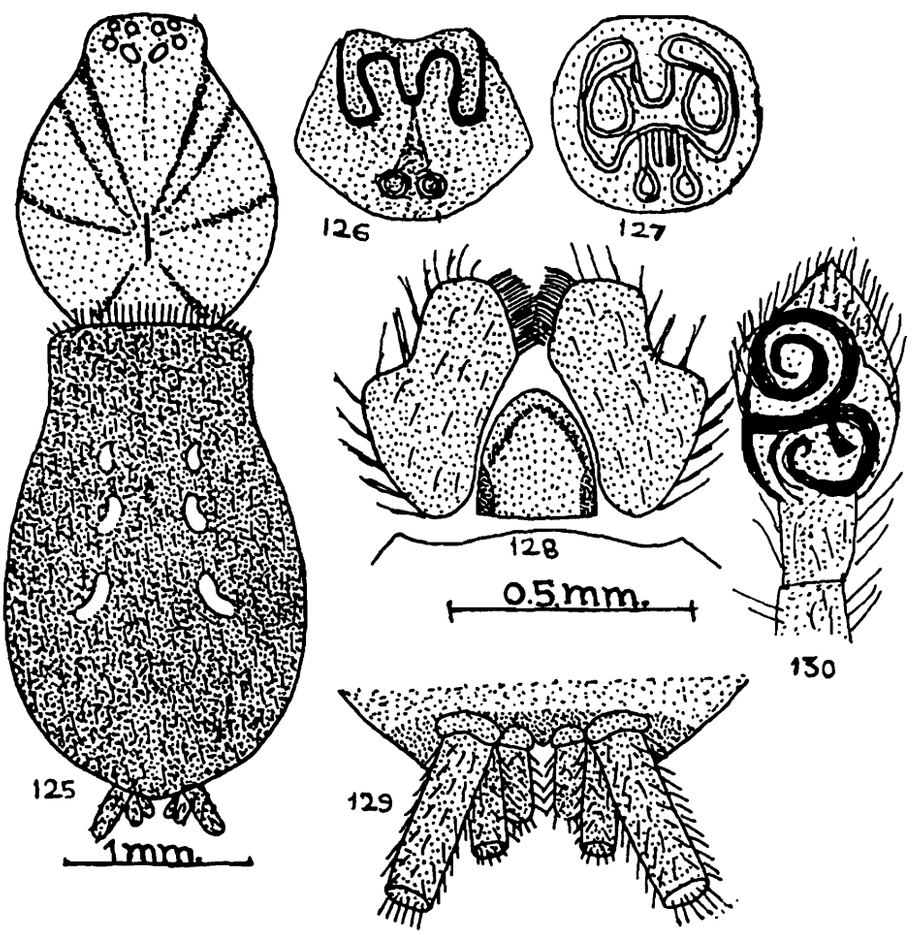
1. Spiders of smaller size, upto 7 mm. 2
- Spiders of bigger size, above 7 mm 3
2. Abdomen oval, anterolateral portion angular, labium semicircular, not provided with any nouch ..... *oppenheimeri* Tikader
- Abdomen elliptical, antero-lateral portion roundish; labium elongated and provided with a notch at the base on either side .... *sagarensis* Tikader
3. Abdomen elliptical; labium semicircular and without any notch at the base; maxillae slightly convergent dorsally ....*meghalayaensis* Tikader & Gajbe
- Abdomen oval and distinctly narrow posteriorly; labium not semicircular convergent distally 4
4. Antero-lateral portion of abdomen slightly angular; anterior median eyes smaller than anterior laterals .... *himalayensis* Tikader & Gajbe
5. Antero-lateral portion of abdomen roundish; anterior median eyes larger than anterior laterals; ..... *pashanensis* Tikader & Gajbe

52. ***Drassodes oppenheimeri*** Tikader (Figs. 125-130)

1973. *Drassodes oppenheimeri* Tikader, *Proc. India. Acad. Sci.*, **77**(5) : 186.

1989. *Drassodes oppenheimeri* : Gajbe, *Rec. zool. Surv. India*, **85**(1) : 67.

Material examined : 1♀, Kamaleshwarpur, Mainpat, Serguja district, Coll. *H. Khajuria*, 13.I.1975. 1♀, Dhuma, Seoni dist. Coll. *U.A. Gajbe*, 10.VIII.1982. (Reg. No. A/1575). 1♀, Karondi village, Jabalpur district, Coll. *U.A. Gajbe*, 6.II.1982. (Reg. No. A/1576). 1♀, Amkhas village, Jabalpur dist., Coll. *V.V. Rao*, 4.VII.1965.



Figs. 125-130 : *Drassodes oppenheimeri* Tikader. 125. Dorsal view of female, legs omitted; 126. Epigyne; 127. Internal genitalia; 128. Labium and maxillae; 129. Spinnerets; 130. Left male palp, ventral view.

General: Cephalothorax and legs reddish-brown, abdomen deep brown Total length 4.20 mm. Carapace 1.70 mm long, 1.20 wide, abdomen 2.60 mm. long 1.80 mm. wide.

Cephalothorax: Longer than wide, narrow in front, clothed with pubescence and some spines, posterior middle provided with a conspicuous fovea. Cephalic region slightly high. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from infront), medians larger than the laterals and closer to laterals than to each other. Posterior row of eyes procurved, medians oval larger than the laterals and slightly closer to laterals than to each other. Sternum heart-shaped, pointed behind, clothed with spine like hairs. Maxillae and labium reddish-brown, shape as in fig. 128. Chelicerae moderately strong, inner and outer margin provided with two minute teeth and two larger teeth respectively. Legs relatively long and strong clothed with hairs and some spines. Legs formula 4123. Male same in colour as female but slightly larger than the female. Male palp as in fig. 130.

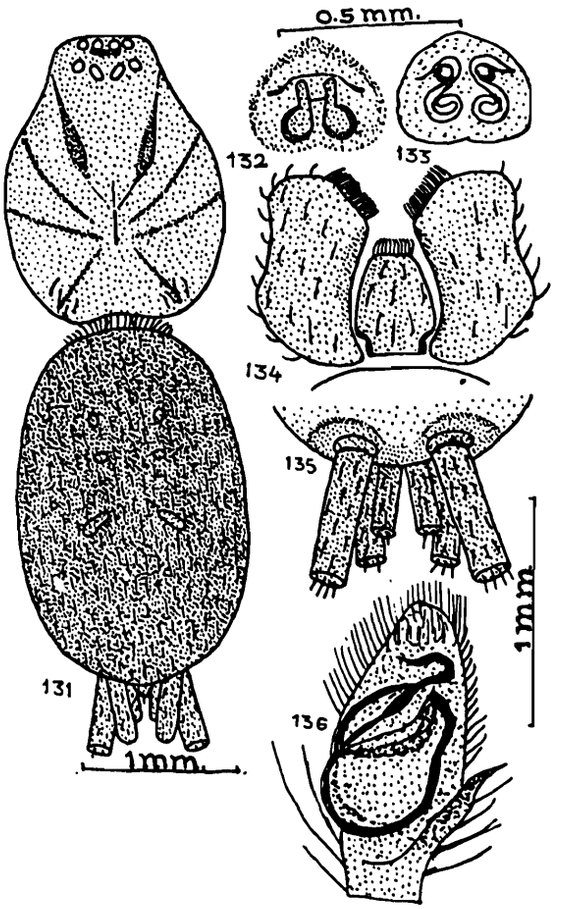
Abdomen: Longer than wide, nearly oval, clothed with fine hairs and provided with three pairs of sigilla as in fig. 125. Anterior end of abdomen provided with conspicuous long thick hairs. Ventral side lighter than the dorsal. Epigyne as in fig. 126. Internal genitalia as in fig. 127. Spinnerets prominent as in fig. 129.

Distribution: India: West Bengal, Hooghly dist., Singur (Type-locality) Maharashtra; Aurangabad, Poona, Madhya Pradesh, Jabalpur, Gujarat, Orissa.

Remarks: This species is being reported here for the first time from Seont and Jabalpur district of Madhya Pradesh.

53. ***Drassodes sagarensis*** Tikader
(Figs. 131-136)

1982. *Drassodes sagarensis* Tikader, *Fauna of India, spiders*, 2(2) : 402.



Figs. 131-136 : *Drassodes sagarensis* Tikader. 131. Dorsal view of female, legs omitted; 132. Epigyne; 133. Internal genitalia; 134. Labium and maxillae; 135. Spinnerets; 136. Left male palp, ventral view.

Material examined : 1♂, Parasia, Chhindwara dist., Coll. *Y.N. Gupta*, 19.X.1989. (Reg. No. A/2298). 1♀, Jhansighat, Jabalpur district, Coll. *U.A. Gajbe*, 10.III.1983. (Reg. No. A/1582). 1♀, Tanhaigram, Panna district, Coll. *R.K. Singh*, 17.II.1987. (Reg. No. A/12727).

General : Cephalothorax and legs reddish-green, abdomen deep brown Total length 4.70 mm. Carapace 2.00 mm. long, 1.50 mm. wide, abdomen 2.00 mm. long, 1.60 mm. wide.

Cephalothorax : Longer than wide, narrow in front, slightly convex, posterior middle provided wide a conspicuous short fovea, clothed with pubescence and some spines. Eyes pearly white except anterior medians, posterior row of eyes slighity longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), anterior medians smaller than the laterals and little closer to laterals than to each other. Posterior row of eyes procurved, medians oval and slanted, much larger than the laterals and very close to each other than to adjacent laterals. Median ocular quadrangle longer than wide and wider in front than behind. Clypeal height nearly equal to the diameter of the anterior median eyes. Chelicerae short, vertical, inner margin provided with two teeth and outer margin with two teeth. Maxillae short, stout, labium ovate clothed with hairs, shape as in fig. 134. Sternum heart-shaped, pointed behind clothed with hairs and some spines. Legs formula 4123. Male same in size and colour to the female, male palp as in fig. 136.

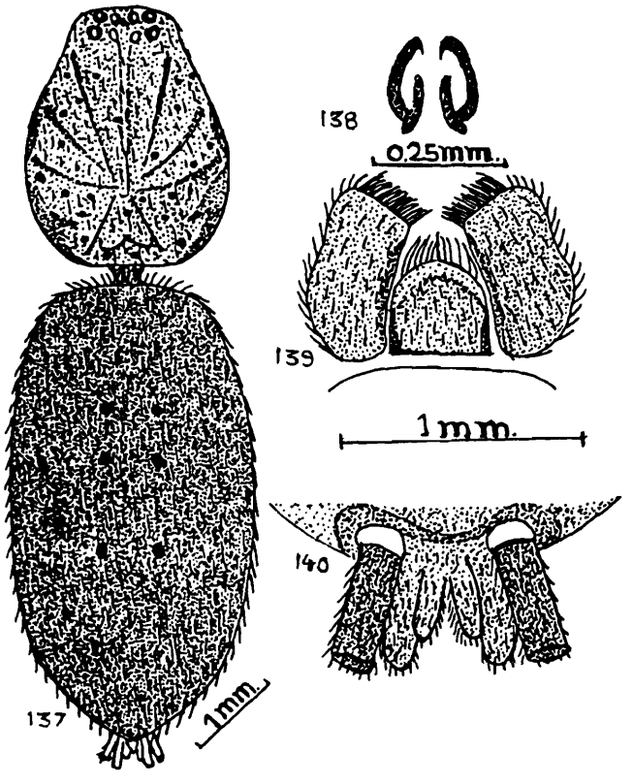
Abdomen : Longer than wide, widest at middle, elliptical, clothed with hairs and three pairs of lighter spots as in fig. 131. Ventral side much lighter than the dorsal, clothed with pubescence. Epigyne as in fig. 132. Spinnerets, relatively long, anterior spinnerets widely separated, longer than other and provided with spigots as in fig. 135. Internal genitalia as in fig. 133.

Distribution : Sagar (Type-locality), Jabalpur, Chhindwara, Panna, Madhya Pradesh, Karnataka.

Remarks : This species is being reported here for the first time from Chhindwara, Panna, and Jabalpur district of Madhya Pradesh.

54. *Drassodes meghalayensis* Tikader & Gajbe (Figs. 137-140)

1977. *Drassodes meghalayensis* Tikader & Gajbe, *Rec. zool. Surv. India*, 73(1-4) : 56.



Figs. 137-140 : *Drassodes meghalayaensis* Tikader & Gajbe. 137. Dorsal view of female, legs omitted; 138. Epigyne; 139. Labium and maxillae; 140. Spinnerets.

Material examined : 1♀, on the bank of sanpna tank, Betul, district, Coll. *H.S. Sharma,* 27.III.1990. (Reg. No. A/1728).

General : Cephalothorax and legs reddish brown, abdomen brown, Total length 8.00 mm. Carapace 2.80 mm. long, 2.10 mm. wide; abdomen 5.00 mm. long, 2.40 mm. wide.

Cephalothorax : Longer than wide, not very broad in front, clothed with pubescence, posterior middle with a conspicuous fovea. A pattern of radiating streaks diverge from a short fovea to the sides. Eyes pearly white except anterior medians, posterior row of eyes slighity longer than the anterior row. Anterior row of eyes procurved (as seen from in front), medians slightly larger than the laterals and closer to laterals than to each other, Posterior row of eyes procurved, medians elliptical, slightly smaller than laterals and closer to each other than to adjacent laterals. Chelicerae moderately strong, inner and outer margin provided with two smaller teeth each. Sternum heart-shaped, pointed behind, clothed with short, black fine hairs. Maxillae and labium light reddish-green, shape as in fig. 139. Legs relativeiy long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123.

Abdomen : Longer than wide, nearly elliptical, clothed with hairs and provided with three pairs of sigilla as in fig. 137. Spinnerets prominent, anterior spinnerets longer than others as in fig. 140. Eplgyne as in fig. 139.

Distribution : India : Garo Hills (Type-locality) Meghalaya.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

55. ***Drassodes himalayensis*** Tikader & Gajbe

1975. *Drassodes himalayensis* Tikader & Gajbe, *Oriental Ins.*, **9**(3) : 274.

1988. *Drassodes himalayensis* : Gajbe, *Rec. zool. Surv. India,* **85**(1) : 68.

Material examined : 1♀ Amarwada, Chhindwara dist., M.P. Coll. *R.K. Singh,* 12.9.1991. (Reg. No. A/2315). 1♀, Mainpat, Serguja district, Coll. *R.K. Singh,* 12.I.1975. 1♀, 1♂, on the bank of Sanpana tank, Betul, district. Coll. *H.S. Sharma,* 27.III.1990. (Reg. No. A/1722).

Distribution : India : Harsil; Uttarkashi (Type-locality) Uttar Pradesh, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Arunachal Pradesh, Orissa, Rajasthan, Assam, West Bengal, Bhutan.

Remarks : This species is being reported here for the first time from Chhindwara, Serguja and Betul districts of Madhya Pradesh.

56. ***Drassodes pashanensis*** Tikader & Gajbe (Fig. 141-145)

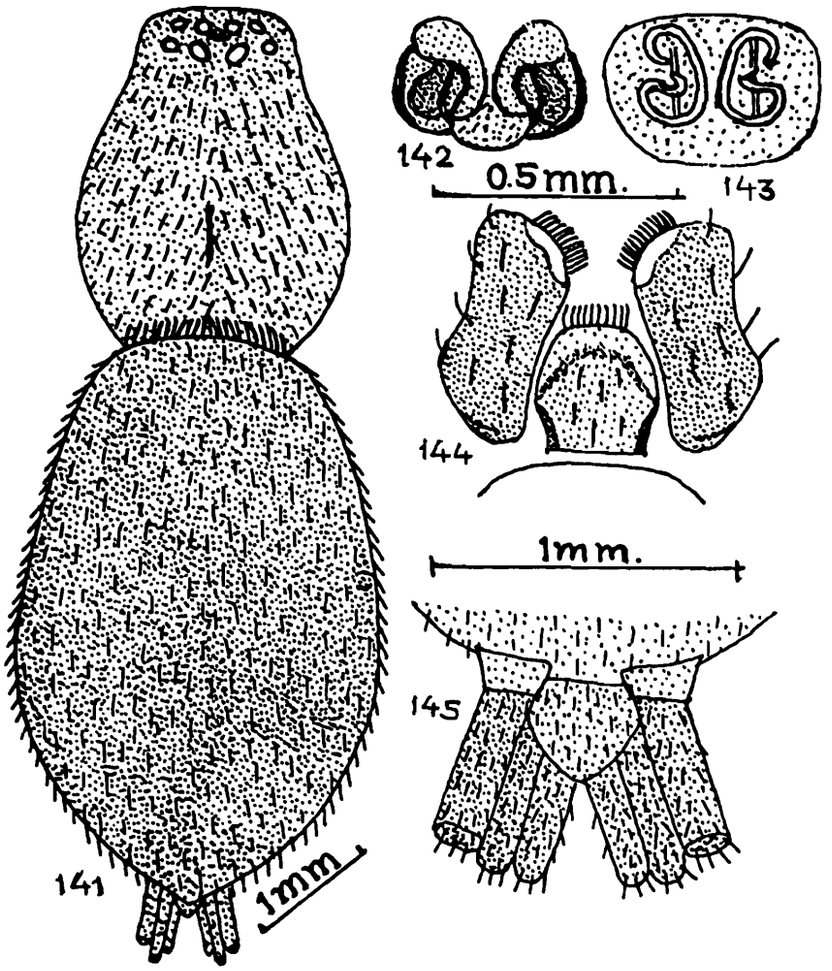
1977. *Drassodes pashanensis* Tikader & Gajbe, *Rec. zool. Surv. India,* **73**(1-4) : 64.

1981. *Drassodes pashanensis* Tikader, *Fauna of India,* **2**(2) : 429.

Material examined : 1♀, Hatkachora village near Jagdalpur, Bastar district, Coll. *U.A. Gajbe,* 5.I.1984. (Reg. No. A/1577). 3♀♀, 1♂, Karondi village, Jabalpur district, Coll. *U.A. Gajbe,* 6.II.1982. (Reg. No. A/1579). 12♀, Shivpuri National Park, Shivpuri district., Coll. *P.D. Rane,* 28.II.1982. (Reg. No. A/1580). 1♀, Porpa village near Jagdalpur, Bastar district, Coll. *U.A. Gajbe,* 31.XII.1983. (Reg. No. A/1723). 1♀, On the bank of Tawa river on Hoshangabad-Piparia road, Hoshangabad district, Coll. *U.A. Gajbe,* 12.I.1990. (Reg. No. A/1724). 1♀, On the bank of Sanpana tank Betul, Coll. *H.S. Sharma,* 27.III.1990. (Reg. No. A/1725).

General : Cephalothorax and legs light reddish-green. Abdomen brownish-green. Total length 7.60 mm. Carapace 2.90 mm. long. 2.20 mm. wide; abdomen 4.90 mm. long, 3.00 mm. wide.

Cephalothorax : Longer than wide, not very broad in front, clothed with fine thick hairs, posterior middle provided with a conspicuous fovea. Cephalic region slightly high. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from



Figs. 141-145 : *Drassodes pashanensis* Tikader & Gajbe. 141. Dorsal view of female, legs omitted; 142. Epigyne; 143. Internal genitalia; 144. Labium and maxillae; 145. Spinnerets.

infront), medians slightly larger than the lateral and closer to lateral than to each other. Posterior row of eyes procurved medians oval, larger than the laterals and much closer to each other than to adjacent laterals. Chelicerae moderately strong, inner and outer margin provided with two small teeth and two slightly bigger teeth respectively. Sternum heart-shaped pointed behind, clothed with fine hairs. Maxillae and labium reddish-green, shape as in fig. 144. Legs relatively long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123.

Abdomen : Longer than wide, narrowing behind, clothed with thick hairs as in fig. 141. Ventral side slightly lighter than the dorsal. Epigyne as in fig. 142. Internal genitalia as in fig. 143. Spinnerets prominent as in fig. 145.

Distribution : India : Poona (type-locality), Maharashtra.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 26 ***Sosticus*** Chamberlin

1922. *Sosticus* Chamberlin, *Proc. biol. Soc. Wash.*, **38** : 160.

1978. *Sosticus* : Gajbe, *Bull. zool. Surv. India*, 2(1) : 69.

Diagnosis : Eyes rows distinctly separated, posterior row of eyes is in a straight line. The anterior medians eyes slightly smaller than the anterior lateral eyes. The inner margin of the furrow of the chelicera is armed ordinary with two teeth, but three are some time present. Two spines are present on the dorsal surface of the fourth tibia.

Type-species : *Sosticus insularis* (Banks).

Distribution : India.

Elsewhere : America.

57. ***Sosticus poonaensis*** Tikader

1982. *Sosticus poonaensis* Tikader, *Fauna of India, Spiders,* **2**(2) : 440.

Material examined : 1♀, On the bank of Chuharinala, Kanha National Park, Coll. *R.K. Singh,* 28.XI.1985. (Reg. No. A/1734).

Distribution : India : Mukund nagar, Poona (Type-locality) Maharashtra, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

58. ***Sosticus dherikanalensis*** Gajbe

1979. *Sosticus dherikanalensis* Gajbe, *Bull. zool. Surv. India,* **2**(1) : 71.

Material examined : 1♀, Gangtal village, Jabalpur district, Coll. *D.S. Mathur,* 4.IX.1985. (Reg. No. A/1735).

Distribution : India : Tikarpara, Dherikanal (Type-locality) Orissa, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 27 ***Sergiolus*** Simon

1891. *Sergiolus* Simon, *Proc. Zool. Soc. London,* : 573.

1974. *Sergiolus* : Tikader & Gajbe, *Proc. Indian, Acad. Sci.,* **84**(5) : 185.

Diagnosis : These spiders are brightly coloured. Both rows of eyes straight or slightly recurved, posterior median eyes round and median ocular area longer than wide and wider behind than in front. Inner margin of chelicera with one small tooch or unarmed. Tibia III provided with a median dorsal spine.

Type-species : *Sergiolus variegatus* (Hentz).

Distribution : India.

Elsewhere : America.

59. ***Sergiolus singhi*** Tikader & Gajbe (Figs. 146-150)

1975. *Sergiolus singhi* Tikader & Gajbe, *Proc. Indian Acad. Sci.,* **84**(5) : 189.

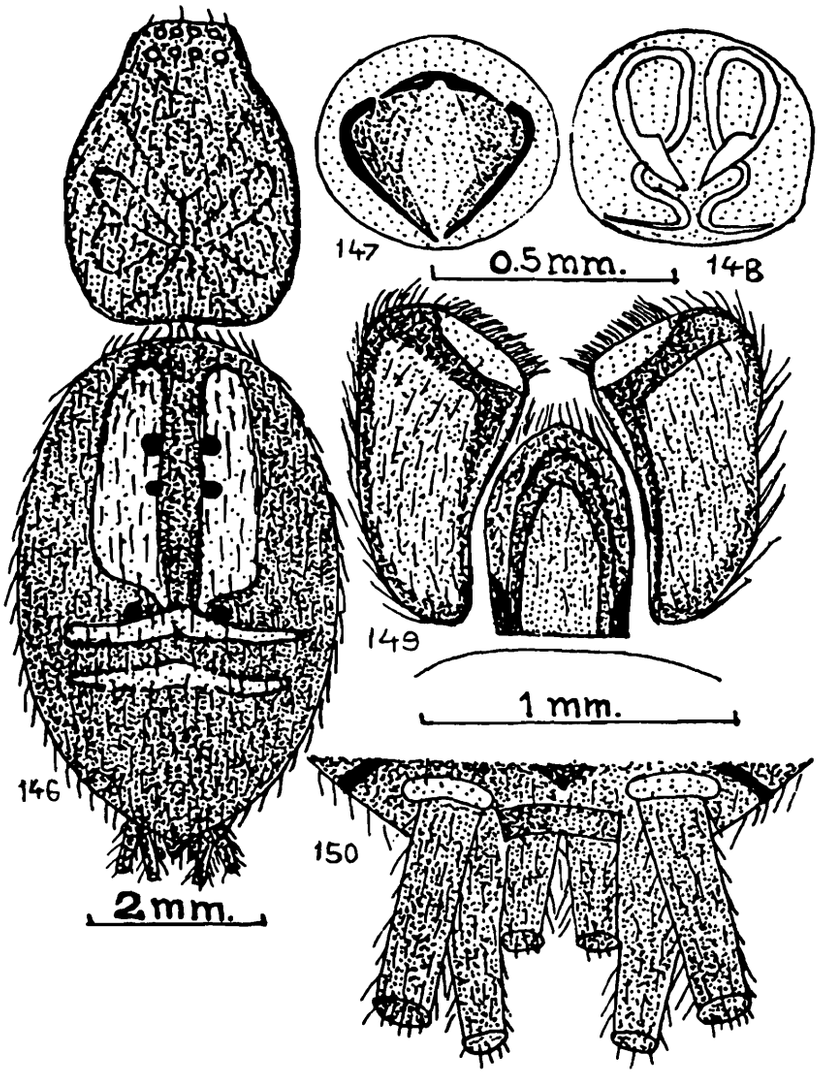
1988. *Sergiolus singhi* : Gajbe, *Rec. zool. Surv. India,* **85**(1) : 70.

Material examined : 2♀♀, On the bank of Gajana nalla near Bargi village, Jabalpur district, Coll. *U.A. Gajbe,* 5.XII.1985. (Reg. No. A/1750). 1♀, Bhilkharva village on Jabalpur - Katngi road, Jabalpur dist., Coll. *U.A. Gajbe,* 5.XII.1965. (Reg. No. A/1729). 1♀, Katav village near Katangi, Jabalpur dist., Coll. *U.A. Gajbe,* 5.XII.1985. (Reg. No. A/1750).

General : Cephalothorax and legs deep brown, abdomen grey. Total length 9.50 mm. Carapace 3.40 mm. long 2.60 mm. wide; abdomen 5.90 mm. long, 3.60 mm. wide.

Cephalothorax : Longer than wide, narrow in front, slightly convex, glazing smooth, clothed with fine black short fovea. Eyes dull pearly white except anterior medians. Anterior row of eyes slightly recurved (as seen from in front), medians circular slightly larger than the laterals and close to adjacent laterals than to each other. Posterior row of eye slightly recurved, medians more or less circular, smaller than the laterals and equally spaced. Ocular area longer than wide and wider behind that in front. Sternum oval, deep brown, widest at middle, pointed behind and clothed with fine conspicuous hairs. Maxillae and labium longer than wide, shape as in fig. 149. Chelicerae moderately strong, vertical, inner margin provided with one small tooth and outer margin with slightly larger tooth. Legs relatively long and strong, clothed with thick hairs and some spines. Tibia III with a median dorsal spine. Leg formula 4123.

Abdomen : Longer than wide, nearly elliptical clothed with fine thick hairs and provided with three pairs of sigilla on the dorsum. Dorsum behind the middle provided with transverse pale bands as in fig. 146. Ventral side lighter than the dorsal. Epigyne as in fig. 147. Internal genitalia as in fig. 148. Spinnerets prominent, black, anterior



Figs. 146-150 : *Sergiolus singhi* Tikader & Gajbe. 146. Dorsal view of female, legs omitted; 147. Epigyne; 148. Internal genitalia; 149. Labium and maxillae; 150. Spinnerets.

spinnerets well separated, posterior spinnerets longer than others as in fig. 150.

Distribution : India : Tumkur, Karnataka, (Type-locality), Bhandara, Maharashtra, Jabalpur, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

60. ***Sergiolus poonaensis*** Tikader & Gajbe (Figs. 151-156)

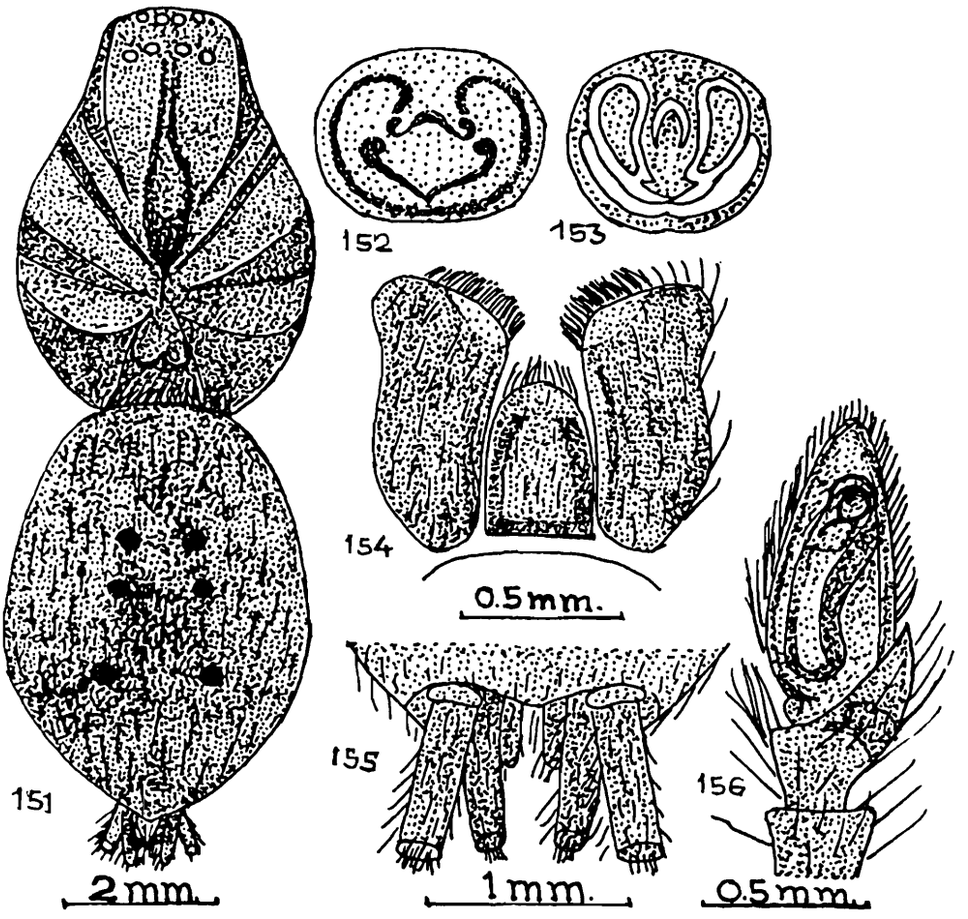
1976. *Sergiolus poonaensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **85**(5) : 186.

1988. *Sergiolus poonaensis* : Gajbe, *Rec. zool. Surv. India*, **85**(1) : 70.

Material examined : 1♀, Barela, Jabalpur district, Coll. *U.A. Gajbe*, 5.V.1979. 1♀, 1♂, Borla village, Rajnandgaon district. Coll. *U.A. Gajbe*, 7.I.1984. (Reg. No. A/1574). 1♀, 1♂, Shikara village, Seoni District, Coll. *U.A. Gajbe*, 26.XI.1986. (Reg. No. A/1731).

General : Cephalothorax, legs and abdomen deep brown, Total length 10.20 mm. Carapace 5.00 mm. long, 3.80 mm. wide; abdomen 5.40 mm. long, 3.90 mm. wide.

Cephalothorax : Longer than wide, narrow in front, convex, posterior middle of cephalothorax provided with an inconspicuous short fovea. Eyes pearly white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly recurved (as seen from in front). Medians slightly larger than the laterals and close to adjacent laterals than to each



Figs. 151-156 : *Sergiolus poonaensis* Tikader & Gajbe. 151. Dorsal view of female, legs omitted; 152. Epigyne; 153. Internal genitalia; 154. Labium and maxillae; 155. Spinnerets; 156. Left male palp, ventral view.

other. Posterior row of eyes recurved, medians more or less round, smaller than the laterals and equally spaced. Ocular area longer than wide and wider behind than in front. Sternum deep brown oval, widest at middle, pointed behind and clothed with hairs. Maxillae and labium longer than wide as in fig. 154. Chelicerae moderately strong, vertical inner margin with one small tooth and outer margin with a large tooth. Legs relatively long and strong, clothed with hairs and spines. Tibia III with a median dorsal spine. Male brown in colour and nearly same in size as female. Male palp as in fig. 156.

Abdomen : Longer than wide, nearly oval, clothed with fine thick hairs and provided with three pairs of sigilla on the dorsum as in fig. 151. Ventral side light brown and provided with a pair of longi-tudinal deep brown lines starting from the epigastric fold to just above the base of spinnerets. Epigyne as in fig. 152. Internal genitalia as in fig. 153. Spinnerets prominent, anterior spinnerets larger than other as in fig. 155.

Distribution : India : Bundgarden, Poona (Type-locality), Maharashtra, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Rajnandgaon and Seoni district of Madhya Pradesh.

Genus 28 ***Poecilochroa*** Westring

1874. *Poecilochroa* Westring, *Goteborgs. K. Vetersk-O. Samb. Handi.*, **14** : 45.

1982. *Poecilochroa* : Tikader, *Fauna of India, Spiders*, **2**(2) : 451.

Diagnosis : The cephalothorax narrow, oblong, slightly convex and a little narrowed in front. The anterior eyes close together in a straight line and with the median larger than lateral eyes. The

posterior eyes small, in a slightly recurved line. The median ocular area is longer than broad and narrower in front than behind. The chelicerae are of moderate size: with margins of the furrow unarmed. Abdomens with white spots.

Type-species : *Poecilochroa variana* (Koch C.L.)

Distribution : India.

Elsewhere : Europe, Africa, Asia and America.

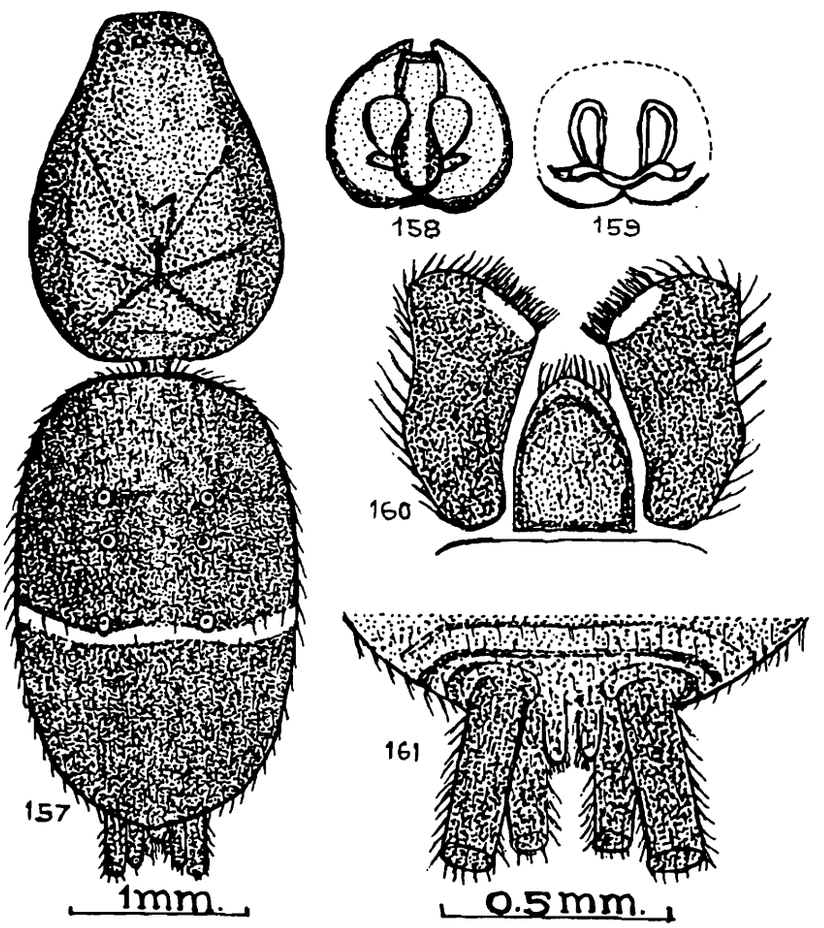
61. ***Poecilochroa barmani*** Tikader (Figs. 157-161)

1982. *Poecilochroa barmani* Tikader, *Fauna of India, Spiders*, **2**(2) : 452.

Material examined : 1 ♀, Magara village, Tikamgarh dist. Coll. *R.K. Singh,* 27.IX.1993. (Reg. No. A/3542). 1 ♀, Jetha Jhot nalla, Patalkot, Chhindwara dist., Coll. *H.S. Sharma,* (Reg. No. A/3543).

General : Cephalothorax deep brown, legs brown, abdomen black. Total length 4.80 mm. Carapce 2.00 mm. long, 1.50 mm. wide, abdomen 2.70 mm. long, 1.70 mm. wide.

Cephalothorax : Longer than wide, narrow in front, slightly convex, posterior middle of cephalothorax provided with an inconspicuous short fovea, clothed with pubescence. Eyes pearly white except anterior medians, posterior row of eyes are close together in a straight line (as seen from in front), medians slightly larger than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes recurved, medians oval and slightly closer to adjacent laterals than to each other. Ocular area longer than wide and wider behind than in front. Sternum deep brown, oval, pointed behind and clothed with hairs. Labium and maxillae as in figure 160. Chelicerae moderately strong and the margin of the furrow without tooth. Legs relatively long



Figs. 157-161 : *Poecilochroa barmani* Tikader. 157. Dorsal view of female, legs omitted; 158. Epigyne; 159. Internal genitalia; 160. Labium and maxillae; 161. Spinnerets.

and strong, clothed with hairs and spines, femora of all legs are deep brown colour.

Abdomen : Longer than wide, nearly elliptical, clothed with hairs and provided with three pairs of sigilla on the dorsum. Dorsum provided with a transverse white band just behind the third pairs of sigilla as in fig. 157. Ventral side lighter than the dorsal. Epigyne as in fig. 158. Internal genitalia as in fig. 159. Spinnerets prominent anterior spinnerets larger than other, posterior spinnerets darker in colour than other as in fig. 161.

Distribution : India : Shillong (Type-locality) Meghalaya, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 29 ***Herpyllus*** Hentz

1832. *Herpyllus* Hentz, *Silliman Soum. Sci & Arts.*, **21** : 102.

1982. *Herpyllus* : Tikader, *Fauna of India, spiders*, **2**(2) : 460.

Diagnosis : The two rows of eyes are nearly straight and widely separated, the eyes row are quite evenly spaced. The anterior median eyes are round a little smaller than the posterior lateral eyes. Lower margin of row of chelicera is armed with one tooth or nodule.

Type-species : *Herpyllus ecclesiasticus* Hentz.

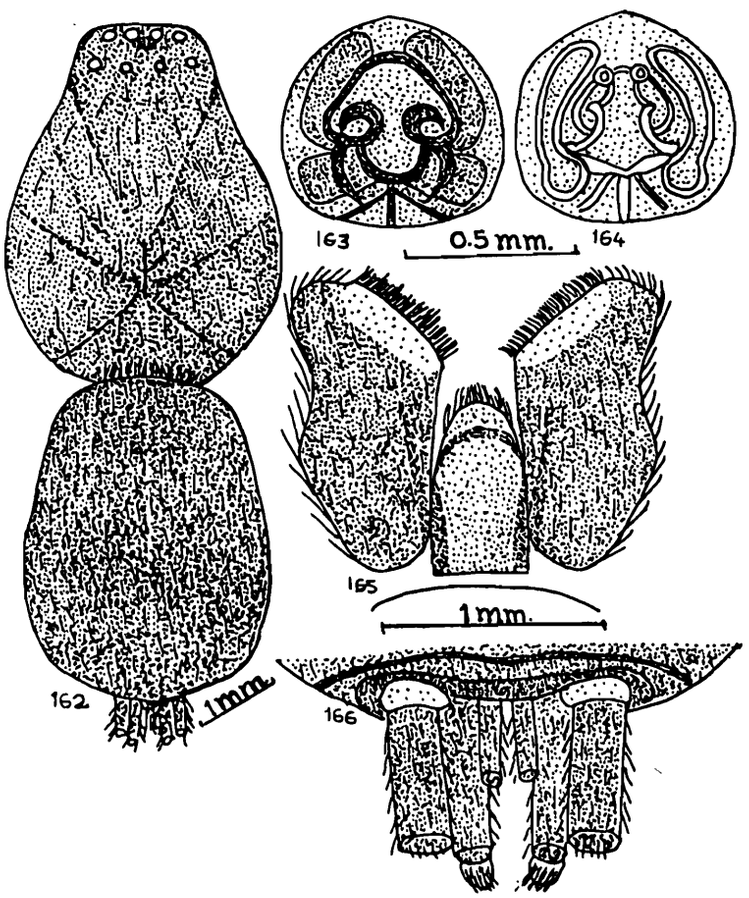
Distribution : India.

Elsewhere : United States of America.

62. ***Herpyllus goaensis*** Tikader (Figs. 162-166)

1982. *Herpyllus goaensis* Tikader, *Fauna of India, Spiders*, **2**(2) : 460.

Material examined : 2♀♀, Narayanganj, Mandla district Coll. *U.A. Gajbe*, 23.I.1985. (Reg. No. A/1950). 1♀ Haratiakeri village near Ambikapur, Sarguja district, Coll. *H. Khajuria*, 4.I.1975. (Reg. No. A/1601). 1♀, On the bank of gajana nalla, Bargi Jabalpur district, Coll. *U.A. Gajbe*, 30.XI.1985.



Figs. 162-166 : *Herpyllus goaensis* Tikader; 162. Dorsal view of female, legs omitted; 163. Epigyne; 164. Internal genitalia; 165. Labium and maxillae; 166. Spinnerets.

General : Cephalothorax and legs reddish-brown, abdomen grey, Total length 7.80 mm. Carpace 4.00 mm. long, 3.00 mm. wide abdomen 3.80 mm, long, 2.60 mm. wide.

Cephalothorax : Longer than wide, oval, slightly narrowing in front, slightly convex, clothed with pubescence and some long hairs, posterior middle provided with conspicuous short fovea. Eyes pearly white, widely separated. Posterior row of eyes slightly longer than the anterior row, anterior row of eyes nearly straight, medians larger than the other and closer to adjacent laterals than to each other. Posterior row of eyes nearly straight, medians nearly rounded, smaller than the laterals and slightly closer to each other than to the adjacent laterals as in fig. 162. Median ocular quadrangle longer than wide and wider behind than in front. Height of clypeus nearly same the diameter of the anterior median eyes. Chelicerae short, vertical inner margin provided with one small tooth and outer margin with three teeth. Maxillae and labium longer than wide, provided with long hairs, and anterior end provided with scopulae, shape as in fig. 165. Sternum deep brown, nearly elliptical, clothed with fine hairs. Legs relatively long and strong, clothed with hairs and some spines. Legs formula 4123.

Abdomen : Longer than wide, widest behind the middle clothed with mousy hairs. Ventral side lighter than the dorsal and clothed with hairs. Epigyne as in fig. 163. Internal genitalia as in fig. 164. Spinnerets prominent, anterior spinnerets widely separated, posterior spinnerets longer than others as in fig. 166.

Distribution : India : Caranzelam (Type-locality) Goa.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 30 ***Haplodrassus*** Chamberlin

1922. *Haplodrassus* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 151.

1981. *Haplodrassus* : Tikader, *Fauna of India, Spiders*, **2**(2) : 462.

Diagnosis : Carapace flat, ocular area narrowed, thoracic region with thin erect black setae, cephalic area not elevated. Anterior row of eyes slightly procurved and posterior row of eyes procurved. Posterior medians larger than others and close together, well away from the posterior leterals. Epigyne with large paired chitinous processes separated by median septum.

Type-species : *Haplodroassus hiemalis* (Emerton)

Distribution : India.

Elsewhere : America.

