

Faunal Diversity of Jabalpur District

Faunal Diversity of Jabalpur District (Madhya Pradesh)



ZOOLOGICAL SURVEY OF INDIA

Faunal Diversity of Jabalpur District Madhya Pradesh

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Kolkata**

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AN OVERVIEW

KAILASH CHANDRA

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INTRODUCTION

Location and topography

The Jabalpur district (c. 23°10' N, 79°57' E) lies in the eastern half of Madhya Pradesh in the central region of India with geographic area of 5211 sq km. It is situated on the Deccan Plateau at an altitude of 402 m. above msl and surrounded on all sides by ancient basalt rocks and forests. Jabalpur district consists of a long narrow plain running from South-West to North-East flanked by the Bhanrer and Kaimur ranges of the Vindhyan system on the West and the various hills of the Mahadeo range and Maikal range on the east. The Bhitrigarh range and a few subsidiary hills intrude upon in the middle of the district and practically join the Vindhyan and the Satpura systems, which together form the Great Central Watershed of India. It lies in the catchment of the longest river of Central India, the Narmada, along with its tributaries *viz.* Hiran, Gour, Ken and Sone. The Jabalpur city is surrounded by low, rocky and barren hillocks, which include Kariapathar hillock to the northeast, Sita Pahad and Kandhari hills to the east and Madan Mahal hills to the southwest. Khandari and Pariyat, these two main water reservoirs are located in the northeast direction in Jabalpur district.

History

The name Jabalpur is supposed to have originated from St. Jabali Pattanam or Jabal (in Arabic meaning rocks). Tripuri, the place near Jabalpur has been mentioned in the great epics Ramayana and Mahabharata. The River Narmada, which is considered as one of the seven most sacred and principal rivers of the country referred to religious scriptures, however not mentioned in the Rig Veda. It appears that the first wave of Aryan migrants into North India had not probably penetrated far into the peninsula beyond the Indo-Gangetic plain.

Geology

The Jabalpur district has more or less complete sequence of geological formations like Archaeans, Vindhyan, Gondwanas, Lametas, Deccan trap, intertrappean and recent etc.

In this region, there are number of variety of rock types, comprising igneous, metamorphic and sedimentary with variety of minerals like micaceous earth, sand stone, quartzites, lime stones, bauxite, clay, manganese, copper, iron, etc. As a result of the disintegration of the various types of rocks, soil types of widely different characteristics are formed, which vary from loose sandy to stiff black clay soils. The Gondwana sand stone produces a porous acidic soil, which is suitable for the growth of Sal.

CLIMATE

The Jabalpur district enjoys typical monsoon climate with three seasons, summer from March to June, rainy season from June to September and winter from November to February. The period from mid-September to October is the post-monsoon period.

Temperature : The coldest months in the district are December and January during which the minimum temperature reaches frost point. This causes widespread damage to cultivated crops. Heavy dew-fall occurs from November to January. From March onwards, temperature begins to rise steadily and might reach up to 44–45 degree Celsius. May is the hottest month but nights are hotter in June than in May.

Rainfall : Most of the rainfall occurs during mid June to mid September, when the southwest monsoon is active, July being the rainiest month. Sometimes a few showers occur in December or January. The average annual rainfall over the district is 1270 mm. The belt of high precipitation runs along the south-eastern boundary of the district, the highest record being from the Pariyat. The amount of rainfall decreases towards the north and west.

Humidity : The air is very dry during the summer months with the relative humidity being as low as 15 to 20 per cent in the afternoon. During the monsoon, the humidity is very high, while it is moderate in the post monsoon and winter months.

Winds : They are predominantly from south -west during the monsoon months. In the post monsoon and winter months, southerly and south-easterly winds prevail in the mornings while in the afternoon they blow from directions between east and north. In the summer months, winds blow from directions between south-east and north-west through south and west.

FOREST TYPES

The total forest cover of the district is 1078 sq. km, which comes to around 20.69 % of its geographical area. (State of Forest Report, 2003).

According to Champion and Seth's (1968) broad classification, the Jabalpur district has dry tropical forests, which can be divided into the following two classes :

1. Northern tropical dry deciduous forest (Group 4 B)
2. Southern tropical dry deciduous forest (Group 4 A)

The Northern tropical dry deciduous forests are further divided into two groups, viz., the North Indian dry mixed deciduous forests and the dry Sal forests. Sal (*Shorea robusta*) is the predominant species in these forests. The North Indian dry mixed deciduous forests are usually confined to comparatively dry and steep hill slopes while dry Sal forests occur in the moist well-drained gently sloping areas.

The Southern tropical dry deciduous forests are also divided into two distinct groups, viz., the dry teak forests and the south Indian mixed deciduous forests. Teak (*Tectona grandis*) is the chief tree species in these forests.

Some commonly found trees in the forests of Jabalpur district include *Terminalia alata*, *Anogeissus latifolia*, *Diospyros melanoxylon*, *Lagerstroemia parviflora*, *Pterocarpus marsupium*, *Madhuca indica*, *Dalbergia paniculata*, *Eeodendron glaucum*, and *Adina cordifolia*.

FLORA

According to Oommachan and Shrivastava (1996), the floral diversity of Jabalpur district is represented by 933 plant species belonging to 585 genera under 139 families. Out of these, dicots are represented by 745 species under 470 genera and 113 families, and monocots by 188 species under 115 genera and 26 families. The first, second and third most dominant families are Leguminosae, Poaceae and Asteraceae respectively. Family Leguminosae is represented by 114 species under 57 genera, Poaceae by 84 species under 54 genera, and Asteraceae by 49 species under 41 genera.

FAUNA

The fauna of Jabalpur district is quite rich and diverse, comprising of 910 species (378 vertebrates and 532 invertebrates) pertaining to numerous animal groups from microscopic protozoa to the large sized mammalia.

Invertebrates

The Protozoa are represented by five species of Sporozoa, the Platyhelminthes or flatworms by nine species of Trematoda, and the Nematelminthes (round worms) by one species of nematode. The Annelida are represented by 26 species.

Phylum Arthropoda comprises the largest and the most diverse group of animals on earth. Among various types of arthropods, spiders play a very important role in nature in balancing insect populations. They are ubiquitous and the most diverse predators of

insects in terrestrial communities. As many as 86 species of spiders are represented in the fauna of Jabalpur district. The Crustacea forms another voluminous group of arthropods and represented by 34 species. The Insecta enjoys the distinction of being the largest group of animals in the world. They are the most conspicuous, ubiquitous and diverse creatures and still not very well known. They are found everywhere in the world, in all types of habitats including oceans. They are the most beneficial as well as the most harmful group of animals to mankind. Among the insects, the order Odonata is represented by 27 species of dragonflies and damselflies. These creatures are much admired for their iridescent colours and excellent flying skills and predation.

The Orthoptera comprising grasshoppers, crickets and mole crickets are represented by 18 species, the Dermaptera (earwigs) by six species, the Blattariae by two species, the Mantodea (mantids) by two species and the economically important order Isoptera (termites) by seven species.

The order Hemiptera includes true bugs is the biggest order of hemimetabolous insects, which undergoes incomplete metamorphosis. The true bugs have piercing and sucking mouthparts and are of great economic importance as hundreds of species are known to attack plants of commercial importance. This group is represented by 76 species including aquatics in the fauna of Jabalpur district, while the Thysanoptera (thrips), equally important economically, are represented by 32 species.

The holometabolous insects are represented by four orders, viz., Coleoptera, Diptera, Lepidoptera and Hymenoptera. The Coleoptera (beetles) are represented by 69 species, Diptera by 11 species of mosquitoes and flies, the Lepidoptera by 39 species of butterflies and 42 species of moths, and the Hymenoptera four 4 species.

The soft bodied molluscan fauna of Jabalpur district includes 27 species. The Annexure-I at the end contains the past records of invertebrates from the district.

Vertebrates

The vertebrates are represented by hundreds of species of freshwater fishes, amphibians, reptiles, birds and mammals. The fish fauna of the district comprises 93 species, of which, rohu, catla and mrigal are important edible fishes. These fishes are found in the Narmada River and its tributaries, and several tanks and ponds dotting the landscape of Jabalpur district.

The amphibians are represented by nine species of Anura including Indian Bullfrog, Common Toad and Common Tree Frog. These creatures are mainly found in the vicinity of ponds, streams, rivers and other water bodies. The common toad *Bufo melanostictus* is very common.

The reptiles comprising lizards, snakes and crocodiles are represented by 32 species. Some common species are Garden Lizard, Forest Lizard, House Gecko, Common Skink,

Bengal Monitor, Common Worm Snake, Rock Python, Rat Snake, Tree Snake, Russell's Viper, and Cobra. The marsh crocodile (*Crocodylus palustris*) is also found in reservoirs.

The avifauna of the district is represented by 194 species and subspecies. The most commonly seen birds are the House Sparrow, Common Crow, Common Myna and Red-vented Bulbul. Common water birds are represented by Grey Heron, Pond Heron, Cattle Egret, Little Egret, and Black winged Stilt. Other commonly occurring birds include kingfishers, orioles, babblers, wagtails, pipits and flycatchers.

The most highly evolved group of animals, the Mammalia, are represented by 50 species and subspecies. Out of which, 22 species and subspecies are of bats, which reveal that Jabalpur district has an incredible diversity of Chiroptera. In the past, many deer species and carnivores used to be seen in the forests of Jabalpur district, but presently, only a few species are left out due to shrinkage of habitat. Tigers were once common but now unheard of. However, panthers are still spotted. Among the Artiodactyla, chital, barking deer and four-horned antelope are found. The curious mammal commonly known as Indian Pangolin or Ant Eater has been spotted right in the heart of Jabalpur city, i.e. Madan Mahal hilly area. The common shrew and few species of rodents, hares and squirrels represent the smaller mammals.

FAUNAL DIVERSITY OF JABALPUR DISTRICT AT A GLANCE

Sl. No.	Group	No. of Species	Location
1.	PROTOZOA	05	Annexure-I
2.	PLATYHELMINTHES	09	Annexure-I
3.	NEMATHELMINTHES	01	Annexure-I
4.	ANNELIDA	26	Chapter-1
5.	ACARINA	09	Chapter-2
6.	ARANEAE	86	Annexure-I
7.	CRUSTACEA (Ostracoda)	26	Chapter-3
8.	CRUSTACEA (Cladocera)	08	Annexure-I
9.	ODONATA	27	Chapter-4
10.	ORTHOPTERA	18	Chapter-5
11.	DERMAPTERA	06	Chapter-6
12.	BLATTARIAE	02	Annexure-I
13.	MANTODEA	02	Annexure-I

Table contd.

Sl. No.	Group	No. of Species	Location
14.	ISOPTERA	07	Annexure-I
15.	HEMIPTERA (Aquatic & Semi-aquatic)	41	Chapter-7
16.	HEMIPTERA	35	Chapter-8
17.	THYSANOPTERA	32	Annexure-I
18.	COLEOPTERA	69	Chapter-9
19.	DIPTERA	11	Annexure-I
20.	RHOPALOCERA & GRYPOCERA	39	Chapter-10
21.	HETEROCCERA	42	Chapter-11
22.	HYMENOPTERA	04	Annexure-I
23.	MOLLUSCA	27	Annexure-I
24.	PISCES	93	Chapter-12
25.	AMPHIBIA	09	Chapter-13
26.	REPTILIA	32	Chapter-14
27.	AVES	194	Chapter-15
28.	MAMMALIA	50	Chapter-16
	Total	910	

ACKNOWLEDGEMENTS

The author is grateful to Dr. Ramakrishna, Director, Zoological Survey of India, Kolkata for facilities and encouragement. Thanks are due to all the contributors for their support, without which this task would not have been complete. Further, I am thankful to Dr. R.M. Sharma, Scientist-D for critically reading the document. Thanks are also due to Shri. M.E. Limje, Photographer Gr. III for his help in taking the photographs. The Author is very much thankful to Shri Rati Ram Verma, Publication Production Officer for his strenuous efforts in bringing out this volume in shortest possible time.

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- State of Forest Report. 2003. Forest survey of India (Ministry of Environment & Forests), Dehra Dun : 1-134.

Errata

Page No. 13 Picture 1
to be read as *Junonia orithya swinhoei* Butler
Common Name **The Blue Pansy**

Page No. 14 Picture 2
to be read as *Junonia lemonias vaisya* Fruhstorfer
Common Name **The Lemon Pansy**

Page No. 14 Picture 3
Common Name **The Lime Butterfly**



Dhuandhar, Bhedaghat, Narmada River, Jabalpur



Madan Mahal Fort, Jabalpur



Argiope aemula (Walckenaer)



Nephila maculata (Fabricius)



Oxyopes pankaji Gajbe & Gajbe



Leucauge decorata (Blackwall)



Orthetrum sabina sabina (Drury) : Dragonfly



Tamea basilaris burmeisteri Kirby: Dragonfly



Scutellera nobilis (Fabricius) : Jatropha Pest

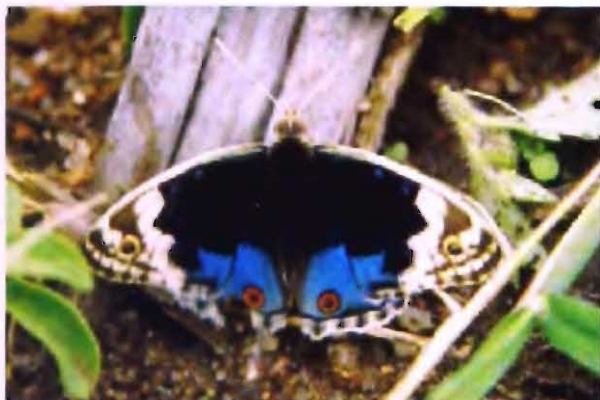


Callitettix versicolor (Fabricius) : Bug



Protoetia alboguttata (Vigors): Cetoniine beetle

*Aphodius moestus* Fabricius*Catharcus molossus* (Linnaeus)*Chiloloba acuta* (Wied.)*Clinteria klugi* (Hope)*Gymnopleurus gemmatus* Harold*Gymnopleurus miliaris* (Fabricius)*Heliocopris bucephalus* (Fabricius)*Orphnus parvus* Wiedman*Protaetia aurichalcea* (Fabricius)



Junonia lemonias vaisya Fruhstorfer
The Lemon Pansy



Catopsilia pomona (Fabricius)
The Lemon Emigrant



Cepora nerissa phryne (Fabricius)
The Common Gull



Danaus genutia (Cramer)
The Common Tiger



Danaus chrysippus chrysippus (Linnaeus)
The Plain Tiger



Euploea core core (Cramer)
The Common Crow



Hypolimnas misippus (Linnaeus)
The Danaid Eggfly



Junonia orithya swinhoei Butler
The Blue Pansy



Papilio demoleus demoleus Linnaeus
The Common Mormon



Symphaedra nais (Forster)
The Baronet



Pachliopta hector (Linnaeus)
The Crimson Rose



Tirumala limniace leopardus (Butler)
The Blue Tiger



Achaea janata (Linnaeus)



Acherontia styx Westwood



Chrysodeixis eriosoma (Doubleday)



Diaphania indica (Saunders)



Grammodes geometrica (Fabricius)



Herse convolvuli convolvuli (Linnaeus)



Hyblaea puera Cramer



Hymenia recurvalis (Fabricius)



Theretra alecto alecto (Linn.)



Theretra silhetensis Boisduval



Creatonotus lactineus Cramer



Antheraea paphia (Linnaeus)



Puntius ticto (Hamilton) Fire Fin Barb



Labeo bata (Hamilton): Bata



Labeo calbasu (Hamilton)



Lepidocephalus (Lepidocephalichthys) guntea (Hamilton) Loach



Rasbora rasbora (Hamilton)



Puntius conchonius (Hamilton)



Bufo melanostictus Schneider
Toad



Tomopterna breviceps (Schneider)
Burrowing Frog



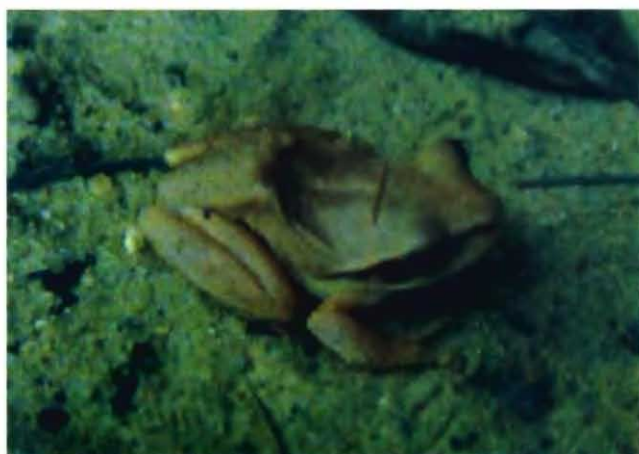
Hoplobatrachus tigerinus (Daudin)
Indian Bull Frog



Kaloula taprobanica Parker
Painted Frog



Microhyla ornata (Dumeril & Bibron)
Ornate Microhyla



Polypedates maculatus Gray
Tree Frog



Calotes versicolor (Daudin)
Indian Garden Lizard



Chamaeleo zeylanicus Laurenti
Indian Chamaeleon



Hemidactylus flaviviridis Rüppell
Yellow- Green House Gecko



Varanus bengalensis Daudin
Indian Monitor Lizard



Mabuya carinata (Schneider)
Common Keeled Grass Skink



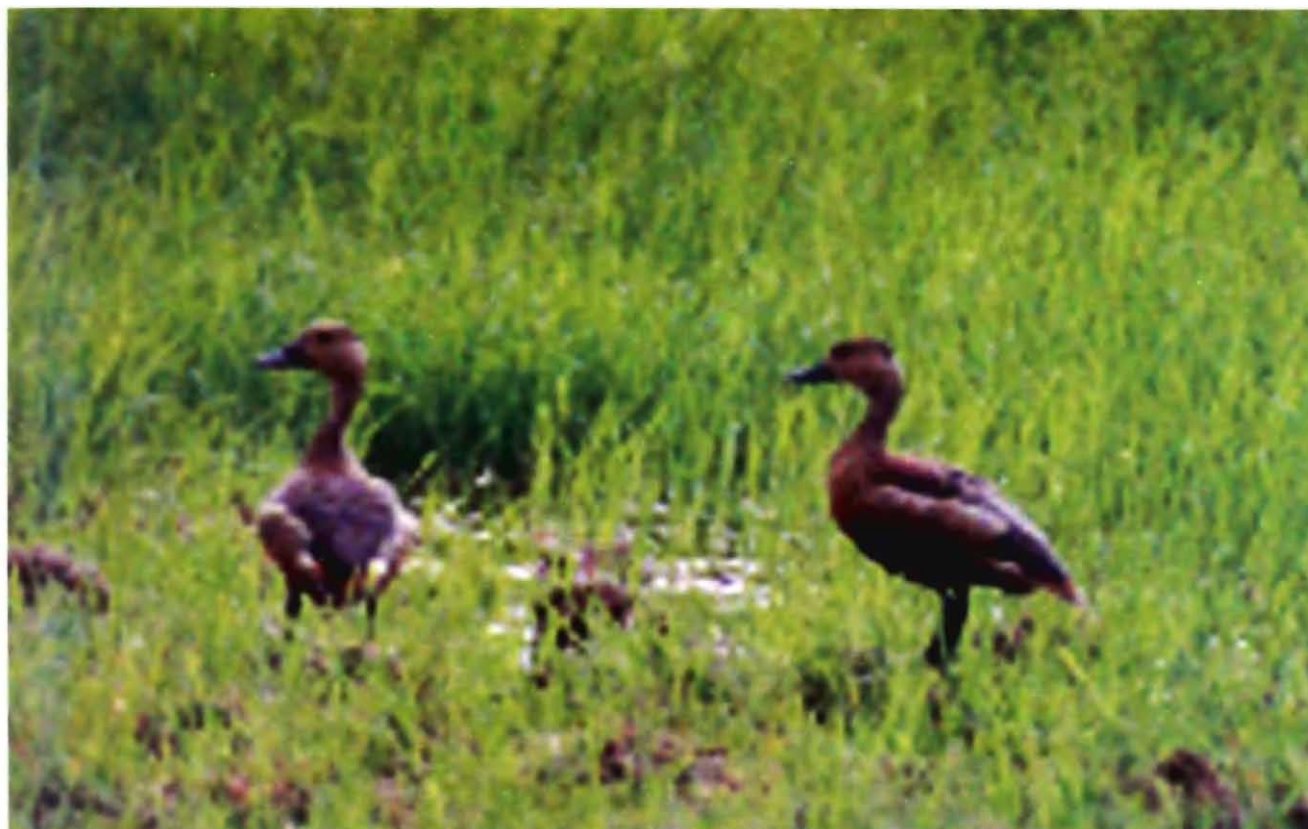
Lissemys punctata punctata (Bonnaterre)
Indian Flap-shell Turtle



Python molurus molurus (Linnaeus) : Indian Rock Python



Vipera russelli (Shaw): Russell's Viper



Tadorna ferruginea (Pallas) : Brahminy Shelduck



Bubulcus ibis Linnaeus : Cattle Egret



Lonchura malacca Linnaeus
Black-headed Munia



Tyto alba (Scopoli)
Barn Owl



Luscinia svecica (Linnaeus)
Bluethroat



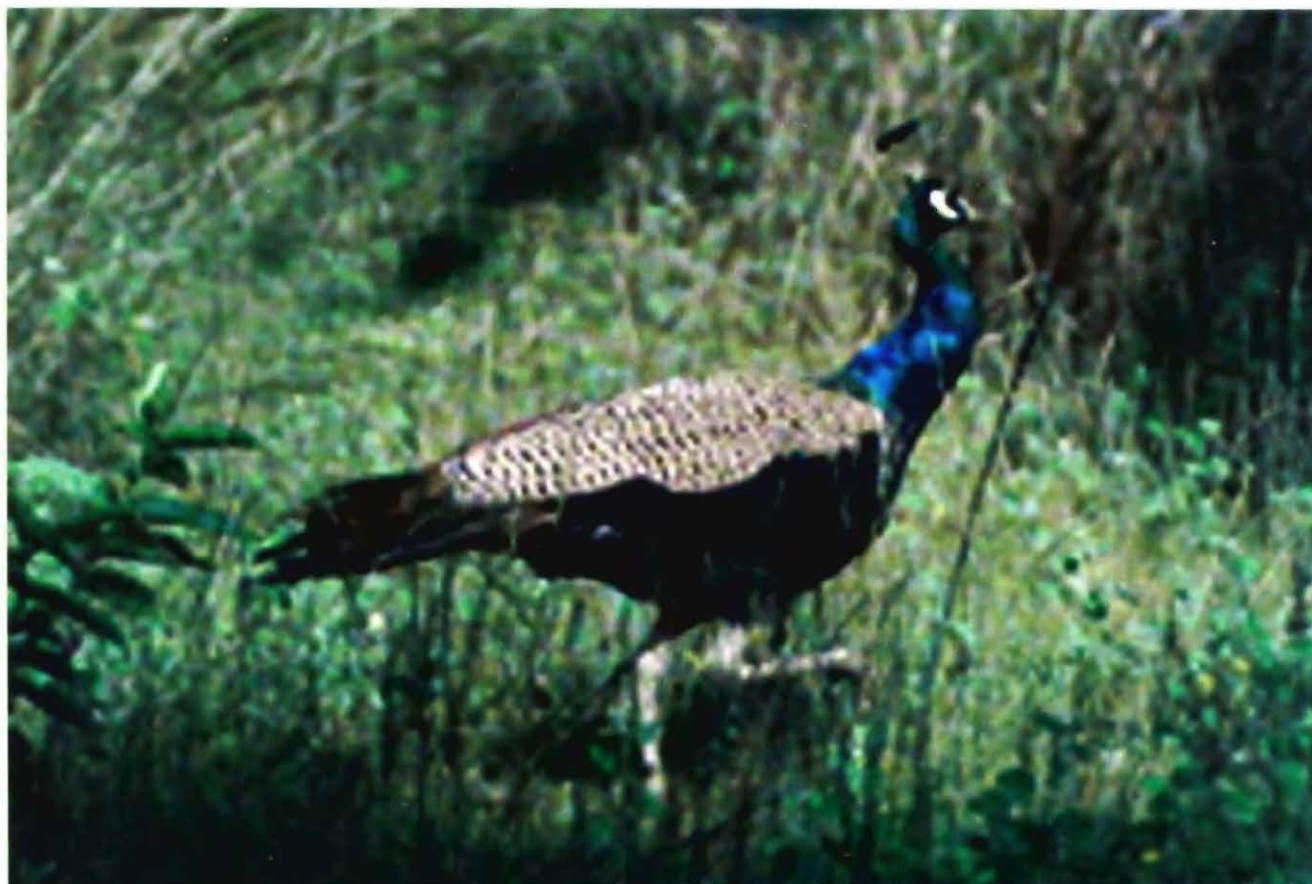
Pseudibis papillosa (Temminck)
Black Ibis



Centropus sinensis (Stephens)
Greater Coucal



Coracias benghalensis (Linnaeus)
Indian Roller



Pavo cristatus Linnaeus
Indian Peafowl



Ocyrceros birostris (Scopoli)
Indian Grey Hornbill



Ardeola grayii (Sykes)
Indian Pond Heron



Casmerodius albus Linnaeus
Large Egret



Phalacrocorax niger (Vieillot)
Little Cormorant



Corvus macrorhynchos Wagler
Jungle Crow



Mycteria leucocephala (Pennant)
Painted Stork



Copsychus saularis (Linnaeus)
Oriental Magpie Robin



Nectarinia asiatica (Latham) : Purple Sunbird



Lonchura punctulata Linnaeus : Spotted Munia



Pycnonotus cafer Linnaeus
Red-vented Bulbul



Alcedo atthis (Linnaeus): Small Blue Kingfisher



Vanellus indicus (Boddaert)
Red-wattled Lapwing



Rhipidura albicollis (Vieillot)
White-browed Fantail - Flycatcher



Amaurornis phoenicurus (Pennant)
White-breasted Waterhen



Ciconia episcopus (Boddaert)
White-necked Stork



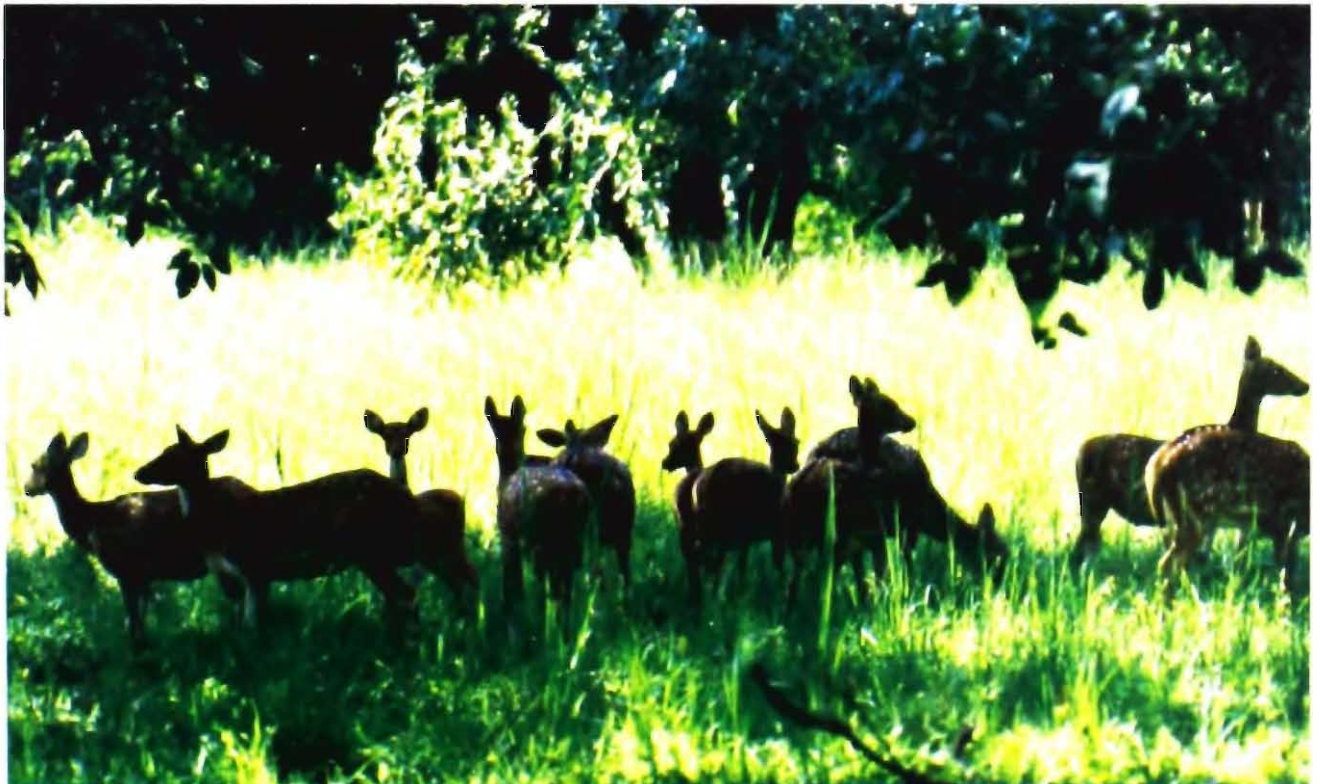
Motacilla alba Linnaeus
White Wagtail



Streptopelia chinensis (Scopoli)
Spotted Dove



Canis aureus aureus Linnaeus : Asiatic Jackal



Axis axis axis (Erxleben) : Cheetal / Spotted Deer



Panthera pardus fusca Meyer : Leopard



Semnopithecus entellus (Dufresne) : Common Langur

ANNELIDA OLIGOCHAETA

RAHUL PALIWAL

Zoological Survey of India, High Altitude Zoology Field Station, Solan -173211(H.P.)

INTRODUCTION

Oligochaete fauna of Jabalpur district of Madhya Pradesh is known from the works of Stephenson (1920) and Gates (1939, 1945, 1949, 1956, 1960, 1973). Stephenson (1920) studied the collections from Central India and 4 species of earthworms were reported from the Jabalpur district which included description of one new species from Jabalpur. Gates (1945, 1949) explored the area and discovered 3 new species from the surroundings of Jabalpur. Subsequent contribution by Gates (1956) revealed the occurrence of 25 species from the district. Julka (1988) revised the taxonomic status of oligochaetes belonging to the family Octochaetidae from Madhya Pradesh. So far, 26 species belonging to 18 genera spread over 5 families have been recognized from the Jabalpur district.

Interestingly, *Deccania alba* and *Perionyx festivus* from Jabalpur district are known only from immature type specimens and detailed morphological studies are needed. Seven species (*Pontoscolex corethrurus*, *Ocnerodrilus occidentalis*, *Dichogaster affinis*, *Dichogaster bolawi*, *Amyntas alexandri*, *Metaphire houlleti*, and *Metaphire posthuma*) are exotic in the district. Another seven species (*Thatonia parva*, *Barogaster barodensis*, *Hoplochaetella khandalaensis khandalaensis*, *Lenogaster falcifer*, *Pellogaster bengalensis*, *Ramiella nainiana*, and *Perionyx millardi*) have limited distribution in India.

Present communication is based on the information available from earlier records. Species distribution localities in Jabalpur district of Madhya Pradesh are italicized.

LIST OF OLIGOCHAETA RECORDED FROM JABALPUR DISTRICT

Phylum ANNELIDA

Class OLIGOCHAETA

Order MONILIGASTRIDA

Family MONILIGASTRIDAE

1. *Drawida calebi* Gates

2. *Drawida willsi* Michaelsen

Order HAPLOTAXIDA

Suborder LUMBRICINA

Superfamily GLOSSOSCOLECOIDEA

Family GLOSSOSCOLECIDAE

3. *Pontoscolex corethrurus* (Müller)

Superfamily MEGASCOLECOIDEA

Family OCNERODRILIDAE

4. *Deccania Alba* Gates5. *Malabaria sulcata* Gates6. *Ocnerodrilus occidentalis* Eisen7. *Thatonia parva* Gates

Family OCTOCHAETIDAE

8. *Barogaster barodensis* (Stephenson)9. *Dichogaster affinis* (Michaelsen)10. *Dichogaster bolau* (Michaelsen)11. *Eudichogaster prashadi* Stephenson12. *Hoplochaetella khandalaensis khandalaensis* (Stephenson)13. *Lenngaster falcifer* (Stephenson)14. *Lenngaster pusillus* (Stephenson)15. *Octochaetona beatrix* (Beddard)16. *Octochaetona surensis* (Michaelsen)17. *Pellogaster bengalensis* (Michaelsen)18. *Ramiella bishambari* (Stephenson)19. *Ramiella nainiana* Gates

Family MEGASCOLECIDAE

20. *Amyntas alexandri* (Beddard)21. *Metaphire houlleti* (Perrier)22. *Metaphire posthuma* (Vaillant)23. *Lampito mauritii* Kinberg

24. *Perionyx festivus* Gates

25. *Perionyx millardi* Stephenson

26. *Perionyx sansibaricus* Michaelsen

Key to the identification of OLIGOCHAETA of Jabalpur, Madhya Pradesh

1. Testes and male funnels intraseptal; male pores in 10/11; clitellum in segments 10-13 2 (Fam. MONILIGASTRIDAE)
 - Testes and male funnels interseptal; male pores posterior to 10/11; clitellum in 13 and posteriad segments 3
2. Genital markings without central pores; genital marking glands spheroidal to oval between epidermis and longitudinal muscle layer *Drawida calebi*
 - Genital markings with central pores; genital marking glands digitiform, slightly protuberant into body cavity *Drawida willsi*
3. Setae alternating between dorsal and ventral positions on posteriad segments ('qincunx' arrangement); prostatic glands absent *Pontoscolex corethrurus*
 - Setae not so arranged; prostatic glands present 4
4. Prostates tubular with central canals 5
 - Prostates racemose without central canals 20 (Fam. MEGASCOLECIDAE)
5. Last pair of hearts in segment 11; dorsal pores usually absent 17 (Fam. OCNERODRILIDAE)
 - Last pair of hearts posterior to segment 11; dorsal pores present 6 (Fam. OCTOCHAETIDAE)
6. Oesophagus with a single gizzard 7
 - Oesophagus with two gizzards 11
7. Discrete calciferous glands present 8
 - Discrete calciferous glands absent 10
8. Setae perichaetine; calciferous glands 4 pairs, in segments 10-13 *Hoplochaetella khandalaensis khandalaensis*
 - Setae lumbricine, calciferous glands one pair 9
9. Holandric; testes and male funnels free or enclosed in cylindrical sacs in 10 and 11; seminal vesicles in 9 and 12 *Octochaetona surensis*

- Metandric; testes and male funnels enclosed in a U-shaped sub-oesophageal sac in 11; male funnels present in 10; seminal vesicles small, in 12 *Octochaetona beatrix*
- 10. Intestine begins in 14; typhlosole rudimentary or absent *Ramiella bishambari*
- Intestine begins in 15; typhlosole simple, lamelliform *Ramiella nainiana*
- 11. Calciferous glands posterior to 13 12
- Calciferous glands anterior to 14 13
- 12. Female pores paired, pesetal, at or just lateral to *a*; genital markings often present, unpaired and median *Dichogaster affinis*
- Female pore single, median; genital markings absent *Dichogaster bolau*
- 13. Calciferous glands two pairs 14
- Calciferous glands more than two pairs 15
- 14. Combined male and prostatic pore on 18; seminal grooves absent
..... *Barogaster barodensis*
- Male pores in seminal grooves on 18, prostatic pores on 17 and 19 at the end of seminal grooves *Eudichogaster prashadi*
- 15. Calciferous glands three pairs in 10-12 16
- Calciferous glands four pairs in 10-13 *Pellogaster bengalensis*
- 16. Spermathecal pores one pair, on 8; prostatic pores one pair on 17
..... *Lenogaster pussilus*
- Spermathecal pores two pairs, on 8 and 9; prostatic pores on 17 and 19
..... *Lenogaster falcifer*
- 17. Extramural calciferous glands paired in 9; gizzard absent
..... *Ocnerodrilus occidentalis*
- Extramural calciferous glands lacking; gizzard present 18
- 18. Oesophagus with one gizzard in segment 7 19
- Oesophagus with two gizzards in segment 6 and 7 *Deccania alba*
- 19. Quadrithecal, spermathecal pores in 7/8/9; prostatic pores in 17, 19; male pores on 18
..... *Thatonia parva*
- Bithecal, spermathecal pores in 8/9; prostatic pore at anterior end and male pores at posterior end, in a diagonal fairly deep seminal groove with anterior end lateral to *b* line and posterior end about at *a* line, on 17 *Malabaria sulcata*

20. Nephridia stomate and with preseptal funnels 21
 – Nephridia astomate, atleast in some parts of the body 23
21. Last pair of hearts in 12 *Perionyx sansibaricus*
 – Last pair of hearts in 13 22
22. Gizzard small, muscular in 5; intestine begins in 17 *Perionyx festivus*
 – Gizzard slightly developed in 6; intestine begins in 18 or 19 *Perionyx millardi*
23. Male pores discharging into the copulatory pouches opening onto body surface through secondary male pores 24
 – Male pores discharging either directly onto body surface or on the slightly raised porophores 25
24. Spermathecal pores 4 pairs in furrows 5/6/7/8/9; genital markings paired on equators of segment 17 and 19 *Metaphire posthuma*
 – Spermathecal pores 3 pairs in furrows 6/7/8/9; genital markings small, within copulatory pouches and spermathecal pore invaginations recognizable internally by the presence of stalked glands *Metaphire houlleti*
25. Spermatheca bidiverticulate; intestinal caeca absent; penial setae present
 *Lampito mauritii* ,
 – Spermatheca unidiverticulate; intestinal caeca present; penial setae absent
 *Amyntas alexandri*

SYSTEMATIC ACCOUNT

Class OLIGOCHAETA

Order MONILIGASTRIDA

Family MONILIGASTRIDAE

1. *Drawida calebi* Gates, 1945

1945. *Drawida calebi* Gates, *Proc. Indian Acad. Sci.*, (B) 21(4) : 211.

1987. *Drawida calebi*, Julka & Senapati, *Rec. zool. Surv. India, Occ. Paper No.*, 92 : 38.

Diagnosis : Length 32-83 mm, diameter 2-4.5 mm, 115-170 segments. Dorsal pores absent. Setae lumbricine. Clitellum 10-13. Male pores paired, transverse slits, on 10/11, at mid *bc*; female pores paired, at or just posterior to 11/12. Spermathecal pores paired, on

7/8, median to *c* lines. Genital markings small, presetal or postsetal, usually single and median or closely paired in *aa*, and widely paired in *bc*, on 7-13; sometimes widely paired in *ab* on 12 and closely paired in *aa* on 7-11; one of the paired markings sometimes absent or doubled or tripled. Nephridiopores in a single series on or close to *d* lines.

Septa all present from 4/5, 5/6-9/10 muscular. Gizzards 2-4, in 12-17; intestine begins in 26 (± 1); intestinal caeca and supra-intestinal glands absent. Testes and male funnels intraseptal in paired dorsal testis sacs. Vas deferens short, in a small column of loops in 9, almost straight in 10, entering the anteromedian aspect of the prostate directly. Prostates muscular without coelomic glandular layer, almost spheroidal, sessile on the parietes, with an internal ventral portion protrusible as a shortly tubular penis. Spermathecal atrium conical, in 8, smaller than prostate. Genital marking glands spheroidal to shortly oval, concealed beneath longitudinal muscles. Holonephridia in 3 and posteriad segments.

Distribution : India : Madhya Pradesh (Jabalpur, Satna); Karnataka; Orissa; Uttar Pradesh.

2. *Drawida willsi* Michaelsen, 1907

1907. *Drawida willsi* Michaelsen, *Mitt. naturh. Mus. Hamb.*, **24** : 145.

1987. *Drawida willsi*, Julka & Senapati, *Rec. zool. Surv. India, Occ. Paper No.*, **92** : 40.

Diagnosis : Length 55-60 mm, diameter 2.5 mm, 155-160 segments. Dorsal pores absent. Setae lumbricine. Clitellum 10-13. Males pores paired minute, at or very close to *b* lines, on or in line with 10/11; each pore on ventral end of slightly depressed or conically protuberant central area of circular to oval porophore. Spermathecal pores paired, small, at or close to 7/8, at *ab*. Genital markings paired, circular, smaller than male porophores, with minute central pores, on 9/10, on or near *b* lines; one of the paired markings sometimes absent. Nephridiopores, whenever recognizable, are in or very close to *cd*, on 7-17; pores on 10 functional.

Septa all present from 4/5, 5/6-9/10 muscular. Gizzards 2-4, in 12-15; intestine begin in 21, sometimes in 22 or 23; intestinal caeca and supra-intestinal glands absent. Testes and male funnels intraseptal in paired dorsal testis sacs. Vas deferens rather thick relative to size of worm, rather short, in several loops on anterior face of septum 9/10 around the hearts, several further loops on the posterior face of 9/10 entering the ental end of the prostate directly. Prostates glandular, erect; capsule digitiform. Spermathecae paired, in 8; atrium digitiform, in 7, as long as or slightly longer than the prostate, arising from the ental end of the spermathecal duct. Genital marking glands digitiform, occasionally or slightly protuberant into coelomic cavity, smaller than the prostates. Holonephridia in 3 and posteriad segments.

Distribution : India : Madhya Pradesh (Jabalpur, Satna); Andhra Pradesh; Chhattisgarh; Orissa; Uttar Pradesh.

Order HAPLOTAXIDA
Suborder LUMBRICINA
Superfamily GLOSSOSCOLECOIDEA
Family GLOSSOSCOLECIDAE

3. *Pontoscolex corethrurus* (Müller, 1857)

1857. *Lumbricus corethrurus* Müller, *Abhandl. Naturgesch. Ges. Halle*, 4 : 26.

1923. *Pontoscolex corethrurus*, Stephenson, *Fauna Br. India, Oligochaeta* : 489.

Diagnosis : Length 48-120 mm, diameter 2-6 mm, segments 60-232. Prostomium absent. Clitellum saddle shaped, 16-22, may extend to 15, 23; tubercula pubertatis, translucent longitudinal bands, just lateral to *b*, on 18, 19-21, 22, 23. Genital tumescences around *a, b* or *a* or *b*, (14, 18) 19-21 (22). Setae lumbricine, 1-2 closely paired, *ab* and *cd* gradually wider from 3, one rank after another becoming more and more irregular until the "quincunx" arrangement is attained, towards the posterior end enlarged and ornamented ectally by transverse rows of fine teeth, one or both setae of ventral couples in some of 14-22 genital and ornamented ectally with rows of gouges. Nephridiopores, obvious, present or absent in 2-3, in a single longitudinal rank on each side, about at *c* anteriorly and remaining about at mid-lateral throughout. Spermathecal pores 3 pairs, minute, at *c*, at or close to 6/7-8/9. Male pores minute, probably on 20/21. Female pore, on left side, a minute transverse slit at *ab*, slightly in front of 14/15.

Intestine begins in 14 or 15; typhlosole lamelliform, beginning in region of 21-25. Last pair of hearts in 11. Male funnels large; sperm duct without epididymis, slender; seminal vesicles one pair, lacking or rudimentary on one or both sides, or small, curving around oesophagus, in 12, so as to seem to be in contact with 9/10 or larger on one or both sides. Ovaries small under testis sacs. Spermathecae long, club-shaped; ducts slender, much longer than ampulla. Prostatic glands absent. Tubercula pubertatis glands acinous, just lateral to *b*, present on one or both sides, in 20-21, supraparietal.

Distribution : India : Madhya Pradesh (Jabalpur); Andaman & Nicobar Islands; Andhra Pradesh; Gujarat; Karnataka; Kerala; Maharashtra; West Bengal; Tamil Nadu.

Elsewhere : Africa, Madagascar and its adjacent islands, Iran, Pakistan, Sri Lanka, Myanmar, Thailand, Cambodia, Malay Peninsula, Indonesia, Phillipines, Hongkong, Australia, some islands of Pacific ocean, U.S.A., Mexico, West Indies, south America.

Superfamily MEGASCOLECOIDEA
Family OCNERODRILIDAE

4. *Deccania alba* Gates, 1949

1949. *Deccania alba* Gates, *Proc. Indian Acad. Sci.*, (B) 30(5) : 279.

1987. *Deccania alba*, Julka & Senapati, *Rec. zool. Surv. India, Occ. Paper No.*, 92 : 16.

Diagnosis : Length 47-66 mm, diameter 2-2.5 mm, 137-190 segments. Prostomium prolobic. First dorsal pore in 12/13. Clitellum saddle shaped, 14-1/2-22. Setae lumbricine; closely paired, $ab=cd$, $bc<aa$, $dd=1/2$ C. Male pores paired, minute, in seminal grooves on 18, near *a*; prostatic pores paired, minute, at the ends of seminal grooves on 17 and 19, in *ab*. Female pores paired, presetal, on 14, near *b* lines. Spermathecal pores paired, inconspicuous, in 7/8/9, at *b*. Genital markings paired, usually postsetal, on 20-21 at *ab*, sometimes on 9, 10, 14 or 15 at *bc* or *ab*.

Septa 5/6-9/10 muscular. Oesophagus with 2 gizzards, in 6-7, moniliform in 8-11; extramural calciferous glands, intestinal caeca, and supra-intestinal glands absent; typhlosole simple, lamelliform, in 13 to 40; intestine begins in 12. Last hearts in 11. Metandric, testes and male funnels free, in 11; seminal vesicles in 12. Spermathecae paired, in 8 and 9, adiverticulate; duct narrow, longer than saccular ampulla. Prostate tubular; prostatic duct about 1mm long, narrower than gland, with slight muscular sheen. Genital marking glands long, prostate-like.

Distribution : India : Madhya Pradesh (Jabalpur); Orissa.

5. *Malabaria sulcata* Gates, 1945

1945. *Malabaria sulcata* Gates, *Proc. Indian Acad. Sci.*, (B)21(4) : 218.

1987. *Deccania alba*, Julka & Senapati, *Rec. zool. Surv. India, Occ. Paper No.* 92 : 18.

Diagnosis : Length 27-55 mm, diameter 0.6-1.5 mm, 97-111 segments. Prostomium epilobic, tongue open. Dorsal pores absent. Clitellum saddle-shaped, 13,14-20, 21, reaching ventrally to *b* lines, indistinct, recognized only by a faint yellowish appearance and absence of intersegmental furrows. Setae lumbricine. Male and prostatic pores minute, at anterior and posterior ends of seminal grooves respectively, on 17; seminal grooves on diagonally placed porophores, convergent posteriorly. Female pores on 14, at or slightly lateral to *b*. Spermathecal pores paired, small transverse slits, in 8/9, at or close to *b*. Genital markings absent.

Septa 6/7-8/9 muscular. Oesophagus with a single gizzard in 7, ventral wall thickened and vascular in 9 and 10; extramural calciferous glands, intestinal caeca, supra-intestinal glands and typhlosole absent; intestine begins in 12. Metandric, seminal vesicles in 12. Prostates long, extending posterior to 22-30 or even a few segments more. Spermathecae paired, elongate, in 9. Paired pyriform bodies protuberant into coelomic cavity in, which open to exterior along with the vasa deferentia into the seminal grooves.

Distribution : India : Madhya Pradesh (Jabalpur, Rewa, Satna); Orissa; Uttar Pradesh.

6. *Ocnerodrilus occidentalis* Eisen, 1878

1878. *Ocnerodrilus occidentalis* Eisen, *Nova Acta R. Soc. Sci. Upsaliensis (Series 3)*, 10 (4) : 10.

1945. *Ocnerodrilus tenellulus* Gates, *Proc. Indian Acad. Sci.*, (B)21 : 223.

1956. *Ocnerodrilus tenellulus* Gates, *Proc. natn. Acad. Sci. India*, (B)26(1) : 152.

1973. *Ocnerodrilus occidentalis* Gates, *Bull. Tall Timbers Res. Stn.*, 14 : 14.

Diagnosis : Length 12-46 mm, diameter 0.8-2 mm, 67-84 segments. Prostomium epilobic, tongue open but sometimes closed. Dorsal pores absent. Clitellum annular, 1/2 13, 14-1/2 20. Setae lumbricine, closely paired. Combined male and prostatic pores minute, paired, on 17, each at centre of a tuberculate to shortly conical porophore, lateral to *b* lines. Female pores paired, slightly lateral to *b*, on 14. Spermathecal pores and genital markings absent. Nephridiopores near *b* lines.

Septa 5/6-11/12 muscular. Oesophagus without gizzard, but with a pair of extramural calciferous glands in 9; intestinal caeca, supra-intestinal glands and typhlosole absent. Last pair of hearts in 11. Holandric; testes and male funnels free, in 10 and 11; seminal vesicles absent. Spermathecae absent. Prostates paired, in 17, extending to 18. Holonephric, nephridia apparently avesculate.

Distribution : India : Madhya Pradesh (Jabalpur); Andaman & Nicobar Islands; Himachal Pradesh; Jammu & Kashmir; Karnataka; Kerala; Maharashtra; Orissa; Rajasthan; Uttarakhand; Uttar Pradesh.

Elsewhere : Pakistan, Myanmar, Sri Lanka, Singapore, Vietnam, China, Japan, Central Asia Basin, Philippines, British Solomon Islands, New Hebrides Islands, Israel, Lebanon, Great Comoro, Rhodesia, Southwest Africa, Italy, Spain, Greece, Denmark, Cape Verde Islands, Canary Islands, Madeira Islands, Mexico, U.S.A., St. Thomas Island.

7. *Thatonia parva* Gates, 1945

1945. *Thatonia parva* Gates, *Proc. Indian Acad. Sci.*, (B)21(4) : 217.

Diagnosis : Length 24-45 mm, diameter 1.5-2 mm. Prostomium epilobic, tongue open. Dorsal pores absent. Clitellum 14-21. Setae lumbricine, closely paired; behind the prostatic region *bc* is quite definitely smaller than *aa*, *dd* eH ½C; ventral setae on 17-20 lacking; Genital shield transversely placed extending well into *bc*, raised apparently an area of marked epidermal thickening. Seminal grooves crescent- or parenthesis-shaped, the concave sides laterally, ends deepened along setal arcs of 17 and 19 in *ab*. Male and prostatic pores unrecognizable; male pores paired, in seminal grooves, on 18; prostatic pores paired, at the ends of seminal grooves, on 17 and 19. Female pores paired, on 14. Spermathecal pores on or immediately lateral to *b* lines on both 7/8 and 8/9. Genital markings present on 20.

Oesophagus with single gizzard in 7, widened and moniliform in 8-9, without discrete calciferous glands, but with the ventral wall thickened in 9-10 containing dendritically branched system of spaces; intestinal caeca, supra-intestinal glands and typhlosole absent;

intestine begins in 12. Vas deferens pass into the parietes in line with prostatic ducts, nearer to anterior ducts, at 17/18. Prostates, including ducts, about 10 mm long, ducts slender and long enough to reach backwards through four segments. Spermathecal ampulla thin-walled, transparent, elongately saccular, much longer than the duct, not much wider than the duct even at ental end; duct circular in cross section, thick-walled, reaching only shortly into coelomic cavity, with narrow lumen. Genital marking glands are of same size and appearance as the prostates.

Distribution : India : Madhya Pradesh (Jabalpur, Rewa and Satna); Uttar Pradesh.

Family OCTOCHAETIDAE

8. *Barogaster barodensis* (Stephenson, 1914)

1914. *Eudichogaster barodensis* Stephenson, *Rec. Indian Mus.*, 10 : 358.

1988. *Barogaster barodensis*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 70.

Diagnosis : length 65-100 mm, diameter 3-4 mm, 138-167 segments. First dorsal pore 12/13. Clitellum $1/3$ 12, 13-17, $1/3$ 18. Setae lumbricine. Combined male and prostatic pores minute, discharging on oval porophores, at *b*. Female pores presetal. Spermathecal pores minute, on oval tumescences, in 7/8, at or just lateral to *b*. Genital markings small, circular to oval, 2-11, in single transverse row, at *aa* or *bb*, presetal or on setal arc on 8, postsetal on 7, 16-19, rarely on setal annulus of 9.

Oesophagus with 2 gizzards in 5-6 and 2 pairs of discrete extramural calciferous glands in 11-12; Supra-intestinal 'grid-like' thickening extends through 8-12 segments, in 68-79 to 78-89; typhlosole lamelliform, simple, in 24-26 to the last 'grid' segment. Testes and male funnels free, in 10 and 11; seminal vesicles in 9, 10 and 12, those of 10 vestigial. Penial setae ornamented with 6-11 circles of fine spines, tip bluntly rounded. Each spermatheca with a cauliflower-shaped sessile ental diverticulum, duct shorter than ampulla. Genital marking glands absent. Micromeronephridia astomate; megameronephridia stomate, paired in each of few posteriormost segments.

Distribution : India : Madhya Pradesh (Jabalpur), Gujarat.

9. *Dichogaster affinis* (Michaelsen, 1890)

1890. *Benhamia affinis* Michaelsen, *Jb. Hamb. Wiss. Anst.*, 7 : 29.

1988. *Dichogaster affinis*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 100.

Diagnosis : Length 27-60 mm, diameter 1-2 mm, 105-140 segments. Prostomium epilobic, tongue closed. First dorsal pore 5/6. Clitellum annular, 13, 14-21, 22. Setae

lumbricine. Male pores paired, minute, in seminal grooves on setal arc of 18, at *a*; prostatic pores paired, minute, at the ends of almost straight or slightly concave seminal grooves on 17 and 19 at *a*. Female pores paired, presetal, minute, on 14, at or just lateral to *a*. Spermathecal pores minute, in 7/8/9, at or close to *a*. Genital markings often present, unpaired and median on 8/9/10, sometimes on 7/8, 10/11/12.

Septa 4/5, 7/8-12/13 slightly muscular, 5/6/7 absent. Oesophagus with 2 gizzards between septa 4/5 and 7/8; one pair of discrete, trilobed, extramural calciferous glands, a vertically reniform lobe in each of segments 15-17 with a common duct opening into the gut in 16; typhlosole lamelliform, simple, 21 to 68-76 (?), 90-91; supra-intestinal glands, intestinal caeca absent. Last pair of hearts in 12. holandrix, Testes and male funnels in unpaired sacs, in 10 and 11, formed by the peripheral apposition of the septa 9/10/11/12; seminal vesicles in 11 and 12, vestigial. Prostates 2 pairs, in 17 and 19. Pineal setae slightly sinuous ectally, ornamented with scale like markings or teeth in sinuosities, tip bluntly rounded, knobbed or truncate. Spermathecae paired, in 8 and 9, each with a shortly stalked ental diverticulum. Genital marking glands circular to slightly dome-shaped, concealed underneath longitudinal muscle layer. Micromeronephridia astomate, paired enteronephric tufts in 2-4, several exonephric on the bodywall in 5 and posterior segments, arranged in longitudinal rows posterior to prostatic region; paired, stomate, exonephric megameronephridia in a few posteriormost segments.

Distribution : India : Madhya Pradesh (Jabalpur); Arunachal Pradesh; Gujarat; Karnataka; Kerala; Maharashtra; Meghalaya; Orissa.

Elsewhere : Sri Lanka, Myanmar, Thailand, Pacific Ocean Islands, Cape Verde Island, Southwest Africa, Madagascar, Zanzibar, Comoro Island, Mexico, El Salvador, French Guiana, Brazil, West Indies (Haiti, St. Thomas).

10. *Dichogaster bolau* (Michaelsen, 1891)

1891. *Benhamia bolavi* Michaelsen, *Jb. Hamb. Wiss. Anst.*, 8 : 9.

1988. *Dichogaster bolau*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 103.

Diagnosis : Length 19-43 mm, diameter 1-3 mm, 70-98 segments. Prostomium epilobic, tongue pointed and closed. First dorsal pore 5/6, sometimes 6/7. Clitellum annular, 13, 14-18, 19, 20, 1/2 21. Setae lumbricine. Male pores minute, paired, in seminal grooves, on the setal arc of 18, at *a* lines; prostatic pores paired, minute, at the ends of slightly concave seminal grooves on 17 and 19 at *a*. Female pore unpaired, median, presetal on 14. Spermathecal pores paired, in furrows 7/8/9, at *a*. Genital markings absent.

Septa 4/5, 7/8-12/13 slightly muscular, 5/6/7 absent. Oesophagus with 2 gizzards between septa 4/5 and 7/8; one pair of discrete, trilobed, extramural calciferous glands, a vertically reniform lobe in each of segments 15-17 with a common duct opening into the

gut in 16; typhlosole simple, lamelliform in 21-22 to 68-76.; supra-intestinal glands, intestinal caeca absent. Last pair of hearts in 12. Holandric; testes and male funnels enclosed in unpaired sacs in 10 and 11, formed by peripheral apposition of septa 9/10/11/12; seminal vesicles acinous, vestigial in 11 and 12. Prostates 2 pairs, in 17 and 19. Penial setae unornamented or ornamented with a few triangular teeth at ectal end, tip slightly hooked or oar-shaped. Spermathecae paired in 8 and 9, each with a small, pyriform, pendent, ental diverticulum, duct enlarged and somewhat barrel-shaped. Micromeronephridia astomate, paired enteronephric tufts in 2-4, several exonephric on the body wall in 5 and posterior segments, arranged in longitudinal rows posterior to prostatic region; paired, stomate, exonephric megameronephridia in a few posteriormost segments.

Distribution : India : Madhya Pradesh (Jabalpur and Rewa); Andaman & Nicobar Islands; Andhra Pradesh; Arunachal Pradesh; Delhi; Goa; Gujarat; Haryana; Himachal Pradesh; Karnataka; Kerala; Maharashtra; Meghalaya; Orissa; Rajasthan; Sikkim; Tamil Nadu; Uttarakhand; Uttar Pradesh; West Bengal.

Elsewhere : Sri Lanka, Pakistan, Bangla Desh, Myanmar, Malay Peninsula, Vietnam, China, Hainan Island, Japan, Indonesia, Philippines, New Caledonia, New Ireland, New Hebrides, Caroline, Marianas, Hawaiian Island, Palau, Loyalty, Solomon, Easter Islands, Rennel Island(?), New Guinea, Australia, Cameroons, Congo, Madagascar, Seychelles, Guyana, Mozambique, Nigeria, Southern Rhodesia, Uganda, Angola, South Africa, Germany, Cape Verde Island, Comoro Island, West Indies (Haiti, Jamaica, Dominican Republic, Trinidad), U.S.A., Mexico, Panama, Colombia, French Guiana, Brazil, Argentina, Bolivia, Venezuela.

11. *Eudichogaster prashadi* Stephenson, 1920

1920. *Eudichogaster prashadi* Stephenson, *Mem. Indian Mus.*, 7 : 250.

1960. *Eudichogaster prashadi*, Gates, *Ann. Mag. Nat. Hist. (ser. 13)*, 3 : 647.

1988. *Eudichogaster prashadi*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 125.

Diagnosis : Length 35, 60-145 mm, diameter 3, 4-7 mm, 140-190 segments. Prostomium prolobic. First dorsal pore 12/13. Clitellum 13-16, 17. Setae lumbricine; usually *a*, *b* on 8 and 9, sometimes *c* on 9 copulatory, being surrounded by epidermal tumescences. Male genital field tumescent without special demarcation, on 17-19, with or without a deep slit-like depression along eq/18, and with a deep longitudinal depression on 17 and 19. Male pores minute, paired, in seminal grooves, on the setal arc of 18, at *ab*; prostatic pores minute, paired, at the ends of seminal grooves, on 17 and 19, at *ab*; seminal grooves biconcave, wide and shallow or narrow and deep. Spermathecal pores minute, on the setal arcs of 8 and 9, at *ab*. Genital markings circular to oval, with 1-9 small circular translucent areas that are irregularly distributed or in transverse rows. They are located as follows : unpaired and median, at *aa*, primarily presetal on 9, 10, 11, 21 and some of

posteriad segments, primarily postsetal on 14, 15, 16; paired extending from *a* or *b* well into *bc*, primarily postsetal on 16, primarily presetal on 20.

Oesophagus with 2 gizzards, in 5-6 and two pairs of discrete extramural calciferous glands, in 11-12; supra-intestinal glands 7-9 pairs, in 76-89; typhlosole lamelliform, simple. Last pair of hearts posterior to 12. Holandric, testes and male funnels free, in 10 and 11; seminal vesicles in 9 and 12, pseudovesicles in 13-14. Each spermatheca with a flat, disc-like, multiloculate ental diverticulum, duct about as long as or slightly shorter than ampulla. Copulatory setae ornamented with several longitudinal rows of excavations, tip claw-shaped, 0.47-0.74 mm long, 16-19 μ diameter. Micromeronephridia astomate; paired enteronephric tufts on the body wall in 3; several exonephric on the body wall in 4 and posteriad segments, fewer arranged in longitudinal rows behind clitellum; paired, stomate, exonephric megameronephridia in each of caudal segments.

Distribution : India : Madhya Pradesh (Jabalpur, Betul, Bina, Indore, Khandwa, Sagar); Gujarat; Maharashtra; Rajasthan.

12. *Hoplochaetella khandalaensis khandalaensis* (Stephensen, 1924)

1924. *Erythraeodrilus khandalaensis* Stephenson, *Rec. Indian Mus.*, **26** :350

1988. *Hoplochaetella khandalaensis khandalaensis*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 196.

Diagnosis : Length 85-210 mm, diameter 4-7 mm, 90-138 segments. Prostomium epilobic, tongue open. First dorsal pore 4/5- 6/7. Clitellum 13, $\frac{1}{2}$ 13-16. Setae perichaetine, *a-c* on 8 copulatory, usually shifted around anterior pair of spermathecal pore. Combined male and prostatic pores minute, at about centres of oval porophores, on or close to sites of 17/18 and 18/19, at *bc*. Spermathecal pores minute, 2 pairs, on 8, at *ac*, slightly near to setal arc than to the intersegmental furrows. Genital markings oval with tiny slit-like central apertures, unpaired, median postsetal on 19.

Septa 4/5 slightly muscular, 5/6/7/8 delicate, 8/9-12/13 muscular. Oesophagus with single gizzard in 6; discrete extramural calciferous glands, 4 pairs, in 10-13; typhlosole simple lamelliform, 24-25 to 108; intestinal caeca and supra-intestinal glands absent. Supra-oesophageal vessel single, 9-13; subneural vessel present; last pair of hearts in 13. Lymph glands unpaired in 15 and posteriad segments. Testes and male funnels in 10 and 11, enclosed in unpaired sacs, formed by peripheral union of septa 9/10/11/12; seminal vesicles in 9, 10 and 12, those of 10 rudimentary. Vasa deferentia enlarged into bulbous ejaculatrice before opening into prostatic ducts. Penial setae ornamented with a few short serrated ridges. Spermathecae 2 pairs in 8, each with a circle of 8-17 ventrally directed, adherent to duct, sinuous, digitiform ental diverticula. Copulatory setae ornamented with short transverse rows of small teeth. Copulatory setal glands 3-5 mm long, in paired coelomic sacs in 8, each sac with 3 glands. Parietal glands paired, median to the ectal ends of the prostatic ducts, in 17, 18, and 19. Genital marking glands tubular, sausage-shaped,

4.5-13 mm long. Micromeronephridia astomate; megameronephridia stomate, paired in 12-14 and posteriad segments, discharging into a pair of lateral, parietal, longitudinal excretory canals opening separately into rectum; each megameronephridium with a large functional funnel and several vestigial funnels, close to nerve cord.

Distribution : India : Madhya Pradesh (Jabalpur); Maharashtra.

13. *Lennogaster falcifer* (Stephensen, 1920)

1920. *Eudichogaster falcifer* Stephenson, *Mem. Indian Mus.*, 7 : 252.

1988. *Lennogasterfalcifer*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 248.

Diagnosis : Length 40-70 mm, diameter 2-3 mm, 142-151 segments. Prostomium proepilobic, tongue closed. First dorsal pore 12/13. Clitellum 13-17. Setae lumbricine, *a* on 7 copulatory, being surrounded by tumescences. Male genital field shortly oval, between 16/17 and 19/20. Male pores paired, minute, in seminal grooves on the setal arc of 18, at or little median to *b*; prostatic pores paired, minute, at the ends of seminal grooves on the setal arcs of 17 and 19, at *a*; seminal grooves concave, extending from the setal arc on 17 to setal arc on 19, at *ab*. Female pores paired, on 14. Spermathecal pores minute, on circular tumescent areas, presetal on 8 and 9, at or slightly lateral to *a*. Genital markings oval, at *aa*, usually paired on 18, sometimes unpaired and median areas of tumescence on 20/21.

Septa 4/5/6/7 delicate, 7/8 slightly muscular, 8/9-12/13 muscular. Oesophagus with 2 gizzards, in 5-6 and three pairs of discrete extramural calciferous glands, in 10-12; intestine begins in 15; intestinal caeca and supra-intestinal glands absent; typhlosole simple, lamelliform, in 19-20 to 60-83. Holandric, testes and male funnels free, in 10 and 11; seminal vesicles acinous, in 9 and 12. Prostates two pairs, in 17 and 19. Penial setae ornamented with marginal indentations or numerous fairly large triangular spines, tip chisel-shaped, membranous or bifid or pointed with a short hair or spine. Spermathecae 2 pairs, in 8-9, each with a digitiform, usually dorsally directed, ental diverticulum, duct slightly shorter than ampulla. Copulatory setae ornamented with few scattered gouges or unornamented, tip rounded. Genital markings absent. Micromeronephridia astomate; paired enteronephric tufts in iii; few, exonephric on the body wall in iv and posteriad segments, arranged in 3-5 longitudinal rows in postclitellar segments. Paired, stomate, exonephric megameronephridia in each of a few posteriormost segments

Distribution : India : Madhya Pradesh (Jabalpur and Sagar).

14. *Lennogaster pusillus* (Stephensen, 1920)

1920. *Eudichogaster pusillus* Stephenson, *Mem. Indian Mus.*, 7 : 253.

1988. *Lennogasterpusillus*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 252.

Diagnosis : Length 20-68 mm, diameter 1-2.5 mm, 105-132 segments. Prostomium proepilobic, tongue closed. First dorsal pore 11/12, sometimes 12/13. Clitellum annular, 13-17. Setae lumbricine, no setae copulatory. Male genital field transverse on 17. Male pores paired, minute, at posterior ends of diagonally placed seminal grooves in or near 17/18, at *b* lines; prostatic pores paired, minute, on the setal arc of 17 at anterior ends of seminal grooves, at *a*; seminal grooves crescentic, located on diagonally placed oval porophores in a transverse, bean-shaped depression with concavity posteriad, extending from setal arc on 17 to 17/18, at *ab*. Female pores paired, presetal, within *a* lines on 14. Spermathecal pores paired, minute, presetal, about midway between furrow 7/8 and setal arc of segment 8, slightly lateral to *a* lines. Genital markings absent.

Septa 4/5-7/8 delicate, 8/9-12/13 slightly muscular. Oesophagus with 2 gizzards, in 5-6 and three pairs of discrete extramural calciferous glands in 10-12; intestine begins in 15; intestinal caeca and supra-intestinal glands absent; typhlosole simple, lamelliform in 17-18 to 70-76. Proandric but also with male funnels in 11, testes and male funnels in 10 enclosed in paired sacs; seminal vesicles absent. Prostates one pair, in 17. Penial setae ornamental with a few small triangular teeth, tip widened and membranous with ectal end slightly indented. Spermathecae paired, in 8, each with a sessile, spheroidal to tubularental diverticulum, ampulla longer than the duct, at right angle to the latter. Micromeronephridia astomate; paired enteronephric tufts in 3; few, exonephric on the body wall in 4 and posteriad segments, arranged in 3-5 longitudinal rows in postclitellar segments. Paired, stomate, exonephric megameronephridia in each of a few posteriormost segments.

Distribution : India : Madhya Pradesh (Jabalpur, Rewa and Sagar); Himachal Pradesh; Karnataka; Orissa; Uttarakhand; Uttar Pradesh.

15. *Octochaetona beatrix* (Beddard, 1902)

1902. *Octochaetus beatrixi* Beddard, *Ann. Mag. nat. Hist. (ser. 7)*, **9** : 456.

1988. *Octochaetona beatrix*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 271.

Diagnosis : Length 40-134 mm, diameter 2-5 mm, 133-197 segments. Prostomium epilobic, tongue closed. First dorsal pore 12/13, sometimes 11/12. Clitellum 13-17, 18. Setae lumbricine; *a*, *b* on 8 and 9 enlarged and slightly sigmoid. Male genital field slightly depressed. Male pores paired, minute, in seminal grooves on 18, just median to *a*; prostatic pores paired, minute, at anterior and posterior ends of concave seminal grooves, on 17 and 19, median to *a* lines; seminal grooves concave between setal arcs of 17 and 19. Female pores paired, presetal, within *a* lines on 14. Spermathecal pores paired, minute, on or slightly anterior to the setal arcs of 8 and 9, median to *a*. Discrete genital markings absent, but paired, oval epidermal thickenings, just lateral to seminal grooves, on 18 and 19.

Septa 4/5 and 8/9-11/12 muscular, 5/6/7/8 absent. Oesophagus with a single gizzard between septa 4/5 and 8/9, one pair of discrete extramural asymmetrical calciferous glands opening into the gut close to the attachment of septum 15/16; intestine begins in 17, intestinal caeca and supra-intestinal glands absent; typhlosole ventrally bifid, lamelliform in 25 to 104-112. Last pair of hearts in 13. Metandric; testes and male funnels enclosed in a U-shaped sub-oesophageal sac in segment 11, male funnels present in 10; seminal vesicles small, in 12. Prostates paired in 17 and 19. Penial setae ornamented with sparse, triangular teeth, tip pointed. Spermathecae paired in 8 and 9, each with a spheroidal, shortly pyriform, oval or flattened shelf-like, ental diverticulum. Setae *a*, *b* on 8 and 9 sigmoid but ornamented with a few scattered excavations. Genital marking glands absent. Micromeronephridia astomate; paired enteronephric tufts in 4; several biramous exonephric on the body wall in 5 and posterior segments, slightly enlarged and stomate in caudal segments with preseptal and intrasegmental funnels; megameronephridia absent.

Distribution : India : Madhya Pradesh (Jabalpur, Gwalior, Rewa); Chandigarh; Goa; Gujarat; Haryana; Himachal Pradesh; Jammu & Kashmir; Karnataka; Kerala; Maharashtra; Orissa; Punjab; Rajasthan; Uttarakhand; Uttar Pradesh; West Bengal.

Elsewhere : Pakistan, Nepal, Myanmar, Malay Peninsula, Philippines.

16. *Octochaetona surensis* (Michaelsen, 1910)

1910. *Octochaetus surensis* Michaelsen, *Abh. Geb. Naturw., Hamburg*, 19(5) : 96.

1988. *Octochaetona surensis*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 292.

Diagnosis : Length 60-140 mm, diameter 2.5-6 mm, 111-180 segments. Prostomium epilobitic tongue closed. First dorsal pore 12/13. Clitellum annular, 13-16,17. Setae lumbricine, *a*, *b* on 8 and 9 copulatory, being surrounded by tumescences. Male genital field 16 to 20, with deep unpaired transverse depressions, postsetal on 17 and prestal on 19. Male pores minute, median to *b*; prostatic pores minute, at *b*; seminal grooves convex between setal arcs of 17 and 19. Female pores paired, presetal, within *a* lines, sometimes single and median. Spermathecal pores paired, minute, on or close to setal arcs of 8 and 9, at *ab*. Genital markings oval, paired or unpaired and median, postsetal on some of 18-22, at *aa* or *bb*.