63. ***Haplodeassus sataraensis*** Tikader & Gajbe (Figs. 167-172)

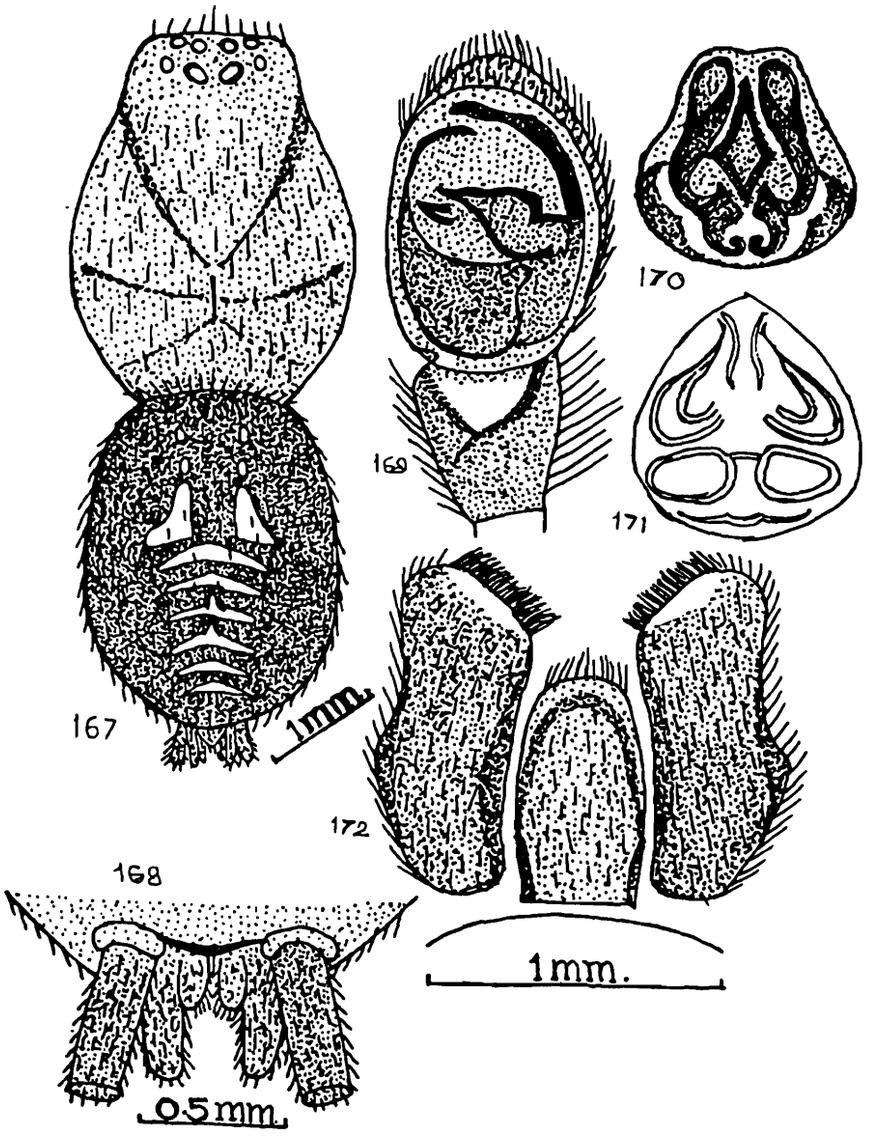
1977. *Haplodrassus sataraensis* Tikader & Gajbe, *Rec. zool. Surv. India*, **73**(1-4) : 70.

1982. *Haplodrassus sataraensis* : Tikader, *Fauna of India, Spiders*, **2**(2) : 486.

Material examined : 1♂, Garhbengal village near narayanpur, Bastar district, Coll. *U.A. Gajbe*, 30.XII.1983. (Reg. No. A/585). 1♂, Chitrakote, Bastar district, Coll. *U.A. Gajbe* 1.I.1984. (Reg. No. A/1586). 1♀ Shantinagar Colony, Rajnandgaon, Coll. *U.A. Gajbe*, 22.XII.1983. (Reg. No. A/1587). 1♀, Sindbag village, Balaghat, Coll. *U.A. Gajbe*, 19.XII.1983. (Reg. No. A/1741). 1♀, Gupt Mahadev, Piparia Tahsil, Hoshangabad district, Coll. *U.A. Gajbe*, 5.1.1990. (Reg. No./ 1742). 2♀, 2♂, Keshala village, Hoshangabad district, Coll. *U.A. Gajbe*, 11.1.1990. (Reg. No. A/1743).

General : Cephalothorax reddish-green, legs light reddish-green, abdomen dark brown. Total length 6.30 mm. Carapace 3.30 mm. long. 2.40 mm. wide; abdomen 3.10 mm. long, 2.20 mm. wide.

Cephalothorax : Longer than wide, broad in front, clothed with fine hairs, posterior middle provided with a conspicuous fovea. Eyes pearly white except anterior medians. Anterior row of eyes slightly procurved (as seen from in front), medians slightly larger than the laterals and closer to laterals than to each other. Posterior row of



Figs. 167-172 : *Haplodrassus sataraensis* Tikader & Gajbe. 167. Dorsal view of female, legs omitted; 168. Spinnerets; 169. Left male palp, ventral view; 170. Epigyne; 171. Internal genitalia; 172. Labium and maxillae.

eyes procurved, medians oblique, larger than the laterals and much closer to each other than to the adjacent laterals Chelicerae moderately strong, inner margin with two similar minute teeth, and outer margin with three dissimilar minute teeth. Sternum heart shaped, pointed behind, clothed with fine thick hairs. Maxillae and labium reddish-green, shape as in fig. 172. Legs relatively long and strong, clothed with hairs and spines. Metatarsi and tarsi of I and II provided ventrally with conspicuous scopulae and tarsi with prominent claw tufts. Legs formula 4123. the colour and size of male almost like female. Male palp as in fig. 169.

Abdomen : Longer than wide, nearly elliptical, clothed with thick hairs and provided with chalk-white chevrons as in fig. 167. Ventral side same as dorsal. Epigyne with prominent chitinous ridge as in fig. 170. Internal genitalia as in fig. 171. Spinnerets prominent, anterior spinnerets cylindrical and longer than others as in fig. 168.

Distribution : India : Ambanali village near Mahabaleshwar (Type-locality) Satara dist., Maharashtra, Himachal Pradesh, Orissa, Rajasthan, Uttar Pradesh, Punjab, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Rajnandgaon, Balaghat, Hoshangabad and Bastar district of Madhya Pradesh.

Genus 31 *Zelotes* Gistel

1848. *Zelotes* Gistel *Nat. Thierr.*, : 11.

1983. *Zelotes* : Tikader, *Fauna of India, Spiders*, 2(2) : 470.

Diagnosis : Cephalothorax oval, narrowed makedly in front, covered with fine hairs, Eyes rather closely grouped, posterior row slightly longer than the anterior row. Anterior row more or less pocurved, larger than medians, Posterior row of eyes straight, medians often irregular in shape, some time larger than laterals. Legs relatively long, tibia and metatarsi III and IV may bear ventral spines. Scopulae reach between mid-point and base of metatarsi I and II and to apices of metatarsi III and IV. Abdomen dark black, covered with fine hairs. Dorsally there may occur three pairs of spots or impressions.

Type-species : *Zelotes subterranea* (Koch)

Distribution : Oriental and temperate regions of the world.

Key to species of the genus *Zelotes* Gistel

1. Spiders of small size upto 6 mm. 2
– Spiders of bigger size above 6 mm 4
2. Abdomen dorsally provided with three pairs of sigilla; posterior row of eyes as long as the anterior row ..... *shantae*
– Abdomen dorsally provided without sigilla; posterior row of eyes slightly longer than the anterior row 3
3. Outer margin of chelicera with two teeth. ..... *nasikensis*
– Outer margin of chelicera with three teeth ..... *mandae*
4. Posterior median eyes slightly larger than the posterior lateral eyes 5
– Posterior median eyes slightly smaller than the posterior lateral eyes ..... *mandlaensis*
5. Tibiae III and IV provided with two pairs of ventral spines ..... *ashae*
– Tibia III and IV provided with three pairs of ventral spines 6
6. Eyes of posterior row equally spaced; inner and outer margins of chelicera with two and six teeth respectively ..... *jabalpurensis*
– Eyes of posterior row not equally spaced; inner and outer margins of chelicera with one and two teeth respectively .... *sataraensis*

64. *Zeloter shantae* Tikader (Figs. 173-177)

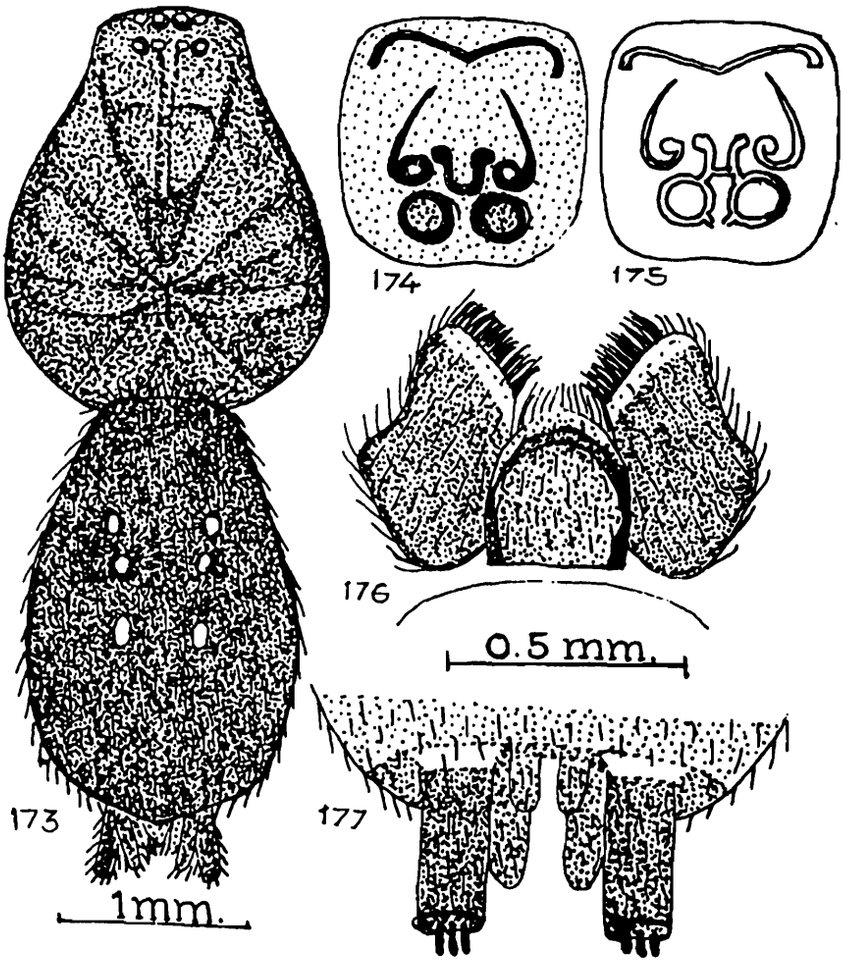
1981. *Zelotes shantae* Tikader, *Fauna of India, Spiders*, 2(2) : 483.

Material examined: 1♀, Mura village, Betul district, Coll. *H.S. Sharma*, 24.III.1990. (Reg. No. A/1744).

General : Cephalothorax and legs deep brown, abdomen black. Total length 4.60 mm. Carapace 2.20 mm. long, 1.80 mm. wide; abdomen 2.50 mm. long 1.50 mm. wide.

Cephalothorax : Longer than wide, narrow in front, convex clothed with pubescence, posterior middle of cephalothorax provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovra to the lateral sides. Eyes closely grouped pearly white except anterior medians, posterior row of eyes as long as the anterior row. Anterior row of eyes, slightly procurved (as seen from infront), medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irrequlars in shape, smaller than the laterals and nearly equally spaced. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in fig. 176. Chelicerae moderately strong, short, vertical, inner margin provided with two small teeth and outer margin with three larger teeth. Legs relatively short and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach up to base of metatarsi I and II and upto tarsi III and IV. Legs formula 4123.

Abdomen : Longer than wide, nearly elliptical, clothed with fine hairs and provided with three pairs of sigilla as in fig. 173. Ventral side slightly lighter than dorsal. Epigyne as in fig. 174. Internal



Figs. 173-177 : *Zelotes shantae* Tikader. 173. Dorsal view of female, legs omitted; 174. Epigyne; 175. Internal genitalia; 176. Labium and maxillae; 177. Spinnerets.

genitalia as in fig. 175. Spinnerets very prominent, anterior spinnerets widely separated larger than other as in fig. 177.

Distribution : India : Katraj, Poona (Type-locality) Maharashtra; Bastar, Betul, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Bastar, Betul and Jabalpur districts of Madhya Pradesh.

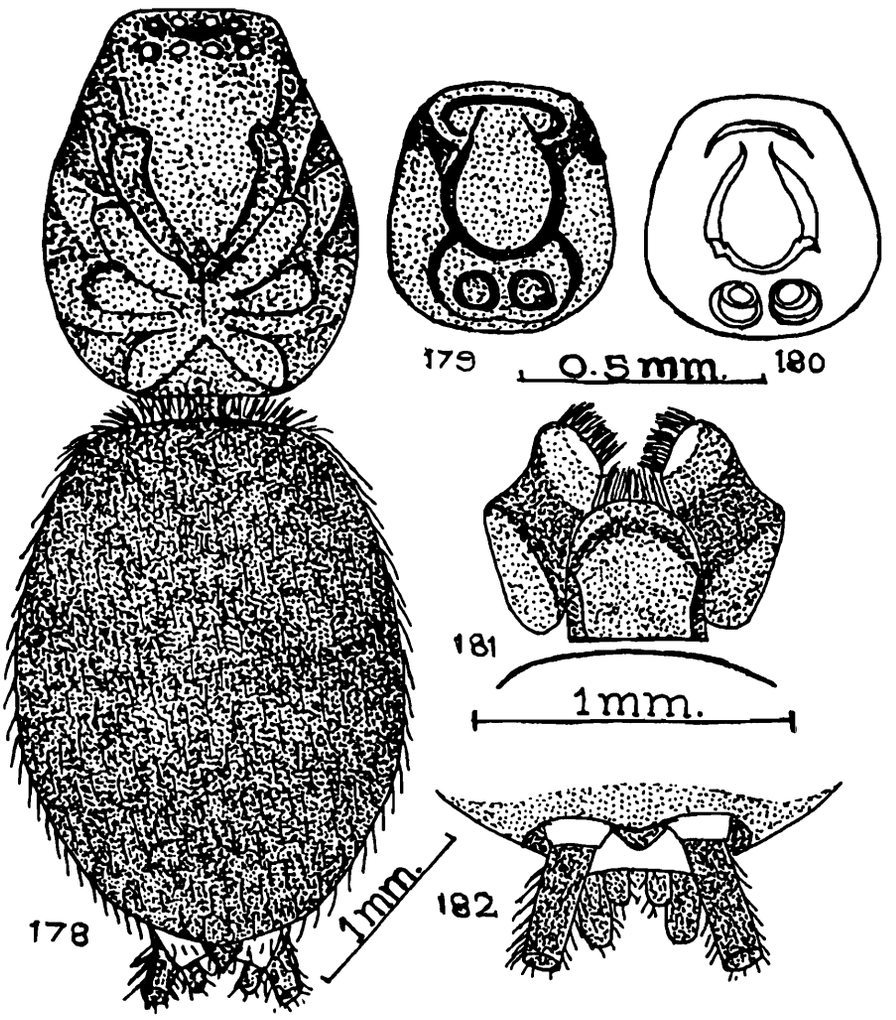
65. ***Zelotes nasikensis*** Tikader & Gajbe (Figs. 178-182)

1975. *Zelotes nasikensis* Tikader & Gajbe. *Proc. Indian Acad. Sci.*, **83**(3) : 118.

Material examined : 1♀ Khatia village, Mandla district, Coll. *U.A. Gajbe*, 16.VI.1992. (Reg. No. A/2145).

General : Cephalothorax and legs deep brown, abdomen uniform glossy deep brown. Total length 5.00 mm. Carapace 2.00 mm. long, 1.60 mm. wide; abdomen 2.90 mm. long, 2.00 mm. wide.

Cephalothorax : Longer than wide, narrow in front convex, flat, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to lateal sides. Eyes closely grouped, silvery white except anterior medians, posterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight; madians irregular in shape, slightly smaller than the laterals and closer to laterals than to each other. Sternum oval, pointed behind and clothed with fine hairs. Labium and maxillae in fig. 181. Chelicerae moderately strong, vertical, inner margin provided with one small



Figs. 178-182 : *Zelotes nasikensis* Tikader & Gajbe. 178. Dorsal view of female, legs omitted; 179. Epigyne; 180. Internal genitalia; 181. Labium and maxillae; 182. Spinnerets.

tooth and outer margin with two slightly bigger teeth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach up to base of metatarsi I and II and up to apices of metatarsi III and IV. Legs formula 4123.

Abdomen : Longer than wide, oval, clothed with fine hairs. Ventral side much lighter than the dorsal. Epigyne as in fig. 179. Internal genitalia as in fig. 180. Spinnerets very prominent, anterior spinnerets cyindrical and larger than others as in fig. 182.

Distribution : India : Meshi, Nasik district (Type-locality), Maharashtra, Mandla, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

66. *Zelotes mandae* Tikader & Gajbe (Figs. 183-187)

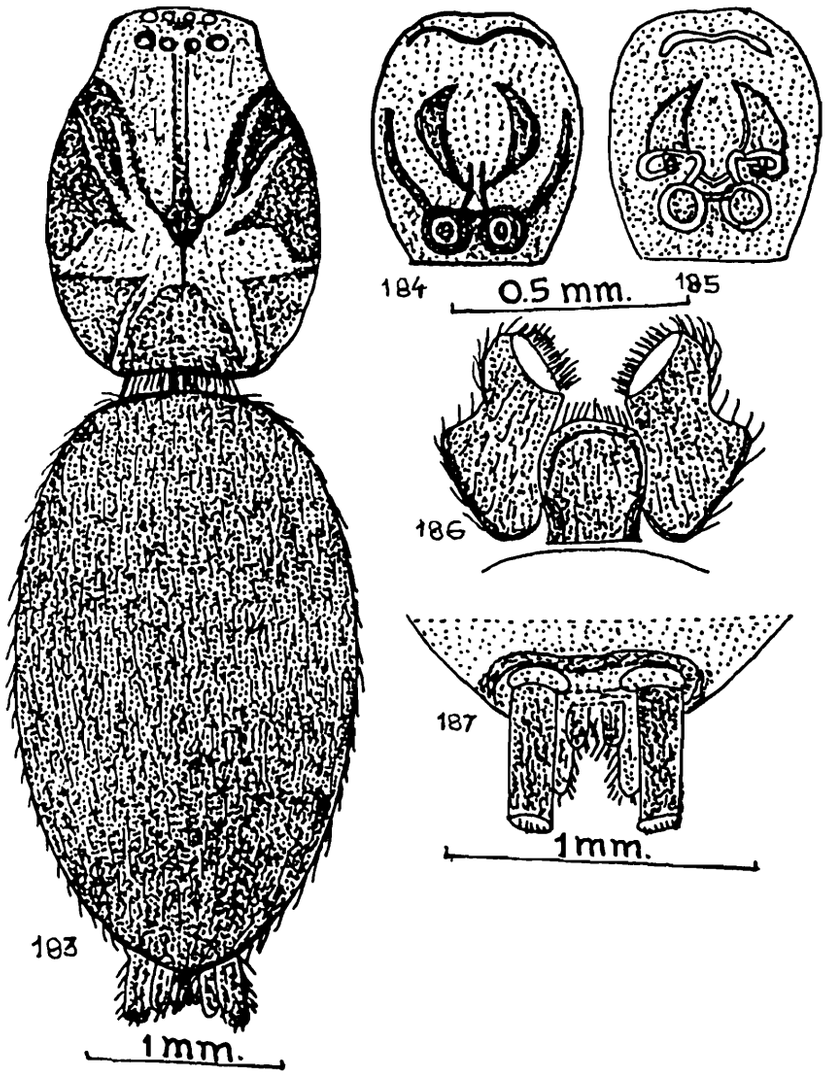
1978. *Zelotes mandae* Tikader & Gajbe, *Bull. zool. Surv. India,* 2(1) : 87.

1982. *Zelotes mandae* : Tikader, *Fauna of India, Spiders,* 2(2) : 492.

Material examined : 1♀, Kaladehi village, Jabalpur district, Coll. *U.A. Gajbe,* 20.IV.1982. (Reg. No. A/1589). 1♀, On the bank of Megha river 4 km. from Forest rest house, kukru, Betul district, Coll. *H.S. Sharma,* I.IV.1990. (Reg. No. A/1745).

General : Cephalothorax deep brown, legs brownish-green, abdomen black. Total length 5.20 mm. Carapace 2.20 mm. long, 1.40 mm. wide; abdomen 2.90 mm. long, 1.80 mm. wide.

Cephalothorax : Longer than wide, oval,



Figs. 183-187 : *Zelotes mandae* Tikader & Gajbe. 183. Dorsal view of female, legs omitted; 184. Epigyne; 185. Internal genitalia; 186. Labium and maxillae; 187. Spinnerets.

slightly narrow in front, convex, clothed with some spine like hairs, posterior middle of cephalothorax provided with an conspicuous short fovea. Rediating streaks diverge from short fovea to lateral sides of cephalothorax. Eyes closely grouped, pearly white except anterior medians, posterior row of eye slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front), medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and closer to adjacent laterals than to each other. Sternum oval, pointed behind clothed with black hairs. Labium and maxilae, as in fig. 186. Chelicerae moderately strong, vertical, inner margin provided with one small tooth and outer margin with three moderate teeth. Legs relatively long and strong, clothed with hairs and spines, tibiae III and IV with three pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto tarsi III and IV. Legs formula 4123.

Abdomen : Longer than wide, elliptical clothed with hairs as in fig. 183. Ventral side slightly lighter than the dorsal. Epigyne as in fig. 184. Internal genitalia as in fig. 185. Spinnerets very prominent, anterior spinnerets cylindrical, longer and darker in colour than others as in fig. 187.

Distribution : India : Poona, (Type-locality) Maharashtra, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

67. ***Zoletes mandlaensis*** Tikader & Gajbe (Figs. 188-192)

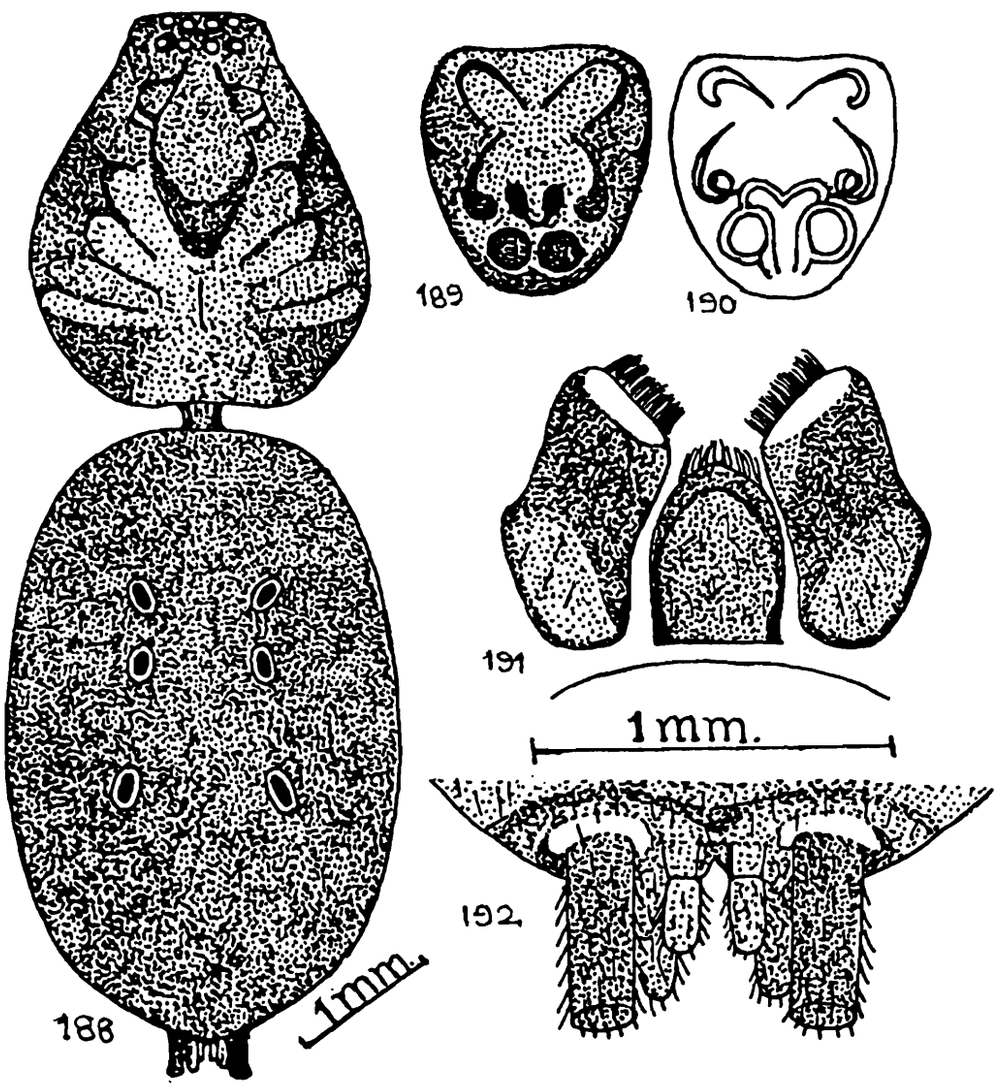
1976. ***Zelotes mandlaensis*** : Tikader & Gajbe, *Proc. Indian Acad Sci.*, **83**(3) : 112.

1988. ***Zelotes mandlaensis*** : Gajbe, *Rec. zool. Surv., India*, **85**(1) : 72.

Material examined : 1 ♀, Pachmarhi, Hoshangabad district. Coll. *H.S. Prithi*, 15.XII.1927. (Reg. No. 4143/18). 1 ♀, Pandhurna, Chhindwara district, Coll. *V.D. Shrivastava*, 16.II.1971. (Reg. No. 4144/18).

General : Cephalothorax and legs deep brown, abdomen brown. Total length 7.60 mm. Carapace 2.80 mm. long, 2.40 mm. wide; abdomen 4.60 mm. long, 2.80 mm. wide.

Cephalothorax : Longer than wide, narrow in front, convex clothed with pubescence, posterior middle provided with an inconspicuous short fovea. Pattern of radiating streaks diverage from short fovea to lateral sides. Eyes closely grouped silvery white, except anterior medians, posterior row of eyes straight and slightly longer than the anterior row. Anterior row of eyes nearly straight (as seen from in front), medians smaller than the laterals and closer to the laterals than to each other. Posterior medians irregular in shape, slightly smaller than the laterals and closer to laterals than to each other. Sternum oval, pointed behind, clothed with hairs. Labium and maxillae as in fig. 191. Chelicerae moderately strong, vertical, inner margin provided with three small teeth and outer



Figs. 188-192 : *Zelotes mandlaensis* Tikader & Gajbe. 188. Dorsal view of female, legs omitted; 189. Epigyne; 190. Internal genitalia; 191. Labium and maxillae; 192. Spinnerets.

margin with three slightly bigger teeth. Legs relatively long and strong, clothed with hairs and spines. Tibae III and IV provided with two pairs of ventral spines. Scopulae reach upto the base of matatarsi I and II and upto apices of metatarsi III and IV. Legs formula 4123.

Abdomen : Longer than wide, oval, clothed with fine hairs and three pairs of light spots as in fig. 188. Epigyne as in fig. 189. Internal genitalia as in fig. 190. Spinnerets very prominent anterior spinnerets cylindrical, larger and darker in colour than other as in fig. 192.

Distribution : India : Kisli, Mandla district (Type-locality), Madhya Pradesh, Hoshangabad, Chhindwara district of Madhya Pradesh.

Remarks : This species is being reported here for the first time from Chhindwara and Hoshangabad districts of Madhya Pradesh.

68. ***Zelotes ashae*** Tikader & Gajbe (Figs. 193-197)

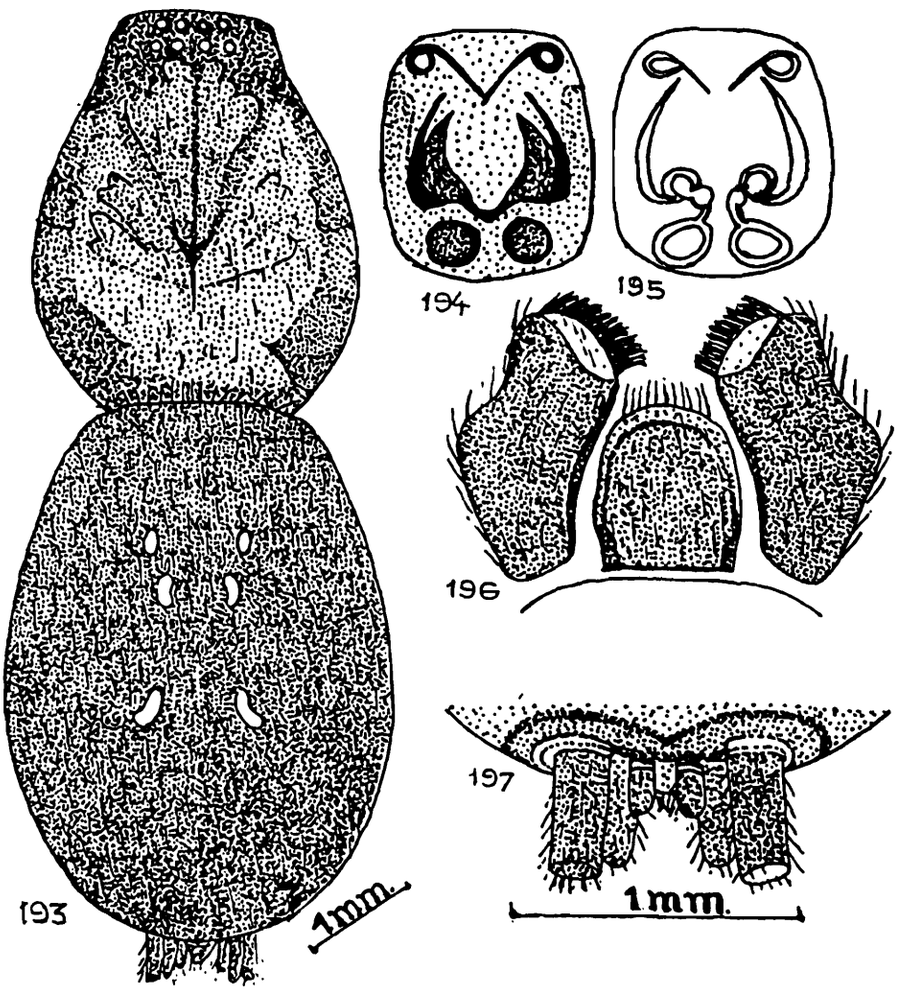
1976. *Zelotes ashae* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **83**(3) : 111.

1983. *Zelotes ashae* : Tikader, *Fauna of India, Spiders,* **2**(2) : 502.

Material examined : 3♀♀, Gupt Mahadev, Piparia Tahsil, Hoshangabad district, Coll. *U.A. Gajbe,* 5.I.1990. (Reg. No. A/1746).

General : Cephalothorax and legs reddish brown, abdomen uniform deep brown. Total length 8.20 mm. Carapce 3.50 mm. long, 2.30 mm. wide; abdomen 4.80 mm. long 3.40 mm. wide.

Cephalothorax : Longer than wide, narrow in front, slightly convex, clothed with fine hairs, posterior middle provided with conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to the lateral sides. Eyes closely



Figs. 193-197 : *Zelotes ashae* Tikader & Gajbe. 193. Dorsal view of female, legs omitted; 194. Epigyne; 195. Internal genitalia; 196. Labium and maxillae; 197. Spinnerets.

grouped, silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from it front), medians smaller than the laterals and closer to the laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly larger than the laterals and equally spaced. Sternum oval, pointed behind, clothed with long black spine like hairs. Labium and maxillae as in fig. 196. Chelicerae moderately strong, vertical, inner margin provided with two small teeth and outer margin with four teeth. Legs relatively long and strong clothed with hairs and spines. Tibiae III and IV provided with two pairs of ventral spines. Scopulae reach upto base of metatarsi I and II and upto apices of metatarsi III and IV. Legs formula 4123.

Abdomen : Longer than wide, oval, clothed with fine hairs and three pairs of light spots, as in fig. 193. Ventral side slightly lighter than the dorsal. Epigyne as in fig. 194. Internal genitalia as in fig. 195. Spinnerets very prominent, anterior spinnerets cylindrical, larger and darker in colour than others as in fig. 197.

Distribution : India : Range Hill, Poona (Type-locality), Maharashtra, Jodhpur, Rajasthan, Hoshangabad, Madhya Pradesh.

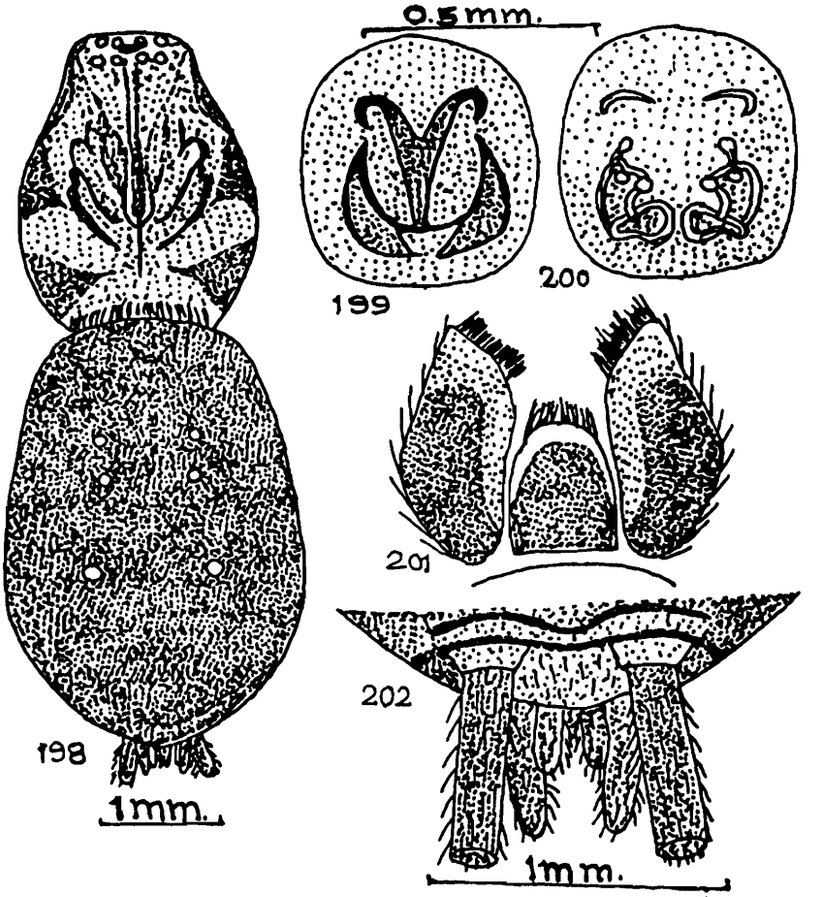
Remarks : This species is being reported here for the first time from Madhya Pradesh.

69. ***Zelotes jabalpurensis*** Tikader & Gajbe (Figs. 198-202)

1976. *Zelotes jabalpurensis* Tikader & Gajbe, *Proc. Indian Acad. Sci.*, **53**(3) : 114.

Material examined : 1 ♀, Tilwaraghat, Jabalpur Coll. *V.V. Rao,* 10.XII.1967.

General : Cephalothorax and legs reddish-brown, abdomen brown. Total length 6.30 mm. Carapace 2.60 mm. long, 2.00 mm. wide; abdomen 3.80 mm. long, 2.40 mm. wide.



Figs. 198-202 : *Zelotes jabalpurensis* Tikader & Gajbe. 198. Dorsal view of female, legs omitted; 199. Epigyne; 200. Internal genitalia; 201. Labium and maxillae; 202. Spinnerets.

Cephalothorax : Longer than wide, narrow in front, clothed with fine hairs, posterior middle provided with a conspicuous short fovea. Pattern of radiating streaks diverge from short fovea to lateral sides. Eyes closely grouped, silvery white except anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes nearly straight (as seen from in front), medians smaller than the laterals and closer to the laterals than to each other. Posterior row of eyes straight, medians irregular in shape. Slightly larger than the laterals and equally spaced. Sternum oval, pointed, behind, clothed with hairs. Labium and maxillae as in fig. 201. Chelicerae moderately strong, vertical, outer margin with six teeth and inner margin without tooth. Legs relatively long and strong, clothed with hair and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto the base of metatarsi I and II and upto apices of metatarsi III and IV Legs formula 4123.

Abdomen : Longer than wide, oval, dorsally clothed with fine hairs and three pairs of light spot as in fig. 198. Ventral side lighter than the dorsal. Epigyne as in fig. 199. Internal genitalia as in fig. 200. Spinnerets very prominent, anterior spinnerets cylindrical, larger and darker in colour than others as in fig. 202.

Distribution : India : Tilwaraghat, Jabalpur (Type-locality). Madhya Pradesh.

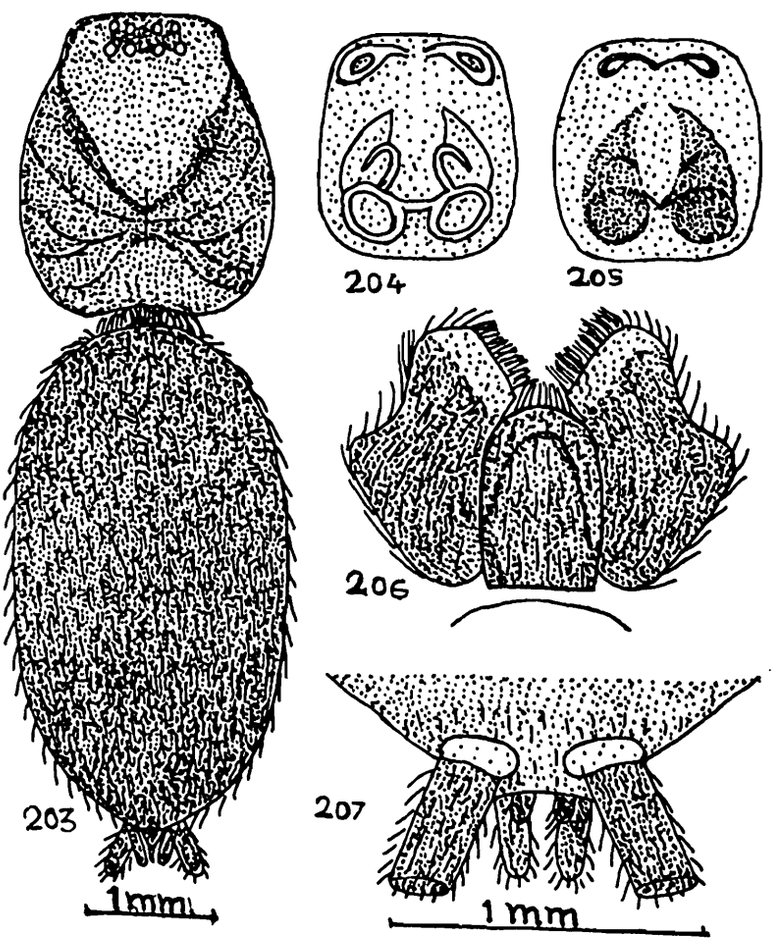
Remarks : This species is only known from the type-locality.

70. ***Zelotes sataraensis*** Tikader & Gajbe (Figs. 203-207)

1977. *Zelotes sataraensis* Tikader & Gajbe, *Bull. zool. Surv. India,* **2**(1) : 87.

1988. *Zelotes sataranensis* : Gajbe, *Rec. zool. Surv. India,* **85**(1) : 72.

Material examined : 1 ♀, Near cave of Raghu Raja (patalkot) Chhindwara dist., M.P. Coll. *R.K.*



Figs. 203-207 : *Zelotes sataraensis* Tikader & Gajbe. 203. Dorsal view of female, legs omitted; 204. Epigyne; 205. Internal genitalia; 206. Labium and maxillae; 207. Spinnerets.

Singh, 14.X.1992. (Reg. No. 2297). 1 ♀, Sikara village, Seoni district, Coll. *U.A. Gajbe*, 19.X.1981. 1 ♀, Chhotedonger village, Narayanpur Tahsil Bastar district, Coll. *U.A. Gajbe*, 26.XII.1983. (Reg. No. A/1593).

General : Cephalothorax and legs deep brown, abdomen grey, Total length 7.00 mm. Carapce 2.40 mm. long, 2.10 mm. wide, abdomen 4.50 mm. long, 2.20 mm. wide.

Cephalothorax : Longer than wide, oval, slightly narrow in front, convex, clothed with pubescence, posterior middle provided with a conspcuous short fovea. Radiating streaks diverge from short fovea to lateral sides of cephalothorax. Eyes closely grouped, silvery white except the anterior medians, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes very slightly procurved (as seen from in front), medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight, medians irregular in shape, slightly smaller than the laterals and closer to laterals than to each other. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in fig. 206. Chelicera moderately strong, vertical inner margin with one minute tooth and outer margin with two larger teeth. Legs relatively long and strong, clothed with hairs and spines. Tibiae III and IV provided with three pairs of ventral spines. Scopulae reach upto the base of metatarsi III and IV. Legs formula 4123.

Abdomen : Longer than wide, nearly elliptical, narrowing posteriorly, clothed with fine hairs as in fig. 203. Ventral side lighter than the dorsal Epigyne as in fig. 204. Internal genitalia as in fig. 205. Spinnerets very prominent, anterior spinnerets widely separated, longer than others as in fig. 207.

Distribution : India : Pratapgarh near Mahabaleshwar (Type-locality), Satara district, Maharashtra, Andhra Pradesh, Himachal Pradesh, Uttar Pradesh, Seoni Jabalpur, Bastar, Chhindwara districts of Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 32 ***Drassyllus*** Chamberlin

1922. *Drassyllus* Chamberlin, *Proc. biol. Soc. Wash.*, **35** : 166.

1981. *Drassyllus* : Tikader, *Fauna of India, Spiders*, **2**(2) : 509.

Diagnosis : The posterior row of eyes procurved, the posterior median eyes large, oval, oblique, and much closer to each other than to the posterior lateral eyes. The outer margin of the cheliceral fang furrow provided with three to six teeth, the inner margin from two to four. The colours vary from orange to dark brown on the cephalothorax and grey to black on the abdomen. There is no markings, though in males there is a very conspicuous orange brown scutum on the abdomen which covers from less than one-third to almost one-half of the dorsum. Epigyne without prominent sclerotized ridges on each side ending freely in front.

Type-species : *Drassyllus fallen* Chamberlin.

Distribution : India.

Elsewhere : America.

71. ***Drassyllus khajuriai*** Tikader & Gajbe (Figs. 208-212)

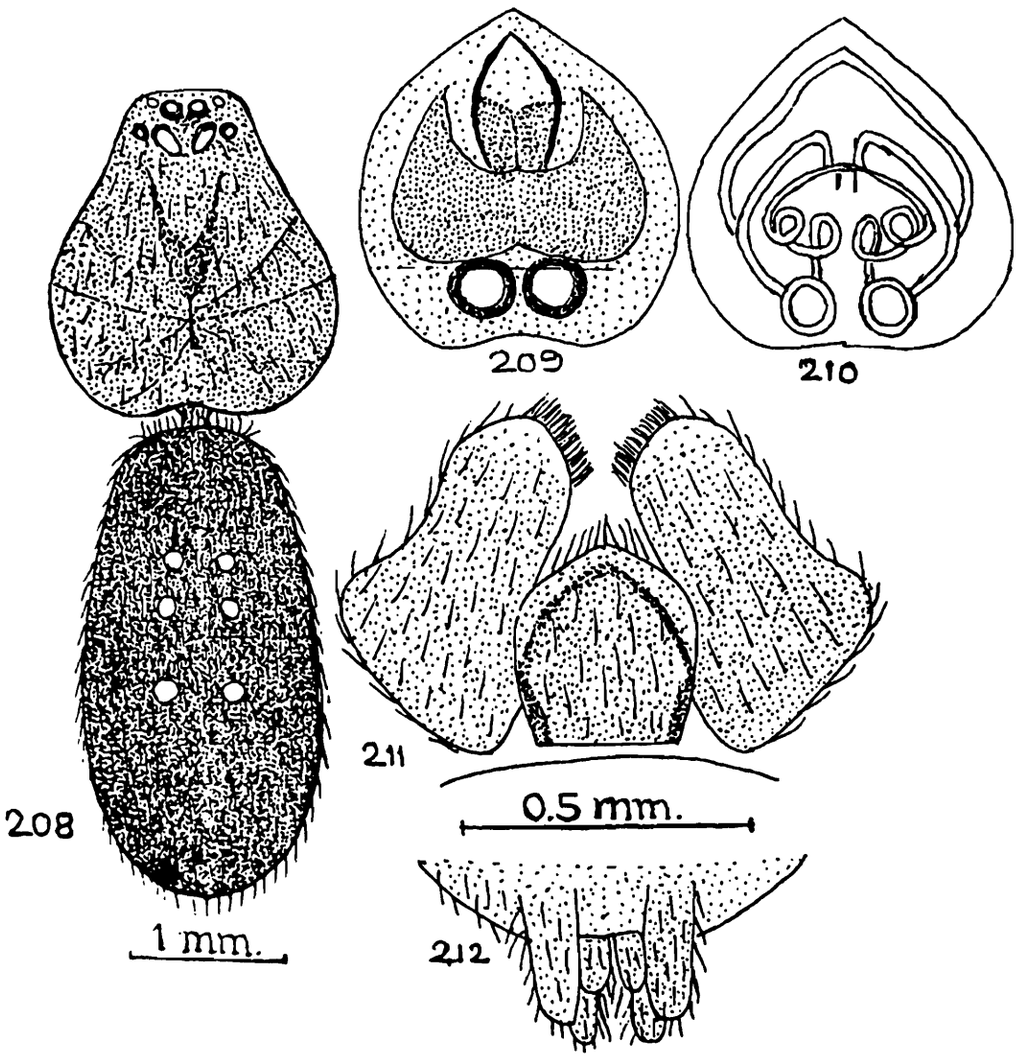
1976. *Drassyllus khajuriai* Tikader & Gajbe, *Oriental Ins.*, **10**(3) : 432.