Septa 4/5, 8/9-10/11 muscular, 5/6/7/8 absent. Oesophagus with a single gizzard between septa 4/5 and 8/9, one pair of discrete extramural asymmetrical calciferous glands opening into the gut close to the attachment of septum 15/16; intestine begins in 17, intestinal caeca and supra-intestinal glands absent; typhlosole ventrally bifid, lamelliform in 22-23 to 101-115. Last pair of hearts in 13. Holandric, testes and male funnels in cylindrical sacs, in 10 and 11; seminal vesicles in 9 and 12. Penial setae ornamented with a few longitudinal rows of triangular teeth, tip pointed or claw-shaped. Spermathecae paired, in 8 and 9, each with a shortly stalked, multiloculate ental diverticulum, duct

longer than ampulla. Copulatory setae ornamented with longitudinal rows of spikes or thorn-like protuberances, tip slightly claw-shaped. Genital marking glands absent. Micromeronephridia astomate; paired enteronephric tufts in 4; several biramous exonephric on the body wall in 5 and posteriad segments, slightly enlarged and stomate in caudal segments with preseptal and intrasegmental funnels; megameronephridia absent.

Distribution : India : Madhya Pradesh (Jabalpur, Balaghat); Assam; Orissa; Uttar Pradesh.

Elsewhere : Myanmar.

17. *Pellogaster bengalensis* (Michaelsen, 1910)

1910. *Eudichogaster bengalensis* Michaelsen, *Abh. Geb. Naturw., Hamburg*, **19** : 96.

1988. *Pellogaster bengalensis*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 304.

Diagnosis : Length 40-74 mm, diameter 2-3 mm, 94-140 segments. Prostomium tanylobic. First dorsal pore 10/11 or 11/12. Clitellum $\frac{1}{2}$ 13, 14-16, 17. Setae lumbricine, *a* on 8 and 9 absent, no setae copulatory. Male pores paired, minute, in seminal grooves at *ab*, on 18; prostatic pores minute, paired, at the ends of seminal grooves at *ab*, on 17 and 19; seminal grooves straight. Female pores paired, presetal, slightly within *a* lines on 14. Spermathecal pores tiny, transverse or crescentic slits, at or close to the sites of missing setae *a*. Genital markings tiny, circular to oval, paired close to the spermathecal pores on 8-9, presetal on 17, postsetal on 19, in or slightly posterior to 19/20, at *aa*.

Septa 4/5/6 delicate, 6/7-9/10 muscular, 10/11 slightly muscular. Oesophagus with 2 gizzards, in 5-6 and 4 pairs of discrete extramural calciferous glands in 10-13; intestine begins in 16, typhlosole simple, lamelliform, 17-18 to 73; intestinal caeca and supra-intestinal glands absent. Last pair of hearts in 12. Holandric, testes and male funnels free, in 10 and 11; seminal vesicles in 11 and 12. Penial setae ornamented with *c.*15 irregular, broken circles of fine to triangular spines, tip claw-shaped or simply pointed and bluntly rounded. Spermathecae paired, in 8 and 9, each with a sessile ental diverticulum, duct equal or longer than ampulla. Micromeronephridia astomate; paired exonephric tufts in 2-9; few, exonephric on the body wall in 12-19 and posteriad segments; paired, stomate, exonephric megameronephridia in each of few posteriormost segments.

Distribution : India : Madhya Pradesh (Jabalpur); Orissa; West Bengal.

18. *Ramiella bishambari* (Stephenson, 1914)

1914. *Octochaetus bishambari* Stephenson, *Rec. Indian Mus.*, **10** : 347.

1988. *Ramiella bishambari*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 317.

Diagnosis : Length 20-38 mm, diameter 0.8-1.2 mm, 78-91 segments. Prostomium epilobitic, tongue open. First dorsal pore 6/7-10/11. Clitellum annular, weakly developed ventrally at *aa*, in 13, $\frac{1}{2}$ 13- $\frac{1}{2}$ 17, 17. Setae lumbricine. Male pores paired, minute, in convex seminal grooves on 18, at or slightly lateral to *a*. Prostatic pores paired, minute at termini of seminal grooves on segment 17 and 19, at *b*. Seminal grooves convex between setal arcs of 17 and 19. Female pores paired, presetal, within *a* lines on 14. Spermathecal pores paired, minute, on 8 and 9, slightly posterior to intersegmental furrows 7/8/9 at *b*. Genital markings, when present, small, circular to oval; paired, presetal on 7-9, 17, 20, postsetal on 7, 8, 10, 11, at or close to *ab*; unpaired and median, postsetal on 19 or 19/20.

Septa 4/5 slightly muscular, 5/6-12/13 muscular. Oesophagus with a single gizzard in 6 and calciferous lamellae in 8-11; discrete calciferous glands, intestinal caeca and supra-intestinal glands absent; intestine begins in 14; typhlosole in the form of a low ridge to a simple lamella in 17-18 to *ca*. 68. Last pair of hearts in 12. Holandric; testes and male funnels free, in 10 and 11; seminal vesicles in 12, sometimes in 11 and 12. Prostates paired in 17 and 19, reaching posteriorly to a few segments. Penial setae ribbon-like, rolled into a tube, ornamented with well spaced 10-12 transverse rows of triangular teeth. Spermathecae paired in 8 and 9, each with a shortly stalked, oval, ental diverticulum. Genital marking glands absent. Micromeronephridia astomate, exonephric, few, on the body wall in 3 and posterior segments, in longitudinal ranks posterior to clitellum; paired stomate exonephric megameronephridia in each of a few posteriormost segments.

Distribution : India : Madhya Pradesh (*Baraila, Gaurighat, Jabalpur, Chaubara, Murbasha Hills, Nowgong, Rewa, Sohagi*); Andaman & Nicobar Islands; Andhra Pradesh; Himachal Pradesh; Maharashtra; Orissa; Rajasthan; Uttarakhand; Uttar Pradesh; West Bengal.

Elsewhere : Pakistan, Myanmar, China (?), Christmas Island, Philippine Islands.

19. *Ramiella nainiana* Gates, 1945

1945. *Ramiella nainiana* Gates, *Proc. Indian Acad. Sci. (B)*21(4) : 232.

1988. *Ramiella nainiana*, Julka, *Fauna of India and the adjacent countries, Megadrile Oligochaeta, Octochaetidae* : 321.

Diagnosis : Length 30-65 mm, diameter 1.5-3.5 mm, 144-162 segments. Prostomium epilobitic, tongue closed. First dorsal pore 4/5, sometimes 3/4 or in the region of 5/6-8/9. Clitellum annular, 13, $\frac{2}{3}$ 13-17. Setae lumbricine. Male pores minute, paired, in seminal grooves, at or slightly lateral to *b*, on 18; prostatic pores paired at the ends of seminal grooves, on 17 and 19, at *b*; seminal grooves concave between the setal arcs of 17 and 19, at *ab*. Female pore single, median, on 14. Spermathecal pores paired, minute, presetal, on 8 and 9, at or close to *b*. Genital markings oval, unpaired, median, presetal with 1-4 central areas on 11-12, sometimes on 10, 13; intersegmental with a single central area, on 20/21/22/23, sometimes on 16/17-19/20, 23/24-31/32.

Septa 4/5-11/12 muscular. Oesophagus with a single gizzard in 6 and calciferous lamellae in 8-11; discrete calciferous glands, intestinal caeca and supra-intestinal glands absent; intestine begins in 15; typhlosole simple, lamelliform, 17-19 to 87-94. Testes and male funnels free, in 10 and 11; seminal vesicles in 9 and 12. Penial setae ornamented with a few scattered or more regularly spaced triangular teeth, membranous ectally with margins slightly curved and saddle-shaped, tip concave. Spermathecae paired in 8 and 9, each with a ventrally directed digitiform ental diverticulum, adherent to the duct. Genital marking glands absent. Micromeronephridia astomate, exonephric, few, on the body wall in 3 and posteriad segments, in longitudinal ranks posterior to clitellum; paired stomate exonephric megameronephridia in each of a few posteriormost segments.

Distribution : India : Madhya Pradesh (Jabalpur, Rewa and Satna); Uttar Pradesh.

Family MEGASCOLECIDAE

20. *Amyntas alexandri* (Beddard, 1900)

1900. *Amyntas alexandri* Beddard, *Proc. Zool. Soc. Lond.*, 1900 : 998.

1972. *Pheretima alexandri*, Gates, *Trans. Am. phil. Soc.*, 62 : 155.

1972. *Amyntas alexandri alexandri*, Sims & Easton, *Biol. J. Linn. Soc.*, 4(3) : 234.

Diagnosis : Length 105-290 mm, diameter 4-9 mm, 90-141 segments. Colour dark brown on dorsum. Prostomium rudimentary. First dorsal pore in furrow 12/13. Clitellum annular, 14-16. Setae perichaetine. Combined male and prostatic pores paired, minute, superficial, discharging directly onto body surface on 18, 0.19-0.22 body circumference apart; each pore on a slightly depressed somewhat circular region between arms of a U-shaped ridge with open side mesiad, copulatory pouches absent. Female pore single, median, presetal, on 14. Spermathecal pores paired, minute, superficial in furrows 5/6/7/8/9, 0.22-0.24 body circumference apart. Genital markings absent.

Pigmented, pigment brown. Septa 5/6-7/8 strongly muscular, 8/9/10 absent, 10/11/12 muscular. Oesophagus with a single, large gizzard between septa 7/8 and 10/11, and without pouches; intestine begins in 15; intestinal caeca, simple, paired, originating in 27, extending forward to near 20; typhlosole lamelliform, ending in about segment 90. Last pair of hearts in 13. Holandric; testes and male funnels paired, in 10 and 11, enclosed in paired and vertical or unpaired and horseshoe-shaped testis sacs, which include hearts of segments 10-11 and seminal vesicles of 11; seminal vesicles large, paired, in segments 11 and 12. Prostates paired, in 18, large extending from 16 to 20; prostatic ducts muscular, variously coiled. Spermathecae paired, in 6-9, each with a slender diverticulum arising from ectal half and median face of duct; diverticulum extends nearly to the apex of ampulla, ental end widened; duct conspicuously narrowed ectally. Micromeronephridia astomate, paired enteronephric tufts in 4-6; numerous astomate exonephric, V-shaped micromeronephridia on the body wall in 3 and posteriad segments; several stomate

enteronephric, slightly enlarged micromeronephridia on both sides of septa from 16/17 posteriorly; micromeronephridia absent (rarely present) on spermathecal ducts.

Distribution : India : Madhya Pradesh (*Jabalpur*); Andaman & Nicobar Islands; Assam; Himachal Pradesh; Maharashtra; Nagaland; Uttarakhand; West Bengal.

Elsewhere : Myanmar, Thailand.

21. *Metaphire houlleti* (Perrier, 1872)

1872. *Perichaeta houlleti*, Perrier, *Nouv. Archs Mus. Hist. nat. Paris*, **8** : 99.

1972. *Pheretima houlleti*, Gates, *Trans. Am. phil. Soc.*, **62** : 190.

1972. *Metaphire posthuma*, Sims & Easton, *Biol. J. Linn. Soc.*, **4(3)** : 238.

Diagnosis : Length 40-130 mm, diameter 3-5 mm, 90-120 segments. Colour brownish on dorsum. Prostomium epilobic, tongue open. First dorsal pore in furrow 7/8-11/12. Setae perichaetine. Combined male and prostatic pores paired, minute, discharging into paired copulatory pouches opening onto the surface through transverse equatorial apertures with tumescent lips on 18, 0.22-0.24 body circumference apart. Female pore single, median, presetal, on 14. Spermathecal pores paired, transverse slits, in 6/7/8/9, 0.29-0.32 body circumference apart. External genital markings absent; internal genital markings tiny, 1-3, within copulatory pouches and spermathecal invaginations.

Pigmented, pigment reddish brown. Septa 5/6-7/8 and 10/11-12/13 muscular, 8/9/10 absent. Oesophagus with a single large gizzard between septa 7/8 and 10/11; intestine begins in 15; intestinal caeca simple, paired, in 27, extending forward to 22; typhlosole simple, lamelliform. Last pair of hearts in 13. Holandric; testes and male funnels paired, in 10 and 11, enclosed in unpaired and ventral testis sacs; seminal vesicles in 11 and 12; pseudovesicles vestigial, in 13 and 14. Prostates paired, in 18, large, extending from 16-23; prostatic ducts variously looped. Spermathecae paired, in 7-9, each with a slender shortly stalked ectal diverticulum terminating in an elongate and coiled seminal chamber; duct shorter than ampulla. Genital marking glands stalked, coelomic, one gland close to each spermatheca, 1-3 associated with each copulatory pouch. Micromeronephridia astomate, paired enteronephric tufts in 4-6; numerous astomate exonephric, V-shaped micromeronephridia on the body wall in 3 and posterior segments; several stomate enteronephric, slightly enlarged micromeronephridia on both sides of septa from 16/17 posteriorly; nephridia absent on spermathecal ducts.

Distribution : India : Madhya Pradesh (*Baraila, Jabalpur, Buldana, Safraha*); Andaman & Nicobar Islands; Delhi; Gujarat; Himachal Pradesh; Jammu & Kashmir; Karnataka; Kerala; Maharashtra; Meghalaya; Tamil Nadu; Uttarakhand; Uttar Pradesh; West Bengal.

Elsewhere : Pakistan, Nepal, Bangla Desh, Sri Lanka, Myanmar, Vietnam, Thailand, Malay Peninsula, Singapore, Indonesia, China, Philippines, Fiji, Caroline Islands,

Australia, Sierra Leone, Madagascar, France, Bahamas, Cuba, U.S.A., Salvador, French Guiana, West Indies, Central America.

22. *Metaphire posthuma* (Vaillant, 1868)

1868. *Perichaeta posthuma* Vaillant, *Annl. Sci. nat.*, **10** : 228.

1972. *Pheretima posthuma*, Gates, *Trans. Am. phil. Soc.*, **62** : 212.

1972. *Metaphire posthuma*, Sims & Easton, *Biol. J. Linn. Soc.*, **4(3)** : 239.

Diagnosis : Length 60-140 mm, diameter 3-8 mm, 111-121 segments. Colour light to dark grey, brown. Prostomium epilobic, tongue open. First dorsal pore in furrow 12/13. Setae perichaetine. Combined male and prostatic pores paired, minute, within paired copulatory pouches which open onto the surface through equatorial longitudinally crescentic apertures on 18, 0.23-0.24 body circumference apart. Female pore single, median, presetal, on 14. Spermathecal pores minute, superficial in furrows 5/6/7/8/9, 0.29-0.30 body circumference apart. Genital markings paired, circular papillae with centres slightly median to male pore lines on setal arcs of 17 and 19, rarely 20.

Pigmented, pigment brown. Septa 5/6-7/8 strongly muscular, 8/9 muscular, 9/10 absent. Oesophagus with a large single gizzard, without pouches, between septa 8/9 and 10/11; intestine begins in 15; intestinal caeca paired, simple, in 27, extending forward to 24; typhlosole simple, lamelliform. Last pair of hearts in 13. Holandric; testes and male funnels paired, in 10 and 11, those of 10 enclosed in an unpaired and ventral testis sac, and of 11 in a vertically U-shaped testis sac; seminal vesicles paired, in 11 and 12, those of 11 enclosed in the testis sac; pseudovesicles small in 13. Prostates paired in 18, large, extending from 15 to 21; prostatic ducts U-shaped. Spermathecae paired, in 6-9, each with a shortly stalked ental diverticulum arising from median face of duct; diverticulum extends to about middle of ampulla and terminates in a long, ellipsoidal seminal chamber; duct much shorter than ampulla. Micromeronephridia astomate, paired enteronephric tufts in 4-6; numerous astomate exonephric, V-shaped micromeronephridia on the body wall in 3 and posteriad segments; several stomate enteronephric, slightly enlarged micromeronephridia on both sides of septa from 16/17 posteriorly; nephridia absent on spermathecal ducts. Genital marking glands sessile.

Distribution : India : Madhya Pradesh (Jabalpur, Gwalior, Satna); Andaman & Nicobar Islands; Bihar; Delhi; Gujarat; Haryana; Himachal Pradesh; Jammu & Kashmir; Maharashtra; Orissa; Punjab; Rajasthan; Uttarakhand; Uttar Pradesh; West Bengal.

Elsewhere : Pakistan, Bangla Desh, Myanmar, Thailand, Vietnam, Malaysia, Indonesia, Taiwan, Formosa, China, Philippines, Flores, New Hebrides, Christmas Island, Tinian, Seychelles Archipelago,

23. *Lampito mauritii* Kinberg, 1867

1867. *Lampito mauritii* Kinberg, *Öfv.Ak. Fôrh.*, **23** : 103.

1938. *Lampito mauritii*, Gates, *Rec. Indian Mus.*, **40**; 413.

Diagnosis : Length 95-155 mm, diameter 3-6 mm, 157-201 segments. Prostomium epilobitic, tongue closed. First dorsal pore in 10/11-12/13. Clitellum annular, 13, ½13-17. Setae perichaetine. Male pores paired (combined with prostatic pores), at centres of slightly raised circular porophores, at or lateral to *b*, on 18. Female pores paired, presetal, on 14. Spermathecal pores paired, in 6/7/8/9. Genital markings absent.

Septa present from 4/5, 7/8-12/13 muscular. Oesophagus with a single gizzard in 5, calciferous lamellae in 10-13; intestinal caeca and supra-intestinal glands absent; intestine begins in 15-16; typhlosole a very low, simple, slightly zigzagged ridge. Last pair of hearts in 13. Holandric; seminal vesicles in 9 and 12. Penial setae ornamented with closely crowded circles of triangular teeth, tip horse-shoe shaped. Spermathecae 3 pairs, in 7-9, each with a median and a lateral digitiform diverticula. Meronephric; paired tufts of astomate micromeronephridia on the body wall in 15 and posteriad segments; paired, stomate, enteronephric megameronephridia in 20 and posteriad segments.

Distribution : India : Madhya Pradesh (*Baraila, Gaurighat, Jabalpur, Gwalior, Katni, Mauganj, Nemer Kheri, Nowgong, Rewa, Safraha, Satna, Sohagi*); Andaman & Nicobar Islands, Andhra Pradesh; Bihar; Delhi; Gujarat; Karnataka; Kerala; Laccadive & Minicoy Islands; Maharashtra; Orissa; Pondicherry; Punjab; Rajasthan; Tamil nadu; West Bengal.

Elsewhere : Zanzibar, Comoro Is., Madagascar, Seychelles Is., Mauritius, Pakistan, China, Maldives, Sri Lanka, Bangladesh, Myanmar, Thailand, Malay Peninsula, Indonesia, Philippines, Hongkong, New Caledonia, Sumatra, Christmas Is., Nordwacher, Sumba, Kisser Is., Labuan and British North Borneo, Nias.

24. *Perionyx festivus* Gates, 1945

1945. *Perionyx festivus* Gates, *Proc. Indian Acad. Sci. (B)* **21**(4) : 227.

Diagnosis : Length 70 mm, diameter about 3 mm. Pigmentation red, restricted to the dorsum, ventral margin of pigmentation even and sharply demarcated. Prostomium epilobitic, tongue open. First dorsal pore in 3/4 (minute may be nonfunctional), 4/5, or 5/6. Perichaetine; setal circles without definite, regular, mid-dorsal and ventral gaps. Clitellum ?. Male pores unrecognized, a wide median gap in the setal circle of 18. Spermathecal pores closely paired on 7/8-8/9 (quadrithecal battery may be an abnormal condition). Nephropores, atleast behind clitellar region, irregularly alternate between pigmented dorsum and unpigmented ventrum, dorsal pores 4-6 intersetal intervals above margin of pigmentation, neither dorsal nor ventral pores in really regular longitudinal ranks.

Septa behind clitellar region thickened. Oesophagus with a single, small but definitely muscular gizzard, in 5; discrete calciferous glands absent; intestine origin apparently in

17; intestinal caeca, supra-intestinal glands and typhlosole absent. Last pair of hearts in 13. Penial setae not found. Holonephric, nephridia large and without bladders.

Distribution : India : Madhya Pradesh (Jabalpur).

Remarks : Gates (1945) erected *P. festivus* on the basis of unique combination of characteristics in the genus, i.e. quadrithecal battery (?) with closely paired pores on 7/8-8/9, nephropores irregularly alternate between dorsum and ventrum, thickened septa posteriorly, gizzard in 5, intestinal origin in 17, presence of hearts in 13, and absence of nephridial bladders. The original description of the species is inadequate for modern taxonomic treatment, as it is based on juvenile specimens.

25. *Perionyx millardi* Stephenson, 1915

1915. *Perionyx millardi* Stephenson, *Mem. Indian Mus.*, 6; 74.

1923. *Perionyx millardi*, Stephenson, *Fauna Br. India, Oligochaeta* : 342.

Diagnosis : Length 40-90 mm, diameter 2-2.5 mm, 126-170 segments. Colour deep purple dorsally, brown ventrally, with a fairly sharp demarcation. Prostomium epilobic, tongue closed or open. First dorsal pore in 4/5 or 5/6. Clitellum annular, 13-17. Setae perichaetine. Combined male and prostatic pores paired, on a small papillae, near mid-ventral line, at *b*, on 18. Female pore unpaired, median, on 14. Spermathecal pores paired, in 7/8/9, near mid-ventral line, at *b*. Genital markings absent. Nephridiopores inconspicuous, in a rather irregular longitudinal rank on each side.

Septa all present from 4/5, no septa thickened. Oesophagus with a single gizzard slightly developed in 6; intestine begins in 18 or 19; discrete calciferous glands, intestinal caeca, supra-intestinal glands and typhlosole absent. Last pair of hearts in 13. Holandric, testes and male funnels free, in 10 and 11; seminal vesicles in 11 and 12, those of 12 extend posterior to septum 13/14. Penial setae ornamented with 9 or 10 circles of fairly sized spines. Spermathecae paired, in 8 and 9, each with an ental diverticulum. Holonephric, nephridia avesciculate.

Distribution : India : Madhya Pradesh (Jabalpur); Maharashtra; Orissa.

26. *Perionyx sansibaricus* Michaelsen, 1891

1891. *Perionyx sansibaricus* Michaelsen, *Jb. hamb. wiss. Anst.*, 9 : 4.

1987. *Perionyx sansibaricus*, Julka & Senapati, *Rec. zool. Surv. India, Occ. Pap.*, no. 92 : 15.

Diagnosis : Length 70-82 mm, diameter 2.5-3.5 mm, 136-151 segments. Colour dark purple, venter pale. Prostomium epilobic, tongue open with a median longitudinal groove extending to furrow 1/2. First dorsal pore at 3/4-5/6. Clitellum annular, 13-17. Genital markings lacking. Setae perichaetine. Spermathecal pores paired, small, close to

midventral line, in furrows 6/7/8/9, 0.03 body circumference apart. Female pore unpaired, median, presetal on 14. Combined male and prostatic pores paired, transverse slits, near midventral line, in a transversely depressed male field, on 18, 0.03-0.04 body circumference apart. Nephridiopores obvious, arranged in two series on each side, alternating between dorsolateral and ventrolateral ranks.

Pigmented, pigment red. Septa 4/5-6/7 delicate, 7/8-12/13 slightly muscular. Gizzard vestigial, in 5; oesophagus moniliform in 13, internally with calciferous ridges, discrete calciferous glands absent; intestine begins in 16; intestinal caeca, supra-intestinal glands and typhlosole absent. Last pair of hearts in 12. Holandric; testes and male funnels free, in 10 and 11; seminal vesicles paired, racemose, in 11 and 12. Prostates paired, in 18, ducts thin, short and straight; penial setae absent. Spermathecae paired, in 8-9; each with an ental, pear-shaped, shortly stalked, multiloculate diverticulum. Holonephric, nephridia avesculate.

Distribution : India : Delhi; Madhya Pradesh (Gaurighat, Jabalpur, Buldana, KalaKhund (between Khandwa and Indore), Khandwa); Gujarat; Himachal Pradesh; Maharashtra; Karnataka; Kerala; Orissa; Tamil Nadu; Uttarakhand; Uttar Pradesh.

Elsewhere : Zanzibar.

SUMMARY

The paper includes the information of 26 species belonging to 18 genera spread over 5 families of Oligochaete fauna from Jabalpur district of Madhya Pradesh.

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ACARI PLANT MITES

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INTRODUCTION

Plant mites belong to the order Acarina. Plant mite fauna of Jabalpur district was unknown and till date no information is available. Only 1 species of plant mite was recorded by Gupta (1987). A total of 9 species under 6 genera and 3 families are treated here giving their selected synonymies, collection data and distribution in India and abroad.

LIST OF PLANT MITES RECORDED FROM JABALPUR

Family TETRANYCHIDAE

1. *Eutetranychus orientalis* (Klein)
2. *Oligonychus mangiferus* (Rahman & Sapra)
3. *Oligonychus punicae* (Hirst)
4. *Schizotetranychus andropogoni* (Hirst)
5. *Tetranychus cinnabarinus* (Boisduval)
6. *Tetranychus neocaledonicus* Andre
7. *Tetranychus urticae* Koch

Family TENUIPALPIDAE

8. *Brivipalpus phoenicis* (Geij.)

Family PHYTOSEIIDAE

9. *Phytoseius* (*Phytoseius*) *macrosetosus* Gupta

SYSTEMATIC ACCOUNT

Phytophagous Mites

Family Tetranychidae

1. *Eutetranychus orientalis* (Klein)

1936. *Anychus orientalis* Klein, *Bull. agric. Res. Stn. Rehovoth*, **21** : 3.

1940. *Anychus ricini* : Rahman & Sapro, *Proc. Indian Acad. Sci.* **11** : 184.

1985. *Eutetranychus orientalis* : Gupta, *Handbook : Plant mites of India*, p. 66-67.

Material examined : 16 females, 2 males, Dist Jabalpur, C.R.S. compound, ex wild plant, 3.12.1984; 15 females, Dist. Jabalpur, Napier Town, ex. wild plant, 12.12.1984.

Diagnosis : Dorsal striae on propodosoma parallel 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 1 sensory and 2 tactile; tarsus II with 1 sensory and 2 tactile setae, whereas tibia I with 2 sensory and 3 tactile setae; tarsus I with 1 sensory and 14 tactile setae; tibia II with 1 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.

Distribution : India : Chhattisgarh (Bastar, Raigarh, Sarguja), Madhya Pradesh (Betul, Bhind, Chhindwara, Damoh, Dhar, Gwalior, Hoshangabad, Jabalpur, Khandwa, Kargone, Mandsaur, Raisen, Rajgarh, Ratlam, Sagar, Shivpuri, Ujjain), Maharashtra, Punjab, West Bengal, Gujarat, Haryana, Uttar Pradesh.

Elsewhere : Israel, Turkey, Jordan, Iran, Egypt, Cyprus, Sudan, South Africa, Afghanistan, Pakistan, Taiwan, Thailand, East Transvaal.

Remarks : This is a serious pest of a large variety of fruit trees including citrus and neem in India.

2. *Oligonychus mangiferus* (Rahman & Sapro)

1940. *Paratetranychus mangiferus* Rahman & Sapro, *Proc. Indian Acad. Sci.* **11(B)** : 192.

1955. *Oligonychus mangiferus* : Pritchard & Baker, *Pacific Coast Ent. Soc. Mem. Ser.* **2** : 330.

1994. *Oligonychus mangiferus* : Gupta & Gupta, *Mem. zool. Surv. India*, **18(1)** : 108-110.

Material examined : Sev. females and males, Dist. Jabalpur Napeir town, ex mango, 28.11.1984.

Diagnosis : Dark red dorsolaterally and pale red mediodorsally. Male with bent portion of aedeagus triangularly tapering to an acute angle with the shaft. Peritreme at the distal end anastomosing. Medioventral setae slightly longer in size.

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (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, Hawaii, Mauritius and Peru.

Remarks : This is an important pest of mango. The infested parts become yellowish in mango.

3. *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.

Material examined : Several males, females, Jabalpur dist., Chhappa, 5.1.1984, ex. wild plant.

Diagnosis : Dorsal idiosomal setae serrate, gradually 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.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Gunna), 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.

4. *Schizotetranychus andropogoni* (Hirst)

1926. *Tetranychus* (*Schizotetranychus*) *andropogoni* Hirst, *Proc. zool. Soc. Lond.*, p. 829.

1955. *Schizotetranychus andropogoni* : Prit. & Bak., *Pacific Coast Ent. Soc. Mem. Ser.* 2 : 240.

1985. *Schizotetranychus andropogoni* : Gupta, *Handbook : Plant mites of India*, p. 96-97.

Material examined : 1 male, 24 females, Jabalpur dist., C.R.S. compound, 5.7.1984, ex. grass.

Diagnosis : Dorsal body setae as long as interval between their bases. Aedeagus of male forms dorsally directed sigmoid curve that is not acutely angulated. Propodosomal striae longitudinal, hysterosomal striae transverse.

Distribution : India : Chhattisgarh (Raigarh), Madhya Pradesh (Hoshangabad, Jabalpur), Bihar, Delhi, Orissa, Punjab, Tamil Nadu, West Bengal.

Elsewhere : Pakistan, Thailand, and Mexico.

Remarks : This is a serious pest of sugarcane. It causes the appearance of whitish spots on either side of the midrib of leaves, which turn yellow.

5. *Tetranychus cinnabarinus* (Boisduval)

1867. *Acarus cinnabarinus* Boisd., *Ent. Hort.*, 88.

1884. *Tetranychus biomaculata* Harvey, Wood- Mason, p. 1-20.

1931. *Tetranychus telarius* Linnaeus, Cherian, *J. Asiat. Soc. Beng.*, 27 : 141-147.

1985. *Tetranychus cinnabarinus*, Gupta, *Handbook, Plant mites of India*, p. 106.

Material examined : 1 male, Sev. females, 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 females, 4 males, Dist., Jabalpur, Bilkhera vill., ex sem, 19.9.1985

Diagnosis : Carmine mite with longitudinal 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.

Distribution : India : Madhya Pradesh (Bastar, Chhindwara, Guna, Jabalpur, Mandasaur, 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.

6. *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.*, 11 B : 79.

1985. *Tetranychus neocaledonicus* Gupta, *Handbook, Plant Mites of India*, p. 125-126.

Material examined : 10 exs., Dist. Jabalpur, Tilwara ghat, ex. grass, 16.9.1984

Diagnosis : In male, Tibia I with 3 sensory and 8 tactile setae, tarsus I 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.

Distribution : India : Madhya Pradesh. (Bastar, Betul, Chhindwara, Damoh, Jabalpur, Raisen, Rajgarh, Sagar, Shahdol, Ujjain), Assam, Bihar, Delhi, Gujarat, Harayana, Karnataka, Kerala, Maharastra, Meghalaya, Orissa, Punjab, Rajasthan, Uttar Pradesh, West Bengal.

Elsewhere : Africa, Figi, Bhamas, Hawaii, Venezuela, Pureto Rico, U.S.A.

Remarks : This species infests mostly vegetables.

7. *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 & Gupta, *Mem. zool. Surv. India*, **18** (1) : 139-142.

Material examined : 6 exs., Jabalpur dist., Agrawal Colony, 15.4.2000, ex. papaya.

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.

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur, Raisen, Shahdol), Meghalaya, Kerala, Karnataka, Uttar Pradesh, West Bengal.

Elsewhere : Cosmopolitan.

Remarks : This species is a serious pest of vegetables and fruits.

Family TENUIPALPIDAE

8. *Brivipalpus phoenicis* (Geij.)

1939. *Tenuipalpus phoenicis* Geij., *Meded Landli. Hooges. Wageningen.*, 42 : 330.

1961. *Brevipalpus phoenicis*, Das, *Two and Bud*, 8 : 3-4.

1985. *Brevipalpus phoenicis*, Gupta, *Handbook : Plant mites of India*, p. 130-131.

Material examined : 2 exs., Jabalpur dist., Chhappaghat, 13.4.1983, ex. grass.

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.

Distribution : India : Madhya Pradesh (Chhindwara, Mandasaur, 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 : It occurs in the field throughout the year on one or the other host.

Family PHYTOSEIIDAE

9. *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* : P 91.

Material examined : This species included on the basis of literature review.

Diagnosis : Dorsal shield 265 long, 130 wide, with 15 pairs of setae. Measurement of setae : J,- 20, J4, J6, J5, Z5-5-5each , 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.

Distribution : India : Madhya Pradesh (Jabalpur, Shivpuri).

Remarks : This species is known only from its type.

SUMMARY

An account of plant mites pertaining to 3 families namely Tetranychidae, Tenuipalpidae and Phytoseiidae representing 9 species under 6 genera studied from Jabalpur district, Madhya Pradesh is given, including the selected synonymies, collection data and their distribution.

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Gupta, Y.N. 1997. New record of some Tetranychid mites (Acari : Tetranychidae) from Chhindwara district, Madhya Pradesh. *Rec. zool. Surv. India*, **96** (1-4) : 185-188.

CRUSTACEA OSTRACODA

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INTRODUCTION

Taxonomy of ostracods has mainly been studied in America, Europe and South Africa. Consolidated work on Indian ostracods was published by Victor and Fernando (1979), which was mostly based from southern parts of India. This is the first consolidated account of freshwater ostracods from Jabalpur, Madhya Pradesh.

Taxonomic studies are based on the Ostracoda collection made from various water bodies of Jabalpur and surrounding areas. Total 26 species of 11 genera and 2 families are enlisted in this paper of which 15 species are reported for first time from Madhya Pradesh. One species *Cypris subglobosa* was already reported from Bhopal (Victor & Fernando, 1979), remaining 11 species were already described by the author in previous publications (Harshey and Victor 1983; Harshey and Srinivasan, 1984; Harshey and Shrivastava, 1983 and 87; Harshey and Patil, 1988; Harshey, 1996).

Due to the difference of approaches amongst the workers, no stable classification of Ostracods has been achieved as yet. Many schemes of classification have been proposed so far (Moore, 1961; Van Morkhoven, 1962; Pokorny, 1965; Hartmann and Puri, 1974; Victor and Fernando, 1979 etc). In this work the scheme of classification adopted by Victor and Fernando (1979) has been followed with some alterations in the light of current investigations.

LIST OF OSTRACODS OF JABALPUR, M.P.

Family CYPRIDIDAE

Subfamily CYPRIDINAE

1. *Cypris dravidensis* Victor & Michael
2. *Cypris subglobosa* Sowerby
3. *Strandesia elongata* Hartmann

4. *Strandesia indica* Hartmann
5. *Strandesia madhuriae* Harshey and Shrivastav
6. *Strandesia meghnae* Harshey and Shrivastav
7. *Strandesia neelimae* Harshey and Shrivastav
8. *Strandesia odiosa* Moniez
9. *Strandesia parva* Hartmann
10. *Strandesia perakensis* Victor and Fernando
11. *Strandesia purpurascens* (Brady)
12. *Strandesia victori* Harshey and Srinivasan
13. *Strandesia weberi* Moniez

Subfamily DOLEROCYPRIDINAE

14. *Astenocypris papyracea* Sars
15. *Dolerocypris sinensis* Sars

Subfamily CYPRETTINAE

16. *Cypretta globosa* Sars
17. *Cypretta turgida* (Sars)

Subfamily HETRPETOCYRIDIDAE

18. *Chrissia humilis* Klie
19. *Parastenocypris biswasi*
20. *Stenocypris derupta* Vavra
21. *Stenocypris disticta* Victor & Fernando
22. *Stenocypris jabalpurensis* Harshey & Patil
23. *Stenocypris major* Baird

Subfamily CYPRIDOPSIDAE

24. *Oncocypris pustulosa* Gurney
25. *Pseudocypretta maculata* Klie

Family CANDONIDAE

Subfamily CYCLOCYPRIDIINAE

26. *Physocypris furfuracea* Brady

Class CRUSTACEA
 Subclass OSTRACODA
 Family CYPRIDIDAE
 Subfamily CYPRIDINAE
 Genus *Cypris* O.F. Müller

1776. *Cypris* O.F. Müller, *Havaniae*, 8 : 198-199.

Type species : *Cypris pubera* Baird, 1846

1. *Cypris dravidensis* (Victor and Michael)

1975. *Cypris globulosa* Victor and Michael, *J. Nat. Hist.*, 9 : 366.

1979. *Cypris dravidensis* (Victor and Michael) : Victor and Fernando, *Rec. zool. Surv. India*, 74 : 163-164

Material examined : 11 exs., Balsagar, 19.x.1981, Coll. D.K. Harshey,

Diagnosis : Valves globular; right valve with a distinct flange. Valve surface punctuate.

Distribution : INDIA : Madhya Pradesh, Maharashtra and Tamil Nadu.

Remarks : It is observed that carapace and soft part morphology of the species *Cypris dravidensis* (Victor and Fernando) collected during the present study notably resembles to the genus *Pseudocypris* Daday, 1908 except the lateral alae. Therefore it may be described as the species of the genus *Pseudocypris*. But it needs further study, hence at present kept in the genus *Cypris*.

2. *Cypris subglobosa* Sowerby

1840. *Cypris subglobosa* sp. Nov. Sowerby, in *J.C.Malcomson Trans. Geol. Soc, London* Ser. 2, .5 : 47. Fig. 3.

1972. *Cypris subglobosa* Sowerby; I. Okubo, *Res. Bull. Shujitsu J. Coll. Okayama*, 1 : 61- 67, 4 pls.

1979. *Cypris subglobosa* Sowerby; Victor & Fernando, *Rec. zool. Surv. India*, 74 : 159-161

Material examined : 5 exs., Balsagar, Coll. D.K.Harshey; 3 exs., 1.viii.1978; 15 exs., 4.viii.1978, Balsagar, 6exs.,4.vii.1979, Coll.D.K.Harshey;10 exs, Ranital, 24.xii,1984, Coll. D.K. Harshey.; 3exs. Ranital, 1.vi.1990, Coll. D.K. Harshey

Diagnosis : Valves tumid sub globular. Valve surface with thimble shaped depressions.

Distribution : INDIA : Madhya Pradesh, Andhra Pradesh, Kerala, Maharashtra and Tamil Nadu),

Elsewhere : Malaysia, Philippines, Russia, Sri Lanka, U.S.A., and Yougoslavia.

Genus *Strandesia* Vavra

1895. *Strandesia* Vavra, *Jb. Hamb. Wiss. Ans.*, **12** : 18.

Type species : *Cypris (Strandesia) marcatorum* Vavra, 1895.

3. *Strandesia elongata* Hartmann

1964. *Strandesia elongata* Hartmann *Int.Rev. Gesamten. Hydrobiol.Syst.Beih.*, **3** : 98.

1979. *Strandesia elongata* Hartmann. Victor & Fernando, *Rec. zool. Surv. India*, **74** : 169.

Material examined : 6 exs., Balsagar, 9.i.1979, Coll. D.K. Harshey.

Diagnosis : Valve surface dorso-ventrally compressed. Furcal rami slender and long. Length of valve 0.72-0.81 mm.

Distribution : India : Andhra Pradesh, Goa, Madhya Pradesh and Tamil Nadu.

4. *Strandesia indica* Hartmann

1964. *Strandesia indica* Hartmann, *Int. Rev. Gesamten. Hydrobiol. Syst. Beih.*, **3** : 101.

1979. *Strandesia indica* Hartmann : Victor & Fernando, *Rec. zool. Surv. India*, **74** : 169-171.

Material examined : 10exs, P. D. Rane, 1.ii.1978, Coll. P. D. Rane.

Diagnosis : Valves dorso ventrally inflated. Length of valves 0.88-0.96 mm.

Distribution : INDIA Madhya Pradesh, Gujarat, Kerala, Tamilnadu, West Bengal.

5. *Strandesia meghnae* Harshey and Shrivastav

1987. *Strandesia meghnae* Harshey and Shrivastav. *J. Curr. Biosci.*, **4(2)** : 43-44.

Diagnosis : Valve ovate in lateral view, anterior margin broadly rounded than posterior margin; valve surface punctate. Furcal rami symmetrical; curved anteriorly on dorsal side and posteriorly on ventral side.

Distribution : INDIA : Madhya Pradesh.

6. *Strandesia madhuriae* Harshey and Shrivastav

1988. *Strandesia madhuriae* Harshey and Shrivastav. *J. Curr. Biosci.*, **4 (2)** : 44-45.

Diagnosis : Carapace moderately inflated in lateral view, surface with striations. Anterior margin broadly rounded than posterior margin. Posterior margin of each valve has a spine.

Distribution : INDIA : Madhya Pradesh.

7. *Strandesia neelimae* Harshey and Shrivastav

1987. *Strandesia neelimae* Harshey and Shrivastav, *J. Curr. Biosci.* 4 (2) : 46

Diagnosis : Carapace moderately inflated. Valves unequal. Right valve having 10 spines at the posterior end. Surface of both the valve striated and with blue spots.

Distribution : INDIA : Madhya Pradesh.

8. *Strandesia odiosa* (Moniez)

1892. *Cypris odiosa* Moniez, *Zoologische Ergebnisse Nieder landisch Ost. Indien-M Weber*, 131.

1979. *Strandesia odiosa* (Moniez) : Victor and Fernando, *Can. J. Zool.*, 57 : 7-10.

Material examined : 20 exs Balsagar, 3.x.1980, Coll. H.P. Agrawal; 5 exs., 22.xii.1981, Barela, Coll. U.A. Gajbe; 5 exs., Balsagar, 27.x.1990.

Diagnosis : Valves subovate in lateral view; anterior and posterior margins broadly rounded. Length of valve 2.16- 2.18 mm. Furcal rami symmetrical; posterior margins with strong spines arranged in six linear groups.

Distribution : INDIA Madhya Pradesh.

Elsewhere : Indonesia, Malaysia, Philippines

Remarks : A similar species *Strandesia flavescens* Klie was also collected from this region, which is smaller in size and it is treated as junior synonym of *Strandesia odiosa* (Victor and Fernando, 1979).

9. *Strandesia purpurascens* (Brady)

1886. *Cypris purpurascens* Brady, *J. Linn. Soc. Zool.*, 19 : 29.

1977. *Strandesia purpurascens* (Brady) Neal. Aspects of Ecology and Zoogeography of Recent and Fossil Ostracoda-The Hague (Junk) :273.

1979. *Strandesia purpurascens* (Brady) : Victor & Fernando, *Rec. zool. Surv. India*, 74 : 171.

Material examined : 3 exs., Balsagar, 11.iv.1980, Coll. S.G. Patil

Diagnosis : Subelliptical valves; laterally elongated, both ends rounded. Valve length 0.81-0.85 mm. Terminal seta of the furca longer than the terminal claw.

Distribution : INDIA : Madhya Pradesh, Tamil Nadu

Elsewhere : Indonesia, Malaysia, and Thailand and Sri Lanka

Remarks : Victor and Fernando reported this species from India (1979) and Malaysia (1981). In Malaysian specimens spines of furcal rami are in-groups, but in present specimens spines are continuous, similar to their Indian specimens.

10. *Strandesia parva* Hartmann

1964. *Strandesia parva* Hartmann. *Int. Rev. Gesamten Hydrobiol. Syst. Beih.*, 3 : 119.

1979. *Strandesia parva* Hartmann : Victor & Fernando, *Rec. zool. Surv. India*, 74 : 176.

Material examined : 8 exs. Napier Town, 25.ix.1981, Coll. D.K. Harshey.

Diagnosis : Valve surface punctuate, angular dorsum. Length of valve 0.62-0.64 mm. Dorsal margin of Furcal ramus armed with inconspicuous spines.

Distribution : INDIA : Madhya Pradesh, Kerala, Maharashtra, and Rajasthan.

11. *Strandesia perakensis* Victor and Fernando

1981. *Strandesia perakensis* Victor and Fernando, *Arch. Hydrobiol. Suppl.*, 58 : 496.

Material examined : 6 exs. Balsagar, 22.ix.1980, P.D. Rane.

Diagnosis : Valve surface with 10 to 12 posteriorly directed spines. Carapace moderately in flated, valves subovate.

Distribution : INDIA : Madhya Pradesh.

Elsewhere : Indonesia. and Malaysia.

12. *Strandesia victori* Harshey and Srinivasan

1984. *Strandesia victori* Harshey and Srinivasan, *Biovigyanam*, 13(2) : 104.

Material : 4 exs. Balsagar, 3.11.1980; Coll. D.K. Harshey.

Diagnosis :. Each valve punctate with reticulations and three prominent blue spots. Furca curved and short.

Distribution : INDIA : Madhya Pradesh

13. *Strandesia weberi* (Moniez)

1892. *Cypris weberi* Moniez. *Zoologisch Ergebnisse Nieder Liansch Ost. Indien*, 129.

1979. *Strandesia weberi* (Moniez). Victor and Fernando. *Can. J. Zool.*, **57** : 7

Diagnosis : It is a distinct species with a long spine on the right valve and two short spines of unequal length on the anterior margin of the left valve.

Distribution : INDIA : Madhya Pradesh.

Elsewhere : Sri-Lanka, Malaysia, Philippines and Indonesia.

Remarks : Harshey and Shrivastav (1982) reported this species for the first time from India. Indian species show longer posterior spine on the right valve than that of Philippines specimens and also differs from Malaysian specimens in which posterior spine of right valve is steeply pointed downwards.

Subfamily DOLEROCYPRIDINAE

Genus *Astenocypris* Müller

1912. *Astenocypris* Müller, *Weinheim J. Cramer*, 203 -204.

Type species : *Leptocypris papyracea* Sars 1903.

14. *Astenocypris papyracea* (Sars)

1903. *Leptocypris papyracea* Sars, *Archiv for Mathimatic oq. Naturvideskab.*, **25** (8) : 28.

1981. *Astenocypris papyracea* (Sars), Victor and Fernando, *Zoo. Linn. Soc.*, **72** : 108.

Material examined : 5 exs, Balsagar, 19.x.1981, Coll. S. G. Patil; 11 exs Balsagar, 18.x.1982, Coll. D.K.Harshey.

Diagnosis : Elongate, unequal in lateral view. Valve surface striate. Furcal rami symmetrical, stout and strongly developed both terminal and subterminal claws heavily toothed. Posterior margin of ramus armed with prominent teeth.

Distribution : INDIA : Madhya Pradesh.

Elsewhere : Japan, Malaysia, Phillppines, Russia, and. Sumatra

Genus *Dolerocypris* Kaufmann

15. *Dolerocypris sinensis* Sars

1903. *Dolerocypris sinensis* Sars, *Archive for Mathematik og. Naturvidenskab.*, **25** : 37.

1981. *Dolerocypris sinensis* Sars : Victor and Fernando *Zool. J. Linn. Soc.*, **72** : 110-112.

Material examined : 6 exs, Balsagar, 21.viii.1978, Coll. P.D. Rane.

Diagnosis : Carapace compressed, valves elongate. Dorsum smoothly arched. Length 2.06-2.08 mm. Furcal rami symmetrical slightly arched terminal seta smooth, posterior margin of the ramus smooth.

Distribution : INDIA : Madhya Pradesh

Elsewhere : Afghanistan, Canada, France, Germany, Iran, Japan., Rumania, USSR, and Yugoslavia

Subfamily CYPRETTINAE

Genus *Cypretta* Vavra

1895. *Cypretta* Vavra, *Jahrbuch der Hamburgischen Wissenschaftlichen Anstalten XII* : 6 (as sub-genus of *Cypridopsis*).

Type species : *Cypretta tenuicauda* Vavra, 1895.

16. *Cypretta globosa* (Brady)

1877. *Cypridopsis globosa* Brady, *J. Linn. Soc. Zool.*, **19** : 303

1977. *Cypretta globosa* (Brady). Neal, in *Aspects of Ecology and Zoogeography of Recent and Fossil Ostracoda*, 275.

Material examined : 2 exs, Balsagar, 19.x.198, S.G. Patil..

Distribution : India (Madhya Pradesh), Indonesia, Malaysia, Philippines, Sri Lanka,

17. *Cypretta turgida* (Sars)

1894. *Cypridopsis minna* (King) Sars *Math Naturv Kl.*, **5** : 30

1963. *Cypretta turgida* (Sars) : Chapman *Hydrobiologia*, **22** :12

1981. *Cypretta turgida* (Sars) : Victor and Fernando, *Int. Revue.Ges. Hydrobiol.*, **66**(3) : 430

Material examined. 3 exs., Nunsar, Patan, 15.vi.1981. Coll. D.K. Harshey

Diagnosis Valve oval in shape dorsally. Anterior margin narrow, posterior margin broadly rounded.. Prominent radial band of septa on the anterior margin. Furcal rami symmetrical, dorsal seta and terminal seta reduced.

Distribution : INDIA : Madhya Pradesh

Elsewhere : New Zealand, Northwestern Australia, South Africa, Sumatra, West Indies, West Samoa.

Subfamily HERPETOCYPRIDINAE

Genus *Chrissia* Hartmann

1957. *Chrissia* Hartmann, *Osnabruck* : 50-60.

Type species : *Chrissia levetzovi* Hartmann, 1957.

18. *Chrissia humilis* (Klie) ssp.indica

1932. *Stenocypris humilis* Klie, *Arch. Hydrobiol.*, **22** : 476.

1964. *Chrissia humilis* (Klie) Hartmann, *Int.Rev. Gesamten. Hydrobiol. Syst. Beih.*, **3** : 122.

1979 *Chrissia humilis* (Klie). : Victor & Fernando, *Rec. zool. Surv. India*, **74** : 203.

Material examined : 10 exs, Panagar-23.vii.1980, Coll. D.K. Harshey.

Diagnosis : Valve margin devoid of radial band of septa, surface hairy. Furcal ramus asymmetrical. Dorsal margin of the right ramus with spines for ½ the length, left ramus smooth.

Distribution : India (Kerala, Madhya Pradesh, Maharashtra, Tamilnadu and W.Bengal), Malaysia.

Genus *Parastenocypris* Hartmann

1964. *Parastenocypris* Hartmann, *Int. Rev. Gesamten. Hydrobiol. Syst. Beih.*, **3**.

Type species : *Parastenocypris canaliculata* Hartmann, 1964.

19. *Parastenocypris biswasi* (Deb)

1972. *Stenocypris biswasi* Deb, *J. Zool Soc. India*, **1** : 91.

1982. *Parastenocypris biswasi* (Deb), Harshey and Victor, *Mitt. Hamb. Zool. Mus. Inst.*, **177**.

Material examined : 3, Madanmahal, Dargah Sharif, 10.xi.1980, D.K.Harshey; 2 exs., Madanmahal, Dargah Sharif, 31.xii.1980, D.K. Harshey; 3 exs, Madanmahal hills, 31.xii.1980, D.K. Harshey; 15exs, Madanmahal hills, 24.x.1981, D.K.Harshey 20 exs, Madanmahal hills-24.x.1981, D.K. Harshey; Balsagar, 12.vi.1990, D.K. Harshey.

Diagnosis : Length of Valves 4.30 mm.; height 1.30 mm. Anterior margin of valve rounded and posterior margin pointed Furcal rami asymmetrical, straight ; right ramous with prominent denticulation on dorsal margin.

Distribution : India ((Madhya Pradesh and Rajasthan).

Remarks : Deb (1972) described *Stenocypris biswasi* as a new species from Rajasthan, India. It was also collected during this study from Jabalpur, Madhya Pradesh, and redescribed as *Parastenocypris biswasi* by Harshey and Victor (1982) giving detailed account of the species.

Genus *Stenocypris*

1869. *Stenocypris* Sars, *Noske Videnskaps Akad. Osla (Christiania vid-selk) forhandling.*, **8** : 27.

Type species : *Cypris cylindrica* Baird 1859.

20. *Stenocypris derupta* Vavra.

1906. *Stenocypris derupta* Vavra. *Zool. Jb. Syst.*, **23** : 426.

1979. *Stenocypris derupta* Vavra. : Victor & Fernando, *Rec. zool. Surv. India*, **74** : 195-196.

Material examined : 4 exs, P.D. Rane, Balsagar, 02.i.1978, P.D.Rane; 2 exs., Balsagar, 03.x.1980, H.P. Agrawal.

Diagnosis : Valve elongate, anterior margin rounded and posterior margin pointed. Prominent septa along the anterior margin. Length of valves 2.5mm to 2.6mm. Furcal rami asymmetrical. Right ramus with heavy denticulation on dorsal margin, left ramus with faint spines.

Distribution : INDIA : Andhra Pradesh, Madhya Pradesh, Maharashtra and Tamilnadu

Elsewhere : Java, Philippines, Sri Lanka and Sumatra

21. *Stenocypris distinca* Victor and Fernando

1975. *Stenocypris distinca* Victor and Fernando, *Zool. J. Linn. Soc.*, **64**(1) : 79-83.

1979. *Stenocypris distinca* Victor and Fernando : Victor & Fernando, *Rec. zool. Surv. India*, **74** : 196.

Material examined : 3 exs, Balsagar, 31/xii.1980, D.K.Harshey; 5 exs, Panagar, 23/vii/1980, D.K. Harshey ,

Diagnosis : Size range about 3mm; surface punctate and hairy, Right furcal ramus curved broader with posterior margin heavily toothed, left ramus straight, posterior margin with groups of teeth covering one quarter of length.

Distribution : INDIA : Madhya Pradesh. and Andhra Pradesh

22. *Stenocypris jabalpurensis* Harshey and Patil

1988. *Stenocypris jabalpurensis* Harshey and Patil, *J. Curr. Biosci.*, **5**(1) : 6-10.

Material : 10 exs. Ranital, 15.2.1982, Coll. D.K. Harshey.

Diagnosis : Valves elongate, straight in the middle. Surface sparsely hairy and punctate, radial band of septa broad anteriorly. Natatory setae reaching beyond the tips of terminal claws. Sensory club three segmented.. Furcal rami asymmetrical.

Distribution : India (Madhya Pradesh).

23. *Steoncypris major* (Baird)

1859. *Cypris cylindrica* Baird, *Bull. dept. Zool. Punjab.*, 1

1981. *Steoncypris major* (Baird). Victor and Fernando, *Mitt. Hamb. Zool. Mus. Inst.*, 78 : 155.

Material examined : 10 exs., Balsagar, 04.viii.1978, D.K. Harshey

Diagnosis : valve length 1.88 to 2.15 mm Radial band of septa prominent, of uniform width anteriorly and posteriorly. Furcal rami asymmetrical right ramus curved, the dorsal margin heavily tooth. Left ramus relatively straight with few teeth on the distal end.

Distribution : India : Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, and Tamilnadu, Europe, Indonesia, Japan, Malaysia, Philippines and Sumatra.

Family CYPRIDOPSIDAE

Genus *Oncocypris* G.W.Müller

1898. *Oncocypris* G.W.Müller, *Senckenbergische Naturf. Gesell, Frank Furt a, m, Abhandlungen, Bd. 21* : 286.

24. *Oncocypris pustulosa* Gurney.

1916. *Oncocypris pustulosa* Gurney. *Proc. Zool. Soc. London*, 1 : 340

1979. *Oncocypris pustulosa* Gurney Victor and Fernando *Rec. Zool. Surv. India*, 74 : 212.

Material examined : 8 exs., Madan Mahal, 20.xii,1980, Coll. S.G. Patil

Diagnosis : Large eyes. Valve tumid, anterior margin with a significant constriction, surface sculpturing is complex. Length of valve 0.60- 0.62mm; height 0.40-42 mm. Furca reduced to flagellum.

Distribution : INDIA : Madhya Pradesh.

Genus *Pseudocyprretta* Klie

1932. *Pseudocyprretta* Klie, *Archiv Fiir. Hydrobiol. Stuttgar. Suppl. Bd. 11* : 484.

Type species : *Pseudocyprretta maculata* Klie, 1932.

25. *Pseudocypretta maculata* Klie, 1932.

1932. *Pseudocypretta maculata* Klie, *Arch. Hydrobiol. Suppl.*, **11** : 485.

1979. *Pseudocypretta maculata* Klie, Victor and Fernando *Rec. zool. Surv. India*, **74** : 213.

Material examined : 6-Balsagar-11/04/1980-SGP; 8 exs, Shahpura Road 1.iv.1980-D.K.Harshey.

Diagnosis : Valves tumid, sub triangular, surface with four purple blotches laterally in external view. Length of valves 0.44-0.46 mm. Furca reduced

Distribution : India (Madhya Pradesh, Kerala and Tamilnadu), Java and Sumatra.

Family CANDONIDAE

Subfamily CYCLOCYPRDIINAE

Genus *Physocypria* Vavra

1898. *Physocypria* Vavra, *Dentach oat. Africa. Bd. IV* : 7.

Type species : *Physocypria bullata* Vavra, 1896

26. *Physocypria furfuracea* Brady

1886. *Cypris furfuracea* Brady, *Linn. Soc. London Journ.*, **19** : 229.

1979. *Physocypria furfuracea* (Brady), Victor and Fernando, *Rec. zool. Surv. India*, **74** : 215.

Material examined : 10 exs, Balsagar, Coll. D.K.Harshey

Distribution : India : (Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra and Tamilnadu), Sri Lanka.

SUMMARY

Taxonomic studies on Ostracoda based on the collections made from various water bodies of Jabalpur and surrounding areas yielded 26 species under 11 genera and 2 families, of which 15 species are reported for the first time from Madhya Pradesh.

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INSECTA ODONATA

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INTRODUCTION

Dragonflies and damselflies are classified under Order Odonata. The Odonates of Jabalpur district are represented by 27 species belonging to 21 genera under 6 families. These include 10 species of Zygoptera (damselflies) and 17 species of Anisoptera (dragonflies). All these species agree fairly well with Fraser (1933, 1934, 1936) descriptions.

LIST OF ODONATA RECORDED FROM JABALPUR

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

Family COENAGRIONIDAE

Subfamily PSEUDAGRINAE

1. *Pseudagrion decorum* (Rambur)
2. *Pseudagrion microcephalum* (Rambur)
3. *Ceriagrion coromandelianum* (Fabricius)

Subfamily AGRIOCNEMINAE

4. *Agriocnemis pygmaea* (Rambur)
5. *Agriocnemis splendidissima* Laidlaw

Subfamily Coenagrioninae

6. *Cercion calamorum* (Ris.)

Subfamily Ischnurinae

7. *Aciagrion occidentale* (Laidlaw)

8. *Ischnura aurora aurora* (Rambur)

Family PLATYCNEMIDIDAE

Subfamily PLATYCNEMININAE

9. *Copera marginipes* (Rambur)

Superfamily LESTOIDEA

Family LESTIDAE

Subfamily LESTINAE

10. *Lestes viridulus* Rambur

Suborder ANISOPTERA

Superfamily AESHNOIDEA

Family AESHNIDAE

Subfamily AESHNINAE

11. *Anax guttatus* (Burmeister)

Family GOMPHIDAE

Subfamily ICTINOGOMPHINAE

12. *Ictinogomphus rapax* (Rambur)

Superfamily LIBELLULOIDEA

Family LIBELLULIDAE

Subfamily LIBELLULINAE

13. *Orthetrum sabina sabina* (Drury)14. *Orthetrum pruinatum neglectum* (Rambur)15. *Orthetrum glaucum* (Brauer)16. *Potamarcha congener* (Rambur)

Subfamily SYMPETRINAE

17. *Brachythemis contaminata* (Fabricius)18. *Bradinopyga geminata* (Rambur)19. *Crocothemis servilia servilia* (Drury)20. *Diplacodes trivialis* (Rambur)

Subfamily TRITHEMISTINAE

21. *Trithemis aurora* (Burm.)

22. *Trithemis festiva* (Rambur)

23. *Trithemis pallidinervis* (Kirby)

Subfamily BRACHYDIPLACTINAE

24. *Brachydiplax sobrina* (Rambur)

Subfamily TRAMEINAE

25. *Pantala flavescens* (Fabricius)

26. *Rhyothemis variegata variegata* (Linnaeus)

27. *Tramea basilaris burmeisteri* Kirby

SYSTEMATIC ACCOUNT

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

Family COENAGRIONIDAE

Subfamily PSEUDAGRINAE

1. *Pseudagrion decorum* (Rambur)

1842. *Agrion decorum* Rambur, *Ins. Neurop*, 258.

1916. *Pseudagrion decorum* : Laidlaw, *Rec. Indian Mus.*, 12 : 24.

1933. *Pseudagrion decorum* : Fraser, *Fauna Brit. India, Odonata*, 1 : 286.

Material examined : Jabalpur, Soopatal, Nagpur Road, 9.x.1973 (1 male), Coll. L.P. Dubey.

Diagnosis : 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 spine on inner side.

Distribution : India : Madhya Pradesh (Jabalpur, Chhindwara), Karnataka, Himachal Pradesh, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar and Sri Lanka

2. *Pseudagrion microcephalum* (Rambur)

1842. *Agrion microcephalum* Rambur, *Ins. Neurop.*, 259

1876. *Pseudagrion microcephalum* Selys. *Bull. Acad. Belg.*, (2) xlii, 504

1933. *Pseudagrion microcephalum* : Fraser, *Fauna Brit. India Odon.*, 1 : 278-280

Material examined : 1 B &, Jabalpur, Bhiloda vill. Dindori Rd. 30.xi.1973, coll. H.S. Sharma & party

Diagnosis : Prothorax and thorax azure blue, abdomen 2 with a goblet shaped dorsal black mark, its stem very short, confluent with a narrow basal ring. Anal appendage expanded on the inner side, 2-3 small spines on the inner basal border.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Umaria, Chhindwara).

Elsewhere : Australia, Java, Myanmar, Sri Lanka.

3. *Ceriagrion coromandelianum* (Fabricius)

1798. *Agrion coromandelianum* Fabricius, *Ent. Syst. Suppl.*, 287.

1933. *Ceriagrion coromandelianum* : Fraser, *Fauna Brit. India Odon.*, 1 : 315-316.

Material examined : 1 male, Jabalpur, Supatal, Nagpur Rd. 09.x.1973, coll. L.P. Dubey & party.

Diagnosis : 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.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Seoni, Umaria).

Elsewhere : Bangladesh, China, Japan, Malaysia, Myanmar, Nepal, Sri Lanka.

Subfamily AGRIOCNEMINAE

4. *Agriocnemis pygmaea* (Rambur)

1842. *Agrion pygmaeum* Rambur, *Ins. Nevrop*, 278.

1877. *Agriocnemis pygmaea* : Selys, *Syn. Agr. Smelegion : Agrion (suite et fin)* : 52.

1933. *Agriocnemis pygmaea* : Fraser, *Fauna British India, Odonata*, 1 : 398-401.

Material examined : Jabalpur, Shahpura village, 29.ix.1980 (1 male), Coll. S.K. Mishra & Party.

Diagnosis : Labrum brilliant metallic blue. Prothorax black on dorsum. Pterostigma pale yellow in the forewing, black in the hind. Abdomen, 1 to 6 segments pale greenish yellow, black marking broadly on segment 1, thistle shaped marking extending the whole length of the abdominal 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 damselflies.

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.

5. *Agriocnemis splendidissima* Laidlaw

1919. *Agriocnemis splendidissima* Laidlaw, *Rec. Indian Mus.*, **16** : 180-182.

1933. *Agriocnemis splendidissima* : Fraser, *Fauna Brit. India, Odonata*, **1** : 392-394.

Material examined : Jabalpur, Mandla road, 15.iv.1978 (2 males), Coll. D.K. Harshey and Party; Jabalpur, Shahpura village, 26.ix.1980 (1 male), Coll. S.K. Mishra and Party.

Diagnosis : 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 with broad dorsal marking shape like a head of a thistle. Ventral spine inferior less than half the length of superiors, with rudimentary upper and posterior obtuse spine.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra, Kerala, South India and West Bengal.

Subfamily COENAGRIONINAE

6. *Cercion calamorum* (Ris.)

1916. *Cercion calamorum* Ris. *Suppl. Ent. Berlin*. **V** :1281.

1995. *Cercion calamorum* : Prasad & Varshney, *Oriental Insects*, **29** :389.

Material examined : Jabalpur, Ganjtal, Katni road, 24.x.1980 (1 male), Coll. S.K. Mishra & Party.

Diagnosis : The labrum with minute black medial basal spot. vertex and occiput black. Pyriform postocular blue spot. Prothorax black on dorsum, superior anal appendage, widely divaricate, truncate ending in an acute apex, inner border prolonged vertically downwards as a long robust black spine; inferior much shorter, white, small, tumid processes.

Distribution : India : Madhya Pradesh (Jabalpur), Himachal Pradesh, Uttar Pradesh, West Bengal and Western Ghats.

Elsewhere : Myanmar.

Subfamily ISCHNURINAE

7. *Aciagrion occidentale* (Laidlaw)

1922. *Aciagrion paludensis* : Fraser, *J. Bombay Nat. Hist. Soc.*, **28** : 698-699.

1923. *Aciagrion occidentale* : Fraser, *J. Bombay Nat. Hist. Soc.*, **29** : 749.

1933. *Aciagrion occidentale* : Fraser, *Fauna Brit. India Odon.*, **1** : 335-337.

Material examined : 1 Male, Jabalpur, Mandla Rd. 15.iv.1978, coll. D.K. Harshey & party.

Diagnosis : Very small and slender species. Labrum pale blue with a median spot and its base narrowly black. Eyes bottle green above with a small black cap. Prothorax black on dorsum, azure blue laterally, anterior lobe entirely blue, whilst the posterior very finely lined with yellow and its border subcrenate. Thorax pale azure blue, the dorsum steely black as far as midway between the humeral and first lateral suture, marked with a narrow greenish-yellow antehumeral stripe on each side. Pterostigma of fore wing nearly double the size. Anal appendages black, superiors about half the length of segment 10.

Distribution : India : Central India including Madhya Pradesh (Jabalpur), Maharashtra and South India.

Elsewhere : Sri Lanka.

8. *Ischnura aurora aurora* (Rambur)

1858. *Agriion delicatum* Hagen, *Verh. Zool. Bot. Ges. Wien.*, **7** : 479

1933. *Ischnura delicata* : Fraser, *Fauna Brit. India Odon.*, **1** : 360.

1954. *Ischnura aurora aurora* : Lieftinck, *Treubia* **22** : 74.

Material examined : 1 Male, Jabalpur, Budagar vill. Katni Rd. 30.ix.1965, coll. H.P. Agrawal & party.

Diagnosis : Smallest species, pterostigma kite shaped, rose-red for its proximal half but hyaline in distal half. Segments 8-10 entirely azure blue, 10th with broad quadrate black dorsal spot.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Gwalior Umaria).

Elsewhere : Australia, China, Indonesia, Malaysia, Newzeland, Sri Lanka.

Family PLATYCNEMIDIDAE
Subfamily PLATYCNEMININAE

9. *Copera marginipes* (Rambur)

1842. *Platycnemis marginipes* Rambur, *Ins. Neurop*, 240.

1863. *Psilocnemis marginipes* Selys, *Bull. Acad. Belg.*, 16(2) : 168.

1890. *Copera marginipes* : Kirby, *Syn. Cat. Odon.*, : 129.

1933. *Copera marginipes* : Fraser, *Fauna Briti. India, Odonata*, 1 : 192-197.

Material examined : Jabalpur, Rani Durgavati Samadhi, 20.vii.1978 (1 male), Coll. S.K. Mishra and Party.

Diagnosis : Inferior anal appendages at least four times in length as superior, broad at base, tapering but with a slightly a rounded obtuse apex. Superior vestigial, tiny rounded tubercles, apex pointed, hooked strongly inwards.

Distribution : Madhya Pradesh (Jabalpur), Assam, Bihar, Chandigarh, Himachal Pradesh, Maharashtra, Meghalaya, Rajasthan, Tamil Nadu, South Andaman Is., Uttar Pradesh, West Bengal, Western Ghats and Western Himalayas.

Elsewhere : China, Indonesia, Malaysia, Myanmar, Sri Lanka, Siam, Thailand and Taiwan.

Superfamily II LESTOIDEA

Family LESTIDAE

Subfamily LESTINAE

10. *Lestes viridulus* (Rambur)

1842. *Lestes viridula* Rambur, *Hist. Nat. Nevrop* : 252-253.

1890. *Lestes viridulus* : Kirby, *Cat. Odon.* : 163.

1933. *Lestes viridula* : Fraser, *Fauna Brit. India Odon.*, 1 : 45-46.

Material examined : 1 Male, Jabalpur, Budagar vill. Katni Rd. 30.ix.1965, coll. H.P. Agrawal & party.

Diagnosis : 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.

Distribution : India : Madhya Pradesh (Jabalpur, Chhindwara, Ujjain), Bihar, Chhattisgarh (Bastar), Uttar Pradesh.

Elsewhere : Thailand.

Suborder ANISOPTERA
Superfamily AESHNOIDEA
Family AESHNIDAE
Subfamily AESHNINAE

11. *Anax guttatus* (Burmeister)

1839. *Aeschna guttata* Burmeister, *Hanb. Ent.*, 2 : 840

1936. *Anax guttatus* (Burmeister) : Fraser, *Fauna Brit. India Odon.*, 3 : 140-142.

Material examined : 1 Male, Jabalpur, Budagar vill. Katni Rd. 30.ix.1965, coll. H.P. Agrawal & party.

Diagnosis : Prothorax reddish brown, bordered with yellow, anterior collar yellow; thorax pale green. Legs black, proximal ends of femora turning dark reddish-brown, wings hyaline, anal appendages reddish-brown.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).

Elsewhere : Indonesia, Malaysia, Myanmar, Nepal, Sri Lanka and Taiwan.

Family GOMPHIDAE
Subfamily ICTINOGOMPHINAE

12. *Ictinogomphus rapax* (Rambur)

1842. *Diastatomma rapax* Rambur, *Ins. Neurop.* : 169.

1922. *Ictinus rapax* : Laidlaw, *Rec. Indian Mus.*, 24 : 370, 373, 374.

1995. *Ictinogomphus rapax* : Prasad & Varshney, *Oriental Insects*, 29 : 403.

Material examined : Jabalpur, North Milloniganj, 2.ix.1979 (1 male), Coll. S.K. Mishra.

Diagnosis : 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 far 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.

Superfamily LIBELLULOIDEA

Family LIBELLULIDAE

Subfamily LIBELLULINAE

13. *Orthetrum sabina sabina* (Drury)

1770. *Libellula sabina* Drury, III, *Exot. Ins.*, 1 : 114-115.

1889. *Orthetrum sabina* : Kirby, *Trans. Zool. Soc. Lond.*, 12 : 302.

1936. *Orthetrum sabina* : Fraser, *Fauna British India, Odonata*, 3 : 300-302.

1987. *Orthetrum sabina sabina* : Lahiri, *Rec. zool. Surv. India, Occ. Pap.*, 99 : 183.

Material examined : Jabalpur, Ganjtal and its vicinity, 22.x.1992 (1 ex.), Coll. S.K. Mishra.

Diagnosis : Abdomen greenish-yellow, marked with black; it is distinctly identified in the field due to enormously swollen abdominal segments 1 to 3, both dorso-ventrally and laterally; segments 4 to 6 very narrow, cylindrical, segments 7 to 9 all dilated, but compressed laterally, both male and female almost similar in appearance.

Distribution : Throughout India including Chhattisgarh (Sarguja, Raigarh), Madhya Pradesh (Jabalpur, Datia, Gwalior, Chhindwara).

Elsewhere : Australia, Java, Egypt, Myanmar, Nepal, Angola, Iraq, Iran, Siam, Samoa, Thailand, New Guinea, Timor, African continent, Sri Lanka, Taiwan, Turkey.

14. *Orthetrum pruinatum neglectum* (Rambur)

1842. *Libellula neglecta* Rambur, *Ins. Nevrop.*, : 86.

1909. *Orthetrum pruinatum neglectum* : Ris. *Cat. Coll. Selys. Fasc.*, 9 : 181, 239, 240.

1936. *Orthetrum pruinatum neglectum* : Fraser, *Fauna Brit. India Odon.*, 3 : 311-312.

Material examined : 1 B&, Jabalpur, Bhiloda vill. Dindori Rd. 30.xi.1973, coll. H.S. Sharma & party.

Diagnosis : Robust species with sides violaceous red due to the over lying pruinescence; wings enfumed pale brown towards apices in old adults. Legs black, reddish brown at base of femora. This species can easily be distinguished by its unique violet-coloured abdomen.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Seoni, Umaria).

Elsewhere : China, Indonesia, Malaysia, Myanmar, Nepal, Sri Lanka Taiwan and Tibet.

15. *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.

Material examined : 1 Male, Jabalpur, Shahpura vill. 29.ix.1980, coll. S.K. Mishra & party.

Diagnosis : Moderately large species. Face and frons olivaceous or blackish-brown. Abdomen ventro dorsally dilated at segment 1-3, very slim and of even width to the end, triquentral in cross- section, pruinosed pale dirty blue from 1-9 and 10 black, anal appendages black, of the usual Libelluline shape.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Chhinwara, Umaria).

Elsewhere : China, Indonesia, Malaysia, Myanmar, Nepal, Sri Lanka, Thailand.

16. *Potamarcha congener* (Rambur)

1842. *Libellula obscura* Rambur, *Ins. Nevrop.*, : 64.

1936. *Potamarcha obscura* : Fraser, *Fauna Brit. India Odon.*, **3** : 289-291.

1995. *Potamarcha congener* : Prasad & Varshney. *Oriental Insects*, **29** :410.

Material examined : 1 Female, Jabalpur, Supatal, Nagpur Rd. 09.x.1973, coll. L.P. Dubey & party.

Diagnosis : Labrum yellow, narrowly bordered with black; face and frons olivaceous-yellow; prothorax dark brown, thorax black. Legs black / reddish brown. Wing apices tipped with brown; pterostigma dark reddish brown covering 2-4 cells. Anal appendages black.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Seoni, Umaria).

Elsewhere : Sri Lanka, Tibet.

Subfamily SYMPETRINAE

17. *Brachythemis contaminata* (Fabricius)

1793. *Libellula contaminata* Fabricius, *Ent. Syst.*, 2 : 382.

1836. *Brachythemis contaminata* : Brauer, *verh. Zool. : bot. Ges. Wien*, 18 : 736.

1936. *Brachythemis contaminata* : Fraser, *Fauna British India, Odonata*, 3 : 365-366.

Material examined : Jabalpur, Bhiloda village, Dindori Road, 30.xi.1973 (1 male), Coll. H.S. Sharma.

Diagnosis : Small built but robust dragonflies. The males can be easily identified by reddish reticulations in wings, with a broad bright orange marking extending from base to within 2 to 3 cells of pterostigma in fore wing and as far as that organ in the hind, intensifying in colour distally. Abdomen reddish ochreous marked with dorsal and sub dorsal brown stripe, anal appendages ferrugineous.

Distribution : India : Chhattisgarh (Raigarh), Madhya Pradesh (Jabalpur, Shivpuri, Chhindwara, Gwalior, Datia), Assam, Bihar, Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh and West Bengal.

Elsewhere : Bangladesh, China, Indonesia, Japan, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Taiwan and Sumatra.

18. *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, Odonata*, 3 : 349-350.

Material examined : Jabalpur, Silva Cantonment, 26.ix.2000 (2 exs.), Coll. K. Chandra.

Diagnosis : Labrum pale yellow or dark brown with a broad yellow bordering, rest of face olivaceous or cinereous. Prothorax, 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, Jabalpur, Datia, Morena), Uttar Pradesh and West Bengal.

19. *Crocothemis servilia servilia* (Drury)

1770. *Libellula servilia* Drury, *III. 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 British India, Odonata*, 3 : 345-347.

Material examined : Jabalpur, Soopatal, 9.x.1973 (1 ex.), Coll. L.P. Dubey.

Diagnosis : 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 up to and including the tornal angle in hind wing; abdomen blood red, segment 8 and 9 with mid dorsal carina blackish, anal appendages blood red.

Distribution : India : Chhattisgarh (Ambikapur, Sarguja, Raigarh), Madhya Pradesh (Datia, Gwalior), Bihar, Himachal Pradesh, Manipur, Punjab, Rajasthan, Uttar Pradesh and West Bengal.

Elsewhere : Australia, Bangladesh, China, Iran, Indonesia, Japan, Malaysia, Myanmar, Nepal, , Philippines, Sri Lanka, Taiwan and Thailand.

20. *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, Odonata*, 3 : 336-338.

Material examined : Jabalpur, Ganjtal, Katni Road, 24.x.1980 (1 male), Coll. S.K. Mishra and Party.

Diagnosis : Dragonflies of 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, pruinose blue in old adults. Legs greenish-yellow marked with black in sub adults. Wings hyaline. Abdomen with segments 1 to 3 greenish-yellow, with the sutures finely black; abdominal segments 4 to 7 with sub dorsal yellow stripe, segments 8 to 10 black. Anal appendages bright yellow.

Distribution : India : Chhattisgarh (Raigarh, Ambikapur), Madhya Pradesh (Jabalpur, Mandsaur, 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, Ryuduyus, Philippines, Australia, Pacific Islands, Iraq, Seychelles, Malacca, Indochina, Sumatra.

Subfamily TRITHEMISTINAE

21. *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 British India, Odonata*, 3 : 383-385.

Material examined : Jabalpur, around Pariat Tank, 28.iv.1964 (1 ex.), Coll. H. Khajuria.

Diagnosis : Thorax and abdomen violaceous-crimson; base of hind wing with reddish brown spot; neuration crimson; abdomen violaceous throughout; anal appendages red. Female differs considerably from the male both in colour and shape.

Distribution : India : Chhattisgarh (Sarguja), Madhya Pradesh (Betul, Mandsaur, Jabalpur, Chhindwara, Ujjain), Assam, Meghalaya, Uttar Pradesh, Sikkim and West Bengal.

Elsewhere : Indonesia, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Tibet, Vietnam, Timor and Taiwan.

22. *Trithemis festiva* (Rambur)

1842. *Libellula festiva* Rambur, *Ins. Neurop.*, : 92.

1868. *Trithemis festiva* : Brauer, *Verh. Zool. bot. Gest. Wien.*, (18) : 736.

1936. *Trithemis festiva* : Fraser, *Fauna British India, Odonata*, 3 : 387-389.

Material examined : Jabalpur, Tauria hill at Richhai Village, 20.iv.1965 (1 ex.), Coll. H.P. Agrawal.

Diagnosis : 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.

Distribution : India : Chhattisgarh (Sarguja), Madhya Pradesh, (Chhindwara, Jabalpur), Assam, Arunachal Pradesh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Mizoram, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Java, Nepal, Pakistan, Malaysia, Myanmar, Indonesia, Philippines, New Guinea, Sri Lanka, Taiwan, Turkey.

23. *Trithemis pallidinervis* (Kirby)

1889. *Sympetrum pallidinervis* Kirby, *Trans. Zool. Soc. London*, 12 : 327.

1907. *Trithemis pallidinervis* : Morton, *Trans. Zool. Soc. London*, : 304.

1936. *Trithemis pallidinervis* : *Fauna Brit. India Odon.*, 3 : 389-391

Material examined : 1 male, Jabalpur, Supatal, Nagpur Rd. 09.x.1973, coll. L.P. Dubey & party.

Diagnosis : Labrum black with two large basal citron yellow spots; frons vesicle metallic purple, prothorax dull brown or black; thorax olivaceous brown, wings hyaline with reddish reticulation and 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.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Seoni).

Elsewhere : Indonesia, Malaysia, Myanmar, Sri Lanka, Taiwan.

Subfamily BRACHYDIPLACTINAE

24. *Brachydiplax sobrina* (Rambur)

1842. *Libellula sobrina* Rambur, *Ins. Neurop.*, : 114.

1893. *Brachydiplax sobrina* : Kirby, *J. Linn. Soc. zool.*, 24 : 551.

1936. *Brachydiplax sobrina* : Fraser, *Fauna Brit. India, Odonata*, 3 : 325-327.

Material examined : Jabalpur, Office Campus, C.R.S., Z.S.I., 28.i.1972 (1 ex.), Coll. M.L. Koshta.

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

Subfamily TRAMEINAE

25. *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 British India, Odonata*, 3 : 414 –416.

Material examined : Jabalpur, Sahpura Vill. 29.9.1980 (1ex.). coll. S.K. Mishra & Party.

Diagnosis : Large and robust species (Abd. 29-35 mm.), coloured ochreous 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 ochreous, 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, Jabalpur, Datia), Himachal Pradesh, Uttar Pradesh, Punjab, Rajasthan and West Bengal.

Elsewhere : Malaysia, Myanmar, Sri Lanka, and Tibet.

26. *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, Odonata*, 3 : 423-424.

Material examined : Jabalpur, Chhipaghat, Patan Tehsil, 20.xi.1980 (1 male, 1 female), Coll. S.K. Mishra and Party; Jabalpur, Ganjtal, Katni Road, 24.x.1990 (2 females), Coll. S.K. Mishra and Party.

Diagnosis : Head, thorax and abdomen black/dark metallic, frons metallic 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 at middle of MA. All markings subject to considerable variation.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Orissa and Tamil Nadu.

Elsewhere : Bangladesh, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, and Tibet.

27. *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 British India, Odonata*, **3** : 432-434.

Material examined : Jabalpur, Ganjtal and its vicinity, Katni road, 24.x.1980 (1 ex.), Coll. S.K. Mishra.

Diagnosis : Dragonflies of large size and robust build; head with post clypeus and frons bright vermilion red and also with a fine basal black line, two large black spots 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.

Distribution : India : Chhattisgarh (Raigarh), Madhya Pradesh (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, Myanmar, Nepal, Sri Lanka, Thailand and Tibet.

SUMMARY

The order Odonata of Jabalpur district, Madhya Pradesh is represented by 27 species belonging to 21 genera under 6 families, including 10 species of Zygoptera (damselflies) and 17 species of Anisoptera (dragonflies).

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INSECTA ORTHOPTERA

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INTRODUCTION

Orthoptera includes common insects like grasshoppers, crickets, mole crickets, and locusts. While working on Orthoptera of India, workers like Hancock (1915), Mason (1973), Bhowmik (1985 a, b), Shishodia and Hazra (1986), Shishodia and Tandon (1987), Vasanth (1993), Ingrisich (1998), Day and Hazra (2003), Shishodia and Barman (2004) have also included the distribution of some species in Madhya Pradesh. Recently Chandra et al (2007) have checklisted Orthopteran fauna of Madhya Pradesh, wherein 94 species are reported from Madhya Pradesh. The present study includes 18 species belonging to 16 genera under five families amounting to approximately 20% of state fauna.

LIST OF ORTHOPTERA RECORDED FROM JABALPUR DISTRICT

Suborder ENSIFERA

Superfamily TETTIGONIOIDEA

Family TETTIGONIOIDAE

1. *Euconocephalus incertus* Walker

Superfamily GRYLLOIDEA

Family GRYLLIDAE

Subfamily GRYLLINAE

2. *Grylodes supplicans* Walker

3. *Gryllus bimaculatus* De Geer

4. *Acheta domesticus* (Linnaeus)

5. *Teleogryllus occipitalis* (Serville)

6. *Teleogryllus mitratus* (Burmeister)

Suborder CAELIFERA

Family ACRIDIDAE

Subfamily ACRIDINAE

7. *Acrida exaltata* (Walker)

8. *Acrida gigantea* Hbst.

Subfamily OEDIPODINAE

9. *Morphacris fasciata sulcata* (Thunberg)

10. *Trilophidia annulata* (Thunberg)

11. *Chondronotulus bengalensis* (Saussure)

Subfamily HEMIACRIDINAE

12. *Hieroglyphus banian* Walker

13. *Hieroglyphus concolor* (Walker)

Subfamily CATANTOPINAE

14. *Catantops pinguis innotabilis* (Walker)

Subfamily ROMALEINAE

15. *Teratodes monticollis* (Gray)

Family PYRGOMORPHIDAE

16. *Atractomorpha crenulata* (Fabricius)

17. *Chrotogonus (Chrotogonus) trachypterus trachypterus* (Blanchard)

18. *Chrotogonus (Chrotogonus) oxypterus* Blanchard

SYSTEMATIC ACCOUNT

Suborder ENSIFERA

Superfamily TETTIGONIOIDEA

Family TETTIGONIDAE

1. *Euconocephalus incertus* (Walker)

2000. *Euconocephalus incertus* : Shishodia, *Rec. zool. Surv. India*, **98**(1) : 76.

Material examined : Jabalpur, Katanga Colony, 19.x.1998 (1 ex.), Coll. K. Chandra.

Diagnosis : Large species with more acute rostrum, which is notched below at base; fore and middle femora armed, often the teeth quite large; fastigium of vertex conical, often forming an elongate cone with a tubercle at its base.

Distribution : India.

Elsewhere : Australia, Borneo, China, Myanmar, Sri Lanka, and Indonesia.

Superfamily GRYLLOIDEA

Family GRYLLIDAE

Subfamily GRYLLINAE

Genus *Grylloides* Saussure

2. *Grylloides supplicans* (Walker)

Material examined : Jabalpur Forest, 08.i.1973 (1 ex.), Coll. N.K. Sinha

Diagnosis : Head somewhat flattened above, with narrow frontal rostrum; legs rather short; wings caudate or more or less shortened.

Distribution : Cosmopolitan in tropical region.

3. *Gryllus bimaculatus* De Geer

1773. *Gryllus bimaculatus* De Geer, *Mem. Ins.*, 3 : 531.

1936. *Gryllus bimaculatus* : Chopard, *Ceylon J. Sci.* 20(B) : 22.

2000. *Gryllus bimaculatus* : Shishodia, *Rec. zool. Surv. India*, 98(1) : 65.

Material examined : Jabalpur, Katanga Colony, 19.x.1998 (1 ex.), Coll. K. Chandra.

Diagnosis : Of large size. Body completely glabrous; general colouration entirely black with two yellow spots at the base of each elytron.

Distribution : India : Andaman Islands, Bihar, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Africa, Myanmar, Malaya, Mediteranean region, Pakistan, Singapore and Sri Lanka.

Remarks : Characteristic yellow spots of elytra faintly marked in female. It is known to damage potato plants.

4. *Acheta domesticus* (Linnaeus)

1758. *Acheta domesticus* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 428.

1969. *Gryllus domesticus* : Chopard, *Fauna of India, Orthoptera*, 2 : 37.

Material examined : Jabalpur, Patan, Sukha village, 1.vii.1965 (N.A.), Coll. H.P. Agrawal.

Diagnosis : Medium size; rather depressed, pubescent, general colouration light fulvous or testaceous. Head brown above with two wide transverse testaceous bands. Elytra extending to the apex of abdomen or a little shorter. Legs yellowish with a few brown spots, pubescent; posterior tibiae armed with 6-7 spines, 4-5 oblique veins.

Distribution : India : Madhya Pradesh (Jabalpur), Kashmir, Northwest Himalayas, Uttar Pradesh, West Bengal, Maharashtra, Kerala.

5. *Teleogryllus occiputalis* (Serville)

1869. *Gryllus testaceus* Walker, *Cat. Derm. Salt. Br. M.*, 1 : 38.

1969. *Gryllus testaceus* : Chopard, *Fauna of India, Orthoptera*, 2 : 40.

Material examined : Jabalpur, Moia Nalla on Mandla Road, 29.iii.1961 (1 ex.), Coll. R.C. Sharma.

Diagnosis : Large species. Colouration a very uniform rather light testaceous. Body and legs rather pubescent. Head almost without ornament, presenting only a very feeble lighter band along the eyes. Posterior femora long. Posterior tibiae armed with 5-6 or 6-7 spines on the superior margin.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Orissa, Andhra Pradesh, West Bengal, Tamil Nadu, Andaman Island, Barkuda Island, Port Blair. *Elsewhere* : Myanmar, Sri Lanka, Malaysia, Indonesia, and Indo-China.

6. *Teleogryllus mitratus* (Burmeister)

1869. *Teleogryllus testaceus* Walker, *Cat. Derm. Salt. Brit. Mus.*, 1 : 38.

1967. *Teleogryllus testaceus* : Chopard, *Orth. Cat.*, 10 : 99.

1987. *Teleogryllus testaceus* : Shishodia & Tandon, *Fauna of Orissa*, 1 : 118.

Material examined : Recorded from literature.

Diagnosis : Of large size; head without any marking; colouration uniformly light testaceous; mirror broader than long, rounded, divided in the middle by a curved vein; 4 oblique veins and 1 and 2 small ones in the angle of the stridulatory vein. Male genitalia weakly acute at apex.

Distribution : India : Andaman Islands, Bihar, Karnataka, Kerala, madhya Pradesh, Orissa, Tamil Nadu, Uttar Pradesh.

Elsewhere : Borneo, Myanmar, Indo-China, Japan, Java, Malaya, Pahang, Philippines, Sri Lanka, Sumatra.

Family ACRIDIDAE

Subfamily ACRIDINAE

7. *Acrida exaltata* (Walker)

1859. *Truxalis exaltata* Walker, *Ann. Mag. Nat. Hist.*, 4(3) : 222.

1954. *Acrida exaltata* : Dirsh, *Bull. Soc. Fouad Ent.*, 38 : 149.

2000. *Acrida exaltata* : Shishodia, *Rec. zool. Surv. India*, 98(1) : 46.

Material examined : Jabalpur, Katanga Colony, 19.x.1998 (1 ex.), Coll. K. Chandra.

Diagnosis : Head conically ascending, basal part narrow, fastigium of vertex broad, laminate and truncate but less broad and laminate than the genus *Truxalis*; transverse sulcus of pronotum placed about the middle of disc; hind femora without any peg-like structure on internal surface.

Distribution : India (widely distributed).

Elsewhere : Afghanistan, Aden, Arabia, Bangladesh, South East Iran, Nepal, Pakistan, Sri Lanka, South East Tibet and Yemen.

8. *Acrida gigantea* Herbst.

1794. *Truxalis gigantea* Herbst. *Fuessly Archiv Ins.*, p. : 191, plate III, fig. 6.

1914. *Acrida gigantea*, Kirby, *Fauna Brit. India, Orthopt.*, : 98.

Diagnosis : Head and Pronotum with 2 or 3 pale pink bands on each side; tegmina with two broad pink longitudinal bands, between which a whitish line, generally broken into long spots, with blackish border; wing hyline. Lateral carinae of pronotum edged with a black line.

Distribution : India including Madhya Pradesh (Jabalpur), *Elsewhere* : Africa and Nepal.

Subfamily OEDIPODINAE

9. *Morphacris fasciata sulcata* (Thunberg)

1815. *Gryllus fasciatus* Thunberg, *Mem. Acad. Sci. St.-Petersb.*, 5 : 230.

1929. *Morphacris fasciata sulcata* : Uvarov, *Revue suisse Zool.*, 36 : 546.

2000. *Morphacris fasciata sulcata* : Shishodia, *Rec. zool. Surv. India*, **98**(1) : 49.

Material examined : Recorded from literature.

Diagnosis : Antennae filiform, longer than head and pronotum together; pronotum tectiform, without lateral carinae; median carina of pronotum sharp and high; dorsum covered with parallel sharp longitudinal ridges; wings light yellow at base and with dark transverse fascia.

Distribution : Andhra Pradesh, Bihar, Goa, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu. *Elsewhere* : Africa, South West Asia, Sri Lanka.

10. *Trilophidia annulata* (Thunberg)

1815. *Gryllus annulatus* Thunberg, *Mem. Acad. Sci. St.-Petersb.*, **5** : 234.

1965. *Trilophidia annulata* : Hollis, *Trans. R. ent. Soc. London*, **117**(8) : 251.

2000. *Trilophidia annulata* : Shishodia, *Rec. zool. Surv. India*, **98**(1) : 52.

Material examined : Recorded from literature.

Diagnosis : Brown or grey with black markings, pubescent beneath; pronotum rugose, with a high median carina, forming two teeth in front and with lateral carinae; tegmina grey, some times with two indistinct brown bands; hind tibiae with a pale band towards the base and with a slight pale band beyond the middle.

Distribution : India (Widely distributed).

Elsewhere : Bangladesh, Borneo, Japan, Java, Korea, Malaya, Mongolia, Myanmar, Pakistan, Philippines, Sarawak, Singapore, Sri Lanka, Sumatra, Taiwan and Thailand.

11. *Chondronotulus bengalensis* (Saussure)

1888. *Sphingonotus bengalensis* Saussure, *Mem. Soc. Phys. Hist. nat. Geneve*, :30(1) :77,80 No.7

1914. *Sphingonotus bengalensis* Kirby, *Fauna British India, Orth. (Acri.)* : 154,156.

1956. *Chondronotulus bengalensis*, Uvarov, *Ent. Month. Mag.* **92** : 218.

Diagnosis : Brown; head raised distinctly above pronotum, vertex broad and sharply sloping; fastigium vertical, rugose; posterior femur on inside dark chocolate brown, becoming black towards apex; tibia dusty yellow, with black base.

Distribution : India. Madhya Pradesh, Maharashtra, West Bengal.

Subfamily HEMIACRIDINAE

12. *Hieroglyphus banian* Walker

1878. *Gryllus banian* Fabricius, *Ent. Syst. Suppl.*, : 194.

1914. *Hieroglyphus banian* : Kirby, *Fauna British India, Orth.*, (Acrid.) : 204.

2000. *Hieroglyphus banian* : Shishodia & Tandon, *Fauna of Orissa*, 2 : 132.

Material examined : Jabalpur, Medical College, 7.ix.1964 (1 ex.) Coll. M.L. Kosta.

Diagnosis : Green, including the antennae. Pronotum smooth, with four sulci, narrowly lined with black. Tegmina subhyaline. Hind tibiae blue, with black-tipped spines. Antennae with the basal joint yellowish-green, the rest dark green, tipped with yellow. Subgenital lamina of male moderately long. Male circus bifurcate.

Distribution : Widely distributed in India.

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

13. *Hieroglyphus concolor* (Walker)

1870. *Oxya concolor* Walker, *Cat. Derm. Salt. Br. Mus.*, 4 : 646.

1914. *Hieroglyphus concolor*, Kirby, *Fauna Brit. India, Orthopt.*, : 204.

Diagnosis : Body robust. frontifurium of vertex three and half times as broad as long, first and third sulcus on sides of pronotum not joined black band; dorsum of pronotum crossed by three sulci, posterior margin slightly more obtuse, prosternal process conical, tegmina and wings extending beyond end of abdomen; subgenital plate with subacute median lobe and with two parallel ridges possessing large spines.

Distribution : India. Delhi, Karnataka, Sikkim, Maharashtra and Assam.

Elsewhere : Bhutan, Bangladesh and China.

Subfamily CATANTOPINAE

14. *Catantops pinguis innotabilis* (Walker)

1870. *Acridium innotabile* Walker, *Cat. Derm. Salt. Br. Mus.*, 4 : 629.

1953. *Catantops pinguis innotabilis* : Dirsh & Uvarov, *Tijdschr. Ent.*, 96(3) : 233.

2000. *Catantops pinguis innotabilis* : Shishodia, *Rec. zool. Surv. India*, 98(1) : 61.

Material examined : Recorded from literature.

Diagnosis : Lateral lobe of pronotum without coloured pattern; external disc of hind femur without the black median spot below the upper carinula; male circus more upcurved, with more broadened apex and more projecting upper angle.

Distribution : India Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Delhi, Goa and Laccadive Islands, Himachal Pradesh, Jammu & Kashmir, Kerala, Madhya Pradesh, Meghalaya, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Afghanistan, Bangladesh, Borneo, China, Hong Kong, Indo-China, Japan, Java, Cambodia, Korea, Malaya, Maldives Islands, Myanmar, Nepal, New Guinea, Pakistan, Philippines, Sumatra, Thailand, Tibet and Yunnan.

Subfamily ROMALEINAE

15. *Teratodes monticollis* (Gray)

1832. *Gryllus monticollis* Gray, *Griffith's Anim. Kingd.*, 5 : 215.

1914. *Teratodes monticollis* : Kirby, *Fauna British India, Orth.* : 235.

2000. *Teratodes monticollis* : Shishodia, *Rec. zool. Surv. India*, 98(1) : 52.

Material examined : Jabalpur, Garha Village, 3.vii.1961 (N.A.) Coll. P. Singh.

Diagnosis : Body stout; head broad, rounded, face vertical; antennae short and filiform; pronotum raised, large, sublaminately compressed, the front arched above the head in a point, the middle forming a high crest, denticulated, specially behind and covering half the length of abdomen; legs short; tegmina opaque.

Distribution : India : Andhra Pradesh, Madhya Pradesh and Maharashtra.

Family PYRGOMORPHIDAE

16. *Atractomorpha crenulata* (Fabricius)

1793. *Truxalis crenulatus* Fabricius, *Ent. Syst.*, 2 : 28.

1861. *Atractomorpha crenulata* : Saussure, *Annl. Soc. Ent. Fr.*, 4 : 475.

2000. *Atractomorpha crenulata* : Shishodia, *Rec. zool. Surv. India*, 98(1) : 42.

Material examined : Recorded from literature.

Diagnosis : Body medium and slender; fastigium of vertex shorter; eyes convex and prominent; lateral pronotal lobes with distinct membranous area, specially in females; hind femora not clearly convex; tegmina pointed, extending for one-fourth of their length beyond the hind femora; hind wings normally tyrian pink to light mallow purple at base.

Distribution : Throughout India.

Elsewhere : Bangladesh, Malaya, Myanmar, Pakistan, Sri Lanka, Nepal, Sumatra, Thailand and South Vietnam.

17. *Chrotogonus (Chrotogonus) trachypterus* (Blanchard)

1836. *Ommesecha trachypterus* Blanchard, *Annls. Soc. ent. Fr.*, **5** : 618.

1959. *Chrotogonus (C.) t. trachypterus* : Kevan, *Publsoes cult. Cult. Co. Diam. Angola*, **43** : 147.

Material examined : Jabalpur, A garden at Napier Town, 23.vii.1960 (1 ex.), Coll. A.Paul.

Diagnosis Hind wings are clearly hyaline. It is available in both brachy- and macropterous forms.

Distribution : India : Andhra Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttar Pradesh, West Bengal. *Elsewhere* : Bangladesh, Nepal, East Iran, and Pakistan.

Remarks : This species is the pest of various crops of economic value, specially the shorter variety

18. *Chrotogonus (Chrotogonus) oxypterus* Blanchard

1836. *Ommesecha oxypterus* Blanchard, *Annls. Soc. ent. Fr.*, **5** : 622.

1959. *Chrotogonus (C.) oxypterus* , Kevan, *Publsoes cult. Cult. Co. Diam. Angola*, **43** : 48.

Diagnosis Size small but broader; head small narrowed towards the front ; foveolae of the vertex contiguous, superiour and forming the extremity of the fastigium; antennae filiform

Distribution : India : Andhra Pradesh, Bihar, Delhi, Gujarat, Haryana, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Baluchistan, Pakistan, Queta and Sri Lanka.

SUMMARY

The present study includes 18 species of order Orthoptera belonging to 16 genera under five families from Jabalpur district, which comes to approximately 20% of state fauna.

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INSECTA : DERMAPTERA

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INTRODUCTION

Dermaptera are commonly known as Ear-wigs, which include hygrophilous and secretive insects. They are mainly characterized by the three segmented tarsi and a pair of un-segmented chitinous cerci or forceps at the hind end of the body.

Ear-wigs are distributed almost all over the world, right from Oasis in desert to high altitudes up to 4500 meters, but attain their maximum development in terms of multiplicity of individual and diversity in tropical areas. They occur in variety of habitats, such as dead and decaying matter, bamboo and sugar cane stem and sheaths, leaf axils, flowers, under the loose bark of trees and occasionally in bird's and ant's nests. A few species are termitophilous also. Economically these insects are considered important as biological regulators. About 2000 species are known all over the world, of which 320 are recorded from India and adjacent countries. Earlier, Srivastava (1988) recorded 3 species from Jabalpur, however, the present study includes 6 species and total number of known species from Madhya Pradesh is 16 under six families.

LIST OF DERMAPTERA RECORDED FROM. JABALPUR DISTRICT

Superfamily PYGIDICRANOIDEA

Family PYGIDICRANIDAE

1. *Diplatys adjacens* Hincks
2. *Diplatys nathani* Hincks
3. *Echinosoma parvulum* Dohrn

Superfamily LABIOIDEA

Family LABIDURIDAE

4. *Forcipula quadrispinosa* (Dohrn)
5. *Nala lividipes* (Dufour)

Family CHELISOCHIDAE

6. *Adiathetus nigrocastaneus* Burr

SYSTEMATIC ACCOUNT

Superfamily PYGIDICRANOIDEA

Family PYGIDICRANIDAE

1. *Diplatys adjacens* Hincks

1955. *Diplatys adjacens* Hincks, *Syst. Mono, Dermaptera*, 1 : 110.

1988. *Diplatys adjacens* : Shrivastava, *Fauna of India, Pygidicranoidea*, 1 : 154.

Material examined : Recorded from literature (Srivastava, 1988).

Diagnosis : Male : General colour brown to blackish-brown. Legs lighter, often femora in middle and tibiae darker or very slightly shaded with brownish black. Pronotum laterally and posteriorly light brown. Elytra uniform blackish-brown, often lighter above. Female : Agrees with male in most characters except head longer, frons and occiput not well differentiated, suture obsolete, hind margin more strongly emarginate.

Distribution : India : Madhya Pradesh (Chikalla, Berars, Barighati, Chhotighati (Sillari) and Jabalpur), Uttar Pradesh.

2. *Diplatys nathani* Hincks

1960. *Diplatys nathani* Hincks, *Bull. Ent.* 1: 15.

1988. *Diplatys nathani*: Shrivastava, *Fauna of India, Pygidicranoidea*, 1: 129.

Material examined : Recorded from literature (Srivastava, 1988).

Diagnosis : Male : General colour smoky black, head black, base of elytra, most part of legs and foreceps yellowish-brown, tibiae at base and antennae smoky brown. Head smooth, frons convex, occiput strongly depressed in middle laterally raised. Female : Agrees with male in most characters except that body less pubescent, elytra uniform yellowish-brown and tibiae smoky at the base.

Distribution : India: Madhya Pradesh (Jabalpur).

3. *Echinosoma parvulum* Dohrn

1863. *Echinosoma parvulum* Dohrn, *Stettin. Ent. Ztg.* 24: 66.

1988. *Echinosoma parvulum*: Shrivastava, *Fauna of India, Pygidicranoidea*, 1: 221.

Material examined : Recorded form literature (Srivastava, 1988).

Diagnosis : Male : General colour smoky brown. Antennae with base of 1st segment and whole of 2nd yellow, remaining lighter in colour near base only. Abdominal tergites

and forceps somewhat brownish, former with hind margin of each tergite darker. Body covered with short, thick setae and fine yellow pubescence. Frons moderately convex, antennae 17-segmented. Female : Agrees with male in most characters except penultimate sternite posteriorly broadly convex.

Distribution : India : Madhya Pradesh (Jabalpur), Karnataka, Uttar Pradesh, Tamil Nadu.

Superfamily LABIOIDEA

Family LABIDURIDAE

4. *Forcipula quadrispinosa* (Dohrn)

1863. *Labidura quadrispinosa* Dohrn, *Stettin. ent. Ztg.*, **24** : 311.

1910. *Forcipula quadrispinosa*: Burr, *Fauna British India, Dermaptera* : 94.

Material examined : Jabalpur, Choral River, 9.xi.1969 (1 ex.), Coll. D.K. Harshey.

Diagnosis : General colour dark blackish-brown; antennae, legs and sides of pronotum blackish-brown; finely pubescent, especially on abdomen.

Males : Elytra rugose, faint carina or convexity along the costal margin present; wings well developed; sides of abdominal segments 3rd to 5th armed with a sharp spine; penultimate sternite rounded posteriorly; forceps in basal half strongly incurved and genitalia with parameres about five times longer than broad, of uniform width, apex rounded and epimerite short.

Male : Length of body 17-22 mm., forceps 9-17 mm.

Female : Length of body 18-22 mm., forceps 5-8 mm.

Distribution : India : Extensively throughout India except beyond 3000ft. in Himalayas.

Elsewhere : Bhutan, Myanmar, Nepal, Sri Lanka, Thailand, Laos, Vietnam, Java, Philippine Islands, Reunion and Mauritius.

5. *Nala lividipes* (Dufour)

1828. *Forficula lividipes* Dufour, *Ann. Sci. Nat.*, **13** : 340.

1910. *Labidura lividipes* : Burr, *Fauna British India, Dermaptera*: 97-98.

Material examined : Jabalpur, Lamhetaghat, 26.x.1966 (10 exs.), Coll. H.S. Sharma; Jabalpur, Choral River, 19.xi.1969 (2 exs.), Coll. V.V. Rao.

Diagnosis : General colour dull blackish-brown to black with varying intensity on different body parts and leg joints dirty yellow. Elytra and wings well developed, former rough and with a sharp ridge along the costal margin. Male with forceps stout, branches gently incurved, inner margin ventrally crenulated with a tooth at apical one third, often obsolete; genitalia with parameres narrowed apically, distal lobes with a distinct virga.

Male : Length of body 6.1-8.7 mm., forceps 1.5-2.2 mm.

Female : Length of body 6.5-9.0 mm., forceps 1.5-2 mm.

Distribution : Worldwide, dominant in tropical parts. Occurs throughout India.

Elsewhere : Nepal, Bhutan and Sri Lanka.

Family CHELISOCHIDAE

6. *Adiathetus nigrocastaneus* Burr

1910. *Adiathetus nigrocastaneus* Burr, *Fauna British India, Dermaptera* : 145.

Material examined : Jabalpur, Khaparkhera village, 6 km. of Chikalda, Right bank of Narmada river, 14.ii.1971 (4 exs.), Coll. V.V. Rao.

Diagnosis : Of medium size, black, varied with chestnut. Antennae with 19 segments, black with two pale segments before the apex, the third not very long and second shorter than the third. Head smooth and black tumid, the sutures deep. Elytra smooth, jet-black, broad with no keels. Wings clear orange with a fuscus outer margin. Tibiae blackish. Abdomen broad and depressed, parallel sided blackish chestnut, lateral tubercles strong.

Distribution : India : Madhya Pradesh, Maharashtra.

SUMMARY

The present study includes 6 species of order Dermaptera (ear-wigs) under five genera and three families from Jabalpur district, Madhya Pradesh.

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INSECTA AQUATIC AND SEMI-AQUATIC HEMIPTERA

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INTRODUCTION

Aquatic and semi aquatic bugs not only play a vital role but also form an important component in food chain of fresh water ecosystem. They are over all indicators of long term environmental conditions and constitute integral components of almost all freshwater communities (Hynes, 1984; Patrick & Palavage, 1994; Ramakrishna, 2000). Due to their diverse habitats and poor dispersal capability these insects also serve as Zoogeographical indicators (Jordon, 1951; Hungerford & Matsuda, 1958). Their role in biological control of mosquitoes need hardly be emphasized. Some of the aquatic bugs are key stone predators, their abundance is essential to the existence of animal communities in an aquatic habitat (Murdoch, *et al*, 1984). Though, aquatic insects constitute less than 3% of global diversity (Cheng, 1976), they represent 95% of all macro-invertebrate species in fresh water habitats (Ward, 1992).

The following account of 41 species belonging to 24 genera spread over 11 families is based on the collections made over the years by scientists of Zoological Survey of India, Jabalpur from Jabalpur district and present at Central Regional Station Jabalpur.

LIST OF AQUATIC AND SEMIAQUATIC HEMIPTERA RECORDED FROM JABALPUR

Infraorder GERROMORPHA

Superfamily MESOVELIOIDEA

Family MESOVELIIDAE

Subfamily MESOVELIINAE

Genus *Mesovelia* Mulsant & Rey

1. *Mesovelia vittigera* Horvath

Superfamily HYDROMETROIDEA

Family HYDROMETRIDAE

Subfamily HYDROMETRINAE

Genus *Hydrometra* Latreille

2. *Hydrometra greeni* Kirkaldy

Superfamily GERROIDEA

Family VELIIDAE

Subfamily MICROVELIINAE

Genus *Microvelia* Westwood

Subgenus *Picaulia* Andersen & Weir

3. *Microvelia (Picaulia) douglasi* Scott

Family GERRIDAE

Subfamily GERRINAE

Genus *Aquarius* Schellenberg

4. *Aquarius adelaidis* (Dohrn)

Genus *Neogerris* Matsumura

5. *Neogerris parvula* (Stål)

Genus *Limnogonus* Stål

Subgenus *Limnogonus* Stål

6. *Limnogonus (Limnogonus) nitidus* (Mayr)

Genus *Limnometra* Mayr

7. *Limnometra fluviorum* (Fabricius)

Subfamily EOTRECHINAE

Genus *Amemboa* Esaki

Subgenus *Amemboa* Esaki

8. *Amemboa (Amemboa) kumari* (Distant)

Subfamily PTILOMERINAE

Genus *Ptilomera* Amyot & Serville

Subgenus *Ptilomera* Amyot & Serville

9. *Ptilomera (Ptilomera) agroides* Schmidt

Genus *Stridulobates* Zettel & Thirumalai

10. *Stridulobates anderseni* Zettel & Thirumalai

Subfamily HALOBATINAE

Tribe **Metrocorini**

Genus *Metrocoris* Mayr

11. *Metrocoris communoides* Chen & Nieser

Infraorder NEPOMORPHA

Superfamily NEPOIDEA

Family BELOSTOMATIDAE

Subfamily BELOSTOMATINAE

Genus *Diplonychus* Laporte

12. *Diplonychus rusticus* (Fabricius)

Subfamily LETHOCERINAE

Genus *Lethocerus* Mayr

Subgenus *Lethocerus* Mayr

13. *Lethocerus (Lethocerus) indicus* (Lepeletier & Serville)

Family NEPIDAE

Subfamily NEPINAE

Tribe **Nepini**

Genus *Laccotrephes* Stål

14. *Laccotrephes griseus* (Güerin-Méneville)

15. *Laccotrephes ruber* (Linnaeus)

Subfamily RANATRINAE

Tribe **Ranatrini**

Genus *Cercotmetus* Amyot & Serville

16. *Cercotmetus brevipes* Montandon

17. *Cercotmetus fumosus* Distant

Genus *Ranatra* Fabricius

18. *Ranatra digitata* Hafiz & Pradhan

19. *Ranatra elongata* Fabricius

20. *Ranatra filiformis* Fabricius
21. *Ranatra titilaensis* Hafiz & Pradhan
22. *Ranatra varipes atropa* Montandon
 Superfamily OCHTEROIDEA
 Family OCHTERIDAE
 Genus *Ochterus* Latreille
 Subgenus *Ochterus* Latreille
23. *Ochterus (Ochterus) marginatus marginatus* (Latreille)
 Superfamily CORIXOIDEA
 Family CORIXIDAE
 Subfamily CORIXINAE
 Genus *Sigara* Fabricius
24. *Sigara* sp
 Subfamily MICRONECTINAE
 Genus *Micronecta* Kirkaldy
 Subgenus *Basilonecta* Hutchinson
25. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål)
 Subgenus *Dichaetonecta* Hutchinson
26. *Micronecta (Dichaetonecta) albifrons* (Motschoulsky)
27. *Micronecta (Dichaetonecta) prashadana* Hutchinson
 Subgenus *Indonectella* Hutchinson
28. *Micronecta (Indonectella) grisea* (Fieber)
 Subgenus *Pardanecta* Wróblewski
29. *Micronecta (Pardanecta) punctata* Horvath
 Subgenus *Sigmonecta* Wróblewski
30. *Micronecta (Sigmonecta) quadristrigata* Breddin
 Family NAUCORIDAE
 Subfamily LACCOCORINAE
 Genus *Heleocoris* Stål
 Subgenus *Heleocoris* Stål
31. *Heleocoris (Heleocoris) bengalensis bengalensis* Montandon

32. *Heleocoris (Heleocoris) elongatus* Montandon

Superfamily NOTONECTOIDEA

Family NOTONECTIDAE

Subfamily ANISOPINAE

Tribe **Anisopini**

Genus *Anisops* Spinola

33. *Anisops bouvieri* Kirkaldy

34. *Anisops breddini* Kirkaldy

35. *Anisops cavifrons* Brooks

36. *Anisops exiguus* Horvath

37. *Anisops nigrolineatus* Lundblad

38. *Anisops niveus* (Fabricius)

Subfamily NOTONECTINAE

Tribe **Notonectini**

Genus *Enithares* Spinola

39. *Enithares ciliata* (Fabricius)

40. *Enithares fusca* Brooks

Superfamily PLEOIDEA

Family PLEIDAE

Genus *Paraplea* Esaki & China

41. *Paraplea frontalis* (Fieber)

Key to the families of Aquatic and Semi Aquatic Bugs of Jabalpur District

1. Antenna much shorter than head, not visible in dorsal view or partly concealed; lives in submerged water/or near shore (INFRAORDER : NEPOMORPHA)..... 2
- Antenna longer than head, clearly visible from above when insect is active; lives on the surface of water. (INFRAORDER : GERROMORPHA)..... 8
2. Antenna partly visible in dorsal in view; ocelli present; shore dwellers (cryptic).....
..... OCHTERIDAE
- Antenna not visible in dorsal view&concealed below head; ocelli absent; lives beneath the surface film aquatic) 3

3. Rostrum short, triangular, not distinctly segmented; fore tarsi single segmented, scoop-like, fringed with setae; found in saline or brackish or freshwater
..... CORIXIDAE
- Rostrum long, cylindrical, distinctly segmented; fore tarsi one or more segmented, not Scoop- like without setae; found in freshwater. 4
4. Oval or elongated form; Without abdominal appendages; swims upside down 5
- Flattened forms; with or without abdominal appendages; swims normally with back towards the water surface 6
5. Elongate form with long, ore-like hind legs; hind tibia and tarsi ciliated; rostrum 4 segmented; Abdomen with a midventral keel. NOTONECTIDAE
- Oval forms; all legs alike; hind tibia and tarsi simple and not ciliated; rostrum 2 or 3 segmented; abdominal venter without keel. PLEIDAE
6. Tip of the abdomen with long and slender siphon; tarsi 1 segmented NEPIDAE
- Tip of the abdomen with or without a short and flat siphon; tarsi variably segmented 7
7. Tip of the abdomen with short and flat retractile siphon; abdominal sternum symmetrical BELOSTOMATIDAE
- Tip of the abdomen without any siphon; abdominal sternum asymmetrical
..... NAUCORIDAE
8. Claw apical; apex of hind tarsal segment entire. 9
- Claws of atleast for tarsi preapical; apex of hind tarsal segment cleft or bifid 10
9. Head long, as long as entire thorax; body long; sticklike bugs with thread-like legs.
..... HYDROMETRIDAE
- Head shorter than thorax; body elongate with spiny legs below MESOVELIIDAE
10. Hind femora short surpassing end of the abdomen; middle legs inserted closer to hind legs than to fore legs; head without a central groove GERRIDAE
- Hind femora short scarcely surpassing end of abdomen; middle legs inserted about midway between front and hind legs; head with a central groove VELIIDAE

SYSTEMATIC ACCOUNT

1. *Mesovelgia vittigera* Horvath

1895 *Mesovelgia vittigera* Horvath *Revue. ent.*, **14** : 160.

1901 *Mesovelgia orientalis* Kirkaldy, *Annali Mus. civ. Stor. Nat. Giacomo Doria*, **20** : 808

1903 *Mesovelgia mulsanti* White : Distant, *Fauna British India*, **2** : 169.

2004. *Mesovelgia vittigera* Horvath : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 64.

2006. *Mesovelgia vittigera* Horvath : Thirumalai & Suresh Kumar *Fauna of Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series*, **27** : 80.

Material examined : 1 Female (apt), Medical College Area, Jabalpur, 13.ix.1966, H.P. Agrawal; 1 Female (apt), Baleha Tank on Katni Rd., Jabalpur, 30.xii.1969, H.P. Agrawal; 2 Male, 5 Female, (apt), Amkhas, Nagpur Rd, Jabalpur, 17.ix.1970, V.V. Rao; 1 Female (apt), Tewar vill., Shahpura Rd., Jabalpur, 31.vii.1970, H.P. Agrawal.

Diagnosis : The ventral abdominal segment in males possesses a group of median spines and two sets of brush like hairs laterally. The middle femur in Females is spiny below. They prefer stagnant or slow running water covered by emergent or floating vegetation.

Distribution : India (Very widely distributed).

Elsewhere : Africa; Australia; Egypt; Indonesia; Malaysia; Palestine; Philippines; Syria; Samoa Islands; Sri Lanka.

2. *Hydrometra greeni* Kirkaldy

1898. *Hydrometra greeni* Kirkaldy, *Entomologist*, **31** : 2.

1903. *Hydrometra vittata* (Stål) : Distant, *Fauna British India*, **2** : 170.

2004. *Hydrometra greeni* Kirkaldy : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 64.

2006. *Hydrometra greeni* Kirkaldy : Thirumalai & Suresh Kumar *Fauna of Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series*, **27** : 81.

Material examined : 1 Female, Bhiloda vill. Jabalpur, 24.vii.1965, D.N. Basu; 1 Male, 3 Female, Heron river at Katangi vill., Jabalpur, 15.vi.1966, H.S. Sharma; 1 Female, Amkhas, Jabalpur, 16.vii.1966, V.V.Rao; 1 Male, Madan Mahal, Jabalpur, 20.i.1967, H. Khajuria.

Diagnosis : Anteclypeus conical, seventh abdominal strigite in male, with a deep depression, fringed with short stiff hairs. In India, this species occurs from near sea level to over 1500 meters elevation. Its habitats include ponds, swampy areas, rocky up and low land streams, lakes, flooded paddy fields.

Distribution : India (very widely distributed).

Elsewhere : Bangladesh; China; Nepal; Sri Lanka; Sumatra; Thailand; Vietnam.

3. *Microvelia (Picaultia) douglasi* Scott

1874. *Microvelia douglasi* Scott, *Ann. Mag. nat. Hist.*, **14** : 448.

1903 *Microvelia repentiana* Distant, *Fauna British India*, **3** : 174.

1909. *Microvelia kumaonensis* Distant, *Ann. Mag. nat. Hist.*, **3(8)** : 500.

1994. *Microvelia douglasi* Scott : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, : **165** : 40.

1995. *Microvelia (Microvelia) douglasi* Distant : Andersen, *Cat. Het. Palaearctic Region*, **1** : 87.

2004. *Microvelia (Microvelia) douglasi* Distant : Thirumalai, *Rec. zool. Surv. India*, **102(1-2)** : 63.

2006. *Microvelia (Picaultia) douglasi* Scott : Thirumalai & Suresh Kumar, *Zool. Surv. India. Fauna of Conservation Area series*, **27** : 79.

Material examined : 1 Female, (apt) 2 Is, Narmada river beyond Shahpura, West of vill. Bilpather, Jabalpur, 28.i.1967, V.S. Durvey; 1 Female (w), Madan Mahal, Jabalpur, 20.i.1967, H. Khajuria.

Diagnosis : Fourth antennal segment longest in males, tibial comb present only in foretibia and the mid tibia distinctly smaller than femora. The most common species of the genus found in lotic and lentic habitats in India.

Distribution : India : (very widely distributed).

Elsewhere : Indonesia; Japan, Sri Lanka.

4. *Aquarius adelaidis* (Dohrn)

1860. *Aquarius adelaidis* Dohrn, *Stettin. ent. Ztg.*, **21** : 408

1896. *Gerris spinolae* Leth. & Ser., *Cat. gen. Hemiptera*, **3** : 63.

1903. *Gerris spinolae* (Leth. & Ser.) : Distant, *Fauna British India*, **2** : 180.

1990. *Aquarius adelaidis* (Dohrn) : Andersen, *Steenstrupia*, **16(4)** : 61.

2004. *Aquarius adelaidis* (Dohrn) : Thirumalai, *Rec. zool. Surv. India*, **102(1-2)** : 59.

Material examined : 1 Male, 2 Female (w) 1 Male (Br), Chikalda Khapakhervill. R. Bank of Narmada river, 14.ii.1971, V.V. Rao.

Diagnosis : The first antennal segment longest, the head, rostrum, pronotum and forelegs black. The hind margin of pronotum brownish yellow; forewing dark brown in macropterous forms with dark brownish veins; the hind margin of the 7th sternum with a large triangular impression in middle. This is one of the commonest species inhabiting the

permanent waterbodies in India, with both macropterous and apterous forms. Found in all lentic habitats and also recorded from deep wells in Southern India.

Distribution : India.

Elsewhere : Bangladesh; China; Indonesia; Myanmar; Nepal; Philippines; Sri Lanka; Thailand; Vietnam.

5. *Neogerris parvula* (Stål)

1859. *Gerris parvula* Stål, *Zoology*, 4 : 265.

1899. *Gerris tristan* Kirkaldy, *Revue. Ent.*, 18 : 88.

1934. *Limnogonus parvulus* (Stål) : Lundblad, *Arch. Hydrobiol. Suppl.*, 12 : 384.

1959. *L. (Limnogonellus) parvulus* (Stål) : Hungerford & Matsuda, *J. Kans. Ent. Soc.*, 32(1) : 41.

1961. *L. (Neogerris) parvulus* (Stål) : Hungerford & Matsuda, *Insecta matsum.*, 24 : 114.

1975. *Neogerris parvula* (Stål) : Andersen, *Ent. Scand. Suppl.*, 7 : 86.

2004. *Neogerris parvula* (Stål) : Thirumalai, *Rec. zool. Surv. India*, 102(1-2) : 63.

Material examined : 1 Male, 1 Female (w) 1 Is, Heron river at Katangi vill. on Damoh Rd., Jabalpur, 15.vi.1966, H.S. Sharma; 1 Female, Rani Durgavati Samadhi, Mandla Rd, Jabalpur, 6.vii.1966, H.P. Agrawal; Male, 2 Female (w), Patan vill. Jabalpur, 26.vii.1966, H.P. Agrawal; 1 Male, 2 Female (w), Heron River nr. Katangi vill. Jabalpur, 17.ix.1966, H.P. Agrawal; 1 Male (w), Tewar vill. on Shahpura Rd., Jabalpur, 3.xi.1966, 1 Male, (apt), Panagar Tank, Jabalpur dist, 29.xii.1966, V.S. Durve; 1 Female (w) H.S. Sharma; 1 Female (w), Pariat Nallah, 31.x.1969, H.S. Sharma; 1 Female (w), Pariat Nallah, 5.xii.1969, V.V. Rao; 5 Male (w), 2 Female (w), 3 Female (apt) 4 Is, Baria vill., Katangi Rd., Jabalpur, 20. iv.1970, H. Khajuria; 2 Male, 2 Female (w), Pariat Nallah, 15.vii.1970, H.P. Agrawal; V.V. Rao; 1 Male (w) 1 Is, Amkhas, Nagpur Rd., 17.ix.1970, V.V. Rao; 1 Male, 2 Female (w) 1 Male (Br), Chikalda Khapakhare vill. Rt. Bank of Narmada River, 14.ii.1971, V.V. Rao; 1 Female (w), 1 Female (apt), Budhagar tank, 17.iv. 1971, V.V. Rao; 1 Male, 2 Female (w), Budhagar tank, 21.ix. 1974, D.S. Mathur.

Diagnosis : It is easily separated from all the known species of this genus by the presence of a large round or quadrangular yellow spot on the pronotum. This gerrid enjoys a distribution from the Eastern parts of the Arabian Peninsula to Solomon Island and from Rynku Islands to Java. A very common species found in slow running streams, reservoirs, ponds and rain-fed pools, throughout Indian subcontinent.

Distribution : India (very widely distributed).

Elsewhere : China; Indonesia; Iran; Japan; Malaysia; Myanmar; New Guinea; Oman; Philippines; Pakistan; Solomon Island; Sri Lanka; Taiwan; Thailand; Vietnam.

6. *Limnogonus (Limnogonus) nitidus* (Mayr)

1865. *Hydrometra nitida* Mayr, *Verh. zool.-bot. Ges. Wien*, **15** : 443.
1903. *Gerris nitida* (Mayr) : Distant, *Fauna British India*, **2** : 178.
1908. *Limnogonus nitidus* (Mayr) : Kirkaldy, *Wissenschaftl. Ergebn. der Schwed. Zool. Exped. nach dem Kilimandjaro*, **12** : 21.
1960. *L. (Limnogonus) nitidus* (Mayr) : Matsuda, *Kans. Univ. Sci. Bull.*, **41** : 198.
1975. *L. (Limnogonus) nitidus* (Mayr) : Andersen, *Ent. Scand. Suppl.*, **7** : 62.
2004. *L. (Limnogonus) nitidus* (Mayr) : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 59.
2006. *L. (Limnogonus) nitidus* (Mayr) : Thirumalai & Suresh Kumar *Fauna of Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series*, **27** : 74.

Material examined : 1 Female (apt) 1 Is, Narmada River beyond Shahpura, west of vill. Bilpather, Jabalpur, 20.i.1967, V.S. Durve.

Diagnosis : This can be easily separated from all the known species of this genus by the presence of fairly prominent connexival spines and yellow markings at the anterior pronotal lobe. It has been recorded from temporary pools, rice fields, ponds from sea level to 1000 metres and found as winged individuals.

Distribution : India (widely distributed).

Elsewhere : Indonesia; Malaysia; Maldives; Myanmar; Nepal; Singapore; Sri Lanka; Thailand; Vietnam.

7. *Limnometra fluviorum* (Fabricius)

1798. *Cimex fluviorum* Fabricius, *Ent. Syst. Suppl.*, 543.
1903. *Gerris fluviorum* (Fab.) : Distant, *Fauna British India*, **2** : 177
1903. *Gerris armata* Spinola : Distant, *Fauna British India*, **2** : 180.
1934. *Limnometra fluviorum* (Fab.) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 371.
1960. *Tenagogonus Limnometra fluviorum* (Fab.) : Matsuda, *Kans. Univ. Sci. Bull.*, **41** : 20
1995. *Limnometra fluviorum* (Fab.) : Andersen, *Steenstrupia*, **21** : 118.
2004. *Limnometra fluviorum* (Fab.) : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 60.

Material examined : 5 Male, 3 Female (w), Rani Durgavati Samadhi, Mandla Rd., Jabalpur, 20.ix.1966, V.V. Rao.

Diagnosis : It is easily identified by the presence of a spine-like projection on the dorsolateral rear margin of middle coxae. Most common species found throughout Southern India and also recorded from a wide variety of freshwater habits.

Distribution : India.

Elsewhere : Philippines; Sri Lanka.

8. *Amemboa (Amemboa) kumari* (Distant)

1910. *Onychotrechus kumari* Distant, *Ann. Mag. nat. Hist.*, 5(8) : 145.

1928 *Onychotrechus kumari* Distant) :Esaki, *Ann. Mag. nat. Hist.*, 2(10) : 509.

1950. *Amemboa pervati* Pradhan, *Rec. Indian Mus.*, 48(3&4) : 12.

1984. *Amemboa (Amemboa) kumari* (Distant) : Polhemus & Andersen *Steenstrupia*, 10(3) : 85.

2004. *Amemboa (Amemboa) kumari* (Distant) : Thirumalai, *Rec. zool. Surv. India*, 102(1-2) : 58.

2006. *Amemboa (Amemboa) kumari* (Distant) : Thirumalai & Suresh Kumar *Fauna of Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series*, 27 : 74.

Material examined : 1 Female (w), Rani Durgavati Samadhi, Mandla Rd., Jabalpur, 6.vii.1966, H.P. Agrawal; 1 Male, 1 Female, 1 Is (w), Rani Durgavati Samadhi, Mandla Rd. Jabalpur, 20.ix.1966, V.V. Rao.

Diagnosis : The male forefemur relatively slender, with two separate hair tufts beyond middle, the basal hair tuft small and pointed. The Females cannot safely be identified without the associated males. This species is reported to occur in small pools, puddles near the streambeds, or on riverbanks. It has not been so far recorded outside the Indian Peninsula. Thus, forms a new record for Central India.

Distribution : India : Karnataka, Kerala, Madhya Pradesh (present record), Orissa, Tamilnadu.

Subfamily PTILOMERINAE

Genus *Ptilomera* Amyot & Serville, 1843

Subgenus *Ptilomera* Amyot & Serville, 1843

9. *Ptilomera (Ptilomera) agroides* Schmidt

1903. *Ptilomera laticaudata* (Hardwicke) : Distant, *Fauna British India*, 2 : 185

1926. *Ptilomera agroides* Schmidt, *Ent. Mitt.*, 15(1) : 63.

1926. *Ptilomera lachne* Schmidt, *Ent. Mitt.*, 15(1) : 64.

1960. *Ptilomera (Ptilomera) agroides* Schmidt : Matsuda, *Kans. Univ. Sci. Bull.*, 41(2) : 269.

2002. *Ptilomera (Ptilomera) agroides* Schmidt : Thirumalai, *Rec. zool. Surv. India*, 100(1-2) : 69.

2006. *Ptilomera (Ptilomera) agroides* Schmidt : Thirumalai & Suresh Kumar, *Fauna of Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series*, 27 : 77.

Material examined : 2 Male (apt), 15 Is, Targhat Narmada River, Jabalpur, 20.xii.1965, H.P. Agrawal; 8 Is, Tewar vill. on Shahpura Rd., Jabalpur, 3.xi.1966, H.S. Sharma.

Diagnosis : The long dorsolateral projection of pygofer, extending half its length beyond lateral wings of suranal plate as viewed from above, separates this species from all other known species. The distal half of male, middle femur bears a dense brush of long hairs. The connexival spine of Female, arising from beneath the connexival edge of the seventh abdominal segment near its base. This species is so far known only from Southern India. It constitutes a new record for Central India.

Distribution : India : Karnataka, Kerala, Madhya Pradesh (present record), Maharashtra, Tamilnadu.

10. *Stridulobates anderseni* Zettel & Thirumalai

2001. *Stridulobates anderseni* Zettel & Thirumalai, *Insect Syst. Evol.*, **31** : 434

2004. *Stridulobates anderseni* Zettel & Thirumalai : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 62.

2004. *Stridulobates anderseni* Zettel & Thirumalai : Thirumalai, Suresh Kumar & Sharma, *Zool. Surv. India, Fauna of Pench National Park, Conservation Area Series*, **20** : 248.

Material examined : 1 Female (apt), Chikalda Khapakhere vill. Rt. Bank of Narmada River, 14.ii.1971, V.V. Rao; 2 Male (apt), 4 Is, Narmada River at Lamtaghat, Jabalpur, 16.vii.1966, V.V. Rao.

Diagnosis : The only species of the subfamily ptilomerinae, known to bear the possible stridulatory devices on mesotrochanter-abdominal area so far unknown to any other insects. The parameres of male, not surpassing the posterior margin of pygopore; a triangular tubercle on the metanotal area in Female, are the distinguishing characters for this species. It is interesting to note that the present report is the first record of this species in Central India.

Distribution : India : Karnataka, Kerala, Madhya Pradesh (present record) and Maharashtra.

11. *Metrocoris communoides* Chen & Nieser

1993. *Metrocoris communoides* Chen & Nieser, *Steenstrupia*, **19**(2) : 51.

Material examined : 1 Female, (apt), Tewar vill. on Shahpura Rd, Jabalpur, 3.xi.1966, H.S.Sharma; 7 Male, 8 Female (w), Chamal River at Chamal vill. 5. xi.1969, H. Khajuria; 3 Male, 2 Female (w), 1 Male, 1 Female (apt), 9 Is, a Nallah on Dindori Rd., Ghat area, Jabalpur, 14.iv.1970, V.V. Rao.

Diagnosis : It is comparatively a smaller species (length less than 5.0 mm) than *M. communis* (Distant) which is more than 5.0 mm. The outer margin of the male, fore tibia is

straight in *M. communoides*. The present record is the first report of the species from outside the type locality (Eastern Ghats) and forms a new record to the state of Madhya Pradesh.

Distribution : India : Madhya Pradesh (present record) & Tamilnadu.

12. *Diplonychus rusticus* (Fabricius)

1781. *Nepa rustica* Fabricius, *Species insectorum*, 2 : 333.
 1776. *Nepa plana* Sulzer, *abgek. Gesch. Insect*, 92.
 1863. *Appasus marginicollis* Dufour, *Ann. Soc. Ent. France*, (4)3 : 393.
 1868. *Diplonychus rusticus* (Fab.) : Mayr *Zoolog. Teil Wien*, 188.
 1871. *Diplonychus rusticum* (Fab) : Mayr, *Verh. zool.-bot. Ges. Wien*, 21 : 437.
 1906. *Sphaerodema rusticum* (Fab.) : Distant, *Fauna British India*, 3 : 36.
 1915. *Sphaerodema rustica* (Fab) : Bergroth, *J. Bombay nat. Hist.*, 24 : 179.
 1934. *Diplonychus rusticum* (Fab) : Lundblad, *Arch. Hydrobiol. Suppl.*, 12 : 55.
 1961. *Diplonychus rusticus* (Fab.) : Lauck & Menke, *Ann. Entomol. Soc. Amer.*, 54 : 649.
 1980. *Diplonychus indicus* Venkatesan & Rao, *J. Bombay Nat. Hist. Soc.*, 77 : 299.
 2005. *Diplonychus rusticus* (Fab.) : Thirumalai & Suresh Kumar, *Rec. zool. Surv. India*, 105 : 13.

Material examined : 2 Male, 4 Female, 11 Is, Dertat tank, Garha, Jabalpur, 20.iv.1964, M.L. Koshta; 1 Female, Bhiloda vill., Jabalpur, 24.vii.1965, D.N. Basu; 2 Female, 2 Is, Right bank of River Narmada nr. Kiti vill., Jabalpur, 26.xii.1965, H. Khajuria; 2 Male, 9 Female, 5 Is, Heron River at Ganiari vill., Jabalpur, 12.v.1966, H.S. Sharma; 6 Male, 7 Female, 9 Is, Heron River at Katangi vill. Jabalpur, 15.vi.1966, H.S. Sharma; 1 Male, Madan Mahal, Jabalpur, 17.viii.1967, H. Khajuria; 4 Female, Baleha Tank, Panagar vill. Jabalpur, 17.ii.1968, V.V. Rao; 1 Female, 1 Is, A tank in Gandhigram, Katni Rd. Jabalpur, 8.x.1968, H.P. Agrawal; 5 Is, from water, Nagpur Rd. Jabalpur, 5.xi.1969, V.V. Rao; 6 Female, Bariat River, Jabalpur, 5.xii.1969, V.V. Rao; 4 Male, 1 Female, Baleha Tank on Katni Rd., Jabalpur, 30.xii.1969, H.P. Agrawal; 1 Male, 3 Female, 1 Is, Surjla tank, on Nagpur Rd., Jabalpur, 12.ii.1970, H.P. Agrawal; 1 Male, Is, Bhedaghat, Jabalpur, 7.iii.1970, H.P. Agrawal; 1 Male, 2 Female, Budhagar, Jabalpur, 29.vii.1971, H.S. Sharma; 1 Female, 10 Is, Madan Mahal, Jabalpur, 4.iv.1975, S.K. Mishra; 1 Female, 1 Is, Amkhas, Nagpur Rd., Jabalpur, 19.iv.1975, B.S. Gurum.

Diagnosis : This species has a single segmented fore tarsus with small claw, pale lateral basal margins of pronotum and its head length is shorter than the width between the eyes. Commonly found in fishponds and voraciously feeds on fish fry, mosquito larvae and other aquatic organisms.

Distribution : India.

Elsewhere : Australia; China; Indonesia; Japan; Malaysia; Myanmar; New Guinea; New Zealand; Sri Lanka; Thailand.

13. *Lethocerus (Lethocerus) indicus* (Lepeletier & Serville)

1825. *Belostoma indica* Lepeletier & Serville, *Encycl. Meth.*, **X** : 272.
 1871. *Belostoma indicum* Lepeletier & Serville, Mayr, *Verh. zool.-bot. Ges. Wien*, **21** : 426.
 1901. *Amorgius indicus* Kirkaldy, *Entomologist*, **34** : 51.
 1906. *Belostoma indicum* (Lepeletier & Serville) : Distant, *Fauna British India*, **3** : 38.
 1911. *Belostoma indica* Lepeletier & Serville : D'Abreu, *J. Bombay nat. Hist.*, **20** : 883.
 1927. *Lethocerus indicus* (Lep. & Serv.) : Torre-Bueno *Bull. Brooklyn Entomol. Soc.*, **22** : 30
 1934. *Lethocerus indicus* (Lep. & Serv.) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 52.
 1939. *Lethocerus indicus* (Lep. & Serv.) : Hafiz & Ribeiro, *Rec. Indian Mus.*, **41**(4) : 432.
 1995. *Lethocerus indicus* (Lep. & Serv.) : Polhemus *et al*, *Cat. Het. Palaerctic region*, **1** : 23.
 2004. *Lethocerus indicus* (Lep. & Serv.) : Thirumalai, *Rec. zool. Surv. India*, **102** (1-2) : 67.

Material examined : 1 Male, from water, Nagpur Rd., Jabalpur, 5.xi.1969, V.V. Rao; 1 Female, Baleha tank on Katni Rd. Jabalpur, 30.xii.1969, H.P. Agrawal; 1 Male, Bhedaghat, Jabalpur, 223.iv.1970, H.P. Agrawal; 1 Male, Budhagar tank, Jabalpur, 12.v.1970, V.V. Rao; 1 Female, Tilwara ghat, Nagpur Rd., Jabalpur, 25.v.1970, H.P. Agrawal.

Diagnosis : This 'Giant Indian water bug' is large, elongate, dorsoventrally flattened, brown divergent yellow line on anterior lobe of pronotum broad; eyes twice as long as wide and elongate. Members of this genus are found in deeper water bodies such as ponds, lakes, flooded paddy fields etc.

Distribution : India.

Elsewhere : China; Indonesia; Malaysia; Myanmar; Pakistan; Sri Lanka.

14. *Laccotrephes griseus* (Gúerin-Méneville)

1844. *Nepa griseus* Gúerin-Méneville, *Iconogr. Regne. Anim. Ins.*, 352.
 1910. *Laccotrephes griseus* (Gúerin-Méneville) : Distant, *Fauna British India*, **5** : 314.
 1947. *Laccotrephes griseus* (Gúerin-Méneville) : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 363.
 1988. *Laccotrephes griseus* (Gúerin-Méneville) : Ravishankar and Venkatesan, *Entomon*, **13** : 227.
 1989. *Laccotrephes griseus* (Gúerin-Méneville) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **118** : 28.
 1994. *Laccotrephes griseus* (Gúerin-Méneville) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **165** : 21.
 2004. *Laccotrephes griseus* (Gúerin-Méneville) : Thirumalai, *Rec. zool. Surv. India*, **102** : 66.

Material examined : 1 Male, Belkhara vill., Jabalpur, 17.v.1965, H.P. Agrawal; 1 Female, 1 Is, Right bank of River Narmada nr. Kiti vill., Jabalpur, 26.xii.1965, H.

Khajuria; 1 Female, Ranital, Jabalpur, 18.v.1966, V.V. Rao; 4 Male, 1 Female, 2 Is, Heron river at Katangi vill., Jabalpur, 15.vi.1966, H.S. Sharma; 2 Female, Narmada River at Lamtaghat, Jabalpur, 16.vii.1966, V.V. Rao; 1 Female, Medical College area, Nagpur Rd. 13.ix.1966, H.P. Agrawal; 1 Female, Narmada River beyond Shahpura nr. Vill., Bilpather, Jabalpur, 20.1.1967, V.S. Durve; 1 Female, Pariat Nallah, Katni Rd., Jabalpur, 31.x.1969, H.S.Sharma; 1 Male, Tilwara ghat, 17.iii.1970, H.P.Agrawal; 2 Male, 1 Female, Tewar vill. Shahpura Rd., Jabalpur, 31.vii.1970, H.P. Agrawal; 1 Male, Budhagar, Jabalpur, 16.vi.1971, H.S. Sharma.

Diagnosis : The presence of slightly hooked and symmetrical parameres distinguishes this species, abdominal appendages shorter than the body, presence of an obtusely rounded tooth at the base of the anterior femora. It is a very sluggish species often found under weeds or at the bottom of slow or stagnant waters.

Distribution : India.

Elsewhere : Malaysia; Myanmar; Seychelles; Sri Lanka; Thailand.

15. *Laccotrephes ruber* (Linnaeus)

1764. *Nepa ruber* Linnaeus. *Mus. Lud. Ulr.*, 165.

1906. *Laccotrephes ruber* (Linn.) : Distant, *Fauna Brit. India*, 3 : 18.

1947. *Laccotrephes ruber* (Linn.) : Hafiz & Pradhan, *Rec. Indian Mus.*, 45 : 364.

1981. *Laccotrephes robustus* Stål : Selvanayagam & Rao, *J. Bombay, nat. Hist.*, 78 : 621

1989. *Laccotrephes ruber*(Linn.) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, 118 : 29.

1994. *Laccotrephes ruber*(Linn.) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, 165 : 22.

2004. *Laccotrephes ruber* (Linn.) : Bal & Basu, *Zool. Surv. India, State Fauna*, 10 : 298.

2006. *Laccotrephes ruber* (Linn.) : Thirumalai & Suresh Kumar, *Rec. zool. Surv. India*, 105 : 11.

Material examined : 1 Male, 2 Female, Right bank of River Narmada nr. Kiti vill., Jabalpur, 26.xii.1965, H.Khajuria; 1 Male, Amkhas nr Medical College, Jabalpur, 16.iv.1966; 1 Female, Pariat Nallah, Katni Rd., Jabalpur, 31.x.1969, H.S. Sharma; 1 Female, , Nagpur Rd. 5.xi.1969, V.V. Rao; 2 Female, Baria vill., on Sagar Rd. Jabalpur, 20.iv.1970, H.S.Sharma; 2 Female, Baleha Tank on Katni Rd. Jabalpur, 30.xii.1969, H.P. Agrawal; 1 Female, Surjla tank on Nagpur Rd., Jabalpur, 12.ii.1970, H.P. Agrawal; 1 Male, Tilwaraghat, 17.iii.1970, H.P. Agrawal; 2 Female, Budhagar tank, 14.iv.1970, V.V. Rao; 1 Female, Baleha tank, Katni Rd., 8.vii.1970, H.P. Agrawal; 1 Female, Budhagar tank on Katni Rd., Jabalpur, 29.xi.1971, H.S. Sharma.

Diagnosis : The abdominal appendices are distinctly longer than the body, the prosternum is convex in the middle and has a curved and hook shaped male, paramere. It is a common species with wide distribution in the Indo – Australian region and is largely found in habitats like rivers, streams, tanks, etc.

Distribution : India; China; Japan; Nepal; Pakistan; Taiwan.

16. *Cercotmetus brevipes* Montandon

1909. *Cercotmetus brevipes* Montandon. *Annl. Hist. Nat. Mus. nat. Hung.*, **7** : 65.

1934. *Cercotmetus brevipes* Montandon : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 48.

1973 *Cercotmetus brevipes* Montandon : Lansbury, *Tijdschrift Voor Entomol.*, **116** : 92.