1982. *Drassyllus khajuriai* : Tikader, *Fauna of India, Spiders*, **2**(2) : 512.

Material examined : 1 ♀, Rest house, Mandla, Mandla district, Coll. *H. Khajuria*, 28.II.1974. (Reg. No. 5043/18).

General : Cephalothorax and legs light brownish-green. Abdomen deep brown. Total length 5.80 mm. Carapace 2.20 mm. long, 2.00 mm. wide; abdomen 3.40 mm. long. 1.80 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, slightly convex, posterior middle of thorax provided with an inconspicuous short fovea, clothed with fine hairs and some spine like hairs. Eyes silvery white in colour except anterior medians and all eyes situated in compact area. Posterior row of eyes slightly longer than the anterior row. Anterior row of eyes procurved (as



Figs. 208-212 : *Drassyllus khajuriai* Tikader. 208. Dorsal view of female, legs omitted; 209. Epigyne; 210. Internal genitalia; 211. Labium and maxillae; 212. Spinnerets.

seen from infront); medians slightly larger than laterals and closer to adjacent latarals than to each other. Posterior row of eyes slightly closer to each other than to adjacent laterals. Strenum oval, pointed behind, clothed with fine hairs. Labium and maxillae light green, shape as in fig. 211. Chelicerae not very strong, vertical, inner margin with one minute tooth and outer margin provided with two moderate teeth. Legs relatively long and strong, clothed with hairs and spines. Legs formula 4123.

Abdomen : Nearly elliptical, clothed with fine hairs, three pairs of sigilla on the dorsum and anterior portion provided with some black spine-like hairs as in fig. 208. ventral side lighter than the dorsal. Epigyne as in fig. 209. Internal genitalia as in fig. 210. Spinnerets as in fig. 212.

Distribution : India : Rest house Mandla, (Type-locality) Madhya Pradesh.

Remarks : This species is only known from its type-locality.

72. ***Drassyllus mahabalei*** Tikader
(Figs. 213-217)

1982. *Drassyllus* mahabalei Tikader, *Fauna of India, Spiders*, **2**(2) : 510.

Material examined : 1♀, Bakhari near Seoni, Seoni district. Coll. *N.K. Sinha*, 30.XI.1973. (Reg. No. 4141/18). 1♀, Narayanganj Mandla district, Coll. *U.A. Gajbe*. 23.I.1985. (Reg. No. A/1590).

General : Cephalothorax reddish-green, legs brownish-green. Abdomen brown. Total length 6.00 mm. Carapace 1.90 mm. long 1.70 mm. wide, abdomen 4.20 mm. long. 2.40 mm. wide.

Cephalothorax : Longer than wide, much narrow in front, slightly convex, clothed with robust spines, posterior middle provided with an inconspicuous short fovea, Eyes silvery white in colour except anterior medians and all eyes situated in a compact area. Posterior row of eyes slightly procurved (as seen from in front), medians slightly larger than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes procurved, medians large, triangular, oblique and nearly contiguous and all eyes equally spaced. Sternum oval, pointed behind, clothed with fine hairs. Labium and maxillae as in fig. 216. Chelicerae not very strong, vertical, inner margin provided with one minute tooth and outer margin with three larger teeth. Legs relatively long and strong, clothed with hairs and spines.

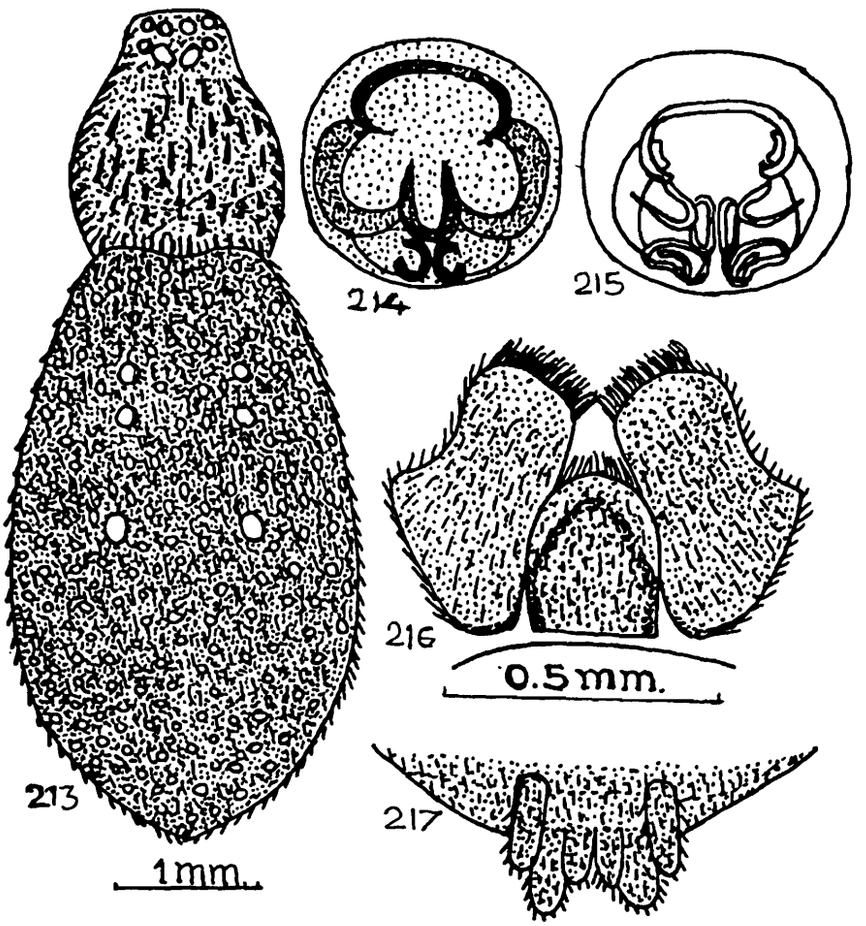
Abdomen : Longer than wide, nearly elliptical, clothed with fine hairs and three pairs of sigilla on the dorsum and anterior portion provided with some black spine like hairs as in fig. 213. Ventral side much lighter than the dorsal. Epigyne as in fig. 214. Internal geritalia as in fig. 215. Spinnerets as in fig. 217.

Distribution : India : Sindhi colony, Poona (Type-locality) Maharashtra, Seoni, Mandla district of Madhya Pradesh.

Remarks : This species is being reported here for the first time from Mandla district.

Family XII CITHAERONIDAE

Diagnosis : The family Cithaeronidae is one of the most obscure group of spiders. In general appearance with their relatively large eyes, procurved posterior eye row, long legs and pseudosegmented tarsi. Cithaeronids can be distinguished from other gnaphosidae, prodidomides and Ammoxenidae by the presence of conical and narrowly separated anterior lateral spinnerets bearing a subdistal sclerotized ring and unmodified piriform gland spigots.



Figs. 213-217 : *Drassyllus mahabalei* Tikader. 213. Dorsal view of female, legs omitted; 214. Epigyne; 215. Internal genitalia. 216. Labium and maxillae; 217. Spinnerets.

Genus 33 *Cithaeron* O.P. Cambridge

1872. *Cithaeron* O.P. Cambridge, *Proc. Zool. Soc. London*, 1872 : 272.

1990. *Cithaeron* : Plantnick. *Amer. Mus. Novit.*, 3018 : 6.

Diagnosis : The genus is one of the most obscure groups of spider. Females can be distinguished from those of *Inthaeron* by having the cylindrical gland spigots on the posterior median spinnerets arranged in a dense clustor rather than in two longitudinal rows.

Type-species : *Cithaeron praedonius* O.P. Cambridge.

Distribution : India.

Elsewhere : Northeastern Africa (Libya, Egypt and northern Ethiopia) and the Malaysia & Singapore.

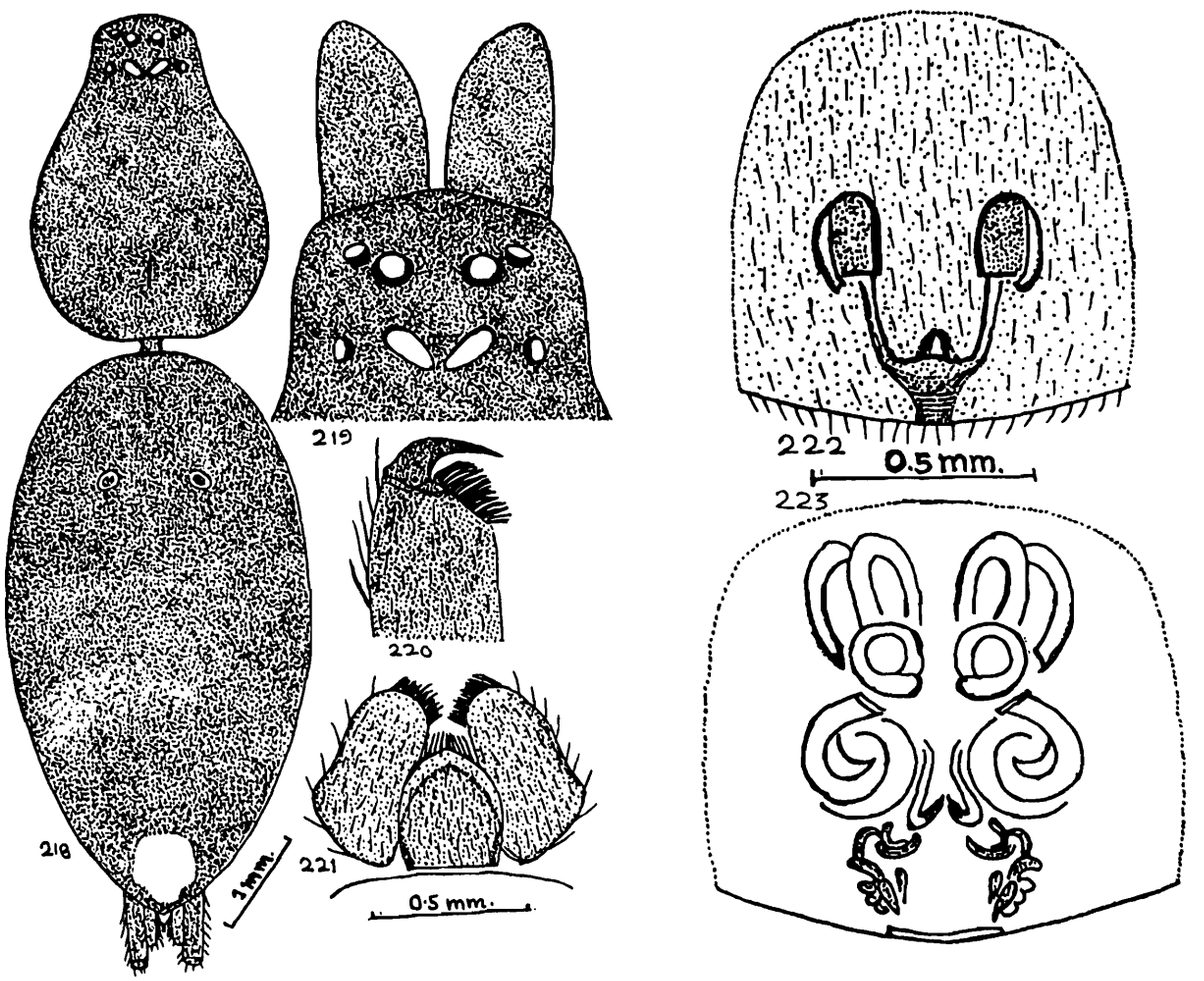
73. *Cithaeron indicus* Platnick & Gajbe (Figs. 218-223)

1993. *Cithaeron indicus* Platnick & Gajbe. *J. arachnol.*, **22** : 83.

Material examined : 1♀, Khairagad, Rajanandgaon district, Coll. *U.A. Gajbe*, 20.XII.1993. 1♀, Keshala village, Hoshangabad district, Coll. *U.A. Gajbe*, 1.I.1990.

General : Cephalothorax and legs brownish black, abdomen brownish green. Total length 8.20 mm. Carapce 3.00 mm. long, 2.10 mm. wide, abdomen 5.10 mm. long 3.00 mm. wide.

Cephalothorax : Longer than wide, nearly oval, widest between Coxae II and III, gradually narrowed in front, clothed with pubescence, posterior middle provided with a short in conspicuous fovea. Eyes silvery white except



Figs. 218-223 : *Cithaeron indicus* Platnick & Gajbe. 218. Dorsal view of female, legs omitted; 219. Cephalothorax showing arrangement of eyes; 220. Chelicera; 221. Labium and maxillae; 222. Epigyne; 223. Internal genitalia.

anterior medians which are black, posterior row of eyes procurved (as seen from in front), medians larger than the laterals and closer to laterals than to each other. Posterior row of eyes nearly straight, posterior medians larger than all the eyes. oval, nearly contiguous, closed to each other than to adjacent laterals as in fig. 219. Median ocular quad longer than wide, widest in front than behind. Clypeus provided with two short spines, clypeal height is greater than the diameter of anterior median eye. Chelicerae vertical, strong, inner and outer margin with tooth. Outer margin with black setae as in fig. 220. Labium and maxillae longer than wide, clothed with small spines, anterior end provide with scopulae shape as in fig. 221. Sternum highly rebordered, truncated posteriorly, clothed with hairs and spines. Legs relatively long and slender, clothed with hairs and spines, tarsi with scopulae, two claws and claw tufts. Leg formula 4123.

Abdomen : Longer than wide, nearly elliptical narrowed posteriorly, clothed with pubescence, above the posterior end of abdomen and anal tubercle, provided with a longitudinal white band as in fig. 218. Ventral side lighter than the dorsal. Epigyne provided with a elongated epigynal hood as in fig. 222. Internal genitalia with epigynal duct wider anteriorly than posteriorly as in fig. 223. Spinnerets six small, posterior and anterior spinnerets same in length.

Distribution : India : Rajnandgaon, and Hoshangabad districts of Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 34 ***Inthaeron*** Platnick

1991. *Inthaeron* Platnick, *Amer, Mus, Novit.* 3018 : 12.

Diagnosis : Females can be distinguished from those of *Cithaeron* by having the cyliondrical gland spigots on the posterior median spinnerets arranged in two longitudinal rows rather than a dense cluster.

Type-species : *Inthaeron rossi* Platnick.

Distribution : India : Mahabaleshwar, Maharashtra, Madhya Pradesh.

74. ***Inthaeron rossi*** Platnick (Figs. 224-227)

1992. *Inthaeron rossi* Platnick, *Amer. Mus. Novit.*, **3018** : 12.

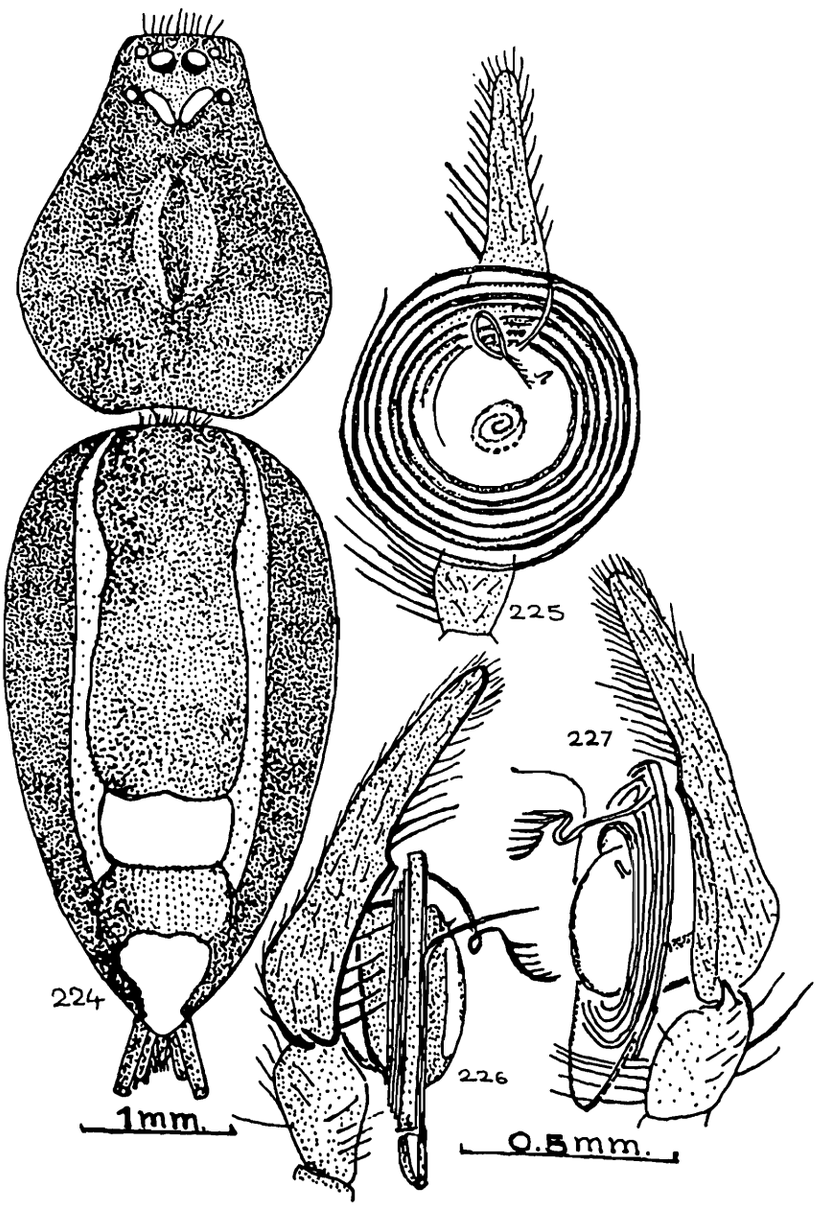
1993. *Inthaeron rossi* : Platnick & Gajbe, *J. arachnol.*, **22** : 83.

Material examined : 1♂, Bhesdehi, Betul district, Coll. *H. S. Sharma,* 30.III.1990.

General : Cephalothorax greenish-brown, legs light yellowish-brown, abdomen light brown. Total length 7.00 mm. Carapace 2.50 mm. long, 2.00 mm. wide; abdomen 4.40 mm. long, 2.20 mm. wide.

Cephalothorax : Longer than wide, nearly oval, widest between coxae II and III and gradually narrowed in front, clothed with pubescence. Posterior middle provided with a short inconspicuous fovea. Eyes silvery white except anterior medians which are black, posterior row slightly longer than the anterior row. Anterior row of eyes procurved (as seen from in front), medians larger than the laterals and closer to laterals than to each other. Posterior row of eyes nearly straight, posterior medians spearly shaped, larger than others, nearly contiguous and closed to each other than to adjacent laterals as in fig. 224. Median ocular quadrangle longer than wide, widest behind than in front. Clypecus provided with two short spines, clypeal height is greater than the diameter of anterior median eye. Chelicerae vertical, strong, inner and outer margin without tooth but provided with black setae. Labium and maxillae longer than wide, clothed with hairs and spines. Sternum highly rebordered, truncated posteriorly, clothed with hairs and spines. Legs relatively long and slender, clothed with hairs and spines, tarsi without scopullae, two claws and claw tufts. Legs formula 4123. Male palp as in figs. 225-227.

Abdomen : Longer than wide, nearly elliptical, narrowed posteriorly, clothed with hairs and spines. Abdomen middorsally with reddish-black longitudinal band just up to the middle of abdomen and laterally with black bands, starting from anterior end of abdomen to posterior end of



Figs. 224-227 : *Inthaeron rossi* Platnick. 224. Dorsal view of female, legs omitted; 225. Left male palp, ventral view; 226. Left male palp, prolateral view; 227. Left male palp, retrolateral view.

abdomen. Abdomen middorsally provided with two while bands one just below the longitudinal band and one just above the annal tubercle.

Distribution : India : Betul, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Family XIII OXYOPIDAE

Genus 35 *Oxyopes* Latreille

1804. *Oxyopes* Latreille, *Hist. Nat. Arach. France*, **14**(7) : 144.

1900. *Oxyopes* : Pocock, *Fauna Brit. India, Arach.*, : 255.

Diagnosis : Posterior row of eyes strongly procurved and equidistant from each other. Ocular quadrangle longer than wide and limited by the posterior median eyes and the anterior lateral eyes.

Type-species : *Oxyopes heterophthalmus* Latreille.

Distribution : Europe, Africa, Asia, Australia and America.

75. *Oxyopes pandae* Tikader

1969. *Oxyopes pandae* Tikader, *Oriental Ins.*, **3**(1) : 33.

Material examined : 1♀, Patch village on way to Katawaadi-Shahpur road, Betul district, Coll. *H.S. Sharma,* 21.III.1990.

Distribution : India : Allahabad (Type-locality) Uttar Pradesh, Betul, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

76. *Oxyopes shwetae* Tikader

1970. *Oxyopes shwetae* Tikader, *Rec. zool. Surv. India,* **64**(1-4) : 78.

Material examined : 1♀, University Guest House, Gwalior, Madhya Pradesh. Coll. *P. D. Gupta,* 4.XI.1985. 2♀, On the bank of Aloni river, Shahnagar, Panna district, Coll. *R.K. Singh,* 26.II.1987. 1♀, Kumhri village, Narayanpur Tahsil, Bastar district, Madhya Pradesh. Coll. *Y.N. Gupta,* 2.XII.1988.

Distribution : India : Manjithar, West Sikkim (Type-locality), Gwalior, Panna and Bastar districts, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

77. *Oxyopes sunandae* Tikader

1970. *Oxyopes sunandae* Tikader, *Rec. zool. Surv. India,* **64**(1-4) : 74.

Material examined : 11♀, Bijapur, Bastar dist., Madhya Pradesh. Coll. *R.K. Ghose,* 7.II.1990. (Reg. No. A/2248). 5♀, Bijapur, Bastar dist., Coll. *R.K. Ghose,* 8.II.1990. (Reg. No. A/2249). 2♀, Kutru, Bastar dist., Coll. *R. K. Ghose,* 26.I.1990. (Reg. No. A/2250).

Distribution : India : Sikkim, Legship (Type-locality) Bastar, Madhya Pradesh.

Remarks : This species is reported only from Bastar district of Madhya Pradesh.

78. *Oxyopes ratnae* Tikader

1970. *Oxyopes ratnae* Tikader, *Rec. zool. Surv. India,* **64**(1-4) : 70.

Material examined : 2♀, Orccha, Bastar dist., Madhya Pradesh. Coll. *U.A. Gajbe,* 28.XII.1983. (Reg. No. A/2283). 1♀, Gariapahar Kanker, Bastar dist., Madhya Pradesh. Coll. *U.A. Gajbe,* 4.I.1984. (Reg. No. A/2284). 4♀, Tondabeda village near Orchha, Bastar dist., Madhya Pradesh Coll. *U.A. Gajbe,* 29.XII.1983. (Reg. No. A/2285). 1♀, Chitra Kote, Bastar dist., Coll. *U.A. Gajbe,* 1.I.1984. (Reg. No. A/2286).

Distribution : India : Sikkim Legship (Type-locality) West Bengal, Madhya Pradesh.

Remarks : This species is being reported only from Bastar district of Madhya Pradesh.

79. *Oxyopes sakuntalae* Tikader

1970. *Oxyopes sakuntalae* Tikader, *Rec. zool. Surv. India,* **64**(1-4) : 73.

Material examined : 1♀, Kondagaon, Bastar dist., M.P. Coll. *R.K. Ghose,* 22.1.1990. (Reg. No. A/2246).

Distribution : India : West Bengal, Bhudbari, Dist. Darjeeling (Type-locality) Bastar dist. M.P.

Remarks : This species is reported only from Bastar district of M.P.

Genus 36 *Peucetia* Thorell

1869. *Peucetia* Thorell, *On European Spiders, Uppsala,* **7** : 196.

1964. *Peucetia* : Brady, *Bull. Mus. Comp. Zool. Harvard,* **131**(13) : 505.

Diagnosis : Anterior median eyes smallest; posterior lateral eyes forming a slightly procurved row, not so procurved as in *Oxyopes* Latreille. Cephalothorax not so high or convex as that of *Oxyopes*. Male palp with characteristic paracymbial process in each species, sometimes partly broken off during mating.

Type-species : *Peucetia viridis* Blackwall.

Distribution : Europe, Africa, Asia and America.

80. *Peucetia choprai* Tikader

1965. *Peucetia choprai* Tikader, *Proc. Indian Acad. Sci.,* **62**(3) : 143.

Material examined : 1♂, Mehgaon, Bhind

Dist., M.P., Coll. *R.K. Singh,* 21.IX.1994. (Reg. No. A/3534).

Distribution : India : Poona (Type-locality) Maharashtra.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Family XIV. LYCOSIDAE

Genus 37 ***Hippasa*** Simon

1885. *Hippasa* Simon, *Bull. Soc. Zool. Fr.,* **10** : 31.

1980. *Hippasa* : Tikader & Malhotra, *Fauna of India, Spiders,* **1**(2) : 272.

Diagnosis : This genus is allied to ***Lycosa*** but differs from it in having posterior spinnerets considerably longer than the anterior spinnerets and the apical piece of the posterior spinnerets is as long as the basal piece. Anterior row of eyes little wider than the second row and the space enclosed between the posterior eyes is much wider behind than in front. In almost all species, a black mid-langitudinal band is present on the sternum. In habits these spiders are a typical for the family. They build sheet-like webs with a funnel retreat over which they run like members of the family Agelenidae, hence the name *Hippasa agelenoides* is given by Simon to the type species of the genus.

Type-species : *Hippasa agelenoides* (Simon).

Distribution : India.

Elsewhere : Madagaskar, Africa, Arabia, Malaysia.

81. ***Hippasa olivacea*** (Thorell)

1887. *Dipontia olivacea* Thorell, *Ann. Mus. Civ. Stor. Nat. Genova,* **5**(2) : 297.

1895. *Hippasa olivacea* : Thorell, *Spiders of Burma,* : 217.

1980. *Hippasa olivacea* : Tikader & Malhotra, *Fauna of India, Spiders,* **1**(2) : 283.

Material examined : 7♀, Gwari village, Mandla dist., Coll. *U.A. Gajbe,* 22.XII.1981. (Reg. No. A/2762).

Distribution : India : Madhya Pradesh.

Elsewhere : Myanmar.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

82. ***Hippasa partita*** (Cambridge) (Figs. 228-229)

1876. *Trochosa partita Cambridge, Proc. Zool. Soc.,* : 541.

1924. *Hippasa partita* : Gravely, *Rec. Indian Mus.,* **26** : 588.

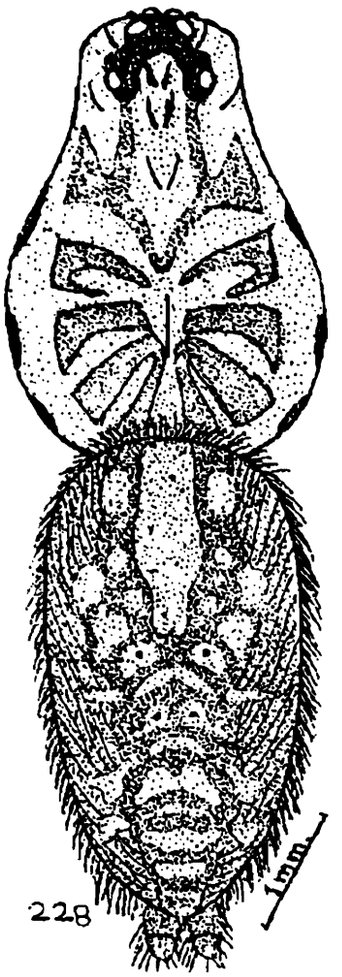
1980. *Hippasa partita* : Tikader & Malhotra, *Fauna of India, Spiders,* **1**(2) : 291.

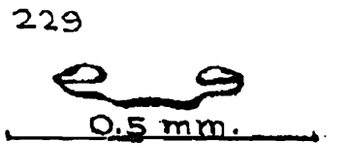
Material examined : 1♀, Tappa village, Rajnandgaon dist., Coll. *U.A. Gajbe,* 22.XII.1983. (Reg. No. A/2764). 1♀, Chitrakote, Bastar dist., Coll. *U.A. Gajbe,* 1.I.1984. (Reg. No. A/2769). 9♀, 3♂, Narmada Railway bridge, Hoshangabad, Coll. *U.A. Gajbe,* 9.I.1990. 2♀, Parasia Chhindwara dist. Coll. *R.K. Singh,* 19.IX.1991. 1♀, Amlai, Shahdol dist., Coll. *H.P. Agrawal,* 4.II.1997. 5♀, Shelter caves, Hoshangabad, Coll. *U.A. Gajbe,* 10.I.1990.

General : Cephalothorax and legs pale brown, abdomen with greenish brown and pale patches. Total length 8.00 mm. Carapace 3.50 mm. long, 2.50 mm. wide; abdomen 4.50 mm. long, 2.00 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with pubescence, cephalic region abruptly tapering and narrowing. Anterior row of eyes very slightly procurved and wider than the second row. Bases of posterior eyes provided with conspicuous black patches. Space enclosed between posterior eyes, much wider behind than in front as in fig. 228. Centre of thoracic region provided with a conspicuous fovea. Thin brown bands radiate from fovea to the lateal margins. Sternum oval, pointed behind, clothed with hairs, pale and provided with a median longitudinal dark band. Labium as long as wide, with the basal excavation prominent. Maxillae pale and distal end broader than the proximal end. Chelicerae strong, and retromargin of fang groove provided with three teeth. Legs long and slender, clothed with hairs and spines.

Abdomen : Longer than wide, oval, pointed behind, clothed with pubescence and anterior dorsal middle half provided with a pale lens





Figs. 228-229 : *Hippasa partita* (Cambridge). 228. Dorsal view of female, legs omitted. 229. Epigyne.

shaped marking, rest of abdomen provided with greenish brown and pale patches as in fig. 228. Ventral side pale with three longitudinal dark bands extending from epigastric fold to the base of spinnerets. Apical piece of posterior spinnerets as long as the basal piece. Epigyne as in fig. 229.

Distribution : Alexandria, Egypt, Arabia, Central Asia: Karachi, Pakistan, India, Chindwara, Shahdol, Hoshangabad, Bastar, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

83. ***Hippasu pisaurina*** Pocock
(Figs. 230-234)

1900. *Hippasa pisaurina* Pocock, *Faun. Brit. India, Arach.*, : 250.

1924. *Hippasa pisaurina* : Gravely, *Rec. Indian Mus.*, **26** : 595.

1935. *Hippasa pisaurina* : Dyal, *Bull. Dept. Zool. Punjab Univ.*, **1** : 143.

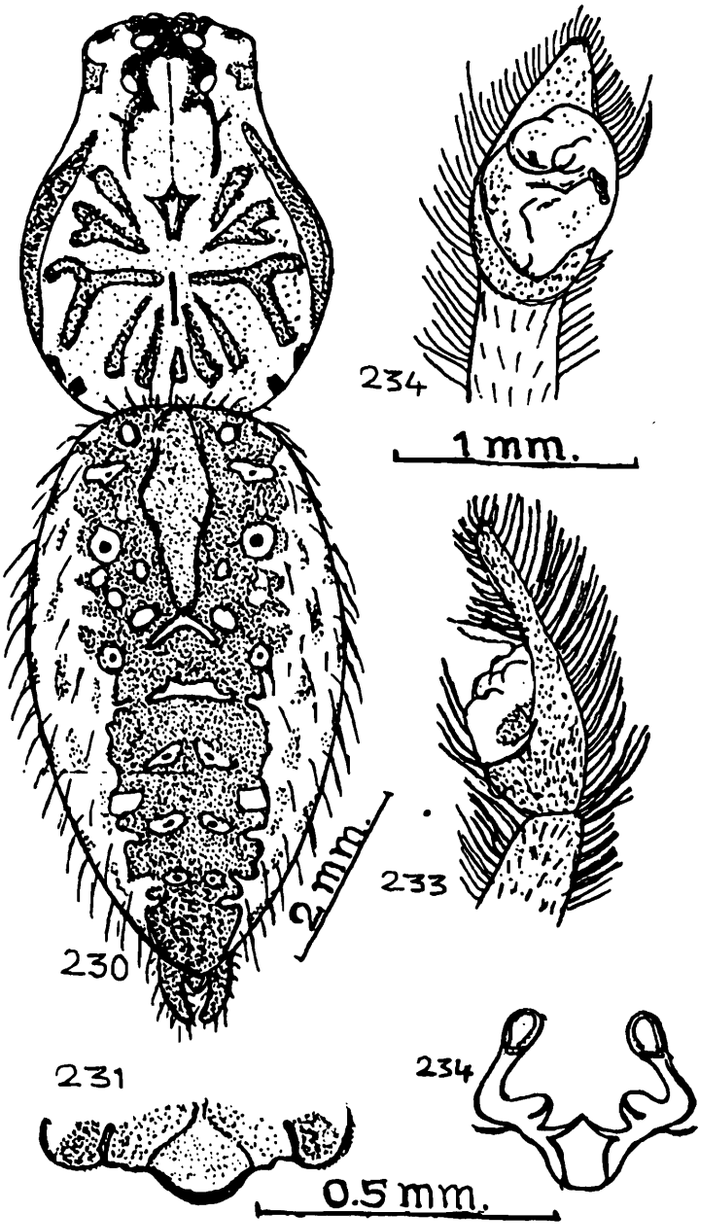
1951. *Hippasa pisaurina* : Sinha, *Rec. Indian Mus.*, **48**(2) : 16.

Material examined : 2♀, near Alot, Ratlam dist., Coll. *R. K. Singh,* 22.VIII.1990. 2♀, Madla, Panna dist., Coll. *R.K. Singh,* 14.II.1987. 2♀, Ater, Bhind dist, Coll. *R.K. Singh,* 20.IX.1994.

General : Cephalothorax and legs light brown, abdomen with greenish black and pale patches and spots. Total length 10.50 mm. Carapace 4.10 mm. long, 3.20 mm. wide; abdomen 6.50 mm. long, 3.30 mm. wide.

Cephalothorax : Longer than wide, convex, cephalic region slightly high and narrowing in front. Center of thoracic region provided with a sharp fovea and thin brown bands radiate from it forwards the lateral sides; lateral margin of the

thoracic region greenish black as in fig. 230. Anterior row of eyes slightly procurved, wider than the second row; bases of anterior laterals provided with conspicuous black patches. Anterior medians and eyes of second and third row almost equal in size. Ocular quad slightly wider behind. Bases of second and third row of eyes provided with conspicuous black patches. Ocular area black and hairy as in fig. 230. posterior quadrangle wider behind and narrowing anteriorly as in fig. 230. A conspicuous 'Y' shaped mark extends from the posterior extremity of the eyes of third row towards the posterior side. Sternum heart-shaped, pointed posteriorly, pale, clothed with hairs and spine like hairs and mid-longitudinally provided with a conspicuous black band extending the whole length of sternum. Labium as long as wide, greenish brown in colour. Distal end of maxillae broader and provided with inconspicuous scopulae. Chelicerae reddish brown in colour and inner margin of the fang furrow provided with conspicuous three unequal teeth. Legs moderately strong and long, clothed with spines and hairs; trochanter, femora, patella, tibiae and metatarsi provided with conspicuous greenish brown irregular patches. Male same in colour as female but slightly smaller in size. Male palp as in figs. 232 & 233.



Figs. 230-234 : *Hippasa pisaurina* Pocock. 230. Dorsal view of female, legs omitted; 231. Epigyne; 232. Left male palp, ventral view; 233. Left male palp, lateral view; 234. Internal genitalia.

Abdomen : Longer than wide, pointed, posteriorly, dorsally clothed with pubescence and spine like hairs and anterior mid-dorsally provided with a reddish brown longitudinal lens shaped marking, posteriorly followed by greenish black and light brown patches as in fig. 230. Ventral side provided with three longitudinal greenish brown streaks extending from the epigastric furrow to the base of spinnerets. Epigyne as in fig. 231 internal genitalia as in fig. 234.

Distribution : India : Poona (Type-locality) Maharashtra.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

84. *Hippasa greenalliae* (Blackwall)

1867. *Lycosa greenalliae* Blackwall, *Ann. Mag. Nat. Hist.*, **3**(19) : 387.

1885. *Hippasa greenalliae* : Simon, *Bull. Soc. Zool. Fr.*, **10** : 39.

1980. *Hippasa greenalliae* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 277.

Material examined : 1 ♀, Narayanganj, Mandla dist., Coll. *U. A. Gajbe*, 23.I.1985. (Reg. No. A/2763). 2 ♀, Lendhra, Raigarh dist., Coll. *R.K. Singh*, 30.III.1992. 1 ♀, Tamia, Chhindwara dist., Coll. *R. K. Singh*, 18.VIII.1991.

Distribution : India : Kerala, Tamilnadu, Gulf of Mannar, Maharashtra, Orissa, Sikkim, West Bengal, Madhya Pradesh.

Elsewhere : Sri Lanka.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

85. *Hippasa agelenoides* (Simon)

1884. *Pirata agelenoides* Simon, *Ann. Mus. Civ. Stor. Nat. Genova*, **20** : 334.

1895. *Hippasa agelenoides* : Thorell, *Spiders of Burma*, : 218.

1980. *Hippasa agelenoides* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 293.

Material examined : 1 ♀, Shikara village, Seoni dist., Coll. *U.A. Gajbe*, 26.XI.1986. (Reg. No. A/2766). 1 ♀, Saraidongari village, Seoni dist., Coll. *U.A. Gajbe*, 7.III.1987. (Reg. No. A/2768). 1 ♀, Chandra village, Shahdol dist. Coll. *R.K. Singh*, 14.III.1991.

Distribution : India : Kerala, Karnataka, Tamil Nadu, Uttar Pradesh, Maharashtra, Madhya Pradesh.

Elsewhere : Myanmar.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 38 *Pardosa* Koch

1848. *Pardosa* Koch, *Die. Arachnide*, **14** : 100.

1924. *Pardosa* : Gravely, *Rec. Indian, Mus.*, **26** : 609.

1980. *Pardosa* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 315.

Diagnosis : Cephalic region elevated, clypeus vertical and chelicerae much smaller than in most other lycosids so that their height is less than the height of the head. Cephalic region almost entirely occupied by posterior two row of eyes. The anterior row of eyes shorter than the second row. Labium usually wider than long with the basal articular notches. Legs relatively long and thin and provided with long spines. Metatarsus IV usually longer than or atleast as long as patella plus tibia together. Tibia I provided with three pairs of ventral spines. These spiders are generally found in dry open woods, as well as on wet ground near ponds and streams. The egg-sac is lenticular, usually greenish when fresh, changing to dirty grey when older.

Type-species : *Pardosa striatipes* Koch.

Distribution : India.

Elsewhere : Europe, America, Asia.

86. *Pardosa birmanica* Simon
(Figs. 235-239)

1884. *Pardosa birmanica* Simon, *Ann. Mus. Civ. Stor. Nat. Genova*, **20** : 333.

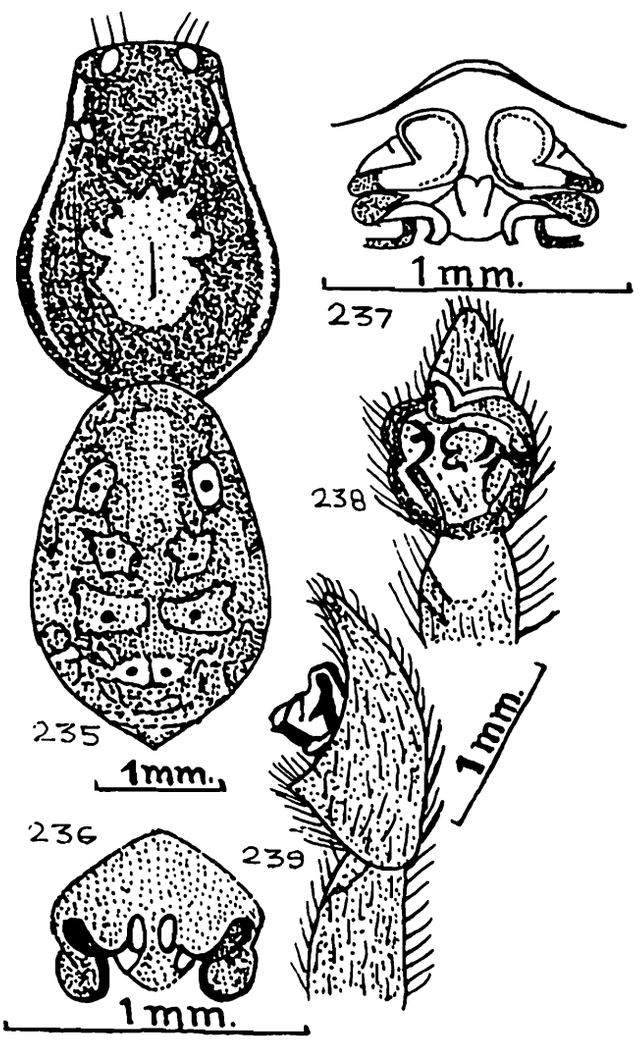
1980. *Pardosa birmanica* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 329.

Material examined : 1 ♀, Amkhas village, Jabalpur dist., Coll. *V. V. Rao*, 4.VII.1969. (Reg.

No. A/2769). 1♀, Barela village, Jabalpur dist., Coll. *B. S. Gurum,* 23.IV.1974. (Reg. No. A/2770). 1♂, Madan Mahal, Jabalpur, Coll. *S. K. Mishra,* 4.IV.1975. (Reg. No. A/2771). 1♀, Rani Durgawati Samadhi, Jabalpur, Coll. *V. V. Rao,* 29.IV.1970. (Reg. No. A/2772). 2♂, Amkhas village, Jabalpur dist., Coll. *B. S. Gurum,* 22.III.1975. (Reg. No. A/2773).

General : Cephalothorax and legs dark brown, abdomen with black and pale patches. Total length 6.20 mm. Carapace 3.00 mm. long, 2.10 mm. wide, abdomen 3.20 mm. long, 2.20 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with pubescence, cephalic region narrowing in front and slightly high. Center of thoracic region light brown and middle provided with a sharp fovea. Ocular area black. Anterior row of eyes slightly procurved, less wider than the second row, medians larger than laterals and bases of laterals provided with black patches. Eyes of the second row larger than the others. Ocular quad wider behind and narrowing in front. Bases of posterior eyes provided with conspicuous black patches as in fig. 235. Space enclosed between posterior eyes black and very slightly wider behind than in front. Sternum heart-shaped, pointed behind and clothed with pubescence and hairs and uniform dark brown in colour. Labium nearly as long as wide, dark brown in colour. Distal end of maxillae broader and provided with distinct scopulae. Chelicerae moderately strong and inner margin of fang furrow provided with three unequal teeth. Legs thin and long, clothed with spines and hairs, all segments (except tarsi) of all legs provided with conspicuous transverse greenish dark brown patches. Male same in colour and size as female. Male palp as in fig. 238 & 239.



Figs. 235-239 : *Pardosa birmanica* Simon. 235. Dorsal view of female, legs omitted; 236. Epigyne; 237. Internal genitalia; 238. Left male palp, ventral view; 239. Left male palp, lateral view.

Abdomen : Longer than wide, oval, pointed behind, broadest behind the middle, clothed with pubescence and some hairs. Ventral side pale. Epigyne as in fig. 236. Internal genitalia as in fig. 237.