1995. *Cercotmetus brevipes* Montandon : Polhemus *et al.*, *Cat. Het. Palaearctic region*, **1** : 17.

Material examined : 1 Male, Heron River at vill. Ganiari, on Katni Rd., Jabalpur, 12.v.1966, H.S. Sharma; 1 Male, Banda vill. on Shahpura Rd., Jabalpur, 3.viii.1966, H.P. Agrawal.

Diagnosis : Length between 32-41 mm; legs shorter than the other known Indian species, middle femora distinctly shorter than prothorax in length. This species prefers still water habitats. A new record for the State of Madhya Pradesh.

Distribution : India.

Elsewhere : China; Java; Sumatra; Thailand; Bangala Desh; Vietnam; Philippines; Sarawak.

17. *Cercotmetus fumosus* Distant

1904. *Cercotmetus fumosus* Distant, *Entomologist*, **37** : 278.

1906. *Cercotmetus fumosus* Distant *Fauna Brit. India*, **3** : 23.

1947. *Cercotmetus fumosus* Distant : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 361.

1973. *Cercotmetus fumosus* Distant : Lansbury, *Tijdschrift Voor Entomol.*, **116** : 100.

2001. *Cercotmetus fumosus* Distant : Thirumalai, ZSI, *Fauna of Conservation Area*, **11** : 118.

Material examined : 1 Female, (badly damaged), Bariat River, Jabalpur, 5.xii.1969, V.V. Rao.

Diagnosis : Length, 48 mm; vertex with prominent tubercle; respiratory siphon two and a half times longer than the operculum; operculum narrow and carinate. Members of this genus exclusively feed on mosquito larvae and as one of the most potentially useful predator. Species belonging to this genus are poorly known in India. A new record for the State of Madhya Pradesh.

Distribution : India.

Elsewhere : Sri Lanka.

18. *Ranatra digitata* Hafiz & Pradhan

1947. *Ranatra digita* Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 361.

1972. *Ranatra digita* Hafiz & Pradhan : Lansbury, *Trans. R. ent. Soc. Lond.*, **124** : 337.

Material examined : 1 Female, 1 Is, Belkhara vill., 17. viii.1965, H.P. Agrawal; 1 Female, Heron River at Ganiari vill. on Katni Rd., Jabalpur, 12.v.1966, H.S. Sharma; 1 Male, 1 Female, 5 Is, Banda vill. on Shahpura Rd., Jabalpur, 3.viii.1966, H.P. Agrawal; 2 Male, 6 Is., Atank in Gandhigram vill., 5.viii.1966, V.V. Rao; 1 Male, 2 Female, Amkhas on Nagpur Rd. Jabalpur, 19.viii.1966, H.P. Agrawal; 2 Female, Gandhigram tank on Katni Rd., Jabalpur, 5.x.1966, V.S. Durve; 1 Male, 1 Female, 2 Is., Tilwara ghat, 17.iii.1970, H.P. Agrawal; 1 Male, 1 Female, Bhedaghat, Jabalpur, 23.iv.1970, H.P. Agrawal; 1 Male, 7 Is., Madan Mahal, Jabalpur, 4.iv.1975, B.S. Gurum; 1 Male, 1 Female, Amkhas on Nagpur Rd., 19.iv.1975, B.S. Gurum.

Diagnosis : Head without a prominent tubercle between the eyes, instead slightly raised. Very close to *Ranatra flagellata* Lansbury and the only reliable distinguishing feature being the male, genitalia. The male, genital capsule not distally inaginated. A new record for the State of Madhya Pradesh.

Distribution : India.

Elsewhere : Sri Lanka.

19. *Ranatra elongata* Fabricius

1790. *Ranatra elongata* Fabricius *Skrif. Nat. Selesk.*, **1** : 228.

1906. *Ranatra elongata* Fabricius : Distant, *Fauna Brit. India*, **3** : 18.

1947. *Ranatra elongata* Fabricius : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 368.

1972. *Ranatra elongata* Fabricius : Lansbury, *Trans. R. ent. Soc. Lond.*, **124** : 306.

1994. *Ranatra elongata* Fabricius : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **165** : 22.

2004. *Ranatra elongata* Fabricius : Thirumalai, *Rec. zool. Surv. India*, **102** (1-2) : 66.

Material examined : 1 Male, Madan Mahal, Jabalpur, 1.iv.1966, H.P. Agrawal; 1 Female, 2 Is., Heron River at Ganiari vill. on Katni Rd., Jabalpur, 12.v.1966, H.S. Sharma; 1 Female, Narmada River at Gwarighat, Jabalpur, H.P. Agrawal; 1 Female, Budhagar tank, 14.iv.1970, V.V. Rao; 1 Female, Baria vill. on Sagar Rd. Jabalpur, 20. iv.1970, H. Khajuria; 1 Female, Bhedaghat, Jabalpur, 23.iv.1970, H.P. Agrawal; 1 Male, Gohr River, Rani Durgavati Samadhi Rd, Jabalpur, 29.iv.1970, V.V. Rao.

Diagnosis : It can be identified by the structure of the anterior femur provided with a triangular tooth beyond the middle of its length, and the metasternal process, which is sub triangular and centrally longitudinally foveately sulcate. The forecoxae are two-thirds the length of prothorax and anterior lobe of prothorax less than twice the length of posterior

lobe. Large body size (40-60 mm) and the length of the respiratory siphon that is equal or longer than the body can also distinguish this species. It is reported to be feeding on tadpoles, nymph of mayflies and other aquatic hemipterans during dry seasons and known to migrate in search of suitable areas.

Distribution : India.

Elsewhere : Australia; Nepal; Sri Lanka.

20. *Ranatra filiformis* Fabricius

1790. *Ranatra filiformis* Fabricius, *Skrit. Nat. Selsk.*, **1** : 228.

1860. *Ranatra sordidula* Dohrn, *Stett. ent. Zeit.*, **21** : 409.

1906. *Ranatra filiformis* Fabricius : Distant, *Fauna British India*, **3** : 21.

1972. *Ranatra filiformis* Fabricius : Lansbury, *Trans. R. Ent. Soc. Lond.*, **124** : 321.

2001. *Ranatra filiformis* Fabricius : Thirumalai, *ZSI, Fauna of Conservation Area*, **11** : 118.

Material examined : 1 Male, 3 Is., Devtal Garha, Jabalpur, 20.iv.1966, M.L. Koshta; 1 Male, 4 Female, 2 Is., Devtal nr. Madan Mahal, Jabalpur, 3.v.1966, H.P. Agrawal; 1 Female, Heron River at Katni Rd., 15.vi.1966, H.S. Sharma; 1 Female, Pariat River at Madna vill., Damoh Rd., Jabalpur, 22.vi.1966, H.S. Sharma; 1 Male, 1 Female, 1 Is., Narmada River at Gwarighat, Jabalpur, 19.vii.1966, H.P. Agrawal; 1 Female, Patan vill., Jabalpur, 26.vii.1966, H.P. Agrawal; 1 Male, Banda vill. on Shahpura Rd. Jabalpur, 3.viii.1966, H.P. Agrawal; 2 Male, Amkhas on Nagpur Rd., Jabalpur, 19.viii.1966, H.P. Agrawal; 2 Male, 1 Female, Pariat Nallah, Katni Rd. Jabalpur, 31.x.1969, 1 Female, Nagpur Rd, Jabalpur, 5.xi.1969, V.V. Rao; H.S. Sharma; 1 Male, 1Is, Budhagar tank, 14.iv.1970, V.V. Rao; 1 Male, 15 Is., Amkhas on Nagpur Rd.19.iv.1975, B.S. Gurum.

Diagnosis : The males of this species can be identified by the absence of a tooth and presence of several small spines on the inner margins of distally hook shaped paramere and presence of wide interocular space. This species is smaller in size than *R. elongata* and mostly found among vegetation, fringing the shallower parts of water, clinging to submerged vegetation and feeds on nymphs of dragonflies and mosquito pupae.

Distribution : India (widely distributed); Nepal; Pakistan; Philippines; Sri Lanka.

21. *Ranatra titilaensis* Hafiz & Pradhan

1947. *Ranatra titilaensis* Hafiz & Pradhan, *Rec.Indian Mus.*, **45** : 369.

1972. *Ranatra titilaensis* Hafiz & Pradhan : Lansbury, *Trans. R. Ent. Soc. Lond.*, **124** : 338.

Material examined : 6 Male, 5 Female, 5 Is, Heron River at Katangi vill., Jabalpur, 15.vi.1966, H.S. Sharma; 1 Male, 1 Female, A tank in Gandhigram vill., Jabalpur, 5.viii.1966, V.V. Rao; 3 Male, Narmada River at Gwarighat, Jabalpur, 19.vii.1966, H.P.

Agrawal; 1 Female, Baleha tank, Panagar vill., Jabalpur, 17.ii.1968, V.V. Rao; 1 Male, 4 Female, Surjla tank on Nagpur Rd., Jabalpur, 12.ii.1970, H.P. Agrawal; 2 Female, 7 Is, Baria vill. on Sagar Rd., Jabalpur. 20.iv. 1970, H. Khajuria; 1 Male, 2 Female, Bhedaghat, Jabalpur, 23.iv.1970, H.P. Agrawal; 4 Male, 6 Female, 3 Is, Balsagar tank, nr. Medical College, Jabalpur, 23.vi.1970, H.S. Sharma; 4 Male, 8 Female, Amkhas on Nagpur Rd., Jabalpur, 25.vi.1970, H.P. Agrawal; 1 Male, 6 Female, 15 Is, Baleha tank, Katni Rd. Jabalpur, 8.vii.1970, H.P. Agrawal; 2 Male, 7 Female, 16 Is, Amkhas on Nagpur Rd., Jabalpur, 7.viii.1970, H.S. Sharma.

Diagnosis : It is the smallest known oriental species of the genus so far described. The distally hooked paramere is quite distinct unlike any other known species of *Ranatra*. This species is being reported for the first time after its original description in 1947 from Bihar (Thirumalai and Sharma, In press). A new record for the State of Madhya Pradesh.

Distribution : India (Bihar & Madhya Pradesh).

22. *Ranatra varipes atropa* Montandon

1903. *Ranatra atropa* Montandon, *Bull. Soc. Sci. Bucarest*, **12** : 105.

1907. *Ranatra varipes atropa* Montandon, *Ann. Soc. Ent. France*, **76** : 57.

1972. *Ranatra varipes* var *atropa* Mayr : Lansbury, *Trans. R. Ent. Soc. Lond.*, **124** : 317.

1998. *Ranatra varipes atropa* Montandon : Nieser & Polhemus, *Amemboa*, **2** : 22.

2005. *Ranatra varipes atropa* Montandon : Thirumalai & Suresh Kumar, *Rec. zool. Surv. India*, **105** : 12.

Material examined : 2 Male, Devtal nr. Madan Mahal, Jabalpur, 3.v.1966, H.P. Agrawal; 2 Male, 1 Female, 2 Is, A tank in Gandhigram, Katni Rd Jabalpur, 8.x.1968, H.P. Agrawal; 1 Male, Nagpur Rd Jabalpur, 5.xi.1969, V.V. Rao; 3 Male, 1 Female, (badly damaged), 3 Male, 1 Female, Balasagar tank nr Medical College, Nagpur Rd. Jabalpur, 23.vi.1970; 6 Male, 1 Female, 3 Is, Amkhas on Nagpur Rd., Jabalpur, 19.viii.1970, H.P. Agrawal; 1 Female, Budhagar tank on Katni Rd., Jabalpur, 29.xi.1971, H.S. Sharma.

Diagnosis : Species belonging to *varipes* group are characterized by the respiratory siphon being always shorter than the body length. Female, operculum narrow, sharply acuminate. Elytra uniformly textured, membrane surpassing posterior margin of 6th tergite.

Distribution : India.

Elsewhere : Australia; Indonesia; Malaysia; Myanmar; Taiwan.

23. *Ochterus marginatus marginatus* (Latreille)

1804. *Acanthia marginata* Latreille, *Hist. Nat. Crust. Ins. Paris*, **12** : 242.

1807. *Pelogonus marginatus* Latreille, *Gen. Crust. Ins. Paris*, **3** : 143.

1874. *Pelogonus flavomarginatus* Scott, *Ann. Mag. nat. Hist.*, **14** : 446.

1906. *Pelogonus marginatus* (Latreille) : Distant, *Fauna British India*, **3** : 14.
 1915. *Pelogonus formosanus* Matsumura, *Ent. Mag. Kyoto*, **1** : 103.
 1919. *Pelogonus marginatus* (Latreille) : Paiva, *Rec. Indian Mus.*, **16** : 154.
 1934. *Ochterus marginatus marginatus* (Latreille) : Jaczewski, *Ann. Mag. nat. Hist.*, **13** : 602.
 1989. *Ochterus marginatus marginatus* (Latreille) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **118** : 9.
 1995. *Ochterus marginatus marginatus* (Latreille) : Polhemus *et al.*, *Cat. Het. Palaerctic region*, **1** : 23.
 2001. *Ochterus marginatus marginatus* (Latreille) : Thirumalai, *Fauna Conservation Area Series*, **11** : 113.
 2004. *Ochterus marginatus* (Latreille) : Bal & Basu, *State Fauna Series*, **10** : 295.

Material examined : 1 Female, Shahpura Rd., Jabalpur, 16.xii.1971, R.K. Singh.

Diagnosis : This species is easily recognized by the presence of partly visible four segmented antennae, 2 : 2 : 3 tarsal formula, a rounded capitulum at the apex and a claw-like point at the base of the right paramere of the males, convex lateral margins of pronotum and bordered coastal margins of hemelytra. These bugs are shore inhabitants and their habitats include shores of river, streams, lakes and ponds, a widely distributed species. A new record for the State of Madhya Pradesh.

Distribution : India : Throughout.

Elsewhere : Africa; China; France; Japan; Middle East; Sri Lanka; Sumatra;

24. *Sigara* sp

Specific identification requires males, thus could not be placed.

Material examined : 1 Female, Madan Mahal, Jabalpur, 20.i.1967, H. Khajuria; 1 Female, Budhagar tank on Katni Rd. Jabalpur, 21.xi.1974, D.S. Mathur.

25. *Micronecta*(*Basilonecta*) *scutellaris scutellaris* (Stål)

1858. *Sigra scutellaris* Stål , *Vetens akad. Forh.*, **15** : 319.
 1908. *Micronecta malabarica* Kirkaldy, *Canad. Ent.*, **40** : 209.
 1910. *Micronecta dione* Distant, *Fauna Brit. India*, **5** : 348.
 1910. *Micronecta malabarica* Kirkaldy : Distant , *Fauna Brit. India*, **5** : 347.
 1910. *Micronecta proba* Distant, *Fauna Brit. India*, **5** : 348.
 1940. *Micronecta* (*Basilonecta*) *scutellaris scutellaris* (Stål) : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 365.
 1962. *Micronecta* (*Basilonecta*) *scutellaris* (Stål) : Wróblewski, *Bull. Acad. Polon. Sci., CI II*, **10** : 176.
 1989. *Micronecta* (*Basilonecta*) *scutellaris scutellaris* (Stål) : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **118** : 15.

2004. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål) : Thirumalai, *Rec. zool. Surv. India*, **102** : 68.

2005. *Micronecta (Basilonecta) scutellaris scutellaris* (Stål) : Thirumalai & Sharma, *Zool. Surv. India Fauna of Melghat Tiger Reserve, Conservation Area Series*, **24** : 352.

Material examined : 1 Male, Tilwara ghat, Amkhas on Nagpur Rd., Jabalpur, 20.v.1970, H.P. Agrawal.

Diagnosis : It can be identified by club shaped tip of the left paramere and grey or greyish brown pronotum of males, the largest species (2.8 to 3.1 mm) of the genus. Very widely distributed species in India and mostly found in stagnant pools, pond and ditches.

Distribution : India.

Elsewhere : Africa (Central); China; Indonesia; Malayasia; Saudi Arabia; Sri Lanka; Vietnam.

26. *Micronecta (Dichaetonecta) albifrons* (Motschoulsky)

1863. *Corixa albifrons* Motschoulsky, *Bull. Soc. Nat. Moscou*, **36** : 94.

1897. *Sigara albifrons* (Motschoulsky) : Kirkaldy, *Entomologist*, **30** : 240.

1910. *Micronecta lucina* Distant, *Fauna Brit. India*, **5** : 345.

1940. *M. albifrons striatella* Lundblad : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 382.

1960. *Micronecta fascioclavus* Chen, *J. Kans. ent. Soc.*, **33** : 108.

1968. *Micronecta albifrons* (Motschoulsky) : Wróblewski, *Bull. Entomol. Pologne.*, **38** : 763.

1999b. *Micronecta (Dichaetonecta) albifrons* (Motschoulsky) : Thirumalai, *Zoos Print J.*, **1-10** : 132.

1999. *Micronecta albifrons* (Motschoulsky) : Nieser, *Amemboa*, **3** : 11.

Material examined : 18 Male, 30 Female, 4 Is, Tilwara ghat, Amkhas on Nagpur Rd. Jabalpur, 20.v.1970, H.P. Agrawal; 2 Male, 1 Female, Amkhas, Nagpur Rd., Jabalpur, 7.viii.1970, H.S. Sharma.

Diagnosis : Length 2.2-2.3 mm with three transverse lines on the pronotum and the globular basal process of the right paramere with distinct ribs are the distinguishing features of this species.

Distribution : India.

Elsewhere : Indonesia; Myanmar; Sri Lanka.

27. *Micronecta prashadana* Hutchinson

1940. *Micronecta (Dichaetonecta) prashadana* Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 387.

1972. *Micronecta prashadana* Hutchinson : Wróblewski, *Bull. Entomol. Pologne.*, **42** : 16.

1989. *Micronecta(Dichaetonecta) prashadana* Hutchinson : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **118** : 15.
2001. *Micronecta(Dichaetonecta) prashadana* Hutchinson : Thirumalai, *Fauna of Conservation Area*, **11** : 114.
2004. *Micronecta(Dichaetonecta) prashadana* Hutchinson :Thirumalai, *Rec. zool. Surv. India*, **102** : 69.

Material examined : 1 Female, Tewar vill. Shahpura Rd., Jabalpur, 31.vii.1970, H.P. Agrawal.

Diagnosis : The male, parameres and the very eelongate submedian lobe of seventh sternite are the distinguishing characters of this species. It has a flat left paramere and the right paramere is emarginate ventrally, just proximal to its apex. This is a running water species and recorded from riverine ecosystem.

Distribution : India.

28. *Micronecta (Indonectella) grisea* (Fieber)

1844. *Sigara grisea* Fieber, *Entomol. Mono. Leipzig*, 14.
1897. *Sigara grisea* Fieber : Kirkaldy, *Entomologist*, **30** : 240.
1910. *Micronecta thyesta* Distant, *Fauna Brit. India*, **5** : 349.
1940. *Micronecta (Indonectella) thyesta* Distant : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 363.
1989. *Micronecta (Indonectella) thyesta* Distant : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, : **118** : 13.
2001. *Micronecta (Indonectella) thyesta* Distant : Thirumalai , *ZSI. Fauna of Conservation Area*, **11** : 115.
2004. *Micronecta (Indonectella) grisea* (Fieber) : Thirumalai, *Rec. zool. Surv. India*, **102** : 69.

Material examined : 1 Male, 6 Female, Budhagar tank, Jabalpur, 17.i.1970, H.S. Sharma.

Diagnosis : It can be differentiated from the known oriental forms by the absence of strigil (stridulatory comb) in males and the distal margin of free lobe of eighth abdominal tergite deeply emarginated. General colour greyish-yellow with head darkened posteriorly. Head evenly rounded anteriorly.

Distribution : India.

Elsewhere : China; Vietnam.

29. *Micronecta (Pardanecta) punctata* Horvath

1904. *Micronecta haliploides* Horvath, *Ann. Hist. Nat. Mus. Hung.*, **2** : 594.
1905. *Micronecta inflatula* Breddin, *Soc. Ent. Zurich*, **20** : 57.

1905. *Micronecta pardalina* Breddin, *Soc. Ent. Zurich*, **20** : 57.
1910. *Micronecta merope* Distant, *Fauna Brit. India*, **5** : 351.
1940. *Micronecta (Dichaetonecta) haliploides* Horvath : Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 377.
1947. *Micronecta (Dichaetonecta) haliploides* Horvath : Hafiz & Pradhan, *Rec. Indian. Mus.*, **45** : 355.
1960. *Micronecta punctata* Fieber : Chen, *J. Kans. ent. Soc.*, **33** : 117.
2002. *Micronecta (Pardanecta) punctata* Fieber : Thirumalai, *Vistas Entomological Research New Millennium*, **25**.
2004. *Micronecta (Dichaetonecta) haliploides* Horvath : Bal & Basu, *Zool. Surv. India, State Fauna Series*, **10** : 296.

Material examined : 1 Male, 1 Female, Panagar tank, Jabalpur, 29.xii.1966, V.S. Durve; 2 Female, Panagar tank, Katni Rd., Jabalpur, 27.IX.1968, V.S. Durve; 2 Female, Baleha tank, Panagar vill., Jabalpur, 8.i.1969, H.P. Agrawal; 1 Male, 4 Female, Amkhas, Nagpur Rd., Jabalpur, 17.ix.1969, V.V. Rao; 2 Female, Tilwara ghat, Amkhas, Jabalpur, 20.v.1970, H.P. Agrawal; 4 Female, Tank in Chatarpur vill., Jabalpur, 15.vi.1970, H.S. Sharma; 3 Male, 2 Female (w), Amkhas, Nagpur Rd., Jabalpur, 7.viii.1970, H.S. Sharma.

Diagnosis : Hemelytra having spinules forming pubescence and there are pointed pencil-like spinules scattered in the middle part of the corium.

Distribution : India : Throughout.

Elsewhere : Singapore; Sri Lanka; Thailand.

30. *Micronecta (Sigmonecta) quadristrigata* Breddin

1905. *Micronecta quadristrigata* Breddin, *Soc. Ent. Zurich*, **20** : 57.
1910. *Micronecta minthe* Distant, *Fauna Brit. India*, **5** : 347.
1934. *Micronecta quadristrigata* Breddin : Lundblad, *Arch. Hydrobiol. Supp.*, **12** : 87.
1947. *Micronecta (Basilonecta) quadristrigata* Breddin : Hafiz and Pradhan, *Rec. Indian. Mus.*, **45** : 355.
1972. *Micronecta (Sigmonecta) quadristrigata* Breddin : Wróblewski, *Bull. Entomol. Pologne*, **42** : 29.
1994. *Micronecta (Sigmonecta) quadristrigata* Breddin : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **165** : 8.
2002. *Micronecta (Sigmonecta) quadristrigata* Breddin : Thirumalai, *Rec. zool. Surv. India*, **100** : 108.
2004. *Micronecta (Sigmonecta) quadristrigata* Breddin : Thirumalai, *Rec. zool. Surv. India*, **102** : 70.
2006. *Micronecta (Sigmonecta) quadristrigata* Breddin : Thirumalai & Sureshkumar, *ZSI. Fauna of Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series*, **27** : 71.

Material examined : 2 Male, 1 Female, Budhagar tank, Jabalpur, 17.i.1970, H.S. Sharma; 1 Male, Amkhas, Nagpur Rd., Jabalpur, 17.ix.1979, V.V. Rao.

Diagnosis : The eighth abdominal tergite of the males sigmoid in outline. The seventh abdominal tergite has four, moderately enlarged bristles. It is very common in the Southern and Eastern parts of India. It is also reported to occur in brackish water pools. It has also been collected from the backwaters of Madras Coast (Salinity 4.2%) by the senior author.

Distribution : India.

Elsewhere : Indonesia; Iran; Malaysia; Phillipines; Sri Lanka.

31. *Heleocoris (Heleocoris) bengalensis bengalensis* Montandon

1910. *Heleocoris bengalensis* Montandon, *Bull. Soc. Sci. Bucarest*, **19** : 653.

1910. *Heleocoris bengalensis* Montandon : Distant, *Fauna British India*, **5** : 323.

1950. *Heleocoris bengalensis* Montandon : Pradhan, *Rec. Indian Mus.*, **48** : 102.

1971. *Heleocoris bengalensis bengalensis* Montandon : La Rivers, *Biol. Soc. Nev. Mem.*, **2** : 78.

Material examined : 1 Male, Gour River, Rani Durgavati Samadhi, Jabalpur, 29.iv.1970, V.V. Rao.

Diagnosis : This sub genus is so far reported from India only. Very close to *H. vicinus* Montandon but differs with head longer, irregular black spots, central one being widest. A new record for the state.

Distribution : India : Madhya Pradesh (present record), Uttar Pradesh, West Bengal.

32. *Heleocoris (Heleocoris) elongatus* Montandon

1897. *Heleocoris elongatus* Montandon, *Ann. Soc. Ent. Belg.*, **41** : 59.

1906. *Heleocoris elongatus* Montandon : Distant, *Fauna British India*, **3** : 31.

1910. *Heleocoris elongatus* Montandon : Distant, *Fauna British India*, **5** : 324.

1919. *Heleocoris elongatus* Montandon : Paiva, *Rec. Indian Mus.*, **16** : 154.

1971. *Heleocoris elongatus* Montandon : La Rivers, *Biol. Soc. Nev. Mem.*, **2** : 78.

Material examined : 1 Female, Gour River, Rani Durgavati Samadhi, Jabalpur, 29.iv.1970, V.V. Rao.

Diagnosis : Size, 8.2 mm, elongate and oval, head and pronotum densely punctured with black, small granule like dots, scutellum and hemelytra brown. This species so far known from India, a member of this genus lives on bottom of water where they cling to the stones and crawl about. A first record for the state.

Distribution : India : Bihar, Madhya Pradesh (present record), Maharashtra, West Bengal.

33. *Anisops bouvieri* Kirkaldy

1904. *Anisops bouvieri* Kirkaldy, *Wiener Ent. Zeit.*, **23** : 116.
1995. *Anisops bouvieri* Kirkaldy : Polhemus *et al.*, *Cat. Heteroptera Palaearctic region*, **1** : 64.
2004. *Anisops bouvieri* Kirkaldy : Thirumalai, *Rec. zool. Surv. India*, **102** (1-2) : 65.
2004. *Anisops bouvieri* Kirkaldy : Nieser, *Raff. Bull. Zoology*, **52** : 85.

Material examined : 3 Male, 17 Female, Patan vill., Jabalpur, 26.vii.1966, H.P. Agrawal; 1 Male, 8 Female, Padariya vill. Jabalpur, 14.x.1970, V.V. Rao.

Diagnosis : The males have a long cephalic projection which is more or less acuminate and extends one fifth of its length beyond the outer margin of the eyes; the left paramere deeply excavate. The Female, ovipositor normal; however, the Female, s of *A. bouvieri* and *A. batillifrons* Lundblad are indistinguishable. This is a wide spread species found mostly in freshwater pools, lakes, ponds, forest streams.

Distribution : India : Throughout.

Elsewhere : Bangladesh; China; Indonesia; Malaysia; Myanmar; New Guinea; Singapore; Thailand; Vietnam.

34. *Anisops breddini* Kirkaldy

1901. *Anisops breddini* Kirkaldy, *Entomologist*, London, **34** : 5.
1951. *Anisops breddeni* Kirkaldy : Brooks, *Kans. univ. Sci. Bull.*, **34** : 439.
1962. *Anisops breddini* Kirkaldy : Leong & Fernando, *J. Bombay nat. Hist.*, **59** : 518.
1964. *Anisops kempi* Brooks : Lansbury, *Ann. zool. Warszawa*, **22** : 215.
2004. *Anisops breddini* Kirkaldy : Nieser, *Raff. Bull. Zoology*, **52** : 85.

Material examined : 1 Male, 1 Female, Rani Durgavati Samadhi, Jabalpur, 6.vii.1966, H.P. Agrawal; 2 Male, 7 Female, Patan vill., Jabalpur, 26.vii.1966, H.P. Agrawal; 1 Male, Madan Mahal Jabalpur, 20.i.1967, H. Khajuria; 3 Male, 9 Female, Madan Mahal, Jabalpur, 17.ii.1967, H. Khajuria.

Diagnosis : The striking diagnostic characters of this species are the structure of male, stridulatory comb, which has few flattened and spatulate combs, holoptic eyes and parallel lateral margin of pronotum.

Distribution : India.

Elsewhere : Indonesia; Malaysia; Myanmar; New Guinea; Singapore; Sri Lanka; Thailand; Vietnam.

35. *Anisops cavifrons* Brooks

1951. *Anisops cavifrons* Brooks, *Kans. Univ. Sci. Bull.*, **34** : 418;
 1994. *Anisops cavifrons* Brooks : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **165** : 16.
 2004. *Anisops cavifrons* Brooks : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 65.

Material examined : 5 Female, Belkhara vill., Jabalpur, 17.viii.1965, H.P. Agrawal; 2 Male, 22 Female, Madan Mahal, Jabalpur, 1.iv.1966, H.P. Agrawal; 3 Male, 3 Female, Patan vill., Jabalpur, 26.vii.1966, H.P. Agrawal; 7 Male, 8 Female, Tewar vill. on Shahpura Rd., Jabalpur, 3.xi.1966, H.S. Sharma; 3 Female, Madan Mahal, Jabalpur, 20.i.1967, H. Khajuria; 1 Male, 12 Female, Madan Mahal, Jabalpur, 17.ii.1967, H. Khajuria; 2 Male, 3 Female, Amkhas on Nagpur Rd., Jabalpur, 18.ix.1968, H.P. Agrawal; 1 Female, Budhagar tank, Jabalpur, 20xii.1969, H.P. Agrawal; 1 Male, 4 Female, Gour River, Rani Durgavati Samadhi, Jabalpur, 29.iv.1970, V.V. Rao; 4 Male, 2 Female, Padariya vill., Jabalpur, 14.x.1970, V.V. Rao; 3 Male, 10 Female, Budhagar tank on Katni Rd., Jabalpur, 21.xi.1974, D.S. Mathur.

Diagnosis : It can be distinguished by the presence of a procumbent spine on the fore tibia of male; the left paramere in males moderately excavate and there are three closely arranged small setae near the base of tarsus. This species has been reported from both Western Ghats and Eastern Ghats and interestingly recorded from backwaters in Kerala also.

Distribution : India.

Elsewhere : Pakistan.

36. *Anisops exiguus* Horvath

- 1919 *Anisops exigua* Horvath, *Abhandl. Senckenberg. Naturf. Gesell.*, **35** : 314.
 1951. *Anisops exigera* Horvath : Brooks, *Univ. Kans. Sci. Bull.*, **34** : 447.
 1991. *Anisops exigua* Horvath : Polhemus, *J. Kans. Ento. Soc.*, **64** : 442.
 1994. *Anisops exigera* Horvath : Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **165** : 16.
 2002. *Anisops exiguus* Horvath : Thirumalai, Metha & Sharma, *Res. Bull. Panjab Univ.*, **52** : 156.
 2004. *Anisops exiguus* Horvath : Nieser, *Raff. Bull. Zoology*, **52** : 86.

Material examined : 6 Male, Madan Mahal, Jabalpur, 17.ii.1967, H. Khajuria.

Diagnosis : This species is small in size, sordidwhite any shiny; male, and Female, possess a very narrow synthlipsis; lateral margins of abdomen with hemielytra anteriorly parallel and posteriorly converging. It is also reported from backwaters of Kerala.

Distribution : India.

Elsewhere : China; Malaysia; New Guinea; Singapore; Vietnam.

37. *Anisops nigrolineatus* Lundblad

1934. *Anisops nigrolineata* Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 160.

1951. *Anisops nigrolineata* Lundblad : Brooks, *Kans. Univ. Sci. Bull.*, **34** : 409.

1995. *Anisops nigrolineatus* Lundblad : Polhemus *et al.*, *Cat. Het. Palaerctic region*, **1** : 65.

2004. *Anisops nigrolineatus* Lundblad : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 65.

2004. *Anisops nigrolineatus* Lundblad : Nieser, *Raff. Bull. Zoology*, **52** : 88.

Material examined : 2 Male, 1 Female, Garden on Nagpur Rd., 2 km east of Bargi rest house, 29.vi.1965, H. Khajuria; 3 Male, 3 Female, Tewar vill. on Shahpura Rd., Jabalpur, 3.xi.1966, H.S. Sharma; 5 Male, 3 Female, 2 Is, Gour River, Rani Durgavati Samadhi, Jabalpur, 29.iv.1970, V.V. Rao.

Diagnosis : Fusiform and slender species, can be easily identified by the swollen interocular space beyond the margins of the eyes in males while in Female, s, the head is rounded with the vertex extending slightly beyond the anterior margin of the eyes. This species has a remarkable discontinuous distribution, found mainly in southern, central and north and northwestern and northeastern parts of India.

Distribution : India.

Elsewhere : Afghanistan; China; Bangladesh; Indonesia Myanmar; Pakistan; Philippines; Singapore; Thailand;

38. *Anisops niveus* (Fabricius)

1775. *Notonecta nivea* Fabricius, *Systema Entomologiae, Flensburgi et Lipsiae*, 690

1851. *Anisops niveus* (Fabricius) : Fieber, *Abhandl. Konigl. bohm. Ges. Wiss.*, **7** : 484.

1928. *Anisops niveus* (Fabricius) : Dover, *J. Bombay nat. Hist. Soc.*, **32** : 615.

1934. *Anisops nivea* (Fabricius) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 163.

1947. *Anisops (Anisops) nivea* (Fabricius) : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 353.

1951. *Anisops nivea* (Fabricius) : Brooks, *Kans. Univ. Sci. Bull.*, **34** : 373.

2001. *Anisops niveus* (Fabricius) : Nieser, *Raff. Bull. Zoology*, **52** : 88.

Material examined : 5 Male, 3 Female, Madan Mahal, Jabalpur, 1.iv.1966, H.P. Agrawal.

Diagnosis : Size not more than 6.00 mm, pale to dark, spindle shaped species; facial tubercle with a triangular excavation bordered on each side by a raised carina in males. A new record for the State of Madhya Pradesh.

Distribution : India.

Elsewhere : Africa; Indonesia ;Malaysia; Myanmar; Philippines; Seychelles; Sri Lanka; Thailand; Vietnam.

39. *Enithares ciliata* (Fabricius)

1798. *Notonecta ciliata* Fabricius, *Suppl. Ent. Syst.*, 524.
 1891. *Notonecta abbreviata* Kirby, *J. Linn. Soc. London*, **24** : 126.
 1906. *Enithares indica* Spinloa : Distant, *Fauna British India*, **3** : 42.
 1910. *Enithares paviana* Distant, *Fauna British India*, **5** :329.
 1919 *Enithares laceta* Paiva, *Rec. Indian Mus.*, **16** : 155.
 1938. *Enithares abbreviata* (Kirby) : Hafiz and Mathai. *Rec. Indian Mus.*, **40** : 210.
 1968 .*Enithares ciliata* (Fabricius) : Lansbury, *Pacific Insects*, **10** : 413.
 2004. *Enithares ciliata* (Fabricius) : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 65.
 2006. *Enithares ciliata* (Fabricius) : Thirumalai & Sureshkumar, *ZSI. Fauna of Biligiri Rangaswamy Temple Wildlife Sanctuary, Conservation Area Series*, **27** : 65.

Material examined : 1 Female, Baleha tank, Katni Rd., Jabalpur, 8.vii.1970, H.P. Agrawal.

Diagnosis : The mesotrochanter rounded with a patch of black spicules along the ventral margin, covering a much larger area. This species, like the other known species of the genus, is found on water surface and usually feeds on prey caught in the surface film or floating at the surface of deep water or clinging to submerged objects.

Distribution : India.

Elsewhere : Bhutan; Cambodia; China; Indonesia; Laos; Malaysia; Mauritius; Singapore; Sri Lanka; Thailand; Vietnam.

40. *Enithares fusca* Brooks

1948. *Enithares fusca* Brooks, *J. Kans. Ent. Soc.*, **21** : 46.
 1968. *Enithares fusca* Brooks : Lansbury, *Pacif. Insects*, **10** : 412.
 2004. *Enithares fusca* Brooks : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 65.

Material examined : 2 Female, 2 Is, Madan Mahal, Jabalpur, 17.ii.1967, H. Khajuria; 3 MALE, 1 Female, 1 Is, Bhedaghat, Jabalpur, 23.iv.1970, H.P. Agrawal; 1 Male, Gour River, Rani Durgavati Samadhi, Jabalpur, 29.iv.1970, V.V. Rao; 2 Female, Amkhas, Jabalpur, 7.viii.1970, H.S. Sharma.

Diagnosis : Size more than 9.0 mm (9.1 to 9.45 mm); Similar to *E. ciliata* (Fabricius) in general and the presence of a large nodule on the inner surface of the mid-tibia distally separates it from *E. ciliata*. This species is so far reported from Karnataka, Kerala,

Maharashtra, Tamilnadu and hence the occurrence of this species in the Jabalpur District of Madhya Pradesh is an additional record showing its extended distribution.

Distribution : India : Karnataka, Kerala, Madhya Pradesh (Present Record), Maharashtra, Tamilnadu.

41. *Paraplea frontalis* (Fieber)

1844. *Plea frontalis* Fieber, *Entomologische Monographien, Leipzig* : 18.

1898. *Plea frontalis* Fieber : Kirkaldy, *Wien. ent. Zeit.*, 17 : 141.

1906. *Plea frontalis* (Fieber) : Distant, *Fauna British India*, 3 : 48.

1910. *Plea pelopea* Distant, *Fauna British India*, 5 : 336.

1934. *Plea (Paraplea) frontalis* (Fieber) : Lundblad, *Arch. Hydrobiol. Suppl.*, 12 : 138.

1934. *Plea (Paraplea) quinquemaculata* Lundblad, *Arch. Hydrobiol. Suppl.*, 12 : 135.

1989. *Plea frontalis* (Fieber) : Benzie, *Hydrobiologia*, 179 : 157.

1999. *Paraplea frontalis* (Fieber) : Thirumalai. *IAAB*, 7 : 34.

2005. *Paraplea frontalis* (Fieber) : Nieser, *Raff. Bull. Zoology*, 52 : 82.

2005 *Paraplea frontalis* (Fieber) : Thirumalai & Sureshkumar, *Rec. zool. Surv. India*, 105 : 9.

Material examined : 2 exs, Madan Mahal, Jabalpur, 20.i.1967, H. Khajuria; 3exs, Narmada River, beyond Shahpura, west of vill. Bilpather, Jabalpur, 28.i.1967, V.S. Durve.

Diagnosis : The head with a small dark reddish-brown longitudinal stripe. The small size (1.28-1.75 mm) combined with the typical small black dots on the pronotum makes this species easily recognizable.

Distribution : India : Throughout.

Elsewhere : China; Indonesia; Malaysia; New Caledonia; Singapore; Taiwan.

DISCUSSION

Inventorisation of aquatic insect resources becomes a high priority area to study the functional aspects of community structure incorporated in food web that provides information on energy flow (Ananthkrishnan, 1999). The present report of 41 species of water bugs from Jabalpur District, represents about 72% & 21.6% of the group so far known from Madhya Pradesh (Table.1) and India respectively. Thus the present study reaffirms the necessity of further intensive systematic exploration of this group from Madhya Pradesh in general and Jabalpur District in particular.

Table 1. List of families and genera of aquatic and Semiaquatic Hemiptera of Madhya Pradesh (number of known species in brackets)

GERROMORPHA	NEPOMORPHA
Family MESOVELIIDAE <i>Mesovelia</i>	Family BELOSTOMATIDAE <i>Diplonychus</i> (3)
(1) Family HYDROMETRIDAE <i>Hydrometra</i> (1)	<i>Lethocerus</i> (1)
Family VELIIDAE <i>Microvelia</i> (2)	Family NEPIDAE <i>Laccotrephes</i> (2)
<i>Rhagovelia</i> (1)	<i>Cercotmetus</i> (2)
Family GERRIDAE <i>Aquarius</i> (1)	<i>Ranatra</i> (5)
<i>Neogerris</i> (1)	Family OCHTERIDAE <i>Ochterus</i> (1)
<i>Limnogonus</i> (2)	Family CORIXIDAE <i>Sigara</i> (2)
<i>Limnometra</i> (1)	<i>Micronecta</i> (8)
<i>Amemboa</i> (1)	Family APHELOCHEIRIDAE <i>Aphelocheirus</i> (1)
<i>Cylindrostethus</i> (1)	Family NAUCORIDAE <i>Heleocoris</i> (2)
<i>Ptilomera</i> (1)	Family NOTONECTIDAE <i>Anisops</i> (9)
<i>Stridulobates</i> (1)	<i>Enithares</i> (2)
<i>Metrocoris</i> (2)	Family PLEIDAE <i>Paraplea</i> (2)

SUMMARY

An account of 41 species under 24 genera of 11 families occurring in Jabalpur district is provided. *Amemboa (Amemboa) kumari* (Distant), *Ptilomera (Ptilomera) agroides* Schmidt, *Stridulobates anderseni* Zettel & Thirumalai, *Metrocoris communoides* Chen & Nieser, *Cercotmetus brevipes* Montandon, *Cercotmetus fumosus* Distant, *Ranatra digitata* Hafiz & Pradhan, *Ranatra titilaensis* Hafiz & Pradhan, *Ochterus marginatus marginatus* *Heleocoris (Heleocoris) bengalensis bengalensis* Montandon, *H (H.) elongatus* Montandon, *Enithares fusca* Brooks, *Anisops niveus* (Fabricius), *Paraplea frontalis* (Fieber) constitute new records for the State of Madhya Pradesh.

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INSECTA HEMIPTERA

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INTRODUCTION

The Hemiptera or 'true bugs' comprise the largest order of hemimetabolous insects and are of considerable economic importance. They are small to medium sized insects, which possess piercing and sucking mouth parts. They are generally phytophagous, but a few species are predaceous also. The terrestrial bugs included in this study from Jabalpur district is represented by 35 species belonging to 28 genera under 11 families. Of which, 4 species belong to suborder Homoptera and 31 species to suborder Heteroptera.

LIST OF HEMIPTERA RECORDED FROM JABALPUR

Suborder HOMOPTERA

Family CERCOPIDAE

1. *Aphrophora* sp.
2. *Callitettix versicolor* (Fabricius)

Family CICADELLIDAE

3. *Cicadella spectra* (Distant)

Family FULGORIDAE

4. *Dictyophara lineata* (Don.)

Suborder HETEROPTERA

Family COREIDAE

5. *Clavigralla gibbosa* Spin.
6. *Hoplolomia scabricula* Stål
7. *Leptocorisa acuta* Thunberg
8. *Riptortus fuscus* Fabricius

9. *Riptortus linearis* (Fabricius)

Family LYGAEIDAE

10. *Aphanus sordidus* Fabricius

11. *Dieuches uniguttatus* (Thunberg)

12. *Elasmolomus sordidus* Fabr.

13. *Geocoris tricolor* (Fabricius)

14. *Graptostethus servus* (Fabricius)

Family PENTATOMIDAE

15. *Aspongopus brunneus* Thunberg

16. *Aspongopus janus* (Fabricius)

17. *Aspongopus obscurus* Fabricius

18. *Bagrada picta* (Fabricius)

19. *Cydnus indicus* (Westw.)

20. *Eusarcocoris* sp.

21. *Halys dentatus* (Fabricius)

22. *Nezara viridula* Linnaeus

23. *Placosternum dama* (Fabricius)

Family SCUTELLERIDAE

24. *Scutellera nobilis* (Fabricius)

Family PHYRRHOCORIDAE

25. *Antilochus coqueberti* (Fabricius)

26. *Dysdercus koenigii* (Fabricius)

Family REDUVIIDAE

27. *Ectrychotes dispar* Reuter

28. *Oncocephalus annulipes* Stål

29. *Oncocephalus* sp.

30. *Polididus armatissimus* Stål

31. *Prostemma carduelis* Dohrn

32. *Tribelocephala indica* (Walker)

Family CAPSIDAE

33. *Cyrtorrhinus lividipennis* Reut.

34. *Eucosmetus insignis* Distant

Family TINGIDAE

35. *Monanthia globulifera* (Walker)

SYSTEMATIC ACCOUNT

Suborder HOMOPTERA

Family CERCOPIDAE

Genus *Aphrophora* Germ

1. *Aphrophora* sp.

1831. *Aphrophora* Germ, *Mag. Ent.*, 4 : 48.

1994. *Aphrophora* : Biswas *et al.*, *Fauna of West Bengal*, 5 : 18.

Material examined : Jabalpur, C.R.S., Z.S.I. office campus, 28.vii.1970 (N.A.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, Uttar Pradesh.

Elsewhere : New Mexico, United States, West Indies.

2. *Callitettix versicolor* (Fabricius)

1794. *Cicada versicolor* Fabricius, *Ent. Syst.*, 4 : 50.

1858. *Sphenorhina approximans* : Walk., *List Hom. Suppl.*, p. 185.

1908. *Callitettix versicolor* : Distant, *Fauna British India, Rhynchota*, 4 : 113.

Material examined : Jabalpur, Mandla Road, 13.viii.1975 (1 ex.), Coll. N.K. Sinha

Diagnosis : Length excl. tegm. 9-mm. exp. tegm. 20-22 mm. Shining black, finely fuscously pubescent; tegmina with a spot before the middle of the clavus, and a subtransverse spot between the middle of upper claval margin and the costal margin, white; two spots beyond the middle of tegmen, the external large and transverse, the internal small, and apex of clavus sanguineous; wings dull hyaline, the veins and apical margin infuscate.

Distribution : India : Madhya Pradesh (Jabalpur); Assam; Sikkim; Bombay, Maharashtra; Mussoorie.

Elsewhere : Tindharia, Myanmar, Arakan, China, Malaya Peninsula.

Family CICADELLIDAE

3. *Cicadella spectra* (Distant)

1908. *Tettigoniella spectra* Distant, *Fauna British India, Rhynchota*, 4 : 211.

1994. *Cicadella spectra* : Ghosh & Ghosh, *Fauna West Bengal*, 5 : 35.

Material examined : Jabalpur, C.R.S., Z.S.I. office campus, 1.ix.1970 (N.A.), Coll. H. Khajuria.

Diagnosis : Four black spots on vertex, scutellum yellowish, tegmina greenish with fuscus and rather pale veins; pronotum greenish with transverse striations, abdomen greenish yellow; legs pale ochraceous. Male plate triangulate, lateral margin convex, mesal margin almost linear, gradually tapered from base to apex, discal setae stout, much longer than those on apical and densely spinuled. Pygofer densely sinuled, with macrosetae on posterior part, lateral margin unfolded. Style beak-like, gradually tapering to pointed apex, subapically strongly concavous. Aedeagus subapically curvate, strut developed, shaft slender.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra, Orissa, West Bengal.

Elsewhere : Australia, Bangladesh, Nepal, Sri Lanka.

Family FULGORIDAE

4. *Dictyophara lineata* (Don.)

1800. *Fulgora lineata* Don., *Ins. Ind.*, T. 8, f. 1.

1906. *Dictyophara lineata* : Distant, *Fauna British India, Rhynchota*, 3 : 245.

Material examined : Jabalpur, A. Nursery, 26.ix.2000 (1 ex.), Coll. K. Chandra.

Diagnosis : Body and legs ochraceous. Head with the longitudinal ridges with fuscous or spotted with that colour, its extreme apex piceous. The ridges between the eyes green. Thorax above rather reddish-ochraceous, pronotum with the margins and three longitudinal carinae (the two outer most oblique) green. Legs and rostrum finely spotted with black. Tegmina and wings pale creamy hyaline.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Maharashtra, North-Bengal.

Elsewhere : Sri Lanka.

Suborder HETEROPTERA

Family COREIDAE

5. *Clavigralla gibbosa* Spin.

1837. *Clavigralla gibbosa* Spin., *Ess.*, p. 202.

1904. *Clavigralla gibbosa* : Distant, *Fauna British India, Rhynchota*, 1 : 401.

Material examined : Jabalpur, Gandhi Smarak, Tilwaraghat, 8.v.1968 (1 ex.), Coll. H.P. Agrawal.

Diagnosis : Ochraceous, punctate, moderately pilose; posterior area of pronotum, apical area of corium and spots on connexivum castaneous. Antennae ochraceous, apical joint pale castaneous, second and third joints subequal in length. Body beneath obscure brownish-ochraceous. Posterior femora spined beneath near apices. Length 8 to 10 mm; breadth between pronotal angles 4 to 5 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra, Andhra Pradesh.

6. *Hoplolomia scabricula* Stål

1873. *Hoplolomia scabricula* Stål, *En. Hem.*, 3 : 84.

1904. *Hoplolomia scabricula* : Distant, *Fauna British India, Rhynchota*, 1 : 404.

Material examined : Jabalpur, Katanga Colony, 19.x.1998 (1 ex.), K. Chandra.

Diagnosis : Head, antennae, pronotum and scutellum brownish-ochraceous. Corium ochraceous, its apical area brownish. Connexivum stramineous, basal half broadly spotted with castaneous, segmental marginal apical spines black. Body beneath obscure pale castaneous. Length 6½ mm.

Distribution : India : Madhya Pradesh (Jabalpur).

Elsewhere : Myanmar.

7. *Leptocorisa acuta* (Thunberg)

1783. *Cimex acuta* Thunberg, *Nov. Ins. Sp.*, 2 : 34.

1904. *Leptocorisa acuta* : Distant, *Fauna British India, Rhynchota*, 1 : 409.

Material examined : Jabalpur, Amkhas, 1.x.1974 (1 ex.), Coll. R.K. Singh.

Diagnosis : Above brownish-olivaceous, beneath pale greenish. Abdomen above reddish-brown with the margins pale greenish-yellow. Antennae fuscous, bases of second, third and fourth joints luteous. A distinct central carinate line to pronotum. Length 13 to 15 mm.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal.

Elsewhere : China, Malayan Archipelago.

8. *Riptortus fuscus* Fabricius

1798. *Lygaeus fuscus* Fabricius, *Ent. Syst. Suppl.*, p. 539.

1904. *Riptortus fuscus* : Distant, *Fauna British India, Rhynchota*, 1 : 414.

Material examined : Jabalpur, Gandhi Smarak, Tilwaraghat, 8.v.1968 (2 exs.), Coll. H.P. Agrawal.

Diagnosis : Dark brownish ochraceous, finely and obscurely ochraceously pilose. Posterior margin of the pronotum and a lateral fascia on each side of head, not extending beyond base of antennae dark castaneous. Total absence of the pale laevigate sternal spots, which even when present are small and usually obliterated on the metasternum. Length 13 to 17, breadth between pronotal angles 3 to 4 mm.

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

Elsewhere : Sri Lanka, Myanmar, Malaya.

9. *Riptortus linearis* (Fabricius)

1775. *Lygaeus linearis* Fabricius, *Syst. Ent.*, p. 710.

1904. *Riptortus linearis* : Distant, *Fauna British India, Rhynchota*, 1 : 415.

Material examined : Jabalpur, Katanga Colony, 19.x.1998 (3 exs.), Coll. K. Chandra.

Diagnosis : Dark cinnamon-brown. Pronotum, scutellum, corium and lateral areas of sternum distinctly punctate. First, second and third joints of antennae fascia at base of head between eyes, central fascia to head beneath, lateral angular spines to pronotum, disk of sternum and abdomen black. A small spot at the middle of posterior pronotal margin and the apex of the scutellum pale luteous.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Sikkim, West Bengal, Andhra Pradesh.

Elsewhere : Sri Lanka, Myanmar, Bhamo, Palon, Malaya.

Family LYGAEIDAE

10. *Aphanus sordidus* Fabricius

1787. *Cimex sordidus* Fabricius, *Mant.*, 2 : 302.

1902. *Aphanus sordidus* : Distant, *Fauna British India, Rhynchota*, 2 : 79.

Material examined : Jabalpur, C.R.S., Z.S.I. office campus, 1.ix.1970 (N.A.), Coll. H. Khajuria.

Diagnosis : Head, anterior lobe of pronotum, base of scutellum and sternum piceous or dark castaneous. Abdomen beneath pale castaneous. Posterior lobe of pronotum, scutellum and corium ochraceous, thickly punctured with brown, lateral margins of pronotum and corium with only a few coarse punctures. Length 9 to 10 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, West Bengal, Bihar, Maharashtra.

Elsewhere : Sri Lanka, Myanmar, China, Guana.

11. *Dieuches uniguttatus* (Thunberg)

1822. *Pendulinus uniguttatus* Thunberg, *Hem. rostr. Cap.*, 4 : 6.

1902. *Dieuches uniguttatus* : Distant, *Fauna British India, Rhynchota*, 2 : 82.

Material examined : Jabalpur, C.R.S., Z.S.I. office campus, 1.ix.1970 (N.A.), Coll. H. Khjuria.

Diagnosis : Piceous. Antennae, second and third joints of rostrum, tibiae and tarsi brownish-ochraceous, apical joint of antenna piceous, broadly annulated with luteous near base. Corium ochraceous, brownly punctate, lateral margins impunctate, a broad irregular transverse fascia near angle and the apical margin black. Second, third and fourth antennal joints subequal in length. Length 10 to 12 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Andamans, Andhra Pradesh.

Elsewhere : Sri Lanka, Myanmar, Malaya.

12. *Elasmolomus sordidus* Fabr.

1787. *Elasmolomus sordidus* Fabr., *Mant. Ins.*, 2 : 302.

1994. *Elasmolomus sordidus* : Chakraborty & Ghosh, *Fauna West Bengal*, 5 : 420.

Material examined : Recorded from literature.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Maharashtra, Meghalaya, Nagaland, West Bengal.

Elsewhere : China, Myanmar, Sri Lanka.

13. *Geocoris tricolor* (Fabricius)

1798. *Cimex tricolor* Fabricius, *Ent. Syst. Suppl.*, p. 536.

1902. *Geocoris tricolor* : Distant, *Fauna British India, Rhynchota*, 2 : 29.

Material examined : Jabalpur, Medical College, 13.ix.1966 (3 exs.), Coll. H.P. Agrawal.

Diagnosis : Head luteous. Eyes castaneous. Pronotum and scutellum black. Lateral margins of pronotum and the corium ochraceous, the last sometimes greyish-ochraceous. Membrane semihyaline reflecting the dark abdomen beneath. Above coarsely punctate, head and disk of corium impunctate. Length 3½ to 4 mm.

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

Elsewhere : Sri Lanka.

14. *Graptostethus servus* (Fabricius)

1787. *Cimex servus* Fabricius, *Mant.*, 2 : 300.

1902. *Graptostethus servus* : Distant, *Fauna British India, Rhynchota*, 2 : 8.

Material examined : Jabalpur, Katanga Colony, 26.x.1998 (1 ex.), Coll. K. Chandra.

Diagnosis : Pale obscure sanguineous, pilose. Apex and sometimes the whole central area of head, a small spot at inner margin of eyes, a transverse anterior fascia and two angulated subbasal fasciae to pronotum, scutellum, a large oblique subclaval spot and a small marginal spot to corium membrane. The apical margin of the corium is often pale ochraceous. Length 8 to 9 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Maharashtra, West Bengal, Andhra Pradesh, Tamil Nadu.

Elsewhere : Sri Lanka, Myanmar, Malaya, Australia, China, South Africa.

Family PENTATOMIDAE

15. *Aspongopus brunneus* (Thunberg)

1783. *Cimex brunneus* Thunb., *Nov. Ins. Sp.*, 2 : 45.

1904. *Aspongopus brunneus* : Distant, *Fauna British India, Rhynchota*, 1 : 282.

Material examined : Jabalpur, Garden near the Napier Town, 23.vii.1960 (N.A.), Coll. A. Paul.

Diagnosis : Brownish-ochraceous, body beneath and legs more or less infuscated. Antennae fuscus, apical joint luteous, sometimes with its apex narrowly black. Abdomen

above red. Third joint of the antennae a little longer than the second, shorter than the fourth or 5th joints. Length 17 to 20 mm; breadth between pronotal angles 10 to 11 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, West Bengal, Assam, Naga and Khasi Hills, Maharashtra.

Elsewhere : Myanmar, Manhla, Malaysia.

16. *Aspongopus janus* (Fabricius)

1775. *Cimex janus* Fabricius, *Syst. Ent.*, 714.

1904. *Aspongopus janus* : Distant, *Fauna British India, Rhynchota*, 1 : 281.

Material examined : Jabalpur, Forest G. H. 2316, 2.i.1966 (1 ex.), Coll. H. Khajuria.

Diagnosis : Ochraceous or sanguineous; head antennae, subanterior transverse fascia to pronotum, a little more than basal half of scutellum and membrane black. Body beneath and leg black or greenish black. Lateral margins of sternum and abdomen ochraceous or sanguineous. Antennae with the third joint a little longer than first, shorter than remaining joints. Length 16 to 20; breadth between pronotal angles 10 to 11 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Uttaranchal, Assam, West Bengal, Maharashtra, Gujarat, Kerala.

Elsewhere : Sri Lanka, Myanmar, and Minhla.

17. *Aspongopus obscurus* (Fabricius)

1794. *Cimex obscurus* Fabricius, *Ent. Syst.*, 4 : 107.

1904. *Aspongopus obscurus* : Distant, *Fauna British India, Rhynchota*, 1 : 283.

Material examined : Jabalpur, C.R.S., Z.S.I. office campus, 28.viii.1970 (N.A.), Coll. H. Khajuria.

Diagnosis : Closely allied to the preceding species and differing by having the abdomen above black, not red and the second and third joints of the antennae subequal in length, not third joint longer than second. Length 17 to 20 mm, breadth between pronotal angles 10 to 11 mm.

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

18. *Bagrada picta* (Fabricius)

1775. *Cimex picta* Fabricius, *Syst. Ent.*, p. 715.

1904. *Bagrada picta* : Distant, *Fauna British India, Rhynchota*, 1 : 193.

Material examined : Jabalpur, Kamla Nehru Nagar, 14.xii.1960 (1 ex.), Coll. S. Chakrapany

Diagnosis : Length 5-7 mm. Black; lateral lobes of head from before eyes, anterior and lateral margins and a central fascia to pronotum; a central fascia, a spot near each basal angle and a spot on each margin before apex of scutellum, a marginal fascia to corium becoming sub-marginal a little beyond base and terminating in a rounded discal spot before apex, ochraceous; membrane fuliginous; body beneath ochraceous; legs ochraceous, spotted and streaked with black; antennae black.

Distribution : Hardwar, Uttar Pradesh; Bombay, Maharashtra; Calcutta, West Bengal; Tirhoot; Manipur.

Elsewhere : Sri Lanka; Pakistan.

19. *Cydnus indicus* (Westwood)

1837. *Cimex indicus* Westwood, *Hope Cat.*, 1 : 19.

1904. *Cydnus indicus* : Distant, *Fauna British India, Rhynchota*, 1 : 90.

Material examined : Jabalpur, C.R.S., Z.S.I. office campus, 31.viii.1970 (N.A.), Coll. H. Khajuria.

Diagnosis : Oval or ovate, black piceous. Head somewhat obtusely rounded, somewhat coarsely punctate, the base and central lobe almost levigate, lateral margins reflexed, remotely pilose. Antennae brownish, last three joints a little incrassated, second a little shorter than the third. Corium finely and thickly punctate, membrane pale fuliginous. Length 5½ to 7 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra.

Elsewhere : Myanmar, South Africa, Madagascar, Malaya, Australia.

Genus *Eusarcocoris* Stål

20. *Eusarcocoris* sp.

1834. *Eusarcocoris* : Hahn., *Wanz.*, 2 : 66.

1904. *Eusarcocoris* : Distant, *Fauna British India, Rhynchota*, 1 : 165.

Material examined : Jabalpur, Gour River about 13 km. on Jabalpur-Mandla Road, 6.ii.1965 (1 ex.), Coll. H.P. Agrawal; Jabalpur, Lamhetaghat, 29.xii.1973 (1 ex.), Coll. H. Khajuria.

Diagnosis : Body obovate, moderately broad and somewhat strongly convex beneath. Head deflected, its apex rounded, the central lobe either as long as lateral lobes or slightly prominent. Antennae with the basal joint not reaching or nearly reaching the apex of head. Pronotum anteriorly deflected. Scutellum about as long as its breadth at base, or a little longer, frena not extending beyond its middle.

Distribution : Palaearctic, Ethiopian, Oriental and Australian regions.

21. *Halys dentatus* (Fabricius)

1775. *Cimex dentatus* Fabricius, *Syst. Ent.*, 702.

1837. *Halys serrigera* & *serricollis* : Westwood, *In Hope Cat. Hem.*, 1 : 23.

1902. *Halys dentatus* : Distant, *Fauna British India, Rhynchota*, 1 : 119.

Material examined : Recorded from literature.

Diagnosis : Length 17-23 mm.; breadth between pronotal angles 8-10 mm. Dull ochraceous, coarsely and darkly punctate; head with the margins of the central lobe, pronotum with obscure oblique fasciae, scutellum with short basal and obscure central discal fasciae and two marginal spots before apex, and corium with some obscure discal patches, black; apex of scutellum pale, its apical margins piceous; abdomen finely and darkly punctate, its lateral margins and legs finely spotted with piceous; rostrum extending to or across the fifth abdominal segment.

Distribution : India : Madhya Pradesh (Jabalpur) , Maharashtra, Karnataka, West Bengal, Uttar Pradesh, Khasi Hills, Tamil Nadu, Kerala.

Elsewhere : Sri Lanka, Pakistan.

22. *Nezara viridula* (Linnaeus)

1758. *Cimex viridula* Linnaeus, *Syst. Nat. ed.*, 10 : 444.

1904. *Nezara viridula* : Distant, *Fauna British India, Rhynchota*, 1 : 220.

Material examined : Jabalpur, Pariat Nala, Damoh Road, 11.iv.1968 (2 exs.), Coll. V.S. Durve; Jabalpur, Pariat Nala, Damoh Road, 16.iv.1968 (1 ex.), Coll. V.S. Durve.

Diagnosis : Pale or dark green, sometimes greenish-ochraceous, densely punctate. Antennae green, apices of the third and apical area of fourth and fifth joints puplish-brown. Extremity of segmental angles to abdomen black. Length 12 to 16 mm.

Distribution : India, Madhya Pradesh (Jabalpur).

Elsewhere : Nearctic and Ethiopian regions, Neotropical, Oriental and Australian regions.

23. *Placosternum dama* (Fabricius)

1794. *Cimex dama* Fabricius, *Ent. Syst.*, 4 : 92.

1904. *Placosternum dama* : Distant, *Fauna British India, Rhynchota*, 1 : 211.

Material examined : Jabalpur, Napier Town, 8.v.2000 (1 ex.), Coll. Prayag Raj.

Diagnosis : This species is recognized by the more elongate body and the much less produced pronotal angles, which are sinuate near the anterior angle and then lobately rounded posteriorly. The lateral margins are simply crenulate. The antennal joints are piceous much speckled with ochraceous.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Pondicherry, Kerala.

Family SCUTELLERIDAE

24. *Scutellera nobilis* (Fabricius)

1994. *Scutellera nobilis* : Ghosh *et al.*, *Fauna West Bengal*, 5 : 498.

Material examined : Jabalpur, Silviculture Nursery, 26.ix.2000 (15 exs.), Coll. K. Chandra.

Diagnosis : Body metallic green, scutellum with a median fascia, hexanotate on disc, spots placed in pairs. Clasper C-shaped apical margin serrate, 3/4-stem membranous sclerotised process of various shapes. Vescia conjunctive in between conjunctival lobes.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, Assam, Kerala, Maharashtra, Tamil Nadu.

Elsewhere : Sri Lanka.

Family PHYRRHOCORIDAE

25. *Antilochus coqueberti* (Fabricius)

1803. *Lygaeus coqueberti* Fabricius, *Syst. Rhyng.*, p. 222.

1902. *Antilochus coqueberti* : Distant, *Fauna British India, Rhynchota*, 2 : 101.

Material examined : Jabalpur, Pachpedi, 1.vii.1960 (2 exs.), Coll. S. Chakrapany; Jabalpur, Napier Town, 23.vii.1960 (2 exs.), Coll. A. Paul.

Diagnosis : Sanguineous. Antennae, eyes membrane and sternal and ventral incisures black. Base of first joint of antennae sanguineous. Interior angle and apical margin of membrane pale brownish ochraceous. Corium thickly punctate. Anterior femora shorter spined beneath near apex. Length 14 to 16 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, West Bengal, Andhra Pradesh, Kashmir. *Elsewhere* : Sri Lanka, Andaman Island, Myanmar, Malaya.

25. *Dysdercus koenigii* (Fabricius)

1775. *Cimex koenigii* Fabricius, *Syst. Ent.*, p. 720.

1904. *Dysdercus cingulatus* : Distant, *Fauna British India, Rhynchota*, 2 : 119.

1994. *Dysdercus koenigii* : Sen *et al.*, *Fauna of W. Bengal*, 5 : 439.

Material examined : Jabalpur, Chokital Village, Lamhetaghat Road, 26.x.1966 (1 ex.), Coll. H.S. Sharma.

Diagnosis : Head, pronotum, rostrum, blood reddish; antennae, apex of rostrum, scutellum, membrane, legs black; corium with a black discal spot; anterior margin to prosternum, anterior collar to pronotum creamy white, abdomen stripped with creamy white and sanguineous.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal.

Elsewhere : Sri Lanka.

Family REDUVIIDAE

26. *Ectrychotes dispar* Reuter

1835. *Ectrychotes dispar* Reuter, *Act. Soc. Sc. Fenn.*, 12 : 304.

1904. *Ectrychotes dispar* : Distant, *Fauna British India, Rhynchota*, 2 : 315.

Material examined : Jabalpur, Z.S.I. Office, Pachpedi, 1.vii.1964 (1ex.), Coll. J.S. Bhatti; Jabalpur, Z.S.I. Office, Pachpedi, 2.vii.1964 (2 exs.), Coll. J.S. Bhatti; Jabalpur, Z.S.I. Office, Pachpedi, 8.vii.1964 (2 exs.), Coll. J.S. Bhatti.

Diagnosis : Scutellum with a small intermediate apical spinous angulation; pronotum with a strong central sulcation continued from the anterior lobe to the disk of the posterior lobe; ventral incisures strongly carinulate; antennae with eight joints.

Distribution : India : Madhya Pradesh (Jabalpur).

Elsewhere : Oriental region, China and Japan.

27. *Oncocephalus annulipes* Stål

1855. *Oncocephalus annulipes* Stål, *Ofv. Vet-Ak. Forh.*, p. 44.

1902. *Oncocephalus annulipes* : Distant, *Fauna British India, Rhynchota*, 2 : 231.

Material examined : Jabalpur, Pachpedi, 24.i.1964 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Very pale brownish-ochraceous. Two annulations to first joint of antennae, four obsolete lines on anteocular portion of head and a large medial spot on post ocular portion, rostrum beyond middle three indistinct longitudinal fasciae on anterior area of pronotum. First joint of antennae as long as anteocular portion of head. Lateral margins of pronotum armed medially with a small tubercle of tooth. Length 14 to 24 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Kashmir, Maharashtra.

Elsewhere : Sri Lanka, Myanmar.

28. *Oncocephalus* sp.

1830. *Oncocephalus* Klug., *Symb. Phys.*, 3 : 155.

1902. *Oncocephalus* : Distant, *Fauna British India, Rhynchota*, 2 : 227.

Material examined : Jabalpur, Z.S.I Office Campus, Pachpedi, 30.vi.1964 (1 ex.), J.S. Bhatti.

Diagnosis : Body oblong or moderately elongate. Head cylindrical, shorter than the pronotum, anteriorly armed between the antennae with two small spines, which are sometimes very indistinct, postocular portion short. Antennae with the first joint a little shorter than the head. Prosternum anteriorly bispinose, anterior femora incrassated, beneath finely spinose.

Distribution : India : Madhya Pradesh (Jabalpur), Nearctic, Palaearctic, Ethiopian, Oriental and Australian regions.

29. *Polididus armatissimus* Stål

1859. *Polididus armatissimus* Stål, *Ofv. Vet.-Ak. Forh.*, : 376.

1904. *Polididus armatissimus* : Distant, *Fauna British India, Rhynchota*, 2 : 386.

Material examined : Jabalpur, Amkhas, 10.xii.1973 (1 ex.), Coll. B.S. Gurum.

Diagnosis : Length 10 mm. Pale brownish-ochraceous; abdomen beneath with a piceous sublateral fascia on each side; sternum infuscated and greyishly pilose; anterior pronotal lobe with greyish narrow vittae; head with a long spine behind the base of each antenna and with a number of smaller discal spines; pronotum spinous, the longest spines being two erect on anterior lobe and the lateral spines to posterior lobe; anterior tibiae spinous, intermediate and posterior tibiae spinulose; femora strongly spinous.

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

Elsewhere : Sri Lanka, Myanmar, Philippines, China, Japan.

30. *Prostemma carduelis* Dohrn

1858. *Prostemma carduelis* Dohrn, *Etett. Ent. Zeit.*, **19** : 229.

1902. *Prostemma carduelis* : Distant, *Fauna British India, Rhynchota*, **2** : 392.

Material examined : Jabalpur, Pachpedi, 3.iv.1967 (1 ex.), Coll. V.S. Durve.

Diagnosis : Black. Posterior lobe of pronotum, scutellum, clavus and base of corium pale sanguineous to testaceous. A transverse spot near centre of corium, anterior near its apex and apex of membrane greyish-white. Posterior lobe of pronotum with scattered coarse puncture. Lateral margins of body and legs longly hirsute. Antennae more shortly hirsute. Length 8 mm.

Distribution : India : Madhya Pradesh (Jabalpur).

Elsewhere : Myanmar, Sri Lanka.

31. *Tribelocephala indica* (Walker)

1873. *Tribelocephala indica* Walker, *Cat. Het.*, **8** : 20.

1902. *Tribelocephala indica* : Distant, *Fauna British India, Rhynchota*, **2** : 220.

Material examined : Jabalpur, Pachpedi, 24.vi.1964 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Bargi, 24.vii.1965 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Piceous or chocolate-brown, densely and more palely tomentose. Membrane with the veins distinctly darker. Rostrum, body beneath and legs a little paler in hue. Head a little longer than the pronotum. Head and pronotum moderately granulate. Antennae longly pilose. Length 11 to 13 mm.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal.

Elsewhere : Sri Lanka.

Family CAPSIDAE

33. *Cyrtorrhinus lividipennis* Reuter.

1977. *Cyrtorrhinus lividipennis* : Distant, *Fauna British India, Rhynchota*, **3** : 476.

Material examined : Jabalpur, Katanga, 16.ix.1998 (1 ex.), Coll. K. Chandra.

Diagnosis : Black, base of head confluent with a large spot on inner side of each eye. Antenniferous tubercles and apex of first joint of antennae, rostrum, anterior callosities and a broad central fascia to posterior area of pronotum, a large lateral spot on each side of scutellum, length $2\frac{3}{4}$ to $3\frac{1}{2}$ mm.

Distribution : India : Madhya Pradesh (Jabalpur).

Elsewhere : Sri Lanka and Myanmar.

34. *Eucosmetus insignis* Distant

1977. *Eucosmetus insignis* : Distant, *Fauna British India, Rhynchota*, 3 : 55-56.

Material examined : Jabalpur, Z.S.I. Office campus, 1.ix.1970 (N.A.), Coll. H. Khajuria.

Diagnosis : Head, pronotum, scutellum, membrane, body and legs black, corium pale reddish, with a very small sublateral spot near base. A median lateral spot and the apical area very pale luteous. Head and posterior lobe of pronotum coarsely punctate. Clavus and claval margin linearly punctate. Length 6.5 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Assam.

Family TINGIDAE

35. *Monanthia globulifera* (Walker)

1977. *Monanthia globulifera* : Distant, *Fauna British India, Rhynchota*, 3 : 144.

Material examined : Jabalpur, Katanga, 5.vii.2000 (8 exs.), Coll. K. Chandra.

Diagnosis : Dull obscure ochraceous. Pronotum with disk piceous, margins of arealtes to dilated lateral margins and to the apical sutural area black. Body beneath black. Legs ochraceous. Posterior margin of metasternum and lateral margins of abdomen dull luteous. Length 3 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Tamil Nadu.

SUMMARY

The terrestrial bugs included in this study from Jabalpur district are represented by 35 species belonging to 28 genera under 11 families. Of which, 4 species belong to suborder Homoptera and 31 species to suborder Heteroptera.

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INSECTA COLEOPTERA

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INTRODUCTION

These insects are commonly known as beetles. They are characterized by the presence of horny or leathery forewing called elytra, which almost meet to form a straight mid-dorsal suture. Chandra (2000) published an inventory of 96 species of Scarabaeid beetles from Madhya Pradesh and Chandra (2003) also reported the occurrence of 339 species of Coleoptera under 22 families from Madhya Pradesh. The present account of beetles from Jabalpur includes 69 species and subspecies under 11 families.

LIST OF BEETLES OF JABALPUR DISTRICT

Family CARABIDAE

1. *Oxylobus porcatus* (Fabricius)
2. *Siagona induta* Chaud.
3. *Trigonotoma indica* Brulle

Family HALIPLLIDAE

4. *Haliplus (Liaphlus) agarwali* Vazirani
5. *Haliplus (Liaphlus) angustifrons* Regimbart
6. *Haliplus (Liaphlus) kapuri* Vazirani

Family DYTISCIDAE

7. *Canthydrus laetabilis* (Walker)
8. *Canthydrus luctuosus* (Aube)
9. *Canthydrus morsbachi* (Wehncke)
10. *Cybister cognatus* Sharp
11. *Cybister limbatus* (Fabricius)

12. *Cybister sugillatus* Erichson
13. *Cybister tripunctatus asiaticus* Sharp
14. *Eretes sticticus* (Linnaeus)
15. *Guignotus flammulatus* (Sharp)
16. *Hydaticus luczonicus* Aube
17. *Hydaticus vittatus* Fabricius
18. *Hydrovatus sinister* Sharp
19. *Hyphoporus* sp.
20. *Hyphydrus renardi* Severin
21. *Laccophilus basalis* Moytschulsky
22. *Laccophilus flexuosus* Aube
23. *Laccophilus chinensis inefficiens* Walker
24. *Laccophilus parvulus* Aube
25. *Laccophilus sharpi* Reg.
26. *Peschetius quadricostatus* (Aube)
27. *Rhantaticus congestus* (Klug.)

Family GYRINIDAE

28. *Dineutus indicus* Aube

Family HYDROPHILIDAE

29. *Hydrophilus bilineatus cashmiriensis* Redt.
30. *Hydrophilus olivaceus* Fabricius
31. *Sternolophus rufipes* Fabricius

Family SCARABAEIDAE

Subfamily TROGINAE

32. *Trox* sp.

Subfamily ORPHNINAE

33. *Orphnus purvus* Wied.

Subfamily CHIRONINAE

34. *Chiron cylindrus* (Fabricius)

Subfamily APHODIINAE

35. *Aphodius moestus* Fabricius

Subfamily SCARABAEINAE

36. *Catharcus molossus* (Linnaeus)
37. *Catharcus pithecius* (Fabricius)
38. *Catharcus sagax* Queensland
39. *Chironitis indicus* Lansberg
40. *Copris andrewesi* Waterhouse
41. *Gymnopleurus gemmatus* Harold
42. *Gymnopleurus miliaris* (Fabricius)
43. *Heliocopris bucephalus* (Fabricius)
44. *Onitis crassus* Sharp
45. *Onthophagus catta* (Fabricius)
46. *Onthophagus ramosus* (Wiedemann)

Subfamily MELOLONTHINAE

47. *Schizonycha ruficollis* (Fabricius)

Subfamily RUTELINAE

48. *Adoretus bicolor* Brenske
49. *Adoretus lobiceps* Arrow
50. *Adoretus stoliczkae* Ohaus
51. *Adoretus versutus* Harold
52. *Anomala dorsalis fraterna* Burmeister
53. *Prodoretus indicus* Machatschke

Subfamily CETONIINAE

54. *Chiloloba acuta* (Wied.)
55. *Clinteria klugi* Hope
56. *Protaetia alboguttata* (Vigors)
57. *Protaetia aurichalcea* (Fabricius)

Subfamily DYNASTINAE

58. *Heteronychus lioderes* Redtenbacher

Family COCCINELLIDAE

59. *Coccinella transversalis* Fabricius

60. *Menochilus sexmaculatus* (Fab.)

Family TENEBRIONIDAE

61. *Cossyphus depressus* (Fabricius)

62. *Scleron irregularata* (Dist.)

Family CHRYSOMELIDAE

63. *Cassida circumdata* Herbst

64. *Corynodes peregrinus* Fuessly

65. *Glyphocassis trilineata* (Hope)

66. *Aphthona nigrilubris* Duvivier

67. *Aulacophora excavata* Baly

68. *Aulacophora foveicollis* (Lucas)

Family CURCULIONIDAE

69. *Cyphicerinus pannosus* Marshall

SYSTEMATIC ACCOUNT

Order COLEOPTERA

Family CARABIDAE

1. *Oxylobus porcatus* (Fabricius)

1798. *Scarites porcatus* Fabricius, *Suppl. Ent. Syst.*, p. 43.

1929. *Oxylobus porcatus* : Andrewes, *Fauna British India, Coleoptera, Carabidae*, 1 : 305.

Material examined : Recorded from literature (Andrewes, 1929).

Diagnosis : Head wide, rather flat, smooth, neck constriction obsolete in middle, fairly deep at sides, eyes rounded and moderately prominent; labrum with the median lobe in advance of the outer ones, the two inner setae placed together in a single pore, clypeus smooth, truncate in front, with a faint tooth on each side of labrum; clypeal suture just visible, frontal impressions shallow, linear, not reaching neck constriction. Elytra dull, slightly wider than prothorax, not quite twice as long as wide.

Distribution : India : Madhya Pradesh (Jabalpur, Satna), West Bengal, Orissa, Maharashtra, Tamil Nadu, Kerala, Punjab.

Elsewhere : Sri Lanka.

2. *Siagona induta* Chaud.

1928. *Siagona induta* Chaud., *Mon.*, p. 98.

1929. *Siagona induta* : Andrewes, *Fauna British India, Coleoptera, Carabidae*, 1 : 305.

Material examined : Jabalpur, Gwari village, 27.ix.1962 (1 ex.), Coll. H. Khajuria.

Diagnosis : Head wide, rather massive in the male, clypeus with its front margin depressed, clypeal suture fairly deep, lateral ridges thick in front, rounded and slightly interrupted at the bend, finer behind, parallel, not quite reaching the neck constriction, which is only moderately deep; surface closely and coarsely punctate, middle of front smooth and with a slight depression, neck smooth; mandibles large and stout. Prothorax very little wider than head. Elytra elongate-oval, but with well marked shoulders, slightly wider than prothorax and very nearly twice as long as wide.

Distribution : India : Assam, West Bengal.

Elsewhere : Bangladesh, Tibet.

3. *Trigonotoma indica* Brulle

1834. *Trigonotoma indica* Brulle, *Audouin et. Brulle. His. Nat. Insectes*, 4 : 333.

1886. *Trigonotoma indica* : Bato, *Ann. Mag. nat. History*, 17 (5) : 145.

1997. *Trigonotoma indica* : Biswas *et al.*, *Fauna of Delhi* : 332.

Material examined : Jabalpur, Nagpur road, 22.viii.1960 (1 ex.), Coll. P. Singh.

Diagnosis : Procoxal cavities with a single opening inwards, the opening closed by the meeting of the epimeron with the intercoxal declivity.

Distribution : India : Madhya Pradesh (Jabalpur), Delhi, Assam, Maharashtra, Uttar Pradesh, Tamil Nadu, West Bengal.

Elsewhere : Sri Lanka.

Family HALIPLLIDAE

4. *Haliphus (Liaphlus) agarwali* Vazirani

1984. *Haliphus (L.) agarwali* Vazirani, *Fauna of India, Coleopt., Gyrin. & Halip.*, p. 117.

Material examined : Recorded from literature (Vazirani, 1984).

Diagnosis : Length 2.9 mm. Head testaceous, punctation moderate and irregular, stronger behind eyes; antennae with apical five segments stouter than others, segments 7-10 subequal, 11th (apical) elongate. Pronotum testaceous with median ferruginous spot

touching anterior border. Elytra testaceous, with distinct ferrugineous markings along suture. Ventral side testaceous, with legs a little darker.

Distribution : India : Madhya Pradesh (Jabalpur).

5. *Haliplus (Liaphlus) angustifrons* Regimbart

1892. *Haliplus angustifrons* Regimbart, *Ann. Soc. ent. Belg.*, 36 : 112.

1984. *Haliplus (L.) angustifrons*, Vazir., *Fauna of India, Coleopt., Gyrin. & Halip.*, p. 122.

Material examined : Recorded from literature (Vazirani, 1984).

Diagnosis : Length 2.9-3.8 mm. head testaceous, punctation fine, sparse, rather irregular; seventh antennal segment longer than sixth or eighth. Pronotum testaceous, more or less concolorous, with irregular dull ferrugineous markings. Elytra testaceous with irregular and indistinct ferrugineous markings. Ventral side testaceous, epipleura pale, prosternum and mesosternum darker.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Jharkhand, Himachal Pradesh, Orissa, Punjab, West Bengal.

Elsewhere : Myanmar.

6. *Haliplus (Liaphlus) kapuri* Vazirani

1975. *Haliplus (Liaphlus) kapuri* Vazirani, *Oriental Ins.*, 9(3) : 317.

1984. *Haliplus (L.) kapuri*, Vazir., *Fauna of India, Coleopt., Gyrin. & Halip.*, p. 120.

Material examined : Recorded from literature (Vazirani, 1984).

Diagnosis : Length 3.4-3.5 mm. Head testaceous, punctation moderate and irregular. Pronotum testaceous, punctation larger than on the head. Elytra pale testaceous without any markings. Ventral side testaceous with legs ferrugineous, mesosternum darker, metacoxal plates and epipleura paler.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra.

Family DYTISCIDAE

7. *Canthydrus laetabilis* (Walker)

1858. *Hydroporus laetabilis* Walker, *Ann. Mag. Nat. Hist.*, 3 (2) : 205.

1977. *Canthydrus laetabilis* : Vazirani, *Cat. Orient., Dytiscidae* : 6.

1995. *Canthydrus laetabilis* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 85.

Material examined : Jabalpur, Tewar village, 3.xi.1966 (1 ex.), Coll. H.S. Sharma;

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Bihar, Orissa, Andhra Pradesh, Maharashtra, Gujarat, Kerala, Rajasthan, Uttar Pradesh.

Elsewhere : Myanmar, Sri Lanka, Pakistan and Nepal.

8. *Canthydrus luctuosus* (Aube)

1838. *Hydrocanthus luctuosus* Aube, in *Dejean's species Coleopteres*, 6 : 408.

1977. *Canthydrus luctuosus* : Vazirani, *Cat. Orient., Dytiscidae* : 6.

1995. *Canthydrus luctuosus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 85.

Material examined : Jabalpur, Gorakhpur, 23.x.1963 (3 exs.), Coll. J.S. Bhatti; Jabalpur, Shahpura, 28.i.1967 (4 exs.), Coll. V.S. Durve.

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

Elsewhere : Sri Lanka, Iran.

9. *Canthydrus morsbachi* (Wehncke)

1876. *Hydrocanthus morsbachi* Wehncke, *Deutsch. Ent. Z.*, 20 : 222.

1977. *Canthydrus morsbachi* : Vazirani, *Cat. Orient., Dytiscidae* : 7.

1995. *Canthydrus morsbachi* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 85.

Material examined : Jabalpur, Tilwaraghat, 16.iv.1963 (6 exs.), Coll. H.P. Agrawal.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, Orissa, Tamil Nadu, Kerala, Maharashtra.

Elsewhere : Thailand, Myanmar, Indonesia and Africa.

10. *Cybister cognatus* Sharp

1882. *Cybister cognatus* Sharp, *Sci. Trans. R. Dublin Soc.*, 2 : 744.

1977. *Cybister (Meganectes) cognatus* : Vazirani, *Cat. Orient., Dytiscidae* : 89.

1995. *Cybister (Meganectes) cognatus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 109.

Material examined : Jabalpur, in a pond on Nagpur road, 27.iv.1962 (1 ex.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Goa, Maharashtra, West Bengal.

11. *Cybister limbatus* (Fabricius)

1775. *Dytiscus limbatus* Fabricius, *Syst. Ent.*, 230.

1977. *Cybister (Meganectes) limbatus* : Vazirani, *Cat. Orient., Dytiscidae* : 91.

1995. *Cybister (Meganectes) limbatus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 110.

Material examined : Jabalpur, Bheraghat, 15.v.1969 (5 exs.), Coll. V.S. Durve.

Distribution : India : Madhya Pradesh (Jabalpur), Arunachal Pradesh, Bihar, Orissa, Maharashtra, Goa, Kerala, West Bengal.

Elsewhere : Japan, China, Vietnam, Formosa, Philippines.

12. *Cybister sugillatus* Erichson

1834. *Cybister sugillatus* Erichson, *Nova Acta Leop. Carol.*, 16 : 227.

1977. *Cybister (Melanectes) sugillatus* : Vazirani, *Cat. Orient., Dytiscidae* : 89.

1995. *Cybister (Melanectes) sugillatus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 111.

Material examined : Jabalpur, Gokulpur, 15.iv.1960 (1 ex.), Coll. S. Chakrapany.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Orissa, Manipur, Maharashtra, Sikkim, Tamil Nadu, West Bengal.

Elsewhere : Japan, China, Indonesia, and Philippines.

13. *Cybister tripunctatus asiaticus* Sharp

1882. *Cybister asiaticus* Sharp, *Sci. Trans. R. Dublin Soc.* 2 : 731.

1977. *Cybister tripunctatus asiaticus* : Vazirani, *Cat. Orient., Dytiscidae* : 92.

1995. *Cybister tripunctatus asiaticus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 111.

Material examined : Jabalpur, in a pond on Nagpur road, 27.iv.1962 (1 ex.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal.

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

14. *Eretes sticticus* (Linnaeus)

1767. *Dytiscus sticticus* Linnaeus, *Syst. Nat. ed.* 12 : 666.

1977. *Eretes sticticus* : Vazirani, *Cat. Orient., Dytiscidae* : 73-74.

1995. *Eretes sticticus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 104.

Material examined : Jabalpur, Panagar Tank, 27.viii.1968 (7 exs.), Coll. H.P. Agrawal.

Distribution : India : Assam, Bihar, Manipur, Madhya Pradesh (Jabalpur), West Bengal, Uttar Pradesh, Punjab, Kashmir, Orissa, Tamil Nadu, Maharashtra, Karnataka, Rajasthan. Also known from all tropical and subtropical regions of the world.

15. *Guignotus flammulatus* (Sharp)

1882. *Bidessus flammulatus* Sharp, *Sci. Trans. R. Dublin Soc.*, **2** : 359.

1977. *Guignotus flammulatus* : Vazirani, *Proc. zool. Soc. Calcutta*, **25** : 121.

1995. *Guignotus flammulatus* : Biswas *et al.*, *Fauna of W. Bengal*, **6A** : 96.

Material examined : Jabalpur, Panagar Village, 8.i.1969 (1 ex.), Coll. H.P. Agrawal.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, Bihar, Orissa, Uttar Pradesh, Tamil Nadu, Maharashtra, Gujarat, Rajasthan.

Elsewhere : Indonesia, Vietnam, Thailand, Japan, China, Pakistan, Sri Lanka and Bangladesh.

16. *Hydaticus luczonicus* Aube

1838. *Hydaticus luczonicus* Aube, in *Dejean's species Colepteres*, **6** : 179.

1977. *Hydaticus (Guignotites) luczonicus* : Vazirani, *Cat. Orient., Dytiscidae* : 79.

1995. *Hydaticus (Guignotites) luczonicus* : Biswas *et al.*, *Fauna of W. Bengal*, **6A** : 106.

Material examined : Jabalpur, a pond on Nagpur road, 27.iv.1962 (1 ex.), Coll. H. Khajuria; Jabalpur, Bhita village, 27.xi.1964 (4 exs.), Coll. Rajaram.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Orissa, Maharashtra, Gujarat, Uttar Pradesh, Rajasthan, West Bengal.

Elsewhere : Thailand.

17. *Hydaticus vittatus* Fabricius

1775. *Hydaticus vittatus* Fabricius, *Syst. Ent., Appendix, flensburgi and Lipsiae*, p. 825.

1977. *Hydaticus vittatus* : Vazirani, *Rec. zool. Surv. India, Occ. Pap. No.*, **6** : 81.

Material examined : Jabalpur, Shahpura, 10.v.1968 (2 exs.), Coll. V.S. Durve.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Andhra Pradesh, Bihar, Kashmir, Meghalaya, Maharashtra, Orissa, Uttar Pradesh, Rajasthan, Tamil Nadu.

18. *Hydrovatus sinister* Sharp

1890. *Hydrovatus sinister* Sharp, *Trans. ent. Soc. Lond.*, p. 343.

1977. *Hydrovatus sinister* : Vazirani, *Cat. Orient., Dytiscidae* : 30.

1995. *Hydrovatus sinister* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 95.

Material examined : Jabalpur, Gwarighat, 23.iv.1966 (1 ex.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal.

Elsewhere : Indonesia, Sri Lanka.

19. *Hyphoporus* sp.

1882. *Hyphoporus* Sharp, *Sci. Trans. R. Dublin Soc.*, 2 : 390, 859.

1995. *Hyphoporus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 91, 98.

Material examined : Jabalpur, Budagar Tank, 21.xi.1975 (1 ex.), Coll. D.S. Mathur.

Distribution : India : Madhya Pradesh (Jabalpur).

20. *Hyphydrus renardi* Severin

1890. *Hyphydrus renardi* Severin, *Ann. Soc. ent. Belg.*, p. 34.

1977. *Hyphydrus (Apriophorus) renardi* : Vazirani, *Cat. Orient., Dytiscidae* : 23.

1995. *Hyphydrus (Apriophorus) renardi* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 91.

Material examined : Jabalpur, Panagar village, 8.i.1969 (7 exs.), Coll. H.P. Agrawal.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Orissa, Uttar Pradesh, Rajasthan, Tamil Nadu, West Bengal.

21. *Laccophilus basalis* Motschulsky

1859. *Laccophilus basalis* Moyts., *Etud. Ent.*, 8 : 45.

1977. *Laccophilus basalis* : Vazirani, *Cat. Orient., Dytiscidae* : 10.

1995. *Laccophilus basalis* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 87.

Material examined : Jabalpur, Madan Mahal, 17.ii.1967 (1 ex.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh (Jabalpur), Andamans, West Bengal.

Elsewhere : Sri Lanka, Indonesia.

22. *Laccophilus flexuosus* Aube

1838. *Laccophilus flexuosus* Aube, in *Dejean's Species Coleopteres*, 6 : 430.

1977. *Laccophilus flexuosus* : Vazirani, *Cat. Orient., Dytiscidae* : 11-12.

1995. *Laccophilus flexuosus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 88.

Material examined : Jabalpur, Tilwaraghat, 16.iv.1969 (1 ex.), Coll. H.P. Agrawal.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Orissa, Andhra Pradesh, Maharashtra, Uttar Pradesh, Himachal Pradesh, Karnataka, Tamil Nadu, Gujarat, Rajasthan, West Bengal.

Elsewhere : Myanmar, Sri Lanka, Nepal, Pakistan, Iraq, Iran, Japan, and Indonesia.

23. *Laccophilus chinensis inefficiens* Walker

1859. *Laccophilus inefficiens* Walker, *Ann. Mag. Nat. Hist.* 3 (3) : 51.

1995. *Laccophilus chinensis inefficiens* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 89.

Material examined : Jabalpur, Shahpura, 28.i.1967 (10 exs.), Coll. V.S. Durve.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Bihar, Orissa, Uttar Pradesh, Himachal Pradesh, Punjab, Rajasthan, West Bengal.

24. *Laccophilus parvulus* Aube

1838. *Laccophilus parvulus* Aube, *in Dejean's species*.

1977. *Laccophilus parvulus* : Vazirani, *Cat. Orient., Dytiscidae* : 13-14.

1995. *Laccophilus parvulus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 89.

Material examined : Jabalpur, Madan Mahal, 20.i.1967 (2 exs.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh (Jabalpur), Assam, Bihar, Manipur, Orissa, Andhra Pradesh, Maharashtra, Tamil Nadu, Goa, Gujarat, Rajasthan, West Bengal.

Elsewhere : Myanmar, Sri Lanka, Pakistan, Malaysia, Indonesia, and Philippines.

25. *Laccophilus sharpi* Reg.

1889. *Laccophilus sharpi* Reg., *Ann. Soc. ent. Fr.*, 6(9) : 151.

1977. *Laccophilus sharpi* : Vazirani, *Cat. Orient., Dytiscidae* : 15.

1995. *Laccophilus sharpi* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 90.

Material examined : Jabalpur, Balehaghat, 30.xii.1964 (2 exs.), Coll. H.P. Agrawal.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Orissa, Maharashtra, Gujarat, Andaman Island, Rajasthan, West Bengal.

Elsewhere : Sri Lanka, Myanmar, Nepal, Pakistan, Iran, Japan, Formosa.

26. *Peschetius quadricostatus* (Aube)

1838. *Deronectes quadricostatus* Aube, in *Dejean's Species Coleoperes*, 6 : 487.

1977. *Peschetius quadricostatus* : Vazirani, *Cat. Orient., Dytiscidae* : 48.

1995. *Peschetius quadricostatus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 99.

Material examined : Jabalpur, Shahpura Railway Bridge, 18.iv.1968 (1 ex.), Coll. V.S. Durve.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Orissa, Uttar Pradesh, Tamil Nadu, Kerala, Goa, Maharashtra, West Bengal.

27. *Rhantaticus congestus* (Klug.)

1832. *Hydaticus congestus* Klug., *Symb. Physicae, Insectes Madagascar*, 3 : 136.

1977. *Rhantaticus congestus* : Vazirani, *Cat. Orient., Dytiscidae* : 83.

1995. *Rhantaticus congestus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 106.

Material examined : Jabalpur, Patan village, 26.vi.1966 (1 ex.), Coll. H.P. Agrawal.

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

Elsewhere : Africa, Madagascar, Australia, New Guinea, Philippines, Formosa and Nepal.

Family GYRINIDAE

28. *Dineutus indicus* Aube

1838. *Dineutus indicus* Aube, *Species Coleopteres*, 6 : 772.

1926. *Dineutus (Protodineutus) indicus* : Ochs, *Ent. Z. Frankf.*, 40 : 137.

1995. *Dineutus (Protodineutus) indicus* : Biswas *et al.*, *Fauna of W. Bengal*, 6A : 126.

Material examined : Jabalpur, Budagar Tank, 8.x.1974 (1 ex.), Coll. D.S. Mathur.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Gujarat, Himachal Pradesh, Karnataka, Kashmir, Kerala, Maharashtra, Andhra Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh.

Elsewhere : Pakistan.

Family HYDROPHILIDAE

29. *Hydrophilus bilineatus cashmiriensis* Redt.

1844. *Hydrophilus cashmiriensis* Redt., *Hugel. Kashmir*, 4(2) : 513, pl. 24, fig. 2.

1995. *Hydrophilus bilineatus cashmiriensis* : Bis. & Muk., *Fauna of W. Bengal*, 6A : 160.

Material examined : Jabalpur, a pond on Nagpur Road, 27.iv.1962 (2 exs.), Coll. H. Khajuria.

Distribution : India : Madhya Pradesh (Jabalpur), Kashmir, West Bengal.

Elsewhere : Sri Lanka, Myanmar, Vietnam, Tonkin, Cambodia, Annam, China, Japan, Kiu-Siou Island, Cagosima Island, Indonesia, Carin, Cheba, Ascieri.

30. *Hydrophilus olivaceus* Fabricius

1781. *Hydrophilus olivaceus* Fabricius, *Spec. Ins.* 1 : 289.

1995. *Hydrophilus olivaceus* : Bis. & Muk., *Fauna of W. Bengal*, 6A : 160.

Material examined : Jabalpur, a garden in Napier Town, 23.vii.1960 (1 ex.), Coll. A. Paul.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, North India.

31. *Sternolophus rufipes* Fabricius

1792. *Hydrophilus rufipes* Fabricius, *Ent. Syst.*, 1 : 183.

1995. *Sternolophus rufipes* : Bis. & Muk., *Fauna of W. Bengal*, 6A : 159.

Material examined : Jabalpur, Ganga Sagar on Nagpur Road, 29.v.1962 (1 ex.), Coll. S. Chakrapany.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal.

Elsewhere : East Asia, Sunda Island.

Family SCARABAEIDAE

Subfamily TROGINAE

32. *Trox* sp.

1792. *Trox* Fabricius, *Syst. Ent.*, p. 31.

1912. *Trox* : Arrow, *Col. Cat. Pars*, 43 : 53.

1982. *Trox* : Scholtz, *Ent. Mem.*, 54 : 2.

Material examined : Jabalpur, Near Medical College, Garha, 21.viii.1964 (1 ex.), Coll. M.L. Koshta.

Distribution : India : Madhya Pradesh, Uttar Pradesh, Haryana, Panjab, Rajasthan, and in all the major continents.

Subfamily ORPHNINAE

33. *Orphnus purvus* Wied.

1823. *Orphnus purvus* Wied., *Zool. Marg.*, 6(1) : 6.
 1904. *Orphnus purvus* : Arrow, *Trans Ent. Soc. Lond.*, p. 747.
 1991. *Orphnus purvus* : Biswas & Chatterjee, *Fauna of Orissa*, 3 : 253.

Material examined : Jabalpur, Z.S.I. C.R.S., Pachpedi, 3.vii.1964 (1 ex.), Coll. J.S. Bhatti.

Distribution : India : Madhya Pradesh (Jabalpur), Orissa, (Barkuda Island) West Bengal.

Subfamily Chironinae

34. *Chiron cylindrus* (Fabricius)

1798. *Chiron cylindrus* F., *Ent. Syst. Suppl.*, p. 44.
 1991. *Chiron cylindrus* Biswas & Chatterjee, *Fauna of Orissa*, 3 : 252.

Material examined : Jabalpur, Z.S.I. Office Campus, Pachpedi, 6.vii.1964 (1 ex.), Coll. J.S. Bhatti; Jabalpur, near Medical College, Garha, 19.viii.1964 (1 ex.), Coll. M.L. Koshta; Jabalpur, Near Medical College, Garha, 21.viii.1964 (1 ex.), Coll. M.L. Koshta.

Diagnosis : Body elongate and cylindrical, labrum quadridentate, clypeus with a small tranverse median carina bearing a tubercle on either side of middle.

Distribution : India : Madhya Pradesh (Jabalpur), Rajasthan, Haryana, and Uttar Pradesh.

Subfamily APHODIINAE

35. *Aphodius moestus* Fabricius

1801. *Aphodius moestus* Fabricius, *Syst. Eleuth.*, 1 : 78.
 1857. *Aphodius moestus* : Boh. *Ins. Eleuth.*, 1 : 351.
 1991. *Aphodius moestus* : Biswas & Chatterjee, *Fauna of Orissa*, 3 : 261.

Material examined : Jabalpur, Z.S.I. Office Campus, Pachpedi, 27.1.1964 (1 ex.), Coll. H. Khajuria.

Diagnosis : Length 5.5 to 6.5 mm and width 2.5 to 3mm; pale yellow with head, disc of pronotum, scutellum and elytra with fourth interval in last half and sixth in anterior two third black, smooth and moderately shining.

Distribution : India, Orissa, Madhya Pradesh; Jabalpur (Balthasar, 1963).

Elsewhere : Afganistan, Sri Lanka, East and South Africa, Madagascar.

Subfamily SCARABAEINAE

36. *Catharcus molossus* (Linnaeus)

1758. *Scarabaeus molossus* Linn., *Syst. Nat.*, ed. 10, p. 347.

1931. *Catharcus molossus* : Arrow, *Fauna British India, Coleoptera, Lamelli.*, 3 : 94.

Material examined : Jabalpur, Pachpedi, 20.ix.1961 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 29.vi.1961 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Black and opaque, partially clothed with reddish hair beneath. Broadly oval and very convex. Head with a small smooth area adjoining each eye. Pronotum densely granulate except a small areas each side in male. The elytra are very finely and lightly striate.

Distribution : India : Assam, Andaman Is., Bihar, Himachal Pradesh, Karnataka, Maharashtra, Orissa, Uttar Pradesh, West Bengal.

Elsewhere : Sri Lanka.

37. *Catharcus pithecius* (Fabricius)

1775. *Scarabaeus pithecius* Fabricius, *Syst. Ent.* : 21.

1858. *Copris cribricollis* Walker, *Ann. Mag. Nat. Hist.* 2(3) : 208.

1931. *Catharcus pithecius* : Arrow, *Fauna British India, Coleoptera*, 3 : 100.

Material examined : Jabalpur, Pachpedi, 7.vii.1964 (2 exs.), Coll. J.S. Bhatti.

Diagnosis : Length 15-23 mm., breadth 10-13.5 mm. Black or shining, with the pronotum partly or entirely opaque, the antennae, mouth organs, and hairy clothing of the legs and lower surface reddish. Shortly oval and very convex. The head is nearly semi-circular in shape, with the clypeus very feebly excised in the middle of the front margin and closely strigose. The metasternal shield is acutely angular in front, very smooth and shining, with a median longitudinal groove, and the sides of the metasternum are closely and rugosely punctured and hairy.

Distribution : Bihar, Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, and Andhra Pradesh.

Elsewhere : Sri Lanka.

38. *Catharcus sagax* Queensland

1806. *Copris sagax* Quens., *Schonh. Syn. Ins.*, 1 : 43.

1931. *Catharcus sagax* : Arrow, *Fauna British India, Coleoptera*, 3 : 96.

Material examined : Jabalpur, Pachpedi, 28.vii.1964 (3 exs.), Coll. H.P. Agrawal.

Diagnosis : Length 23-26 mm. Breadth 14-20 mm. Black and opaque, partially clothed with reddish hair beneath. Form oval and convex. Elytra generally a little less dull and sooty, and the head without the smooth shining area adjoining the eye on each side. Male : Rather narrower in shape, with the cephalic horn less erect and situated farther forward upon the head.

Distribution : Madhya Pradesh, Tamil Nadu, Andhra Pradesh, West Bengal, Bihar, Maharashtra, and Punjab.

Elsewhere : Bhutan.

39. *Chironitis indicus* Lansberg

1875. *Chironitis indicus* Lansberg, *Ann. Soc. Ent. Belg.*, 18 : 45.

1931. *Chironitis indicus* : Arrow, *Fauna British India, Lamell., Coprinae*, 3 : 402.

Material examined : Jabalpur, Pachpedi, 13.x.1965 (1 ex.), Coll. H. Khajuria.

Diagnosis : Yellow speckled with brown, the clypeus, ocular lobes and lateral margins of the pronotum yellow, the head, pronotum, legs and lower surface usually suffused with a slight metallic lustre. Oblong and rather depressed, opaque, except upon the pale margins of the head and prothorax. Length 11.5 mm.; breadth 6-9 mm.

Distribution : India : Madhya Pradesh (Hoshangabad, Jabalpur), Haryana, Rajasthan, Uttar Pradesh, Maharashtra, and Tamil Nadu.

40. *Copris andrewesi* Waterhouse

1891. *Copris andrewesi* Waterhouse, *Ann. Mag. Nat. Hist.*, 7(6) :521.

1931. *Copris andrewesi* : Arrow, *Fauna British India, Lamell., Coprinae*, 3 : 127.

Material examined : Jabalpur, 2.vii.1964 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Black, not shining, except the head and lower surface, with the antennae, mouth organs, and scanty hairs upon the legs red. Oval and moderately convex. The head is very shining, strongly punctured behind and at the sides and almost smooth in the middle of the clypeus.

Distribution : India : Madhya Pradesh (Seoni, Jabalpur, Mandla, Umaria and Indore), Maharashtra (Nagpur), West Bengal (Berhampore), Maharashtra, Mysore (Bhadrawati, Shimoga dist., Bangalore).

Elsewhere : Bhutan.

41. *Gymnopleurus gemmatus* Harold

1871. *Gymnopleurus gemmatus* Harold, *Col. Hefte.*, 8 : 117.

1931. *Gymnopleurus gemmatus* : Arrow, *Fauna British India, Lamell., Coprinae*, 3 : 53.

Material examined : Recorded from literature (Arrow, 1931).

Diagnosis : Black, with the upper surface closely clothed with minute grey setae, leaving numerous shining bare patches, viz., upon the pronotum, a central spot, five adjoining the front margin, four adjoining the hind margin, and three or four on each side. Oval in shape, not very convex, with slender legs.

Distribution : India : Madhya Pradesh (Jabalpur), Haryana, Uttar Pradesh, Kashmir, West Bengal, Maharashtra, Karnataka, Tamil Nadu.

Elsewhere : Sri Lanka, Pakistan.

42. *Gymnopleurus miliaris* (Fabricius)

1775. *Gymnopleurus miliaris* Fabricius, *Syst. Ent.*, p. 817.

1931. *Gymnopleurus miliaris* : Arrow, *Fauna British India, Lamell., Coprinae*, 3 : 50.

Material examined : Recorded from literature (Arrow, 1931).

Diagnosis : Blue-black, dark green or coppery, with the lower surface black or nearly black, and the upper surface closely clothed with minute grey setae, bearing a few shining denuded patches, viz., a central spot upon the prothorax, a ring of five spots surrounding it, an outer one on each side and the lateral pit on each side near the last. Moderately broad, not very convex, with slender legs.

Distribution : India : Madhya Pradesh (Jabalpur, Hoshangabad), Haryana, Uttaranchal, Uttar Pradesh, Kashmir, West Bengal, Maharashtra, Karnataka, Tamil Nadu.

Elsewhere : Sri Lanka and Pakistan.

43. *Heliocopriss bucephalus* (Fabricius)

1775. *Scarabaeus bucephalus* Fabricius, *Syst. Ent.*, p. 24.

1931. *Heliocopriss bucephalus* : Arrow, *Fauna British India, Coleoptera*, 3 : 88.

Material examined : Jabalpur, Z.S.I. premises, 29.vi.1964 (1 ex.), Coll. H. Khajuria.

Diagnosis : Length 39-55 mm., breadth 24-30 mm. Black, with the elytra and lower surface usually deep red, parts of the lower surface and legs clothed with coarse rust-red hairs. Broad and somewhat quadrate in shape, with the head and pronotum coarsely rugose, and the elytra very smooth and shining. The pronotum is very unevenly rugose or reticulate. The elytra are very lightly striate. The pygidium is unevenly, rather shallowly and indefinitely punctured. The sides of the metasternum are densely clothed with hair. The front tibia is armed with three strong teeth.

Distribution : India : Bihar, West Bengal, Uttar Pradesh, Madhya Pradesh, Maharashtra.

Elsewhere : Myanmar, Siam, Malay Peninsula, Java.

44. *Onitis crassus* Sharp

1875. *Onitis crassus* Sharp, *Col. Hefte.*, **14** : 48.

1931. *Onitis crassus* : Arrow, *Fauna British India, Lamell., Coprinae*, **3** : 400-401.

Material examined : Recorded from literature (Arrow, 1931).

Diagnosis : Black, not very shining, with the antennae, organs of the mouth, and the hairy clothing of the legs and the sides of the body beneath reddish-yellow. Oval, moderately compact, convex.

Distribution : India : Madhya Pradesh (Jabalpur), Punjab, and Uttaranchal.

45. *Onthophagus catta* (Fabricius)

1787. *Scarabaeus catta* Fabricius, *Mant. Ins.*, **1** : 12.

1931. *Onthophagus catta* : Arrow, *Fauna British India, Lamell., Coprinae*, **3** : 230.

Material examined : Jabalpur, Near Medical College, 19.viii.1964 (3 exs.), Coll. M.L. Koshta.

Diagnosis : Length 8-13 mm., breadth 5-8 mm. Testaceous yellow, with the head, pronotum (except a narrow pale margin at the sides and base), the median part of the metasternum, the front tibiae, the greater part of the middle and hind tibiae, and a large oval spot upon the lower surface of the four posterior femora, greenish or coppery-black. The extreme edges of the prothorax, elytra, and all the segments of the body and legs are also dark. Broadly oval and convex, smooth and moderately shining, with a thin clothing of yellow setae upon the legs and lower surface.

Distribution : Punjab, Maharashtra, Gujarat, Karnataka, Madhya Pradesh, Andhra Pradesh, Tamil Nadu.

Elsewhere : Pakistan, Sri Lanka, Arabia, East, South and West Africa, Madagascar.

46. *Onthophagus ramosus* (Wiedemann)

1823. *Copris ramosa* Wiedmann, *Zool. Mag.*, 2, 1, p. 13.

1931. *Onthophagus ramosus* : Arrow, *Fauna British India, Lamell., Coprinae*, 3 : 236-237.

Material examined : Jabalpur, Garha, 19.viii.1964 (8 exs.), Coll. M.L. Koshta.

Diagnosis : Opaque, black or very dark blue-black or indigo-black above, with the lower surface shining black. Broadly oval, compact, moderately convex, almost without hair or setae above or beneath.

Distribution : India : Madhya Pradesh (Indore, Mandla), Orissa (Soras), Kashmir, Panjab, Uttar Pradesh, Haryana, Uttanchal, Himachal Pradesh, Bihar, Maharashtra, Karnataka, and Tamil Nadu.

Elsewhere : Thailand.

Subfamily MELOLONTHINAE

47. *Schizonycha ruficollis* (Fabricius)

1781. *Melolontha ruficollis* Fabricius, *Spec. Ins.*, 7 :39.

1923. *Schizonycha ruficollis* : Arrow, *Rec. Indian Mus.*, 25(2) : 250.

1991. *Schizonycha ruficollis* : Biswas & Chatterjee, *Fauna of Orissa* 3 : 251.

Material examined : Jabalpur, Z.S.I., Pachpedi, 2.vii.1964 (21 exs.), Coll. J.S. Bhatti; Jabalpur, Z.S.I., Pachpedi, 30.vi.1964 (5 exs.), Coll. J.S. Bhatti; Jabalpur, Z.S.I., Pachpedi, 6.vii.1964 (5 exs.), Coll. J.S. Bhatti; Jabalpur, Z.S.I., Pachpedi, 1.vii.1964 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Z.S.I., Pachpedi, 7.vii.1964 (3 exs.), Coll. J.S. Bhatti; Jabalpur, Z.S.I., Pachpedi, 5.vii.1964 (2 exs.), Coll. J.S. Bhatti; Jabalpur, Z.S.I., Pachpedi, 25.vi.1964 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Z.S.I., Pachpedi, 8.vii.1964 (1 ex.), Coll. H.P.Agrawal.

Distribution : India : Orissa, Madhya Pradesh (Jabalpur), Uttar Pradesh, Uttaranchal, West Bengal, Bihar.

Subfamily RUTELINAE

48. *Adoretus bicolor* Brenske

1893. *Adoretus bicolor* Brenske, *Ann. Soc. Ent. Belg.* 37 : 142.

1917. *Adoretus bicolor* : Arrow, *Fauna British India, Lamell., Rutel.*, 2 : 347.

Material examined : Recorded from Literature (Arrow, 1917).

Diagnosis : Bright reddish-yellow, with the pronotum reddish, and the head and tarsi rather deep red; closely clothed above and beneath with minute uniform decumbent setae. It is convex, oval and moderately elongate. In male the clypeus is rather smaller than that of the female. Length 10-11 mm.; breadth 5-6 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Sikkim, West Bengal, Maharashtra, Bihar, Gujarat, and Tamil Nadu.

49. *Adoretus lobiceps* Arrow

1917. *Adoretus lobiceps* Arrow, *Fauna British India, Lamelli., Rutel., 2* : 303.

Material examined : Recorded from Literature (Arrow, 1917).

Diagnosis : Uniform chocolate-brown, rather shining, with a fine, not very close clothing of minute short decumbent setae, which are longer and closer upon the pygidium and lower surface. The body is rather long and narrow, the head narrow and the eyes not large. The sexes are similar, but the abdomen of the male is well arched and that of the female very convex. Length 11.5-13 mm.; breadth 5.5-6 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Gujarat, Maharashtra.

50. *Adoretus stoliczkae* Ohaus

1914. *Adoretus stoliczkae* Ohaus, *Deutsche Ent. Zeits.*, p. 400.

1917. *Adoretus stoliczkae* : Arrow, *Fauna British India, Lamelli., Rutel., 2* : 336.

Material examined : Recorded from Literature (Arrow, 1917).

Diagnosis : Tawny yellow, with the forehead and vertex, the pronotum (with the exception of broad lateral margins), a sutural stripe common to both elytra (broad at the base and narrowing to the extremity), and the tarsi, brown or red-brown. The body is oval in shape, moderately convex and rather shining, with a somewhat scanty clothing of minute setae above. Length 9.5-12 mm.; breadth 5-6 mm.

Distribution : India : Gujarat (Surat), Madhya Pradesh (Jabalpur, Betul), Maharashtra.

51. *Adoretus vursutus* Harold

1869. *Adoretus vursutus* Harold, *Col. Hefte.*, 5 : 124.

1917. *Adoretus vursutus* : Arrow, *Fauna British India, Lamelli., Rutel., 2* : 350-351.

Material examined : Recorded from Literature (Arrow, 1917).

Diagnosis : Reddish chestnut, with the forehead and pronotum, except the sides of the latter and sometimes a median line, dark and evenly but not very densely clothed with grey decumbent setae. It is moderately broad and convex. Length 9-12 mm.; breadth 5-6 mm.

Distribution : India : Madhya Pradesh (Jabalpur); Uttar Pradesh; West Bengal.

52. *Anomala dorsalis fraterna* Burmeister

1844. *Anomala fraterna* Burmeister, *Handbk. Ent.*, 4, 1 : 232.

1917. *Anomala dorsalis fraterna* : Arrow, *Fauna British India, Lamelli., Rutel.*, 2 : 137.

Material examined : Jabalpur, Pachpedi, 2.vii.1964 (2 exs.), Coll. J.S. Bhatti.

Diagnosis : Chestnut-red with the forehead, the scutellum and a narrow sutural line dark.

Distribution : India : Madhya Pradesh (Gwaliour, Jabalpur), Bihar, Harayana, and West Bengal.

53. *Prodoretus indicus* Machatschke

1959. *Prodoretus indicus* Machatschke, *Ent. Arb. Mus. Frey*, 10, 1 : 274.

Material examined : Recorded from Literature (Machatschke, 1972)

Distribution : India : Madhya Pradesh (Jabalpur).

Subfamily : Cetoniinae

54. *Chiloloba acuta* (Wied.)

1823. *Cetonia acuta* Wied., *Zool. Mag.*, 2 (1) : 87.

1910. *Chiloloba acuta* : Arrow, *Fauna British India, Coleoptera, Lamellicornia*, 1 : 172.

1995. *Chiloloba acuta* : Chatt. & Bis., *Fauna of W. Bengal*, 6A : 393.

Material examined : Jabalpur, Garha, 8.xi.1965 (1 ex.), Coll. M.L. Koshta.

Distribution : India : Madhya Pradesh (Jabalpur), Himachal Pradesh, Maharashtra, Karnataka, Punjab, Sikkim, Uttar Pradesh, West Bengal.

55. *Clinteria klugi* Hope

1831. *Cetonia klugi*, Hope, *Gray's Zool. Misc.*, : 25.

1880. *Tinclirea hilaris* : Thomson, *Le Naturaliste* : 268.

1910. *Clinteria klugi* : Arrow, *Fauna British India, Coleoptera, Lamillicornia*, 1 : 187.

Material examined : Jabalpur, Adhartal, Katni Road, 3.ix.1975 (1 ex.), Coll. H. Khajuria.

Diagnosis : Length 13-17 mm., breadth 6.5-9 mm. Moderately elongate and depressed, black or deep reddish-chocolate, opaque, with deep yellow or orange markings, consisting of a broad marginal band upon the pronotum, arising in the front angles and a little incurved near the hind angles, but frequently more or less abbreviated and sometimes absent, a large spot on each mesosternal epimeron, an irregular transverse median band on each elytron, sometimes broken into two spots, a spot anterior to this and two apical spots, a patch on each side of the pygidium, and the sides of the sternum and abdomen.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra, Uttar Pradesh, West Bengal.

56. *Protaetia alboguttata* (Vigors)

1826. *Cetonia alboguttata* Vigors, *Zool. Journ.* 2, p. 238, pl. 9, fig. 3.

1910. *Protaetia alboguttata* : Arrow, *Fauna British India, Coleoptera, Lamilli.*, 1 : 162.

Material examined : Jabalpur, Tilwaraghat, 29.vii.1999 (1 ex.), Coll. M.L. Koshta.

Diagnosis : Metallic green, deep blue or blue-black, with the pronotum, scutellum and elytra opaque, deep blue, and decorated with very conspicuous white spots. The form is elongate-oval and moderately convex and the legs are rather long.

Distribution : India : Madhya Pradesh (Jabalpur), Uttar Pradesh, Uttaranchal, Bihar, Mysore, Maharashtra, Gujarat.

Elsewhere : Sri Lanka.

57. *Protaetia aurichalcea* (Fabricius)

1775. *Cetonia aurichalcea* Fabricius, *Syst. Ent.*, p. 49.

1910. *Protaetia aurichalcea* : Arrow, *Fauna British India, Coleoptera, Lamilli.*, 1 : 143.

Material examined : Jabalpur, Garha, 29.ix.1965 (1 ex.), Coll. M.L. Koshta

Diagnosis : Deep bronze and very shining above and beneath, with opaque white markings, consisting of a large irregular patch on each side of the pronotum, each generally enclosing a small bare spot. The shape is short and broad, rather depressed and very little narrowed behind.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Karnataka, Tamil Nadu, West Bengal.

Subfamily DYNASTINAE

58. *Heteronychus lioderes* Redtenbacher

1867. *Heteronychus lioderes* Redtenbacher, *Reise der Novara, Zool., Col.*, 2 : 75.

1910. *Heteronychus lioderes* : Arrow, *Fauna British India, Coleoptera*, 1 : 295.

Material examined : Jabalpur, Z.S.I. Office Campus, Pachpedi, 1.vii.1964 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Length 15-17 mm., breadth 8-9 mm. Black above, deep reddish-brown beneath, and very smooth and shining, elongate-oval in shape and not very convex. The head is transverse rugose, except on the vertex, the clypeus armed with two moderately distant reflexed teeth and divided from the forehead by a slight carina interrupted in the middle. The pronotum and scutellum are entirely smooth and shining. The pygidium is very deeply and coarsely, and more or less confluent punctured.

Distribution : Assam, West Bengal.

Elsewhere : Nepal, Myanmar, Bangladesh, Malaya Peninsula, Java, and Celebes.

Family COCCINELLIDAE

59. *Coccinella transversalis* Fabricius

1781. *Coccinella transversalis* Fabricius, *Spec. Ins.* : 97.

1980. *Coccinella transversalis* : Chunram & Sasaji, *Oriental Insects*, 14 (4) : 485.

2000. *Coccinella transversalis* : Chakra. & Bisw., *Fauna of Tripura*, 3 : 130.

Material examined : Jabalpur, Kamala Nehru Nagar, 14.xii.1960 (1 ex.), Coll. S. Chakrapany.

Diagnosis : Elytra testaceous yellow, each elytron with a triangular black marking on the sub humeral area, with a wavy, black, postmedian band confluent with the black sutural margin, a sub-quadrate black spot at three-fourths the external margin, further two common spots, one immediately behind the scutellum and the other before the apex, present on the suture.

Distribution : Tripura, Meghalaya, Kerala, Goa, West Bengal, Andaman & Nicobar Islands.

Elsewhere : Southeast Asia, Thailand, Japan, Australia.

60. *Menochilus sexmaculatus* (Fab.)

1781. *Menochilus sexmaculata* Fabricius, *Spec. Ins.* : 96.

1996. *Menochilus sexmaculatus* : Chak., Bh. & Bisw., *Fauna of W. Bengal*, 6B : 474.

Material examined : Jabalpur, Kamala Nehru Nagar, 14.xii.1960 (1 ex.), Coll. S. Chakrapany.

Diagnosis : Antenna short, nearly as long as or shorter than frons; the terminal segment small, shorter and distinctly narrower than the preceding, converging apically with a pointed apex. Lateral side of elytra not marginate. Elytral epipleuron strongly inclined below.

Distribution : Andaman Islands, Meghalaya, West Bengal.

Elsewhere : Nepal, Indonesia, Philippines, Celebes, New Guinea.

Family TENEBRIONIDAE

61. *Cossyphus depressus* (Fabricius)

1761. *Cossyphus depressus* Fabricius, *Spec. Ins.* 1 : 254.

1996. *Cossyphus depressus* : Saha & Das., *Fauna of W. Bengal*, 6B : 519.

Material examined : Jabalpur, Pachpedi, 2.vii.1964 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Colour brownish, size small, body strongly flat, head and pronotum completely joint together dorsally except a fine suture between them, elytra similarly and equally flattened as pronotum and each elytron with a longitudinal and elevated hidge in the middle; antennae moderately elongate, basal segment longest, II to VII segments slender, 10th strongly transverse, apical segment rounded, last four apical segments flattened, maxillary palpi fairly elongate, apical segment of maxillary palpi fairly triangular and flattened; labrum and labial palpi small, legs fairly elongate.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal.

62. *Scleron irregulata* (Dist.)

1996. *Scleron irregulata* : Saha & Das, *Fauna of W. Bengal*, 6B : 533.

Material examined : Jabalpur, Khamaria Hill, 13.x.1961 (1 ex.), Coll. S. Chakrapany.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal.

Family CHRYSOMELIDAE

63. *Cassida circumdata* Herbst

1799. *Cassida circumdata* Herbst, *Natursyst. Kag.*, 8 : 268.

1919. *Cassida circumdata* : Maulik, *Fauna Brit. India, Col., Chry. (Hisp. & Cass.)* : 404.

Material examined : Jabalpur, Napier Town, 9.viii.1960 (5 exs.), Coll. S. Chakrapany.

Diagnosis : General colour pale yellow to yellow-brown, sometimes with greenish tinge; elytra with a broad black stripe along the middle forming a U-shaped marking, basal portion of suture, along with scutellum black and sometimes extending to pronotum; ventral side yellow-brown; length 5.0 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Kerala, Orissa, Sikkim, Tripura, Tamil Nadu, West Bengal.

64. *Corynodes peregrinus* Fuessly

1783. *Corynodes peregrinus* Fuessly, *Archiv. Ins.*, p. 63.

1908. *Corynodes peregrinus* : Martin Jacoby, *Fauna British India, Chrysomelidae*, 1 : 493.

Material examined : Jabalpur, Karamchand Chowk, 21.vii.1960 (1 ex.), Coll. S. Chakrapany & party.

Diagnosis : Male : Metallic blue. Head very coarsely and deeply punctured, front rugose and irregularly excavated at lower border, latter continuous with apex of clypeus. Antennae dark blue. Thorax nearly twice as wide at base as anteriorly, lateral margins feebly rounded. Elytra subcylindrical. Claws bifid. Female : Has rather shorter antennae and a more conical shaped thorax as a rule.

Distribution : India : Madhya Pradesh (Jabalpur).

Elsewhere : Sri Lanka, Myanmar, Siam, Malacca.

65. *Glyphocassis trilineata* (Hope)

1831. *Cassida trilineata* Hope, *In Gray, Zool. Miscell.*, p. 30.

1919. *Glyphocassis trilineata* : Maulik, *F. Brit. India, Col., Chry. (Hisp. & Cass.)* : 360.

Material examined : Jabalpur, Narbada road, 7.viii.1960 (5 exs.), Coll. S. Chakrapany.

Diagnosis : General colour varying from pale yellow to red-brown; pronotum and elytra with a black pattern which mainly consists of three broad stripes united by a transverse band; five apical segments of antennae black; length 6.0 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Sikkim, Uttar Pradesh, West Bengal.

Elsewhere : China and Nepal.

66. *Aphthona nigrilubris* Duvivier

1892. *Aphthona nigrilubris* Duviv., *Ann. Soc. Ent. Belg.* 36 : 426.

1926. *Aphthona nigrilubris* : Maulik & Cantab, *Fauna British India, Chrysomelidae* : 370.

Material examined : Jabalpur, Lametaghat, 28.ix.1962 (5 exs.), Coll. S. Chakrapany.

Diagnosis : Body subovate, shining yellow-brown. The five to eight segments of the antennae from the apex; labrum, scutellum, breast and posterior femora pitch black. Head with impunctate, with two oblique impressions in front above the eyes, meeting in the centre, frontal tubercles absent, interantennal carina well developed, labrum large. Scutellum triangular with rounded apex. Elytra broader at base than prothorax. Length 22/5 to 3 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Maharashtra.

67. *Aulacophora excavata* Baly

1886. *Aulacophora excavata* Baly, *J. Linn. Soc. Lond.*, 20 : 3, 5, 18.

1936. *Aulacophora excavata* : Maulik, *Fauna British India, Col., Chry. (Gal.)* : 177.

Material examined : Jabalpur, Vegetable field Cantt, 22.vii.1960 (2 exs.), Coll. R.C. Sharma.

Diagnosis : General colour brown; elytra not shining, steel-blue with an admixture of black; pronotal disc with a broad excavation, deeper in male; length 7.5-8.5 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Orissa, Uttar Pradesh, West Bengal.

68. *Aulacophora foveicollis* (Lucas)

1849. *Aulacophora foveicollis* Lucas, *Explor. Alger. Ent.* : 542.

1936. *Aulacophora foveicollis* : Maulik, *Fauna British India, Col., Chry. (Gal.)* : 173.

Material examined : Jabalpur, Sita Pahadi, 16.vi.1960 (1 ex.), Coll. S. Chakrapany.

Diagnosis : General colour brown; metasternum and abdominal sternites entirely or largely black; in the male humerus covered with erect hairs; length 6.0-7.0 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Arunachal Pradesh, Assam, Andaman Is., Bihar, Gujarat, Kerala, Maharashtra, Meghalaya, Orissa, Punjab, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

Elsewhere : Bangladesh, Sri Lanka, Myanmar, Nepal and also in Europe.

Family CURCULIONIDAE

69. *Cyphicerinus pannosus* Marshall

1913. *Cyrtepistomus pannosus* Marshall, *Ann. Mag. nat. Hist.*, **8** (12) : 187

1944. *Cyphicerinus pannosus* : Marshall, *Ann. Mag. nat. Hist.*, **11**(11) : 93.

1990. *Cyphicerinus pannosus* : Pajni, *Fauna of India, Coleoptera, Curcul.* : Eremn., p. 89.

Material examined : Recorded from literature (Pajni, 1990).

Diagnosis : Frons fuscus, flat, covered with a few ochraceous scales. Antennae castaneous, moderately long, scape curved, clavate. Prothorax fuscus, transverse, with anterior margin almost straight. Scutellum small, fuscus, rectangular with anterior margin rounded, bare with a few recumbent setae. Elytra fuscus, oblong, posteriorly declivous, with shoulders roundly rectangular. Legs fuscus, with sparse elongated scales and pale sub-recumbent setae.

Distribution : India : Madhya Pradesh (Jabalpur, Damoh, Hoshangabad).

SUMMARY

The present account includes 69 species/subspecies of beetles under 11 families, mainly dominated by the families Scarabaeidae and Dytiscidae from Jabalpur, Madhya Pradesh

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INSECTA LEPIDOPTERA (Rhopalocera and Grypocera)

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INTRODUCTION

The butterfly fauna of Madhya Pradesh and Chhattisgarh has been studied in the past by various workers. Recently, Singh and Koshta (2007) have provided the systematic account of 135 species from these two states. However, the present study includes 39 species belonging to 27 genera under 9 families. The species richness analysis reveals that the family Nymphalidae with 12 species outnumbers other families, followed by the family Pieridae by 10 species.

LIST OF BUTTERFLIES RECORDED FROM JABALPUR DISTRICT

Family PAPILIONIDAE

- | | |
|--|--------------------|
| 1. <i>Graphium agamemmon</i> Linnaeus | The Tailed Jay |
| 2. <i>Papilio polytes romulus</i> Cramer | The Common Mormon |
| 3. <i>Papilio demoleus demoleus</i> Linnaeus | The Lime Butterfly |
| 4. <i>Papilio polymnestor</i> Cramer | The Blue Mormon |
| 5. <i>Pachliopta hector</i> (Linnaeus) | The Crimson Rose |

Family PIERIDAE

- | | |
|--|-------------------------|
| 6. <i>Cepora nerissa phryne</i> (Fabricius) | The Common Gull |
| 7. <i>Belenois aurota aurota</i> (Fabricius) | The Pioneer |
| 8. <i>Terias laeta laeta</i> (Boisduval) | The Small Grass Yellow |
| 9. <i>Terias hecabe simulata</i> (Moore) | The Common Grass Yellow |
| 10. <i>Terias brigitta rubella</i> (Wallace) | The Small Grass Yellow |
| 11. <i>Catopsilia pyranthe pyranthe</i> (Linnaeus) | The Mottled Emigrant |
| 12. <i>Catopsilia pomona</i> (Fabricius) | The Lemon Emigrant |

- | | |
|--|--------------------------|
| 13. <i>Delias eucharis</i> (Drury) | The Common Jezebel |
| 14. <i>Leptosia nina</i> (Fabricius) | The Psyche |
| 15. <i>Pareronia valeria hippia</i> (Fabricius) | The Common Wanderer |
| Family SATYRIDAE | |
| 16. <i>Melanitis leda ismene</i> (Cramer) | The Common Evening Brown |
| Family NYMPHALIDAE | |
| 17. <i>Ariadne merione</i> (Cramer) | The Common Castor |
| 18. <i>Phalanta phalantha phalantha</i> (Drury) | The Common Leopard |
| 19. <i>Junonia almana almana</i> (Linnaeus) | The Peacock Pansy |
| 20. <i>Junonia atlites</i> (Linnaeus) | The Grey Pansy |
| 21. <i>Junonia orithya swinhoei</i> Butler | The Blue Pansy |
| 22. <i>Junonia lemonias vaisya</i> Fruhstorfer | The Lemon Pansy |
| 23. <i>Junonia hierta hierta</i> (Fabricius) | The Yellow Pansy |
| 24. <i>Hypolimnas misippus</i> (Linnaeus) | The Danaid Eggfly |
| 25. <i>Hypolimnas bolina</i> (Linnaeus) | The Great Eggfly |
| 26. <i>Neptis hylas astola</i> Moore | The Common Sailer |
| 27. <i>Neptis soma soma</i> Moore | The Sullied Sailer |
| 28. <i>Symphaedra nais</i> (Forster) | The Baronet |
| Family ACRAEIDAE | |
| 29. <i>Acraea terpsicore</i> (Linnaeus) | The Tawny Coster |
| Family RIODINIDAE | |
| 30. <i>Abisara echerius suffusa</i> (Moore) | The Plum Judy |
| Family DANAIDAE | |
| 31. <i>Danaus genutia</i> (Cramer) | The Common Tiger |
| 32. <i>Danaus chrysippus chrysippus</i> (Linnaeus) | The Plain Tiger |
| 33. <i>Tirumala limniace leopardus</i> (Butler) | The Blue Tiger |
| 34. <i>Euploea core core</i> (Cramer) | The Common Crow |
| Family LYCAENIDAE | |
| 35. <i>Tarucus nara</i> (Kollar) | The Striped Pierrot |
| 36. <i>Virachola isocrates</i> (Fabricius) | The Common Guava Blue |

3. *Papilio demoleus demoleus* Linnaeus The Lime Butterfly

1758. *Papilio demoleus* Linnaeus, *Syst. Nat.*, ed. 10 : 464.

1939. *Papilio demoleus demoleus* : Talbot, *Fauna British India, Butterflies*, 1 : 189.

Material examined : Jabalpur, Silua village, Nagpur Road, 24.vii.1980 (1 ex.), Coll. H.S. Sharma; Shahpura, 23.x.1980 (1 ex.), Coll. H.P. Agrawal; Agriculture College, 23.iii.1974 (1 ex.), Coll. R.K. Singh; Patan and its vicinity, 10.x.1980 (1 ex.), Coll. S.K. Mishra; Garam Pani ka Jharna, Mandla Road, 4.x.1980 (1 ex.), Coll. S.K. Mishra; Vijay Nagar, 16.vii.1999 (3 exs.), Coll. A.K. Gupta; Kataw, 9.xi.2001 (4 exs.), Coll. Y.N. Gupta; Karmeta 9.x.2000 (1 ex.), Coll. B.D. Singh.

Diagnosis : Antennae dark reddish-brown; head, thorax and abdomen dusky black. 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, irrorated with yellow scales.

Distribution : Throughout India : Chhattisgarh (Bastar, Raigarh, Sarguja), Madhya Pradesh (Bhind, Chhatarpur, Chhindwara, Dhar, Indore, Jabalpur, Mandasaur, Morena, Ratlam, Sagar, Seoni, Shahdol, Shivpuri, Tikamgarh, Ujjain).

Elsewhere : Sri Lanka, North Myanmar, and Pakistan.

4. *Papilio polymnestor* Cramer The Blue Mormon

1775. *Papilio polymnestor* Cramer, *Pap. Exot.*, 1 : 83.

1939. *Papilio polymnestor* : Talbot, *Fauna British India, Butterflies*, 1 : 126.

Material examined : Jabalpur, Tilwaraghat, 16.xi.1998 (1 ex.), Coll. M.L. Koshta.

Diagnosis : 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 : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur), Aṣṣam, Sikkim, West Bengal and Peninsular India.

5. *Pachliopta hector* (Linnaeus) The Crimson Rose

1758. *Papilio hector* Linnaeus, *Syst. Nat.*, : 459.

1932. *Tros Hector* : Evans, *Ident. Indian Buttf.*, ed. 2 : 44.

1993. *Pachliopta Hector* : Varshney, *Oriental Ins.*, 27 : 354.

Material examined : Jabalpur, Garha, 26.xi.2002 (1 ex.), Coll. M.L. Koshta.

Diagnosis : Upperside bluish-black. Fore wing with interrupted and irregular discal and apical white bands. Hind wing with discal band nearly round and marginal rows of bright crimson crescent spots. The bands and spots broader in female. Underside of fore wing dull brownish-black and hind wing black. Wingspan 90-120 mm.

Distribution : India : Madhya Pradesh (Seoni), Orissa, Bihar, West Bengal, Andhra Pradesh, Tamil Nadu, Karnataka, Kerala, Maharashtra.

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

Family PIERIDAE

6. *Cepora nerissa phryne* (Fabricius)

The Common Gull

1775. *Papilio phryne* Fabricius, *Syst. Ent.*, 473.

1939. *Cepora nerissa phryne* : Talbot, *Fauna British India, Butterflies*, 1 : 362.

Material examined : Jabalpur, near Gour river, 6.ii.1965 (2 exs.), Coll. H.P. Agarwal; Bhita village, 20.ii.1965 (1 ex.) Coll. H. Khajuria; Manegaon village, 15.xii.1979 (1 ex.), Coll. L.P. Dube; Sukri and surroundings, 14.x.1980 (1 ex.), Coll. H.P. Agrawal.

Diagnosis : Upperside of forewing with apical black area bearing prominent white spots. Hind wing with marginal black border dentate on the inner edge.

Distribution : India : Chhattisgarh (Bastar, Sarguja), Madhya Pradesh (Bhind, Chhatarpur, Chhindwara, Dhar, Gwalior, Indore, Jabalpur, Mandasaur, Morena, Shivpuri, Ujjain), Assam, Bihar, Maharashtra, Sikkim, Tamil Nadu, Uttar Pradesh, North-West Himalayas.

7. *Belenois aurota aurota* (Fabricius)

The Pioneer

1793. *Papilio aurota* Fabricius, *Syst. Ent.* 3 : 197.

1939. *Anapheis aurota aurota* : Talbot, *Fauna British India, Butterflies*, 1 : 380.

Material examined : Jabalpur, Near Bargi, 3.v.1973 (1 ex.), Coll. N.K. Sinha; Amkhas, 12.ii.1974 (3 exs.), Coll. B.S. Gurum.

Diagnosis : 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 : Chhattisgarh (Sarguja), Madhya Pradesh (Bhind, Jabalpur, Mandsaur, Morena, Ratlam, Ujjain), Andaman & Nicobar Islands, Delhi, Karnataka, Tamil Nadu, Uttar Pradesh, West Bengal.

8. *Terias laeta laeta* (Boisduval) The Small Grass Yellow

1836. *Terias laeta* Boisduval, *Spec. Gen. Lep.*, 1 : 674.

1939. *Eurema laeta laeta* : Talbot, *Fauna British India, Butterflies*, 1 : 517.

Material examined : Jabalpur, T.F.R.I., 21.ix.2001 (6 exs.), Coll. M.L. Koshta.

Diagnosis : 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 : Chhattisgarh (Bastar), Madhya Pradesh (Dhar, Jabalpur, Jhabua, Morena, Sagar), Bihar, Delhi, Himachal Pradesh, Karnataka, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal, Peninsular India to North-west Himalayas.

9. *Terias hecabe simulata* (Moore) The Common Grass Yellow

1881. *Terias simulata* Moore, *Lep. Ceylon*, 1 : 119.

1939. *Eurema hecabe simulata* : Talbot, *Fauna British India, Butterflies*, 1 : 530-531.

Material examined : Jabalpur, Damoh Road, 20.ix.1980 (8 exs.), Coll. H.S. Sharma; Majholi and vicinity, 28.xi.1980 (3 exs.), Coll. H.P. Agrawal; Chhipaghat, Patan village, 20.xi.1980 (2 exs.), Coll. S.K. Mishra; Madan Mahal, 4.ix.1974 (2 exs.), Coll. D.K. Harshey; Amkhas, 25.ix. 1964 (6 exs.), Coll. H.P. Agrawal; Ganjtal and its vicinity, 24.x.1980 (2 exs.), Coll. S.K. Mishra; Nagpur Road, 6.x.1970 (2 exs.), Coll. D.K. Ghosal; Gwarighat, 10.i.1979 (3 exs.), Coll. Manohar; Sukri and surroundings, 14.x.1980 (1 ex.), Coll. H.P. Agrawal; T.F.R.I. 29.i.2002 (1 ex.), Coll. M.L. Koshta; Kataw, 9.xi.2001 (2 exs.), Coll. Y.N. Gupta; Padria village, T.F.R.I., 5.viii.2002 (1 ex.), Coll. M. Limje.

Diagnosis : Ground colour dark yellow. Underside of fore wing with a prominent brown subapical patch from the costa; hind wing markings more or less reddish-brown.

Distribution : India : Madhya Pradesh, Peninsular India.

Elsewhere : Sri Lanka.

10. *Terias brigitta rubella* (Wallace)
The Small Grass Yellow

1867. *Terias rubella* Wallace, *Trans. ent. Soc. London*, 4(3) : 323.

1939. *Eurema brigitta rubella* : Talbot, *Fauna British India, Butterflies*, 1 : 515.

Material examined : Jabalpur, T.F.R.I., 29.i.2002 (1 ex.), Coll. M.L. Koshta; Padria village, T.F.R.I., 5.viii.2002 (1 ex.), Coll. M. Limje.

Diagnosis : 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 : Chhattisgarh (Bastar), Madhya Pradesh (Balaghat, Dhar, Jabalpur and Jhabua), Bihar, Karnataka, Maharashtra, Nicobar, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal, and N.W. Himalayas.

11. *Catopsilia pyranthe pyranthe* (Linnaeus)
The Mottled Emigrant

1758. *Papilio pyranthe* Linnaeus, *Syst. Nat.*, 10th ed., 469.

1939. *Catopsilia pyranthe pyranthe* : Talbot, *Fauna British India, Butterflies*, 1 : 496-499.

Material examined : Jabalpur, Silua village, 24.vii.1980 (1 ex.), Coll. H.S. Sharma; Rani Durgavati Samadhi, 13.viii.1975 (1 ex.), Coll. N.K. Sinha; Chowkital, 10.vii.1974 (1 ex.), Coll. B.S. Gurum; near Bargi, 3.v.1973 (2 exs.), Coll. N.K. Sinha; Gouriaghat, 5.vii.1978 (2 exs.), Coll. H.S. Sharma; Garha, 2.ix.2000 (1 ex.), Coll. M.L. Koshta; Padria village, T.F.R.I., 5.viii.2002 (1 ex.), Coll. M. Limje.

Diagnosis : Upper side chalky white or greenish in male but in female black margins a little broader, 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 : Assam, Andaman & Nicobar, Gujarat, Tamil Nadu, Uttar Pradesh, West Bengal, Northwest Himalayas. *Elsewhere* : Sri Lanka, Myanmar, and Pakistan.

12. *Catopsilia pomona* (Fabricius)
The Lemon Emigrant

1775. *Catopsilia pomona* Fabricius, *Syst. Ent.*, 479.

1939. *Catopsilia pomona* : Talbot, *Fauna British India, Butterflies*, 1 : 493-495.

Material examined : Jabalpur, Bargi village, 1.vii.1980 (3 exs.), Coll. H.P. Agrawal; Silua village, 24.vii.1980 (2 exs.), Coll. H.S. Sharma; Kataw, 9.xi.2001 (1 ex.), Coll. Y.N. Gupta.

Diagnosis : Costal margin only black at apex on upper side of fore wing and outer marginal narrow border masculine. Ground colour of both wings white. Under side of both wings with silvery-red ringed spots at ends of cells. Antenna red.

Distribution : Assam, Andaman & Nicobar, Bihar, Delhi, Gujarat, Tamil Nadu, Uttar Pradesh, Maharashtra, West Bengal, North-West Himalayas.

Elsewhere : Sri Lanka, Myanmar, and Pakistan.

13. *Delias eucharis* (Drury) The Common Jezebel

1773. *Papilio eucharis* Drury, *Illustr. Nat. Hist.*, 2 : pl. x, figs. 5, 6.

1939. *Delias eucharis* : Talbot, *Fauna British India, Butterflies*, 1 : 352.

Material examined : Jabalpur, Lamhetaghat, 29.xii.1973 (1 ex.), Coll. H. Khajuria; Gandhi Smarak, 16.iv.1962 (1 ex.), Coll. H.P. Agrawal; Pariat tank, 26.i.2000 (2 exs.) Coll. R.K. Singh.

Diagnosis : Under side of hind wing being yellow with black veins and bearing a submarginal row of large brick-red spots.

Distribution : India : Chhattisgarh (Bastar, Sarguja), Madhya Pradesh (Balaghat, Betul, Chhindwara, Hoshangabad, Indore, Jabalpur, Narsinghpur, Raigarh, Shahdol, Shivpuri), Bihar, Uttar Pradesh, Peninsular India extending upto lower slopes of Himalaya.

14. *Leptosia nina* (Fabricius) The Psyche

1793. *Papilio nina* Fabricius, *Ent. Syst.*, 3 : 194.

1939. *Leptosia nina* Talbot, *Fauna Brit. India Butterflies*, 1 : 305.