Distribution : India : Panchagani, Poona, Bombay, Ahmednagar, Maharashtra, Ludhiana, Khewra, Salt Range, Punjab; Gujarat, Berhampore, Burdwan, Gurdanga, Gmatia, Birbhum, Kolkata, Dum Dum Singal, Darjeeling West Bengal, Barkuda Island, Chilka lake, Brijal Sagar, Orissa, Mowai, Bara Banki, Mirzapur, Dehra Dun, Uttar Pradesh; Udaipur, Jodhpur, Rajasthan, Rajkot, Jamnagar, Mehsana, Gujarat; Poonta, Kangra, Solan, Sirmour, Kot Khal, Chamba, Himachal Pradesh; Mandla, Jabalpur, Broach, Burhanpur, Rewa, Madhya Pradesh; Garo Hills, Shillong, Meghalaya; Manbhum, Siripur, Saran, Chaibasa, Chakradharpur, Bihar; Ootakmund, Nilgiris, Chennai City, Tamil Nadu; Horsleykonda, Ennur, Chingleput, Andhra Pradesh.

Elsewhere : Myanmar : Minhla, Tavory, Tharrawady and Rangoon, Java, Alexandria. Pakistan : Lahore.

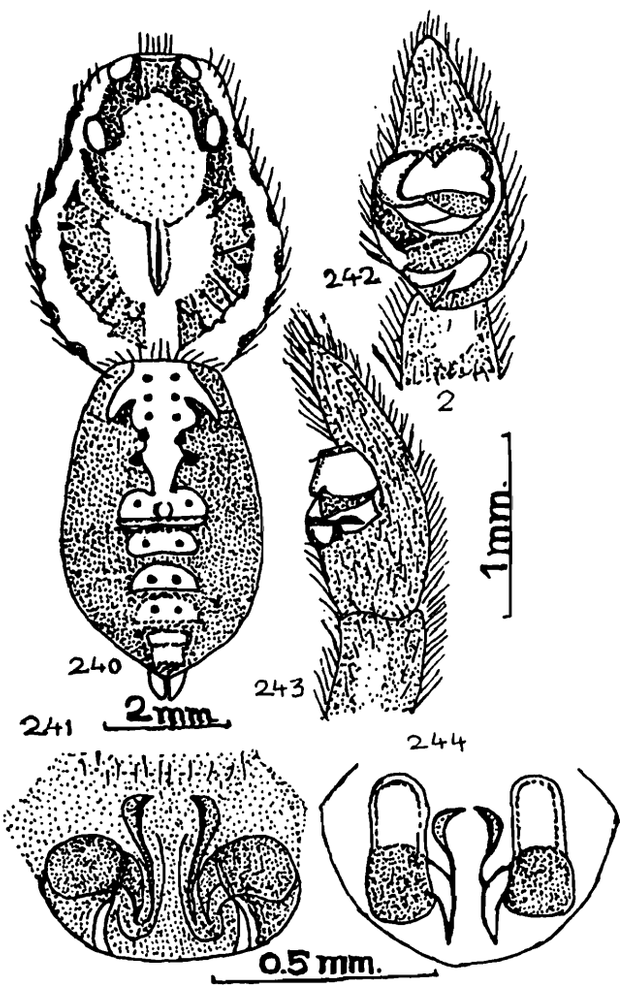
Remarks : This species is being reported here for the first time from Jabalpur district of Madhya Pradesh.

87. ***Pardosa sumatrana*** (Thorell)
(Figs. 240-244)

1890. *Lycosa sumatrana* Thorell, *Ann. Mus. Stor. Nat. Genova*, **30** : 136.

1980. *Pardosa sumatrana* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 353.

Material examined: 1♀, Budhagar village, Jabalpur, Coll. *V. V. Rao*, 13.IV.1970. (Reg. No. A/2776). 1♀, Rani Durgavati Samadhi, Jabalpur



Figs. 240-244 : *Pardosa sumatrana* (Thorell). 240. Dorsal view of female, legs omitted; 241. Epigyne; 242. Left male palp, ventral view; 243. Left male palp, lateral view; 244. Internal genitalia.

dist., Coll. *V. S. Durve,* 26.IV.1969. (Reg. No. A/2778). 3♀, Bijadandi village on Jabalpur Mandla Road, Mandla dist. Coll. *M. L. Dhimar,* 23.XI.1981. (Reg. No. A/2779). 1♂, Kalpi village Jabalpur Mandla Road, Mandla dist., Coll. *U.A. Gajbe,* 15.VI.1982. (Reg. No. A/2780). 4♀, Bargi village, Jabalpur dist., Coll. *R. K. Singh,* 26.VI.1972 (Reg. No. A/2771).

General: Cephalothorax and legs brown, abdomen dark brown. Total length 8.50 mm. Carapace 4.50 mm. long, 3.50 mm. wide; abdomen 4.70 mm. long, 3.00 mm. wide.

Cephalothorax: Longer than wide, convex, cephalic region slightly high and narrowing in front, clothed with pubescence and some hairs and spine like hairs on the clypeus. Center of thoracic region with a distinct fovea. A median broad longitudinal pale band extend from the bases of the posterior eyes to the base of cephalothorax. Ocular area black. Anterior row of eyes straight, less wider than the second row, medians slightly larger than the laterals and bases of laterals provided with conspicuous black patches. Eyes of the second row larger than the others. Ocular quad wider behind and narrowing in front. Bases of posterior eyes also provided with conspicuous black patches as in fig. 240. space enclosed between posterior eyes wider posteriorly and narrowing anteriorly. Sternum heart-shaped, pointed posteriorly, pale and clothed with pubescence and hairs. Labium nearly as long as wide and brown in colour. Distal end of maxillae broader and provided with conspicuous scopulae. Chelicerae moderately strong, inner margin of fang furrow with three teeth. Legs thin and long, clothed with spines and hairs and provided dorsally with irregular greenish brown patches. Male same in colour and size as female. Male palp as in fig. 242 & 243.

Abdomen: Longer than wide, oval pointed behind, clothed with pubescence and some hairs. Anterior-mid-dorsally with a lens shaped longitudinal marking. Rest of the abdomen provided with dark brown and pale patches and black spots as in fig. 240. Ventral side pale. Epigyne as in fig. 241, internal genitalia as in fig. 244.

Distribution: India : Prambikulam, Chalakudi, Cochin, Conoor, Kerala, Bangalore, Bandipur, Karnataka; Chennai, Nilgiris, Gudalur, Ootakmund, Keti, Yercaud, Shevaroys, Tamilnadu; Chingleput, Horslaykonda, Chittoor dist., Andhra Pradesh; Bandra, Mumbai, Poona, Ahmednagar, Maharashtra; Siripur, Saran, Kierpur, Purnea, Gmatia, Birbhum dist., Bihar; Simla, Solan, Himachal Pradesh; Sukna, Singla, Ghumti. Tindharia, Pashok, Kalimpong, Suriel, Darjeeling, Dum Dum, Kolkata, West Bengal; Khasi Hills, Garo Hills, Upper Shillong, Tripura, Meghalaya; Kailana, Jodhpur, Rajasthan; Bhuj, Gujarat; Mandla, Jabalpur, Sagar, Madhya Pradesh; Arunachal Pradesh.

Elsewhere : Nepal valley, Eastern Himalayas, East Pakistan; Rangamati hill tracts, Chittagong, Cemorta, Nicobars; Mt. Singalang, Sungei Bulu, Ajmer and Macior, Sumatra; Srilanka; Anuradhpur.

Remarks: This species is being reported here for the first time from Jabalpur and Mandla dist. of Madhya Pradesh.

88. ***Pardosa amkhasensis*** Tikader & Malhotra (Figs. 245-247)

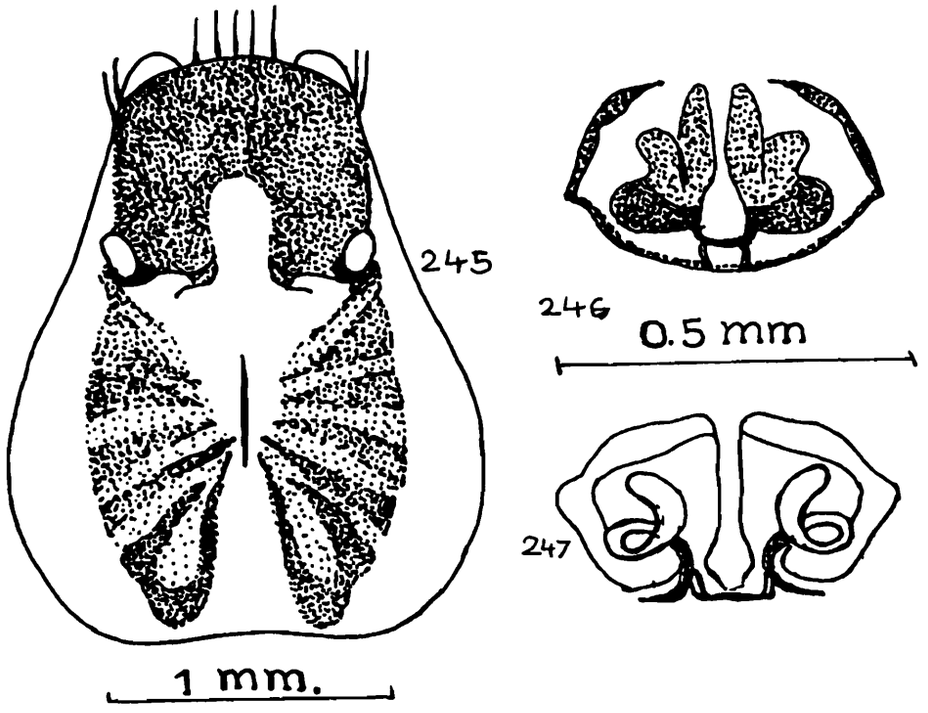
1976. *Pardosa amkhasensis* Tikader & Malhotra, *Proc. Indian Acad. Sci.*, **83**(3) : 124.

1980. *Pardosa amkhasensis* : Tikader & Malhotra, *Fauna of India. Spiders,* **1**(2) : 335.

Material examined: 1♀, Amkhas, Jabalpur, Coll. *V. V. Rao,* 17.IX.1970 (Reg. No. 4680/18).

General: Cephalothorax and legs greenish-brown, abdomen brown with black and white patches. Total length 4.30 mm. Carapace 2.00 mm. long, 1.80 mm. wide; abdomen 2.00 mm. long, 1.50 mm. wide.

Cephalothorax: Longer than wide, convex, clothed with pubescence, cephalic region almost entirely occupied by posterior two row of eyes. Clypeus vertical. Anterior row of eyes straight and shorter than the second row, anterior medians larger than the anterior laterals. Eyes of the second row larger than the others. Ocular quad longer than wide and very slightly narrow in front.



Figs. 245-247 : *Pardosa amkhasensis* Tikader & Malhotra. 245. Dorsal view of female, legs omitted; 246. Epigyne; 247. Internal genitalia.

Bases of posterior eyes provided with conspicuous black patches thus making ocular area black as in fig. 245. Middle of cephalothorax provided with a short fovea. Broad light brown patches extend from bases of third row of eyes to the base of cephalothorax on each side as in fig. 245. Sternum heart-shaped, pointed behind, pale and provided with some spine-like hairs. Labium slightly wider than long. Distal end of maxillae wider and provided with scopulae. Chelicerae moderately strong. Legs long and thin and clothed with hairs and spines. Metatarsi IV nearly as long as or slightly longer than tibia and patella together.

Abdomen : Longer than wide, oval, pointed behind, clothed with hair. Anterior mid-dorsally with a lens-shaped pale marking. followed by white patches. Dorso-laterally with black longitudinal patches on each side. Ventral side pale. Epigyne as in fig. 246. Internal genitalia as in fig. 247.

Distribution : India : Jabalpur (Type-locality) Madhya Pradesh.

Remarks : This species so far is known from its type-locality.

89. *Pardosa annandalei* (Gravely)
(Figs. 248-251)

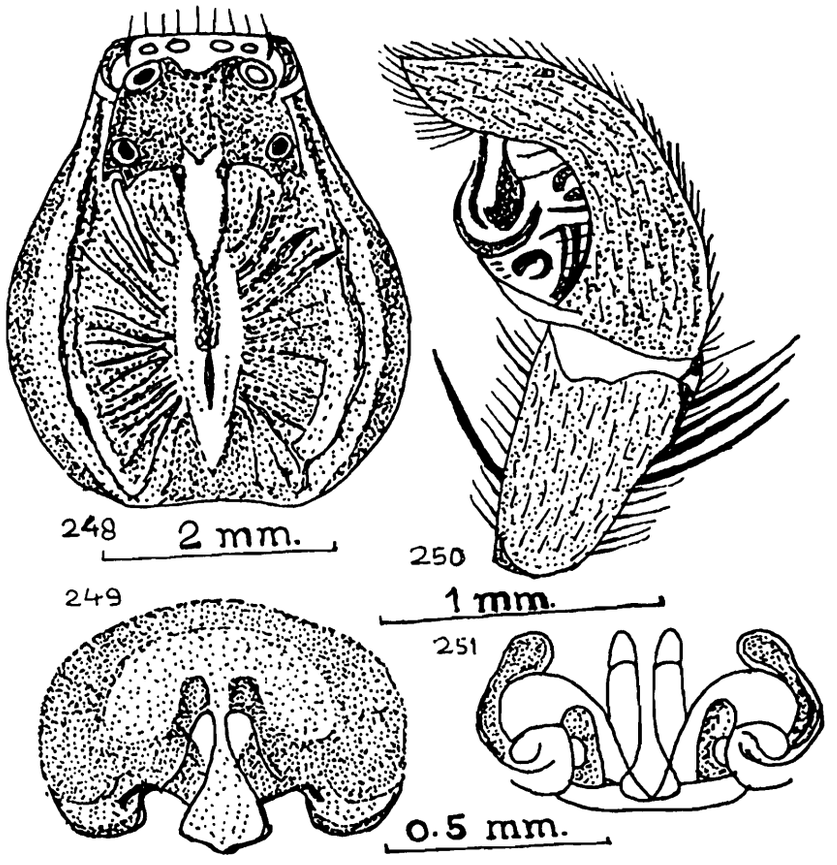
1934. *Lycosa annandalei* Gravely, *Rec. Indian Mus.*, **26** : 606.

1980. *Pardosa annandalei* : Tikader & Malhotra, *Fauna of India. Spiders*, **1**(2) : 351.

Material examined : 1♀, Budanagar village, Jabalpur, dist., Coll. *H. S. Sharma,* 30.VI.1969. (Reg. No. A/2774). 1♀, Amkhas, Jabalpur, Coll. *B. S. Gurum,* 19.IV.1975. (Reg. No. A/2775).

General : Cephalothorax and abdomen deep brown, legs brownish green. Total length 9.00 mm. Carapace 5.00 mm. long, 4.00 mm. wide; abdomen 4.00 mm. long, 3.00 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with fine hairs, cephalic region slightly high and narrowing in front, middle portion provided with conspicuous broad longitudinal deep brown patches. Center of cephalothorax provided with a short fovea surrounded by light mid-longitudinal band, lateral margins also provided with deep brown longitudinal borders as in fig. 248. Ocular area black and hairy. Anterior row of eyes straight and slightly shorter than the middle



Figs. 248-251 : *Pardosa annandalei* (Gravely); 248. Dorsal view of female, legs omitted; 249. Epigyne; 250. Left male palp, lateral view; 251. Internal genitalia.

row. Anterior medians slightly larger than the anterior laterals. Eyes of the second row larger than the others. Ocular quad wider than long. Space enclosed between posterior eyes wider than long and narrowing in front. Sternum nearly oval, pointed behind, pale and clothed with spine like hairs. Labium as long as wide and the basal excavation prominent. Maxillae broader in front, anterior end provided with inconspicuous scopulae. Chelicerae moderately strong, inner margin of furrow provided with three teeth and outer margin with two teeth. Legs moderately strong, clothed with spines and hairs, provided with three pairs of ventral spines. Male palp as in fig. 250.

Abdomen : Longer than wide, clothed with fine hairs and decorated with minute light spots all over the dorsal side. Ventral side pale. Epigyne as in fig. 249. Internal genitalia as in fig. 251.

Distribution : India : Trivendrum, Travancore, Kerala; Poona, Maharashtra, Bangalore, Karnataka; Horsley-Konda, Dist. Chittoor, Andhra Pradesh; Ootakmund, Tamil Nadu; Rewa, Madhya Pradesh; Siripur, Saran, Dist. Manbhum, Bihar; Darjeeling, Durgapur, Dum Dum, Kolkata, Sehrampur court, Siliguri, West Bengal; Cachar, Manipur, Assam; Gujarat; Chittagong.

Elsewhere : Bangladesh; Mytkyina, North Shan States, Myanmar; Pakistan, Multan.

Remarks : This species is being reported here for the first time from Jabalpur district of Madhya Pradesh.

Genus 39 *Arctosa* Koch

1847. *Arctosa* Koch, *Die Arachniden*, **14**(3) : 94.

1980. *Arctosa* : Tikader & Malhotra, *Fauna of India Spiders*, **1**(2) : 368.

Diagnosis : Moderately large spiders. The general colouration grayish brown to black. Carapace with no properly defined longitudinal light band and is glabrous or nearly so. Legs

more slender, tarsi I provided with dorsobristal which is drawn out thin and fine at the end, and is much longer than the hairs and trichobothria. Tibia IV dorsally thinner or more drawn out than distal one. Sometimes reduced to a bristle.

Type-species : *Arctosa cinerea* (Fabricius).

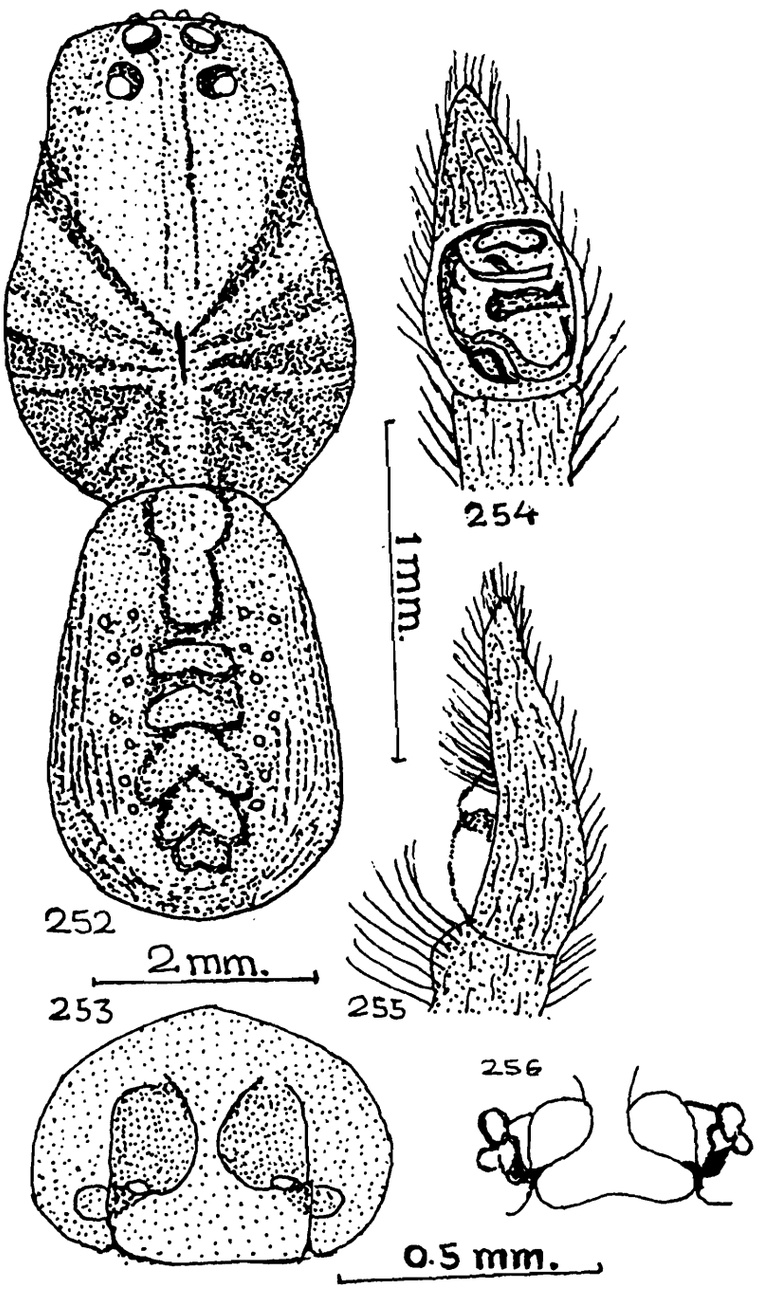
Distribution : India.

Elsewhere : America, New England, Europe.

90. *Arctosa indicus* Tikader & Malhotra (Figs. 252-256)

1980. *Arctosa indicus* Tikader & Malhotra, *Fauna of India, Spiders*, 1(2) : 371.

Material examined : 1 ♀ Kalpi village on Jabalpur Mandla road, Mandla dist., Coll. *U.A. Gajbe*, 15.VI.1982. (Reg. No. A/2783). 1 ♀ Devtal, Jabalpur, Coll. *L. P. Dube*, 7.III.1973. (Reg. No. A/2784).



Figs. 252-256 : *Arctosa indicus* Tikader & Malhotra. 252. Dorsal view of female, legs omitted; 253. Epigyne; 254. Left male palp, ventral view; 255. Left male palp, lateral view; 256. Internal genitalia.

General : Cephalothorax dark brown, legs brown and abdomen brownish black. Total length 8.10 mm. carapace 4.50 mm. long, 3.00 mm. wide; abdomen 3.90 mm. long, 2.70 mm. wide.

Cephalothorax : Longer than wide, Cephalic region glabrous and slightly elevated from the thoracic region, clothed with pubescence and some spine like hairs. Center of thoracic region provided with a conspicuous fovea. Eyes occupy a smaller region on the cephalic region. Anterior row of eyes very slightly recurved as long as the second row, medians larger than the laterals and bases of these eyes provided with black patches. Eyes of the second and third almost equal in size and bases of these eyes provided with conspicuous black patches as in fig. 252. Ocular quad wider behind and narrowing in front. Posterior quadrangle slightly wider behind. Thin brown bands radiate towards the lateral sides from the fovea. Sternum brown, heart-shaped, pointed behind, clothed with pubescence and hairs. Labium slightly longer than wide. Distal end of maxillae broader and provided with scopulae. Chelicerae moderately strong, inner margin of fang furrow provided with three small teeth. Legs strong and stout, femora of all legs conspicuously banded and provided with patches with greenish brown colour. Male similar in colour as female but slightly smaller. Male palp as in fig. 254 & 255.

Abdomen : Oval, clothed with pubescence and some hairs. Anterior-mid-dorsal area pale and rest of the dorsal provided with greenish black and pale patches as in fig. 252. Ventral side light brown. Epigyne as in fig. 253. Internal genitalia as in fig. 256.

Distribution : India : Poona, Maharashtra; West Bengal, Jabalpur, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Jabalpur and Mandla districts of Madhya Pradesh.

Genus 40 *Lycosa* Latreille

1804. *Lycosa* Latreille, *Nouv. Dict. D. Hist. Nat.*, **24** : 135.

1980. *Lycosa* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(2) : 377.

Diagnosis : This is very large genus including majority of species of wolf-spiders. Carapace long, facial area vertical and sides of the face slanting, four posterior eyes large and arranged in a quadrangle which is slightly wider behind than in front. The labium is always longer than wide and the basal excavation is prominent, usually one-third or more of the length of the labium. Clypeus is not vertical. Tribiae I and II are armed with three pairs of ventral spines. Metatarsi IV never longer than tibia plus patella together. The species of this genus spin no web. The larger forms live in a silk-lines burrows and under stones. The female carry the cocoon attached to their spinnerets and the young after hatching swarm on the mother back.

Type-species : *Lycosa tarantula* Rossi.

Distribution : All over the world.

91. *Lycosa bistriata* Gravely (Figs. 257-259)

1924. *Lycosa bistriata* Gravely, *Rec. Indian Mus.*, **26** : 600.

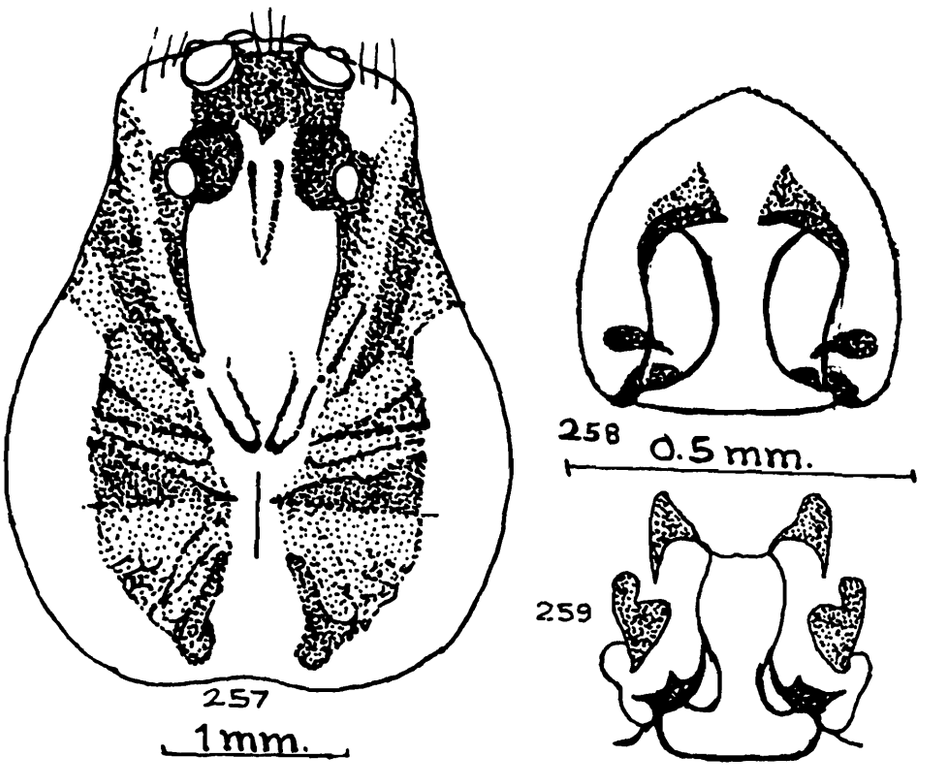
1951. *Lycosa bistriata* : Sinha, *Rec. Indian Mus.*, **48**(2) : 21.

1980. *Lycosa bistriata* : Tikader & Malhotra, *Fauna of India, Spiders*, **1**(1) : 385.

Material examined : 1 ♀, Amkhas, Jabalpur. Coll. *B. S. Gurum*, 19.IV.1975 (Reg. No. A/2781).

General : Cephalothorax and legs brownish green, abdomen light brown. Total length 7.80 mm. Carapace 3.80 mm. long, 2.80 mm. wide; abdomen 4.00 mm. long, 2.50 mm. wide.

Cephalothorax : Longer than wide, convex with fine hairs. Lateral sides provided with longitudinal pale patches extending from bases of third row of eyes to the base of cephalothorax; center provided with a distinct fovea. Sub-lateral sides also provided with broad longitudinal brown patches as in fig. 257. Anterior row of eyes shorter than the second row and straight, anterior medians slightly larger than anterior laterals. Eyes of the second row larger than the others. Bases of second and third row of eyes provided with conspicuous black patches as in fig. 257. Space enclosed



Figs. 257-259 : *Lycosa bistriata* Gravely. 257. Dorsal view of female, legs omitted; 258. Epigyne; 259. Internal genitalia.

between posterior eyes longer than wide and slightly narrow in front as in fig. 257. Sternum nearly oval, pointed behind clothed with fine hairs. Labium slightly longer than wide. Legs long and strong, clothed with hairs and spines.

Abdomen : Longer than wide, nearly oval, broader behind the middle, clothed with pubescence. Mid-dorsally provided with longitudinal brown irregular marking. Ventral side pale. Epigyne as in fig. 258. Internal genitalia as in fig. 259.

Distribution : India : Chennai city, Tamil Nadu, Gmatia Dist. Birbhum, Kolkata, Darjeeling, West Bengal.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

92. *Lycosa nigrotibialis* Simon (Figs. 260-262)

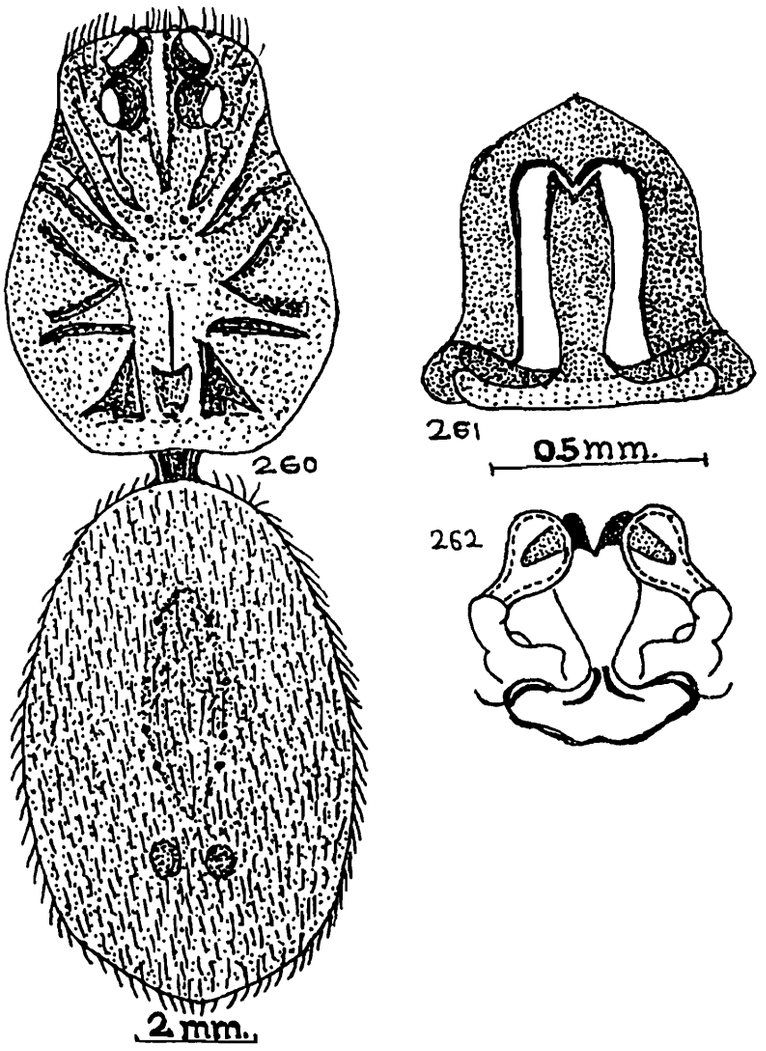
1889. *Lycosa nigrotibialis* Simon, *Ann. Mus. Stor. Nat. Genova*, **20** : 330.

1980. *Lycosa nigrotibialis* : Tikader & Malhotra, *Fauna of India Spiders*, 1(2) : 405.

Material examined : 1♀, Amkhas Jabalpur, Coll. *V. V. Rao*, 4.VII.1969. (Reg. No. A/2785). 1♀, Bhesdehi, Betul dist. Coll. *H.S. Sharma*, 31.III.1990. 1♀, Narmada Railway and road bridge Hoshangabad, Coll. *U.A. Gajbe*, 9.I.1990. 1♀, Multai, Betul dist., Coll. *Y.N. Gupta*, 27.XI.1989. 1♀, near Jethaghat nalla, Patalkot, Chindwara dist., Coll. *H.S. Sharma*, 3.III.1994.

General : Cephalothorax and legs brown, abdomen pale brown. Total length 16.50 mm. Carapace 7.00 mm. long, 5.50 mm. wide; abdomen 9.00 mm. long, 5.50 mm. wide.

Cephalothorax : Longer than wide, convex, clothed with fine hairs and provided with some dark patches extending laterally. Center provided with a distinct fovea. Anterior row of eyes slightly shorter than the second, almost straight, anterior medians larger than the anterior laterals. Eyes of the second row larger than the others. Bases of posterior eyes provided with conspicuous black patches as in fig. 260. Sternum heart-shaped, pointed behind, brown and clothed with pubescence as well as spine like hairs. Labium longer than wide with basal excavation prominent.



Figs. 260-262 : *Lycosa nigrotibialis* Simon. 260. Dorsal view of female, legs omitted; 261. Epigyne; 262. Internal genitalia.

Maxillae broader in front and distal end provided with conspicuous scopulae. Chelicerae strong and inner margin of fang furrow provided with three teeth. Legs long and strong, clothed with hairs and spines. Coxae dark brown ventrally. Extremities of III and IV tibiae ventrally with broad dark brown bands.

Abdomen : Longer than wide, oval, brtoadest behind the middle; clothed with pubescence. Anterior dorsal side provided with longitudinal dark patch. Ventral side black in colour. Epigyne as in fig. 261. Internal genitalia as in fig. 262.

Distribution : India : Maharashtra, Gujarat, Himachal Pradesh, West Bengal, Bihar, Sikkim, Assam, Madhya Pradesh.

Elsewhere : Baluchistan, Afghanistan, Pakistan, Myanmar.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Family XV ARANEIDAE

Genus 41 ***Leucage*** White

1841. *Leucage* White. *Ann. Mag. Nat. Hist.*, 7(1) : 473.

1982. *Leucage* : Tikader, *Fauna of India, Spiders*, 2(1) : 71.

Diagnosis : Carapace truncate anteriorly. Thoracic furrow deep and posteriorly directed. Legs I and II long and slender; femora IV with a double fringe of hairs on the prolateral surface of the basal half. Abdomen nearly twice as long as wide; having silvery pigmentation; epigastric plate without any furrow.

Type-species : *Leucage hortorum* (Hentz).

Distribution : Tropical and sub-tropical countries of the world.

93. *Leucage celebesiana* (Walckenaer)

1841. *Tetragnatha celebesiana* Walckenaer, *Hist. Nat. Ins. Apt.*, **2** : 222.

1921. *Leucage celebesiana* : Gravely, *Rec. Indian Mus.*, **22**(4) : 454.

1982. *Leucage celebesiana* : Tikader, *Fauna of India, Spiders*, **2**(1) : 83.

Material examined : 1 ♀, Around Mahuakhera, Rater village (Patalkot), Chindwara dist. Coll. *R. K. Singh*, 19.X.1992. (Reg. No. A/2344).

Distribution : India : West Bengal, Meghalaya, Tamil Nadu, Assam, Maharashtra, Sikkim.

Elsewhere : Myanmar, Srilanka, China.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

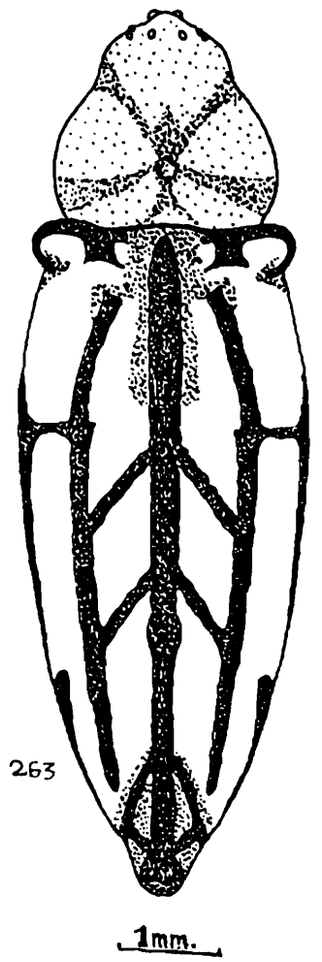
94. *Leucage decorata* (Blackwall) (Figs. 263-265)

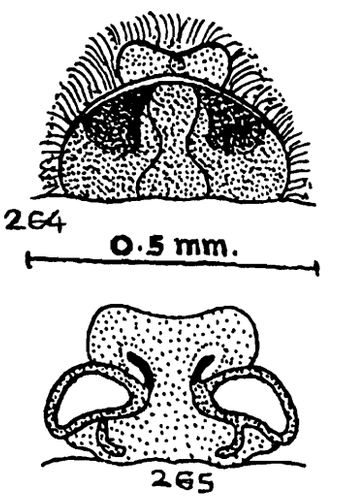
1864. *Tetragnatha decorata* Blackwall, *Ann. Mag. Nat. Hist.*, **14**(3) : 44.

1906. *Leucage decorata* : Simon, *Annls. Soc. Ent. Fr.*, **75** : 282.

1982. *Leucage decorata* : Tikader, *Fauna of India, Spiders*, **2**(1) : 78.

Material examined : 1 ♀, Around Chitwal, Mata (Patalkot) Chindwara dist., Madhya Pradesh, Coll. *R. K. Singh*, 15.X.1992. (Reg. No. A/2345). 1 ♂, Khutama, Chindwara dist., Coll. *R.K. Singh*, 19.IX.1991. (Reg. No. A/2346). 1 ♀, Sangar, Damoh dist., Coll. *H. P. Agrawal*, 14.X.1992. 1 ♀, Rampurkala and surrounding area, Morena, Coll. *R. K. Singh*, 10.IX.1994. 1 ♀, Phoop, 15 km. From Bhind, Bhind Dist., Coll. *R.K. Singh*, 19.IX.1994. 4 ♀, Ater, Bhind Dist, Coll. *R. K. Singh*, 20.IX.1994. 3 ♀, Mehgaon, 20 Km. From Bhind, Bhind Dist., Coll. *R. K. Singh*, 21.IX.1994.





Figs. 263-265 : *Leucage decorata* (Blackwall). 263. Dorsal view of female, legs omitted; 264. Epigyne, ventral view; 265. Internal genitalia.

General : Cephalothorax yellowish, legs yellowish with greenish shades, abdomen silvery white with blackish patches and line. Total length 8.90 mm. Carapace 2.60 mm. long 2.00 mm. wide; abdomen 6.70 mm. long, 2.70 mm. wide.

Cephalothorax : Longer than wide, scarcely, clothed with hairs; cephalic region slightly higher than thoracic region provided with a posterior trifid deep groove as in fig. 263. Ocular quad slightly wider than long and also very narrowly wider behind than in front, median eyes subequal in size; laterals slightly smaller than medians, nearly equal in size, close and situated on moderately prominent tubercles; both rows of eyes recurved but posterior row very narrowly recurved as in fig. 263. Sternum heart-shaped, pointed behind, brownish yellow, clothed with hairs; nearly as long as wide, blackish brown with pale distal margin; maxillae longer than wide and broad distally, brownish yellow, provided with distinct scopulae. Chelicerae large, very strong and stout, yellowish, having small boss. Legs very long and slender, clothed with hairs and spines; femora IV with a double fringe of long hairs on the prolateral surface of the proximal half.

Abdomen : Rather elongated, anterior part provided with two prominent humps and one upward directed caudal hump as in fig. 263. Dorsum of abdomen decorated with silvery white and blackish patches and lines as in fig. 263. ventral side with a pair of elongated silvery white patches in between epigastric furrow and spinnerets and four silver white spots around spinnerets. Epigyne plate like having a thin semilunar rim anteriorly as in fig. 264. Internal genitalia as in fig. 265.

Distribution : India : Bangalore, Karnataka, Cochin, Kerala; Nilgiri Hills, Red Hills, Chingleput, Tamil Nadu, Dehra Dun, U.P; Kolkata, Darjeeling, Kalimpong, West Bengal; Shillong, Meghalaya; Sikkim; Assam; Bihar; Orissa; Gujarat; Pondicherry.

Elsewhere : Sri Lanka. Colombo, Perandeniya. Myanmar : Maymyo. Pakistan: Rawalpindi.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 42 *Nephila* Leach

1815. *Nephila* Leach. *Zoological Miscellany*, : 133.

1982. *Nephila* : Tikader, *Fauna of India, Spiders*, **2**(1) : 94.

Diagnosis : Carapace with cephalic region convex, more elevated than thoracic region and usually armed posteriorly with one pair of tubercles. Labium longer than broad. Ocular quad nearly square or slightly wider behind. Legs very long and strong, spinulose; tarsi and metatarsi together longer than tibiae and patella together. Epigyne heavily sclerotised.

Type-species : *Nephilia maculata* (Fabricius)

Distribution : Tropical and rarely sub-tropical countries of the world.

95. *Nephila maculata* (Fabricius) (Figs. 266-268)

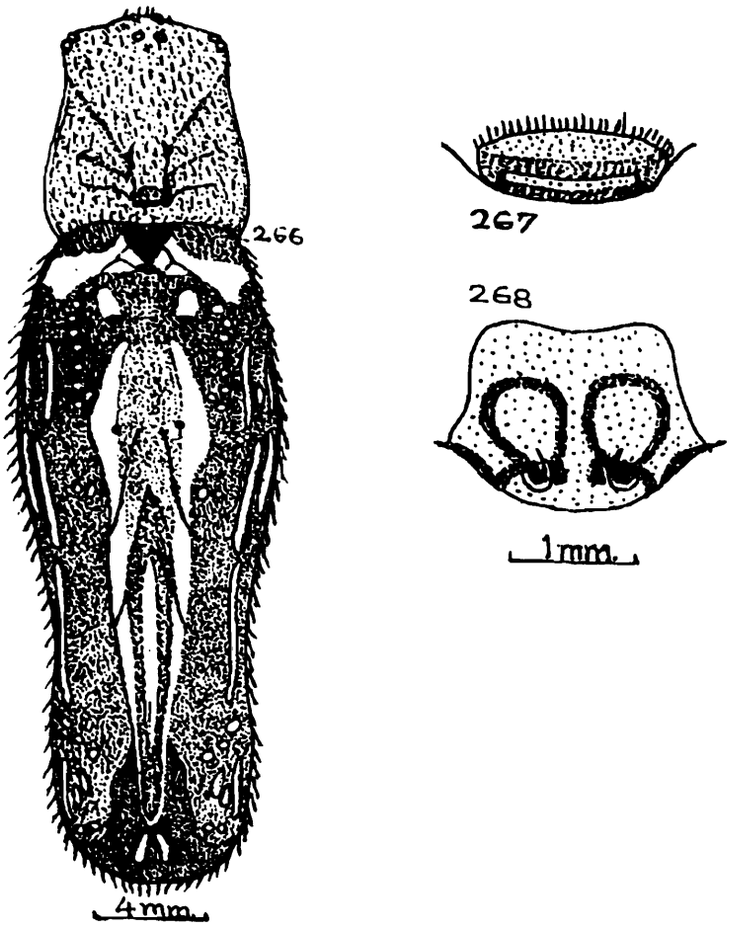
1793. *Aranea maculata* Fabricius, *Ent. Syst.*, **2** : 425.

1900. *Nephila maculata* : Pocock, *Fauna Brit. India, Arach*, : 217.

1980. *Nephila maculata* : Tikader, *Fauna of India, Spiders*, **2**(1) : 97.

Material examined : 1♀, Rani Durgavati Samadhi, Jabalpur, Coll. *V. V. Rao*, 19.XI.1970. (Reg. No. A/1683). 2♀♀, Garampani Kund on Jabalpur-Mandla Road, Mandla District, Coll. *U. A. Gajbe*, 23.XII.1981. (Reg. No. A/1684). 7♀, Gwari village, Mandla dist., Coll. *U.A. Gajbe*, 22.X.1981. 6♀, Khutama, Chindwara dist. M.P., Coll. *R.K. Singh*, 10.X.1991. (Reg. No. A/2308). 1♀, Around Chitawal Mata (Patalkot) Chindwara dist., M.P. Coll. *R.K. Singh*, 15.X.1992. (Reg. No. A/2311). 1♀, Bhartadeo, Chindwara dist. Coll. *R.K. Singh*, 10.IX.1991. (Reg. No. A/2310). 8♀, 1♂, Mahodhar nalla on Jabalpur-Mandla road, Mandla dist. Coll. *R.K. Singh*, 11.IX.1985.

General : Cephalothorax and legs deep brown, abdomen olive grayish with yellowish and brownish patches. Total length 37.40 mm. Carapace 10.80 mm. long, 8.20 mm. wide; abdomen 28.40 mm. long, 11.00 mm. wide.



Figs. 266-268 : *Nephila maculata* (Fabricius). 266. Dorsal view of female, legs omitted; 267. Epigyne; 268. Internal genitalia.

Cephalothorax : Longer than wide, densely clothed with silky yellowish small pubescence, slightly narrower in front; cephalic region higher than thoracic region and provided with a pair of sharp tubercles posteriorly, thoracic region rather flat with a deep circular fovea. Ocular quad nearly as long as wide. Slightly narrower in front than behind as in fig. 266. median eyes equal in size; laterals small and subequal in size, close, situated on prominent tubercles; both rows of eyes slightly recurved as in fig. 266. Sternum heart shaped, pointed behind, having a tubercle anteriorly, deep brown with yellowish distal margin; maxillae elongated and much broader distally, dark brown, with yellowish outer margins, provided with distinct scopulae. Chelicerae very strong and stout, dark brown, provided with prominent boss. Legs very long and strong, clothed with hairs and spines; tarsi and metatarsi together larger than patellae and tibiae together; coxae of legs and proximal half of palpus yellowish ventrally.