1987. *Leptosia nina* Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 46.

1993. *Leptosia nina* Varshney, *Oriental Insects*, 27 : 360.

Material examined. 1ex. Katanga, Jabalpur, observed by K. Chandra.

Diagnosis : White, Upper fore wing with prominent black spot at apex. Underside offwhite overlaid with pale grey and marked with faint green striations.

Distribution : Throughout India, Madhya Pradesh (Jabalpur) and Chhattisgarh (Bastar).

15. *Pareronia 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.

Material examined : 1 ex., Indrana vill., dist. Jabalpur, 31.10.1975, coll. N.K.Sinha.

Diagnosis : 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.

Family SATYRIDAE

16. *Melanitis leda ismene* (Cramer)
The Common Evening Brown

1775. *Papilio ismene* Cramer, *Pap. Ex.*, 1, pl. 26, figs. A, B.

1880. *Melanitis ismene* : Moore, *Lep. Cey.*, 1 : 14.

1883. *Melanitis ismene* : Marshall & Niceville, *Butterflies India, Burmah, Ceylon*, 1 : 256.

Material examined : Jabalpur, Phootatal, 1.xi.1973 (6 exs.), Coll. M. Kashyap; Shahpura, 20.ix.1979 (1 ex.), Coll. S.K. Mishra; Garha, 18.viii.2000 (1 ex.), Coll. M.L. Koshta.

Diagnosis : 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 fore wing, 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 submarginal spots.

Distribution : India : Assam, Andaman & Nicobar, Bihar, Delhi, Himachal Pradesh, Lakshadweep, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal.

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

Family NYMPHALIDAE

17. *Ariadne merione* (Cramer)
The Common Castor

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.

Material examined : 1 ex., Dumna Road, Jabalpur, (Photographed).

Diagnosis : 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 continuous with those of the forewing, vide De Niceville (1886).

Distribution : India : Madhya Pradesh (Jabalpur); Chhattisgarh (Bastar and Raigarh); Delhi; Kashmir; Orissa; and Uttar Pradesh.

Elsewhere : Sri Lanka and Myanmar.

18. *Phalanta phalantha phalantha* (Drury) The Common Leopard

1770. *Papilio phalanta* Drury, *Ill. Ex. Ent.*, **1**, pl. 21, figs. 1, 2.

1881. *Atella phalanta* : Moore, *Lep. Cey.*, **1** : 62.

1886. *Atella phalanta* : Niceville, *Butterflies India, Burmah, Ceylon*, **2** : 30.

Material examined : Jabalpur, T.F.R.I., 29.i.2002 (1 ex.), Coll. M.L. Koshta; Padria village, 5.viii.2002 (1 ex.), Coll. M. Limje.

Diagnosis : Upperside bright ochraceous, with the following blackish markings : fore wing 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 the lower discoidal nervulae, an oblique series of four spots divided by the median nervules. Hind wing with some transversely waved linear fascial on basal area; a discal series of four rounded spots; two waved submarginal fascial.

Distribution : India : Arunachal Pradesh, Bihar, Delhi, Madhya Pradesh, Maharashtra, Nicobar, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Myanmar, Pakistan, and Sri Lanka.

19. *Junonia almana almana* (Linnaeus) The Peacock Pansy

1758. *Papilio almana* Linnaeus, *Syst. Nat.*, 10th ed., 472.

1775. *Papilio almana* : Cramer, *Pap. Ex.*, **1**, pl. lviii, figs. F, G.

1886. *Junonia almana* : Niceville, *Butterflies India, Burmah, Ceylon*, 2 : 68.

Material examined : Jabalpur, Shahpura village, 20.ix.1997 (1 ex.), Coll. S.K. Mishra; Bargi Hills, 19.ix.2000 (1 ex.), Coll. M.L. Koshta.

Diagnosis : Apex of the forewing being usually much more truncate, the outer margin angled at the third median nervule and the anal angle of the hind wing produced into a longer blunt tipped tail. On the underside all the markings are less prominent, the discal ocelli very obscure, often obsolete.

Distribution : India : Andamans, Bihar, Delhi, Madhya Pradesh, Orissa, West Bengal. Widely distributed in India.

Elsewhere : Myanmar, Sri Lanka.

20. *Junonia atlites* (Linnaeus) The Grey Pansy

1763. *Papilio atlites* Linnaeus, *Centur. Ins.*, : 24.

1987. *Precis atlites* : Gupta and Shukla, *Rec. zool. Surv. India, Occ. Pap. No.*, 106 : 34.

1994. *Junonia atlites* : Varshney, *Oriental Ins.*, 28 : 176.

Material examined : 1 ex., Bhita village, dist. Jabalpur, 20.02.1965

Diagnosis : 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 : Sri Lanka and Myanmar.

21. *Junonia orithya swinhoei* Butler The Blue Pansy

1869. *Junonia orithya* Butler, *Cat. Fab. Lep. B. M.* : 73.

1886. *Junonia orithya* : Niceville, *Butterflies India, Burmah, Ceylon*, 2 : 73.

Material examined : Jabalpur, Kataw, 9.xi.2001 (1 ex.), Coll. Y.N. Gupta; T.F.R.I., 29.i.2002 (2 exs.), Coll. M.L. Koshta.

Diagnosis : Male : Upperside of fore wing 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 fasciae; on the inner fascia are two small red-ringed ocelli. Hind wing blue, two ocelli near the outer margin, the lower one red and ringed with black, the upper one almost black and blind. Female : Differs in the upper side in having the basal half of the hind wing entirely black, both the ocelli being large and bright red.

Distribution : India : Bihar, Delhi, Himachal Pradesh, Madhya Pradesh, Orissa, South India, Uttar Pradesh.

Elsewhere : Myanmar, Pakistan, Sri Lanka.

22. *Junonia lemonias vaisya* (Fruhstorfer) 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.*, 106 : 34.

1994. *Junonia lemonias* : Varshney, *Oriental Ins.*, 28 : 176

Material examined : Jabalpur, T.F.R.I., 29.i.2002 (2 exs.), Coll. M.L. Koshta; Kataw, 9.xi.2001 (1 ex.), Coll. Y.N. Gupta; Padria village, T.F.R.I., 5.viii.2002 (1 ex.), Coll. M. Limje.

Diagnosis : Upperside of fore wing 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. Hind wing with a large elongated and duplex ocellated spot, the smaller portion of which is situated between the subcostal nervules, the larger portion extending over the discoidal nervule, and a very small and indistinct ocellated spot between the second and first median nervules.

Distribution : India : Bihar, Madhya Pradesh, Orissa, South India.

Elsewhere : Sri Lanka.

23. *Junonia hierta hierta* (Fabricius) The Yellow Pansy

1798. *Papilio hierta* Fabricius, *Syst. Ent., Suppl.*, 424.

1869. *Junonia aenone* : Butler, *Cat. Fab. Lep. B. M.*, 272.

1886. *Junonia hierta* : Niceville, *Butterflies India, Burmah, Ceylon*, 2 : 71.

Material examined : Jabalpur, Kataw, 9.xi.2001 (2 exs.), Coll. Y.N. Gupta; Padria village, T.F.R.I., 5.viii.2002 (2 exs.), Coll. M. Limje.

Diagnosis : Male : Upper side black. Fore wing with a broad medial yellow patch, extending from the base to beyond the disc, and thence narrowed and bent downward, two short paler streaks above the apex. Hind wing black, with a large broad subanal yellow patch. Female : Upperside, fore wing dark yellow-brown, with the yellow patch paler, shortened basally and crossed by two black lines on middle of the cell.

Distribution : India : Bihar, Delhi, Orissa, Madhya Pradesh, Uttar Pradesh.

Elsewhere : Pakistan, Sri Lanka.

24. *Hypolimnas misippus* (Linnaeus) The Danaid Eggfly

1767. *Papilio misippus* Linnaeus, *Syst. Nat.*, 12th ed., 1, pt. 2 : 767.

1870. *Diadema misippus* : Trimen, *Trans. Ent. Soc. London* : 356.

1886. *Hypolimnas misippus* : Niceville, *Butterflies India, Burmah, Ceylon*, 2 : 126.

Material examined : Jabalpur, Kataw, 24.ix.1985 (1 ex.), Coll. P.D. Gupta; Amkhas, 12.vii.1974 (1 ex.), Coll. B.S. Gurum; Jabalpur, Silua village, 24.vii.1980 (1 ex.), Coll. H.S. Sharma.

Diagnosis : Male : Upperside very dark indigo-blue. Fore wing with an oblong subapical white spot; a large elongated white spot on disc beyond apex of cell. Hind wing with a large irregularly rounded discal white spot; these spots on both wings surrounded by dark blue. Female : Upper side reddish-ochraceous. Fore wing with less than apical half black, containing a wavy series of five white spots preceded by about two small subcostal white spots and four small subapical white spots. Hind wing with a large medial black spot.

Distribution : India : Andaman & Nicobar, Arunachal Pradesh, Bihar, Delhi, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Sri Lanka, Pakistan, and Myanmar.

25. *Hypolimnas bolina* (Linnaeus) The Great Eggfly

1758. *Papilio bolina* Linnaeus, *Syst. Nat.*, 10th ed., 479.

1883. *Hypolimnas charybdis* : Butler, *Cist. Ent.*, 2 : 432.

1886. *Hypolimnas bolina* : Niceville, *Butterflies India, Burmah, Ceylon*, 2 : 123.

Material examined : Jabalpur, Boria village, 22.vi.1979 (1 ex.), Coll. L.P. Dubey; Padria village, T.F.R.I., 5.viii.2002 (2 exs.), Coll. M. Limje.

Diagnosis : Male : Upperside very dark indigo-blue. Fore wing 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. **Female :** Upperside dark olivaceous brown. Fore wing with a few small bluish subcostal spots above cell; a submarginal series of white spots placed between the nervules. Hind wing with a submarginal series of greyish spots.

Distribution : India : Andaman & Nicobar, Arunachal Pradesh, Bihar, Delhi, Madhya Pradesh, Meghalaya, Orissa, Uttar Pradesh, West Bengal.

Elsewhere : Sri Lanka, Myanmar, and Pakistan.

26. *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.

Material examined : Pachpedi, dist. Jabalpur, 09.3.1964, coll. H.Khajuria,; 2exs., Adhartal, dist. Jabalpur, 17.10.1975, coll. H.Khajuria.

Diagnosis : 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.

27. *Neptis soma soma* Moore The Sullied Sailer

1858. *Neptis soma* Moore, *Proc. zool. Soc. London* : 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.

Material examined : Jabalpur, Adarsh Colony, 14.ii.1996 (1 ex.), Coll. S. Fadnavis.

Diagnosis : Upper side black, markings white. Forewing with discoidal streak narrower and the seven spots of the curved row smaller. All the markings 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, Jabalpur), Assam, Sikkim, Uttar Pradesh.

28. *Symphaedra nais* (Forster)
The Baronet

1771. *Papilio nais* Forster, *Novae Spec. Ins. Cent.*, 1 : 73.

1850. *Symphaedra thyelia* : Hewitson, *Gen. Diurn. Lep.*, 2 : 295.

1886. *Symphaedra nais* : Niceville, *Butterflies India, Burmah, Ceylon*, 2 : 186.

Material examined : Jabalpur, T.F.R.I., 29.i.2002 (1 ex.), Coll. M.L. Koshta; Kataw, 9.xi.2001 (2 exs.), Coll. Y.N. Gupta.

Diagnosis : Upper side of fore wing with a broad black disco-cellular spot, a contiguous discal spot, an oblique subapical streak, and transverse submarginal and marginal narrow lunular band, the two joined by streaks on the veins. Hind wing with a large black medial costal spot; a submarginal row of small round spots, and broad marginal band.

Distribution : India : Bihar, Goa, Gujarat, Madhya Pradesh, Orissa, Sikkim, South India.

Elsewhere : Sri Lanka.

Family ACRAEIDAE

29. *Acraea terpsicore* (Linnaeus)
The Tawny Coster

1775. *Papilio violae* Fabricius, *Syst. Ent.* 1(3) : 460.

1947. *Acraea violae* : Talbot, *Fauna British India, Butterflies*, 2 : 466-469.

194. *Acraea terpsicore* : Varshney, *Oriental Insects*, 28 : 191.

Material examined : Jabalpur, Kataw, 9.xi.2001 (1 ex.), Coll. Y.N. Gupta.

Diagnosis : 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 : Chhattisgarh (Bastar), Madhya Pradesh (Chhatarpur, Chhindwara, Hoshangabad, Jabalpur, Tikamgarh, Ujjain), Bihar, Gujarat, Lakshadweep, Punjab, Sikkim, Uttar Pradesh, West Bengal.

Family RIODINIDAE

30. *Abisara echerius suffusa* (Moore)
The Pkum Judy

1865. *Sospita echerius* Moore (nec Cramer), *Proc. Zool. Soc. Lond.*, : 771.

1882. *Abisara suffusa* Moore, *Proc. Zool. Soc. Lond.*, : 244.

1886. *Abisara suffusa* : Niceville, *Butterflies of India, Burma, Ceylon*, 2 : 325.

Material examined : Jabalpur, T.F.R.I., 29.i.2002 (1 ex.), Coll. M.L. Koshta.

Diagnosis : Smaller, the male being of a deeper tint, with the fasciae straighter and suffused with grey. Female of a much duller colour and suffused with grey, the medial transverse dark fascia less angular on both wings, and the outer fasciae much less distinct, broader and more suffused.

Distribution : India : Madhya Pradesh (Hoshangabad), Himachal Pradesh, Uttaranchal, Uttar Pradesh, West Bengal, Orissa, Tamil Nadu, Maharashtra.

Elsewhere : Bhutan.

Family DANAIIDAE

31. *Danaus genutia* (Cramer) The Common Tiger

1779. *Papilio genutia* Cramer, *Pap. Ex.*, 3, pl. ccvi, figs. C, D.

1880. *Salatura genutia* : Moore, *Lep. Cey.*, : 6.

1883. *Danaus genutia* : Marshall & Niceville, *Butterflies India, Burmah, Ceylon*, 1 : 52.

Material examined : Jabalpur, Pariat River, Katni Road, 5.xii.1969 (1 ex.), Coll. V.V. Rao; Pariat tank, 26.i.2000 (1 ex.), Coll. R.K. Singh.

Diagnosis : Upper side of the fore wing 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, Andaman & Nicobar, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka, Manipur, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Afghanistan, China, Myanmar, Nepal, Pakistan, Sri Lanka, and Thailand.

32. *Danaus chrysippus chrysippus* (Linnaeus) The Plain Tiger

1758. *Papilio chrysippus* Linnaeus, *Syst. Nat.*, 10th ed., 471.

1883. *Danaus chrysippus* : Marshall & Niceville, *Butterflies India, Burmah, Ceylon*, 1 : 50.

Material examined : Jabalpur, Bargi village, 21.xii.1978 (2 exs.), Coll. Manohar; Shahpura, 23.x.1980 (2 exs.) Coll. H.P. Agrawal; Tilwaraghat, 13.viii.1979 (2 exs.), Coll.

L.P. Dube; Agriculture college, 23.iii.1974 (3 exs.), Coll. R.K. Singh; Amkhas, 22.iii.1975 (1 ex.), Coll. B.S. Gurum; Ganjtal on Katni Road, 29.iv.1975 (6 exs.), Coll. H.P. Agrawal; Barela tank, 4.v.1974 (6 exs.), Coll. R.K. Singh; Madan Mahal, 7.ix.1974 (1 ex.), Coll. B.S. Gurum; Gwarighat, 10.i.1979 (1 ex.), Coll. Manohar; Boria village, 22.viii.1979, Coll. L.P. Dube; Sakra village, 5.xii.1980 (1 ex.), Coll. S.K. Mishra; Supatal, 15.iv.1968 (3 exs.), Coll. H.P. Agrawal; Katangi, 1.x.1980 (2 exs.), Coll. Manohar; Silua village, 24.vii.1980 (1 ex.), Coll. H.S. Sharma; Sukri and surroundings, 14.x.1980 (1 ex.), Coll. H.P. Agrawal; T.F.R.I., 29.i.2002 (2 exs.), Coll. M.L. Koshta; Padria village, 5.viii.2002 (2 exs.), Coll. M. Limje.

Diagnosis : Upper side of fore wing tawny, darkening towards the costal 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. Antennae black, head and thorax black, spotted with white.

Distribution : India : Madhya Pradesh, Assam, Andaman & Nicobar, Bihar, Delhi, Gujarat, Himachal Pradesh, Maharashtra, Manipur, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh.

Elsewhere : China, Indonesia, Myanmar, Nepal, Pakistan, and Sri Lanka.

33. *Tirumala limniace leopardus* (Butler) The Blue Tiger

1866. *Danais leopardus* Butler, *Proc. Zool. Soc. Lond.*, : 52.

1880. *Tirumala limniace* : Moore, *Lep. Cey.*, : 4.

1883. *Danais limniace* : Marshall & Niceville, *Butterflies India, Burmah, Ceylon*, 1 : 47.

Material examined : Jabalpur, Padria village, T.F.R.I., 5.viii.2002 (1 ex.), Coll. M. Limje

Diagnosis : 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. 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, an irregular series of post-discal and submarginal spots.

Distribution : India : Madhya Pradesh, Andaman & Nicoabar, Assam, Bihar, Delhi, Himachal Pradesh, Karnataka, Lakshadweep, Manipur, Nagaland, Orissa, Punjab, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : China, Myanmar, Pakistan, Sri Lanka, Taiwan, and Thailand.

**34. *Euploea core core* (Cramer)
The Common Crow**

1780. *Papilio core* Cramer, *Pap. Ex.*, 3, pl. cclxvi, figs. E, F.

1883. *Euploea core* : Marshall & Niceville, *Butterflies India, Burmah, Ceylon*, 1 : 80.

Material examined : Jabalpur, Amkhas, Nagpur Road, 23.ix.1978 (1 ex.), Coll. L.P. Dube; Madan Mahal, 7.ix.1974 (1 ex.), Coll. B.S. Gurum; Lamhetaghat, 18.xii.1973 (1 ex.), Coll. N.K. Sinha; Gour river, Mandla Road, 30.x.1974 (1 ex.), Coll. N.K. Sinha; Shahpura village, 20.ix.1979 (1 ex.), Coll. S.K. Mishra; Garam Pani ka Jharna, Mandla Road, 4.x.1980 (1 ex.), Coll. S.K. Mishra; Padria village, T.F.R.I., 5.viii.2002 (2 exs.), Coll. M. Limje.

Diagnosis : Upper side glossy-brown with marginal and terminal white spots. Fore wing with the series of submarginal spots curved inwards opposite the apex. Hind wing with inner series of spots elongate, the outer conical.

Distribution : Bihar, Delhi, Karnataka, Lakshadweep, Orissa, Sikkim, Tamil Nadu, Madhya Pradesh, Uttar Pradesh, West Bengal.

Elsewhere : Myanmar, Nepal, and Pakistan.

Family LYCAENIDAE

**35. *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 : Jabalpur, T.F.R.I., 29.i.2002 (2 exs.), Coll. M.L. Koshta.

Distribution : India : Madhya Pradesh (Indore, Jabalpur), Maharashtra, North West Himalayas and Uttar Pradesh.

**36. *Virachola isocrates* (Fabricius)
The Common Guava Blue**

1793. *Hesperia isocrates* Fab., *Ent. Syst.*, 3 : 266.

1890. *Virachola isocrates* : Niceville, *Butterflies of India, Burma, Ceylon*, 3 : 477

Material examined : Jabalpur, T.F.R.I., 29.vi.2002, Coll. M.L. Koshta.

Diagnosis : Male : Both wings deep violet-blue. Forewing with a very indistinct ochreous spot. Hindwing with a slender black marginal line and small anal spots, the latter

grey-speckled. Cilia greyish-white. Underside, both wings pale vinous-grey. *Female* : Upperside, both wings violet-brown. Forewing with a more distinct ochreous spot beyond the cell than in the male. Hindwing with a prominent subanal black spot, which is inwardly bordered with ochreous.

Distribution : Throughout the plains of India except the desert tracts.

Elsewhere : Sri Lanka.

37. *Rapala iarbus* Fabricius The Indian Red Flash

1781. *Papilio melampus* Cramer, *Pap. Ex.*, 4 : 142.

1883. *Deudorix melampus* : Butler, *Proc. zool. Soc. Lond.*, : 147.

1890. *Rapala melampus* : Niceville, *Butterflies India, Burmah, Ceylon*, 3 : 467.

1997. *Rapala airbus* : Varshney, *Oriental Insects*, 31 : 130.

Material examined : Jabalpur, Padria village, T.F.R.I., 5.viii.2002 (1 ex.), Coll. M. Limje.

Diagnosis : Male : Upperside of both wings scarlet. Fore wing with the outer margin decreasingly black. Hind wing 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 scattered metallic greenish ones. *Female* : Upper side of both wings much duller, more brick red than in the male, especially on the hind wing, where the costa and outer margins are distinctly suffused with dusky.

Distribution : India : Madhya Pradesh (Seoni, Jhabua), Orissa, Tamil Nadu, Uttar Pradesh.

Elsewhere : Sri Lanka, Pakistan, Indonesia.

Family HESPERIIDAE

38. *Telicota ancilla* Herrich-Schaffer The Dark Palm Dart

1869. *Telicota ancilla* Herrich-Schaffer, *Stett. Ent. Ztg.*, : 79.

1997. *Telicota ancilla* : Ghosh & Chow., *Fauna of W. Bengal*, 7 : 307.

Material examined : Jabalpur, Silva Culture Nursery, T.F.R.I., 26.ix.2000, Coll. K. Chandra.

Diagnosis : Upperside dark orange in male and light orange in female. Fore wing with an oblique brown band and irregular outer margin. Hind wing with brown base and outer

border and orange discal band. Underside markings duller. Hind wing pale olive-green at the base and outer area.

Distribution : Common throughout India, except in the arid northwest.

Elsewhere : Sri Lanka, Bangladesh, Myanmar, Malaysia, Thailand, Indonesia, and China.

39. *Pelopidas mathias* (Fabricius) The Small Branded Swift

1949. *Pelopidas mathias mathias* Fabricius, *Cat. Hesp. Brit. Mus. (nat. Hist.)* : 441.

1997. *Pelopidas mathias mathias* : Ghosh & Chow., *Fauna of W. Bengal*, 7 : 313.

Material examined : Jabalpur, Silva Culture Nursery, T.F.R.I., 26.ix.2000, Coll. K. Chandra.

Diagnosis : Upperside olive-brown. Male : Fore wing with nearly 9 small yellowish semi-transparent spots; those in the apex and disc prominent. Hind wing often with one very indistinct pale discal spot. Female : Fore wing with 5 discal spots and 4 or 5 in hind wing. Underside pale greyish-brown with distinct markings. Hind wing with a spot in the cell.

Distribution : India, Sri Lanka, Pakistan, Syria, Arabia, Africa, Bangladesh, Myanmar, Malaysia, Thailand, Indonesia, Philippines, China, Taiwan, Japan, Comoro Islands, New Guinea and the Celebes.

SUMMARY

The present study includes 39 species of butterflies belonging to 27 genera under 9 families from Jabalpur district, Madhya Pradesh. The species richness analysis reveals that the family Nymphalidae with 12 species outnumbers other families, followed by the family Pieridae by 10 species.

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INSECTA LEPIDOPTERA HETEROCERA

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INTRODUCTION

Moths belong to suborder Heterocera of order Lepidoptera. Chandra and Nema (2007) reported 313 species/subspecies of moths belonging to 221 genera and 25 families from the Madhya Pradesh. However, the moth fauna of Jabalpur is represented by 42 species belonging to 38 genera under 6 families. Family Limacodidae is represented with 2 species, Pyralidae with 20 species, Geometridae with 3 species, Sphingidae with 4 species, Noctuidae with 11 species, and Arctiidae with 2 species.

LIST OF MOTHS RECORDED FROM JABALPUR

Family LIMACODIDAE

1. *Contheyla melanosticta* Hampson
2. *Thosea tripartita* Moore

Family PYRALIDAE

3. *Charltona ortella* Swinhoe
4. *Crocidolomia binotalis* Zeller
5. *Diaphania indica* (Saunders)
6. *Dichocrocis leptalis* Hampson
7. *Dichocrocis punctiferalis* (Guen ee)
8. *Dioryctria abeitella* Schiff
9. *Dioryctria amatella* Hulst
10. *Dioryctria auranticella* Grote
11. *Diptychophora griseolalis* Hampson
12. *Euzophera cedrella* Hampson

13. *Hymenia recurvalis* (Fabricius)
14. *Hypsipyla robusta* Moore
15. *Leptoglossus occidentalis* Heid.
16. *Microthrix omichleuta* Meyr.
17. *Nephopteryx rhodobasalis* Hampson
18. *Noorda moringae* Tams.
19. *Pagyda salvalis* Walker
20. *Pyrausta bambucivora* Moore
21. *Salebria paurosema* Meyr.
22. *Trachylepidia fructicassiella* Rag.

Family GEOMETRIDAE

23. *Euchloris uvidula* Swinhoe
24. *Hyperythra swinhoei* Butler
25. *Pseudoterpna dispensata* Walker

Family SPHINGIDAE

26. *Acherontia styx* Westwood
27. *Herse convolvuli convolvuli* (Linnaeus)
28. *Theretra alecto alecto* (Linn.)
29. *Theretra silhetensis* Boisduval

Family NOCTUIDAE

30. *Achaea janata* Linnaeus
31. *Chariclea lanceolata* Walker
32. *Chrysodeixis eriosoma* (Doubleday)
33. *Echana plicalis* Moore
34. *Grammodes geometrica* (Fabricius)
35. *Heliothis armigera* Hubner
36. *Hyblaea puera* Cramer
37. *Pericyma umbrina* (Guen'ee)
38. *Plusia orichalcea* Fabricius
39. *Pseudaletia separata* (Walker)

40. *Thermesia rubricans* Boisduval

Family ARCTIIDAE

41. *Amsacta lineola* (Fabricius)

42. *Estigmene perrotteti* (Guen'ee)

SYSTEMATIC ACCOUNT

Family LIMACODIDAE

1. **Contheyla melanosticta* Hampson

1892. *Contheyla melanosticta* Hampson, *Fauna British India, Moths*, 1 : 385.

Recorded from literature (Hampson, 1892).

Wing expanse : 27 mm. Female : With the tegulae ochreous. Fore wing with the black markings much reduced, especially the streak from the base, of which there is only scattered traces.

Distribution : India : Madhya Pradesh (Jabalpur), North West Himalayas.

2. **Thosea tripartita* Moore

1892. *Thosea tripartita* : Hampson, *Fauna British India, Moths*, 1 : 378.

Recorded from literature (Hampson, 1892).

Distribution : India : Madhya Pradesh (Jabalpur, Indore), Himachal Pradesh, Orissa, Sikkim.

Family PYRALIDAE

3. **Charltona ortella* Swinhoe

1886. *Charltona ortella* Swinhoe, *P. Z. S.*, 461.

1896. *Charltona ortella* : Hampson, *Fauna British India, Moths*, 4 : 37.

Recorded from literature (Hampson, 1896).

Distribution : India : Madhya Pradesh (Jabalpur, Indore), Himachal Pradesh, Sikkim.

4. **Crocidolomia binotalis* Zeller

1852. *Crocidolomia binotalis* Zeller, *K. - AK, Handl.*, 66.

1896. *Crocidolomia binotalis* : Hampson, *Fauna British India, Moths*, 4 : 372.

Recorded from literature (Hampson, 1896).

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).

Elsewhere : S. Africa, Sri Lanka, Myanmar, Java, Australia and Norfolk Island.

5. *Diaphania indica* (Saunders)

1851. *Eudiptes indica* Saunders, *Trans. ent. Soc. Lond.*, 1(2) : 163, figs. 5-7.

1997. *Diaphania indica* : Bhatt., *Fauna of W. Bengal*, 7 : 385.

Material examined : Jabalpur, Katanga Colony, 13.viii.1999 (1 ex.), Coll. K. Chandra.
Wing expanse : Male 24-28 mm.

Diagnosis : Colour hyaline white and black; abdomen white, anal tuft with segments 7 and 8 brown and black. Fore wing with the costal and marginal areas broadly black, rest hyaline white. Hind wing hyaline white with the marginal black band broad at costa.

Distribution : India : Madhya Pradesh (Indore, Jabalpur, Seoni), West Bengal, Bihar, Great Nicobar, Haryana, Himachal Pradesh, Maharashtra, Tamil Nadu, Punjab, Sikkim.

Elsewhere : Australia, Myanmar, Celebes, China, Java, Pakistan, Ethiopian and Oriental regions.

6. **Dichocrocis leptalis* Hampson

1998. *Dichocrocis leptalis* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, 10(4) : 454.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

7. **Dichocrocis punctiferalis* (Guen'ee)

1896. *Dichocrocis punctiferalis* : Hampson, *Fauna British India, Moths*, 4 : 307.

1998. *Dichocrocis punctiferalis* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, 10(4) : 454.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).
Elsewhere : Japan, China, Sri Lanka, Myanmar, Malayan subregion and Australian region.

8. **Dioryctria abeitella* Schiff

1896. *Phycita abeitella* : Hampson, *Fauna British India, Moths*, 4 : 91.

1998. *Dichocrocis abeitella* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, **10**(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India : Madhya Pradesh (Jabalpur), Himachal Pradesh.

Elsewhere : Japan, U.S.A., Europe.

9. **Dioryctria amatella* Hulst

1998. *Dioryctria amatella* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, **10**(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

10. **Dioryctria auranticella* Grote

1998. *Dioryctria auranticella* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, **10**(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

11. **Diptychophora griseolalis* Hampson

1895. *Diptychophora griseolalis* Hampson, *P. Z. S.*, 943.

1896. *Diptychophora griseolalis* : Hampson, *Fauna British India, Moths*, **4** : 19.

Recorded from literature (Hampson, 1896).

Distribution : India including Madhya Pradesh (Jabalpur).

12. **Euzophera cedrella* Hampson

1998. *Euzophera cedrella* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, **10**(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

13. *Hymenia recurvalis* (Fabricius)

1782. *Phalaena recurvalis* Fabricius, *Ent. Syst.* **3**, pt. 2 : 237.

1896. *Zinckenia fascialis* : Hampson, *Fauna British India, Moths*, **4** : 262.

1939. *Hymenia recurvalis* : Klima, *Lep. Cat.*, **89** : 31.

Material examined : Jabalpur, Nagpur road, Hulki, 16.viii.2002 (4 exs.), Coll. K. Chandra. Wing expanse : 24 mm.

Diagnosis : Fore wing with no antemedial line; a medial black-edged white band developed, not reaching the costa, its outer edge irregular and toothed on vein 2. Hind wing with the band wider, more regular, less oblique and only slightly narrowing to inner margin.

Distribution : India : Madhya Pradesh (Hoshangabad, Seoni, Jabalpur).

Elsewhere : Syria, Japan, and Australia.

14. **Hypsipyla robusta* Moore

1896. *Hypsipyla robusta* : Hampson, *Fauna British India, Moths*, 4 : 89

1998. *Hypsipyla robusta* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, 10(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India : Madhya Pradesh (Jabalpur), Sikkim, Himachal Pradesh.

Elsewhere : Sri Lanka.

15. **Leptoglossus occidentalis* Heid.

1998. *Leptoglossus occidentalis* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, 10(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

16. **Microthrix omichleuta* Meyr.

1998. *Microthrix omichleuta* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, 10(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

17. **Nephopteryx rhodobasalis* Hampson

1998. *Nephopteryx rhodobasalis* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, 10(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

18. **Noorda moringae* Tams.

1998. *Nooda Moringae* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, **10**(4) : 450.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

19. **Pagyda salvalis* Walker

1896. *Pagyda salvalis* : Hampson, *Fauna British India, Moths*, **4** : 270-271.

1998. *Pagyda salvalis* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, **10**(4) : 455

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India : Madhya Pradesh (Jabalpur), Sikkim, W. and S. India.

Elsewhere : Sri Lanka, Myanmar, Borneo, Pulo Lant.

20. **Pyrausta bambucivora* Moore

1896. *Pyrausta bambucivora* : Hampson, *Fauna British India, Moths*, **4** : 224.

Recorded from literature (Hampson, 1896).

Wing expanse : 32 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Meghalaya (Khasis).

Elsewhere : Sri Lanka.

21. **Salebria paurosema* Meyr.

1885. *Nepopteryx paurosema* : Meyr., *Ent. Mo. Mag.*, **22** : 106.

1998. *Slaebria paurosema* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, **10**(4) : 452.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India : Madhya Pradesh (Jabalpur), Assam.

Elsewhere : Sri Lanka, West Africa, Cape Verde Islands.

22. **Trachylepidia fructicassiella* Rag.

1887. *Trachylepidia fructicassiella* Rag., *Ann. Soc. Ent. Fr.*, : 260.

1998. *Trachylepidia fructicassiella* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, **10**(4) : 452.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India : Madhya Pradesh (Jabalpur), Punjab.

Elsewhere : Beirout, Egypt.

Family GEOMETRIDAE

23. **Euchloris uvidula* Swinhoe

1885. *Euchloris uvidula* Swinhoe, *P. Z. S.* : 860.

1895. *Euchloris uvidula* : Hampson, *Fauna British India, Moths*, 3 : 498.

Recorded from literature (Hampson, 1895).

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra (Mumbai, Pune).
Elsewhere : Sri Lanka.

24. **Hyperythra swinhoei* Butler

1881. *Hyperythra phantasma* Butler, *P. Z. S.*, 615.

1895. *Hyperythra swinhoei* : Hampson, *Fauna British India, Moths*, 3 : 219.

Recorded from literature (Hampson, 1895).

Distribution : India : Madhya Pradesh (Jabalpur, Indore), Punjab.

Elsewhere : Pakistan.

25. **Pseudoterpna dispensata* Walker

1895. *Pseudoterpna dispensata* : Hampson, *Fauna British India, Moths*, 3 : 473.

Recorded from literature (Hampson, 1895).

Diagnosis : Somewhat whiter, the underside pure white, with the band black and often reduced to patches.

Distribution : India : Madhya Pradesh (Jabalpur, Indore).

Elsewhere : Java, Philippines.

Family Sphingidae

26. *Acherontia styx* Westwood

1848. *Sphynx (Acherontia) styx* Westwood, *Cab. Or. Ent.*, 88.

1937. *Acherontia styx styx* : Bell & Scott, *Fauna British India, Moths*, 5 : 58

Material examined : Jabalpur, Garha, 20.viii.1969 (1 ex.), Coll. M.L. Koshta; Jabalpur, Kamla Nehru Nagar, 4.ix.2000 (1 ex.), Coll. N.A. Wing expanse : 90-130 mm.

Diagnosis : Basal third of hind wing upperside being immaculate, the skull mark less conspicuous and the yellow side-patches more extensive. Fore wing upperside with tawny-russet streaks and a patch of the same colour beyond the greyish-white discal lines. Antenna slender and longer. Anterior tibia longer, first segment more slender; the lateral apical spines prolonged; the number of spines individually variable; middle tibia as long as the first tarsal segment; hind tibia equal in length to tarsal segments 1 to 3.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).

Elsewhere : Myanmar, Sri Lanka.

27. *Herse convolvuli convolvuli* (Linnaeus)

1758. *Sphinx convolvuli* Linnaeus, *Syst. Nat. Ed.*, 10 : 490.

1937. *Herse convolvuli convolvuli* : Bell & Scott, *Fauna British India, Moths*, 5 : 61.

Material examined : Jabalpur, Kamla Nehru Nagar, 3.ix.1998 (1 ex.), Coll. K. Chandra. Wing expanse : 90-120 mm.

Diagnosis : Upperside grey; abdomen with a narrow brown dorsal stripe, a broad grey stripe on each side of it, and with narrow white and broader pink and black side-patches. Fore wing with many narrow whitish lunulate bands, nearly obsolescent in some specimens; black streaks outwards from cell under R¹ and M¹; a white discoidal dot, with a black streak from it to apex of wing. Hind wing pale grey, with broad subbasal, two median and postmedian fuscous transverse bands. Underside similar, with a black discoidal spot.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, throughout the rest of mainland. *Elsewhere* : Eastern hemisphere except the higher latitudes, rare in Siberia and Europe.

28. *Theretra alecto alecto* (Linn.)

1758. *Sphinx alecto* Linnaeus, *Syst. Nat. ed.* 10 : 492.

1937. *Theretra alecto alecto* : Bell & Scott, *Fauna British India, Moths*, 5 : 440.

Material examined : Jabalpur, Pachpedi, 23.vii.1963 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Hulki, Nagpur road, 16.viii.2002 (1 ex.), Coll. K. Chandra. Wing expanse : Male 84-92 mm, female 75-106 mm.

Diagnosis : Head and thorax dark brown, abdomen pale brown; antenna and sides of head and thorax whitish; abdomen with a black side-patch on first segment and three dark dorsal lines, sometimes absent. Fore wing pale brown, with a dark speck at end of cell; six or seven dark lines from apex to inner margin, line 5 heavy, sometimes 1 also, 2 and 4 weak, 6 and 7 vestigial or absent. Hind wing pink, black at base, anal angle flesh-colour. Underside flesh-colour.

Distribution : India : Madhya Pradesh (Jabalpur, Hoshangabad), Western and Eastern Himalayas, South India.

Elsewhere : Myanmar, Northward to Formosa, Eastward to the Key Islands.

29. *Theretra silhetensis* Boisduval

1937. *Theretra pinastrina pinastrina* : Bell & Scott, *Fauna British India, Moths*, 5 : 451.

1987. *Theretra silhetensis* : Holloway, *The Moths of Borneo* : 179.

Material examined : Jabalpur, New Adarsh Colony, 2.xi.2001 (1 ex.), Coll. M.L. Dhimar. Wing expanse : Male 60-70 mm., female 72 mm.

Diagnosis : Paler; abdomen with a single dorsal line. Fore wing with a brown oblique discal band; interspace between lines 3 and 4 more or less silvery, line 4 distinct; interspace between 4 and 5 broad, not silvery; line 5 heavier than 6. The amount of black on hind wing variable; there is sometimes a narrow discal band consisting of two indistinct lines, besides the marginal band.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, Eastern Himalayas, and South India. *Elsewhere* : Sri Lanka, Myanmar to Japan and Malaya.

Family NOCTUIDAE

30. *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.ix.1964 (1 ex.), Coll. H. Khajuria; Jabalpur, Hulki, Nagpur road, 16.viii.2002 (1 ex.), Coll. K. Chandra. Wing expanse : 42-46 mm.

Diagnosis : The white medial fascia in the hind wing is always continuous, not divided into two parts. Head, thorax and legs pale buff-grey, paler beneath. Abdomen pale greyish buff. Fore wing buff-grey patterned with red-brown and black, the pattern and density of colouration somewhat variable. Hind wing charcoal grey, paler basally, marked with white.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Seoni, Sidhi).

Elsewhere : Europe, Africa, Mauritius, Japan, China, Myanmar, and Sri Lanka.

31. *Chariclea lanceolata* Walker

1891. *Curubasa depicta* : Swinhoe, *Trans. Ent. Soc.*, 146.

1894. *Chariclea lanceolata* : Hampson, *Fauna British India, Moths*, 2 : 177.

Material examined : Jabalpur, Pachpedi, 9.ix.1964 (1 ex.), Coll. H. Khajuria. Wing expanse : Male 30 mm., female 30-40 mm.

Diagnosis : Pure white; fore wing with the pink fasciae broader and brighter; a yellowish patch at base; hind wing uniform white.

Distribution : India : Madhya Pradesh (Indore, Jabalpur), Himachal Pradesh, Tamil Nadu.

32. *Chrysodeixis eriosoma* (Doubleday)

1894. *Plusia eriosoma* : Hampson, *Fauna British India, Moths*, 2 : 569-570.

Material examined : Jabalpur, Hulki road, Nagpur road, 16.viii.2002 (1 ex.), Coll. K. Chandra.

Wing expanse : 42 mm.

Diagnosis : Head, thorax and forewing having a reddish tinge; abdomen with the lateral and anal tufts often black in the male. Fore wing with much more gilding on the basal, medial, and outer areas; the antemedial line more oblique, the postmedial more oblique and sinuous; the Y-mark large, prominent, and golden, the arms often filled in with golden and occasionally joined to the tail.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur).

Elsewhere : North and South America, Japan, China, Australasian region.

33. **Echana plicalis* Moore

1998. *Echana plicalis* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, 10(4) : 438-455.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India including Madhya Pradesh (Jabalpur).

34. **Grammodes geometrica* (Fabricius)

1775. *Noctua geometrica* Fabricius, *Syst. Ent.*, 599.

1991. *Grammodes geometrica* : Mandal and Maulik, *Fauna of Orissa*, 3 : 219.

Recorded from literature (Mandal and Maulik, 1991).

Distribution : India : Madhya Pradesh (Jabalpur), Orissa, West Bengal, Sikkim, Assam, Uttar Pradesh, Maharashtra, Andman & Nicobar Islands, Punjab, Karnataka, Tamil Nadu.

Elsewhere : Bangladesh, Southern Myanmar, Sri Lanka, Singapore, Java, Pulo Lant and Taiwan.

35. **Heliothis armigera* Hubner

1896. *Heliothis armigera* : Hampson, *Fauna British India, Moths*, 2 : 174-175.

1998. *Heliothis armigera* : Kulkarni & Joshi, *J. Trop. Forest Sci.*, 10(4) : 455.

Recorded from literature (Kulkarni & Joshi, 1998).

Distribution : India : Universally distributed including Madhya Pradesh (Jabalpur).

36. *Hyblaea puera* Cramer

1779-83. *Hyblaea puera* Cramer, *Pap. Exot.*, 103.

1894. *Hyblaea puera* : Hampson, *Fauna British India, Moths*, 2 : 371.

Material examined : Jabalpur, Hulki, Nagpur road, 16.viii.2002 (16 exs.), Coll. K. Chandra.

Wing expanse : 32-40 mm.

Diagnosis : Head and thorax greyish red-brown; abdomen black-brown with orange segmental bands. Fore wing greyish red-brown, irrorated with a few dark specks. Hind wing black-brown, with curved orange band with scarlet edges from upper angle of cell to near anal angle; a band on the margin from vein 2 to anal angle. Underside of fore wing black, with orange fascia in cell and far beyond it; the costa and apex pale brownish with dark specks; the inner margin yellow. Hind wing pale brownish with dark specks; orange towards anal angle with two large black spots.

Distribution : India : Throughout India including Madhya Pradesh (Seoni, Jabalpur).

Elsewhere : Myanmar, Borneo, China, Malacca, Australia, Sri Lanka.

37. **Pericyma umbrina* (Guen'ee)

1852. *Alamis umbrina* Guen'ee, *Hist. Nat. Ins. Noct.*, 3 : 4.

1991. *Pericyma umbrina* : Mandal & Ghosh, *Rec. zool. Surv. India*, **88**(3-4) : 319.

Recorded from literature (Mandal & Ghosh, 1991).

Distribution : India : Madhya Pradesh (Jabalpur, Indore), Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh, Sikkim, Assam, Manipur, Tripura, Punjab and Maharashtra. *Elsewhere* : Bangladesh.

38. **Plusia orichalcea* Fabricius

1894. *Plusia orichalcea* : Hampson, *Fauna British India, Moths*, **2** : 573-574.

1980. *Plusia orichalcea* : Singh & Rawat, *Ind. Anz. Fuer. Sch. Pfla. Umwelt.*, **53**(2) : 25.

Recorded from literature (Singh & Rawat, 1980).

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur). *Elsewhere* : South Africa, Japan, China, Sri Lanka.

39. **Pseudaletia separata* (Walker)

1865. *Leucania separata* Walker, *Cat. Lep. Het. Brit. Mus.* **32** : 626.

1991. *Pseudaletia separata*, Mandal & Ghosh, *Rec. zool. Surv. India*. **88** (3-4) : 315-316.

Recorded from literature (Mandal & Ghosh, 1991).

Distribution : India : Madhya Pradesh (Jabalpur, Mhow), Jammu & Kashmir, Himachal Pradesh, West Bengal, Sikkim, Assam, Meghalaya, Manipur, Tripura, Punjab, Maharashtra, Tamil Nadu.

Elsewhere : Java, Australia, Papua, Neotropical and Nearctic regions, Korea, Japan, China, Pakistan, U.S.S.R., Europe.

40. *Thermesia rubricans* Boisduval

1833. *Thermesia rubricans* Boisduval, *Fauna Ent. Madag. Lep.*, 106.

1894. *Thermesia rubricans* : Hampson, *Fauna British India, Moths*, **2** : 534.

Material examined : Jabalpur, Pachpedi, 9.ix.1964 (1 ex.), Coll. H. Khajuria. Wing expanse : 40-46 mm.

Diagnosis : Rufous or grey-brown; palpi chestnut. Fore wing with indistinct subbasal curved line; a white speck in cell; the reniform very large, with two dark specks on it; a postmedial rufous line, very highly angled below the costa and joined by a dark apical

streak; a submarginal series of dark specks; a rufous marginal line. Hind wing with rufous medial line, postmedial series of specks, and marginal rufous line. Underside much suffused with red; a white spot at end of cell, curved postmedial line and submarginal series of black and white lunules.

Distribution : India : Throughout India including Madhya Pradesh (Jabalpur, Seoni).

Elsewhere : Java, Pacific Islands and Africa.

Family ARCTIIDAE

41. * *Amsacta lineola* (Fabricius)

1796. *Bombyx lineola* Fabricius, *Ent. Syst.*, 3(1) : 465.

1997. *Amsacta lineola* : Ghosh & Chaudhury, *Fauna of West Bengal*, 7 : 251-252

Recorded from literature (Ghosh & Chaudhury, 1997).

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, North West Himalayas, Jammu & Kashmir, Punjab, Maharashtra, Gujarat, Kerala.

Elsewhere : Nepal, Sri Lanka.

42. **Estigmene perrotteti* (Guen'ee)

1844. *Chelonia perrotteti* Guen'ee, *Icon. R. Anim. Ins.*, 515.

1997. *Estigmene perrotteti* : Ghosh & Chaudhury, *Fauna of West Bengal*, 7 : 252.

Recorded from literature (Ghosh & Chondhury, 1997).

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra, Tamil Nadu, Karnataka and Western Slopes.

Remarks : The diagnosis is not provided for the species marked with asterisk (*), as they form the past records.

SUMMARY

The moth fauna of Jabalpur, Madhya Pradesh is represented by 42 species belonging to 38 genera under 6 families. Family Limacodidae is represented with 2 species, Pyralidae with 20 species, Geometridae with 3 species, Sphingidae with 4 species, Noctuidae with 11 species, and Arctiidae with 2 species.

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FRESHWATER FISHES

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INTRODUCTION

The freshwater fish fauna of Jabalpur is represented by 93 species found in Narmada river and its tributaries, many ponds and reservoirs. The data provided herein is based on material collected and previous records. There are local as well as commercial varieties of fishes occurring in Jabalpur district. Some of the major commercial fishes include species of *Labeo*, *Catla*, *Cirrhinus*, etc.

LIST OF FRESHWATER FISHES OF JABALPUR

Cohart ARCHAEOPHYLACES

Superorder OSTEOGLOSSOMORPHA

Order OSTEOGLOSSIFORMES

Family NOTOPTERIDAE

1. *Notopterus chitala* (Hamilton)
2. *Notopterus notopterus* (Pallas) **Feather Back**

Cohart EUTELEOSTEI

Superorder OSTARIOPHYSI

Order CYPRINIFORMES

Family CYPRINIDAE

Subfamily CULTRINAE

3. *Chela (Chela) cachi* (Hamilton) **Chela**
4. *Chela (Chela) laubuca* (Hamilton) **Winged Rasbora**
5. *Salmostoma bacaila* (Hamilton)
6. *Salmostoma clupeoides* (Bloch)

7. *Salmostoma phulo phulo* (Hamilton)

Subfamily RASBORINAE

8. *Esomus danricus* (Hamilton)

Flying Barb

9. *Danio aequipinnatus* (McClelland)

10. *Danio devario* (Hamilton)

Danio

11. *Danio rerio* (Hamilton)

12. *Rasbora daniconius daniconius* (Hamilton)

Common Rasbora

13. *Rasbora rasbora* (Hamilton)

14. *Aspidopariya morar* (Hamilton)

Aspidopariya

15. *Amblypharyngodon melettina* (Valenciennes)

16. *Amblypharyngodon mola* (Hamilton)

Indian Carplet

17. *Barilius barila* (Hamilton)

18. *Barilius bendelisis bendelisis* (Hamilton)

Hill Trout

19. *Barilius evezardi* Day

20. *Barilius shacra* (Hamilton)

21. *Barilius vagra vagra* (Hamilton)

Subfamily CYPRININAE

22. *Puntius amphibius* (Valenciennes)

Scarlet-banded Barb

23. *Puntius chola* (Hamilton)

Green Barb

24. *Puntius conchonus* (Hamilton)

Stigma Barb

25. *Puntius curmuca* (Hamilton)

26. *Puntius dorsalis* (Jerdon)

27. *Puntius gelius* (Hamilton)

28. *Puntius melanostigma* (Day)

29. *Puntius punjabensis* (Day)

30. *Puntius sarana sarana* (Hamilton)

Olive Carp

31. *Puntius sophore* (Hamilton)

Stigma Barb

32. *Puntius ticto* (Hamilton)

Fire Fin Barb

33. *Puntius waageni* (Day)

34. *Osteobrama cotio cotio* (Hamilton)

35. *Osteobrama vigorsii* (Sykes)
36. *Labeo bata* (Hamilton) **Bata**
37. *Labeo boga* (Hamilton) **Burmese Fish**
38. *Labeo boggut* (Sykes)
39. *Labeo calbasu* (Hamilton)
40. *Labeo dero* (Hamilton)
41. *Labeo gonius* (Hamilton)
42. *Labeo rohita* (Hamilton)
43. *Tor putitora* (Hamilton)
44. *Tor tor* (Hamilton)
45. *Cirrhinus cirrhosa* (Bloch)
46. *Cirrhinus mrigala* (Hamilton) **Mrigal**
47. *Cirrhinus reba* (Hamilton) **Reba**
48. *Catla catla* (Hamilton) **Catla**

Subfamily GARRINAE

49. *Crossocheilus latius latius* (Hamilton)
50. *Garra gotyla gotyla* (Gray) **Stone Sucker**
51. *Garra lamta* (Hamilton) **Stone Sucker**
52. *Garra mullya* (Sykes) **Stone Sucker**

Family HOMALOPTERIDAE

Subfamily NOEMACHEILINAE

53. *Noemacheilus botia* (Hamilton) **Striped Loach**
54. *Noemacheilus denisoni denisoni* Day
55. *Noemacheilus multifasciatus* Day
56. *Noemacheilus savona* (Hamilton)
57. *Noemacheilus striatus* Day

Family COBITIDAE

Subfamily COBITINAE

58. *Lepidocephalus (Lepidocephalichthys) guntea* (Hamilton) **Loach**
59. *Lepidocephalus (Lepidocephalichthys) thermalis* (Valenciennes) **Lesser Loach**

Order SILURIFORMES

Family BAGRIDAE

60. *Rita gogra* (Sykes) **Rita**
 61. *Rita rita* (Hamilton)
 62. *Mystus bleekeri* (Day)
 63. *Mystus cavasius* (Hamilton) **Dwarf Catfish**
 64. *Mystus vittatus* (Bloch) **Striped Dwarf Catfish**
 65. *Aorichthys aor* (Hamilton) **Long Whiskered Catfish**
 66. *Aorichthys seenghala* (Sykes) **Giant River Catfish**

Family SILURIDAE

67. *Ompok bimaculatus* (Bloch) **Butter Catfish**
 68. *Ompok pabda* (Hamilton) **Butter Catfish**
 69. *Wallago attu* (Schneider) **Freshwater Shark**

Family SCHILBEIDAE

Subfamily SCHILBEINAE

70. *Clupisoma garua* (Hamilton)
 71. *Eutropiichthys vacha* (Hamilton)

Family SISORIDAE

72. *Bagarius bagarius* (Hamilton) **Bagarius**
 73. *Nangra itchkeea* (Sykes)
 74. *Conta elongata* (Day)
 75. *Glyptothorax telchitta telchitta* (Hamilton)

Family CLARIIDAE

76. *Clarias batrachus* (Linnaeus) **Air Breathing Catfish**

Family HETEROPNEUSTIDAE

77. *Heteropneustes fossilis* (Bloch) **Stinging Catfish**

Superorder ATHERINOMORPHA

Order ATHERINIFORMES

Family BELONIDAE

78. *Xenentodon cancila* (Hamilton) **Freshwater Garfish**

Family CYPRINODONTIDAE

79. *Oryzias melanostigma* (McClelland) Esturine Top Minnow

Superorder ACANTHOPTERYGII

Order CHANNIFORMES

Family CHANNIDAE

80. *Channa marulius* (Hamilton) **Giant Snake-head Murrel**
81. *Channa orientalis* (Schneider) **Brown Snake-head Murrel**
82. *Channa punctatus* (Bloch) **Green Snake-head Murrel**
83. *Channa striatus* (Bloch) **Striped Snake-head Murrel**

Order PERCIFORMES

Family CHANDIDAE

84. *Chanda baculis* (Hamilton)
85. *Chanda nama* (Hamilton) **Indian Glass Fish**
86. *Chanda ranga* (Hamilton) **Indian Glass Fish**

Family Nandidae

87. *Badis badis* (Hamilton)
88. *Nandus nandus* (Hamilton)

Family MUGILIDAE

89. *Rhinomugil corsula* (Hamilton) **Corsula Mullet**

Family GOBIIDAE

Subfamily GOBINAE

90. *Glossogobius giuris* (Hamilton) **Bar-eyed Goby**

Order MASTACEMBELIFORMES

Family MASTACEMBELIDAE

91. *Macrornathus aculeatus* (Bloch) **Lesser Spiny Eel**
92. *Mastacembelus armatus armatus* (Lacépède)
93. *Mastacembelus pancalus* (Hamilton)

SYSTEMATIC ACCOUNT

Cohart ARCHAEOPHYLACES

Superorder OSTEOGLOSSOMORPHA

Order OSTEOGLOSSIFORMES

Family NOTOPTERIDAE

1. *Notopterus chitala* (Hamilton)

1822. *Mystus chitala* Hamilton, *Fish. Ganges* : 236, 382.

1889. *Notopterus chitala* : Day, *Fauna British India, Fishes*, 1 : 407.

1981. *Notopterus chitala* : Jayaram, *Handbk. Freshw. Fish. India* : 53, 54.

Material examined : Recorded from literature.

Diagnosis : 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, and West Bengal.

Elsewhere : Bangladesh, Indonesia, Malaya Archipelago, Myanmar, Pakistan, Philippines, Siam, Thailand, and West Africa.

2. *Notopterus notopterus* (Pallas)

Feather Back

1769. *Gymnotus notopterus* Pallas, *Spicil. Zool.*, 1(7) : 40, pl. 6, fig. 2.

1889. *Notopterus kaporat* : Day, *Fauna British India, Fishes*, 1 : 406, fig. 129.

1981. *Notopterus notopterus* : Jayaram, *Handbk. Freshw. Fish. India* : 53-54.

Material examined : Jabalpur, Hiran river on Katangi road, 10.vi.1969 (3 exs.), Coll. V.V. Rao.

Diagnosis : 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 is 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. Body greyish on dorsal surface, silvery on sides. Golden-yellow tinge on head. Eyes golden.

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Raisen, Rewa, Satna districts, Chambal river). Andhra Pradesh, Assam, Bihar, Chilka Lake, Maharashtra, Malabar, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Indonesia, Malaya, Myanmar, Nepal, Philippines, Thailand.

Cohart EUTELEOSTEI
Superorder OSTARIOPHYSI
Order CYPRINIFORMES
Family CYPRINIDAE
Subfamily CULTRINAE

3. *Chela (Chela) cachus* (Hamilton)
Chela

1822. *Cyprinus cachus* Hamilton, *Fish. Ganges* : 258, 384.

1958. *Chela (Chela) cachus* : Silas, *J. Bombay nat. Hist. Soc.*, **55**(1) : 667.

1981. *Chela (Chela) cachus* : Jayaram, *Handbk. Freshw. Fish. India* : 72-73.

Material examined : Jabalpur, Hiran river on Katni road, 21.vii.1984 (3 exs.), Coll. P.D. Gupta.

Diagnosis : Head length 5.50 to 6.00 and body depth 4.00 to 4.25 in total length. Cleft of mouth moderately oblique, directed upwards. Dorsal fin inverted opposite to the second third of anal fin. Pectoral fin elongate, not reaching anal fin. Four 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 : Throughout India : Madhya Pradesh (Jabalpur, Narsinghpur, Raisen, Rajgarh, Rewa, Satna, Ujjain).

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

4. *Chela (Chela) laubuca* (Hamilton)
Winged Rasbora

1822. *Cyprinus laubuca* Hamilton, *Fish. Ganges* : 260, 384.

1958. *Chela (Chela) laubuca* : Silas, *J. Bombay nat. Hist. Soc.*, **55**(1) : 70-85.

1981. *Chela (Chela) laubuca* : Jayaram, *Handbk. Freshw. Fish. India* : 72-73.

Material examined : Jabalpur, Devtal, 8.vii.1960 (3 exs.), Coll. S. Chakrapany.

Diagnosis : Head length 5.00 to 6.00 and body depth 3.50 to 4.25 in total length. Cleft of mouth very much oblique, abruptly directed upwards. 3½ 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 : Throughout India : Madhya Pradesh (Jabalpur, Hoshangabad, Raisen, Satna districts, Chambal river).

Elsewhere : Bangladesh, Myanmar, Malaya Peninsula, Nepal, Pakistan, Peninsular Thailand, Sri Lanka, Sumatra.

5. *Salmostoma bacaila* (Hamilton)

1822. *Cyprinus bacaila* Hamilton, *Fish. Ganges* : 265, 384.

1889. *Chela bacaila* : Day, *Fauna British India, Fishes*, 1 : 367.

1981. *Salmostoma bacaila* : Jayaram, *Handbk. Freshw. Fish. India* : 74-75.

Material examined : Jabalpur, Devtal, 18.vii.1960 (2 exs.), Coll. S. Chakrapany.

Diagnosis : 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 : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Jabalpur, Rewa districts, Chambal river), Andhra Pradesh, Assam, Bihar, Orissa, Punjab, Uttar Pradesh, West Bengal, Brahmaputra, Ganga, Mahanadi river systems.

Elsewhere : Bangladesh, Nepal, Pakistan.

6. *Salmostoma clupeoides* (Bloch)

1795. *Cyprinus clupeoides* Bloch, *Naturg. Ausland. Fische*, 12 : 49, pl. 408, fig. 2.

1889. *Chela clupeoides* : Day, *Fauna British India, Fishes*, 1 : 366.

1981. *Salmostoma clupeoides* : Jayaram, *Handbk. Freshw. Fish. India* : 74, 75.

Material examined : Jabalpur, a nala on Rani Durgavati Samadhi road, 26.iv.1969 (3 exs.), Coll. V.S. Durve.

Diagnosis : 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. 3 or 4 rows of scales between lateral line and base of pelvic fin. Body uniformly silvery.

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Hoshangabad, Rewa districts, Chambal river), Cauvery, Godavari, Krishna, Narmada and Tapti river systems, Deolali, Nasik, Tripura.

Elsewhere : Myanmar.

7. *Salmostoma phulo phulo* (Hamilton)

1822. *Cyprinus phulo* Hamilton, *Fish. Ganges* : 262, 384.

1889. *Chela phulo* : Day, *Fauna British India, Fishes*, 1 : 365.

1981. *Salmostoma phulo phulo* : Jayaram, *Handbk. Freshw. Fish. India* : 74, 75.

Material examined : Jabalpur, Pariat Nala on Katni road, 25.vii.1969 (3 exs.), Coll. V.V. Rao.

Diagnosis : Head length 5.50 and body depth 4.50 to 5.00 in total length. Eye diameter 3.50 in head length. Caudal fin deeply forked, lower lobe longer. Lateral line curves gently downwards. Body uniformly silvery, with a bright silvery lateral band.

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur), Andhra Pradesh, Assam, Orissa, West Bengal and Deccan as far southwards as the Tungabhadra and Krishna rivers, also Ganga, Brahmaputra rivers systems.

Elsewhere : Bangladesh.

Subfamily RASBORINAE

8. *Esomus danricus* (Hamilton) Flying Barb

1822. *Esomus danrica* Hamilton, *Fish. Ganges* : 325, 390.

1889. *Nula danrica* : Day, *Fauna British India, Fishes*, 1 : 334, fig. 106.

1981. *Esomus danricus* : Jayaram, *Handbk. Freshw. Fish. India* : 77, 78.

Material examined : Jabalpur, Devtal, 15.ii.1962 (2 exs.), Coll. S. Chakrapany and party.

Diagnosis : 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. Bpdy pale olive above, silvery below, with a broad black lateral band, which sometimes may be absent.

Distribution : India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Chhindwara, Hoshangabad, Jabalpur, Khandwa, Raisen, Rewa, Satna, Shahdol districts, Chambal river, Kanha Tiger Reserve), Andhra Pradesh, Assam, Bihar, Gujarat, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Malaya, Malaya-Archipelago, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand.

9. *Danio aequipinnatus* (McClelland)

1839. *Perilampus aequipinnatus* McClelland, *Asiat. Res.*, 19(2) : 393, pl. 60, fig. 1.

1981. *Danio aequipinnatus* : Jayaram, *Handbk. Freshw. Fish. India* : 80, 81.

1991. *Danio aequipinnatus* : Barman, *Rec. zool. Surv. India, Occ. Pap.*, 137 : 22-27.

Material examined : Jabalpur, Balsagar village, 3.xii.1960 (7 exs.), Coll. S. Chakrapany and party; Jabalpur, Pariat tank, 15.ix.1967 (2 exs.), Coll. H.P. Agrawal and party.

Diagnosis : 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. 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 : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Raisen, Shahdol districts, Kanha Tiger Reserve).

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

10. *Danio devario* (Hamilton)

Danio

1822. *Cyprinus devario* Hamilton, *Fish. Ganges* : 341, 393.

1981. *Danio devario* : Jayaram, *Handbk. Freshw. Fish. India* : 80.

1991. *Danio devario* : Barman, *Rec. zool. Surv. India, Occ. Pap.*, 137 : 41-44.

Material examined : Jabalpur, Hiran river on the way to Katangi, 3.i.1961 (15 exs.), Coll. R.C. Sharma and party.

Diagnosis : Head length 5.00 to 5.25 and body depth 3.25 to 4.00 in total 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. 2½ rows of scales between lateral line and base of pelvic fin. 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Betul, Chhindwara, Jabalpur, Mandla, Raisen, Narsinghpur, Rewa, Satna, Shahdol districts, Chambal river).

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

11. *Danio rerio* (Hamilton)

1822. *Cyprinus rerio* Hamilton, *Fish. Ganges* : 323.

1981. *Danio (Brachydanio) rerio* : Jayaram, *Handbk. Freshw. Fish. India* : 80-82.

1991. *Danio rerio* : Barman, *Rec. zool. Surv. India, Occ. Pap.*, 137 : 57-60.

Material examined : Jabalpur, Umaria village on Dindori Road, 23.iii.1962 (2 exs.), Coll. S. Chakrapany and party.

Diagnosis : 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. Barbels 2 pairs. 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.

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, Rajashtan, Sikkim, Tripura, Uttar Pradesh, West Bengal.

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

12. *Rasbora daniconius daniconius* (Hamilton) Common Rasbora

1822. *Cyprinus daniconius* Hamilton, *Fish. Ganges* : 327.

1889. *Rasbora daniconius* : Day, *Fish. India* : 584.

1981. *Rasbora daniconius* : Jayaram, *Handbk. Freshw. Fish. India* : 84-85.

Material examined : Jabalpur, Gokulpur dam near Engg. College, 15.vi.1960 (2 exs.), Coll. S. Chakrapani and party.

Diagnosis : Head length 4.50 to 5.00 and body depth 4.50 to 6.00 in total length. Three prominences on lower jaw well defined. 2 rows of scales between lateral line and base of pelvic fin. Predorsal scales 12 to 14. 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 : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Betul, Bhopal, Chhindwara, Damoh, Gwalior, Hoshangabad, Jabalpur, Mandla, Narsinghpur, Rajgarh, Raisen, Rewa, Satna, Shahdol districts, Chambal river, Kanha Tiger Reserve).

Elsewhere : Bangladesh, Malaya-Archipelago, Myanmar, Nepal, Pakistan, Sri Lanka, Zanzibar.

13. *Rasbora rasbora* (Hamilton)

1822. *Cyprinus rasbora* Hamilton, *Fish. Ganges* : 329.

1889. *Rasbora buchanani* : Day, *Fauna British India, Fishes*, 1 : 336.

1981. *Rasbora rasbora* : Jayaram, *Handbk. Freshw. Fish. India* : 84, 85.

Material examined : Jabalpur, a tank in Gandhigram village, 7.ii.1968 (20 exs.), purchased.

Diagnosis : 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. Dorsal fin origin nearer to base of caudal 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 emarginated. Body olive-brown above, silvery on sides with a faint lateral streak.

Distribution : India : Andhra Pradesh, Coromandel coast, Gangetic Provinces, Madhya Pradesh (Jabalpur).

Elsewhere : Bangladesh, Malaya, Myanmar, Pakistan, Thailand.

14. *Aspidopariya morar* (Hamilton) *Aspidopariya*

1822. *Cyprinus morar* Hamilton, *Fish. Ganges* : 264, 384, pl. 31, fig. 75.

1889. *Aspidoparia morar* : Day, *Fauna British India, Fishes*, 1 : 338, 339, fig. 108.

1981. *Aspidoparia morar* : Jayaram, *Handbk. Freshw. Fish. India* : 85, 86.

Material examined : Recorded from literature.

Diagnosis : 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. 2½ 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 : Chhattisgarh (Bastar), Madhya Pradesh (Rewa district, Chambal river). Throughout India except the western coast and localities south of the Krishna river.

Elsewhere : Bangladesh, Myanmar, Nepal, and Pakistan.

15. *Amblypharyngodon melettina* (Valenciennes)

1842. *Leuciscus melettina* Valenciennes, *Hist. nat. Poiss.* 17 : 304, pl. 501.

1889. *Amblypharyngodon melettina* : Day, *Fauna British India, Fishes*, 1 : 292.

1981. *Amblypharyngodon melettina* : Jayaram, *Handbk. Freshw. Fish. India* : 86, 87.

Material examined : Jabalpur, Narmada river at Gwarighat, 26.xi.1964 (1 ex.), Coll. D.N. Basu; Jabalpur, Rani Durgavati Samadhi road, 24.xi.1964 (1 ex.), Coll. H.P. Agrawal; Jabalpur, Gwarighat, 26.xi.1964 (1 ex.), Coll. D.N. Basu.

Diagnosis : 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. 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), Tamil Nadu, Western Ghats.

Elsewhere : Sri Lanka.

16. *Amblypharyngodon mola* (Hamilton) Indian Carplet

1822. *Cyprinus mola* Hamilton, *Fish. Ganges* : 334, 392, pl. 38, fig. 92.

1889. *Amblypharyngodon mola* : Day, *Fauna British India, Fishes*, 1 : 291, fig. 101.

1981. *Amblypharyngodon mola* : Jayaram, *Handbk. Freshw. Fish. India* : 86.

Material examined : Jabalpur, Devtal, 15.ii.1962 (2 exs.), Coll. S. Chakrapani.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur, Rewa districts, Chambal river), throughout India except Kerala.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

17. *Barilius barila* (Hamilton)

1822. *Cyprinus barila* Hamilton, *Fish. Ganges* : 267, 384.

1981. *Barilius barila* : Jayaram, *Handbk. Freshw. Fish. India* : 88, 89.

Material examined : Recorded from literature.

Diagnosis : 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. 1½ 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 : Chhattisgarh (Bastar), Madhya Pradesh (Chhindwara, Rewa districts, Chambal river), Andhra Pradesh, Karnataka, N. India, N.E. India, Orissa.

Elsewhere : Bangladesh, Myanmar, Nepal, and Pakistan.

18. *Barilius bendelisis bendelisis* (Hamilton)

Hill Trout

1807. *Cyprinus bendelisis* Hamilton, *Journ. Mysore*, 3 : 345.

1981. *Barilius bendelisis bendelisis* : Jayaram, *Handbk. Freshw. Fish. India* : 88, 89.

Material examined : Jabalpur, Narmada river at Bheraghat, 5.ii.1964 (18 exs.), Coll. J.S. Bhatti and party.

Diagnosis : Head length 4.60 to 5.25 and body depth 4.25 to 5.25 in total length. Barbels 2 pairs, short rostral pair sometimes absent. Dorsal fin inserted nearer to caudal fin base than to tip of snout. 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.

Distribution : Throughout India except Kerala : Chhattisgarh (Bastar), Madhya Pradesh (Betul, Chhindwara, Hoshangabad, Jabalpur, Mandla, Narsinghpur, Rewa, Shahdol districts, Chambal river).

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

19. *Barilius evezardi* Day

1872. *Barilius evezardi* Day, *J. Asiatic Soc. Bengal*, 41 : 326, pl. 2.

1981. *Barilius evezardi* : Jayaram, *Handbk. Freshw. Fish. India* : 89, 90.

Material examined : Jabalpur, Hiran river on Katangi Road, 2.xi.1965 (4 exs.), Coll. H.P. Agrawal.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Jabalpur districts), Andhra Pradesh, Maharashtra.

20. *Barilius shacra* (Hamilton)

1822. *Cyprinus shacra* Hamilton, *Fish. Ganges* : 271, 385.

1981. *Barilius shacra* : Jayaram, *Handbk. Freshw. Fish. India* : 89.

Material examined : Jabalpur, Narmada river at Tilwaraghat, 25.vi.1964 (54 exs.), Coll. H.P. Agrawal and party; Jabalpur, Narmada river at Shahpura Railway Bridge, 15.iv.1967 (13 exs.), Coll. V.S. Durve and party.

Diagnosis : 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.

21. *Barilius vagra vagra* (Hamilton)

1822. *Cyprinus vagra* Hamilton, *Fish. Ganges* : 269, 385.

1889. *Barilius vagra* : Day, *Fauna British India, Fishes*, 1 : 345.

1981. *Barilius vagra vagra* : Jayaram, *Handbk. Freshw. Fish. India* : 89.

Material examined : Jabalpur, Narmada River, 23.ix.1960 (1 ex.), purchased.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur, Rewa districts), Bihar, North India (Brahmaputra, Ganga, Indus and Yamuna rivers), Punjab, West Bengal, W. Himalayas, Below Krishna river system.

Elsewhere : Bangladesh, Nepal, Sri Lanka, Pakistan.

Subfamily CYPRININAE

22. *Puntius amphibius* (Valenciennes)

Scarlet-banded Barb

1842. *Capoeta amphibia* Valenciennes, *Hist. Nat. Poiss*, **16** : 282, pl. 478.

1889. *Barbus amphibius* : Day, *Fauna British India, Fishes*, **1** : 322.

1991. *Puntius amphibius* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.*, **135** : 61-64.

Material examined : Jabalpur, Narmada River, 12.viii.1960 (1 ex.), purchased.

Diagnosis : Head length 4.00 to 5.00 and body depth 4.20 to 5.00 in total length. Barbels 1 pair. 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 : Chhattisgarh (Bastar), Madhya Pradesh (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.

23. *Puntius chola* (Hamilton)

Green Barb

1822. *Cyprinus chola* Hamilton, *Fish. Ganges* : 312, 389.

1889. *Barbus chola* : Day, *Fauna British India, Fishes*, **1** : 317.

1991. *Puntius chola* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.* **135** : 52-56.

Material examined : Jabalpur, Supatal tank near Madan Mahal, 28.iii.1963 (3 exs.), Coll. S. Chakrapani and party.

Diagnosis : Head length 4.50 to 4.75 and body depth 3.25 to 3.75 in total 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. 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. A dark mark at base of anterior dorsal fin rays also present.

Distribution : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Jabalpur, Raisen, Rajgarh, Rewa, Satna).

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

24. *Puntius conchoni* (Hamilton) Stigma Barb

1822. *Cyprinus conchoni* Hamilton, *Fish. Ganges* : 317, 389.

1889. *Barbus conchoni* : Day, *Fauna British India, Fishes*, 1 : 325.

1991. *Puntius conchoni* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.* 135 : 27-29.

Material examined : Jabalpur, Narmada river at Shahpura Railway Bridge, 14.vi.1967 (1 ex.), Coll. V.S. Durve and party.

Diagnosis : Head length 5.00 and body depth 2.40 to 2.67 in total 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 9-10 scales. 3 ½ to 4 ½ rows of scales between lateral line and base of pelvic fin. Body yellowish-brown on dorsal surface and sides, yellowish-white below. Fins orange, a large black spot on lateral line just above anal fin.

Distribution : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Betul, Bhopal, Chhindwara, Hoshangabad, Jabalpur, Khandwa, Narsinghpur, Rajgarh, Raisen, Rewa, Satna, Shahdol districts, Chambal river).

Elsewhere : Bangladesh, Nepal, Pakistan.

25. *Puntius curmuca* (Hamilton)

1807. *Cyprinus curmuca* Hamilton, *Journey in Mysore*, 3 : 344, pl. 30.

1889. *Barbus curmuca*, Day, *Fauna British India, Fishes*, 1 : 310.

1981. *Puntius curmuca*, Jayaram, *Handbk. Freshw. Fish. India* : 100, 105.

Material examined : Jabalpur, Pariat river on Damoh Road, 11.x.1968 (4 exs.), Coll. V.S. Durve and party.

Diagnosis : Head length 5.00 and body depth 5.00 in total length. Eye diameter 4.30 in head length. Snout conical. 3 ½ 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 : Chhattisgarh (Bastar), Madhya Pradesh (Hoshangabad, Jabalpur districts), Andhra Pradesh, Travancore-Cochin, Western Ghats.

26. *Puntius dorsalis* (Jerdon)

1849. *Systemus dorsalis* Jerdon, *Madras J. Lit. & Sci.* **15** : 314.

1889. *Barbus dorsalis* : Day, *Fauna British India, Fishes*, 1 : 319.

1991. *Puntius dorsalis* : Jayaram, *Rec. zool. Surv. India, Occ. Paper* **135** : 64-67.

Material examined : Jabalpur, Umaria village on Dindori Road, 13.x.1961 (6 exs.), Coll. P. Singh and party.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Hoshangabad, Jabalpur, Narsinghpur districts), Andhra Pradesh, Karnataka, Kerala, Orissa, Tamil Nadu, Cauvery and Krishna river systems.

Elsewhere : Sri Lanka.

27. *Puntius gelius* (Hamilton)

1822. *Cyprinus gelius* Hamilton, *Fish. Ganges* : 320, 390, pl. 145, fig. 3.

1889. *Barbus gelius* : Day, *Fauna British India, Fishes*, 1 : 327.

1991. *Puntius gelius* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.* **135** : 168-170.

Material examined : Jabalpur, a tank in Gandhigram on Katni Road, 8.x.1968 (14 exs.), Coll. H.P. Agrawal and party.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur, Rajgarh districts), Andhra Pradesh, Assam, Bihar, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Pakistan.

28. *Puntius melanostigma* (Day)

1849. *Systemus carnaticus* Jerdon, *Madras J. Lit. & Sci.*, **15** : 315.

1889. *Barbus melanostigma* : Day, *Fauna British India, Fishes*, **1** : 320.

1991. *Puntius melanostigma* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.* **135** : 73-75.

Material examined : Jabalpur, a nala near Budagar village, 28.i.1970 (18 exs.), purchased.

Diagnosis : 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. 2 ½ to 3 ½ 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 scales.

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur), Kerala, Maharashtra, Wynaad; Bhavani and Cauvery rivers.

29. *Puntius punjabensis* (Day)

1871. *Barbus punjabensis* Day, *J. Asiat. Soc. Beng.*, **40** : 334.

1991. *Puntius punjabensis* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.*, **135** : 35-37.

Material examined : Recorded from literature.

Diagnosis : 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. Lateral line incomplete. 4 ½ rows of scales between lateral line and base of pelvic fin. Predorsal scales 14. Circumpeduncular scales 9 to 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), Bihar.

Elsewhere : Baluchistan, Pakistan.

**30. *Puntius sarana sarana* (Hamilton)
Olive Carp**

1822. *Cyprinus sarana* Hamilton, *Fish. Ganges* : 307, 388.

1889. *Barbus sarana* : Day, *Fauna British India, Fishes*, **1** : 300.

1991. *Puntius sarana sarana* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.* **135** : 113-118.

Material examined : Jabalpur, a tank in Gandhigram on Katni Road, 9.xi.1967 (4 exs.), Coll. V.V. Rao and party.

Diagnosis : 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. 3 ½ to 4 ½ 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 : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Hoshangabad, Jabalpur, Mandla, Rajgarh, Raisen, Rewa, Satna, Ujjain districts, Chambal river).

Elsewhere : Bangladesh, Bhutan, China, Myanmar, Nepal, Pakistan.

31. *Puntius sophore* (Hamilton) Stigma Barb

1822. *Cyprinus sophore* Hamilton, *Fish. Ganges* : 310, 389, fig. 86.

1889. *Barbus sophore* : Day, *Fauna British India, Fishes*, 1 : 309.

1991. *Puntius sophore* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.* 135 : 15-20.

Material examined : Jabalpur, Devtal, 6.vii.1960 (1 ex.), Coll. S. Chakrapani and party.

Diagnosis : Head length 4.50 to 5.00 and body depth 3.50 to 3.75 in total length. Barbels absent. 3 to 4½ rows of scales between lateral line and base of pelvic fin. 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 22nd to 24th scale, another at the base of 4th to 6th ray of dorsal fin. Fins light yellow and black tipped.

Distribution : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Gwalior, Hoshangabad, Jabalpur, Khandwa, Narsinghpur, Rewa, Satna, Shahdol districts, Chambal river, Kanha Tiger Reserve).

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

32. *Puntius ticto* (Hamilton) Fire Fin Barb

1822. *Cyprinus ticto* Hamilton, *Fish. Ganges* : 314, 389 pl. 8, fig. 87.

1889. *Barbus ticto* : Day, *Fauna British India, Fishes*, 1 : 325.

1991. *Puntius ticto* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.* 135 : 22-26.

Material examined : Jabalpur, Barela village on Mandla Road, 2.i.1961 (4 exs.), Coll. S. Chakrapani and party.

Diagnosis : Head length 4.00 to 5.00 and body depth 3.00 to 3.50 in total length. Predorsal scales 8 to 11. Preanal scales 11 to 14. Circumpeduncular scales 10 to 12. Body

silvery with two black blotches along the lateral line. Last unbranched dorsal fin ray osseous, posterior margin serrated with 12 to 18 teeth. 3 to 4 ½ rows of scales between lateral line and base of pelvic fin.

Distribution : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Chhindwara, Gwalior, Hoshangabad, Indore, Jabalpur, Narsinghpur, Rewa, Satna, Shahdol districts, Chambal river). *Elsewhere* : Bangladesh, Myanmar, Nepal, Pakistan, Thailand, Sri Lanka.

33. *Puntius waageni* (Day)

1872. *Barbus waageni* Day, *J. Asiatic Soc. Beng.*, 41(2) : 325.

1991. *Puntius waageni* : Jayaram, *Rec. zool. Surv. India, Occ. Pap.*, 135 : 84-86.

Material examined : Jabalpur, a tank in Bhilouda village, 13.iii.1964 (6 exs.), Coll. J.S. Bhatti and party.

Diagnosis : 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. 4 ½ 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 17 or 18th row of scale.

Distribution : India : Madhya Pradesh (Jabalpur, Mandla districts), Shimla. Pakistan.

34. *Osteobrama cotio cotio* (Hamilton)

1822. *Cyprinus cotio* Hamilton, *Fish. Ganges* : 339, pl. 39, fig. 93.

1889. *Rohtee cotio* : Day, *Fauna British India, Fishes*, 1 : 340.

1981. *Osteobrama cotio cotio* : Jayaram, *Handbk. Freshw. Fish. India* : 113.

Material examined : Jabalpur, Pariat river on Damoh Road, 11.x.1968 (2 exs.), Coll. V.S. Durve and party.

Diagnosis : 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. 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.

35. *Osteobrama vigorsii* (Sykes)

1841. *Rohtee vigorsii* Sykes, *Trans. zool. Soc. Lond.* 2 : 364, pl. 63, fig. 3.

1981. *Osteobrama vigorsii* : Jayaram, *Handbk. Freshw. Fish. India* : 113-114.

Material examined : Recorded from literature.

Diagnosis : 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 : Chhattisgarh (Bastar), Andhra Pradesh, Deolali, Godavari and Krishna river systems, Maharashtra, Orissa, Southern India (Deccan).

36. *Labeo bata* (Hamilton)

Bata

1822. *Labeo bata* Hamilton, *Fish. Ganges* : 283, 386.

1889. *Labeo bata* : Day, *Fauna British India, Fishes*, 1 : 268.

1981. *Labeo bata* : Jayaram, *Handbk. Freshw. Fish. India* : 117, 119.

Material examined : Jabalpur, Narmada River, 5.xii.1960 (1 ex.), purchased.

Diagnosis : 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. 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 : Throughout India : Madhya Pradesh (Jabalpur, Rewa districts, Chambal river).

Elsewhere : Bangladesh, Nepal, Pakistan.

37. *Labeo boga* (Hamilton)

Burmese Fish

1822. *Cyprinus boga* Hamilton, *Fish. Ganges* : 286, 386, pl. 28, fig. 80.

1889. *Labeo boga* : Day, *Fauna British India, Fishes*, 1 : 269.

1981. *Labeo boga* : Jayaram, *Handbk. Freshw. Fish. India* : 117, 120.

Material examined : Jabalpur, Narmada River, 5.xii.1960 (4 exs.), purchased.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur districts, Chambal river), Andhra Pradesh, Assam, Bihar, Deccan, Gangetic provinces, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

38. *Labeo boggut* (Sykes)

1841. *Chondrostoma boggut* Sykes, *Trans. zool. Soc. London*, 2 : 359.

1889. *Labeo boggut* : Day, *Fauna British India, Fishes*, 1 : 269.

1981. *Labeo boggut* : Jayaram, *Handbk. Freshw. Fish. India* : 117, 119.

Material examined : Jabalpur, Barela village on Mandla Road, 2.i.1961 (3 exs.), Coll. S. Chakrapani and party.

Diagnosis : 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. 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 : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Rewa districts, Chambal river), Andhra Pradesh, throughout North India and upto Cauvery river system.

Elsewhere : Bangladesh, Malaya, Pakistan.

39. *Labeo calbasu* (Hamilton)

1822. *Cyprinus calbasu* Hamilton, *Fish. Ganges* : 297, 387, pl. 2, fig. 83.

1889. *Labeo calbasu* : Day, *Fauna British India, Fishes*, 1 : 259.

1981. *Labeo calbasu* : Jayaram, *Handbk. Freshw. Fish. India* : 117, 121.

Material examined : Recorded from literature.

Diagnosis : 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 : Chhattisgarh (Bastar), Madhya Pradesh (Rewa district, Chambal river), throughout India.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Thailand, Yunnan

40. *Labeo dero* (Hamilton)

1822. *Cyprinus dero* Hamilton, *Fish. Ganges* : 277, 385, pl. 22, fig. 78.

1889. *Labeo diplostomus* : Day, *Fauna British India, Fishes*, 1 : 265.

1981. *Labeo dero* : Jayaram, *Handbk. Freshw. Fish. India* : 117, 119.

Material examined : Recorded from literature.

Diagnosis : 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, Himalayas (All along), Punjab, Uttar Pradesh, and West Bengal.

Elsewhere : Bangladesh, China, Myanmar, Nepal, and Pakistan.

41. *Labeo gonius* (Hamilton)

1822. *Cyprinus gonius* Hamilton, *Fish. Ganges* : 292, 387.

1889. *Labeo gonius* : Day, *Fauna British India, Fishes*, 1 : 261.

1981. *Labeo gonius* : Jayaram, *Handbk. Freshw. Fish. India* : 118, 120.

Material examined : Jabalpur, Narmada River, 4.xii.1960 (1 ex.), purchased.

Diagnosis : 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 : Chhattisgarh (Bastar district, Indravati Tiger Reserve), Madhya Pradesh (Jabalpur, Rewa districts, Chambal river), throughout India.

Elsewhere : Bangladesh, Myanmar, Nepal, and Pakistan.

42. *Labeo rohita* (Hamilton)

1822. *Cyprinus rohita* Hamilton, *Fish. Ganges* : 301, 388, pl. 36, fig. 85.

1889. *Labeo rohita* : Day, *Fauna British India, Fishes*, 1 : 262.

1981. *Labeo rohita* : Jayaram, *Handbk. Freshw. Fish. India* : 118, 120.

Material examined : Jabalpur, Narmada River, 28.vi.1962 (1 ex.), purchased.

Diagnosis : 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 : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Jabalpur, Rewa districts, ghats in the natural state, Chambal river), not reported from W. Madhya Pradesh, throughout India.

Elsewhere : Bangladesh, Myanmar, Nepal, and Pakistan.

43. *Tor putitora* (Hamilton)

1822. *Cyprinus putitora* Hamilton, *Fish. Ganges* : 303, 388.

1981. *Tor putitora* : Jayaram, *Handbk. Freshw. Fish. India* : 124, 125.

1982. *Tor putitora* : Sen & Jayaram, *Rec. zool. Surv. India, Occ. Pap.* 39 : 5, fig. 3.

Material examined : Jabalpur, Narmada river at Bheraghat, 20.vi.1962 (5 exs.), purchased.

Diagnosis : 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. Lips thick with a continuous labial groove. Barbels 2 pairs, more or less of equal length. Predorsal scales 9. 2 ½ 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. Fins mostly greyish-green, often shot with pink.

Distribution : Chhattisgarh (Indravati Tiger Reserve), Madhya Pradesh (Jabalpur, Mandla, Rewa districts), all along the Himalayas, Harayana, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal, and Pakistan.

44. *Tor tor* (Hamilton)

1822. *Cyprinus tor* Hamilton, *Fish. Ganges* : 305, 388.

1981. *Tor tor* : Jayaram, *Handbk. Freshw. Fish. India* : 124-126.

1982. *Tor tor* : Sen & Jayaram, *Rec. zool. Surv. India, Occ. Pap.*, **39** : 3-4.

Material examined : Recorded from literature.

Diagnosis : 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. 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 : Chhattisgarh (Bastar district, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Indore, Mandla, Rewa districts, Chambal river), Foothills of Himalayas, Assam, Bihar, Haryana, Punjab, Uttar Pradesh, West Bengal (N. Bengal).

Elsewhere : Bangladesh, China, Myanmar, Pakistan.

45. *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.

Material examined : Recorded from literature.

Diagnosis : 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.

46. *Cirrhinus mrigala* (Hamilton)

Mrigal

1822. *Cyprinus mrigala* Hamilton, *Fish. Ganges* : 279, 386, pl. 6, fig. 79.

1889. *Cirrhina mrigala* : Day, *Fauna British India, Fishes*, 1 : 278.

1981. *Cirrhinus mrigala* : Jayaram, *Handbk. Freshw. Fish. India* : 127

Material examined : Recorded from literature.

Diagnosis : 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 : Chhattisgarh (Bastar district), Madhya Pradesh (Rewa district, Chambal river), throughout India.

Elsewhere : Bangladesh, Myanmar, Nepal, and Pakistan.

47. *Cirrhinus reba* (Hamilton) Reba

1822. *Cyprinus reba* Hamilton, *Fish. Ganges* : 280, 386.

1889. *Cirrhina reba* : Day, *Fauna British India, Fishes*, 1 : 279.

1981. *Cirrhinus reba* : Jayaram, *Handbk. Freshw. Fish. India* : 127

Material examined : Jabalpur, Narmada River, 23.ii.1960 (1 ex.), purchased.

Diagnosis : 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. 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 : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Jabalpur, Rewa districts, Chambal river).

Elsewhere : Bangladesh, Nepal, Pakistan.

48. *Catla catla* (Hamilton) Catla

1822. *Cyprinus catla* Hamilton, *Fish. Ganges* : 287, 387, pl. 13, fig. 81.

1889. *Catla buechanani* : Day, *Fauna British India, Fishes*, 1 : 287, fig. 99.

1981. *Catla catla* : Jayaram, *Handbk. Freshw. Fish. India* : 131.

Material examined : Recorded from literature.

Diagnosis : 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 : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Rewa districts, Chambal river), throughout India.

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

Subfamily GARRINAE

49. *Crossocheilus latius latius* (Hamilton)

1822. *Cyprinus latius* Hamilton, *Fish. Ganges* : 345, 393.

1889. *Cirrhina latia* : Day, *Fauna British India, Fishes*, 1 : 279.

1981. *Crossocheilus latius latius* : Jayaram, *Handbk. Freshw. Fish. India* : 134.

Material examined : Jabalpur, Narmada River, 5.xii.1960 (3 exs.), purchased.

Diagnosis : 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. 3 ½ to 4 ½ 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 : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur district, Chambal river), Andhra Pradesh, Bihar, Deccan, Deolali, the Himalayas, Maharashtra, Orissa, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal, and Pakistan.

50. *Garra gotyla gotyla* (Gray)

Stone Sucker

1832. *Cyprinus gotyla* Gray, III. *Ind. Zool., London*, I, pl. 88, figs. 3, 3a.

1964. *Garra gotyla gotyla* : Menon, *Mem. Indian Mus.*, 14 : 233, pl. 13, figs. 1-4.

1981. *Garra gotyla gotyla* : Jayaram, *Handbk. Freshw. Fish. India* : 136, 137.

Material examined : Recorded from literature.

Diagnosis : 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. Barbels 2 pairs, anterior pair equal to or shorter than diameter of eye and posterior pair much smaller. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Hoshangabad, Raisen, Rajgarh, Rewa districts), Andhra Pradesh, Assam, Bihar, Chhota Nagpur Plateau, Himachal Pradesh, Himalayas (All along), Punjab, Uttar Pradesh, Vindhya, Satpura mountains of the peninsula, West Bengal.

Elsewhere : Aden, Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, Syria, Tenasserim provinces.

51. *Garra lamta* (Hamilton) Stone Sucker

1822. *Cyprinus lamta* Hamilton, *Fish. Ganges* : 343, 393.

1964. *Garra lamta* : Menon, *Mem. Ind. Mus.*, 14 : 208-212.

1981. *Garra lamta* : Jayaram, *Handbk. Freshw. Fish. India* : 136, 138.

Material examined : Jabalpur, Narmada River, 5.xii.1960 (1 ex.), purchased.

Diagnosis : Head length 3.58 to 4.33 and body depth 3.56 to 4.48 in standard length. Proboscis absent. Tip of snout marked off by a transverse groove. Pupil of eye at or slightly behind the middle of head length. Barbels 2 pairs, maxillary pair shorter than rostral pair. 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. 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.

52. *Garra mullya* (Sykes) Stone Sucker

1841. *Chondrostoma mullya* Sykes, *Trans. Zool. Soc. London*, 2 : 359, pl. 62, fig. 3.

1964. *Garra mullya* : Menon, *Mem. Indian Mus.* 14 : 212-216.

1981. *Garra mullya* : Jayaram, *Handbk. Freshw. Fish. India* : 136, 137.

Material examined : Jabalpur, a nala on Nagpur Road, 29.ix.1964 (2 exs.), Coll. H.P. Agrawal and party.

Diagnosis : Head length 3.71 to 5.00 and body depth 3.82 to 4.32 in standard length. Tip of snout marked off by a transverse groove. Barbels 2 pairs, maxillary pair shorter than rostral pair. Caudal fin almost truncate. Body dark grey above and paler beneath. A black spot on the upper angle of gill openings and a black blotch at caudal fin base.

Distribution : Throughout India except Assam and the Himalayas, Chhattisgarh (Bastar), Madhya Pradesh (Indore, Hoshangabad, Jabalpur, Mandla, Narsinghpur, Rewa districts, Indrawati Tiger Reserve).

Family Homalopteridae

Subfamily Noemacheilinae

53. *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.

Material examined : Jabalpur, Narmada river, 5.xii.1960 (2 exs.), purchased; Jabalpur, Narmada river at Gwarighat, 28.iv.1961 (3 exs.), Coll. S. Chakrapani and party; Jabalpur, Narmada river at Gwarighat, 24.vi.1964 (3 exs.), Coll. D.N. Basu and party; Jabalpur, Pariat river near Maharajpur on Katni Road, 7.v.1963 (3 exs.), Coll. S. Chakrapni and party; Jabalpur, Pariat river near Maharajpur village, 7.v.1963 (3 exs.), Coll. S. Chakrapani and party.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Hoshangabad, Indore, Jabalpur, Mandla, Rewa, Satna districts, Chambal river), Andhra Pradesh, Assam, throughout North India.

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

54. *Noemacheilus denisoni denisoni* Day

1967. *Nemachilus denisoni* Day, *Proc. Zool. Soc. London* : 287.

1987. *Noemacheilus denisoni denisoni* : Menon, *Fauna of India, Pisces*, 4(1) : 93-99.

Material examined : Jabalpur, Narmada river at Shahpura Railway Bridge, 15.iv.1967 (1 ex.), Coll. V.S. Durve and party.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Hoshangabad, Khandwa, Jabalpur, Raipur, Sagar districts), Andhra Pradesh, Karnataka, Kerala, Maharashtra, Rajasthan.

55. *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.

Material examined : Recorded from literature.

Diagnosis : 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.

56. *Noemacheilus savona* (Hamilton)

1822. *Cobitis savona* Hamilton, *Fish. Ganges* : 357, 394.

1889. *Nemachilus savona* : Day, *Fauna British India, Fishes*, 1 : 234.

1987. *Noemacheilus savona* : Menon, *Fauna of India, Pisces*, 4(1) : 91-93.

Material examined : Recorded from literature.

Diagnosis : 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 : Chhattisgarh (Indravati Tiger Reserve), Eastern Himalayas, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Nepal.

57. *Noemacheilus striatus* Day

1866. *Nemacheilus striatus* Day, *Proc. Zool. Soc. London* : 347.

1987. *Noemacheilus striatus* : Menon, *Fauna of India, Pisces*, 4(1) : 113-114.

Material examined : Jabalpur, Narmada river near Tilwaraghat, 25.vi.1964 (3 exs.), Coll. D.N. Basu and party.

Diagnosis : 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. 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 COBITINAE

58. *Lepidocephalus (Lepidocephalichthys) guntea* (Hamilton) Loach

1822. *Cobitis guntea* Hamilton, *Fish. Ganges* : 353, 394.

1889. *Lepidocephalichthys guntea* : Day, *Fauna British India, Fishes*, 1 : 220, fig. 80.

1981. *Lepidocephalus (Lepidocephalichthys) guntea* : Jayaram, *Hbk. Fish. Ind.* : 181, 182.

Material examined : Jabalpur, Devtal, 18.vii.1960 (1 ex.), Coll. S. Chakrapani and party.

Diagnosis : Head length 6.00 to 6.80 and body depth 5.65 to 7.00 in total length. Barbels 3 pairs, 2 rostral pairs and 1 maxillary pair. 25 to 30 rows of scales between the back of body and base of anal fin. Body generally dirty yellowish with a series of about 10 to 12 dark spots, connected with one another through a dark spot on the upper part of caudal fin base. Dorsal and caudal fins with rows of dark spots.

Distribution : Throughout India except Karnataka, Kerala and South of Krishna.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

59. *Lepidocephalus (Lepidocephalichthys) thermalis* (Valenciennes) Lesser Loach

1843. *Cobitis thermalis* Valenciennes, *Hist. nat. poiss.* 18 : 78.

1889. *Lepidocephalichthys thermalis* : Day, *Fauna British India, Fishes*, 1 : 221.

Material examined : Jabalpur, Hiran river on Katangi Road, 2.xi.1965 (1 ex.), Coll. H.P. Agrawal and party.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Indore, Jabalpur districts), Peninsular India.

Elsewhere : Sri Lanka

Order SILURIFORMES

Family BAGRIDAE

60. *Rita gogra* (Sykes)

Rita

1841. *Phractocephalus gogra* Sykes, *Trans. zool. Soc. London*, 2 : 374, pl. 66, fig. 1.

1889. *Rita pavementata* : Day, *Fauna British India, Fishes*, 1 : 167.

1981. *Rita gogra* : Jayaram, *Handbk. Freshw. Fish. India* : 190, 191.

Material examined : Jabalpur, Narmada river at Gwarighat, 28.iv.1961 (1 ex.), Coll. S. Chakrapani and party.

Diagnosis : 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. 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, and rivers of Deccan up to Krishna river system.

61. *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.

Material examined : Jabalpur, Narmada River, 2.viii.1960 (2 exs.), purchased.

Diagnosis : 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. 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 : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Hoshangabad, Jabalpur, Khandwa, Rewa districts, Chambal river), Bihar, Uttar Pradesh, West Bengal, most rivers of North India.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, Yunnan.

62. *Mystus bleekeri* (Day)

1878. *Macrones bleekeri* Day, *Fish. India* : 451, pl. 101, fig .1.

1889. *Macrones bleekeri* : Day, *Fauna British India, Fishes*, 1 : 162.

1981. *Mystus bleekeri* : Jayaram, *Handbk. Freshw. Fish. India* : 196, 199.

Material examined : Jabalpur, Narmada river at Tilwaraghat, 29.x.1960 (11 exs.), Coll. P. Singh and party.

Diagnosis : Head length 5.20 to 5.50 and body depth 5.00 to 6.00 in total length. Barbels 4 pairs, maxillary pair reaching anal fin. Rayed dorsal fin rounded, not higher than the body. 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Jabalpur, Rewa, Satna districts, Chambal river).

Elsewhere : Bangladesh, Malaya, Myanmar, Nepal, Pakistan.

63. *Mystus cavasius* (Hamilton)

Dwarf Catfish

1822. *Pimelodus cavasius* Hamilton, *Fish. Ganges* : 203, 379, pl. 11, fig. 67.

1889. *Macrones cavasius* : Day, *Fauna British India, Fishes*, 1 : 155.

1981. *Mystus cavasius* : Jayaram, *Handbk. Freshw. Fish. India* : 196, 199.

Material examined : Jabalpur, Dhanpuri village, 3.xi.1962 (1 ex.), Coll. S. Chakrapani and party.

Diagnosis : 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. 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Rewa districts).

Elsewhere : Bangladesh, Borneo, China, Java, Malayasia, Myanmar, Pakistan, Sumatra, Thailand.

64. *Mystus vittatus* (Bloch)**Striped Dwarf Catfish**

1796. *Silurus vittatus* Bloch, *Ichth. Hist. Nat.*, 11 : 40, pl. 371, fig .2.

1889. *Macrones vittatus* : Day, *Fauna British India, Fishes*, 1 : 157.

1981. *Mystus vittatus* : Jayaram, *Handbk. Freshw. Fish. India* : 197, 201.

Material examined : Jabalpur, Devtal, 15.ii.1962 (1 ex.), Coll. S. Chakrapani and party.

Diagnosis : Head length 4.70 to 5.00 and body depth 5.00 in total length. Barbels 4 pairs, maxillary pair reaching to pelvic fin, nasal pair extends to opercle. Rayed dorsal fin spine finely serrated posteriorly. Pectoral fin spine finely serrated posteriorly. 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 : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Hoshangabad, Jabalpur, Raisen, Rewa, Satna, Seoni districts, Chambal river).

Elsewhere : Bangladesh, Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand.

65. *Aorichthys aor* (Hamilton)**Long Whiskered Catfish**

1822. *Pimelodus aor* Hamilton, *Fish. Ganges* : 205, 379, pl. 20, fig. 68.

1889. *Macrones aor* : Day, *Fauna British India, Fishes*, 1 : 149.

1981. *Aorichthys aor* : Jayaram, *Handbk. Freshw. Fish. India* : 205.

Material examined : Jabalpur, Narmada River, 12.viii.1960 (1 ex.), purchased.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur, Rewa districts, Chambal river), Andhra Pradesh, Assam, Bihar, Orissa, Punjab, Uttar Pradesh, West Bengal; Brahmaputra, Cauvery, Ganga, Godavari, Krishna, Mahanadi, Narmada, Tapi, Yamuna river systems.

Elsewhere : Bangladesh, Myanmar, Pakistan.

66. *Aorichthys seenghala* (Sykes)**Giant River Catfish**

1839. *Platystoma seenghala* Sykes, *Trans. zool. Soc. Lond.*, 2 : 371, pl. 65, fig. 2.

1889. *Macrones seenghala* : Day, *Fauna British India, Fishes*, 1 : 150.

1981. *Aorichthys seenghala* : Jayaram, *Handbk. Freshw. Fish. India* : 205.

Material examined : Recorded from literature.

Diagnosis : 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. Body brownish on the dorsal surface, silvery on sides below lateral line and beneath. A round black spot less than $\frac{1}{2}$ eye diameter at the posterior end of the base of adipose dorsal fin.

Distribution : India : Chhattisgarh (Bastar), Madhya Pradesh (Hoshangabad, Rewa districts, Chambal river), the Brahmaputra, Cauveri, Ganga, Godavari, Indus, Krishna, Mahanadi, Narbada, Tapti and Yamuna river systems.

Elsewhere : Bangladesh, Myanmar, and Pakistan.

Family SILURIDAE

67. *Ompok bimaculatus* (Bloch)**Butter Catfish**

1797. *Silurus bimaculatus* Bloch, *Syst. Ichth.*, 11 : 17, pl. 369.

1889. *Callichrous bimaculatus* : Day, *Fauna British India, Fishes*, 1 : 331, fig. 57.

1981. *Ompok bimaculatus*, Jayaram, *Handbk. Freshw. Fish. India* : 208, 209.

Material examined : Jabalpur, Narmada River, 23.ix.1960 (1 ex.), purchased.

Diagnosis : 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. 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 : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Hoshangabad, Jabalpur, Rewa, Seoni districts, Chambal river).

Elsewhere : Bangladesh, Borneo, China, East Indies, Java, Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Sumatra, Thailand, Vietnam, Yunnan.

68. *Ompok pabda* (Hamilton)**Butter Catfish**

1822. *Silurus pabda* Hamilton, *Fish. Ganges* : 950, pl. 25, fig. 47.

1889. *Callichrous pabda* : Day, *Fauna British India, Fishes*, 1 : 133.

1981. *Ompok pabda* : Jayaram, *Handbk. Freshw. Fish. India* : 208, 209.

Material examined : Jabalpur, a nala near Rani Durgavati Samadhi, 29.i.1969 (1 ex.), Coll. V.S. Durve and party.

Diagnosis : 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. 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.

69. *Wallago attu* (Schneider)**Freshwater Shark**

1801. *Silurus attu* Schneider, *Syst. Ichth. Bloch* : 378, pl. 75.

1889. *Wallago attu* : Day, *Fauna British India, Fishes*, 1 : 126, fig. 54.

1981. *Wallago attu* : Jayaram, *Handbk. Freshw. Fish. India* : 210.

Material examined : Jabalpur, Naramada River, 5.xii.1960 (2 exs.), purchased.

Diagnosis : 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. Body silvery-grey, becoming lighter below.

Distribution : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Narsinghpur, Rewa districts, Chambal river).

Elsewhere : Bangladesh, Borneo, China, Indonesia, Malaya Archipelago, Myanmar, Pakistan, Sri Lanka, Sumatra, Thailand, Yunnan.

Family SCHILBEIDAE

Subfamily SCHILBEINAE

70. *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.

Material examined : Jabalpur, Narmada River, 18.vii.1960 (2 exs.), purchased.

Diagnosis : 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. 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 : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Jabalpur, Rewa districts, Chambal river), Assam, Bihar, North India, Orissa, Punjab, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan.

71. *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.

Material examined : Recorded from literature.

Diagnosis : 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. 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 (up to Mahanadi).

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan, and Thailand.

Family SISORIDAE

72. *Bagarius bagarius* (Hamilton)**Bagarius**

1822. *Pimelodus bagarius* Hamilton, *Fish. Ganges* : 186, 378, pl. 7, fig. 62.

1889. *Bagarius yarrellii* : Day, *Fauna British India, Fishes*, 1 : 194, fig. 71.

1981. *Bagarius bagarius* : Jayaram, *Handbk. Freshw. Fish. India* : 238.

Material examined : Jabalpur, Pariat river at Imalia village on Katni Road, 25.x.1961 (1 ex.), Coll. R.C. Sharma and party.

Diagnosis : Head length 3.75 and body depth 5.00 in total length (without prolonged caudal fin ray). No adhesive apparatus. Head greatly depressed. 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. Body scabrous, greyish-yellow, with large, irregular, brown and black markings and cross bands. Body speckled with coloured dots.

Distribution : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Jabalpur, Rewa districts, Chambal river).

Elsewhere : Bangladesh, Indo-China, Malaya Archipelago, Myanmar, Nepal, Pakistan, Thailand, Tonkin, Vietnam.

73. *Nangra itchkeea* (Sykes)

1838. *Phractocephalus itchkeea* Sykes *Proc. zool. Soc. London*, 6 : 164.

1889. *Gagata itchkeea* : Day, *Fauna British India, Fishes*, 1 : 209.

1981. *Nangra itchkeea* : Jayaram, *Handbk. Freshw. Fish. India* : 241.

Material examined : Jabalpur, Narmada river at Gwarighat, 28.iv.1961 (2 exs.), Coll. S. Chakrapani and party.

Diagnosis : 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. Body yellowish bronze above, becoming silvery on sides and abdomen. Dark blotches along the back descending to halfway 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.

74. *Conta elongata* (Day)

1871. *Hara elongata* Day, *Proc. Zool. Soc. London* : 704.

1889. *Erethistes elongates* : Day, *Fauna British India, Fishes*, 1 : 207.

1981. *Conta elongata* : Jayaram, *Handbk. Freshw. Fish. India* : 247, 248.

Material examined : Recorded from literature.

Diagnosis : Head length 6.50 and body depth 7.00 in total length. Eye diameter 9.00 in head length. 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, 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, and Siliguri.

Elsewhere : Bangladesh.

75. *Glyptothorax telchitta telchitta* (Hamilton)

1822. *Pimelodus telchitta* Hamilton, *Fish. Ganges* : 185, 378.

1889. *Glyptosternum telchitta* : Day, *Fauna British India, Fishes*, 1 : 199.

1981. *Glyptothorax telchitta telchitta* : Jayaram, *Handbk. Freshw. Fish. India* : 254, 260.

Material examined : Recorded from literature.

Diagnosis : 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. 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. Caudal peduncle height 3.00 to 3.80 in its length.

Distribution : India : Madhya Pradesh (Chambal river, Rewa district), Bihar, North Bengal, Uttar Pradesh, and Vindhya Range of mountains.

Elsewhere : Bangladesh, Nepal, and Pakistan.

Family CLARIIDAE

76. *Clarias batrachus* (Linnaeus) Air Breathing Catfish

1758. *Silurus batrachus* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 305.

1889. *Clarias magur* : Day, *Fauna British India, Fishes*, 1 : 115, figs. 48-49.

1981. *Clarias batrachus* : Jayaram, *Handbk. Freshw. Fish. India* : 270.

Material examined : Jabalpur, Pharikhera village, 26.ii.1963 (2 exs.), purchased.

Diagnostic characters : Head length 5.60 and body depth 6.50 to 7.50 in total length. Upper jaw longer. 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Hoshangabad, Jabalpur, Narsinghpur, Rewa, Seoni).

Elsewhere : Bali, Bangladesh, Borneo, China, Java, Lombok, Malacca, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Sumatra, Thailand, Vietnam.

Family HETEROPNEUSTIDAE

77. *Heteropneustes fossilis* (Bloch)

Stinging Catfish

1794. *Silurus fossilis* Bloch, *Naturges Ausland. Fische*, 8 : 46.

1889. *Saccobranthus fossilis* : Day, *Fauna British India, Fishes*, 1 : 125, fig. 53.

1981. *Heteropneustes fossilis* : Jayaram, *Handbk. Freshw. Fish. India* : 273, 274.

Material examined : Jabalpur, Devtal, 15.ii.1962 (1 ex.), Coll. S. Chakrapani and party.

Diagnosis : Head length 5.50 to 7.00 and body depth 5.00 to 8.00 in total length. Barbels 4 pairs. Dorsal fin short, spineless and inserted above tip of pectoral fin. Caudal fin almost rounded. Lateral line complete. Body leaden, sometimes with two lateral, yellowish bands. Anal fin separated from the caudal fin by a deep notch.

Distribution : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Betul, Bhopal, Hoshangabad, Jabalpur, Raisen, Rewa, Satna districts, Chambal river).

Elsewhere : Bangladesh, China, Myanmar, Nepal, Pakistan, Sri Lanka, Thailand, Vietnam.

Superorder ATHERINOMORPHA

Order ATHERINIFORMES

Family BELONIDAE

78. *Xenentodon cancila* (Hamilton)

Freshwater Garfish

1822. *Esox cancila* Hamilton, *Fish. Ganges* : 213, 380, pl. 27, fig. 70.

1889. *Belone cancila* : Day, *Fauna British India, Fishes*, 1 : 420, fig. 136.

1981. *Xenentodon cancila* : Jayaram, *Handbk. Freshw. Fish. India* : 292.

Material examined : Jabalpur, Narmada River, 28.ii.1961 (2 exs.), purchased.

Diagnosis : Head length 2.60 to 2.75 and body depth 8.00 to 12.00 in total length. A deep median, longitudinal groove on upper surface of head. 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Betul, Bhopal, Hoshangabad, Jabalpur, Raisen, Rewa, Satna districts, Chambal river).

Elsewhere : Bangladesh, Borneo, Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Sumatra, Thailand.

Family CYPRINODONTIDAE

79. *Oryzias melanostigma* (McClelland) Esturine Top Minnow

1839. *Aplocheilus melastigmus* McClelland, *Asiat. Res.*, 19 : 301, 427, pl. 42, fig. 3.

1889. *Haplochilus melanostigma* : Day, *Fauna British India, Fishes*, 2 : 415.

1981. *Oryzias melanostigma* Jayaram, *Handbk. Freshw. Fish. India* : 296.

Material examined : Jabalpur, Hiran river near Katangi village, 13.iii.1964 (1 ex.), Coll. H. Khajuria and party.

Diagnosis : 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. 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.

Superorder ACANTHOPTERYGII

Order CHANNIFORMES

Family CHANNIDAE

80. *Channa marulius* (Hamilton) Giant Snake-head Murrel

1822. *Ophiocephalus marulius* Hamilton, *Fish. Ganges* : 65, 367, pl. 17, fig. 19.

1889. *Ophiocephalus marulius* : Day, *Fauna British India, Fishes*, 2 : 360.

1981. *Channa marulius* : Jayaram, *Handbk. Freshw. Fish. India* : 306, 307.

Material examined : Jabalpur, Supatal tank on Nagpur Road, 8.viii.1967 (45 exs.), Coll. H.P. Agrawal and party.

Diagnosis : 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.

Distribution : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Jabalpur, Rewa districts, Chambal river).

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

81. *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.

Material examined : Jabalpur, Devtal, 18.vii.1960 (2 exs.), Coll. S. Chakrapani and party.

Diagnosis : 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. Teeth conical. Cephalic pits simple. 5 to 6 rows of scales between the orbit and angle of preopercle. Predorsal scales 12 to 13. Pelvic fins 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Betul, Bhopal, Damoh, Hoshangabad, Jabalpur, Mandla, Rajgarh, Rewa, Shahdol districts, Chambal river, Kanha Tiger Reserve).

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

82. *Channa punctatus* (Bloch)

Green Snake-head Murrel

1793. *Ophiocephalus punctatus* Bloch, *Naturg. Ausland. Fische*, 7 : 139, pl. 358.

1889. *Ophiocephalus punctatus* : Day, *Fauna British India, Fishes*, 2 : 364.

1981. *Channa punctatus* : Jayaram, *Handbk. Freshw. Fish. India* : 306, 307.

Material examined : Jabalpur, Devtal, 18.vii.1960 (1 ex.), Coll. S. Chakrapani and party.

Diagnosis : 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Khandwa, Rajgarh, Raisen, Rewa, Satna, Seoni districts, Chambal river, Kanha Tiger Reserve).

Elsewhere : Bangladesh, China, Malaya, Myanmar, Nepal, Pakistan, Polynesia, Sri Lanka, Tahiti.

83. *Channa striatus* (Bloch)

Striped Snake-head Murrel

1793. *Ophiocephalus striatus* Bloch, *Naturg. Ausland. Fische*, 2 : 141, pl. 359.

1889. *Ophiocephalus striatus* : Day, *Fauna British India, Fishes*, 2 : 363.

1981. *Channa striatus* : Jayaram, *Handbk. Freshw. Fish. India* : 307.

Material examined : Jabalpur, Narmada River, 5.xii.1960 (1 ex.), purchased.

Diagnosis : 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 greenish or blackish on dorsal surface, dirty white or yellowish-white below. Bands of grey or black from sides to abdomen.

Distribution : Throughout India : Madhya Pradesh (Bhopal, Indore, Jabalpur, Rewa districts, Chambal river).

Elsewhere : Bangladesh, China, Malaya, Myanmar, Pakistan, Philippines, Sri Lanka, Thailand.

Order PERCIFORMES

Family CHANDIDAE

84. *Chanda baculis* (Hamilton)

1822. *Chanda baculis* Hamilton, *Fish. Ganges* : 112, 371.

1889. *Ambassis baculis* : Day, *Fauna British India, Fishes*, 1 : 485.

1981. *Chanda baculis* : Jayaram, *Handbk. Freshw. Fish. India* : 318.

Material examined : Jabalpur, Budagar Tank on Katni Road, 28.iv.1977 (1 ex.), Coll. B.S. Gurum.

Diagnosis : 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. 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.

85. *Chanda nama* (Hamilton)**Indian Glass Fish**

1822. *Chanda nama* Hamilton, *Fish. Ganges* : 109, 371.

1889. *Ambassis nama* : Day, *Fauna British India, Fishes*, 1 : 484, fig. 149.

1981. *Chanda nama* : Jayaram, *Handbk. Freshw. Fish. India* : 318.

Material examined : Jabalpur, Adhartal, 3.iv.1961 (8 exs.), Coll. S. Chakarapani and party.

Diagnosis : Head length 4.00 to 4.50 and body depth 2.75 to 3.00 in total length. Lower jaw longer than upper. 2 or 3 large, crooked canines, on either side of the lower jaw. Two dorsal fins, united at their base. Body yellowish-olive, covered with minute black dots. The dots on the shoulders 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Chhindwara, Gwalior, Hoshangabad, Jabalpur, Narsinghpur, Raisen, Rajgarh, Rewa, Satna districts, Chambal river).

Elsewhere : Bangladesh, Myanmar, Nepal, Pakistan

86. *Chanda ranga* (Hamilton)
Indian Glass Fish

1822. *Chanda ranga* Hamilton, *Fish. Ganges* : 113, 371, pl. 16, fig. 38.

1889. *Ambassis ranga* : Day, *Fauna British India, Fishes*, 1 : 485.

1981. *Chanda ranga* : Jayaram, *Handbk. Freshw. Fish. India* : 318.

Material examined : Jabalpur, Baleha tank at Panagar village, 7.vi.1967 (4 exs.), Coll. H. Khajuria and party.

Diagnosis : 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. 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Raisen, Rewa districts, Chambal river).

Elsewhere : Bangladesh, Malaya, Myanmar, Nepal, Pakistan, Thailand.

Family NANDIDAE

87. *Badis badis* (Hamilton)

1822. *Labrus badis* Hamilton, *Fish. Ganges* : 70, 368, pl. 25, fig. 23.

1889. *Badis buchanani* : Day, *Fauna British India, Fishes*, 2 : 80, 81, fig. 38.

1981. *Badis badis* : Jayaram, *Handbk. Freshw. Fish. India* : 335.

Material examined : Jabalpur, Gour river near Bairagi village, 24.v.1963 (38 exs.), Coll. S. Chakrapani and party.

Diagnosis : 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. 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 : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Mandla, Rewa districts, Chambal river, and Kanha Tiger Reserve).

Elsewhere : Bangladesh, Myanmar, Nepal, and Pakistan.

88. *Nandus nandus* (Hamilton)

1822. *Coius nandus* Hamilton, *Fish. India* : 129, pl. 32, fig. 1.

1889. *Nandus marmoratus* : Day, *Fauna British India, Fishes*, 2 : 82.

1981. *Nandus nandus* : Jayaram, *Handbk. Freshw. Fish. India* : 336.

Material examined : Jabalpur, Narmada River, 28.ii.1961 (2 exs.), purchased.

Diagnosis : 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. 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Narsinghpur, Rewa, Satna districts, Chambal river).

Elsewhere : Bangladesh, Malaya, Myanmar, Nepal, Pakistan, and Thailand.

Family MUGILIDAE

89. *Rhinomugil corsula* (Hamilton) Corsula Mullet

1822. *Mugil corsula* Hamilton, *Fish. Ganges* : 221, 381, pl. 9, fig. 97.

1889. *Mugil corsula* : Day, *Fauna British India, Fishes*, 2 : 349.

1981. *Rhinomugil corsula* : Jayaram, *Handbk. Freshw. Fish. India* : 446.

Material examined : Recorded from literature.

Diagnosis : 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. 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 : Chhattisgarh (Bastar), Madhya Pradesh (Rewa district, Chambal river), Andhra Pradesh, Bihar, Gujarat, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Bangladesh, Myanmar, Nepal, and Pakistan.

Family GOBIIDAE

Subfamily GOBINAE

90. *Glossogobius giuris* (Hamilton) Bar-eyed Goby

1822. *Gobius giuris* Hamilton, *Fish. Ganges* : 51, 366, pl. 33, fig. 15.

1889. *Gobius giuris* : Day, *Fauna British India, Fishes*, 2 : 266.

1981. *Glossogobius giuris* : Jayaram, *Handbk. Freshw. Fish. India* : 358.

Material examined : Jabalpur, Narmada River, 5.xii.1960 (1ex.), purchased.

Diagnosis : Head length 3.50 to 4.25 and body depth 5.00 to 6.50 in total length. Head depressed and pointed. Iris of eye without process in pupil. Tongue bilobate. Two dorsal fins separated by a short interspace. 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. Two alternating rows of 4 to 6 blotches on body. A dark blotch on first dorsal fin may be present.

Distribution : Throughout India : Chhattisgarh (Bastar, Indravati Tiger Reserve), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Rajgarh, Rewa districts, Chambal river).

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.

Order MASTACEMBELIFORMES

Family MASTACEMBELIDAE

91. *Macrognathus aculeatus* (Bloch)

Lesser Spiny Eel

1795. *Ophidium aculeatum* Bloch, *Ichthyologie*, 5 : 60, pl. 159, fig. 2.

1889. *Rhynchobdella aculeata* : Day, *Fauna British India, Fishes*, 2 : 331.

1981. *Macrognathus aculeatus* : Jayaram, *Handbk. Freshw. Fish. India* : 387, 389, fig. 199.

Material examined : Jabalpur, Narmada river at Tilwaraghat, 29.x.1960 (2 exs.), Coll. P. Singh and party.

Diagnosis : 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. 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 : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Hoshangabad, Jabalpur, Shahdol districts).

Elsewhere : Bangladesh, Borneo, China, Java, Laos, Malaya Archipelago, Moluccas, Myanmar, Sri Lanka, Nepal, Pakistan, Sumatra, Thailand, Vietnam.

92. *Mastacembelus armatus armatus* (Lacépède)

1800. *Macrognathus armatus* Lacépède, *Hist. Nat. Poiss.*, 2 : 283, 286.

1889. *Mastacembelus armatus* : Day, *Fauna British India, Fishes*, 2 : 334.

1981. *Mastacembelus armatus armatus* : Jayaram, *Handbk. Freshw. Fish. India* : 388, 389.

Material examined : Jabalpur, Narmada River, 12.viii.1960 (1 ex.), purchased.

Diagnosis : 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. A single, long dorsal fin with 32-39 stumpy free spines. Anal fin with 3 spines. Body brownish on dorsal surface and lighter below. A row of black spots along base of soft dorsal fin.

Distribution : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Chhindwara, Hoshangabad, Jabalpur, Mandla, Narsinghpur, Raisen, Rajgarh, Rewa, Satna districts, Chambal river).

Elsewhere : Bangladesh, Cambodia, China, Java, Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Sumatra, Thailand, Tonkin, Vietnam.

93. *Mastacembelus pancalus* (Hamilton)

1822. *Mastacembelus pancalus* Hamilton, *Fish. Ganges* : 30, 364.

1889. *Mastacembelus pancalus* : Day, *Fauna British India, Fishes*, 2 : 333.

1981. *Mastacembelus pancalus* : Jayaram, *Handbk. Freshw. Fish. India* : 389.

Material examined : Jabalpur, Devtal, 15.ii.1962 (1 ex.), Coll. S. Chakrapani and party.

Diagnosis : Head length 5.00 to 5.50 and body depth 6.50 to 7.00 in total length. A long fleshy appendage to snout. A preorbital spine. Teeth in jaws minute. A single, long dorsal fin with 24-26 stumpy free spines. Anal fins with 3 spines. 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.

Distribution : Throughout India : Chhattisgarh (Bastar), Madhya Pradesh (Bhopal, Hoshangabad, Jabalpur, Rewa districts, Chambal river).

Elsewhere : Bangladesh, Pakistan.

SUMMARY

The freshwater fish fauna of Jabalpur is represented by 93 species of fishes found in Narmada river and its tributaries, many ponds and reservoirs found in this area.

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AMPHIBIA

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INTRODUCTION

The amphibian fauna of Jabalpur is represented by 9 species under 4 families including 1 species of toad and 8 species of frogs.

LIST OF AMPHIBIA RECORDED FROM JABALPUR

Order ANURA

Family BUFONIDAE

1. *Bufo melanostictus* Schneider

Family MICROHYLIDAE

2. *Kaloula taprobanica* Parker
3. *Microhyla ornata* (Dumeril & Bibron)
4. *Uperodon glubulosus* (Günther)

Family RANIDAE

5. *Hoplobatrachus tigerinus* (Daudin)
6. *Rana cyanophlyctis* Schneider
7. *Rana limnocharis* Boie
8. *Tomopterna breviceps* (Schneider)

Family Rhacophoridae

9. *Polypedates maculatus* Gray

SYSTEMATIC ACCOUNT

Order ANURA

Family BUFONIDAE

1. *Bufo melanostictus* Schneider Common Toad

1799. *Bufo melanostictus* Schneider, *Hist. Amph.*, 1 : 216.

1991. *Bufo melanostictus* : Sarkar, *Fauna of Orissa*, 4 : 40.

Material examined : Jabalpur, Pachpedi, 2.vii.1964 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Pachpedi, 5.vi.1964 (1 ex.), Coll. A. Paul; Jabalpur, Pachpedi, 21.x.1964 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 21.x.1964 (3 exs.), Coll. H. Khajuria.

Diagnosis : Dorsally brown or yellowish-brown, sometimes with black spots. Tips of warts and ridges of head usually deep brown to black. Ventrally yellowish, more or less spotted with brown. Dorsal skin rough with more or less prominent spiny warts and tubercles of various sizes. Ventral surface smooth. Tympanum large and distinct, nearly two-thirds of eye; tibio-tarsal articulation reaching eyes. Fingers free, toes half to two-third webbed.

Distribution : Throughout India.

Elsewhere : South Asia, Southeast Asia and West Asia (Australasia).

Family MICROHYLIDAE

2. *Kaloula taprobanica* Parker Painted Frog

1831. *Kaloula pulchra* Gray, *Zool. Misc.*, 1 : 38.

1984. *Kaloula pulchra taprobanica* : Sarkar, *Rec. zool. Surv. India*, 81(3-4) : 221-222.

2002. *Kaloula taprobanica* : Daniel, *Book of Indian reptiles & amphibians* : 181.

Material examined : Jabalpur, Pachpedi, 15.vi.1961 (1 ex.), Coll. P. Sinha.

Diagnosis : Head broader than long; snout rounded, as long as the diameter of the eye; nostril nearer to the tip of snout than the eye; inter-orbital width much broader than that of upper eyelid; tympanum hidden. Fingers free, first shorter than second, tips bearing well-developed truncate discs; sub-articular tubercles of fingers and toes distinct. Toes one-third webbed, tips obtusely swollen. Dorsum rough with scattered warts, and greyish with reddish-brown patches on throat and under surface of thighs and light brownish.

Distribution : India : Assam, Bihar, Karnataka, Madhya Pradesh, Orissa, West Bengal, Tamil Nadu.

Elsewhere : Sri Lanka.

3. *Microhyla ornata* (Dumeril & Bibron) Ornate Microhylid Frog

1841. *Engystoma ornatum* Dum. & Bib., *Erpet. Gen.*, 8 : 745.

1991. *Microhyla ornata* : Sarkar, *Fauna of Orissa*, 4 : 42.

Material examined : Jabalpur, Poripatak village, 14 km. south of Patan, 18.viii.1962 (4 exs.), Coll. J.S. Bhatti; Jabalpur, Jamnia village on Niwas road, 23.vi.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Padaria village on Jabalpur-Dindori road, 23.ix.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Barala village on Jabalpur-Mandla road, 27.ix.1961 (4 exs.), Coll. P. Singh.

Diagnosis : Head broader than long; snout obtusely pointed, a little longer than the diameter of the eye; nostril nearer to the tip of snout than the eye; interorbital width a little broader than that of upper eyelid; tympanum not so distinct. Fingers free, first shorter than second, tips flattened. Toes with a rudiment of web, tips blunt. Dorsum smooth, brownish with broad darker markings. Venter smooth, dull whitish, little darker on throat.

Distribution : Throughout India.

Elsewhere : South and South-east Asia.

4. *Uperodon globulosus* (Günther)

1864. *Cacopus globulosus* Günther, *Rept. Br. India* : 416.

2000. *Uperodon globulosus* : Alfred, *Fauna of Gujarat, Vertebrates*, 1 : 301.

Material examined : Jabalpur, Kachpura Ward, 11.xi.1960 (1 ex.), N.A.

Diagnosis : Head broader than long. Snout rounded, twice as long as the diameter of the eye. Nostrils equidistant from the tip of snout and the eye. Fingers free, tips not bearing discs. Subarticular tubercles of fingers and toes not very distinct. Toes with rudiment of web. Both inner and outer shaped metatarsal tubercles present, inner very large. Venter wrinkled and dull whitish.

Distribution : India : Madhya Pradesh (Jabalpur), Gujarat, Assam, West Bengal, Bihar, Maharashtra and Karnataka.

Family RANIDAE

5. *Hoplobatrachus tigerinus* (Daudin)
Indian Bull Frog

1803. *Rana tigerina* Daudin, *Hist. Rain. Gern. Crap.*, : 64.

2002. *Hoplobatrachus tigerinus* : Daniel, *Book of Ind. Rept. and Amphi.*, : 200.

Material examined : Jabalpur, Pachpedi, 18.v.1960 (1 ex.), Coll. H. Khajuria; Jabalpur, Moia nala, on Jabalpur-Mandla road, 24.ii.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat, 29.ix.1961 (1 ex.), Coll. S. Chakrapany.

Diagnosis : Head as long as broad, slightly depressed; snout pointed, projecting much beyond lower jaw. Dorsally yellowish to olive-green, marked with large irregular blackish spots which may be disposed in longitudinal series on the back or forming two or three cross bands. A dark band running anteriorly from eye to snout over the nostril. Fore limbs much shorter in comparison to hind limbs; fingers free, long with rounded tips.

Distribution : All over India up to 1100 m.

Elsewhere : South Asia and Myanmar.

6. *Rana cyanophlyctis* Schneider

1799. *Rana cyanophlyctis* Schneider, *Hist. Amph.*, 1 : 137.

2000. *Rana cyanophlyctis* : Alfred, *Fauna of Gujarat, Vertebrates*, 1 : 304.

Material examined : Jabalpur, Barala village, 21 km. NE of Jabalpur, 2.i.1961 (2 exs.), Coll. S. Chakrapany; Jabalpur, on way to Bheraghat, 21.iii.1960 (1 ex.), Coll. H. Khajuria; Jabalpur, Bheraghat, 39.iv.1961 (7 exs.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat, 31.i.1967 (5 exs.), Coll. V.V. Rao; Jabalpur, Padariya village on Dindori road, 17.iv.1965 (6 exs.), Coll. H.P. Agrawal.

Diagnosis : Head broader than long; nostril equidistant from the tip of the snout and the eye; inter orbital width much smaller than that of the upper eyelid. Tympanum distinct nearly equal to the diameter of the eye. Fingers free, first equals, seconds tip pointed. Toes fully webbed, tips swollen. Tibio-tarsal articulation reaches in between tympanum and nostril. Venter whitish and smooth.

Distribution : India : Madhya Pradesh (Jabalpur), Gujarat, throughout the plains of India and upto 1846 m. in the Himalayas.

Elsewhere : Pakistan, Afghanistan, Baluchistan, Iran, South Arabia, Bangladesh, Thailand and Sri Lanka.

**7. *Rana limnocharis* Boie
Cricket Frog**

1835. *Rana limnocharis* Boie, *Wiegmann, N. Acta. Ac. Leop. Carol.*, 17(1) : 255.

1991. *Rana limnocharis* : Sarkar, *Fauna of Orissa*, 4 : 46.

Material examined : Jabalpur, Amkhas, 1.x.1974 (1 ex.), Coll. R.K. Singh; Jabalpur, 20.ix.1975 (5 exs.), Coll. D.S. Mathur; Jabalpur, Gosalpur on Katni road, 13.ix.1974 (2 exs.), Coll. H.P. Agrawal.

Diagnosis : Head generally as long as broad; snout generally pointed, projecting beyond the mouth, as long as or a little longer than the diameter of the eye, nostril nearer to the tip of snout than the eye; 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. Dorsum greyish and warty. Venter whitish and smooth.

Distribution : Widely distributed in India.

Elsewhere : Eastern Asia from Pakistan, Nepal, Sri Lanka and China to Japan.

**8. *Tomopterna breviceps* (Schneider)
Burrowing Frog**

1799. *Rana breviceps* Schneider, *Hist. Amph.*, 1 : 140.

1991. *Tomopterna breviceps* : Sarkar, *Fauna of Orissa*, 4 : 47

Material examined : Jabalpur, Bheraghat, 19.vii.1965 (1 ex.), Coll. H.P. Agrawal.

Diagnosis : Snout to vent length 13-52 mm. Head broader than long; snout rounded, not projecting beyond the mouth. 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 highly developed, 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 : All over the plains of India.

Elsewhere : Myanmar, Nepal, Sri Lanka.

Family RHACOPHORIDAE

**9. *Polypedates maculatus* Gray
Tree Frog**

1832. *Hyla maculata* Gray, III. *Indian zool.*, 1, pl. 82. fig. 1.

1991. *Polypedates maculatus* : Sarkar, *Fauna of Orissa*, 4 : 47.

Material examined : Jabalpur, near Rani Durgavati Samadhi, 16.xi.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, a pond in Madan Mahal area, 28.iv.1962 (1 ex.), Coll. S. Chakrapany.

Diagnosis : Head broader than long, skin on head free, pointed, projecting a little beyond the mouth; nostril nearer to the tip of snout than eye. Tympanum distinct, about three-fourth diameter of the eye. Fingers with rudimentary web, tips of fingers and toes bear horseshoe shaped distinct discs. Toes nearly three-fourth webbed, two phalanges of fourth toe free. Dorsum brownish with light darker spots and smooth. Venter dull whitish and granular, skin on head free.

Distribution : Plains of India in general.

Elsewhere : South Asia.

SUMMARY

The amphibian fauna of Jabalpur is represented by 9 species under 4 families including 1 species of toad and 8 species of frogs.

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REPTILIA

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INTRODUCTION

The reptilian fauna of Jabalpur is represented by 32 species, which includes 1 species of crocodile, 1 of turtle, 14 of lizards and 16 species of snakes.

LIST OF REPTILES RECORDED FROM JABALPUR

Order CROCODYLIA

Family CROCODYLIDAE

1. *Crocodylus palustris* Lesson

Order TESTUDINES

Family TRIONYCHIDAE

2. *Lissemys punctata punctata* (Bonnaterre)

Order SQUAMATA

Suborder SAURIA

Family GEKKONIDAE

3. *Hemidactylus leschenaulti* Duméril & Bibron

4. *Hemidactylus flaviviridis* Rüppell

5. *Hemidactylus brooki* Gray

Family AGAMIDAE

6. *Agama minor* Hardwicke & Gray

7. *Calotes versicolor* (Daudin)

8. *Psammophilus blanfordanus* (Stoliczka)

9. *Sitana ponticeriana* (Cuvier)

Family SCINCIDAE

10. *Mabuya carinata* (Schneider)
11. *Mabuya dissimilis* (Hallowell)
12. *Mabuya macularia* (Blyth)
13. *Riopa lineata* (Gray)
14. *Riopa punctata* (Gmelin)

Family CHAMAELEONIDAE

15. *Chamaeleo zeylanicus* Laurenti

Family VARANIDAE

16. *Varanus bengalensis* Daudin

Suborder SERPENTES

Family TYPHLOPIDAE

17. *Ramphotyphlops braminus* (Daudin)

Family BOIDAE

18. *Eryx conicus* (Schneider)
19. *Python molurus molurus* (Linnaeus)

Family COLUBRIDAE

20. *Amphiesma stolata* (Linn.)
21. *Coluber fasciolatus* Shaw
22. *Dendrelaphis tristis* (Daudin)
23. *Elaphe helena* (Daudin)
24. *Lycodon travancoricus* Beddome
25. *Xenochrophis piscator* (Schneider)
26. *Oligodon arnensis* Shaw
27. *Ptyas mucosus* (Linn.)

Family ELAPIDAE

28. *Bungarus caeruleus* (Schneider)
29. *Naja naja* (Linn.)

Family VIPERIDAE

30. *Vipera russelli* (Shaw)
31. *Echis carinatus* (Schneider)
32. *Trimeresurus gramineus* (Shaw)

SYSTEMATIC ACCOUNT

Order CROCODYLIA

Family CROCODYLIDAE

1. *Crocodylus palustris* Lesson Mugger Crocodile

1834. *Crocodylus palustris* Lesson, in *Belang. Voy. Ind. Or., Zool.*, : 305.

1931. *Crocodylus palustris* : Smith, *Fauna British India, Rept. & Amph.*, 1 : 47.

Material examined : No specimen available but definitely known to occur in Pariyat reservoir, Jabalpur.

Diagnosis : Body length 3-5 m. The snout is short and broad. The adult is dark olive and the juvenile pale, with black spots. An overall armature of closely set, horn-sheathed, bony plates shields the body, with saw-toothed fringes along the upper border of the tail. The upper jaw has 19 teeth and the lower jaw 14-15 on each side.

Distribution : Throughout India except Jammu & Kashmir, Himachal Pradesh, Punjab and the Northwestern Desert Region.

Elsewhere : South Asia.

Order TESTUDINES

Family TRIONYCHIDAE

2. *Lissemys punctata punctata* (Bonnaterre) Indian Flap-shell Turtle

1788. *La Tortue chagrinee* Lacépède, *Hist. Quad Ovip.*, 1 : 171, pl. 11.

1931. *Lissemys punctata punctata* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 1 : 157.

Material examined : Jabalpur, Pachpedi, 15.vii.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Kalwas village, 3.x.1960 (1 ex.), Coll. P. Singh; Jabalpur, Gwarighat, 14.xi.1960 (2 exs.), Coll. R.C. Sharma.

Diagnosis : It is a small, flat turtle, generally less than 24 cm. in length. The head is moderately large; the snout is short and broad. Limbs are fully webbed, with only three claws on each foot. Tail is very short, olive-brown above. Carapace is grey-green, with numerous black-bordered yellow spots, irregularly arranged and with a light yellow marginal rim.

Distribution : Throughout India.

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

Order SQUAMATA

Suborder SAURIA

Family GEKKONIDAE

3. *Hemidactylus leschenaulti* Dum. & Bib.

1836. *Hemidactylus leschenaulti* Dum. & Bibr., *Erp. Gen.*, 3 : 364.

1935. *Hemidactylus leschenaulti* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 97.

Material examined : Jabalpur, Pachpedi, 24.iv.1960 (1 ex.), Coll. H. Khajuria; Jabalpur, Napier Town, 23.iii.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat, 6.iv.1961 (1 ex.), Coll. H. Khajuria.

Diagnosis : Head rather large, snout broad, obtusely pointed, grey above, with more or less distinct handsome dark brown markings forming undulating cross-bars or rhomboidal spots along the middle of the back; whitish below. Length from snout to vent 83 mm.; tail 83 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Karnataka, Gujarat, Maharashtra, Tamil Nadu, West Bengal, Malabar, Godavari Valley.

Elsewhere : Sri Lanka.

4. *Hemidactylus flaviviridis* Rüppell

1835. *Hemidactylus flaviviridis* Rüppell, *Neue Wirb. Faun.*, 18.

1935. *Hemidactylus flaviviridis* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 98.

Material examined : Jabalpur, Pachpedi, 2.v.1961 (1 ex.), Coll. P. Singh; Jabalpur, Lamhetaghat, 29.ix.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Lamata village, 26.vi.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Lamhetaghat, 22.vii.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Pachpedi, 28.vi.1961 (1 ex.), Coll. P. Singh.

Diagnosis : Tail more swollen at the base and similarly banded above and the white edgings are often more conspicuous. The animal changes its colouration very rapidly during life. Greyish above, with indistinct darker transverse bands. From snout to vent 90 mm., tail 90 mm.

Distribution : Northern India and westwards through Persia and Arabia to the shores of the red sea.

5. *Hemidactylus brooki* Gray

1845. *Hemidactylus brooki* Gray, *Cat. Liz. Brit. Mus.* : 153.

1935. *Hemidactylus brooki* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 89.

1977. *Hemidactylus brooki* : Agrawal, *Newsl. zool. Surv. India*, 3(3) : 115-116.

Material examined : Jabalpur, Pachpedi, 21.vii.1960 (1 ex.), Coll. R.C. Sharma; Jabalpur, Ladhiana Mohalla, 27.x.1960 (1 ex.), Coll. P. Singh; Jabalpur, Bargi Hills, 28.xii.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Pachpedi, 9.i.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Padariya village on Mandla road, 17.ii.1961 (1 ex.), Coll. S. Chakrapany.

Diagnosis : Head moderately large, snout obtusely pointed, 8 to 10 upper and 7 to 9 lower labials. Back with conical tubercles arranged in regular rows, colour brown or varying shades of grey with brown spots, whitish below. Femoral and preanal pores vary from 15 to 27.

Distribution : Throughout the Indian subregion.

Elsewhere : From Borneo and South China through much of tropical Asia and the northern half of Africa.

Family AGAMIDAE

6. *Agama minor* Hardwicke & Gray

1927. *Agama minor* Hardwicke & Gray, *Zool. Journ.*, 3 : 218.

1935. *Agama minor* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 225.

Material examined : Jabalpur, Mandla road, 18 km. from Jabalpur, 15.iv.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Madan Mahal, 19.iv.1961 (6 exs.), Coll. R.C. Sharma; Jabalpur, Ghat village, about 20 km. SW of Jabalpur, 25.ix.1961 (1 ex.), Coll. P. Singh.

Diagnosis : Head rather large, not elongate, not depressed, snout as long as or a little longer than the orbit. Body feebly depressed, dorsal scales rather large, strongly imbricate and keeled, 48 to 58 scales round the middle of the body. Limbs short, digits short. Tail short, rounded or feebly compressed. Yellowish-brown above with three rows of dark brown light edged spots on the back and base of the tail, the median row most distinct and formed of rhomboidal spots.

Distribution : India : Madhya Pradesh (Sagar, Ratlam), Gujarat, Uttar Pradesh.

7. *Calotes versicolor* (Daudin) Garden Lizard

1802. *Agama versicolor* Daudin, *Hist. Nat. Rep.*, 3 : 395.

1935. *Calotes versicolor* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 189.

1991. *Calotes versicolor* : Sanyal, *Fauna of Orissa*, 4 : 58.

Material examined : Jabalpur, Ladhiana Mohalla, 26.ix.1960 (1 ex.), Coll. P. Singh; Jabalpur, Chamanpura Mohalla, 27.ix.1960 (1 ex.), Coll. P. Singh; Jabalpur, Napier Town, 14.xi.1960 (1 ex.), Coll. R.C. Sharma; Jabalpur, Garha, 23.xii.1960 (5 exs.), Coll. P. Singh; Jabalpur, Pachpedi, 9.1.1961 (1 ex.), Coll. S. Chakrapany.

Diagnosis : Light brown or greyish above, uniform or with more or less distinct dark brown transverse spots or bars upon the back and sides; or variegated with dark brown; dark streaks radiating from the eye. Tail with light and dark annuli. Dirty whitish below, often streaked with dark brown or black. The throat may have a black transverse bar; nuchal and dorsal crest continuous.

Distribution : India : Eastern Rajasthan, Madhya Pradesh, Northern Maharashtra, Western Uttar Pradesh.

Elsewhere : Bangladesh, Bhutan, Maldives, Nepal, Sri Lanka.

8. *Psammophilus blanfordanus* (Stoliczka)

1870. *Charasia dorsalis* Blanford, *J. Asiat. Soc. Bengal*, 39 : 368.

1935. *Psammophilus blanfordanus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 210.

Material examined : Jabalpur, Dobhi village on Jabalpur-Mandla road, 11.x.1961 (1 ex.), Coll. P. Singh; Jabalpur, Balsagar on Jabalpur-Nagpur road, 17.ii.1962 (1 ex.), Coll. P. Singh; Jabalpur, Madan Mahal Hill, 22.ii.1962 (1 ex.), Coll. P. Singh; Jabalpur, Madan Mahal, 21.iv.1962 (1 ex.), Coll. S. Chakrapany; Jabalpur, Madan Mahal, 26.vii.1962 (2 exs.), Coll. S. Chakrapany.

Diagnosis : Head rather large, elongate, depressed, the checks swollen in the adult male; snout longer than the orbit. Ante humeral fold deeper; from 80 to 100 scales round the middle. Young olive-brown above, spotted or marbled with brown and usually with a series of large lozenge-shaped dark brown spots with pale centres on the back and tail. From snout to vent 100, tail 200 mm. Females are smaller.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Tamil Nadu, Eastern Ghats, Kerala, Orissa.

9. *Sitana ponticeriana* (Cuvier)

Fan-throated Lizard

1844. *Sitana ponticeriana* Cuvier, *Guerin Icon. Reg. Anima. Rep.* : pl. 10, fig. 2.

1935. *Sitana ponticeriana* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 144.

1991. *Sitana ponticeriana* : Sanyal, *Fauna of Orissa*, 4 : 57.