Abdomen : Long and cylindrical, clothed with hairs; slightly overlapping on the carapace as in fig. 266. Dorsum of abdomen with a pair of mid-longitudinal yellowish lines as in fig. 266. also decorated with other yellowish patches, laterally some weavy yellowish lines, posteriorly brownish. Five pairs of distinct sigilla arranged mid-longitudinally on the dorsum. Ventral side provided with a broad longitudinal olive-brown patch in between epigastric furrow and spinnerets; some yellowish patches laterally; around the spinnerets reddish in colour. Epigyne heavily sclerotised, having a transverse concave groove with a distinct ridge anteriorly as in fig. 267. Internal genitalia as in fig. 268.

Distribution : India : Trinnevelly, Trivendrum, Ootakmund, Tamil Nadu, Karnataka; Dehra Dun, Hardwar, U.P; M.P, Tezpur, Darrang, Assam; Gazing, Rongli, Sikkim; Kalimpong, Darjeeling, West Bengal; Thana, Poona, Maharashtra; Dangs, Gujarat; Andaman & Nicobar Islands.

Elsewhere : Myanmar : Therrawaddy, Tounghoo, Rangoon, Sri Lanka : Perandeniya, Trincomali. China, Australia, Malaysia, Japan, New Guinea.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

96. ***Nephila kuhlii*** Doleschall

1859. *Nephhila kuhlii* Doleschall, *Acta. Soc. Ind. Neerl.*, **5**(5) : 27.

1982. *Nephila kuhlii* : Tikader, *Fauna of India, Spiders*, **2**(1) : 104.

Material examined : 9♀, Garampani kund on Jabalpur-Mandla road, Mandla district, Coll. *U.A. Gajbe*, 14.IX.1983. (Reg. No. A/1686).

Distribution : India : Gobardanga, 24 Parganas, Darjeeling, West Bengal; Mandla, M.P.

Elsewhere : Myanmar, Bhamo and eastwards to Celebes.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 43. ***Herennia*** Thorell

1877. *Herennia* Thorell, *Annali Mus. Civ. Genova*, **10** : 370.

1982. *Herennia* : Tikader, *Fauna of India, Spiders*, **2**(1) : 106.

Diagnosis : Carapace flat, thickly covered with white pubescence. Ocular quad nearly as wide and slightly wider behind than in front, anterior median eyes larger than posterior medians ; lateral eyes close and subequal in size ; posterior row of eyes nearly straight. Legs long and slender clothed with hairs and spines, tarsi and metatarsi together longer than tibiae and patella together. Abdomen flat above and lobate laterally, impressed with radially arranged lines of spots.

Type-species : *Herennia ornatissima* (Doleschall).

Distribution : India

Elsewhere : Sri Lanka, Malaysia.

97. ***Herennia ornatissima*** (Doleschall)

1859. *Epeira ornatissima* Doleschall, *Act. Soc. Indi. Neerl.*, **5** : 32.

1877. *Herennia multipunchuata* : Thorell, *Annali Mus. Civ. Genova*, **10** : 371.

1982. *Herennia ornatissima* : Tikader, *Fauna of India, Spiders*, **2**(1) : 106.

Material examined : 1♀, Gudari village, near orccha, Bastar dist., Coll. *U. A. Gajbe*, 27.XII.1983. (Reg. No. A/1687). 1♀, Orccha, Bastar dist., Coll. *U. A. Gajbe*, 28.XII.1983. (Reg. No. A/1688). 1♀, Garhbengal near Narayanpur, Bastar dist., Coll. *U. A. Gajbe*, 30.XII.1983. (Reg. No. A/1689).

Distribution : India : Tamil Nadu, Meghalaya, Goa, M.P.

Elsewhere : Sri Lanka, Myanmar, Austro-Malaysia.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 44. ***Argiope*** Audouin

1826. *Argiope* Audouin, in Savigny, *Description de l' Egype.*, **1**(4) : 121.

1982. *Argiope* : Tikader, *Fauna of India, Spiders*, **2**(1) : 111.

Diagnosis : Carapace remarkable flat, clothed with thick layer of white pubescence. Ocular quad forms a trapezium, longer than wide and wider behind than in front; posterior row of eyes strongly procurved; anterior lateral eyes smaller than the posterior laterals; lateral eyes close and situated on conspicuous tubercles. Legs long and strong, metatarsus and tarsus together longer than patella and tibia together. Abdomen generally flat with variable shape. Adult female larger than 9 mm. epigyne provided with thin or thick median septum. Web provided with a stabilimentum or two stablimenta crossing.

Type-species : *Argiope lobata* (Thorell).

Distribution : Tropical and temperate countries of the world.

98. ***Argiope aemula*** (Walckenaer) (Figs. 269-272)

1841. *Epeira aemula* Walckenaer, *Hist. Nat. Ins. Apt.*, **2** : 118.

1877. ***Argiope aemula*** : Thorell, *Annali. Mus. Civ. Genova*, **25** : 164.

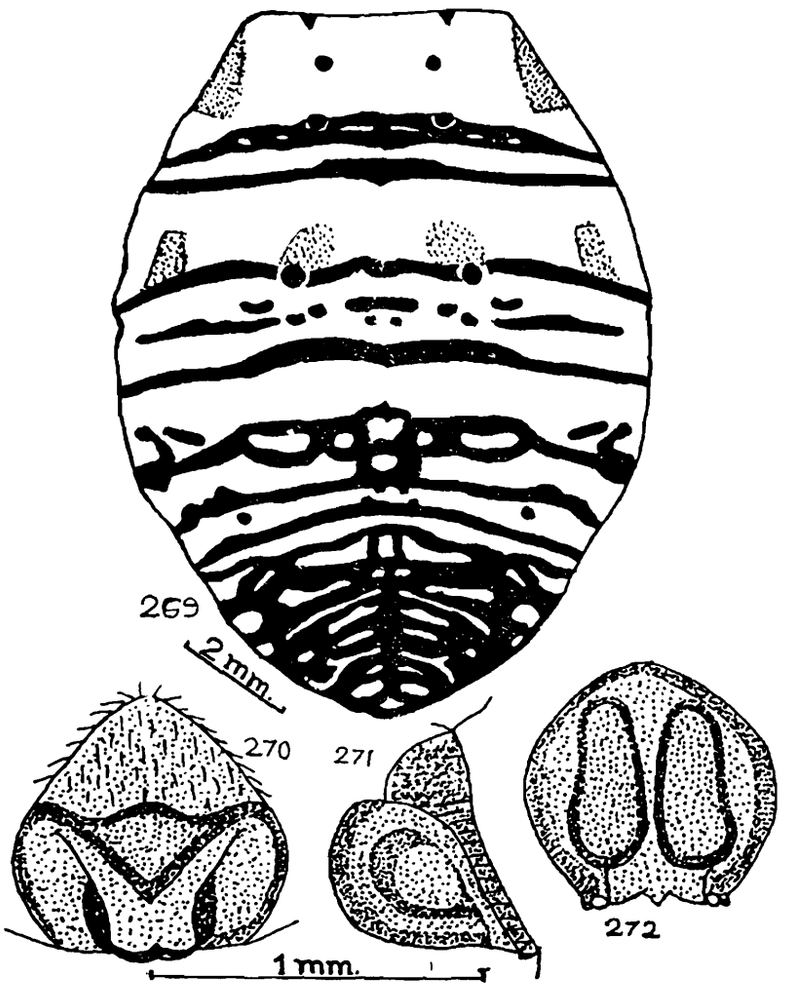
1970. ***Argiope aemula*** : Tikader, *Rec. zool. Surv. India*, **64**(1-4) : 29.

1982. ***Argiope aemula*** : Tikader, *Fauna of India, Spiders*, **2**(1) : 164.

Material examined : 1 ♀, Gariapahar, Kanker, **Bastar dist.**, Coll. *U. A. Gajbe*, 4.1.1992. (Reg. No. A/1690). 1 ♀, Tewar village near Shahpura, **Jabalpur dist.**, Coll. *V. S. Durve*, 15.VII.1969. **(Reg. No. A/1691).**

General : Cephalothorax yellowish brown, legs deep brown, abdomen grayish white. Total length 19.40 mm. Carapace 7.00 long, 6.40 mm. wide ; abdomen 14.00 mm. long, 11.00 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with thick white pubescence ; cephalothorax provided with irregular yellowish patches ; cephalic region slightly elevated than thoracic region. Ocular quad much longer than wide and wider behind than in front ; both anterior and posterior median eyes subequal in size ; posterior medians encircled by black ring ; lateral eyes close and both situated on a prominent tubercle ; anterior lateral smaller than posterior lateral ; anterior row of eyes procurved as seen from in front, but posterior row strongly procurved as seen from above. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, blackish brown in colour, provided with a median, yellowish white patch having lateral elongation ; labium longer than wide, yellowish in colour ; maxillae roughly pentangular, yellowish with blackish brown proximal part, provided with distinct scopulae. Chelicerae small and weak, reddish brown in colour, provided with rudimentary boss. Legs long and strong, clothed with spines and hairs ; femur of all legs provided with yellow patches on the ventral side.



Figs. 269-272 : *Argiope aemula* (Walckenaer). 269. Dorsal view of abdomen; 270. Epigyne, ventral view; 271. Epigyne, lateral view; 272. Internal genitalia.

Abdomen : Broadly oval, slightly truncated in front, longer than wide, overlapping anteriorly on the cephalothorax, clothed with hairs. Dorsum of abdomen grayish white with black stripes, forming a network as in fig. 269. Ventral side blackish brown provided with a pair of yellow longitudinal stripes running from epigastric furrow to beyond the spinnerets. Epigyne as in figs. 270 & 271. Internal genitalia as in fig. 272.

Distribution : India : Trivendrum, Nilgiri Hills, Tamilnadu ; Eastern region of Maharashtra ; Darjeeling, West Bengal ; Gujrat ; Andaman & Nicobar Islands.

Elsewhere : Sri Lanka : Trincomali, Punduloya. Burma : Rangoon, Tharrawady Bhamo. Indo and Austro-Malaysia.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

99. ***Argiope pradhani*** Sinha

1951. *Argiope pradhani* Sinha, *Rec. Indian Mus.*, **49** : 76.

1982. *Argiope pradhani* : Tikader, *Fauna of India, spiders*, **2**(1) : 123.

Material examined : 1♀, Bijapur, Bastar Dist., Coll. *R. K. Ghose*, 8.II.1990. (Reg. No. A/2243).

Distribution : India : West Bengal, Andaman & Nicobar Islands, Madhya Pradesh.

Elsewhere : Myanmar, Sri Lanka and Austro-Malaysia.

Remarks : This species is being reported here for the second time from M.P.

100. ***Argiope anasuja*** Thorell

1887. *Argiope anasuja* Thorell, *Annali. Mus. Civ. Genova*, **25** : 162.

1982. *Argiope anasuja* : Tikader, *Fauna of India, Spiders*, **2**(1) : 127.

Material examined : 2♀, Hatkachora village near Jagdalpur, Bastar dist., Coll. *U. A. Gajbe*, 2.I.1984. (Reg. No. A/1693).

Distribution : India : Tamilnadu, Karnataka, Maharashtra, Orissa, Bihar, West Bengal, Bastar, Madhya Pradesh.

Elsewhere : Sri Lanka, Pakistan.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

101. ***Argiope pulchella*** Thorell

1881. *Argiope pulchella* Thorell, *Annali. Mus. Civ. Genova*, **18** : 74.

1982. *Argiope pulchella* : Tikader, *Fauna of India, Spiders*, **2**(1) : 129.

Material examined : 1♀, Chotedonger, Narayanpur Tahsil, Bastar dist., Coll. *U. A. Gajbe*, 26.XII.1983. (Reg. No. A/1694).

Distribution : India : Andaman and Laccadive Islands, West Bengal, Orissa, Maharashtra, Tamil Nadu, Bastar, Madhya Pradesh.

Elsewhere : Myanmar, Malaysia Penninsula.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

Genus 45. ***Cyrtophora*** **Simon**

1864. *Cyrtophora* Simon, *Hist. Nat. Araign.*, **1** : 261.

1982. *Cyrtophora* : Tikader, *Fauna of India, Spiders*, **2**(1) : 171.

Diagnosis : Carapace nearly flat with long cephalic region. Ocular quad a little longer than wide ; lateral eyes equal and slightly separated from each other. Legs moderately long and stout. Abdomen very high anteriorly and provided with paired tubercles.

Type-species : *Cyrtophora citricola* (Forskal).

Distribution : Tropical and sub-tropical countries of the world.

102 ***Cyrtophora bidenta*** Tikader

1970. *Cyrtophora bidenta* Tikader, *Rec. zool. Surv. India*, **63**(1–4) : 32.

1982. *Cyrtophora bidenta* : Tikader, *Fauna of India, Spiders*, **2**(1) : 175.

Material examined : 1♀, Junardeo, Chindwara dist., Coll. *R. K. Singh*, 16.XI.1991.

Distribution : India : Sikkim, Madhya Pradesh.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

103. *Cyrtophora citricola* (Forskal) (Figs. 273-277)

1775. ***Aranea citricola*** Forskal, *Description animalium* : 86.

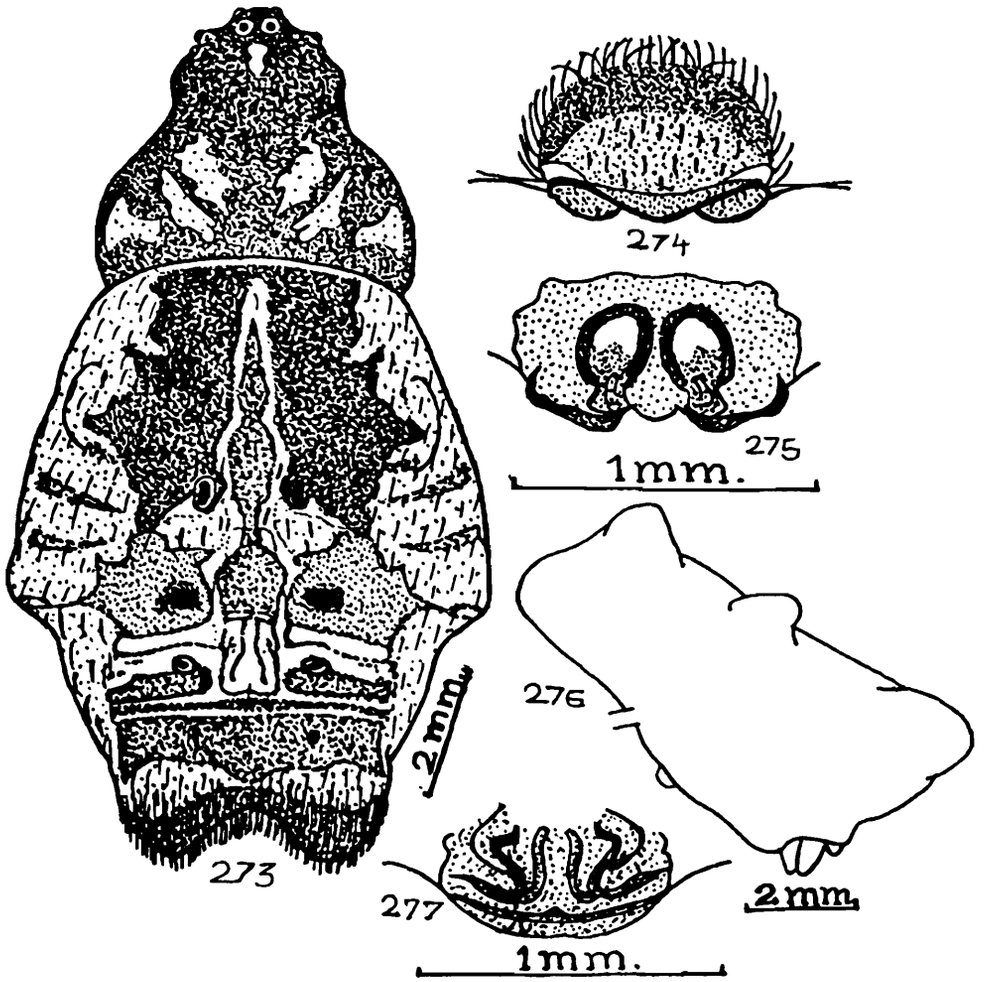
1896. *Cyrtophora citricola* : Workman, *Malays. Spiders*, : 32.

1982. *Cyrtophora citricola* : Tikader, *Fauna of India, Spiders*, 2(1) : 180.

Material examined : 1♀, Amarwada, Chindwara dist, Coll. *R. K. Singh*, 12.XI.1991. (Reg. No. 2350). 1♀, Motigarden, Ratlam, Coll. *R. K. Singh*, 13.IV.1991.

General : Cephalothorax and legs brownish with yellowish patches, abdomen greyish with yellow and brown patches, colour of the body highly variable. Total length 11.80 mm. Carapace 5.00 mm. long, 4.60 mm. wide; abdomen 8.10 mm. long, 7.00 mm. wide.

Cephalothorax : Slightly longer than wide, narrowing anteriorly, very broad posteriorly, densely clothed with grey pubescence, thoracic region provided with a fovea trifid posteriorly. Ocular quad forming a trapezium situated on an elevation, longer than wide, wider in front than behind as in fig. 273. Anterior median eyes larger than posterior medians ; lateral eyes subequal in size, a little away from each other and situated on prominent tubercles ; both rows of eyes strongly recurved as in fig. 273. Sternum triangular very pointed behind. The coxae IV very close, light orange yellowish in colour, clothed with hairs ; labium wider than long, dark brown with pale, inner margin provided with distinct scopulae. Chelicerae strong, distinctly swollen before the base provided with prominent boss. Legs short, strong and stout, densely clothed with pubescence, hair and spines.



Figs. 273-277 : *Cyrtophora citricola* (Forskal). 273. Dorsal view of female, legs omitted; 274. Epigyne, ventral view; 275. Internal genitalia; 276. Lateral view of abdomen of female; 277. Epigyne, dorsal view.

Abdomen : High up anteriorly and strongly overlapping on the cephalothorax, thickly clothed with pubescence and hair. Dorsum of abdomen provided with one pair of shoulder humps, one pair of lateral humps at the middle and one pair bifid caudal humps as in fig. 276. A broad greyish brown patch all along the length on the dorsum and five pairs of distinct sigilla arranged mid-longitudinally, laterally grayish yellow as in fig. 273. Epigyne provided with a very broad and small scape with prominent rim as in fig. 274. External openings at the posterior end of epigyne as in fig. 275. Internal genitalia as in fig. 277.

Distribution : India : Bangalore, Karnataka, Chingleput, Tamil Nadu ; Poona, Maharashtra, Kolkata, West Bengal; Assam; Madhya Pradesh; Punjab; Rajasthan; Gujarat.

Elsewhere : Myanmar : Rangoon, Tharrawady. Sri Lanka, Australia, Madagascar, Malaysia, Egypt, Africa, Europe.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

104. ***Cyrtophora cicatrosa*** (Stoliczka) (Fig. 278-282)

1869. *Epeira (Nephila) cicatrosa* Stoliczka, *J. Asiat. Soc. Beng.*, **33** : 242.

1921. *Cyrtophora cicatrosa* : Gravely, *Rec. Indian Mus.*, **22**(4) : 413.

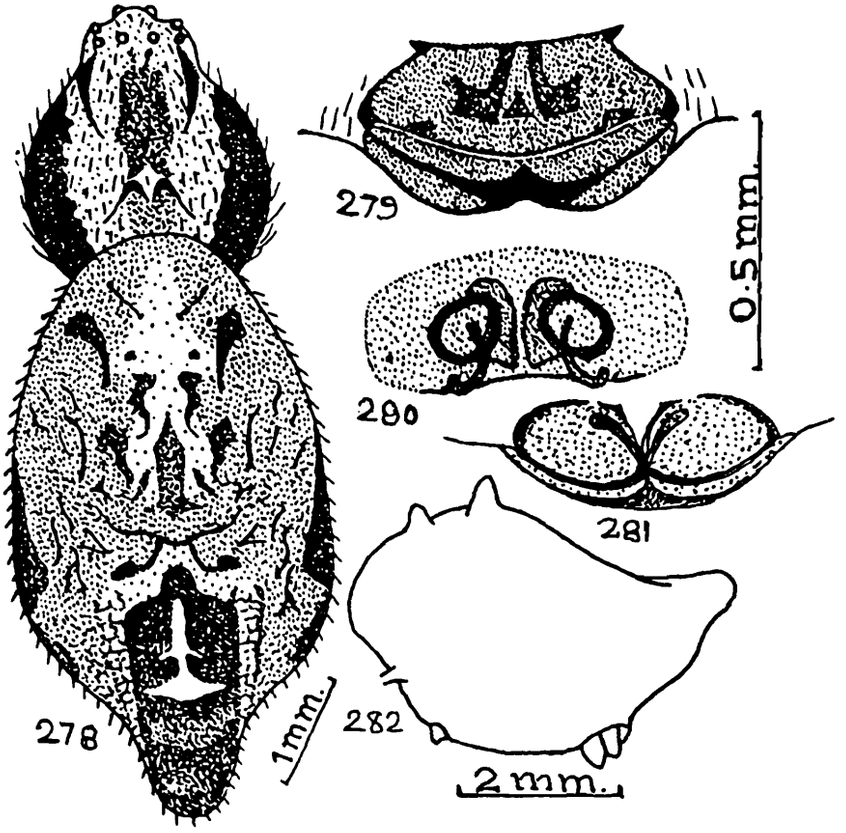
1962. *Cyrtophora cicatrosa* : Tikader, *J. Linn. Soc.*, **44**(300) : 563.

1975. *Cyrtophora cicatrosa* : Patel, *Vidya, J. Gujarat Univ.*, **18**(1) : 155.

Material examined : 2♀, Barela, Jabalpur, Coll. *Pawan Gajbe*, 28.IX.1997.

General : Cephalothorax and legs pale yellowish with blackish patches and stripes, abdomen grayish with black patches. Total length 7.10 mm. Carapace 2.10 mm. long, 2.10 mm. wide; abdomen 5.10 mm. long, 2.80 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, very broad and rounded posteriorly, a mid-longitudinal and two lateral, black patches clothed with hairs, thoracic region provided with a deep trifid fovea as in fig. 278. Ocular quad longer than wide, slightly narrower in front as in



Figs. 278-282 : *Cyrtophora cicatrosa* (Stoliczka). 278. Dorsal view of female, legs omitted; 279. Epigyne, ventral view; 280. Internal genitalia; 281. Epigyne, dorsal view; 282. Lateral view of abdomen of female.

fig. 278, anterior median eyes larger than posterior medians ; posterior medians encircled by black rings ; lateral eyes subequal in size, a little away from each other and situated on prominent tubercles ; anterior row of eyes strongly recurved but posterior row very slightly recurved as in fig. 278. Sternum triangular, pointed behind, blackish in colour with a mid-longitudinal thin chalk white stripe, clothed with hairs ; labium wider than long, blackish with pale distal margin ; maxillae broad, blackish brown with pale outer margin ; maxillae broad, blackish brown with pale outer margins. Chelicerae moderately strong, clothed with hair and spines ; femora I, II provided with longitudinal black stripes ; rest segments with numerous small black spots.

Abdomen : High up anteriorly, clothed with pubescence. Dorsum of abdomen provided with two pairs of small black conical tubercles anteriorly and a blunt caudal tubercle posteriorly as in fig. 282. Black and chalk white patches on the dorsum. Ventral side with a pair of longitudinal chalk white lines and three pairs of small chalk white spots in between epigastric furrow and spinnerets ; one pair of chalk white stripes from behind the spinnerets to the tip of the caudal hump. Epigyne as in fig 279 & 280. Internal genitalia as in fig. 281.

Distribution : India : Chingleput, Tamil Nadu ; Nasik, Poona, Maharashtra ; Kolkata, West Bengal ; Allahabad, U.P. ; Karnataka ; Punjab ; Gujarat ; Andaman and Nicobar Islands.

Elsewhere : Myanmar : Tharrawaddy, Moulmein. New Guinea, Pakistan, Austro-Malaysia.

Remarks : This species is being reported here for the first time from M.P.

Genus 46. *Cyclosa* Menge

1866. *Cyclosa* Menge, *Schrift. Nat. Ges. Danzia* (N.F), **1** : 73.

1982. *Cyclosa* : Tikader, *Fauna of India, Spiders*, **2**(1) : 183.

Diagnosis : Carapace with anteriorly narrow cephalic region; Cephalic region distinctly separated from thoracic region by an oblique groove forming a U-shape. Ocular quad trapezium like, much narrower behind than in front, anterior median eyes usually longer than the posterior medians; posterior medians very close, almost touching laterals close and situated on prominent tubercles, both rows of eyes recurved. Palpal Patella of male with one large strong, and curved spines. Abdomen provided with humps, both paired and median unpairer. Epigyne having a small weak scape which may be straight, wrinkle, bent, pointed or circular.

Type-species : *Cyclosa conica* (Pallas).

Distribution : Cosmopolitan.

105. *Cyclosa bifida* (Doleschall)

1859. *Epeira bifida* Doleschall, *Act. Soc. India Neerl.*, **5** : 38.

1895. *Cyclosa bifida* : Simon, *Hist. Nat. Araign.*, **1**(4) : 779.

1982. *Cyclosa bifida* : Tikader, *Fauna of India, Spiders*, **2**(1) : 185.

Material examined : 1♀, Near Dauripatha village (Patalkot), Chindwara dist., Coll. *R. K. Singh*, 16.X.1992.

Distribution : India : Sikkim, Meghalaya, M.P.

Elsewhere : Sri Lanka, New Guinea, Malaysia.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

106. *Cyclosa moonduensis* Tikader (Fig. 283-286)

1963. *Cyclosa moonduensis* Tikader, *J. Univ. Poona, Sci., Tech.*, **24** : 46.

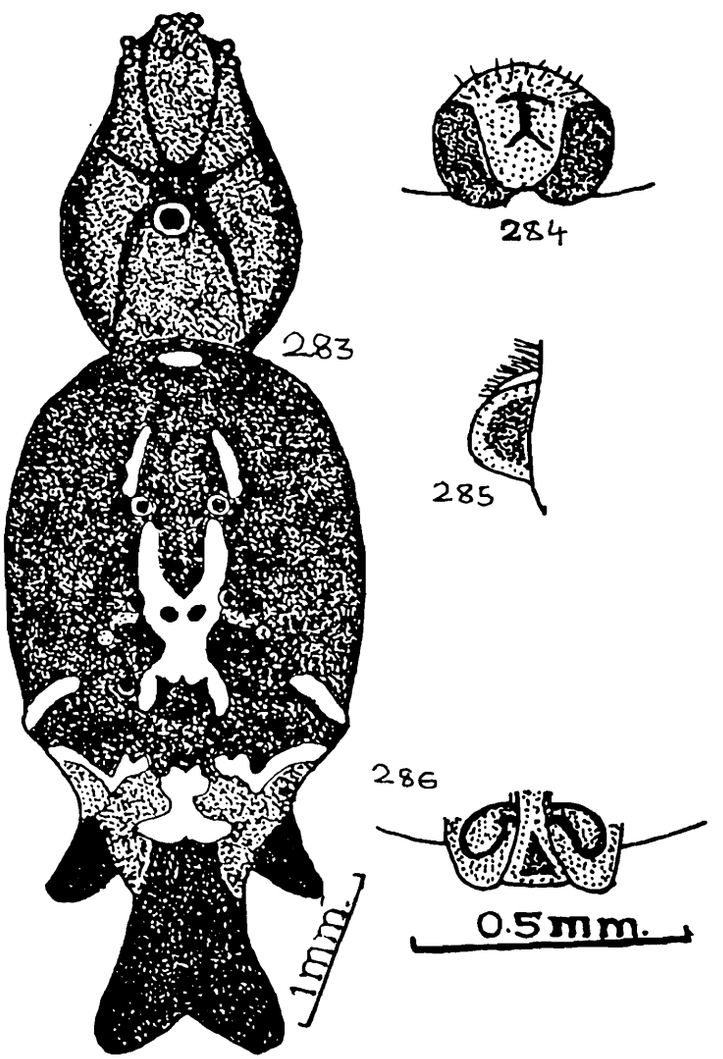
1982. *Cyclosa moonduensis* Tikader, *Fauna of India, Spiders*, **2**(1) : 191.

Material examined : 1♀ Hulki village, Jabalpur dist., Coll. *U. A. Gajbe*, 30.XII.1985. 1♀, Umaranalla, Chindwara dist., Coll. *R. K. Singh*, 17.IX.1991.

General : Cephalothorax and legs blackish brown, abdomen dark black. Total length 6.00 mm. Carapace 2.00 mm. long, 1.50 mm. wide; abdomen 4.25 mm. long, 2.30 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with hairs ; cephalic region distinctly separated from thorax by cephalic grooves ; thoracic fovea circular pit like. Ocular quad forming a trapezium, wider in front than behind as in fig. 283 ; eyes pearly white ; anterior medians larger than posterior medians ; posterior medians very close, nearly touching and encircled by black rings as in fig. 283, lateral eyes subequal in size, close and situated on prominent tubercles ; both rows of eyes recurved as in fig. 283. Sternum heart shaped, pointed behind, blackish in colour, clothed with hairs, labium slightly wider than long, blackish with pale distal margin ; maxillae broad, blackish provided with distinct scopulae. Chelicerae small with some blackish shades, having distinct boss. Legs moderately long, femora I and II completely black but femora III and IV provided with one transverse distinct yellowish band on each; other segments with yellow and brownish bands; clothed with hairs and spines.

Abdomen : Elongated, provided with one biforked caudal hump and two pairs of lateral humps, of which posterior one conspicuous as in fig. 283. Dorsum of abdomen provided with four pairs of sigilla, arranged mid-longitudinally and some silvery spots and patches as in fig. 283. Ventral side having one pair of silvery bracket shaped patches in between epigastric furrow and spinnerets and some other silvery patches. Epigyne with no scape but a bulge like structure as in fig. 284 & 285. Internal genitalia as in fig. 286.



Figs. 283-286 : *Cyclosa moonduensis* Tikader. 283. Dorsal view of female, legs omitted; 284. Epigyne, ventral view; 285. Epigyne, lateral view; 286. Internal genitalia.

Distribution : India : Ahmednagar, Mundhva village, (Type-locality) Poona, Maharashtra.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

107. *Cyclosa confraga* (Thorell)
(Fig. 287-291)

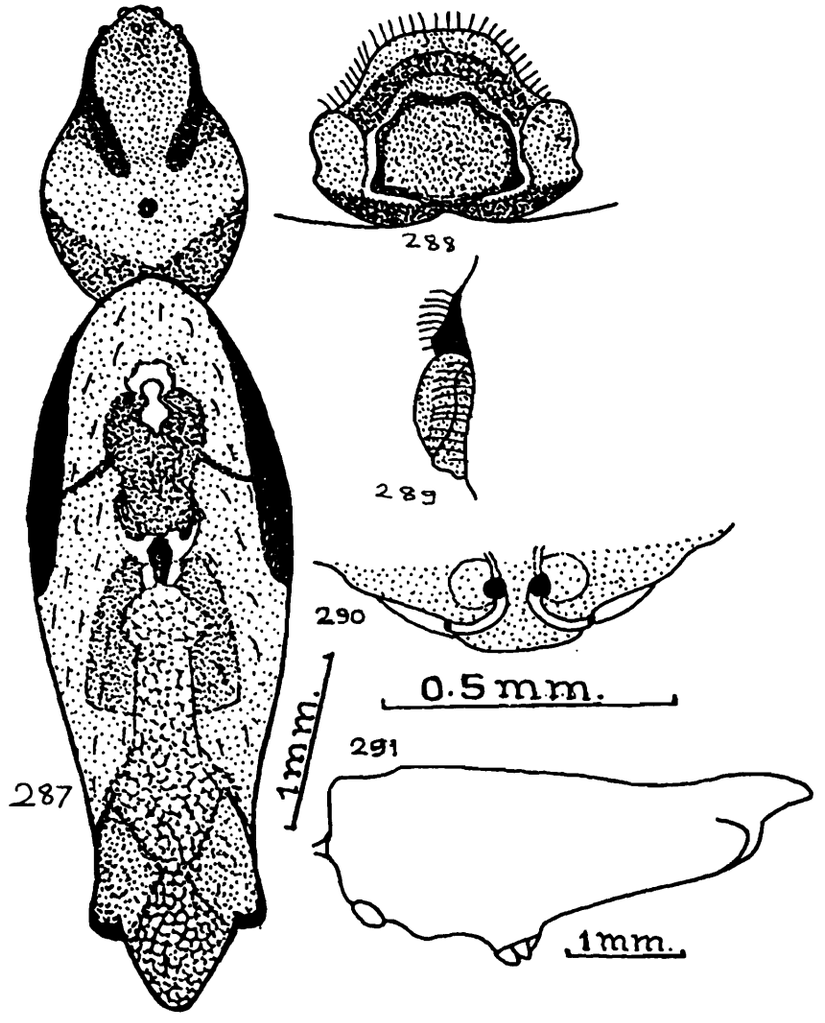
1892. *Epeira confraga* Thorell, *Bull. Soc. Ent. Ital.*, **241** : 239.

1963. *Cyclosa confraga* : Tikader, *J. Univ. Poona. Sci. & Tech.*, **24** : 25.

Material examined : 1♀, Khandari, Jabalpur, Coll. *Pawan Gajbe*, 12.X.1997.

General : Cephalothorax light brownish yellow, legs yellowish, abdomen grayish with chalk white and black patches. Total length 5.60 mm. Carapace 1.65 mm. long., 1.15 mm. wide ; abdomen 4.10 mm. long, 1.40 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with hair, cephalic region light brownish in colour, and distinctly separated from thorax by cephalic grooves ; thoracic fovea circular pit like. Ocular quad wider in front than behind and slightly longer than wide ; eyes pearly white ; anterior median eyes larger than posterior medians ; posterior medians very close, nearly touching and encircled by black rings as in fig. 287 ; lateral eyes subequal in size, close and situated on prominent tubercles ; both rows of eyes recurved as fig. 287. Sternum heart-shaped, pointed behind, chalk white with some brownish patches laterally, clothed with hairs ; labium nearly as long as wide, light brownish with pale distal margin ; maxillae broad, yellowish, provided with distinct scopulae. Chelicerae small, yellowish brown, provided with distinct boss. Legs



Figs. 287-291 : *Cyclosa confraga* (Thorell). 287. Dorsal view of female, legs omitted; 288. Epigyne, ventral view; 289. Epigyne, lateral view; 290. Internal genitalia; 291. Lateral view of abdomen of female.

moderately long, yellowish brown, provided with distinct boss. Legs moderately long, yellowish with some indistinct brown patches ; clothed with hair and spines.

Abdomen : Elongated, provided with a distinct pointed caudal hump and two lateral humps posteriorly as in fig. 291. Dorsum of abdomen provided with four pairs of distinct sigilla, arranged mid-longitudinally and some black and chalk white patches as in fig. 287. ventral side provided with a median broad blackish patch guarded by one pair of chalk white patches extending from epigastric furrow to spinnerets. Epigyne with no scape but a broad bulging structure as in fig. 288 & 289. internal genitalia as in fig. 290.

Distribution : India : Ballabhvidyanagar, Gujarat; Poona, Maharashtra, Karnataka, Assam, Sikkim.

Elsewhere : Myanmar, Malaysia.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

108. ***Cyclosa spirifera*** Simon
(Fig. 292-295)

1889. *Cyclosa spirifera* Simon, *J. Asiat. Soc. Beng.*, **58** : 337.

1982. *Cyclosa spirifera* : Tikader, *Fauna of India, Spiders*, **2**(1) : 195.

Material examined : 2♀, Geedam, Bastar dist., Coll. *U. A. Gajbe*, 24.I.1987.

General : Cephalothorax brownish yellow with dark brown patches and bands, abdomen brownish yellow with silvery and blackish patches. Total length 7.10 mm. Carapace 2.20 mm. long, 1.65 mm. wide ; abdomen 5.40 mm. long, 2.35 wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with scanty hair, cephalic region distinctly separated from thoracic region by cephalic grooves, thoracic fovea shallow and circular pit like. Ocular quad longer than wide as in front and very narrow behind as in fig. 292, eyes pearly white, median eyes subequal ; posterior medians very close, nearly touching and encircled by black rings, lateral eyes equal in size, close and situated on moderately prominent tubercles, both rows of eyes recurved as in fig. 292, sternum heart-shaped, pointed behind, brownish with chalk white patches at the periphery, clothed with hairs, labium slightly wider than long, brownish with pale distal margin, maxillae broad, brownish yellow and provided with distinct patches, having distinct boss. Legs moderately long, clothed with hair and spines, segments with distinct transverse brown bands.

Abdomen : Long, provided with two median humps, of which one anteriorly placed and bent upward and other one at the caudal end, slightly bent downward as in fig. 292, one pair of lateral humps situated at the base of the caudal hump as in fig. 292. Dorsum of abdomen decorated with blackish, silvery and brownish patches andlines as in fig. 292. Ventral side provided with a silvery butterfly profile mark in between epigastric furrow and spinnerets. Epigyne having a prominent, wrinkle scape with small, narrow, bent tip as in fig. 293, scape with a deep construction anteriorly as in fig. 294, internal genitalia as in fig. 295.

Distribution : India : Joansar, Thadyar.

Remarks : This species is being reported here for the first time from M.P.

109. ***Cyclosa hexatuberculata*** Tikader

1982. *Cyclosa hexatuberculata* Tikader, *Fauna of India, Spiders*, **2**(1) : 197.

Material examined : 1♀, Chitrakote, Bastar dist., Coll. *U. A. Gajbe*, 1. I. 1984. (Reg. No. A/1695). 3♀, Forest Rest House Geedam, Dantewada Tahsil, Bastar dist., Coll. *U. A. Gajbe*, 24.I.1987. (Reg. No. A/1695).

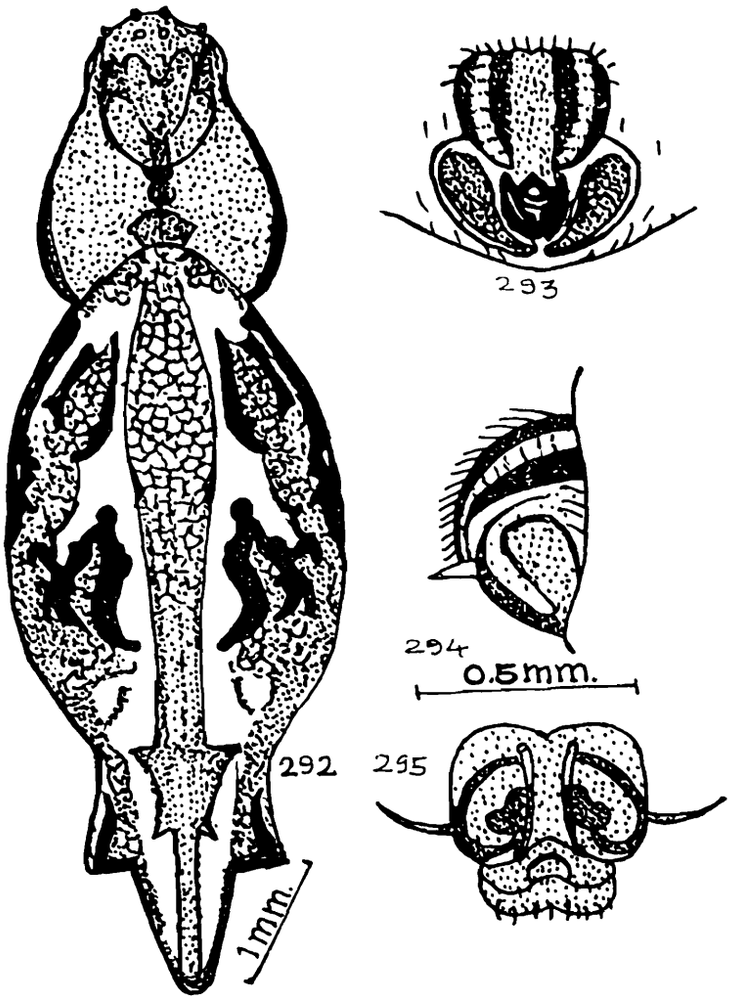
Distribution : India : Maharashtra, Chitrakote, Bastar, M.P.

Remarks : This species is being reported here for the first time from M.P.

110. ***Cyclosa insulana*** (Costa)

1834. *Epeira insulana* Costa, *Ann. Zool.*, : 65.

1892. *Cyclosa insulana* : Thorell, *Ann. Mag. Nat. Hist.*, **9**(6) : 232.



Figs. 292-295 : *Cyclosa spirifera* Simon. 292. Dorsal view of female, legs omitted; 293. Epigyne, ventral view; 294. Epigyne, lateral view; 295. Internal genitalia.

1982. *Cyclosa insulana* : Tikader, *Fauna of India, Spiders*, **2**(1) : 201.

Material examined : 1♂, Patalkot, Chindwara dist., Coll. *R. K. Singh*, 14.IX.1991 (Reg. No. A/ 2354).

Distribution : India : Meghalaya, Sikkim, M.P.

Remarks : This species is being reported here for the first time from M.P.

Genus 47. ***Larinia*** Simon

1874. *Larinia* Simon. *Ar. Fr.*, **1** : 115.

1975. *Larinia* : Patel, *Oriental Ins.*, **9**(1) : 111.

1982. *Larinia* : Tikader, *Fauna of India, Spiders*, **2**(1) : 205.

Diagnosis : Carapace rather long, scarcely convex-posteriorly. Ocular quad forming a trapezium nearly twice as wide in front than behind; lateral eyes subequal in size and very close. Maxillae longer than wide, legs long and slender. Abdomen elongated with a single median blunt point in front and no caudal process, ventral side with a longitudinal white band guarded laterally by black patches between epigastric furrow and spinnerets. Males with palpal patella bearing two heavy curved spines at the apex.

Type-species : *Larinia lineata* (Lucas).

Distribution : Tropical and sub-tropical countries of the world.

111. ***Larinia chloris*** (Audouin) (Fig. 296-298)

1825. *Epeira chloris* Audouin, *Descr. Dep. l'Egrpte*, **22** : 347.

1937. *Larinia chloris* : Bodenheirmer, *Mem. Inst. Egypte*, **33** : 238.

1982. *Larinia chloris* : Tikader, *Fauna of India, Spiders*, **2**(2) : 206.

Material examined : 1♀, 1♂, Sanjeevani Nagar, Jabalpur, Coll. *Pawan Gajbe*, 12.X.1997.

General : Cephalothorax brownish yellow, legs yellowish, abdomen grayish brown. Total length 9.40 mm. Carapace 3.55 mm. long, 2.50 mm. wide; abdomen 6.50 mm. long, 3.20 mm. wide.

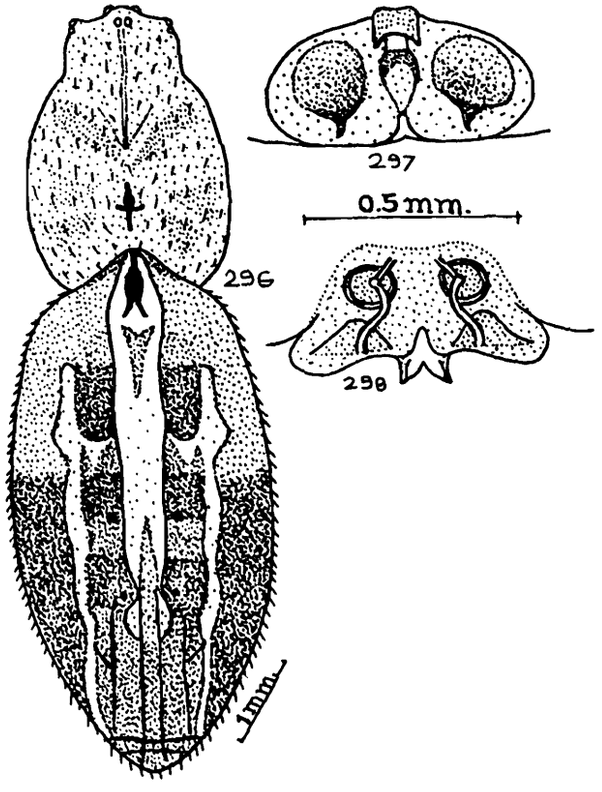
Cephalothorax : Nearly one and half times longer than wide; narrowing in front, clothed with pubescence and hair ; cephalic region not clearly distinct from thoracic region. One double line just running behind the posterior median eyes and ends before the deep longitudinal thoracic furrow as in fig. 296. Ocular quad forming a trapezium, more than three times wider in front than behind as in fig. 296 ; anterior medians much larger than posterior medians as in fig. 296 ; posterior medians closely situated ; laterals subequal, closed and situated on distinct tubercles ; both rows of eyes recurved, but posterior row very narrowly recurved than anterior row as in fig. 296. Sternum rather elongated, heart-shaped, pointed behind, light dark shades with pale median area, clothed with hair ; labium as long as wide, brownish with pale distal border ; maxillae slightly longer than broad, yellowish, provided with distinct scopulae. Chelicerae strong and stout yellowish, provided with distinct boss ; anterior margin of each chelicera armed with four teeth. Legs long and slender, clothed with hair and spines.

Abdomen : Elongated, slightly more than two times longer than wide, pointed anteriorly over the carapace as in fig. 296., clothed with pubescence and hair. Dorsum of abdomen grayish brown, more dark posteriorly, provided with a mid-longitudinal pale line and two sub-median pale lines one on each side as in fig. 296., posteriorly having some black lines and patches. Ventral side provided with a mid-longitudinal white patch guarded by black lines running from epigastric furrow to spinnerets. Epigyne having a small scape with concave tip as in fig. 297. Internal genitalia as in fig. 298.

Distribution : India : Poona, Maharashtra.

Elsewhere : Libya, Syria, Egypt, Israel, Uganda.

Remarks : This species is being reported here for the first time from Madhya Pradesh.



Figs. 296-298 : *Larinia chloris* (Audouin). 296. Dorsal view of female, legs omitted; 297. Epigyne, ventral view; 298. Internal genitalia.

Genus 48. *Zygeilla* F.O.P Cambridge

1902. *Zygeilla* F.O.P. Cambridge, *Ann. Mag. Nat. Hist.*, **9**(7) : 15.

1982. *Zygeilla* : Tikader, *Fauna of India, Spiders*, **2**(1) : 214.

Diagnosis : Carapace with cephalic region usually dark coloured than thoracic region and very few hairs. Anterior median eyes are larger than others. Ocular quad as long as wide in front and slightly narrower behind than in front. Abdomen oval with no humps and decorated with distinct folium on the dorsum. Epigyne variable with a posterior median depression, may or may not with scape ; scape when present not wrinkled. Palpal patella of male provided with single larger spine like hair ; and palpal femur lacks proximal ventral teeth ; paracymbium modified and diverse.

Type-species : *Zygeilla atrica* (C. L. Koch).

Distribution : Cosmopolitan.

112. *Zygeilla melanocrania* (Thorell)

1887. *Epeira melanocrania* Thorell, *Annali. Mus. Civ. Genova*, **25** : 209.

1974. *Zygeilla melanocrania* : Levi, *Bull. Mus. Comp. Zool. Hard.*, **146**(5) : 282.

1982. *Zygeilla melanocrania* : Tikader, *Fauna of India, Spiders*, **2**(1) : 215.

Material examined : 1♀, Bhartadeo, Chindwara district, Coll. *R. K. Singh*, 10.XI.1991. (Reg. No. A/2325). 1♀, Amarwada, Chindwara dist., Coll. *R. K. Singh*, 12.XI.1991. (Reg. No. A/2354). 2♀, Manasa, Mandsour dist., Coll. *R. K. Singh*, 7.IV.1991. 2♀, Agriculture College, Mandsour, Coll. *R. K. Singh*, 8.IV.1991. 1♀, Angara village, Tikamgarh dist., Coll. *R. K. Singh*, 26.IX.1993.

Distribution : India : Orissa, Madhya Pradesh.

Elsewhere : Pakistan, Myanmar.

113. *Zygeilla indica* Tikader & Bal (Figs. 299-302)

1980. *Zygeilla indica* Tikader & Bal, *Proc. India, Acad. Sci.*, **89**(3) : 243.

Material examined : 2♀, 1♂, Alot, Ratlam dist. Coll. *R. K. Singh*, 12.IV.1991. 1♀, Patha Talab, Tikamgarh, Coll. *U. A. Gajbe*, 13.II.1994. 3♀, Badnagar, Ujjain dist. Coll. *R. K. Singh*, 3.IV.1991.

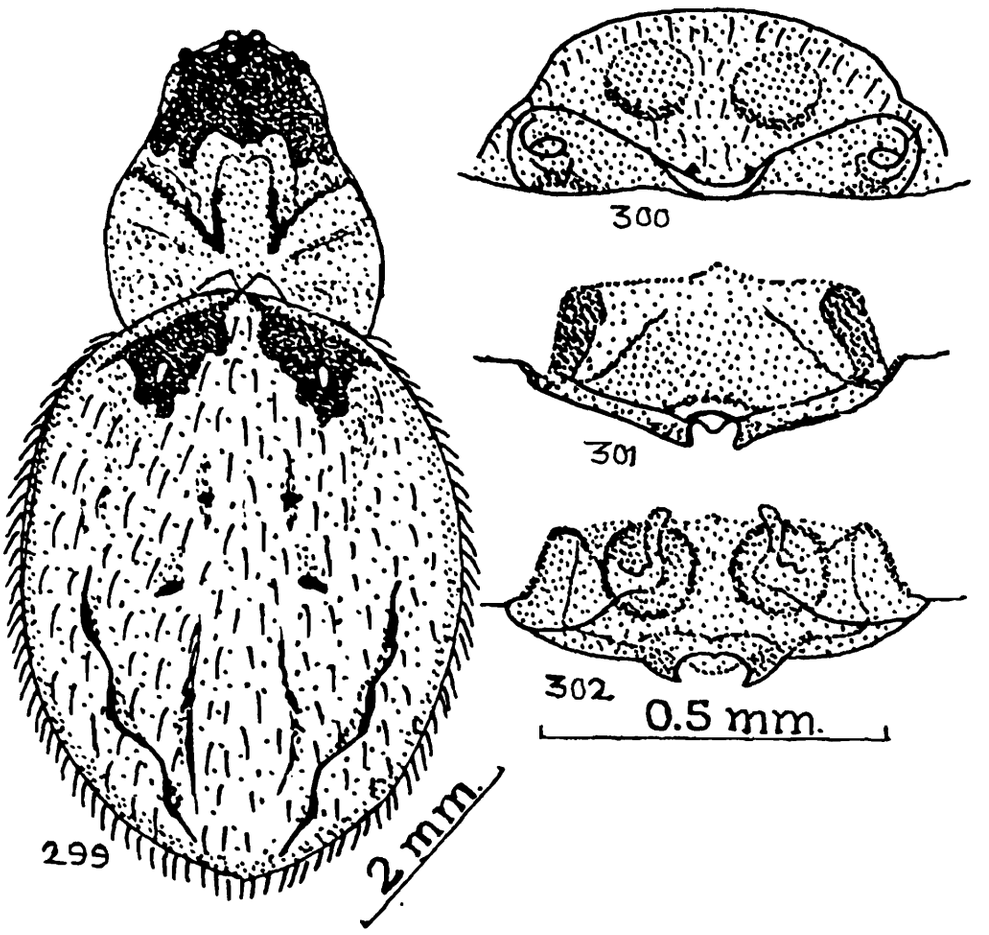
General : Cephalic region blackish brown and thoracic region yellowish in colour, legs yellowish with some browinsh patches, abdomen whitish with light browinsh tint and some black markings forming a folium. Total length 7.80 mm. Carapace 3.20 mm. long, 2.70 mm. wide ; abdomen 5.40 mm. long, 4.35 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, cephalic region with very few hairs and much darker in colour than thoracic region. Ocular quad nearly as long as wide and wider in front than behind as in fig. 299 ; anterior median eyes larger than posterior medians and laterals subequal in size and situated on prominent tubercles ; both rows of recurved but posterior row very narrowly recurved as in fig. 299. Sternum heart shaped, pointed behind, yellowish brown in colour with no markings, clothed with hairs ; labium slightly wider than long, pale brown in colour ; maxillae broad pale brown in colour and provided with distinct scopulae. Chelicerae moderately strong, blackish brown in colour, having distinct boss. Legs moderately long and strong, clothed with hairs and spines, distal ends of femora with dark brown patches on the dorsal surface.

Abdomen : Oval, longer than wide with no humps and clothed with hairs as in fig. 299. Dorsum of abdomen having a distinct folium composed of black and pale patches and small lines at the periphery as in fig. 299. Ventral side with white, pigmentation in between epigastric furrow and the spinnerets. Epigyne with no scape, having spiral openings on the ventral side as in fig. 300 & 301. Internal genitalia as in fig. 302.

Distribution : India : Poona (Type-locality), Maharashtra.

Remarks : This species is being reported here for the first time from Madhya Pradesh.



Figs. 299-302 : *Zygeilla indica* Tikader & Bal. 299. Dorsal view of female, legs omitted; 300. Epigyne, ventral view; 301. Epigyne, posterior view; 302. Internal genitalia.

Genus 49. ***Araneus*** Clerck

1737. *Araneus* Clerck, *Argn. Suec.*, : 15.

1982. *Araneus* : Tikader, *Fauna of India, Spiders*, **2**(1) : 219.

Diagnosis : Carapace moderately convex, with no horny out growth, three groove transverse in female, but in male longitudinal often having lateral prolongations. Ocular quad forming a trapezium, much longer than wide, median eyes slightly subequal in size, laterals close and usually situated on prominent tubercles, both rows of eyes recurved. Epigyne with a prominent scape which may be long, wrinkled epigynal opening situated into the grooves of the base. Palpus of male with a large terminal apophysis, palpal patella with two strong long curved spines.

Type-species : *Araneus angulatus* Clerck.

Distribution : Cosmopolitan.

114. ***Araneus mitifica*** (Simon) (Figs. 303-307)

1886. *Epeira mitifica* Simon, *Act. Soc. linn. Bordeaux*, **40** : 150.

1936. *Araneus mitifica* : Satio, *Sation Ho-Ho-Kai, Mus. Res. Bull.*, **18** : 19.

1982. *Araneus mitifica* : Tikader, *Fauna of India, Spiders*, **2**(1) : 233.

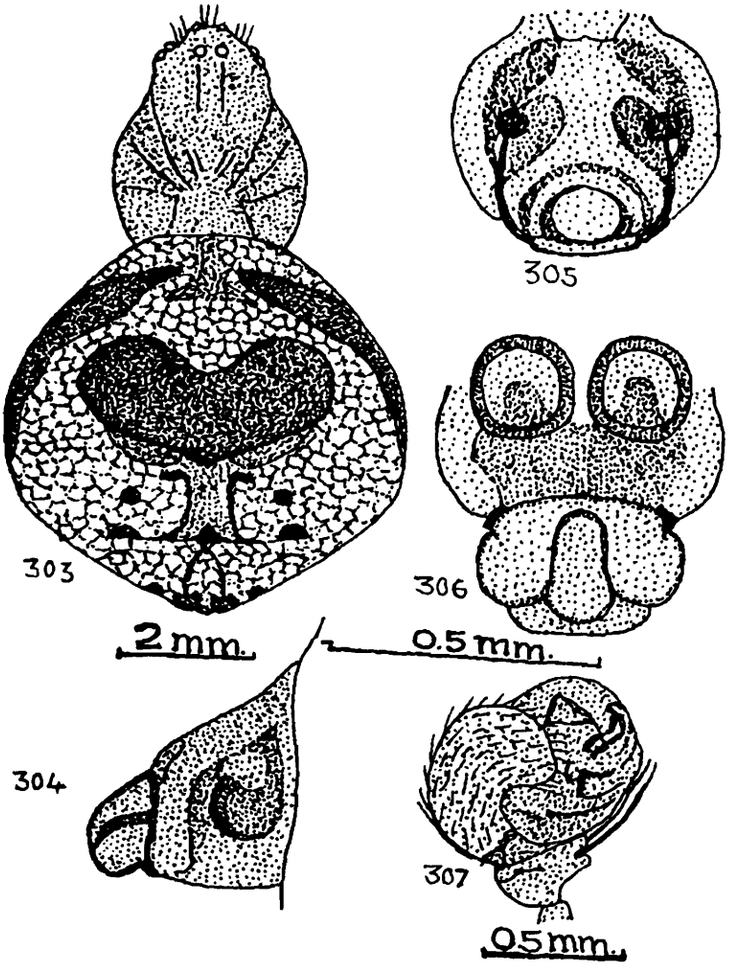
Material examined : 1♂, Around Lohsar (Patalkot) Chindwara dist., Coll. *R. K. Singh*, 17.X.1992. (Reg. No. A/2347). 1♀, Bhartadeo, Chinwara dist., Coll. *R. K. Singh*, 10.IX.1991. (Reg. No. A/2348). 1♀, Umaranala, Chindwara dist., Coll. *R. K. Singh*, 17.IX.1991. (Reg. No. A/2349). 1♀, Chitrakote, Bastar dist, Coll. *U. A. Gajbe*, 5.XII. 1985. 12♀, Gov. Agriculture College, Mandsaur, Coll. *R. K. Singh*, 8.IV.1991. 2♀, Bhuiwada, Mandsaur dist., Coll. *R. K. Singh*, 9.IV.1991. 7♀, Manasa, Mandsaur dist., Coll. *R.*

K. Singh, 7.IV.1991. 2♀, Ghosla, Ujjain dist., Coll. *R. K. Singh*, 11.IV.1991. 2♀, Birlagram near Nagda, Ujjain dist., Coll. *R. K. Singh*, 4.IV.1991.

General : Cephalothorax and legs yellowish ; abdomen silvery white dorsally and greenish ventrally. Total length 9.00 mm. Carapace 3.60 mm. long, 2.80 mm. wide; abdomen 5.80 mm. long, 6.00 mm. wide.

Cephalothorax : Longer than wide, narrowing in front clothed with pubescence and hairs. Thoracic region provided with an indistinct transverse groove. Ocular quad longer than wide and wider in front than behind as in fig. 303. Anterior median eyes larger than the posterior median eyes. Posterior median eyes encircled by black rings. Lateral eyes close and each situated on a black tubercle. Both rows are recurved but anterior row more recurved than the posterior row as in fig. 303. Sternum heart-shaped, pointed behind, yellowish, clothed with black spine like long hairs. Labium wider than long, yellowish. Maxillae strong, nearly square in shape, yellowish, provided with distinct scopulae. Chelicerae strong, yellowish, provided with moderate boss. Legs long and moderately strong, yellowish, distal ends of metatarsi and tarsi with dark brown transverse bands ; clothed with pubescence, hairs and black spines. Male palp as in fig. 307.

Abdomen : Nearly globular but slightly narrow anteriorly than posteriorly, wider than long, clothed with pubescence as in fig. 303. Dorsum provided with a pair of wing shaped large median black patches and two lateral black patches as in fig. 303. also having an abrupt slopping at the 2/ 3rd region towards posterior end. Two pairs of small but distinct tubercles at the posterior end of the abdomen as in fig. 303. Ventral side of



Figs. 303-307. : *Araneus mitifica* Simon. 303. Dorsal view of female, legs omitted; 304. Epigyne, lateral view; 305. Epigyne, ventral view; 306. Internal genitalia; 307. Left male palp, lateral view.

abdomen greenish with no white or black patch. Epigyne provided with very short, thick and unwrinkled scape as in fig. 304. lateral groove present as in fig. 305. Internal genitalia as in fig. 306.

Distribution : India : Poona, Maharashtra, Karnataka ; West Bengal.

Elsewhere : Pakistan, Lahore, Punjab, Bangladesh; Myanmar, Malaysia.

Remarks : This species is being reported here for the first time from M.P.

115. ***Araneus nympha*** Simon

1889. *Araneus nympha* Simon., *J. Asia. Soc., Bengal*, **58** : 339.

1982. *Araneus nympha* : Tikader, *Fauna of India, Spiders*, **2**(1) : 235.

Material examined : 1♂, Mukki Forest range, Balaghat dist. Coll. *R. K. Ghose*, 23.I.1991. (Reg. No. A/2101). 2♀, 2♂, Pipalia, Mandsaur dist., Coll. *H. P. Agrawal*, 29.X.1990.

Distribution : India : Himalaya, M.P.

Elsewhere : Pakistan.

Remarks : This species is being reported here for the first time from M.P.

Genus 50. ***Neoscona*** Simon

1864. *Neoscona* Simon, *Hist. Nat. Araaign.*, **1** : 261.

1982. *Neoscona* : Tikader, *Fauna of India, Spiders*, **2**(1) : 238.

Diagnosis : Presence of longitudinal thoracic groove in female separates *Neoscona* from all members of the genus *Araneus*. Ocular quad forming a trapezium and slightly longer than wide ; anterior median largest or subequal to the posterior medians ; lateral eyes close and not situated on prominent tubercles, posterior laterals smallest ; both rows of eyes recurved. In male, coxae I ventrally provided with a hook on the distal rim ; tibia II having macrosetae (spines) on prolateral surface. Abdomen may be oval, suboval, traingular or sub-triangular in shape. Epigyne as a simple tongue like ; scape completely fused to the base and provided with one or two pairs of lateral lobes ; epigynal openings situated on the underneath of scape. Palpal patella of male provided with two strong, curved and long spines ; cymbium of male palp broad but it is rather narrow stripe like in *Araneus*.

Type-species : *Neoscona anabesca* (Walckenaer).

Distribution : Species of *Neoscona* distributed all over the world.

116. ***Neoscona nautica*** (L. Koch) (Figs. 308-311)

1875. *Apeira nautica* L. Koch. *Aegypt Abyssin Arachn. Jickeli.*, : 17.

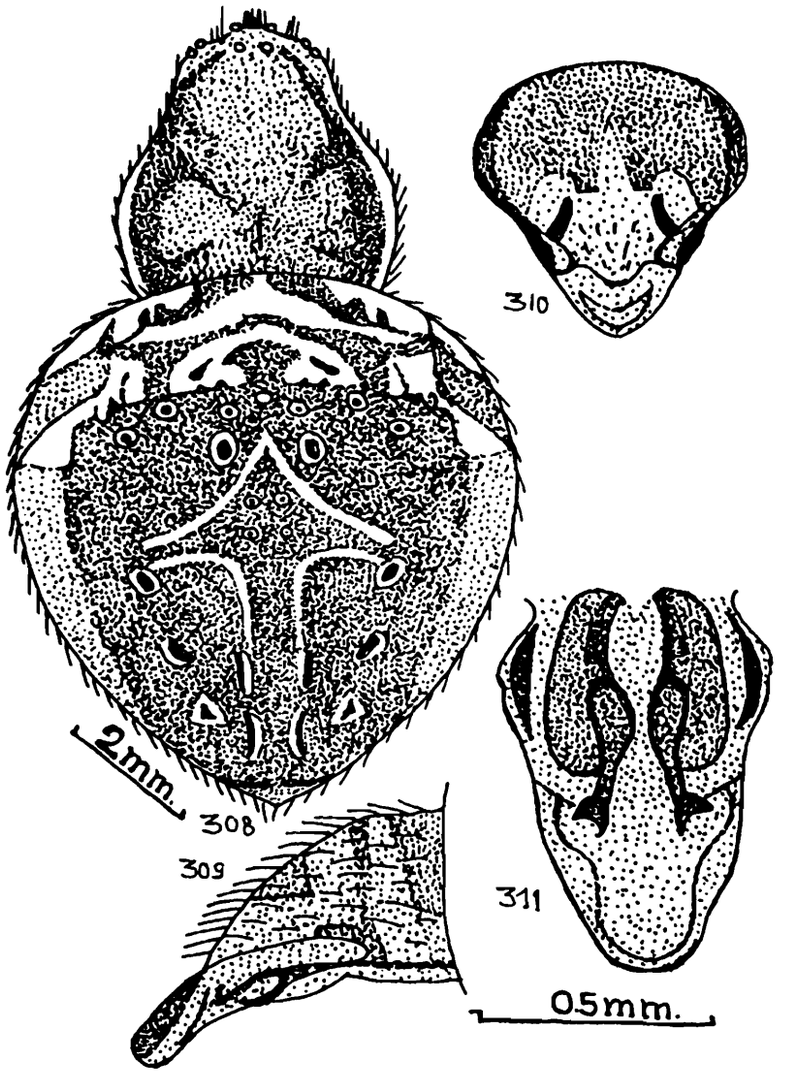
1907. *Neoscona nauticus* : Simon, *Annali. Mus. Civ. Genova*, **43** : 290.

1982. *Neoscona nautica* : Tikader, *Fauna of India, Spiders*. **2**(1) : 242.

Material examined : 1♀, 1♂, Umaranala, Chindwara dist., Coll. *R. K. Singh*, 17.IX.1991. (Reg. No. A/2332). 1♂, (Subadult), Parasia, Chindwara dist. Coll. *R. K. Singh*, 15.IX.1991. (Reg. No. A/2333). 1♂, Tamia, Chindwara dist., Coll. *R. K. Singh*, 18.IX.1991. (Reg. No. A/2334). 1♀, Budhagar village, Jabalpur dist. Coll. *U. A. Gajbe*, 10.X.1979. (Reg. No. A/1696). 1♀, on bank of Gajana nalla near Bargi village, Jabalpur dist. Coll. *U. A. Gajbe*, 30.X.1985 (Reg. No. A/1697). 2♀, Narayanganj village, Mandla dist., Coll. *U. A. Gajbe*, 23.I.1985. (Reg. No. A/1698). 2♀, Sangar, Damoh dist. Coll. *H. P. Agrawal*, 14.X.1992. 2♀, Sailana, Ratlam dist., Coll. *R. K. Singh*, 21.VIII.1990. 1♀, Ratangarh near Nimach, Mandsaur dist., Coll. *H. P. Agrawal*, 1.XI.1990. 3♀, 3♂, Parasia, Chindwara dist., Coll. *R. K. Singh*, 5.IX.1991.

General : Cephalothorax and legs yellowish brown, abdomen greenish brown. Total length 11.00 mm. Carapace 4.50 mm. long, 3.80 mm. wide ; abdomen 7.60 mm. long, 7.00 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with grey pubescence and hairs ; provided with mid-longitudinal light band extending from posterior end to the base of the ocular quad ; lateral side of cephalic region having a row of fringed hairs as in fig. 308. thoracic



Figs. 308-311 : *Neoscona nautica* (L. Koch); 308. Dorsal view of female, legs omitted; 309. Epigyne, lateral view; 310. Epigyne, ventral view; 311. Internal genitalia.

region provided with a distinct longitudinal groove. Ocular quad longer than wide and wider in front than behind as fig. 308 ; anterior median eyes larger than posterior medians and posterior medians encircled by black rings ; laterals close and each situated on a tubercle ; both rows of eyes recurved but anterior row more recurved than the posterior row a in fig. 308. Sternum heart-shaped, pointed behind, dark brown in colour, clothed with fine pubescence and provided with a median longitudinal chalk white band. Labium wider than long, dark brown in colour with pale distal margin. Maxillae broad, roundish, dark brown with pale outer margin with distinct scopulae. Chelicerae strong, dark brown, provided with moderate boss. Legs long and strong, with pale transverse bands, clothed with pubescence, hairs and spines.

Abdomen : Nearly triangular, posteriorly narrow ; clothed with pubescence and hairs, overlapping on the carapace. Dorsum greenish brown in colour, provided with many scattered black spots and chalk white patches forming an indistinct pattern as in fig. 308. Six pairs of sigilla arranged mid-longitudinally, ventral side with a broad longitudinal greenish brown patch guarded laterally by a pair of conspicuous dumble shaped chalk white bars. Epigyne with a short, broad and triangular scape as in fig. 309. Scape provided with a pair of inconspicuous lateral lobes and without any constriction as in fig. 310. Internal genitalia as in fig. 311.

Distribution : India : Poona, East Khandesh, Maharashtra; Darjeeling, West Bengal ; Rajkot, Gujrat, Rilbong, Shillong, Meghalaya.

Elsewhere : Myanmar : Rangoon, Tharrawady, Bhamo; Pakistan : Karachi; North America.

Remarks : This species is being reported here for the first time from M.P.

117. ***Neoscona bengalensis*** Tikader & Bal

1981. *Neoscona bengalensis* Tikader & Bal, *Rec. zool. Surv. India. Occ. Pap.*, **24** : 15.

1982. *Neoscona bengalensis* : Tikader, *Fauna of India, Spiders*, **2**(1) : 246.

Material examined : 1♀, Chandamata, Chindwara dist., Coll. *R. K. Singh*, 13.IX.1991. (Reg. No. A/2328). 1♀, 1♂, Khutama, Chindwara dist., Coll. *R. K. Singh*, 19.IX.1991. (Reg. No. A/2327). 2♀, Bilpathar village near Shahpura, Jabalpur dist., Coll. *U. A. Gajbe*, 28.IV.1982.

Distribution : India : West Bengal, M.P.

Remarks : This species is being reported here for the first time from M.P.

118. ***Neoscona mukerji*** Tikader
(Figs. 312-316)

1980. *Neoscona mukerji* Tikader, *Proc. Indian Acad. Sci.*, **89**(3) : 247.

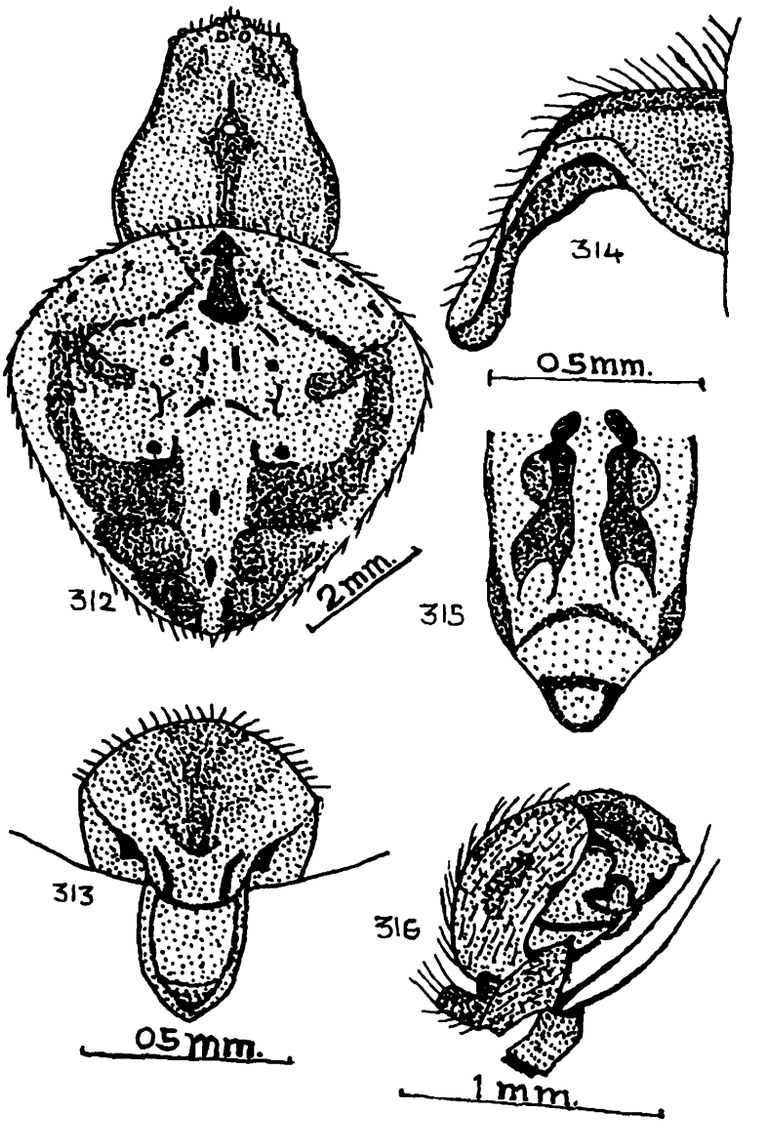
1982. *Neoscona mukerji* : Tikader, *Fauna of India, Spiders*, **2**(1) : 248.

Material examined : 4♀, Near Dauripatha village (Patalkot), Chindwara dist., Coll. *R. K. Singh*, 12.X.1992. (Reg. No. A/2318). 4♀, 1♂, Around Lohsar (Patalkot), Chindwara dist., Coll. *R. K. Singh*, 17.X.1992. (Reg. No. A/2320). 2♀, Near cave of Raghu Raja (Patalkot), Chindwara dist., Coll. *R. K. Singh*, 14.X.1992. (Reg. No. A/2321). 1♀, On the bank of Pench river, Singodi village on Amarwada road, Chindwara dist., Coll. *H. S. Sharma*, 5.IV.1990. (Reg. No. A/2324). 1♀, 1♂, Parasia, Chindwara dist., Coll. *Y. N. Gupta*, 19.X.1989. (Reg. No. A/2322). 1♂, Amarwada, Chindwara dist., Coll. *R. K. Singh*, 12.IX.1991. (Reg. No. A/2323). 3♀, 1♂, marwada, Chindwara dist., Coll. *R. K. Singh*, 12.IX.1991. (Reg. No. A/2317). 1♀, Madan Mahal, Jabalpur, Coll. *U. A. Gajbe*, 12.I.1982. 1♀, 1♂, Damas village near Dharamjaigarh, Raigarh dist., Coll. *R. K. Singh*, 5.IV.1992, 4♀, Bhartadeo, Chindwara dist., Coll. *R. K. Singh*, 10.IX.1991. 3♂, Mehgaon, Bhind dist., Coll. *R. K. Singh*, 21.IX.1994. 1♀, Banda, Sagar dist., Coll. *H. P. Agrawal*, 3.X.1991. 1♀, Jaod, Mandsaur dist., Coll. *R. K. Singh*, 6.IV.1991. 5♀, Motigarden, Ratlam dist., Coll. *R. K. Singh*, 13.IV.1991.

General : Cephalothorax and legs yellowish, abdomen dark brown with grayish patches. Total length 9.20 mm. Carapace 4.00 mm. long, 3.30 mm. wide ; abdomen 6.20 mm. long, 6.00 mm. wide.

Cephalothorax : Longer than wide and narrower in front, clothed with pubescence and hairs ; cephalic region provided with conspicuous 'V' shaped dark brown patches. Thoracic region provided with a deep longitudinal groove. Anterior median eyes slightly larger than posterior medians, encircled by black rings. Lateral eyes close and each situated on a tubercle. Ocular quad wider in front than behind and both rows of eyes recurved as in fig. 312. Sternum heart-shaped, pointed behind, having a median longitudinal white band. Labium wider than long, dark brown, distal margin pale coloured. Maxillae broad and nearly roundish, yellowish with some dark brown patches at the proximal portion and provided with distinct scopulae. Chelicerae strong, yellowish and provided with moderate boss. Legs long and strong, clothed with pubescence and spines ; distal ends of all segments except coxa and trochanter ; provided with dark brown transverse bands. Male palp as in fig. 316.

Abdomen : Sub-triangular, slightly longer than wide, tapering posteriorly and clothed with grey pubescence and hairs. Dorsum of abdomen provided with a club shaped greyish white patch, arranged longitudinally as in fig. 312 Five pairs sigilla, mid-longitudinally on the dorsum. Ventral side brownish grey but having a broad mid-ventral dark brown patch in between the epigastric furrow and the spinnerets, and guarded laterally



Figs. 312-316 : *Neoscona mukerjei* Tikader. 312. Dorsal view of female, legs omitted; 313. Epigyne, ventral view; 314. Epigyne, lateral view; 315. Internal genitalia; 316. Left male palp, lateral view.

by a pair of dumble shaped chalk white bars. Epigyne provided with a moderately long scape, provided with a constriction and a pair of indistinct lateral lobes as in fig. 313 & 314. Internal genitalia as in fig. 315.

Distribution : India : Poona (Type-locality), Maharashtra, West Bengal.

Remarks : This species is being reported here for the first time from M.P.

119. *Neoscona rumpfi* (Thorell)
(Figs. 317-321)

1887. *Araneus rumpfi* Thorell, *Annal, Mus. Civ. Genova*, **13** : 296.

1981. *Neoscona rumpfi* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.* **24** : 18.

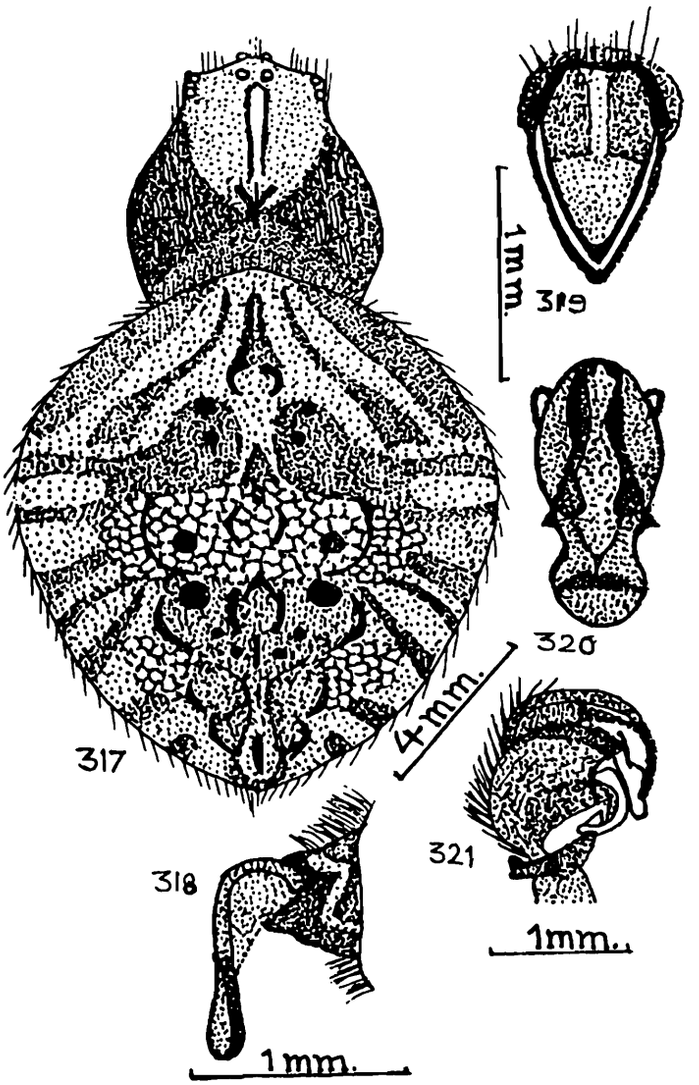
Material examined : 1♀, Junardeo, Chindwara dist., Coll. *R. K. Singh*, 16.IX.1991. (Reg. No. A/2329). 1♀, Bharatadeo, Chindwara dist., Coll. *R. K. Singh*, 10.IX.1991. (Reg. No. A/2330). 1♀, Garampani Kund, on Jabalpur-Mandla road, Mandla dist, Coll. *U. A. Gajbe*, 22.XII.1931. (Reg. No. A/1699). 1♀, Madan Mahal, Jabalpur, Coll. *U. A. Gajbe*, 25.V.1979. 2♀ Parasia, Chindwara dist., Coll. *R. K. Singh*, 15.IX.1991.

General : Cephalothorax dark brown. legs yellowish, abdomen grayish brown. Total length 17.00 mm. Carapace 6.30 mm. long, 5.80 mm. wide, abdomen 11.90 mm. long, 11.00 wide.

Cephalothorax : Longer than wide, narrower in front, clothed with pubescence and hairs ; cephalic region slightly high and light brown in colour ; thoracic region dark brown and provided with a deep longitudinal groove. Ocular quad longer than wide and wider in front than behind as in fig. 317. Anterior median eyes larger than the posterior medians. Lateral eyes close and each situated on a tubercle. Both rows of eyes recurved as in fig. 317. Sternum heart shaped, pointed behind, light brown in colour with mid-longitudinal white broad band, clothed with pubescence and hairs. Labium wider than long, brown with pale distal end. Maxillae broad, provided with distinct scopulae. Chelicerae strong, yellowish brown, provided with prominent boss. Legs long and very strong, yellowish in colour, distal ends of segments with distinct transverse bands ; femora I and II reddish brown in colour. Male palp as in fig. 321.

Abdomen : Sub-triangular, longer than wide, clothed with pubescence and some long grey hairs. Dorsum of abdomen provided with an indistinct pattern, marked with white and grayish brown patches and oblique markings as in fig. 317. Six pairs of sigilla arranged mid-longitudinally on the dorsum. Ventral side dirty-brown in colour with a broad point and provided with a pair of conspicuous horn like lateral lobes as in fig. 318. Ventral side of the epigynum provided with a median bulge as in fig. 319. Internal genitalia as in fig. 320.

Distribution : India : Chingleput, Ootacmund, Tamil Nadu ; Bangalore, Karnataka ; Wagar Karoor, Andhra Pradesh ; Poona, Maharashtra ; Orissa.



Figs. 317-321 : *Neoscona rumpfi* (Thorell). 317. Dorsal view of female, legs omitted; 318. Epigyne, lateral view; 319. Epigyne, ventral view; 320. Internal genitalia; 321. Left male palp, lateral view.

Elsewhere : Sri lanka ; Punduloya, Trincomali. **Myanmar** : Rangoon, Tharrawaddy, Bhamo. **Pakistan** : Karachi. Indo and Austro-Malaysia.

Remarks : This species is being reported here for the first time from M.P.

120. *Neoscona elliptica* Tikader & Bal (Fig. 322-325)

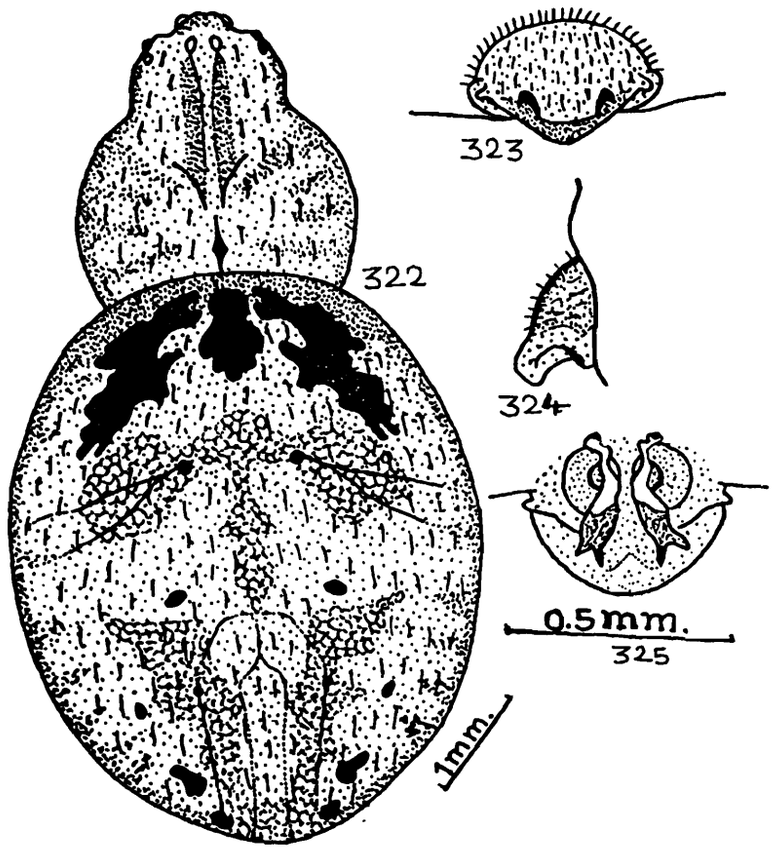
1981. *Neoscona elliptica* Tikader & Bal. *Rec. zool. Surv. India, Occ. Pap.*, **24** : 24.

Material examined : 1 ♀, Sanjeevani Nagar, Jabalpur, Coll. *Pawan Gajbe*, 12.X.1997.

General : Cephalothorax and legs light yellowish, abdomen light brown. Total length 7.40 mm. Carapace 2.65 mm. long, 2.50 mm. wide, abdomen 5.10 mm. long, 4.20 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with pubescence and hairs ; thoracic region more lighter in colour and provided with distinct longitudinal groove ; mid-longitudinal portion of carapace rather darker as in fig. 322. Ocular quad slightly longer than wide as in front, wider in front than behind as in fig. 322; Eyes pearly white except the anterior medians; posterior medians eyes slightly larger than posterior laterals. Posterior median eyes encircled by black rings; lateral eyes close and sub-equal in size ; both rows of eyes recurved as in fig. 322. Sternum heart-shaped, pointed behind, light greenish yellow with median pale area, clothed with hairs. Labium slightly wider than long, brownish in colour with pale distal margin. Maxillae broad, yellowish provided with distinct scopulae. Chelicerae strong, yellowish brown, provided with distinct boss. Legs moderately long and strong, clothed with hairs and spines, light yellowish in colour, only distal end of tarsi having brown bands.

Abdomen : Elliptical, roundish at both ends, longer than wide, clothed with pubescence and hairs as in fig. 322. Dorsum of abdomen with yellowish brown in the middle and a few blackish spots and patches as in fig. 322 ; lateral sides



Figs. 322-325 : *Neoscona elliptica* Tikader & Bal. 322. Dorsal view of female, legs omitted; 323. Epigyne, ventral view; 324. Epigyne, lateral view; 325. Internal genitalia.

rather deep brownish with some brown inwards lines and four pairs of distinct sigilla arranged mid-longitudinally. Ventral side deep brown in colour with a median broad darker patch guarded by a pair of chalk white patches in between epigastric furrow and spinnerets. Epigyne having a very short, broad, triangular scape and one pair of indistinct lateral lobes as in figs. 323 & 324. Internal genitalia as in fig. 325.

Distribution : India : Koregaon Park (Type-locality) Poona, Maharashtra.

Remarks : This species is being reported here for the first time from M.P.

121. *Neoscona molemensis* Tikader & Bal

1981. *Neoscona molemensis* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 22.

1982. *Neoscona molemensis* : Tikader, *Fauna of India, Spiders*, **2**(1) : 257.

Material examined : 1♀, Tondabeda village near Orchha, Bastar dist., Coll. *U. A. Gajbe*, 29.XII.1983. (Reg. No. A/1701).

Distribution : India : Goa, M.P.

Remarks : This species is being reported here for the first time from M.P.

122. *Neoscona laglaizei* (Simon)

1877. *Epeira laglaizei* Simon, *Annals. Soc. Ent. Fr.* **7**(5) : 77.

1900. *Araneus laglaizei* : Pocock, *Fauna Brit. India, Arach.*, : 224.

1981. *Neoscona laglaizei* : Tikader & Bal, *Rec. zool. Surv. India, Occ, Pap.*, **24** : 27.

1982. *Neoscona laglaizei* : Tikader, *Fauna of India, Spiders*, **2**(1) : 263.

Material examined : 2♀, Junardeo, Chindwara dist., Coll. *R. K. Singh*, 16.IX.1991. (Reg. No. A/2336). 3♀, 1♂, Bharatadeo, Chindwara dist., Coll. *R. K. Singh*, 15.IX.1991. (Reg. No. A/2337). 1♀, Parasia, Chindwara dist., Coll. *R. K. Singh*, 15.IX.1991. (Reg. No. A/2338). 1♀, Umaranala, Chindwara dist., Coll. *R. K. Singh*, 17.IX.1991. (Reg. No. A/2339). 2♀, Pahadgarh, Morena dist., Coll. *R. K. Singh*, 15.IX.1994. 4♀, Fish breeding center, Morena, Coll. *R. K. Singh*, 4.IX.1994. 1♀, Bhairavgarh, Ujjain, Coll. *R. K. Singh*, 30.VIII.1990.

Distribution : India : Tamil Nadu, M.P.

Elsewhere : Sri Lanka, Myanmar, Java, Indo and Austro-Malaysia.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

123. *Neoscona poonaensis* Tikader & Bal

1981. *Neoscona poonaensis* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 29.

1982. *Neoscona poonaensis* : Tikader, *Fauna of India, Spiders*, **2**(1) : 265.

Material examined : 1♀, Around Mahuakhera, Rater village (Patalkot), Chindwara dist., Coll. *R. K. Singh*, 19.X.1992. (Reg. No. A/2326). 8♀, Morena town, Morena dist., Coll. *R. K. Singh*, 14.IX.1994.

Distribution : India : Maharashtra, West Bengal, M.P.

Remarks : This species is being reported here for the first time from M.P.

124. *Neoscona sinhagadensis* (Tikader)

1975. *Araneus sinhagadensis* Tikader, *Proc. Indian. Acad. Sci.*, **81**(4) : 146.

1981. *Neoscona sinhagadensis* Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, **24** : 30.

Material examined : 3♀, 2♂, Around Mahuakhera, Rater village, Patalkot, Chindwara dist., Coll. *R. K. Singh*, 19.X.1992. (Reg. No. A/2325). 4♀, 2♂, Kachnara, Mandsaur dist., Coll. *H. P. Agrawal*, 20.X.1990. 4♀, 3♂, Sangar, Damoh dist., Coll. *H. P. Agrawal*, 14.X.1992. 1♀, Sailana, Ratlam dist., Coll. *R. K. Singh*, 21.VIII.1990. 2♀, 4♂, Malthon, Sagar dist., Coll. *H. P. Agrawal*, 12.X.1992. 5♀, 3♂, Banda, Sagar dist., Coll. *H. P. Agrawal*, 15.X.1992. 6♀, 5♂, Garhakota, Sagar dist., Coll. *H. P. Agrawal*, 16.X.1992. 3♀, 2♂, Ater village, Bhind dist., Coll. *R. K. Singh*, 20.IX.1994. 1♀, Jagvednagar, Morena dist., Coll. *R. K. Singh*, 6.IX.1994. 1♀, Manendragarh, Sarguja dist. Coll. *H. P. Agrawal*, 8.X.1991. 1♀, Shohara village, Chattarpur dist., Coll. *R. K.*

***Singh*, 3.X.1993. 9♀, 1♂, Katuria village, Chattarpur dist., Coll. *R. K. Singh*, 3.X.1993. 1♀, Tikeshwar, Tarana, Ujjain Dist., Coll. *R. K. Singh*, 2.IX.1990. 3♀, Bikram garden, Ujjain, Coll. *R. K. Singh*, 6.IX.1990. 9♀, 6♂, 3 Km. From Bus Stand on Naogaon road, Chattarpur, Coll. *R. K. Singh*, 6.X.1993. 1♀, 1♂, Hulki on Jabalpur-Nagpur road, Jabalpur dist., Coll. *U. A. Gajbe*, 30.X.1985. 2♀, Gandhisagar Mandsaur, Coll. *R. K. Singh*, 17.VIII.1990.**

Distribution : India : Maharashtra, M.P.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

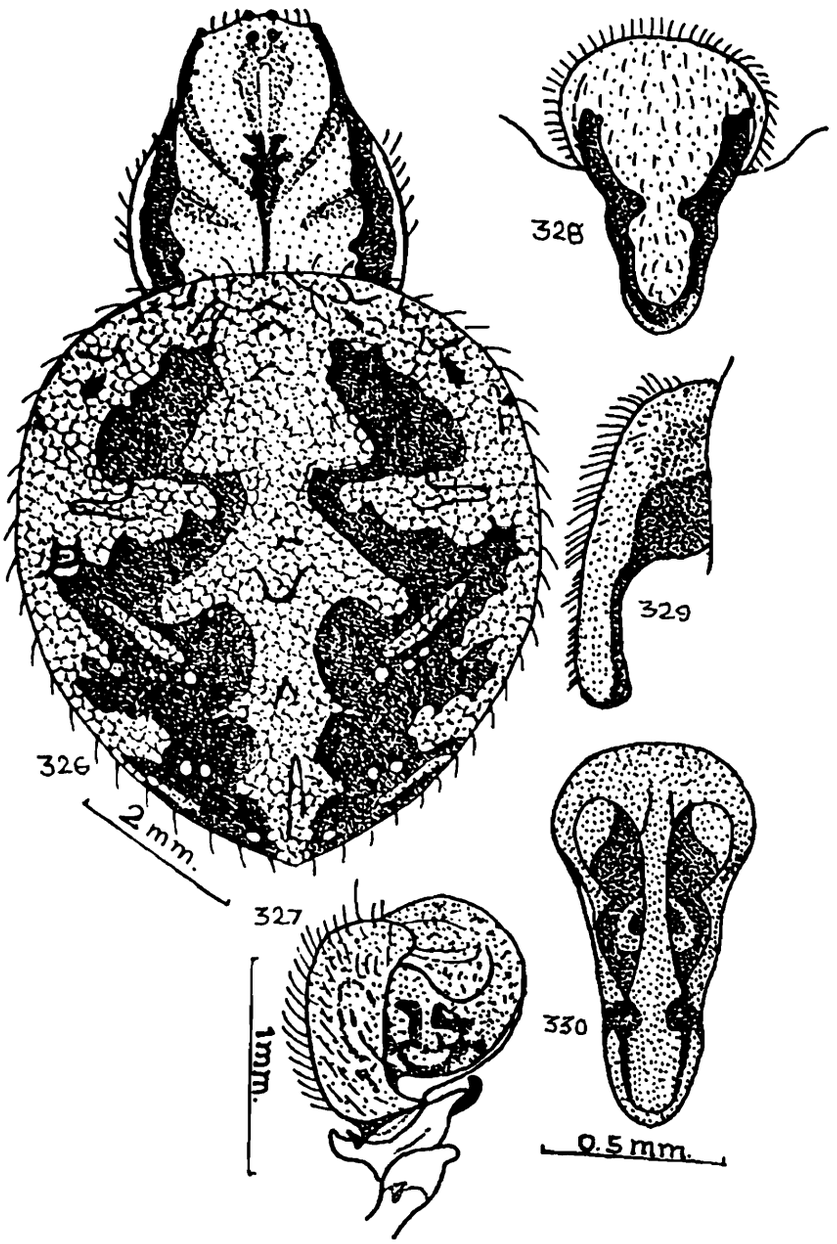
125. *Neoscona theis* (Walckenaer) (Figs. 326–330)

1841. *Epeira theis* Walckenaer, *Hist. Nat. Ins. Apt.*, **2** : 53.

1975. *Araneus theis* : Patel, "*Vidya*", *J. Gujarat Univ.*, **18**(1) : 158.

1981. *Neoscona theis* Tikader & Bal, *Rec. zool. Surv. India. Occ. Pap.*, **24** : 32.

Material examined : 7♀, 2♂, Umaranala, Chindwara dist., Coll. *R. K. Singh*, 17.IX.1991. (Reg. No. A/2331). 10♀, Horticulture garden Bhind, Coll. *R. K. Singh*, 17.IX.1994. 1♀ Kumhari village near Bhaurai, Bastar dist., Coll. *Y. N. Gupta*, 2.XII.1988. 1♀, 4♂, Angara village,



Figs. 326-330 : *Neoscona theis* (Walckenaer). 326. Dorsal view of female, legs omitted; 327. Left male palp, lateral view; 328. Epigyne, ventral view; 329. Epigyne, lateral view; 330. Internal genitalia.

Tikamgarh dist., Coll. *R. K. Singh*, 26.IX.1993. 3♀, 3♂, Awasthi farm house, Chattarpur, Coll. *R. K. Singh*, 5.X.1993. 1♀, 4Km. From Bus Stand on Sagar Road, Chattarpur, Coll. *R. K. Singh*, 7.X.1993. 1♀, Badnagar, Ujjain dist., Coll. *R. K. Singh*, 5.IX.1990. 1♀, Mudali village Motinagar, Mandasaur dist., Coll. *R. K. Singh*, 14.VIII.1990. 1♂, Nimach, Mandasaur dist., Coll. *H. P. Agrawal*, 31.IX.1990. 1♀, 1♂, Rahimgarh, Mandsaur dist., Coll. *H. P. Agrawal*, 27.X.1990. 1♀, Mangalnath, Ujjain dist., Coll. *R. K. Singh*, 10.IX.1990. 1♀, Bhairavgarh, Ujjain dist., *R. K. Singh*, 30.VIII.1990.

General : Cephalothorax and legs yellowish brown, abdomen brownish white. Total length 9.80 mm. Carapace 3.30 mm. long, 3.20 mm. wide ; abdomen 6.80 mm. long, 5.70 mm. wide.

Cephalothorax : Longer than wide, narrowing in front, clothed with pubescence and hairs, provided with two laterals and one median longitudinal dark brown bands ; thoracic region provided with distinct longitudinal groove. Ocular quad longer than wide and wider in front than behind as in fig. 326. Anterior median eyes larger than posterior medians ; lateral eyes close ; both rows of eyes slightly recurved as in fig. 326. Sternum heart-shaped, pointed behind, clothed with pubescence and hairs, dark brown, provided with a conspicuous mid-longitudinal bar. Labium wider than long, dark brown. Maxillae longer than wide, dark brown in colour with prominent boss. Legs long and strong, clothed with hairs and spines, provided with transverse black bands. Male palp as in fig. 327.

Abdomen : Sub-oval, longer than wide, anterior end wider than posterior end, clothed with pubescence and hairs over lapping on the cephalothorax. Dorsum of abdomen provided with a conspicuous mid-longitudinal chalk white bar having four pairs of lateral projections as in fig. 326. Lateral sides of this bar guarded by deep brown or black patches as in fig. 326. Four pairs of sigilla present on the dorsum, arranged mid-longitudinally. Ventral side light brownish, mid-ventrally having a deep brown band patch in between epigastric furrow and the spinnerets, lateral side of this patch guarded by chalk white patches. Scape of the epigyne provided with prominent rim and a constriction at the middle ; one pair of lateral lbes present as in figs. 328 & 329. Internal genitalia as in fig. 330.

Distribution : India : Poona, Maharashtra, Orissa, Gujarat, West Bengal, Guam (Type-locality).

Elsewhere : Mariana Island. South New Guinea.

Remarks : This species is being reported here for the first time from M.P.

126. ***Neoscona odites*** (Simon)

1906. *Araneus odites* Simon, *Annls. Soc. Ent. Fr.*, **75** : 308.

1981. *Neoscona odites* : Tikader & Bal, *Rec. zool. Surv. India. Occ. Pap.*, **24** : 36.

1982. *Neoscona odites* : Tikader, *Fauna of India, Spiders*, **2**(1) : 274.

Material examined : 1♀Chorai, Chindwara dist. Coll. *R. K. Singh*, 11.IX.1991. (Reg. No. A/2340). 1♀, Patalkot, Chindwara dist. Coll. *R. K. Singh*, 15.IX.1991. (Reg. No. A/2341). 2♂, Chandameta, Chindwara dist., M.P. Coll. *R. K. Singh*, 17.IX.1991. (Reg. No. A/2343).

Distribution : India : Sikkim, Assam, M.P.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

127. ***Neoscona pavida*** (Simon)

1906. *Araneus pavida* Simon, *Annls. Soc. Ent. Fr.*, **75** : 309.

1982. *Neoscona pavida* : Tikader, *Fauna of India, Spiders*, **2**(1) : 276.

Material examined : 1♀, Chandamata, Chindwara dist., Coll. *R. K. Singh*, 13.IX.1991. (Reg. No. A/2335).

Distribution : India : West Bengal, M.P.

Elsewhere : Pakistan.

Remarks : This species is being reported here for the first time from Madhya Pradesh.

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ACARI : PLANT MITES

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INTRODUCTION

Plant mites play an important role in agriculture. Madhya Pradesh is one of the biggest state in India as far as area is concerned. The fauna of Madhya Pradesh represents three families of phytophagous mites and two families of predatory mites. The phytophagous are plant feeders causing various types of damages like loss of chlorophyll, bronzing of foliage and stunting of growth while the predatory mites, act as our friends by predating upon phytophagous mites. The families like Tetranychidae commonly known as spider mite. Tenuipalpidae commonly known as false spider mite and Tarsonemidae known as glossy mite are the phytophagous mites and families like Cunaxidae known as reddish mite and the Phytoseiidae known as creamish white mite are the predatory mites. Both the phytophagous and predatory mites are of considerable, economic importance attacking all the major vegetable, fruit crops and wild plants.

This project of presenting a detail faunal account under the state fauna of Madhya Pradesh w. s. r. to plant mites was undertaken in 1988 and since then a number of both intensive and extensive surveys were conducted by the author during the period from 1983 to 1999 in different districts of Madhya Pradesh, viz. Bastar, Betul, Bhind, Chhindwara, Damoh, Datia, Dhar, Guna, Gwalior, Hoshangabad, Jabalpur, Khandwa, Khargone, Mandsaur, Morena, Raigarh, Raipur, Raisen, Rajgarh, Rajnandgaon, Ratlam, Sagar, Sarguja, Shahdol, Shivpuri and Ujjain. Dr. S. K. Gupta, ex-Joint Director of our department also surveyed different districts of Madhya Pradesh during 1975. All the materials were studied by author. The published information on plant mite fauna from the Madhya Pradesh state are : Bindra and Kittur. (1961), Gupta and Gupta (1978), Gupta (1985), Sadana (1985), Gupta (1986), Gupta and Gupta (1974) and Gupta (1997), reported 2, 10, 4, 12, 5, 8 and 9 species respectively. A total of 36 species belonging to 15 genera under 5 families and two orders are included here which includes 26 district of Madhya Pradesh. Out of these 13 species are reported for the first time from the state.

The systematic account here provides the original reference, important synonymies, diagnosis, material examined, distribution and keys to the fauna for diagnosis of each species. References may be made to Gupta (1985). The entire material treated here is deposited in the Central Regional Station, Zoological Survey of India, Jabalpur.

MATERIAL AND METHODS

Collection : Most of the mites were directly collected in the field by examining the leaves and plant parts with the help of a hand lens of 10 magnification and mites were picked up with a fine hair brush moistened with alcohol. Most of the plants were got identified by specialist.

Preservation : All the mites were preserved in 70% alcohol.

Mounting : The mites were first mounted in a drop of lactic acid on a slide and small broken

piece of cover slip was put over it and then the slide was gently warmed over on electric bulb (40 Watt) for a few seconds. This made the specimen clear with stretched appendages enabling to examine the various taxonomic characters present in the specimens. The aedeagus of the male is also characteristic of the family Tetranychidae and is very important for species separation. After identification the specimen were returned back in tubes containing 70% alcohol giving labels regarding identification and collection data.

SYSTEMATIC ACCOUNT

Order PROSTIGMATA

Family TETRANYCHIDAE

Subfamily BRYOBIINAE

Tribe **Petrobini**

Genus ***Petrobia***

Subgenus ***Petrobia***

1. *Petrobia (Petrobia) latens* (Muller)

Subfamily TETRANYCHINAE

Tribe **Eurytetranychini**

Genus ***Aponychus***

2. *Aponychus corpuzae* Rimando

Genus ***Eutetranychus***

3. *Eutetranychus anneckei* Meyer
4. *Eutetranychus bredini* Baker & Pritchard
5. *Eutetranychus maximae* Nassar & Ghai
6. *Eutetranychus nagai* Nassar & Ghai
7. *Eutetranychus orientalis* (Klein)
8. *Eutetranychus phaseoli* Nassar & Ghai

Tribe **Tetranychini**

Genus ***Eotetranychus***

9. *Eotetranychus frosti* (McGregor)
10. *Eotetranychus hirsti* Pritchard & Baker
11. *Eotetranychus syzygii* Gupta & Gupta

Genus ***Schizotetranychus***

12. *Schizotetranychus andropogoni* (Hirst)
13. *Schizotetranychus hindustanicus* (Hirst)

Genus ***Oligonychus***

14. *Oligonychus biharensis* (Hirst)
15. *Oligonychus coffeae* (Neitner)
16. *Oligonychus indicus* (Hirst)
17. *Oligonychus iseilemae* (Hirst)
18. *Oligonychus mangiferus* (Rahman & Sapra)
19. *Oligonychus punicae* (Hirst)
20. *Oligonychus sacchari* (McGregor)

Genus ***Tetranychus***

21. *Tetranychus cinnabarinus* (Boisd.)
22. *Tetranychus neocaledonicus* Andre
23. *Tetranychus macfarlanei* Baker & Pritchard
24. *Tetranychus urticae* Koch

Family TENUIPALPIDAE

Genus ***Brivipalpus***

25. *Brivipalpus phoenicis* (Geij.)

Genus ***Raoiella***

26. *Raoiella indica* (Hirst)

Genus ***Tenuipalpus***

27. *Tenuipalpus aboharensis* Sadana & Chhabra
28. *Tenuipalpus punicae* Pritchard & Baker

Family TARSONEMIDAE

Genus ***Polyphogotarsonemus latus***

29. *Polyphagotarsonemus latus* (Banks)

Family CUNAXIDAE

Genus ***Cunaxa***

30. *Cunaxa setirostris* (Hermann)

Order MESOSTIGMATA

Family PHYTOSEIIDAE

Subfamily AMBLYSEIINAE

Genus ***Amblyseius***

Subgenus ***Euseius***

31. *Amblyseius (Euseius) alstoniae* Gupta
32. *Amblyseius (Euseius) coccineae* Gupta

Subgenus ***Typhlodomalus***

33. *A.. (Typhlodomalus) kalimpongensis*

Subfamily PHYTOSEIINAE

Genus ***Phytoseius***

Subgenus ***Pennaseius***

34. *Phytoseius (Pennaseius) kapuri* Gupta

Subgenus ***Phytoseius***

35. ***Phytoseius (Phytoseius) macrosetosus*** Gupta

Genus ***Typhlodromus***

Subgenus ***Orientiseius***

36. ***Typhlodromus (Orintiseius) rickeri*** Chant

CLASSIFICATION

The plant mites dealt within this paper belong to 2 orders, viz. Prostigmata and Mesostigmata. These orders can be separated with help of the following key (based on Evans and Till, 1979).

Key to the orders and families of PLANT MITES

1. Chelicera 3 segmented, chelate, dentate, modified movable digit of male chelicera often bears spermatophoral process. Palpi 5 segmented, tectum present. A pair of stigmata present dorsolaterally in the region of coxae II-IV. Peritreme extends anteriorly as a tube. Holodorsal shield in both sexes marked by hypotrichous Mesotigmata .... Family PHYTOSEIIDAE

– Chelicera may be chelate, stylet or reduced palp simple or fang like or with a palp tribal claw. A pair of stigmata on or near the gnathosoma, some with no discrete stigmal opening. Trachea when present opening by paird stigmata on or near the gnathosoma, some with no discrete stigmal opening. Trachea when present opening by paired stigmata situated between the chelicerae or on to the dorsal surface of the propodosoma and often with associated peitreme. Stigmata never situated to coxae II-IV. Prostigmata 2

2. Gnathosoma usually circular with minute palpi lying closely appressed laterally, chelicera tiny, stylet like, with 4 pairs of legs stigmata of female open on propodosoma behind gnathosomal base, males without stigmata or trachae. Leg IV of female without claws or empodium with two terminal whip like setae Sup. Family Tarsonemoidea .... Family TARSONEMIDAE

– Gnathosoma variously shaped, generally conspicuous and with distinct chelicerae, palpi usually well developed Embodia usually variable. Stigmata opens at base of chelicerae Sup. Family Tetranychoidea 3

3. Chelicera whip like and long, genital aperture transverse, plant feeders .... Family TENUIPALPIDAE

– Chelicera with opposed stylet or scissors like free living plant feeders 4

4. Cheliceral bases not fused, the chelicerae moving scissors like over gnathosoma with two pairs of genital discs, palpi extending beyond gnathosoma or shorter and approximately equal to the chelae in length with distal segment adopted for grasping ... . Family CUNAXIDAE

– Cheliceral bases closely contiguous or fused with each other but not generally with gnathosoma. Peritreme usually present on anterior portion of propodosoma, plant feeders. Each claw terminating in a pair of tenent hairs. Empodia claw like or pad like ..... Family TETRANYCHIDAE

PHYTOPHAGOUS MITES

Family TETRANYCHIDAE Donnadieu

1875. Tetranychidae Donnadieu, *Faculty des sciences de lyon*, : 9.

History : Donnadieu (1875) erected this family. Pritchard and Baker (1955) published excellent work on the family Tetranychidae. The important taxonomic contributions worth mentioning are: Baker and Pritchard (1960), Gutirrez (1966-70), Ehara (1956-78), Manson (1963, 67, 67a, 67b), Meyer (1965, 74), Tuttle and Baker (1964, 68), etc. and over 800 species are known from the world. Gupta and Gupta (1994) listed 87 valid species from India.

Diagnosis : Mites of this family are soft bodied. Normally they are of various colour and inhibit under surface and some times upper surface of leaves as well. They are plant feeders and are plant pests. Chelicerae movable stylet like set in

stylophore which is formed by fusion of cheliceral bases, palpi : 4 Segmented with strong claw. Propodosoma with 3-4 pairs of setae; hysterosoma with 8-13 pairs of setae. Tarsi of legs 1-11 with duplex setae. Tenent hairs present on tarsal claws. Empodium well developed, reduced or absent with or without tenent hairs. Aedeagus of male is characteristic in separating the species.

Key of the subfamilies, tribes and genera of TETRANYCHIDAE

1. Empodium uncinate with tenent hairs Subfamily Bryobiinae ..... ***Petrobia***
- Empodium without tenent hairs Subfamily Tetranychinae 2
2. Tarsus I dorsally with a single pair of usually associated duplex setae; if 2 pairs of closely associated duplex setae present, then tarsus II still without closely associated duples setae, ewpodium claw like or rudimentary ..... Eutetranychini, 3
- Tarsus I dorsally with 2 pairs if closely associated duplex setae; empodum claw like or splits distally 4
3. With 2 pairs of anal setae... ***Eutetranychus***
- With I pair of anal setae ..... ***Aponychus***
4. With 2 pairs of preanal setae 5
- With I pair of preanal setae 6
5. Empodium claw like ..... ***Eotetranychus***
- Empldium splits distally ***Schizotetranychus***
6. Empodium claw like with proximoventral hairs, duplex setae on tarsus I distal and proximate ..... ***Oligonychus***
- Empodium splits distally usually into three pairs or hairs, duplex setae on tarsus I well developed ..... ***Tetranychus***

Tribe **Petrobiini Reck**

1952. Petrobiini Reck, *Soobshch Akad. Nauk gruz.*, **13**(7) : 423.

Genus ***Petrobia*** Murray

1877. *Petrobia* Murray, *Economic Entomology, Aptera, Lond.*, : 118.

Subgenus ***Petrobia*** Murray

1877. *Petrobia* Murray, *Economic Entomology, Aptera, Lond.*, : 118.

1. ***Petrobia (Petrobia) latens*** (Muller)

1776. *Acaras latens* Muller, *Zool. Dan. Produ.*, : 187.

1915. *Petrobia latens*, Oudmons, *Arach., Naturg.*, **81** : 1-78.

1994. *Petrobia (Petrobia) latens*, Gupta and Gupta, *Mem. zool. surv India*, **180** : 24-26

Diagnosis : Dorsal setae which set on tubercles and are shorter than their longitudinal intervals The anterior pair of legs being much longer than body. Empodium with claw like structure.

Material examined : This species is included on the basis of the literature review.

Distribution : India : Madhya Pradesh (Gwalior), Bihar, Delhi, Haryana, Jammu and Kashmir, Punjab, Rajasthan, Uttar Pradesh,

Elsewhere : Africa, Australia, Egypt, Europe, Japan, Pakistan, South Africa, U.S.A.

Remarks : This is a very serious pest of wheat. The leaves turn drying from tip backwards affecting growth of the crops.

Genus ***Aponychus*** Rimando

1966. *Aponychus* Rimando, *Philip Agri.*, **50** : 105.

2. ***Aponychus corpuzae*** Rimando

1966. *Aponychus corpuzae* Rimando, *Philip Agri.*, **50** : 105.

1985. *Aponychus corpuzae*, Gupta, *Handbook : Plant Mites of India*, : 59.

1994. *Aponychus corpuzae*, Gupta, *Mem. zool. Surv. India*, **18**(1) : 41-43.

Diagnosis : Body dorsoventrally compressed; dorsal integument wrinkled; dorsal idiosomal setae serrate, long and spatulate genital flap wrinkled. Terminal sensillum of palp slender, subconical.

Material examined : 3♂♂, 13♀♀, Dist Mandsaur, Neemach, ex wild plant, 4.11.1990; 39 exs, Dist. Sagar, Rehli, ex bamboo 15.1.1994.

Distribution : India : Madhya Pradesh (Mandsaur, Sagar), Andaman and Nicobar isls.,

Assam, Meghalaya, Orissa, West Bengal,

Elsewhere : Philippines, Thialand, Japan.

Remark : This is the first report of this species from Madhya Pradesh No Significant damage caused by this species was noticed.

Genus *Eutetranychus* Banks

1917. Neotetranychus (*Eutetranychus*) Banks, *Ent. News.*, **28** : 197.

1950. *Eutetranychus* McGregor, *Am. Midl. Nat.*, **44** : 187.

Key to the species of Eutetranychus

1. Striae forming v, pattern between second and third pair of dorsocentral hysterosomal setae 2

– Striae longitudinal between second and third pair of dorsocentral hysterosomal setae 4

2. Dorsocentral hysterosomal setae relatively much longer, reaching to the bases of setae next behind; third setae even going beyond the basis of fourth pair .... *maximae* Nassar & Ghai

– Dorso central hysterosomal setae very short not reaching to the bases of setae next behind 3

3. Propodosomal medio dorsal striae with less developed lobes. Third pair of dorsolateral setae tapering third and fourth dorsocentral hysterosomal setae forming a rectangle .... *Phaseoli* Nassar & Ghai

– Propodosomal mediodorsal striae with well developed lobes, third pair of dorsolateral setae similar to other lateral setae, third and fourth dasocentral hysterosomal setae forming a square ..... *orientalis* (Klein)

4. Propodosoma with mediodorsal striae anastomosing. Dasal setae set on small tubercles, slender and enlarged distally .... *bredini* Baker & Pritchard.

– Propodosoma with mediodorsal striae not anastomosing longitudinal striae starting at the bases of second pair of dersocentral hysterosomal setae 5

5. First pair of dorsolateral setae situated anterior to first pair of dorsocentral setae .... *nagai* Nassar & Ghai

– First pair of dorsolateral setae situated at the level of first pair of dorsocentral setae .... *anneckei* Meyer

3. *Eutetranychus anneckei* Meyer

1974. *Eutetranychus anneckei* Meyer, *Ent. Mem. Dept. Tech. Serv. Repub. S. Afr.*, **36** : 148.

1981. *Eutetranychus anneckei*, Nassar and Ghai, *Oriental Ins.*, **15 (4)** : 349-351.

Diagnosis : This species is close to *E. orientalis* but can be separated from it by having striae between second and third Pairs of dorsocentral hysterosomal not V shaped. The terminal sensillum on the palp tarsus of male about 2 times as long as its greatest thickness.

Material examined : 3♂♂, 4♀♀, Dist Bastar, Naiapara, konta, ex flowering plant, 24.4.1988; 35♀♀, Dist. Bhind, Forest Nursery, ex neem, 11.1.1995.

Distribution : India : Madhya Pradesh (Bastar, Bhind), Delhi.,

Elsewhere : Mozambique.

Remarks : No damage is caused by this mite.

4. *Eutetranychus bredini* Baker & Pritchard

1960. *Eutetranychus bredini* Baker and Pritchard, *Hilgardia*, **29** : 466-467.

1974. *Eutetranychus bredini*, Singh and Putatunda, *Indian J. Pt. Prot.*, **1** : 51.

Diagnosis : Setae on mediodorsal integument of propodosoma anastomosing. Lobes of striae strongly developed. Peritreme gradually enlarging distally. Dorsal setae on strong tubercles.

Material examined : 3♂♂, 45♀♀, Dist Betul, Sampana Lake, ex lemon, 28.1.1989; 3♂♂, 45♀♀, Dist. Damoh, Singorgarh, ex kaner, 22.10.92; Sev exs., Dist Raipur, Near Bus stand, ex flowering plant, 2.12.1991.

Distribution : India : Madhya Pradesh (Betul, Damoh, Raipur), Uttar Pradesh.

Elsewhere : Africa.

Remarks : It causes no damage to the host and no information is available as to its bionomics.

5. ***Eutetranychus maximae*** Nassar and Ghai

1981. *Eutetranychus maximae* Nassar and Ghai, *Oriental Ins.*, **15**(4) : 339.

1985. *Eutetranychus maximae*, Gupta, *Handbook; Plant mites of India*, : 65.

Diagnosis : Male not known dorsum with three pairs of propodosomals and 10 pairs of hysterosomal setae set on strong tubercles having long, serrate and rod like. Striae between second and third pairs of dorsocentral hysterosomals forming a V pattern. Ventrally genital area with simple setae having 1 pairs of pregenital and two pairs each of genital, anals and paraanal setae.

Material examined : 50 exs., Dist ujjain, Near Shipra River, ex undertermined plant, 3.11.1990

Distribution : India : Madhya Pradesh (Ujjain), Delhi.

Remarks : This species is close to *E. orientalis* (Klein) but differs in having irregular V shaped pattern between 2nd and 3rd pair of dorsocentral hysterosomals. Dorsal setae long and mostly rod like.

6. ***Eutetranychus nagai*** Nassar and Ghai

1981. *Eutetranychus nagai* Nassar and Ghai, *Oriental Ins.*, **15** (4) : 347-349.

1985. *Eutetranychus nagai*, Gupta, *Handbook* : *Plant mites of India*, : 65.

Diagnosis : Three pairs of propodosomal and 10 pairs of hysterosomal setae on prominent tubercles on dorsum except humerals and dorsocentrals. All setae strongly serrate and varying in length. Propodosoma having longitudinal striae, strongly lobed. Peritreme terminating in a big bulb. Male not known.

Material examined : 4♂♂, 32♀♀, Dist Damoh, Singorgarh, ex neem, 22.10.1992; 1♂, 14♂♂, Dist. Ujjain, Ujjain its surroundings, ex undetermined plant, 8.11.1990.

Distribution : India : Madhya Pradesh (Damoh, Ujjain), Delhi.

Remarks : This species is close to *E. africanus* (Tucker) but differs in having terminal sensillum on palptarsus about 4 times as long as broad. This species is dark green in colour.

7. ***Eutetranychus orientalis*** (Klein)

1936. *Anychus orientalis* Klein, *Bull agric. Res. Stn. Rehovoth*, **21** : 3.

1940. *Anychus ricini*, Rahman and sapra, *Proc. Indian Acad sci.*, **11** : 184.

1985. *Eutetranychus orientalis*, Gupta, *Handbook* : *Plant mites of India*, : 66-67.

Diagnosis : Dorsal striae on propodosoma parellel and lobed. Dorsal setae short, broad and set on small tubercles. Lateral setae longer than dorsomedian setae, slightly spatulate. In case of male tarsus I with I sensony and II tactile; tarsus II with I sensory and II tactile setae. Where as tibia I with 2 sensory and 3 tactile setae; tarsus I with 1 sensory and 14 tactile setae; tibia II with I sensory and 5 tactile setae in the case of female. Aedeagus hook like with distal bent longer than dorsal margin of shaft which is slightly concave.

Material examined : 1♂, 12♀♀, Dist. Bastar, Rest House Compound, ex wild plant, 2.11.1984; 2♂♂, 25♀♀, Dist. Betul, Nehru Park, ex neem. 20.11.1989; 3♂♂, 21♀♀, Dist. Betul, Nehru Park, ex citrus, 26.11.1989; 1♂, 14♀♀, Dist. Betul, Sampana lake, ex wild plant, 28.11.1989; 3♂♂, 25♀♀, Dist. Betul, Amla proper, ex neem, 30.11.1989; 5♂♂, 30♀♀, Dist. Betul, Amla North, ex unidentified plant, 2.12.1989; 2♂♂, 25♀♀, Dist. Bhind, Govt. Garden, ex mango, 12.1.1995; 25 exs., Dist. Bhind, Gohal, ex citrus, 15.1.1995; 35♀♀, Dist. Chhindwara, Parasia, ex wild Plant, 19.11.1989; 10♂♂, 10♀♀, Dist. Chhindwara, Pandhurna, ex citrus, 22.11.1989; 25 exs., Dist. Chhindwara, Near Pandurna Rly. Stn., ex neem, 23.11.1989; 2♀♀, Dist. Chhindwara, Pandurna, North, ex wild plant, 24.11.1989; 5♂♂, 35♀♀, Dist. Damoh, Bandakpur, undetermined plant, ex kaner, 20.10.1992; 5♂♂, 35♀♀, Dist. Damoh, Bandakpur, ex kanar, 20.10.1992; 25 exs., Dist.

Damoh, Singorgarh, ex wild plant, 22.10.1992; sev. ♂♂, Dist. Dhar, Mandu, forest farm, ex castor, 2.5.1975, coll. S. K. Gupta; 50♀♀, Dist. Dhar, Mandu, ex peach, 3.5.1975, coll. S.K. Gupta; 10♀♀, Dist. Dhar, Mandu, ex rose, 13.5.1975; 1♂, 29♀♀, Gwalior, Tighra, ex flowering plant, 24.8.1984; sev. exs., Dist. Gwalior, Pohari, ex wild plant, 23.1.1985; sev. exs., Dist. Gwalior, ex. neem, 23.1.19851 15♀♀, Dist. Hoshangabad, Pachmarhi, ex citrus, 28.4.1975, coll. S.K. Gupta; 10♀♀, Dist. Hoshangabad, Pachmarhi, ex coranaria, 11.5.1975, coll. S.K. Gupta; 16♂♂, 2♀♀, Dist. Jabalpur, C.R.S. compound, ex wild plant, 3.12.1984; 15♂♂, Dist. Jabalpur, Napier Town, ex wild plant, 12.12.1984; 15 exs., Dist. Khandwa, Pandhana, ex neem, 16.1.1999; 35♀♀, Dist. Khargone, Nuteen Nagar, ex neem, 21.1.1999, 9 exs., Dist. Khargone, Govt. Botenical Garden, ex citrus, 21.1.1999; 7♀♀, Dist. Khargone, Sandwa, Ram Laxaman Batika, ex papaya, 26.1.1999; 2♂♂, 2♀♀, Mandsaur, ex undetermined plant. Agr. Farm, ex citrus, 8.5.1975, coll. S.K. Gupta; 2♂♂, 20♀♀, Dist. Mandsaur, Dhochar, ex *Taliernacmontana caronaria*, 9.5.1975, coll. S.K. Gupta, 2♂♂, 12♀♀, Dist. Mandsaur, Ratangarh, ex undetermined plant, 27.10.1990; 4♂♂, 4♀♀, Dist. Mandsaur, Ratangarh, ex equleptus plant leaves, 27.10.1990; 5♂♂, 18♀♀, Dist. Mandsaur, Pipalia, ex neem 31.10.1990; 30 exs., Dist. Mandsaur, Neemach, ex undetermined plant, 1.11.1990; 60 exs., Dist. Mandsaur, Neemach, ex unidentified plant, 2.11.1990; 20 exs., Dist. Raigarh, Bhonder, ex unidentified plant, 24.9.1991; 1 ex., Dist. Raisen, Near Betwa River, ex grass; 15 exs., Dist. Rajgarh, Jeerapur, ex neem, 10.10.1995. 10 exs., Dist. Ratlam, Piplod, ex undetermined plant, 23.10.1990; 40 exs., Dist Mandsaur, Ratlam Road, ex undetermined plant, 24.10.1990; 25 exs., Dist. Ratlam, ex undetermined plant, 24.10.1990; 20 exs., Dist. Sagar, Reheli, ex sweet neem, 19.10.1992; 6♂♂, 40♀♀, Dist. Sagar, Bina, ex wild plant, 5.1.1994; 35 exs., Dist. Sagar, Bina and vicinity, ex wild plant, 5.1.1994; 2♂♂, 13♀♀, Dist. Sagar, Bina, Khurai, ex neem, 6.1.1994; 34 exs., Dist. Sagar, Bina, ex rose, 7.1.1994; 5♂♂, Dist. Sagar, itwa Bhind Rood, ex wild plant, 9.1.1994; 200♂♂, 38♀♀, Dist. Sagar, Sagar and its vicinity, ex undetermined plant, 11.1.1994; sev. exs., Dist. Sagar, Sanoda, ex neem, 12.1.1994 5 exs., Dist. Sagar, Sanoda, ex neem, 12.1.1994; 2♂♂, 10♀♀, Dist. Sarguja, in and around Manindergarh, Ambikapur, ex kaner leaves. 10.10.1991; 4♀♀, Dist. Shivapuri, Nehru Park, ex fig; 15.5.1975 coll. S.K. Gupta 4♀♀, Dist. Shivpuri, Shivpuri National Park, ex fig. 15.5.1975, S. K. Gupta, Sev. exs., Dist. Shivpuri, ex. neem, 1.2.1985; 15 exs., Dist. Ujjain, Shipra River, ex ficus, 3.11.1990; 20 exs., Dist. Ujjain, Shipra River, ex Ficus, 3.11.1990; sev. exs., Dist. Ujjain, Devas Road, ex. Undetermined plant, 5.11.1990; 40 exs., Dist. Ujjain, Devas Road, ex undetermined plant, 5.11.1990; 10 exs., Dist. Ujjain, Arround Ujjain city, ex flowering plant, 8.11.1990.

Distribution : India : Madhya Pradesh (Bastar, Betul, Bhind, Chhindwara, Damoh, Dhar, Gwalior, Hoshangabad, Jabalpur, Khandwa, Khargone, Mandsaur, Raigarh, Raisen, Rajgarh, Ratlam, Sagar, Sarguja, Shivpuri, Ujjain), Maharashtra, Punjab, West Bengal, Gujrat, Haryana, Uttar Pradesh.

Elsewhere : Isreal, Turkey, Jordan, Iran, Egypt, Cyprus, Sudan, South Africa, Afghanistan, Pakistan, Taiwan, Thailand, Easl Transvall.

Remarks : This is a serious pest of a large variety of fruit trees including citrus and neem in India. It occurs on both the surfaces of leaves almost throughout the year and turns the affected leaves yellowish brown.

7. ***Eutetranychus phaseoli*** Nassar and Ghai

1981. *Eutetranychus Phaseoli* Nassar and Ghai, *Ins.*, 15(4) : 341-343.

1985. *Eutetranychus phaseoli*, Gupta, *Handbook : Plant mites of India*, : 67-68.

Diagnosis : All the dorsum setae set on prominent tubercles, mostly serrate Dorsocentral hysterosomals shorter than the interval between them. First pair of dorsocentral hysterosomals equal in length to fourth pair of dorsocentral hysterosomals and both longer than second and

third pairs of dorsocentral hysterosomal satae. Propodosomal striae with weak lobes. Hysterosomal striae also with weak lobes.

Material examined : 55 exs., Dist. Morana, Deori, ex ber, 5.1.1995; 3♂♂, 34♀♀, Dist. Sagar, Bhangarh, ex unidentified plant, 8.1.1994.

Distribution : India : Madhya Pradesh (Morana, Sagar), Delhi.

Remarks : No damage is noticed by this mite.

Genus ***Eutetranychus*** Oudemans

1931. *Eutetranychus* Oudemans, *Ent. Ber. Amst.*, **8**(178) : 224.

Key to species of *Eotetranychus*

1. Distal portion of aedeagus sigmoid .... *hirsti*
- Distal portion of aedeagus curved but not sigmoid 2
2. Shaft of aedeagus bending ventrad to form slender but not sigmoid ..... *syzygii*
- Shaft of aedeagus slender, sharply bent dorsad to become slightly sigmoid ..... *frosti*

9. ***Eotetranychus frosti*** (McGregor)

1952. *Tetranychus frosti* McGregor, *Proc. Soc. Wash.*, **54** : 142.

1955. *Eotetranychus frosti*, Pritchard and Baker, *pacific coast Ent. Soc. Mem. Ser.*, **2** : 199.

1994. *Eotetranychus frosti*, Gupta and Gupta, *Mem. zool. Surv. India*, **18** (1) : 63-64.

Diagnosis : Dorsal idiosomal setae long, gradually tapering posteriorly and twice as long as interval between their longitudinal bases. Aedeagus slender, sharply bent dorsad to become slightly sigmoid at the distal end. Striations on body very prominent. Medio ventral setae of moderate size.

Material examined : 10♂♂, 7♀♀, Dist. Raipur, Lavandi Agric Farm, 21.4.1974, ex citrus, coll. S. K. Gupta.

Distribution : India : Madhya Pradesh (Raipur), Gujarat, Himachal Pradesh, Jammu and Kashmir, *Elsewhere* : U.S.A.

Remarks : It Causes no damage to its host and no information is available as to its bionomics.

10. ***Eotetranychus hirsti*** Pritchard and Baker

1956. *Tetranychus fici* Hirst, *Proc. Zool. Soc. Lond.*, 828.

1955. *Eotetranychus hirsti*, Pritchard and Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, **2** : 200.

1985. *Eotetranychus hirsti*, Gupta, *Handbook : Plant Mites of India*, : 79-74.

Diagnosis : This mite is green yellow with black bloches all over dorsum clunals minute. Striations transverse in female genital flap as well as to the area anterior to the flap in male, tibia 1 with 5 sensory and 9 tactile setae, tarsus 1 with 2 sensory and 4 tactile setae; proximal to duplex setae; Tibia II with I sensory and 7 tactile setae; tarsus II with one sensory and 3 tactile setae; proximal to duplex setae. Aedeagus bends dorsal with upturned portion selender, tapering and sigmoid.

Material examined : 15♀♀, Dist. Chhindwara, Pandurna North, ex grass, 24.11.1989; 3♂♂, 19♀♀, Dist. Raipur, Dhamtari, ex *ficus religiosa*, 21.4.1975, coll. S.K. Gupta; 4♂♂, 4♀♀, Dist. Shivpuri, Shivpuri National Park, ex *Ficas carica*, 15.5.1975, coll. S. K. Gupta.

Distribution : India : Madhya Pradesh (Chhindwara, Raipur, Shivpuri), Andhra Pradesh, Bihar, Karnataka, Punjab, Tamil Nadu, West Bengal. *Elsewhere* : Pakistan.

Remarks : This is an important pest of fig. These mites were also seen on young fruit.

11. ***Eotetranychus syzygii*** Gupta and Gupta

1978. *Eotetranychus Syzygii* Gupta and Gupta, *Indian J. Acar.*, **3** : 88.

1985. *Eotetranychus syzygii*, Gupta, *Handbook : Plant mites of India*, : 79.

1994. *Eotetranychus syzygii*, Gupta, *Mem. zool. Surv. India*, **18**(1) : 84.

Diagnosis : In male, Palp without terminal sensillum, dorsal sensillum slender. Dorsal idiosomal setae longer than the intervals between

their bases. In female : Dorsal setae of idiosom a slender, slightly enlarged at the base, thickly pubescent. Ist pair of dorsal hysterosomal setae shorter than the distance between succeeding pairs while others are longer. Outer sacral setae shorter than inner sacral setae. Post anal setae thin and small.

Material examined: 1♂, 2♀♀, Dist Raipur, Gandhi Udyan, ex *Syzygium cumini*, 24.4.1975, coll. S. K. Gupta.

Distribution : India : Madhya Pradesh (Raipur).

Remarks : The occurrence of this species outside India is not known.

Genus *Schizotetranychus* Tragardh

1915. *Schizotetranychus* Tragardh, *Cent. Anst. Fors. Vas. Jordbr Omrad. Scotcth.*, **54** : 277.

12. *Schizotetranychus andropogoni* (Hirst)

1926. *Tetranychus (Schizoteranychus) andropogoni Hirst, Proc. Lond.*, : 829.

1955. *Schizotetranychus andropogoni*, Pritchard & Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, **2** : 240-249.

1985. *Schizotetranychus andropogoni*, Gupta, *Handbook : Plant mites of India*, : 96-97.

Diagnosis : Dorsal body setae as long as interval between their bases. Aedeagus of male forms a dorsally directed sigmoid curve that is not acutely angulated. Propodosomal Striae longitudinal, hysterosomal striae thansverse.

Material examined: 1♂, 8♀♀, Dist. Raigarh, Bhondar, ex sugarcane, 24.9.1991; 40 exs., Dist. Sagar, Garhakota and its vicinity, ex grass, 16.10.1992; 3♂♂, 12♀♀, Dist. Sagar, Garhakota, ex grass, 16.10.1992; 2♂♂, 23♀♀, Dist. Sagar, Garhakota, ex sugarcane, 16.10.1992.

Distribution : India : Madhya Pradesh (Raigarh, Sagar), Bihar, Delhi, Orissa, Punjab, Tamil Nadu, West Bengal.

Elsewhere : Pakistan, Thailand, Mexico.

Remarks : This is the serious pest of sugarcane. It causes the appearance of whitish spots on eitherside of the midrib such leaves turn yellow.

13. *Schizotetranychus hindustanicus* (Hirst)

1924. *Tetranychus (Schizoteranychus) hindustanicus* Hirst, *Ann. Mag. Nat. Hist.*, **14**(9) : 525.

1955. *Schizotetranychus hindustanicus*, Gupta and Gupta, *Mem. zool. Surv. India*, **18**(1) 95.

Diagnosis : Body setae fine, set on triangular sockets, about 2/3 as long as distance between their bases. Distal portion of aedeagus turns dorsal to form a sigmoidal distal end, tip slightly hooked Empodial claw simple.

Material examined: 1♂, 3♀♀, Dist. Chhindwara, Dhimra Dhara vill.., ex Banyan leaves, 20.11.1989.

Distribution : India : Madhya Pradesh (Chhindwara), Kerala, Tamil Nadu.

Remarks : No work has been done on its bionomics.

Oligonychus Berlese

Key to species of *Oligonychus*

1. Aedeagus bent ventrad tarsus 1 with not more than single taclile seta on venter just distal of duplex setae 2
– Aedeagus bent dorsad, although the distal end may be directed ventrad, tarsus 1 with 2 tactile setae on venter just distal of duplex setae 5
2. Aedeagus gradually narrow distally 3
– Aedeagus with distal end abruptly narrowed 4
3. Bent portion of aedeagus forming an acute angle with shaft ..... *mangiferus*
– Bent portion of aedeagus with tip directed ventrad ..... *coffeae*
4. Aedeagus with bent portion forming a right angle with shaft ..... *punicae*
– Aedeagus long and slender with axis of the distal to the shaft ..... *biharensis*
5. Aedeagus with distal end enlarged ..... *indicus*
– Aedeagus with distal end not enlarged 6

6. Bent portion of aedeagus longer *iseilemae*

– Bent portion of aedeagus shorter... *sacchari*

14. *Oligonychus biharensis* (Hirst)

1925. *Paratetranychus biharensis* Hirst, *Proc. zool. Soc. Lond.*, : 69.

1955. *Oligonychus biharensis*, Pritchard and Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, **2** : 364-365.

1985. *Oligonychus biharensis*, Gupta, *Handbook, Plant mites of India*, : 83-84.

Diagnosis : Dorsal idiosomal setae thin, rather tapering at distal end and one and half times longer than the interval between their longitudinal bases. Aedeagus with the axis parallel to that of the shaft. Dorsal margin of axis convex with tip bending down ward. The female can be distinguished from other members of this group by having the peritreme retrose distally.

Material examined : 2♂♂, 25♀♀ Dist. Damoh, Hatia, ex jamun, 19.1.1994; 1♂, 15♀♀, Dist. Khargone, Sendhawa proper, ex mango, 29.1.1999.

Distribution : India : Madhya Pradesh (Damoh, Khargone), Andaman and Nicobar Isls., Bihar, Gujarat, Karnataka, Kerala, Tamil Nadu, West Bengal.

Elsewhere : Antigua, Brazil, Hawai, Mauritius, Philippines, Thailand, Taiwan.

Remarks : This mite infests litchi, loquat and some times mango. A numerous white spots appear on the infested leaves.

15. *Oligonychus coffeae* (Neitner)

1861. *Acarus coffeae* Nietner, *observ. Enem. Coffeae tree, ceylon* : 31.

1955. *Oligonychus coffeae*, Pritchard and Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, **2** : 315-316.

1944. *Oligonychus coffeae*, Gupta and Gupta, *Mem. zool. Surv. India*, **18**(1) : 102-104.

Diagnosis : Dorsal idiosomal setae serrate and long than the distance between consecutive setae. Aedeagus at distal end bends ventrad at a right angle to the axis of the shaft. The striae are devoid of lobes.

Material examined : 2♂♂, 20♀♀, Dist. Bastar, Charama, ex wild plant, 5.1.1984; 2♂♂, 8♀♀, Dist. Bhind, Govt. Garden ex. wild plant, 12.1.1995; 7 exs., Dist. Damoh, Damoh and its Vicinity, ex mango, 19.10.1992; 3♂♂, 50♀♀, Dist. Damoh, ex jamun, 17.1.1994.

Distribution : India : Madhya Pradesh (Bastar, Bhind, Damoh), Assam, Himachal Pradesh, Meghalaya, Tamil Nadu, West Bengal.

Elsewhere : Indonesia, Australia, Thailand, Hawaii, Japan, Philippines, Sri Lanka, Taiwan, U.S.A., South and East Africa, Russia, Mauritius, Middle East, Egypt.

Remarks : This mite is a serious pest of tea in both North East and Northern India causing copperish-bonzy appearance of leaves. The period of occurrence is during April-June. The life cycle is completed in 9-12 days.

16. *Oligonychus indicus* (Hirst)

1923. *Paratetranychus indicus* Hirst, *Proc. zool. Soc. Lond.*, : 990.

1955. *Oligonychus indicus*, Pritchard and Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, **2** : 354-355.

1944. *Oligonychus indicus*, Gupta and Gupta, *Mem. zool. Surv. India*, **18**(1) : 104-105.

Diagnosis : Body greyish green with black bloches scattered over dorsum. Dorsal body setae longer than the interval between their longitudinal bases. Aedeagus is distinctive in having the distal knob very small. The bend of aedeagus forms an acute angle with axis of the shaft.

Material examined : 1♂, 3♀♀, Dist. Chhindwara, Patalkot, ex wild plant, 23.2.1994; 1♂, 15♀♀, Dist. Chhindwara, Patalkot, ex grass, 25.2.1994; 1♂, 7♀♀, Dist. Damoh, Singorgarh, ex neem, 22.10.1992; 1♂, 5♀♀, Dist. Raisen, Near Betwa River, ex grass, 3.10.1995; 18 exs., Dist. Raisen, Near Betwa River, ex grass, 3.10.1995, 5♀♀, Dist. Sagar, Bina, ex grass, 9.10.1992.

Distribution : India : Madhya Pradesh (Chhindwara, Damoh, Raisen, Sagar), Andhra Pradesh, Bihar, Delhi, Haryana, Karnataka,

Meghalaya, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Pakistan.

Remarks : This is a serious pest of sugarcane including maize and sorghum causing reddening of leaves. The leaves of severely infested spots turn red, which dry up and fall off.

17. *Oligonychus iseilemae* (Hirst)

1924. *Paratetranychus iseilemae* Hirst, *Ann. Mag. Nat. Hist.*, (9)14 : 524.

1955. *Oligonychus iseilmae*, Pritchard and Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, 2 : 358.

1994. *Oligonychus iseilemae*, Gupta and Gupta, *Mem. zool. Surv. India*, 18 (1) : 106-107.

Diagnosis : Dorsal idiosomal setae not set on tubercles, simple, tapering gradually and twice longer than the interval between their longitudinal bases. Aedeagus with small sigmoid tip, directed upward. peritreme at the distal end v shaped and anastomosing at the distal end.

Material examined: Sev. exs., Dist. Bastar, Konta, Naipara, ex grass, 24.11.1988; 2♂♂, 8♀♀, Dist. Betul, Nehru Park, ex equaleptus leaves, 26.11.1989; 1♂, 5♀♀, Dist. Chhindwara, Patalkot, Sangerapot, ex unidentified plant, 21.2.1995; 2♂♂, 15♀♀, Dist. Raisen, Near Betwa River, ex grass, 3.10.1995; 1♂, 4♀♀, Dist. Rajnandgaon, Mangra irrigation project, ex grass, 28.7.1993.

Distribution : India : Madhya Pradesh (Bastar, Betul, Chhindwara, Raisen, Rajnandgaon), Andaman Nicobar Isls., Tamil Nadu.

Elsewhere : Not known.

Remarks : This mite is not known to have any economic importance.

18. *Oligonychus mangiferus* (Rahman & Sapra)

1940. *Paratetranychus mangiferus* Rahman and Sapra, *Proc. Indian Acad. Sci.*, 11(B) : 192.

1955. *Oligonychus mangiferus*, Pritchard and Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, 2 : 330.

1994. *Oligonychus mangiferus*, Gupta and Gupta, *Mem. zool. Surv. India*, 18 (1) : 108-110.

Diagnosis : Dark red dorso laterally and pale red medio dorsally. Male with bent portion of aedeagus triangularly tapering to an acute angle with the shaft. Peritreme at the distal end anastomosing. Medio ventral setae slightly longer in size.

Material examined : 1♂, 24♀♀, Dist. Bastar, Baihar, ex. mango, 19.12.1983; 1♂, 18♀♀, Dist. Bastar, Chhotedonger, ex wild plant, 26.12.1983; 1♂, 14♀♀, Dist. Bastar, Porpa, ex mango, 31.12.1983; 1♂, 18♀♀ Dist. Bastar, Chhotedonger, ex mango, 19.12.1988; 2♂♂, 20♀♀, Dist. Bastar, Chitrakote, ex mango, 1.1.1984; 5 exs., Dist. Betul, Multai South, ex citrus, 29.11.1989; 10♀♀, Dist. Betul, Near Amla Rly. Stn., ex mango, 1.12.1989; 2♂♂, 15♀♀, Dist. Bhind, Govt. Garden, ex mango, 12.1.1995; 15♀♀, Dist. Chhindwara, Imlikhera, ex. mango, 17.11.1989; 1♂, 6♀♀, Dist. Chhindwara, Patalkot, ex mango 25.2.1994; 1♂, 3♀♀, Dist. Dhar, Mandu, ex undetermined plant, 4.5.1975, coll. S. K. Gupta; 12 exs., Dist. Guna, ex mango, 14.2.1996; 1♂, 19♀♀, Dist. Gwalior, Pohari, ex mango, 23.1.1985; 10♀♀, Dist. Hoshangabad, Pachmarhi, ex black berry, 28.4.1975, coll. S. K. Gupta; sev. ♂♂, ♀♀, Dist. Jabalpur, Napeir town, ex mango, 28.11.84; 10 exs., Dist. Khargone, Govt. Botenical Garden, ex mango 22.1.1999; 1♂, 15♀♀, Dist. Khargone, Bhawargarh, ex mango, 28.1.1999; 1♀, 15♀♀, Dist. Raisen, Nehru Garden, ex mango, 6.10.1995; Sev. exs., Dist. Rajnandgaon, on way to Bodla, ex banyan, 7.1.1984; 1♂, 8♀♀, Dist. Sagar, Bina, ex. mango, 9.10.1992; 3♂♂, 42♀♀, Dist. Sagar, Roheli its vicinity, ex Mango, 17.10.1992; Sev. exs., Shahdol, Suhagpur, ex mango, 31.1.1997; 1♂, 13♀♀, Dist. Shahdol, Anuppur, ex mango, 3.2.1997; 2♂♂, 6♀♀, Dist. Shahdol, Amlai, ex banana, 4.2.1997 1♂, 8♀♀, Dist. Shivpuri, National Park, ex *Syzygium cumini*, 15.5.1975, coll. S.K. Gupta; 8 exs. Dist. Shivpuri, Rajgarh vill., ex mango 12.2.1996.

Distribution : India : Madhya Pradesh (Bastar, Bhind, Chhindwara, Dhar, Guna, Gwalior, Hoshangabad, Jabalpur, Khandwa, Khargone, Raisen, Sagar, Shahdol, Shivpuri), Bihar, Haryana,

Himachal Pradesh, Delhi, Karnataka, Kerala, Orissa, Punjab, West Bengal.

Elsewhere : Egypt, Hawai, Mauritius and Peru.

Remarks : This is an important pest of mango and grape vine is India and occasionally it occurs on litchi also. The infested parts become yellowish in mango and brownish in litchi.

19. *Oligonychus punicae* (Hirst)

1926. *Paratetranychus punicae* Hirst, *Proc. zool. Soc. Lond.*, : 825-841.

1955. *Oligonychus punicae*, Pritchard and Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, **2** : 335-336.

1994. *Oligonychus punicae*, Gupta and Gupta, *Mem. zool. Surv. India*, **18** (1) : 112-113.

Diagnosis : Dorsal idiosomal setae serrate, gradully tapering and twice as long as interval between their longitudinal bases. The aedeagus is distinctive in having hook which is rather broad and the distal end narrowed to form a finger like projection. Striations on the body very distinctive.

Material examined : 2♂♂, 18♀♀, Dist. Bastar, Hat kachora, ex wild plant, 2.1.1984; Sev. ♂♂, ♀♀, Dist. Bastar, Charama, ex. wild plant, 5.1.1984; 3♀♀, Dist. Bastar, Chhotedonger, ex rose, 11.12.1988; 1♂, 15♀♀, Dist. Chhindwara, Imlikhera, ex unidentified plant, 17.11.1989; 2♂♂, 8♀♀, Dist. Guna, Kothi, ex unidentified plant, 16.2.1996.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Guna), Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh.

Elsewhere : Brazil and South America.

Remarks : This species some times infests grape vines and pomegranate in Northern India causing the appearance of brownish spots.

20. *Oligonychus sacchari* (McGregor)

1942. *Paratetranychus Sacchari* McGregor, *J. Univ. Puerto Rico*, 26 : 91.

1955. *Oligonychus sacchari*, Pritchard and Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, **2** : 355-357.

1994. *Oligonychus sacchari*, Gupta and Gupta, *Mem. zool. Surv. India*, **18** (1) : 114-115.

Diagnosis : Dorsal idiosomal setae set on tubercles and twice as long as the interval between their longitudinal bases. Medioventral setae of moderate size. Aedeagus bends dorsal tapering strong sigmoid, tip turned down.

Material examined : 1♂, 9♀♀, Dist. Guna, Guna and its Surrounding, ex mango, 14.2.1996; 1♂♂, 14♀♀, Dist. Khargone, Sendhawa proper, ex bamboo, 29.1.1999; 10♂♂, 2♀♀, Dist. Shivpuri, Shivpuri Govt. Garden, ex bamboo, 13.5.1975, coll. S. K. Gupta.

Distribution : India : Madhya Pradesh (Guna, Khargone, Shivpuri), Gujarat, Orissa, West Bengal.

Elsewhere : South America (Puerto Rico).

Remarks : This species occurs on bamboo (*Bambusa aurandinacea*) and sugarcane (*Saccharum officinarum*). No work has done on its bionomics.

Genus *Tetranychus* Dufour

1832. *Tetranychus* Dufour, *Annls. Sci. Nat.*, **25** : 376.

Key to species of *Tetranychus*

1. Proximal duplex setae of tarsus 1 of female distal to tactile setae. Aedeagus with a knob distally 2
– Proximal duplex setae on tarsus 1 of female more or less in line with tactile setae. Aedeagus knob with very small anterior and posterior projection ..... *macfarlanei*
2. Upper surface of aedeagus knob straight or rounded with some kind 3
– Upper surface of aedeagus knob concave with anterior rounded projections berry like ..... *neocaledonicus.*
3. Aedeagus knob with anterior projections rounded ..... *cinnabarinus*
– Aedeagus with anterior projection acute ..... *urticae*

21. *Tetranychus cinnabarinus* (Boisd.)

1867. *Acarus cinnabarinus Boisd., Ent. Hort.*, : 88.

1844. *Tetranychus biomaculata* Harvey, Wood-Mason, : 1-20.

1931. *Tetranychus telarius* Linnaeus, Cherian, *J. Asiat. Soc. Beng.*, **27** : 141-147.

1985. *Tetranychus cinnabarinus*, Gupta, *Handbook, Plant mites of India.* : 106.

Diagnosis : Carmine mite with longtudinal striae between 3rd pair of dorsocentral hysterosomals. Empodial spur tiny. Axis of aedeagal knob forming a strong angle with axis of shaft. Posterior angulation being equal to anterior angulation.

Material examined : Sev. exs. Dist. Bastar, Kanker, ex wild plant, 28.12.83; 15 exs., Bastar, ex wild plant, 24.11.1988. 2♂♂, 51♀♀, Dist. Bastar, Chhotedonger, ex cucumber, 14.12.1983; sev. exs., Dist. Bastar, Old Basti, ex unidentified plant, 24.11.1988; 2♂♂, 13♀♀, Dist. Chhindwara, Parasia, ex rose, 19.11.1989; 3 exs., Dist. Guna, Jhagar, ex flowering plant, 15.2.1996; 1♂, Sev ♀♀, Dist. Jabalpur, Agrawal Colony, ex *Tagtus erectus* 25.9.1984; Sev. exs., Dist. Jabalpur, Agrawal Colony, ex ber, 11.10.1985; sev. exs., Jabalpur, Bilkhera vill., ex cucumber, 19.9.1985; 1♂, 4♀♀, Dist., Jabalpur, Bilkhera vill., ex sem, 19.9.1985; 2♂♂, 18♀♀, Dist. Mandsaur, Neemach, ex. cucumber, 31.10.1990; 2♂♂, 34♀♀, Dist. Sagar, Kheimlasa, ex lady's finger, 11.10.1992; 2♂♂, 8♀♀, Dist. Shahdol, Kotma, ex cucumber, 5.2.1997; 6 exs; Dist. Shivpuri, ex flowering plant, 10.2.1996.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Guna, Jabalpur, Mandsaur, Sagar, Shahdol, Shivpuri), Bihar, Gujarat, Haryana, Karnataka, Kerala, Meghalaya, Orissa, Punjab, Rajasthan, Tamil Nadu, West Bengal.

Elsewhere : World wide.

Remarks : It was seen severely infesting brinjal, castor and peach causing crumpling of leaves, Yellowing of leaves etc. such heavily infested plants suffered defoliation.

22. *Tetranychus macfarlanei* Baker and Pritchard

1960. *Tetranychus macfarlanei* Baker and Pritchard. *Hilgardia*, 29 : 537.

1961. *Tetranychus macfarlanei* Bindra and Kittur, *Indian J. Ent.*, **23** : 71.

1994. *Tetranychus macfarlanei* Gupta and Gupta, *Mem. zool. Surv. India*, **18**(1) : 131-132.

Diagnosis : Idiosomal setae long and pubescent. Tibia 1 of male with 4 sensory and 9 tactile setae, tarsus 1 with 4 tactile setae, proximal to duplex setae; tibia II with 7 tactile setae, tarsus II with I sensory and 5 tactile setae, proximal to duplex setae. Aedeagal knob tiny with anterior and posterior angulation. Tibia I of female with I sensory and nine tactile setae, tarsus I with 4 tactile setae in line with proximal pair of duplex setae; tibia II with I sensory and 6 tactile setae, tarsus II with I sensory and 4 tactile setae proximal to duplex setae.

Material examined : 2♂♂, 3♀♀, Dist. Dhar, Mandu, Forest Farm, ex castor, 3.5.1975, coll. S. K. Gupta; 2♂♂, 90♀♀, Dist. Rajnandgaon, Khairagarh, ex wild plant, 28.12.1983; 1♂, 8♀♀, Dist. Shahdol, Amlai, ex neem, 4.2.1997.

Distribution : India : Madhya Pradesh (Dhar, Rajnandgaon, Shahdol), Andaman and Nicobar Isls., Rajasthan, Gujarat, Tamil Nadu, Karnataka, Uttar Pradesh, West Bengal.

Elsewhere : Mauritius.

Remarks : The infestation is more on mature crops than on the young ones. It disappears with rains.

23. *Tetranychus neocaledonicus* Andre

1933. *Tetranychus neocaledonicus* Andre, *Bull. Mus. Natn. Hist. Nat. Paris*, (2)5 : 302.

1940. *Tetranychus cucurbitae* Rahman & Sapra, *Proc. India, Acad. Sci.*, 11B : 79.

1985. *Tetranychus neocaledonicus*, Gupta, *Handbook, Plant Mites of India* : 125-126.

Diagnosis : In male, Tibia 1 with 3 sensory and 8 tactile setae, tarsus 1 with 2 sensory and 4 tactile setae proximal to duplex setae, tibia II with 7 tactile setae. Aedeagal knob in male berry like and the anterior rounded projection is better developed than the rounded posterior projection.

Material examined : 1♂, 15♀♀, Dist. Bastar,

Bargaon, ex papaya, 24.12.1983; 30 exs., Dist. Bastar, Chhotedonger, ex cucumber, 26.12.1983; Sev. exs. Dist. Bastar, Garia pahar, ex wild plant, 4.1.1984; 25 exs., Dist. Betul, Multai North, ex rose, 27.11.1989; 25♀♀, Dist. Chhindwara, Imlikhera, ex cucumber, 17.11.1989; 10 exs. Dist. Damoh, Singorgarh, ex cucumber, 22.10.1992; 10 exs., Dist. Jabalpur, Tilwara ghat, ex. grass, 16.9.1984; 1♂, 16♀♀, Dist. Raisen, Bareli, Nahar garden, ex lady's finger, 6.10.1995; 10 exs., Dist. Rajgarh, Chhapi River, ex lady's finger. 10.10.1995; 4 exs., Dist. Sagar, Bina, ex undetermined plant, 9.10.1992; 1♂, 10♀♀, Dist. Sagar, Raheli vill., ex papaya, 17.10.1992; 1♂, 10♀♀, Dist. Sagar, Malathon and its vicinity, ex cucumber, 12.10.1992; 6 exs., Dist. Shahdol, Kotma, ex Brinjal, 5.2.1997; 8 exs., Dist. Ujjain, Dewas Road, ex undetermined plant, 5.11.1990.

Distribution : India : Madhya Pradesh (Bastar, Betul, Chhindwara, Damoh, Jabalpur, Raisen, Rajgarh, Sagar, Shahdol, Ujjain), Assam, Bihar, Delhi, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Meghalaya, Orissa, Punjab, Rajasthan, Uttar Pradesh, West Bengal.

Elsewhere : Africa, Figi, Bhamas, Hawai, Venezuela, Pureto Rico, U.S.A.

Remarks : This species has been found to be a major crops in India and infests mostly vegetable producing plants.

24. ***Tetranychus urticae*** Koch

1936. *Tetranychus urticae* Koch, *Deutsche, Crustacea, Myriapoda, Arachnida, Fasc.*, **1** : 10.

1985. *Tetranychus urticae*, Gupta, *Handbook., Plant mites of India*, p. 115.

1994. *Tetranychus urticae* Gupta and Gupta, *Mem. zool. Surv. India*, 139-142.

Diagnosis : Greenish or Yellowish mite with large spots on either side of the body. Axis of the aedeagal knob parallel with axis of shaft. Female's striae bears dorsal lobes, which are large, rounded and some being oblong.

Material examined : 12 exs., Dist. Raisen, Near Burma River ex undetermined plant, 5.10.1995; 1♂, 5♀♀, Dist. Raisen, Bareli, ex brinjal, 6.10.1995; 6♀♀, Dist. Shahdol, Budhar, ex banana, 30.1.1997.

Distribution : India : Madhya Pradesh (Raisen, Shahdol), Meghalaya, Kerala, Karnataka, Uttar Pradesh, West Bengal.

Elsewhere : Cosmopolitan.

Remarks : This is a pest of a large number of vegetables, fruit trees, ornamental plants, oilseeds, fibre crops etc. in India. This mite is commonly called 2 spotted spider mite or red mite.

Family TENUIPALPIDAE Berlese

1913. *Tenuipalpidae* Berlese, *Acarotheca Italica Firemze, Tipogra ficia Di. M. Ricci*, p. 17.

History : Berlese (1913) erected this family some good comprehensive publications are available in this family. Of those, mention may be made of Baker (1949a), McGreger (1949), Pritchard and Baker (1951, 1958), Baker and Tuttle (1964), Meyer (1979). Over 300 species are known from the world.

Diagnosis : These mites are flat, pear shaped, mostly bright coloured, slow moving and are normally found on the under surface of leaves. Chelicera stylet like, recurved and arises from eversible; stylophore; palpus simple lacking claw on penultimate segment. Propodosoma bears 3 pairs of setae; hysterosoma bears 1-3 pairs of dorso central, 1 pair of humeral, 5-7 pairs of dorsolaterals. There may be 1-4 pairs of dersosublateral hysterosomals or those may be lacking. Ventral metapodosoma with two pairs of setae but their numbers may vary.

Genus ***Brevipalpus*** Donnadieu

1875. *Brevipalpus* Donnadieu, *Recherches, pour servir a Phistorie des Tetranyques*, : 143-145.

25. ***Brivipalpus phoenicis*** (Geij.)

1939. *Tenuipalpus phoenicis Geij., Meded Landli. Hoogesch. Wageningen.*, **42** : 330.

1961. *Brevipalpus phoenicis*, Das, *Two and Bud*, **8** : 3-4.

1985. *Brevipalpus phoenicis*, Gupta, *Handbook* : *Plant mites of India*, : 130-131.

Diagnosis : Scarlet mite, hysterosoma with 5 dorsolateral. Tarsus II with 2 sensory rods. Hysterosomal pores present Dorsocentral area of propodosoma covered with a scallop pattern and the dorsocentral area of the hysterosoma with irregular striae.

Material examined : 1 ♀, Dist. Chhindwara, ex guava, 25.4.1975; 2 ♀ ♀ Dist. Mandsaur, Mandsaur Agri. Farm, ex brinjal, 8.5.1975; 8 ♀ ♀, Raipur, ex sunflower, 24.4.1975, coll. S. K. Gupta.

Distribution : India : Madhya Pradesh (Chhindwara, Mandsaur, Raipur), Assam, Bihar, Delhi, Himachal Pradesh, Karnataka, Maharashtra, Meghalaya, Orissa, Punjab, Tamil Nadu.

Elsewhere : Argentina, Australia, Brazil, California, Columbia, Ethiopia, Florida, Holland, Italy, Kenya, Malay, Mauritius, Okinawa Isl., Philippines, Portugal, Sicily, Spain, Syria, Taiwan, Tanganyika.

Remarks : Jeppsen et at. (1975) pointed out that its biology is very similar to that of *B. obovatus and B. californicus.* It occurs in the field throughout the year on one or the other host.

Genus ***Raoiella*** (Hirst)

1924. *Raoiella* Hirst, *Ann. Mag. Nat. Hist.*, **14**(9-83) : 522.

26. ***Raoiella indica*** (Hirst)

1924. *Raoiella indica* Hirst, *Ann. Mag. Nat. Hist.*, **14**(9-83) : 522.

1985. *Raoiella indica*, Sandana, *Plant feeding mites of India, Kalyani, Publisher New Delhi-Ludhiana,* p. 5-6.

1985. *Raioella indica*, Gupta, *Handbook, Plant mites of India,* p. 137.

Diagnosis : Reddish mite. Idiosoma with dorsum smooth. Hysterosoma with first pair of dorsocentral longer than others; 4th pair of dorsocentral setae shorter than others. All dorsal body setae slightly clubbed and serrate.

Material examined: Several ♂ ♂, ♀ ♀, Dist. Raipur, ex coconut, 24.4.1975, coll. S. K. Gupta.

Distribution : India : Madhya Pradesh (Raipur), Karnataka, Punjab, Tamil Nadu.

Elsewhere : Mauritius.

Remarks : It is an important pest of coconut and arecanut in India. The infestations occur on the under surface of leaves in both young and adult plants.

Genus ***Tenuipalpus*** Donnadieu

1875. *Tenuipalpus* Donnadieu, *Recherches pour servir a phistoire des Tetranyques,* : 139-145.

27. ***Tenuipalpus aboharensis*** Sadana and Chhabra

1980c. *Tenuipalpus aboharensis* Sadana and Chhabra, *Entomon,* **5**(12) : 151-155.

1985. *Tenuipalpus aboharenis*, Gupta, *Handbook, Plant mites of India,* p. 140-141.

Diagnosis : Hysterosema with flagellate dorsolateral Setae, 4 Pairs of non flagellate caudal setae without a differentiated expansion anterior to coxae III. Gnathosama with a ventral seta. Propodosomal setae 3 pairs, I and II minute, III lanceolate. Lateral setae 6 pairs, II and III shorter than the distance between II and III and III and IV respectively. IV longer than distance between IV and V.

Material examined : This species is included on the basis of the literature review.

Distribution : India : Madhya Pradesh (Gwalior), Punjab.

Remarks : No economic importance of this species is known.

28. ***Tenuipalpus punicae*** Pritchard and Bakar

1958. *Tenuipalpus punicae* Pritchard and Baker, *univ. calif. pub. Ent.*, **14**(3) : 240-242.

1973. *Tenuipalpus punicae*, Dhoora and Sandhu, *curr. sci.*, **42**(5) : 179-180.

1985. *Tenuipalpus punciae*, Gupta, *Handbook, Plant mites of India,* p. 147-148.

Diagnosis : Propodosoma with 1 pair of posterior medioventral and one pair of anterior medioventrals. Hysterosoma with dorsocentrals minute and setiform. Propodosoma rugose

mediodorsally. Genu 1st and 2nd each with a seta on outerface.

Material examined : 6♀♀, Dist. Chhindwara, ex *Hibiscus rosasinensis*, 11.4.1975; 4♀♀ dist. Shivpuri, Shivpuri National Park, *Punica granatum*, 15.4.1975, coll. S.K. Gupta.

Distribution : India : Madhya Pradesh (Chhindwara, Shivpuri), Delhi, Punjab, Meghalaya.

Elsewhere : Palestine, Spain.

Remarks : This mite occurs on the under surface of leaves as well as on twigs. The feeding on the leaves causes the appearance of brownish patches such leaves ultimately fall off.

Family TARSONEMIDAE Kramer

1877. *Tarsonemidae* Kramer, *Archiv. firr. Naturgesch*, **43** : 215.

History : Kramer (1877) erected this family. Some good taxonomic contributions have come out. Of those mention may be made of Ewing (1939), Beer (1954) and Smiley (1964, 67, 69).

Diagnosis : These are tiny glossy mites found on under surface of leaves as well as in association of fungus. Body rounded, gnathosoma with minute palpi lying closely appressed laterally. Chelae tiny and stylet like. Stigma of female opens behind gnathosoma; male without stigma.

Genus ***polyphagotarsonemus*** Beer and Nucifora

1965. *Polyphagotarsonemus* Beer and Nucifora, *Bull. zool. Agr. Bachic*, 7(2) : 19-43.

29. ***Polyphagotarsonemus latus*** (Banks)

1904. *Tarsonemus latus* Banks, *Proc. U.S. Nat. Mus.*, 32(1553) : 615.

1958. *Hemitarsonemus latus*, Dutta, *Indian Farm*, 8 : 10-12.

1985. *Polyphagotarsonemus latus*, Gupta, *Handbook, Plant mites of India*, : 292-934.

Diagnosis : Body oval, tiny, glossy or whitish. Hysterosoma of female with 1 pair of ventral setae situated between coxae IV. Tibiotarsus 1 without empodium. Terminal claw of leg IV of male reduced to small tubercle.

Material examined : 5 exs., Dist. Khargone, Nutun nagar, ex cotton, 21.1.1999.

Distribution : India : Madhya Pradesh (Khargone), Bihar, Karnataka, Maharashtra, Punjab, Uttar Pradesh, West Bengal.

Remarks : It occurs on the varieties of the plants. This mite remains in the field through out the year on one or the other crop.

PREDATORY MITES

Family CUNAXIDAE Thor

1902. Cunaxidae Thor, Das Tierreich, **56** : 1-65.

History : Since the erection of this family by Thor in 1902, the important taxonomic contribution made in the family are thor and willman (1941), Muma (1860), Meyer and Ryko (1959) and Smiley (1975).

Diagnosis : These are reddish free living mites. Soft or strongly sclerotized, with or without dorsal and ventral plates. Chelicera separate and hinged at base. Gnathosoma cone shaped, Palpi 3-5 segmented with strong spines. Propodosoma with 2 pairs of sensory setae.

Genus ***Cunaxa*** Von Heyden

1826. *Cunaxa* Von Heyden, *Isis (Oken)*, **18** : 609.

30. ***Cunaxa setirostris*** (Hermann)

1804. *Scirus setirostris* Hermann, *Mem. Aptelogigue*, : 60-62.

1983. *Cunaxa setirostris*, Gupta, *Handbook, Plant mites of India*, : 316.

1995. *Cunaxa setirostris*, Gupta, *Fauna of Meghalaya, State Fauna Series*, 4,(Part 2) : 43-44.

Diagnosis : Palp 5 segmented, exceeding length of hypostome; palpal telofemur with a strong spine on the inner anterolateral margin. Propodosoma with a reticulate sub rectangular shield with two pairs of finely branched sensory setae; Hysterosoma without shield, with fine

striations, with 8 pairs of short and simple setae. Genital plate with 4 pairs of simple setae, distal outer pairs longer than others.

Material examined: 6 exs., Dist. Khargone, Nutun Nagar, ex soil, 21.1.1999.

Distribution: India: Madhya Pradesh (Khargone), Andaman 1st., Meghalaya, Uttar Pradesh, West Bengal.

Elsewhere : Cosmopolitan.

Remarks : Though it is an effective predators but in the present case no predatory importance was noticed.

Family PHYTOSEIIDAE Berlese

1913. Phytoseiini Berlese, Acaroth, Ital., p. 11.

1941. Phytoseiinae Vitzthum, *Cles Tierrichs*, 5(4) : 767.

1952. Phytoseiidae Baker and wharton, *An Introduction to Acarology*, Macmillan Co., New York, p. 87.

History: Berlese (1916) proposed the tribe. Nesbitt (1951) critically first to reviewed this group for the first time. Chant (1959) was the first to review the world *phytoseiid* fauna. Muma (1961) gave a new concept of classification of Phytoseiidae. Gupta (1986) published fauna of Indian Phytoseiidae.

Diagnosis: Female can he diagnosied as : dorsal shield entire or transversely divided with less than 19 pairs of dorsal setae. Peritreme opens through stigmata, situated between coxae III and IV. Males with spermatophoral process on movable digit of chelicera.

Key to the sub families, genera of PHYTOSEIIDAE

1. Prolateral setae on dorsal shield 4 pairs, in all 6-9 pairs of lateral setae present, preanal setae 3 pairs. sub family Amblyseiinae .... *amblyseius*

– Prolateral setae on dorsal shield 5 or more pairs in all 19-12 pairs lateral setae, preanal setae 3-4 pairs Sub family Phytoseiinae ...2

2. Setae r3 on dorsal shield, genu II with 7 setae, genu III with 6 setae .....*phytoseius*

— Setae r3 on lateral integument, genu II with 7 or 8 setae ..... *typhlodromus*

Subgenus *Euseius* Wainstein

1962. *Ambhyseius (Amblyseius)* Sec. *Euseius*. Wainstein, *Acarologia*, 4 : 14.

31. *Amblyseius (Euseius) alstoniae* Gupta

1975. *Amblyseius alstoniae* Gupta. *Internat. J. Acarol.*, 1(2) : 31-32.

1987. *Amblyseius (Amblyseius) alstoniae*, Gupta, *Rec. zool. Sur. India, Occ. Pap. No.*, 95 : 21.

1992. *Amblyseius (Amblyseius) alstoniae*, Gupta, *State Fauna of West Bengal*, part-3 : 155-156.

Diagnosis: Dorsal shield smooth, with 17 pairs of setae and 9 pairs of pores. Ventrianal shield longer than wide, constricted at preanal segia with 3 pairs of preanal setae. Spermatheca with elongated cervix and rounded vesicle.

Material examined: This species is included on the basis of the literature review.

Distribution: India: Madhya Pradesh (Chhindwara, Dhar, Mandsaur, Raipur, Shivpuri), Assam, Bihar, Tamil Nadu, Tripura, West Bengal.

Remarks : The importance of this species in biological control was stressed by Gupta (1977).

32. *Amblyseius (Euseius) coccineae* Gupta

1975. *Amblyseius coccineae* Gupta, *Internat. J. Acarol.*, 1(2) : 33.

1987. *Amblyseius (Euseius) coccineae*, Gupta, *Rec. zool. Sur. India, Occ. Pap. No.*, 95 : 22-23.

1995. *Amblyseius (Euseius) coccineae*, Gupta, *Fauna of Meghalaya, State Fauna Series*, 4(Part-2) : 32.

Diagnosis: Dorsal shield reticulate, with 17 pairs of setae. Ventrianal shield vase-shaped with 3 pairs of preanal setae. Chelicera with 2 teeth on fixed digit and none on movable digit.

Material examined: This species is included on the basis of the literature review.

Distribution: India: Madhya Pradesh (Chhindwara, Hoshangabad), Andhra Pradesh, Bihar, Jammu and Kashmir, Meghalaya, Orissa,

Pandicherry, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.

Remarks : Gupta (1977) reported that this mite attacked the eggs of *oligonychus mangiferus* and sucked the egg contents.

Subgenus *Typhlodromalus* Muma

1961. *Typhlodromalus* Muma, *Bull. Fla. St. Mus.*, **5**(7) : 277.

33. *Amblyseius (Typhlodromalus) kalimpongensis* Gupta

1970. *Amblyseius kalimpongensis* Gupta, *Bull, Ent.*, **10** : 128-129.

1982. *Amblyseius kalimpongensis* Gupta, *Rec. zool. surv. India*, **79** : 367-371.

1985. *Amblyseius (Typhlodromalus) kalimpongensis*, Gupta, *Handbook : Plant mites of India*, p. 362.

Diagnosis : Dorsal shield smooth, with 17 pairs of setae and 5 pairs of pores. Sternal and genital shields normal, metasternal plates absent, only seta present. Ventrianal shield vase shaped, strongly concave laterally, with 3 pairs of preanal setae and a pairs of pores Leg IV with macroseta only on basi tarsus IV : 31 long.

Material examined : This species is included on the basis of the literature review.

Distribution : India : Madhya Pradesh (Chhindwara, Dhar, Hosangabad), Andhra Pradesh, Assam, Bihar, Gujrat, Karnataka, Meghalaya, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal.

Remarks : This species was reported in association with *Tetranychus* sp. (Gupta, 1977).

Genus ***Phytoseius*** Ribaga

1904. *Phytoseius Ribaga, Riv. Pat. Veg.*, **10** : 177.

Subgenus ***Pennaseius*** Pritchard & Baker

1962. *Pennaseius* Pritchard & Baker, *Hilgardia*, **33** : 223.

34. *Phytoseius (Pennaseius) kapuri* Gupta

1969. *Phytoseius (Pennaseius) kapuri* Gupta, *Israel J. agric. Res.*, **19** : 115-117.

1987. *Phytoseius (Pennaseius) kapuri*, Gupta, *Rec. zool. Surv. India, Occ. Pap. No.*, **95** : 81-82.

1995. *Phytoseius (Pennaseius) kapuri*, Gupta, *state Fauna ser.*, **4**, *Fauna of Meghalaya*, Part 2 : 38.

Diagnosis : Dorsal shield notched at the level of r2 with 16 pair of setae and 4 pairs of pores, of these, the pair associated with 25 being longest. Ventrianal shield 73 long, 47 wide, lateral sides concave, with 3 pairs of preanal setae. Spermatheca with funnel shaped cervix.

Material examined : This species is included on the basis of the literature review.

Distribution : India : Madhya Pradesh (Mandsaur), Andaman isl., Bihar, Gujarat, Jammu and Kashmir, Kerala, Meghalaya, Orissa, Pandichery, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

Remarks : This mite is known to feed upon *Tetranychus neocaledonicus* and *T. Cinnabarinus* (Gupta, 1779).

Subgenus ***Phytoseius*** Ribaga

1904. *Phytoseius* Ribaga, *Riv. Path. Veg.*, **10** : 177.

35. *Phytoseius (Phytoseius) Macrosetosus* Gupta

1977. *Phytoseius (Phytoseius) macrosetosus* Gupta, *Indian, J. Acar.*, **1** : 15-16.

1986. *Phytoseius (Phytoseius) macrosetosus*, Gupta, *Fauna of India (Acari : Mesostigmata) family Phytoseiidae*, p. 243-244.

1987. *Phytoseius (Phytoseius) macrosetosus*, Gupta, *Rec. zool. Surv. India. Occ. Pap. No.*, **95** : 91.

Diagnosis : Dorsal shield 265 long, 130 wide, with 15 pairs of setae. Measurement of setae : J,-20, J4, J6, J5, Z5-5-5 each, J 3-36, Z2-16, Z3-32, Z4-24, S4-62, S6-64, Z5-50, Z4-52, R3-32, Sternal and genital shields normal. Metasternal plate absent. Ventrianal shield 56 long, 40 wide, with 3 pairs of preanal setae, lateral sides concave Macro setae on leg IV: genu-nil, tibia-28, basi tarsus-20, both with spatulate lip. Male unknown.

Material examined : 2♀♀, Dist. Shivpuri, ex tendu leaf, 15.5.1975, Coll. S. K. Gupta.

Distribution : India : Madhya Pradesh (Jabalpur, Shivpuri).

Remarks : This species is known only from its type.

Genus *Typhlodromus* Scheuten

1857. *Typhlodromus* Scheuten, *Arch. Naturges*, **23** : 111.

Subgenus *Orientiseius* Muma and Denmark

1961. *Amblydromella* Muma, *Bull. Fla. St. Mus.*, **5**(7) : 294.

1968. *Orientiseius*, Muma and Denmark, *Fla. Ent.*, **51** : 23.

36. *Typhlodromus (Orientiseius) rickeri* Chant

1960. *Typhlodromus (Typhlodromus) rickeri* Chant *Can. Ent.*, **92** : 62-64.

1974. *Typhlodromus (Orientiseius) rickeri*, Prasad, *A catalogue of mites of India*, : 175.

1997. *Typhlodromus (Orientiseius) rickeri*, Gupta *Rec. zool. Surv. India, Occ. Pap. No.*, **95** : 126.

Diagnosis : Dorsal shield 380 long, 214 wide, smooth, with 3-4 pairs of minute pores. Peritreme extends anteriorly upto J1. J2. Genital shield 78 wide with a pair of setae, 2 pairs of matapodal plates present, primary one 30 long. Dentition of chelicera not discernible.

Material examined : This species is included on the basis of the literature review.

Distribution : India : Madhya Pradesh (Hoshangabad), Karnataka, Meghalaya, Nagaland, Uttar Pradesh.

Elsewhere : Florida.

Remarks : This mite readily feeds on citrus rest mite, *Phyllocoptruta oleivora* (Ash.)

SUMMARY

A total of 36 species of plant mites belonging to 14 genera, 5 families under 2 orders from Madhya Pradesh is reported here. Out of these 13 species are reported for the first time from the state. Important synonymies, diagnosis, collection data of all the species, detail distribution in India and abroad and key to orders, families, genera and species are provided. A table indicating district wise distribution is also given.

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DISTRICT WISE DISTRIBUTION OF PLANT MITES SPECIES IN MADHYA PRADESH

	BASTAR	BETUL	BHIND	CHHINDWARA	DAMOH	DATIA	DHAR	GUNA	GWALIOR	HOSHANGABAD	JABALPUR	KHANDWA	KHARGONE	MANDASOR	MORENA	RAIGARH	RAIPUR	RAISEN	RAJGARH	RAJNANDGAON	RATLAM	SAGAR	SARGUJA	SHAHDOL	SHIVPURI	UJJAIN
Family : TETRANYCHIDAE																										
1. *Petrobia (Petrobia) latens*									+																	
2. *Aponychus corpuzae*														+								+				
3. *Eutetranyclms anneckei*	+		+																							
4. *Eutetranychus bredini*		+			+												+									
5. *Eutetranychus maximae*																										+
6. *Eutetranychus nagai*					+																					+
7. *Eutetranychus orientalis*	+	+	+	+	+		+		+	+	+	+	+	+		+		+	+		+	+	+		+	+
8. *Eutetranychus Phaseoli*															+							+				
9. *Eotetranychus frosti*																	+									
10. *E. hirsti*				+													+								+	
11. *E. syzygii*																	+									
12. *Schizotetranychus andropogoni*																+						+				
13. *S. hindustaicus*				+																						
14. *Oligonychus biharensis*					+								+													
15. *O. coffeae*			+		+																					
16. *O. indicus*				+	+													+				+				
17. *O. iseilamae*	+	+		+														+	+							
18. *O. mangiferus*	+		+	+			+	+	+	+	+	+	+					+				+			+	+
19. *O. punicae*	+		+				+																			
20. *O. sacchari*								+				+	+												+	
21. *T. cinnabarinus*	+			+				+			+			+								+		+	+	
22. *T. macfarlanei*							+		+											+				+		
23. *T. neocaledonicus*	+	+	+	+							+							+	+			+				+
24. *T. urticae*																		+						+		

DISTRICT WISE DISTRIBUTION OF PLANT MITES SPECIES IN MADHYA PRADESH

	BASTAR	BETUL	BHIND	CHHINDWARA	DAMOH	DATIA	DHAR	GUNA	GWALIOR	HOSHANGABAD	JABALPUR	KHANDWA	KHARGONE	MANDASOR	MORENA	RAIGARH	RAIPUR	RAISEN	RAJGARH	RAJNANDGAON	RATLAM	SAGAR	SARGUJA	SHAHDOL	SHIVPURI	UJJAIN
Family : TENUIPALPIDAE																										
25. *Brevipalpus phoenicis*				+										+			+									
26. *Raoiella indica*																	+									
27. *Tennipalus aboharensis*									+																	
28. *T. punicae*				+																					+	
Family : TARSONEMIDAE																										+
29. *Polyphogotarsonemus latus*													+													
Family : CUNAXIDAE	•																									
30. *Cunaxa setirostris*													+													
Family : PHYTOSEIIDAE																										
31. *Amblyseius (Euseius) alstoniae*				+			+							+											+	
32. *A. (E.) coccineae*				+						+																
33. *Amblyseius (T.) kalimpongensis*				+			+			+																
34. *Phytoseius (Pennaseius) kapuri*														+												
35. *Phytoseis (P.) macrosetosus*											+														+	
36. *Typhlodromus (O.) rickeri*										+																