Material examined : Jabalpur, Chopda village on Mandla road, 20.ii.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Ghat area on Jabalpur-Nagpur road, 26.iii.1962 (1 ex.), Coll. P.

Singh; Jabalpur, Padariya village on Rani Durgavati Samadhi road, 25.iv.1962 (1 ex.), Coll. P. Singh; Jabalpur, Rani Durgavati Samadhi road, 25.iv.1962 (1 ex.), Coll. R.C. Sharma; Jabalpur, Ghat area, 10th mile on Jabalpur-Nagpur road, 28.vii.1962 (1 ex.), Coll. P. Singh.

Diagnosis : Light or dark brown above, with a series of dark brown, black-edged, rhomboidal spots along the middle of the back; a more or less distinct light line along each side of the spots and sometimes a light vertebral line dividing them. Flanks, top of head and upper surfaces of limbs with or without dark markings. Whitish below.

Distribution : Throughout India except wet areas (with heavy rainfall).

Elsewhere : Nepal, Pakistan, and Sri Lanka.

Family SCINCIDAE

10. *Mabuya carinata* (Schneider)

Common Keeled Grass Skink

1807. *Scincus carinata* Schneider, *Hist. Amphib.*, 2 : 183.

1935. *Mabuya carinata* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 266.

1991. *Mabuya carinata* : Sanyal, *Fauna of Orissa*, 4 : 61.

Material examined : Jabalpur, 30th km. on Jabalpur-Nagpur road, 31.i.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Barghi village, 28.xii.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Garha, 16.xii.1960 (1 ex.), Coll. P. Singh.

Diagnosis : Brown to olive or bronzy above, uniform or with dark brown or black spots, or longitudinal streaks along the lateral margins of the scales. Sides darker brown or chestnut, with or without light spots. A light dorso-lateral line starting from above the eye and continued to the base of the tail. Lower parts whitish or yellow

Distribution : Throughout India except Northwestern India and West Bengal.

Elsewhere : Nepal.

11. *Mabuya dissimilis* (Hallowell)

1857. *Euprepsis dissimilis* Hallowell, *Trans. Amer. Phil. Soc.* 11(2) : 78.

1935. *Mabuya dissimilis* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 261.

Material examined : Recorded from literature (Smith, 1935).

Diagnosis : Supranasals in contact with one another; fronto-nasal broader than long; prefrontals in contact with one another; no proper nuchals. Lower eyelid with an

undivided transparent disc. From 34 to 36 scales round the middle of the body. Light brown above with 3 or less distinct greenish-white, rims of eyelids bright yellow in life.

Distribution : India : Madhya Pradesh (Jabalpur), Rajasthan, Bihar, West Bengal, Punjab.

Elsewhere : Pakistan.

12. *Mabuya macularia* (Blyth)

1839. *Euprepes sebae* Dum. & Bibr., *Erp. Gen.* 5 : 692.

1935. *Mabuya macularia* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 264.

Material examined : Jabalpur, Panagar village, 25.x.1961 (1 ex.), Coll. P. Singh; Jabalpur, Nagaghati, 14 miles from Jabalpur, 22.xii.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Gwarighat, 23.vii.1962 (1 ex.), Coll. S. Chakrapany.

Diagnosis : Supranasals separated from one another. A pair of nuchals present or absent. Lower eyelid scaly. From 28 to 30 scales round the middle of the body. Tail not twice the length of the head and body. Length from snout to vent approximately 60 to 75 mm.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Assam, Orissa, Uttar Pradesh, West Bengal.

Elsewhere : Myanmar, Thailand, Cambodia, Malaya.

13. *Riopa lineata* (Gray)

1839. *Chiamela lineata* Gray, *Ann. Mag. Nat. Hist.*, 2 : 333.

1935. *Riopa lineata* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 321.

Material examined : Jabalpur, Kachpura Ward, 29.x.1960 (1 ex.), Coll. P. Singh; Jabalpur, Sita Hill, 16.ii.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Sagra village on Shahpura road, 17.ii.1961 (1 ex.), Coll. P. Singh.

Diagnosis : Body more elongate and of smaller size. Distance between the end of the snout and the fore limb contained three to four times in the distance between the axilla and giron. Frontal smaller than the fronto parietal, which is single. 104 to 110 scales down the middle of the back. Limbs weaker, each one with four digits only, the outer toe being absent. Golden brown above and on the sides, with darker dots forming longitudinal lines, lighter below.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra.

14. *Riopa punctata* (Gmelin)

1799. *Scincus punctatus* Gmelin, *Hist. Amphib.*, 197.

1935. *Riopa punctata* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 318.

Material examined : Jabalpur, near Pariat Tank, 27.vii.1963 (1 ex.), Coll. S. Chakrapany.

Diagnosis : Distance between the end of snout and the forelimb contained two to two and three-quarter times in the distance between the axilla and grion. Snout obtuse, lower eyelid with an undivided semitransparent disc. An enlarged temporal scale borders the outer margin of the parietal. Body covered with smooth subequal scales, 24 or 26 rarely 28 round the body, 62 to 76 down the middle of the back.

Distribution : India : Madhya Pradesh (Jabalpur), Himachal Pradesh, Uttar Pradesh, Tamil Nadu, Karnataka, Rajasthan.

15. *Chamaeleo zeylanicus* Laurenti Indian Chamaeleon

1768. *Chamaeleo zeylanicus* Laurenti, *Syn. Rept.* : 46.

1935. *Chamaeleo zeylanicus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 251.

1991. *Chamaeleo zeylanicus* : Sanyal, *Fauna of Orissa*, 4 : 60.

Observations : Sighted in Jabalpur in August 2003.

Diagnosis : The length from snout to vent is about 175 mm., tail prehensile, about 200 mm. Long. Dorsal side green, varying from very pale green to almost black, rarely yellow; casque much elevated posteriorly; with strong, curved parietal crest. A series of conical tubercles forming a very distinct crest along the throat and belly, tail often banded.

Distribution : Peninsular India south of the Gangetic Plain. *Elsewhere* : Sri Lanka.

Family VARANIDAE

16. *Varanus bengalensis* Daudin Common Indian Monitor Lizard

1802. *Varanus bengalensis* Daudin, *Hist. Nat. Rept.*, 3 : 67.

1935. *Varanus monitor* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 2 : 402.

1991. *Varanus bengalensis* : Sanyal, *Fauna of Orissa*, 4 : 63.

Material examined : Jabalpur, Pachpedi, 30.iii.1960 (1 ex.), Coll. D. Sanyal; Jabalpur, Pachpedi, 19.x.1960 (1 ex.), purchased; Jabalpur, Gwarighat, 23.vii.1962 (1 ex.), Coll. P. Singh; Jabalpur, Pachpedi, 18.vi.1963 (1 ex.), Coll. D.N. Basu.

Diagnosis : It is a medium-sized, dark brown monitor, about 72-75 cm. in head and body length. The tail is very strong, long, compressed and measures about 100 cm. in length. The snout is convex terminally. The nostrils are oblique slits lying midway between the eye and the end of the muzzle. The tongue is very long, forked and protrusible.

Distribution : Central India, Rajasthan, Uttar Pradesh. Indian subcontinent.

Suborder SERPENTES

Family TYPHLOPIDAE

17. *Ramphotyphlops braminus* (Daudin)
Common Worm Snake

1803. *Eryx braminus* Daudin, *Hist. Nat. Rept.*, 7 : 279.

1943. *Typhlops braminus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 46.

1991. *Ramphotyphlops braminus* : Sanyal, *Fauna of Orissa*, 4 : 64.

Material examined : Jabalpur, between Harguga and Bolharra villages, 29.vi.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, on the way to Umaria village, 25.vii.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, near Amkhas village, 28.viii.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Ghat village, 20 km. SW of Jabalpur, 25.ix.1961 (1 ex.), Coll. A.K. Nair.

Diagnosis : Length about 170 mm.; colouration brown or blackish above, lighter below, snout, anal region and end of tail usually whitish. Snout rounded, strongly projecting; nostrils lateral; eye distinct, in the ocular shield or at its junction with the supraocular; 290-320 transverse rows of scales.

Distribution : Throughout India.

Elsewhere : Sri Lanka, Indo-China, Southeast Asia.

Family BOIDAE

18. *Eryx conicus* (Schneider)
Common Sand Boa

1801. *Boa conica* Schneider, *Hist. Amphi.*, 2 : 268.

1943. *Eryx conicus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 112.

1991. *Eryx conicus* : Sanyal, *Fauna of Orissa*, 4 : 65.

Material examined : Jabalpur, Adhartal village, 25.x.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Khari village, near 18th mile stone, 28.viii.1962 (1 ex.), Coll. S. Singh; Jabalpur, Agrawal Colony, 31.vii.1970 (1 ex.), purchased.

Diagnosis : Total length 480-940 mm., tail 35-55 mm.; colouration 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 stripe; lower parts yellowish or whitish, the outer scale-rows with small brown spots; tail pointed.

Distribution : Most of India.

Elsewhere : Pakistan, Sri Lanka.

19. *Python molurus molurus* (Linnaeus) Indian Rock Python

1758. *Coluber molurus* Linn., *Syst. Nat.*, 10th ed. : 225.

1943. *Python molurus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 106.

1991. *Python molurus molurus* : Sanyal, *Fauna of Orissa*, 4 : 65.

Observations : This species has been sighted in Jabalpur.

Diagnosis : Body length ranges from 2.5-4.5 m. The head is distinct from the neck and has symmetrical shields. The eyes have vertical pupils. The scales on the body are smooth and are arranged in 60-75 rows. The tail is rather short. The colour of the body varies from pale grey to yellow above, and is yellow below. A dorsal series of large walnut coloured crown saddlers alternate with pinkish laterals.

Distribution : India : Gangetic Plains, Peninsular India.

Elsewhere : Nepal, Pakistan, Sri Lanka.

Family COLUBRIDAE

20. *Amphiesma stolata* (Linn.) Striped Keelback

1758. *Coluber stolatus* Linn., *Syst. Nat.*, 10th ed. : 219.

1943. *Natrix stolata* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 303.

1991. *Amphiesma stolata* : Sanyal, *Fauna of Orissa*, 4 : 68.

Material examined : Jabalpur, Pachpedi, 25.v.1960 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 18.vii.1960 (2 exs.), Coll. H. Khajuria; Jabalpur, Pachpedi, 19.vii.1960 (2 exs.), Coll. H. Khajuria; Jabalpur, Pachpedi, 1.ix.1960 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 27.ix.1960 (1 ex.), Coll. R.C. Sharma; Jabalpur, Pachpedi, 28.ix.1960 (1 ex.), Coll. H. Khajuria.

Diagnosis : Olive-greenish or brownish above with black spots or reticulated cross-bars intersected by two dorso-lateral yellow or buff stripes; on the hind part of the body the

stripes are best marked and the black spots least evident, the green colour being almost uniform dark-olive. Lower parts whitish. Top of head olive, uniform or the shields edged with black, lips yellowish.

Distribution : Throughout India.

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

21. *Coluber fasciolatus* Shaw Banded Racer

1796. *Coluber fasciolatus* Russel, *Ind. Serp.*, 1 : 26, pl. 21.

1943. *Coluber fasciolatus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 170.

Material examined : Jabalpur, Pachpedi, 31.xii.1962 (1 ex.), purchased.

Diagnosis : Maxillary teeth 12 to 14, diastoma distinct; snout strongly projecting; head feebly distinct from neck; rostral large, much broader than high; temporals 2+3 or 3+3; 8 supralabials, 4th and 5th touching the eye, 5th highest and touching the lower anterior temporal. Scales smooth, in 21 or 23 : 21 or 23 : 17 or 15 rows.

Distribution : India : Madhya Pradesh (Jabalpur), peninsular India, extending in the north-west as far as a line drawn from Baroda through Gwalior to the Himalayas south of Nepal; in the east to western Bengal.

Elsewhere : Sri Lanka.

22. *Dendrelaphis tristis* (Daudin) Common Indian Bronze-back

1758. *Coluber tristis* Daudin., *Rept Hist. Nat.*, 6 : 430.

1943. *Ahaetulla tristis* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 248.

1991. *Dendrelaphis tristis* : Sanyal, *Fauna of Orissa*, 4 : 70.

Material examined : Jabalpur, Rani Durgavati Samadhi, 15.xii.1962 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Bronze-brown or purplish-brown above, light greyish, greenish or yellowish below. A more or less distinct buff flank stripe along the outer two scale rows, edged or spotted with black, an indistinct black temporal stripe extending on to the neck, where it may break up into vertical bars, vertebral scales on neck, where it may break up into vertical bars. Upper lip yellow.

Distribution : India : Maharashtra, South India.

Elsewhere : Bangladesh, Nepal, Pakistan, Sri Lanka

**23. *Elaphe helena* (Daudin)
Common Trinket Snake**

1803. *Coluber helena* Daudin, *Hist. Nat. Rept.*, 6 : 277.

1943. *Elaphe helena* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 149.

1991. *Elaphe helena* : Sanyal, *Fauna of Orissa*, 4 : 67.

Material examined : Jabalpur, Pachpedi, 27.vii.1961 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 2.vi.1962 (1 ex.), Coll. Mohan.

Diagnosis : Light or dark brown above; with dark brown or black cross-bars containing white ocelli, these are most conspicuous anteriorly and on the sides more than on the back, this pattern gradually disappears on the hinder part of the body, which is brown above with a broad dark stripe on each side; a black vertical streak below the eye and an oblique one behind it, lower parts yellowish.

Distribution : India : Maharashtra, Southern India.

Elsewhere : Bangladesh, Nepal, Pakistan, Sri Lanka.

24. *Lycodon travancoricus* Beddome

1870. *Lycodon tranvancoricus* Beddome, *Madras Moth. J. Med. Sci.* 2 : 169.

1943. *Lycodon tranvancoricus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 259.

Material examined : Recorded from literature (Smith, 1943).

Diagnosis : Snout broad; anterior and posterior nasals subequal; loreal normally not touching the eye, not touching the internasals; temporals 2+3 or 3+3; 9 supralabials; scales in 17 : 17 : 15 rows, smooth, V. 176-206, angulate laterally; C. 64-76, paired or some, rarely all of them single; A-1. Dark purplish-brown or blackish above, with pale yellow cross bars which bifurcate on the sides, enclosing more or less triangular spots. Uniform white below; upper lip usually brown, spotted with white.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra, Western Ghats, common in the Wynaad and the Nilgiris.

**25. *Xenochrophis piscator* (Schneider)
Checkered Keelback**

1799. *Hydrus piscator* Schneider, *Hist. Amph.*, 1 : 247.

1943. *Natrix piscator* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 293.

1991. *Xenochrophis piscator* : Sanyal, *Fauna of Orissa*, 4 : 68.

Material examined : Jabalpur, Pachpedi, 9.vi.1961 (1 ex.), Coll. S. Singh; Jabalpur, Pachpedi, 12.vi.1961 (1 ex.), Coll. P. Singh; Jabalpur, Pachpedi, 21.vi.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 3.viii.1961 (1 ex.), purchased.

Diagnosis : Body olivaceous or yellowish above, whitish or yellowish below. Maxillary teeth 22-28, gradually enlarged posteriorly, nostrils directed slightly upwards. Scales in 19 rows, more or less distinctly keeled, except the outer one or two rows, which are smooth.

Distribution : Throughout India.

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

26. *Oligodon arnensis* Shaw

1796. *Oligodon arnensis* Russel, *Ind. Serp.*, 1 : 41 & 43, pls. 35 & 38.

1943. *Oligodon arnensis* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 225.

1943. *Oligodon arnensis* : Smith, *Fauna British India, Rept. & Amph.*, 3 : 225.

Material examined : Jabalpur, Napier Town, 30.xi.1960 (1 ex.), donated; Jabalpur, Ridge road, 17.vii.1961 (1 ex.), Coll. Mohan; Jabalpur, Tearvana, 8 miles from Jabalpur, 29.vii.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, UDT Hostel, 17.ii.1999 (1 ex.), Coll. S.K. Dubey.

Diagnosis : Seven supralabials, 3rd and 4th touching the eye; loreal frequently united with the prefrontal. Scales in 17 rows, V. 164-202, angulate laterally, C. 41-59. Light or dark brown above (often reddish or purplish in life) with well defined black cross bars or transversely arranged spots; whitish below, uniform or with indistinct lateral spots.

Distribution : India : Madhya Pradesh (Jabalpur), West Bengal, Peninsular India, Western Himalayas.

Elsewhere : Pakistan, Nepal.

27. *Ptyas mucosus* (Linn.)

Rat Snake

1758. *Coluber mucosus* Linn., *Mus. Ad. Frid.*, 1 : 37.

1943. *Ptyas mucosus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 159.

1991. *Ptyas mucosus* : Sanyal, *Fauna of Orissa*, 4 : 67.

Material examined : Jabalpur, Pachpedi, 6.iv.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Garha, 12.vi.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Pachpedi, 13.vi.1961 (1 ex.), purchased; Jabalpur, South Civil Lines, 14.vi.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 6.vii.1961 (1 ex.), Coll. S. Singh.

Diagnosis : Body olive-green, brown, yellowish or greyish above, with irregular but strongly marked black crossbars on the posterior half of the body. Yellowish-white below, the posterior ventrals and subcaudals edged with black. Maxillary teeth 20-25. Scales in 16 or 17 rows at mid-body; V. 190-213, C. 100-146, A. 2.

Distribution : India : Madhya Pradesh, North Maharashtra, Part of Rajasthan, Uttar Pradesh.

Elsewhere : Bangladesh, Nepal, and Pakistan.

Family ELAPIDAE

28. *Bungarus caeruleus* (Schneider) Common Krait

1801. *Pseudoboa caerulea* Schneider, *Hist. Amph.*, 2 : 284.

1943. *Bungarus caeruleus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 413.

1991. *Bungarus caeruleus* : Sanyal, *Fauna of Orissa*, 4 : 72.

Material examined : Jabalpur, Pachpedi, 6.viii.1960 (1 ex.), Coll. Mohan; Jabalpur, Cantonment Area, 23.x.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Pachpedi, 7.viii.1969 (1 ex.), purchased; Jabalpur, Napier Town, 2.iv.1974 (1 ex.), Coll. S.K. Mishra.

Diagnosis : Length usually less than 2 m. Black or bluish-black above with narrow white crossbars, which are least distinct on the anterior part of the body, or entirely absent. The eyes are small and very dark which makes the pupil almost invisible.

Distribution : India : Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh.
Elsewhere : Bangladesh, Pakistan, Sri Lanka.

29. *Naja naja* (Linn.) Indian Cobra

1758. *Coluber naja* Linn., *Syst. Nat.*, 10th ed. : 221.

1943. *Naja naja* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 427.

1991. *Naja naja* : Sanyal, *Fauna of Orissa*, 4 : 72.

Material examined : Jabalpur, Pachpedi, 27.viii.1960 (2 exs.), Coll. H. Khajuria; Jabalpur, Military grass farm, Cant., 1.vii.1960 (3 exs.), purchased; Jabalpur, Pachpedi, 27.vii.1963 (1 ex.), purchased; Jabalpur, Pachpedi, 18.vii.1963 (1 ex.), purchased.

Diagnosis : Colour variable, generally brownish to blackish. Head not very distinct from the neck, dilatible into a hood, the anterior ribs being elongate. A monocle or spectacle mark or no mark present on the hood. Eyes moderate, pupil round. Scales smooth, in 19-25 rows, no occipital shields.

Distribution : Throughout India.

Elsewhere : Africa, Malaysia, and Southern Asia.

Family VIPERIDAE

30. *Vipera russelli* (Shaw)

Russell's Viper

1797. *Coluber russelli* Shaw, *Nat. Misc.*, 8, pl. 291.

1943. *Vipera russelli* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 483.

2000. *Vipera russelli* : Sharma, *Fauna of Gujarat*, 1 : 294.

Material examined : Jabalpur, Syrian Christian Church, Ridge road, 24.xi.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Ridge road, 18.iv.1962 (1 ex.), purchased; Jabalpur, Pachpedi, 9.xi.1962 (1 ex.), purchased; Jabalpur, Pachpedi, 24.xi.1967 (1 ex.), purchased.

Diagnosis : Body length 3-4 feet but occasionally can reach 6 feet. Scales in 27-33 rows, supranasal strongly crescentic. Snout obtuse, with distinct canthus, nostrils very large. Light brown above, with 3 longitudinal series of large rounded or oval spots, which are usually brown in the centre, have a black margin and are edged again with white.

Distribution : Throughout India.

Elsewhere : Sri Lanka, Myanmar, Indo-China, Pakistan.

31. *Echis carinatus* (Schneider)

Saw Scaled Viper

1801. *Pseudoboa carinata*, *Hist. Amphib.*, 2 : 2.

1943. *Echis carinatus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 487.

2000. *Echis carinatus* : Sharma, *Fauna of Gujarat*, 1 : 294.

Material examined : Recorded from Gazetteer of India, Jabalpur (1909).

Diagnostic characters : Pale brown or greyish or sandy above with a vertebral series of pale dark edged spots which are connected on each side with a light inverted-U or inverted-V shaped mark enclosing a dark area, these spots are usually more or less connected with one another and form an undulating light line along the side of the body. A cruciform mark on top of the head, behind the eyes. Whitish below, uniform or spotted with brown.

Distribution : Endemic to India. Found in Central and Southern India.

**32. *Trimeresurus gramineus* (Shaw)
Green Pit Viper**

1802. *Coluber gramineus* Shaw, *Gen. Zool.* 3 : 420.

1943. *Trimeresurus gramineus* : Smith, *Fauna Brit. India, Reptilia & Amphibia*, 3 : 515.

2000. *Trimeresurus gramineus* : Sharma, *Fauna of Gujarat*, 1 : 295.

Material examined : Recorded from Gazetteer of India, Jabalpur (1909).

Diagnosis : Length up to 745 mm. in males and 935 mm. in females. Dorsal colouration yellowish green, ventrum whitish with a green tinge. Head quite distinct from the neck, snout two times as long as the diameter of the eye; upper head scales small, subequal, subimbricate.

Distribution : India : Madhya Pradesh, Gujarat.

SUMMARY

The reptilian fauna of Jabalpur district is represented by 32 species, which includes 1 species of crocodile, 1 of fresh water turtle, 14 of lizards and 16 species of snakes.

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AVES

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INTRODUCTION

Birds have been studied in the past in different regions of Central India including various districts of Madhya Pradesh. Moss (1911) studied the avifauna pertaining to Central India and listed about 155 species from Saugar and Damoh districts of Madhya Pradesh. Baker (1922-1930) and D'Abreu (1931, 1935) reported birds from Madhya Pradesh and Central Provinces respectively. Ali (1939, 1940) published a list of 278 species of birds from Central India in two parts, based on the collections made in Dhar, Indore, Gwalior and Bhopal. Hewetson (1939) contributed a paper on birds of Betual District. He contributed another paper on migration of insectivorous birds in Madhya Pradesh in 1954; and again in 1956 he published a paper on bird life of Madhya Pradesh which included the list of 308 birds. Roonwal (1942) collected birds from Hoshangabad and listed 47 species. Wright (1942) noted 193 species of birds from Berur during one year study. Ali and Ripley (1968-1974) recorded various birds from Madhya Pradesh. Majumdar (1984) studied the collection of 219 birds from Bastar District and recorded 97 species. There are also records on birds from various National Parks, Wildlife Sanctuaries and Tiger Reserves from Madhya Pradesh. There is no comprehensive study of birds from Jabalpur district as such except Khajuria & Mahabal (1994) studied the bird collection from Narmada Valley and recorded 100 species from district Jabalpur. Chandra and Singh (2004) reviewed the avifauna of Madhya Pradesh and Chhattisgarh and total 517 species were listed.

In this communication 194 species of birds have been recorded from District Jabalpur on the basis of past records, collections and actual sightings during the surveys undertaken from 2001 to 2003. Birds were observed with the help of 7 x 50 pair of binoculars. The identification of birds and its account (residential status, diagnostic characters, distribution, etc. is based on Ali & Ripley (1968-1974 and 1995) and Grimmett *et. al.* (2000).

In the systematic list (Table-1) and in the description of 194 bird species, the common names, scientific names and family sequence have been followed as per standardized common and scientific names of the birds by Manakadan & Pittie (2001).

RESULTS AND DISCUSSION

The inventory of birds of District Jabalpur comprises 194 species belonging to 140 genera under 52 families which are grouped into 17 avian orders (Table 2). It indicates that there is somewhat substantial bird diversity as compared to the avian diversity of Indian subcontinent. Further, the table indicates that at generic and species level, orders like Ciconiiformes, Charadriiformes and Passeriformes are well represented in the district.

The residential status of Birds of this district has been plotted in Fig. 1. It shows that 81.4% bird species are resident subject to some local, seasonal movements due to monsoon, drought condition, breeding/non-breeding activities and, or availability of food etc. 16.0% bird species are migrant particularly winter visitors during September/October to March and 2.1% are partly resident and partly winter visitors. The remaining species (0.5 %) are monsoon visitors. The habitat wise distribution of the birds indicates that 72.8% are of terrestrial nature and the remaining 27.2% are either wetland or wetland dependent.

CONSERVATION STATUS

The conservation status of birds of Jabalpur district has been compiled in Table 3. These birds are included in various schedules of Indian Wildlife (Protection) Act, 1972 (as amended upto 2002); categories of Red Data Book of Indian Wild Animals, Part 1. Vertebrata of Zoological Survey of India (1994); IUCN Red list of Threatened species (2002); and Appendices of CITES (Convention on International Trade in Endangered species of Flora and Fauna). Further, it can be pointed out that the bird species, viz., *Cercomela fusca* (Blyth) Indian Chat (Muscicapidae : Turdinae) is endemic to Central India and also occurs in the district.

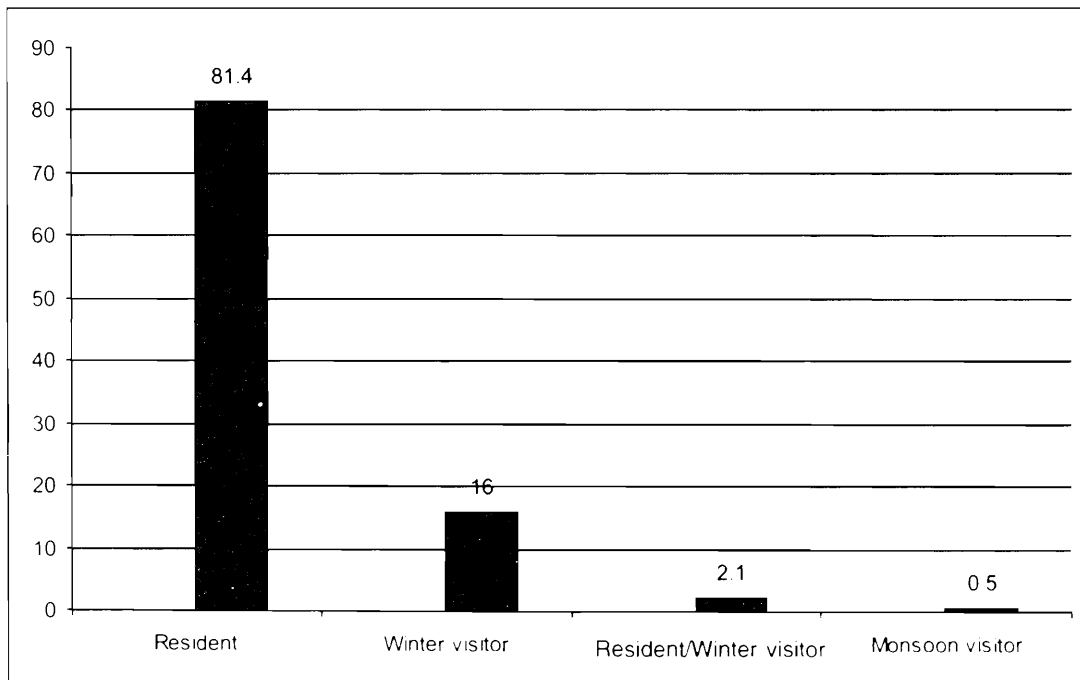


Fig. 1. Residential status of Birds of Jabalpur District

Table-1 : Systematic list of Birds of Jabalpur district

S. No.	Scientific Name	Common Name	Resid. Status
	Order Podicipediformes		
	Family Podicipedidae		
1.	<i>Tachybaptus ruficollis</i> (Pallas)	Little Grebe	R
	Order Pelecaniformes		
	Family Phalacrocoracidae		
2.	<i>Phalacrocorax niger</i> (Vieillot)	Little Cormorant	R
3.	<i>Phalacrocorax fuscicollis</i> Stephens	Indian Shag	R
4.	<i>Phalacrocorax carbo</i> (Linnaeus)	Great Cormorant	R
	Family Anhingidae		
5.	<i>Anhinga melanogaster</i> Pennant	Darter	R, LR/nt
	Order Ciconiiformes		
	Family Ardeidae		
6.	<i>Egretta garzetta</i> (Linnaeus)	Little Egret	R
7.	<i>Ardea cinerea</i> Linnaeus	Eastern Grey Heron	R
8.	<i>Ardea purpurea</i> Linnaeus	Purple Heron	R
9.	<i>Casmerodius albus</i> Linnaeus	Large Egret	R
10.	<i>Mesophoyx intermedia</i> (Wagler)	Median Egret	R
11.	<i>Bubulcus ibis</i> (Linnaeus)	Cattle Egret	R
12.	<i>Ardeola grayii</i> (Sykes)	Indian Pond Heron	R
13.	<i>Butorides striatus</i> (Linnaeus)	Little Green Heron	R
14.	<i>Nycticorax nycticorax</i> (Linnaeus)	Black-crowned Night-Heron	R
	Family Ciconiidae		
15.	<i>Mycteria leucocephala</i> (Pennant)	Painted Stork	R, LR/nt
16.	<i>Anastomus oscitans</i> (Boddaert)	Asian Open-bill Stork	R
17.	<i>Ciconia episcopus</i> (Boddaert)	White-necked Stork	R
18.	<i>Leptoptilos javanicus</i> (Horsfield)	Lesser Adjutant-Stork	R/ Nomadic
19.	<i>Leptoptilos dubius</i> (Gmelin)	Greater Adjutant-Stork	R/ Uncertain /Nomadic

S. No.	Scientific Name	Common Name	R. Status
	Family Threskiornithidae		
20.	<i>Threskiornis melanocephalus</i> (Latham)	Oriental White Ibis	R, LR/nt
21.	<i>Pseudibis papillosa</i> (Temminck)	Black Ibis	R
22.	<i>Platalea leucorodia</i> Linnaeus	Eurasian Spoonbill	R/WV, Sch. I, CITES-II, ZSI-EN
	Order Anseriformes		
	Family Anatidae		
23.	<i>Dendrocygna javanica</i> (Horsfield)	Lesser Whistling-Duck	R
24.	<i>Tadorna ferruginea</i> (Pallas)	Brahminy Shelduck	WV
25.	<i>Sarkidiornis melanotos</i> (Pennant)	Comb Duck	R
26.	<i>Nettapus coromandelianus</i> (Gmelin)	Cotton Teal	R
27.	<i>Anas penelope</i> Linnaeus	Eurasian Wigeon	WV
28.	<i>Anas poecilorhyncha</i> J.R. Forester	Spot-billed Duck	R
29.	<i>Anas crecca</i> Linnaeus	Common Teal	WV
30.	<i>Rhodonessa rufina</i> (Pallas)	Red-crested Pochard	WV
31.	<i>Aythya ferina</i> (Linnaeus)	Common Pochard	WV
32.	<i>Aythya fuligula</i> (Linnaeus)	Tufted Pochard	WV
33.	<i>Mergus merganser</i> Linnaeus	Common Merganser	WV
	Order Falconiformes		
	Family Accipitridae		
34.	<i>Elanus caeruleus</i> (Desfontaines)	Black-shouldered Kite	R, Sch.-I
35.	<i>Milvus migrans</i> (Boddaert)	Black Kite	R, Sch.-I
36.	<i>Neophron percnopterus</i> (Linnaeus)	Egyptian Vulture	R, Sch.-I
37.	<i>Gyps bengalensis</i> (Gmelin)	Indian White-backed Vulture	R, CR, Sch.-I
38.	<i>Gyps indicus</i> (Scopoli)	Long-billed Vulture	R, CR, Sch.-I
39.	<i>Sarcogyps calvus</i> (Scopoli)	Red-headed King Vulture	R, LR/nt, Sch.-I

S. No.	Scientific Name	Common Name	R. Status
40.	<i>Circaetus gallicus</i> (Gmelin)	Short-toed Snake-Eagle	R, Sch.-I
41.	<i>Accipiter badius</i> (Gmelin)	Shikra	R, Sch.-I
42.	<i>Batastur teesa</i> (Franklin)	White Eyed Buzzard	R, Sch.-I
Family Falconidae			
43.	<i>Falco jugger</i> J. E. Gray	Laggar	R, CITES-I
Order Galliformes			
Family Phasianidae			
44.	<i>Francolinus francolinus</i> (Linnaeus)	Black Francolin	R
45.	<i>Francolinus pictus</i> (Jardine & Selby)	Painted Francolin	R
46.	<i>Francolinus pondicerianus</i> (Gmelin)	Grey Francolin	R
47.	<i>Coturnix coturnix</i> (Linnaeus)	Common Quail	R
48.	<i>Perdicula asiatica</i> (Latham)	Jungle Bush-Quail	R
49.	<i>Galloperdix spadicea</i> (Gmelin)	Red Spur-fowl	R
50.	<i>Gallus gallus</i> (Linnaeus)	Red Jungle-fowl	R
51.	<i>Pavo cristatus</i> Linnaeus	Indian Peafowl	R, ZSI-VU, Sch.-I
Order Gruiformes			
Family Gruidae			
52.	<i>Grus antigone</i> (Linnaeus)	Sarus Crane	R, VU
Family Rallidae			
53.	<i>Amaurornis phoenicurus</i> (Pennant)	White-breasted Waterhen	R
54.	<i>Porphyrio porphyrio</i> (Linnaeus)	Purple Moorhen	R
55.	<i>Gallinula chloropus</i> (Linnaeus)	Common Moorhen	R
56.	<i>Fulica atra</i> (Linnaeus)	Common Coot	R
Order Charadriiformes			
Family Jacanidae			
57.	<i>Hydrophasianus chirugus</i> (Scopoli)	Pheasant-tailed Jacana	R
58.	<i>Metopidius indicus</i> (Latham)	Bronze-winged Jacana	R

S. No.	Scientific Name	Common Name	R. Status
	Family Rostratulidae		
59.	<i>Rostratula benghalensis</i> (Linnaeus)	Greater Painted-Snipe	R
	Family Charadriidae		
60.	<i>Charadrius dubius</i> Scopoli	Little Ringed Plover	R
61.	<i>Vanellus malabaricus</i> (Boddaert)	Yellow-wattled Lapwing	R
62.	<i>Vanellus duvaucelii</i> (Lesson)	River Lapwing	R
63.	<i>Vanellus indicus</i> (Boddaert)	Red-wattled Lapwing	R
	Family Scolopacidae		
64.	<i>Gallinago gallinago</i> (Linnaeus)	Common Snipe	WV
65.	<i>Numenius arquata</i> (Linnaeus)	Eurasian Curlew	WV
66.	<i>Tringa totanus</i> (Linnaeus)	Common Redshank	WV
67.	<i>Tringa ochropus</i> Linnaeus	Green Sandpiper	WV
68.	<i>Tringa glareola</i> (Linnaeus)	Wood Sandpiper	WV
69.	<i>Actitis hypoleucos</i> (Linnaeus)	Common Sandpiper	WV
70.	<i>Calidris minuta</i> (Leisler)	Little Stint	WV
	Family Recurvirostridae		
71.	<i>Himantopus himantopus</i> (Linnaeus)	Black-winged Stilt	WV/R Partly
	Family : Laridae		
72.	<i>Sterna aurantia</i> J. E. Gray	River Tern	R
	Order Columbiformes		
	Family Pteroclididae		
73.	<i>Pterocles exustus</i> Temminck	Chestnut-bellied Sandgrouse	R
	Family Columbidae		
74.	<i>Columba livia</i> Gmelin	Blue Rock Pigeon	R
75.	<i>Streptopelia orientalis</i> (Latham)	Oriental Turtle-Dove	WV
76.	<i>Streptopelia senegalensis</i> Linnaeus	Little Brown Dove	R
77.	<i>Streptopelia chinensis</i> (Scopoli)	Spotted Dove	R
78.	<i>Streptopelia tranquebarica</i> (Hermann)	Red Collared-Dove	R

S. No.	Scientific Name	Common Name	R. Status
79.	<i>Streptopelia decaocto</i> (Frivaldszky)	Eurasian Collared-Dove	R
80.	<i>Chalcophaps indica</i> (Linnaeus)	Emerald Dove	R
81.	<i>Treron phoenicoptera</i> (Latham)	Yellow-legged Green Pigeon	R
	Order Psittaciformes		
	Family Psittacidae		
82.	<i>Psittacula eupatria</i> (Linnaeus)	Alexandrine Parakeet	R
83.	<i>Psittacula krameri</i> (Scopoli)	Rose-ringed Parakeet	R
84.	<i>Psittacula cyanocephala</i> (Linnaeus)	Plum-headed Parakeet	R
	Order Cuculiformes		
	Family Cuculidae		
85.	<i>Clamator jacobinus</i> (Boddaert)	Pied Crested Cuckoo	M
86.	<i>Hierococcyx varius</i> (Vahl)	Brain-fever Bird	R
87.	<i>Cuculus micropterus</i> Gould	Indian Cuckoo	R
88.	<i>Cacomantis sonneratii</i> (Latham)	Banded Bay Cuckoo	R
89.	<i>Eudynamys scolopacea</i> (Linnaeus)	Asian Koel	R
90.	<i>Centropus sinensis</i> (Stephens)	Greater Coucal	R
	Order Strigiformes		
	Family Tytonidae		
91.	<i>Tyto alba</i> (Scopoli)	Barn Owl	R
	Family Strigidae		
92.	<i>Otus bakkamoena</i> Pennant	Collared Scops-Owl	R
93.	<i>Bubo bubo</i> (Linnaeus)	Eurasian Eagle-Owl	R
94.	<i>Bubo coromandus</i> (Latham)	Dusky Eagle-Owl	R
95.	<i>Athene brama</i> (Temminck)	Spotted Owlet	R
	Order Caprimulgiformes		
	Family Caprimulgidae		
96.	<i>Caprimulgus asiaticus</i> Latham	Common Indian Nightjar	R

S. No.	Scientific Name	Common Name	R. Status
	Order Apodiformes		
	Family Apodidae		
97.	<i>Apus affinis</i> (J. E. Gray)	House Swift	R
	Order Coraciiformes		
	Family Alcedinidae		
98.	<i>Alcedo atthis</i> (Linnaeus)	Small Blue Kingfisher	R
99.	<i>Halcyon smyrnensis</i> (Linnaeus)	White-breasted Kingfisher	R
100.	<i>Halcyon pileata</i> (Boddaert)	Black-capped Kingfisher	R
101.	<i>Ceryle rudis</i> (Linnaeus)	Lesser Pied Kingfisher	R
	Family Meropidae		
102.	<i>Merops orientalis</i> Latham	Small Bee-eater	R
103.	<i>Merops philippinus</i> Linnaeus	Blue-tailed Bee-eater	R
	Family Coraciidae		
104.	<i>Coracias benghalensis</i> (Linnaeus)	Indian Roller	R
	Family Upupidae		
105.	<i>Upupa epops</i> Linnaeus	Common Hoopoe	R/WV Partly
	Family Bucerotidae		
106.	<i>Ocyrceros birostris</i> (Scopoli)	Indian Grey Hornbill	R
107.	<i>Buceros bicornis</i> Linnaeus	Great Pied Hornbill	R, Sch.-I
	Order Piciformes		
	Family Capitonidae		
108.	<i>Megalaima zeylanica</i> (Gmelin)	Brown-headed Barbet	R
109.	<i>Megalaima haemacephala</i> (P.L.S. Muller)	Coppersmith Barbet	R
	Family Picidae		
110.	<i>Jynx torquilla</i> Linnaeus	Eurasian Wryneck	WV
111.	<i>Dendrocopos nanus</i> (Vigors)	Brown-capped Pygmy Woodpecker	R
112.	<i>Dendrocopos mahrattensis</i> (Latham)	Yellow-fronted Pied Woodpecker	R

S. No.	Scientific Name	Common Name	R. Status
113.	<i>Dinopium benghalense</i> (Linnaeus)	Lesser Golden-backed Woodpecker	R
	Order : Passeriformes		
	Family : Alaudidae		
114.	<i>Mirafra erythroptera</i> Blyth	Red-winged Bush-Lark	R
115.	<i>Eremopterix grisea</i> (Scopoli)	Ashy-crowned Sparrow-	R
		Lark	
116.	<i>Galerida cristata</i> (Linnaeus)	Common Crested Lark	R
117.	<i>Alauda gulgula</i> Franklin	Eastern Skylark	R
	Family : Hirundinidae		
118.	<i>Hirundo concolor</i> Sykes	Dusky Crag-Martin	R
119.	<i>Hirundo rustica</i> Linnaeus	Common Swallow	WV
120.	<i>Hirundo smithii</i> Leach	Wire-tailed Swallow	R
121.	<i>Hirundo daurica</i> Linnaeus	Red-rumped Swallow	R
122.	<i>Hirundo fluvicola</i> Blyth	Streak-throated Swallow	R
	Family : Motacillidae		
123.	<i>Dendronanthus indicus</i> (Gmelin)	Forest Wagtail	WV
124.	<i>Motacilla alba</i> Linnaeus	White Wagtail	WV
125.	<i>Motacilla maderaspatensis</i> Gmelin	Large Pied Wagtail	R
126.	<i>Motacilla citreola</i> Pallas	Citrine Wagtail	WV
127.	<i>Motacilla flava</i> Linnaeus	Yellow Wagtail	WV
128.	<i>Motacilla cinerea</i> (Gmelin)	Grey Wagtail	WV
129.	<i>Anthus rufulus</i> Vieillot	Paddyfield Pipit	R
130.	<i>Anthus trivialis</i> (Linnaeus)	Eurasian Tree Pipit	WV
131.	<i>Anthus hodgsoni</i> Richmond	Oriental Tree Pipit	WV
	Family : Campephagidae		
132.	<i>Coracina macei</i> (Lesson)	Large Cuckoo-Shrike	R
133.	<i>Coracina melanoptera</i> (Rüppell)	Black-headed Cuckoo-	R
		Shrike	

S. No.	Scientific Name	Common Name	R. Status
134.	<i>Pericrocotus cinnamomeus</i> (Linnaeus)	Small Minivet	R
135.	<i>Pericrocotus ethologus</i> Bangs & Phillips	Long-tailed Minivet	WV
136.	<i>Pericrocotus flammeus</i> (Forster)	Scarlet Minivet	R
137.	<i>Tephrodornis pondicerianus</i> (Gmelin)	Common Wood-Shrike	R
	Family Pycnonotidae		
138.	<i>Pycnonotus cafer</i> (Linnaeus)	Red-vented Bulbul	R
	Family Irenidae		
139.	<i>Aegithina tiphia</i> (Linnaeus)	Common Iora	R
140.	<i>Chloropsis cochinchinensis</i> (Gmelin)	Jerdon's Chloropsis	R
	Family Laniidae		
141.	<i>Lanius vittatus</i> Valenciennes	Bay-backed Shrike	R
142.	<i>Lanius schach</i> Linnaeus	Rufous-backed Shrike	WV
	Family Muscicapidae		
	Subfamily Turdinae		
143.	<i>Zoothera citrina</i> (Latham)	Orange-headed Ground	R Thrush
144.	<i>Luscinia svecica</i> (Linnaeus)	Bluethroat	WV
145.	<i>Copsychus saularis</i> (Linnaeus)	Oriental Magpie Robin	R
146.	<i>Saxicoloides fulicata</i> (Linnaeus)	Indian Robin	R
147.	<i>Phoenicurus ochruros</i> (Gmelin)	Black Redstart	R/WV- Partly
148.	<i>Saxicola caprata</i> (Linnaeus)	Pied Bush Chat	R
149.	<i>Oenanthe picata</i> (Blyth)	Variable Wheatear	WV
150.	<i>Cercomela fusca</i> (Blyth)	Indian Chat	R- Endemic to the region
	Subfamily Timaliinae		
151.	<i>Pellorneum ruficeps</i> Swainson	Spotted Babbler	R
152.	<i>Dumetia hyperythra</i> (Franklin)	Rufous-bellied Babbler	R

S. No.	Scientific Name	Common Name	R. Status
153.	<i>Turdoides caudatus</i> (Dumont)	Common Babbler	R
154.	<i>Turdoides striatus</i> (Dumont)	Jungle Babbler	R
155.	<i>Alcippe poioicephala</i> (Jerdon)	Quaker Tit-Babbler	R
Subfamily Sylviinae			
156.	<i>Prinia socialis</i> Sykes	Ashy Prinia	R
157.	<i>Acrocephalus agricola</i> (Jerdon)	Paddyfield Warbler	WV
158.	<i>Hippolais caligata</i> (Lichtenstein)	Booted Warbler	WV
159.	<i>Orthotomus sutorius</i> (Pennant)	Common Tailor Bird	R
Subfamily Muscicapinae			
160.	<i>Cyornis tickelliae</i> Blyth	Tickell's Blue-Flycatcher	R
161.	<i>Culicicapa ceylonensis</i> (Swainson)	Grey-headed Flycatcher	WV
Subfamily Monarchinae			
162.	<i>Terpsiphone paradisi</i> (Linnaeus)	Asian Paradise-Flycatcher	R
163.	<i>Hypothymis azurea</i> (Boddaert)	Black-naped Monarch-Flycatcher	R
Subfamily Rhipidurinae			
164.	<i>Rhipidura albicollis</i> (Vieillot)	White-throated Fantail-Flycatcher	R
165.	<i>Rhipidura aureola</i> Lesson	White-browed Fantail-Flycatcher	R
Family Paridae			
166.	<i>Parus major</i> Linnaeus	Great Tit	R
167.	<i>Parus xanthogenys</i> Vigors	Black-lored Yellow Tit	R
Family Dicaeidae			
168.	<i>Dicaeum erythrorhynchos</i> (Latham)	Tickell's Flowerpecker	R
Family Nectariniidae			
169.	<i>Nectarinia zeylonica</i> (Linnaeus)	Purple-rumped Sunbird	R
170.	<i>Nectarinia asiatica</i> (Latham)	Purple Sunbird	R
171.	<i>Aethopyga siparaja</i> (Raffles)	Crimson Sunbird	R

S. No.	Scientific Name	Common Name	R. Status
	Family Zosteropidae		
172.	<i>Zosterops palpebrosus</i> (Temminck)	Oriental White-eye	R
	Family Emberizidae		
	Subfamily Emberizinae		
173.	<i>Melophus lathami</i> (Gray)	Crested Bunting	R
	Family Estrildidae		
174.	<i>Amandava amandava</i> (Linnaeus)	Red Munia	R
175.	<i>Lonchura striata</i> (Linnaeus)	White-rumped Munia	R
176.	<i>Lonchura punctulata</i> (Linnaeus)	Spotted Munia	R
177.	<i>Lonchura malacca</i> (Linnaeus)	Black-headed Munia	R
	Family Passeridae		
	Subfamily Passerinae		
178.	<i>Passer domesticus</i> (Linnaeus)	House Sparrow	R
179.	<i>Petronia xanthocollis</i> (Burton)	Yellow-throated Sparrow	R
	Subfamily Ploceinae		
180.	<i>Ploceus manyar</i> (Horsfield)	Streaked Weaver	R
181.	<i>Ploceus philippinus</i> (Linnaeus)	Baya Weaver	R
	Family Sturnidae		
182.	<i>Sturnus malabaricus</i> (Gmelin)	Grey-headed Starling	R
183.	<i>Sturnus pagodarum</i> (Gmelin)	Brahminy Starling	R
184.	<i>Sturnus contra</i> Linnaeus	Asian Pied Starling	R
185.	<i>Acridotheres tristis</i> (Linnaeus)	Common Myna	R
186.	<i>Acridotheres ginginianus</i> (Latham)	Bank Myna	R
187.	<i>Acridotheres fuscus</i> (Wagler)	Jungle Myna	R
	Family : Oriolidae		
188.	<i>Oriolus oriolus</i> (Linnaeus)	Eurasian Golden Oriole	R
189.	<i>Oriolus xanthornus</i> (Linnaeus)	Black-headed Oriole	R
	Family : Dicruridae		
190.	<i>Dicrurus macrocercus</i> Vieillot	Black Drongo	R

S. No.	Scientific Name	Common Name	R. Status
191.	<i>Dicrurus paradiseus</i> (Linnaeus) Family : Corvidae	Greater Racket-tailed Drongo	R
192.	<i>Dendrocitta vagabunda</i> (Latham)	Indian Tree-pie	R
193.	<i>Corvus splendens</i> Vieillot	House Crow	R
194.	<i>Corvus macrorhynchos</i> Wagler	Jungle Crow	R

Abbreviations : **R** - Resident subject to some local or seasonal, altitudinal movements due to monsoon, drought, breeding, non breeding activity, availability of food etc.; **WV** Winter Visitor ; **R/WV**- Partly resident/Partly winter visitor; **MV** Monsoon Visitor.

Table-2 : Avian Diversity of Jabalpur District

Sl. No.	Order	Family	Sub-Family	Genera	Species
1.	Podicipediformes	1		1	1
2.	Pelecaniformes	2		2	4
3.	Ciconiiformes	3		15	17
4.	Anseriformes	1		8	11
5.	Falconiformes	2		9	10
6.	Galliformes	1		5	8
7.	Gruiformes	2		5	5
8.	Charadriiformes	6		12	16
9.	Columbiformes	2		5	9
10.	Psittaciformes	1		1	3
11.	Cuculiformes	1		6	6
12.	Strigiformes	2		4	5
13.	Caprimulgiformes	1		1	1
14.	Apodiformes	1		1	1
15.	Coraciiformes	5		8	10
16.	Piciformes	2		4	6
17.	Passeriformes	19	9	53	81
17 Orders		52	11	140	194
*(21)		(88)	(11)	(432)	(1342)

*(Bird diversity in Indian Subcontinent is given in parenthesis)

Table-3 : Conservation status of Birds of Jabalpur District

Sl. No.	Scientific and common name	WL(P), Act, 1972	Red Data Book ZSI	IUCN (2002)	CITES
1.	<i>Anhinga melanogaster</i> – Darter			LR/nt	-
2.	<i>Mycteria leucocephala</i> – Painted Stork			LR/nt	-
3.	<i>Threskiornis melanocephalus</i> – Oriental White Ibis			LR/nt	-
4.	<i>Platalea leucorodia</i> – Eurasian Spoonbill	Sch.I, Part-II	EN	-	App.II
5.	<i>Gyps bengalensis</i> – Indian White-baked Vulture	-do-	-	CR	-
6.	<i>Gyps indicus</i> – Long-billed vulture	-do-		CR	-
7.	<i>Sarcogyps calvus</i> – Red-headed King Vulture	-do-		LR/nt	-
8.	<i>Falco juggar</i> – Laggar	-do-		-	App.I
9.	Family : Accipitridae – (All birds)	-do-		-	-
10.	Family : Falconidae – (All birds)	-do-		-	-
11.	<i>Pavo cristatus</i> – Indian Peafowl	-do-	VU	-	-
12.	<i>Grus antigone</i> – Saras Crane		-	VU	-
13.	<i>Buceros bicornis</i> – Great Pied Hornbill	Sch.I, Part-II			-

Abbreviations : EN : Endangered, VU : Vulnerable, CR : Critically Endangered.

Order PODICIPEDIFORMES

Family PODICIPEDIDAE

1. *Tachybaptus ruficollis* (Pallas)**Little Grebe**

1968. *Tachybaptus ruficollis* : Ali & Ripley, *H. B. No. 5, Vol. 1* : 6.

Material examined : Jabalpur, Barha village, 24.i.1963 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Adhartal Tank, 17.v.1963 (1 ex.); Coll. J.S. Bhatti; 27.iv.1963 (1 ex.), coll.H Khajuria.

Diagnosis : A drab coloured, plump and squat little water bird with silky white underparts, short pointed bill, and no tail. In breeding plumage head and neck dark brown and chestnut, upper plumage slightly paler. Sexes alike

Distribution : Throughout the Indian Union.

Elsewhere : Bangladesh, Pakistan, Sri Lanka, Myanmar.

Order PELECANIFORMES

Family PHALACROCORACIDAE

2. *Phalacrocorax niger* (Vieillot)**Little Cormorant**

1968. *Phalacrocorax niger* : Ali & Ripley, *H. B. No. 28, Vol. 1* : 41.

Material examined : Jabalpur, a tank near Medical College, 22.vi.1970 (1 ex.), Coll. H.S. Sharma.

Diagnosis : Sexes alike, smaller size, shorter bill, longer tail, rectangular shaped head (with steep forehead) and shorter, thicker neck. Lacks yellow gular pouch.

Distribution : Throughout India.

3. *Phalacrocorax fuscicollis* Stephens**Indian Shag**

1968. *Phalacrocorax fuscicollis* : Ali & Ripley, *H. B. No. 27, Vol. 1* : 39.

Observations : Observed in different areas in Jabalpur.

Diagnosis : A black water bird with blue-green eyes; dark brown bill; purplish-black gular pouch edged with yellow; white speckled throat; black legs and feet. Sexes alike.

Distribution : Throughout India.

4. *Phalacrocorax carbo* (Linnaeus)
Great Cormorant

1968. *Phalacrocorax carbo* : Ali & Ripley, *H. B. No. 26, Vol. 1* : 37.

Observations : Observed in different areas in Jabalpur.

Diagnosis : A thickset duck-like black water bird with a slender bill, hooked at tip, and longish stiff tail.

Distribution : Throughout India.

Family ANHINGIDAE

5. *Anhinga melanogaster* Pennant
Darter

1968. *Anhinga melanogaster* : Ali & Ripley, *H. B. No. 29, Vol. 1* : 43.

Observations : Observed in Guri ki Talaiyya (near Patan), Jabalpur.

Diagnosis : A black water bird, with long, slender, snake like neck, narrow head, and straight, pointed stiletto shaped bill. Tail long, stiff, fan shaped. Sexes alike.

Distribution : Throughout India.

Order CICONIIFORMES

Family ARDEIDAE

6. *Egretta garzetta* (Linnaeus)
Little Egret

1968. *Egretta garzetta* : Ali & Ripley, *H. B. No. 49, Vol. 1* : 72.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : A snow-white waterside bird, distinguished from other egrets by thin black bill, longer black legs with yellow feet, and longer and thinner neck. Lores generally blue-grey, but in adult breeding, become reddish during courtship.

Distribution : Throughout India up to 900 m.

7. *Ardea cinerea* Linnaeus
Eastern Grey Heron

1968. *Ardea cinerea* : Ali & Ripley, *H. B. No. 36, Vol. 1* : 55.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Female smaller. A long legged, long necked marsh bird with yellow bill. Elongated black streaked white feathers on breast. Rest of underparts greyish-white. Sexes alike.

Distribution : Throughout India.

8. *Ardea purpurea* Linnaeus
Purple Heron

1968. *Ardea purpurea* : Ali & Ripley, *H. B. No. 37, Vol. 1* : 57.

Material examined : Jabalpur, near Patan, 23.iv.1964 (1 ex.), Coll. D.N. Basu; Madna vill. 22. v. 1966 (1 ex.)

Diagnosis : *Above*, purplish blue or purplish slaty; blackish on wing and tail. Crown and crest slaty black, rest of head and long thin neck ferruginous boldly striped with black. *Below*, chin and throat white; long, drooping plumes on upper breast buffy white with black and chestnut streaks. Rest of underparts slaty black and rich chestnut; under wing chiefly ferruginous. Sexes alike; female with crest and pectoral plumes less developed.

Distribution : Throughout the plains of India east to Assam and Manipur, Andaman Islands.

Elsewhere : Nepal, Pakistan and Sri Lanka.

9. *Casmerodius albus* Linnaeus
Large Egret

1968. *Casmerodius albus* : Ali & Ripley, *H. B. No. 46, Vol. 1* : 69.

Observations : Sighted in Jabalpur.

Diagnosis : A large snow-white heron like marsh bird with bare blackish legs, long slender neck and head and pointed black and yellow or yellow bill. In the breeding season, a bunch of ornamental filamentous plumes develop on the back.

Distribution : Throughout India.

10. *Mesophoyx intermedia* (Wagler)
Median Egret

1968. *Mesophoyx intermedia* : Ali & Ripley, *H. B. No. 47, 48, Vol. 1* : 71.

Observations : Sighted in Jabalpur.

Diagnosis : A large lanky snow-white bird with blackish legs, long neck, pointed yellow or black-yellow bill. In breeding plumage presence of filamentous plumes on back and breast. Sexes alike.

Distribution : Throughout the Indian subcontinent.

11. *Bubulcus ibis* (Linnaeus)
Cattle Egret

1968. *Bubulcus ibis* : Ali & Ripley, *H. B. No. 44, Vol. 1* : 66.

Material examined : Jabalpur, Gadheri village, 21.v.1963 (1 ex.), Coll. D.N. Basu; Jabalpur, Pachpedi, 2.ii.1961 (1 ex.); 8.viii.1963 (1 ex.), 8.vii.1964 (1 ex.); Near Medical college, 16.ix.1981 (1 ex.).

Diagnosis : During non-breeding time, always identified by yellow bill, shorter legs and short, stouter neck. Adult breeding has orange-buff colouration to much of head, neck and breast, and elongated orange-buff mantle plumes. Sexes alike.

Distribution : Common throughout India up to 1500 m. in Himalayas.

12. *Ardeola grayii* (Sykes)
Indian Pond Heron

1968. *Ardeola grayii* : Ali & Ripley, *H. B. No. 42, Vol. 1* : 63.

Material examined : Jabalpur, Tank near Gandhigram, N.A. (1 ex.), Pariat tank, 2.i.1964 (1 ex.); Madna vill. , 16.x.1971 (1 ex.), Budan Gash Tank, 17.vi.1970 (1 ex.), coll. H. Khajuria.

Diagnosis : An egret like waterside bird, largely snow-white and prominent, when in flight; effectively earthy brown, when at rest. Sexes alike.

Distribution : Throughout India, up to 1500 m. in Himalayas.

13. *Butorides striatus* (Linnaeus)
Little Green Heron

1968. *Butorides striatus* : Ali & Ripley, *H. B. No. 39, Vol. 1* : 61.

Observations : Observed at Budhagar Tal on Katni road, Jabalpur.

Diagnosis : Smaller than Pond Heron, chiefly black, grey, and metallic dark green, but otherwise like it in general effect.

Distribution : Generally, but thinly distributed throughout the subcontinent

14. *Nycticorax nycticorax* (Linnaeus)
Black-crowned Night-Heron

1968. *Nycticorax nycticorax* : Ali & Ripley, *H. B. No. 52, Vol. 1* : 78.

Material examined : Recorded from literature.

Diagnosis : A stocky, grey, white and black heron with stout, blackish bill. Adult has striking red eye, narrow white supercilium extending across forehead, black crown, mantle and scapulars, grey wings and greyish-white under parts. Sexes alike.

Distribution : Throughout India up to 1700 m.

Family CICONIIDAE

15. *Mycteria leucocephala* (Pennant)
Painted Stork

1968. *Mycteria leucocephala* : Ali & Ripley, *H. B. No. 60, Vol. 1* : 93.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : A long legged, long necked marsh bird with long, heavy yellow bill, slightly decurved at tip and unfeathered waxy yellow face. Plumage white, delicate, rose pink, near the tail. Wing and tail quills black. Sexes alike.

Distribution : Throughout the plains of India, Pakistan, Nepal Terai.

16. *Anastomus oscitans* (Boddaert)
Asian Openbill Stork

1968. *Anastomus oscitans* : Ali & Ripley, *H. B. No. 61, Vol. 1* : 95.

Material examined : Jabalpur, Paraspani village, 27.iv.1963 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Paraspani village, 27.iv.1964 (1 ex.), Coll. J.S. Bhatti; Panagar vill. 18.ix. 1971(2ex.), coll. H.Khajuria.

Diagnosis : A small stork, chiefly white with glistening purplish-black or greenish-black mantle, wings and tail. Distinguished by its bill, with arching mandibles, leaving a narrow open gap between them. Sexes alike.

Distribution : Throughout India.

17. *Ciconia episcopus* (Boddaert)
White-necked Stork

1968. *Ciconia episcopus* : Ali & Ripley, *H. B. No. 62, Vol. 1* : 98.

Observations : Observed near Patan, Jabalpur.

Diagnosis : A red legged, black and white stork with white neck and black crown. Bill black tinged crimson red at tip and gape. Rest of plumage black, glossed with greenish-blue, purple and copper. Sexes alike.

Distribution : Sparsely distributed throughout the well-watered parts of India.

18. *Leptoptilos javanicus* (Horsfield)
Lesser Adjutant-Stork

1968. *Leptoptilos javanicus* : Ali & Ripley, *H. B. No. 68, Vol. 1* : 107.

Material examined : Jabalpur, on Nagpur road, 10.i.1966 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : A large stork with massive dirty yellowish wedge-shaped bill. Chiefly glossy metallic black above, white below, with sparse hair-like feathers on almost naked reddish-yellow head and neck. Sexes alike.

Distribution : Recorded from Assam, Bengal, Bihar, Orissa, Kerala, Andhra Pradesh, Uttar Pradesh, Delhi, Kutch and Rajasthan.

Elsewhere : Bangladesh, Sri Lanka.

19. *Leptoptilos dubius* (Gmelin)
Greater Adjutant-Stork

1968. *Leptoptilos dubius* : Ali & Ripley, *H. B. No. 67, Vol. 1* : 105.

Observations : Observed near Patan, Jabalpur.

Diagnosis : Largest storks, black, grey and dirty white with naked reddish and yellowish neck and head and a huge four sided, wedge shaped bill, a naked pinkish gular pouch, 25-35 cm. long.

Distribution : Endangered species, breeds only in Assam, rare elsewhere, though, once not uncommon in Northern India.

Family THRESKIORNITHIDAE

20. *Threskiornis melanocephalus* (Latham)
Oriental White Ibis

1968. *Threskiornis aethiopica* : Ali & Ripley, *H. B. No. 69, Vol. 1* : 110.

Material examined : Jabalpur, a tank near Medical College, 22.vi.1970 (1 ex.), Coll. H.S. Sharma.

Diagnosis : A stocky, mainly white ibis with stout downcurved black bill and black legs. Adult breeding has naked black head, variable yellow to white feathers of mantle and breast, grey on scapulars and elongated tertials, white plumes extending from lower neck and all-white wings. Sexes alike.

Distribution : Generally in plains of India, except Northwest and East India.

21. *Pseudibis papillosa* (Temminck)
Black Ibis

1968. *Pseudibis papillosa* : Ali & Ripley, *H. B. No. 70, Vol. 1* : 112.

Observations : Observed at Sonawal Tank, Jabalpur.

Diagnosis : Adult has relatively stout, downcurved, dark greenish bill, naked black head with red patch on rear crown and nape, dark brown neck and body glossed with green on scapulars, black wings strongly glossed with green and purple, distinguished by white shoulder patch and red legs. Sexes alike.

Distribution : Throughout India.

22. *Platalea leucorodia* Linnaeus
Eurasian Spoonbill

1968. *Platalea leucorodia* : Ali & Ripley, *H. B. No. 72, Vol. 1* : 116.

Observations : Observed near Katangi, Jabalpur.

Diagnosis : Largely white, with extraordinary spatulate bill and stout black legs. Adult breeding has yellow tip to black bill, bare orange-yellow skin on throat, prominent crest, and yellow wash to breast. Non-breeding adult lacks crest and yellow wash to breast.

Distribution : Almost all through the plains, except Central and East India.

Order ANSERIFORMES

Family ANATIDAE

23. *Dendrocygna javanica* (Horsfield)
Lesser Whistling-Duck

1968. *Dendrocygna javanica* : Ali & Ripley, *H. B. No. 88, Vol. 1* : 138.

Observations : Observed at Gokalpur Tank, Jabalpur.

Diagnosis : Relatively smaller, greyish-buff head and fore neck; lack of well-defined dark line down hind neck, and darker brown crown. In flight, appears very dark on the upper and under wings. Sexes alike.

Distribution : Throughout India.

**24. *Tadorna ferruginea* (Pallas)
Brahminy Shelduck**

1968. *Tadorna ferruginea* : Ali & Ripley, *H. B. No. 90, Vol. 1* : 141.

Observations : Sighted in Jabalpur.

Diagnosis : Rusty orange, goose-like duck, with buff to orange-buff head. Breeding male has black neck collar, which is less distinct or absent in non-breeding plumage. Female similar to male but lacks neck collar and often has diffuse whitish face patch.

Distribution : Throughout India.

**25. *Sarkidiornis melanotos* (Pennant)
Comb Duck**

1968. *Sarkidiornis melanotos* : Ali & Ripley, *H. B. No. 115, Vol. 1* : 192.

Observations : Observed at Gadheri Pond, Jabalpur.

Diagnosis : Male is a large, stocky duck with white speckled black head and neck, blackish upper parts glossed with bronze, blue and green, white breast with incomplete narrow black breast band, white belly and undertail-coverts and grey wash to flanks. It has gross, fleshy comb, at base of bill in summer, which is much reduced in winter. Female lacks comb and is much smaller, duller on the upper parts.

Distribution : Widespread but generally uncommon resident in India.

**26. *Nettapus coromandelianus* (Gmelin)
Cotton Teal**

1968. *Nettapus coromandelianus* : Ali & Ripley, *H. B. No. 114, Vol. 1* : 190.

Material examined : Jabalpur, Sangram Sagar, 29.xi.1963 (1 ex.), Sashan vill. 20.vii.1968(2exs.), Barhi vill. 17.xii.1971, 5.ii.1969 (4exs.), Coll. H. Khajuria; Jabalpur, Purva Tank, 29.i.1963 (1 ex.), Coll. H. Khajuria.

Diagnosis : A very small duck. Male has white head with black cap, white neck and under parts (flanks washed with grey), black breast-band and greenish-black upper parts. It has white band across primaries and along secondaries. Female duller, with dark eye-stripe, duller brownish-black upper parts with just a faint greenish gloss.

Distribution : Throughout India.

**27. *Anas penelope* Linnaeus
Eurasian Wigeon**

1968. *Anas penelope* : Ali & Ripley, *H. B. No. 103, Vol. 1* : 167.

Observations : Observed at Khamaria Tank, Jabalpur.

Diagnosis : Male has yellow forehead and fore crown on bright chestnut head, pinkish breast, grey mantle and flanks and white band at rear end contrasting with black vent. Female is uniform brown on head, becoming more chestnut-brown on breast and flanks.

Distribution : Common in North India.

28. *Anas poecilorhyncha* J.R. Forester
Spot-billed Duck

1968. *Anas poecilorhyncha* : Ali & Ripley, *H. B. No. 97, Vol. 1* : 157.

Observations : Observed at Kakartala Tank, Jabalpur.

Diagnosis : A large duck of scaly-patterned buffy grey and dark brown plumage. Narrowly black-and-white margined metallic green wing speculum, bordered above by a broad pure white bar particularly conspicuous in flight. Bright coral-red legs, yellow-tipped dark bill, and two swollen orange-red spots at its base on either side of forehead, are further diagnostic features. Female slightly smaller and duller than male.

Distribution : Throughout the Indian subcontinent.

29. *Anas crecca* Linnaeus
Common Teal

1968. *Anas crecca* : Ali & Ripley, *H. B. No. 94, Vol. 1* : 151.

Observations : Observed at Gadheri Pond, Jabalpur.

Diagnosis : A very small duck. Male has dark chestnut head, bottle-green band behind eye, white stripe along scapulars and yellowish patch on undertail-coverts. Female lacks prominent supercilium, lacks prominent whitish loreal spots and dark horizontal cheek-stripes.

Distribution : Throughout India.

30. *Rhodonessa rufina* (Pallas)
Red-crested Pochard

1968. *Rhodonessa rufina* : Ali & Ripley, *H. B. No. 107, Vol. 1* : 177.

Observations : Observed at Khamaria Tank, Jabalpur.

Diagnosis : Drake : Head and fluffy, full, mop-like crest rich chestnut and golden-orange, with bright crimson bill. Upper parts light brown with white patches on shoulders, and white wing-mirror. Duck : Dull sooty brown above, largely whitish below, with dark

brown crown and nape sharply demarcated from whitish face and foreneck. A whitish speculum.

Distribution : Common and locally abundant in North India, decreasingly slow in the peninsula.

**31. *Aythya ferina* (Linnaeus)
Common Pochard**

1968. *Aythya ferina* : Ali & Ripley, *H. B. No. 108, Vol. 1* : 180.

Observations : Sighted in Jabalpur.

Diagnosis : Largest of the *Aythya* ducks, with large dome-shaped head, flight feathers silvery-grey, without white wing bar. Breeding male has chestnut head, silvery-grey upper parts and flanks, which contrast with black breast and ventral region. Female has dull cinnamon to chestnut-brown head, neck and breast contrasting with paler brownish-grey upper parts and flanks.

Distribution : Widespread in India.

**32. *Aythya fuligula* (Linnaeus)
Tufted Pochard**

1968. *Aythya fuligula* : Ali & Ripley, *H. B. No. 111, Vol. 1* : 185.

Observations : Sighted in Jabalpur.

Diagnosis : Male (breeding) : Plumage boldly contrasting black and white. Jet-black head, neck, breast, back, tail, and vent; pure white flanks and sides of body. White wing-mirror (speculum). A limp occipital tuft (prominent in profile) and yellow eye. Female (adult) : Dark brown replaces black parts of male. White of lower plumage sootier, less in extent, and diffused at edges. Tuft rudimentary.

Distribution : Common in W. Pakistan and N. India including Nepal Valley and lowlands, east to Assam, Manipur, and E. Pakistan, south to about the 20th parallel (Madhya Pradesh, Orissa). Decreasingly in the Deccan and farther south to Mysore (rare). Rare vagrant in Sri Lanka and Maldiv Islands.

**33. *Mergus merganser* Linnaeus
Common Merganser**

1968. *Mergus merganser* : Ali & Ripley, *H. B. No. 120, Vol. 1* : 203.

Observations : Recorded from Madhya Pradesh.

Diagnosis : Male (breeding) : Head, crest, and upper neck black glossed with metallic green and purple. Mantle (scapulars) glossy black; lower back, rump, and upper tail-

coverts grey vermiculated with white. Tail silvery brown. Female (adult) : Head, crest, and neck dark chestnut and cinnamon-brown; chin and upper throat white. Upperparts mottled bluish grey-brown. Male (in eclipse) : Resembles female, but retains white wing-coverts.

Distribution : Rare in NW India, Nepal, fairly common in the E. Himalayan foothills. Also recorded from Madhya Pradesh, Maharashtra, Uttar Pradesh.

Order FALCONIFORMES

Family ACCIPITRIDAE

34. *Elanus caeruleus* (Desfontaines) **Black-shouldered Kite .**

1968. *Elanus caeruleus* : Ali & Ripley, *H. B. No. 124, Vol. 1* : 212.

Material examined : Jabalpur, Amkhas, 10.viii.1966 (1 ex.), Coll. V.V. Rao.

Diagnosis : Adult has grey upper parts and upper wing, with black lesser and median coverts forming prominent patch on forewing, whitish head and under parts, and white under wing except for black underside to primaries. It possesses striking red iris and fine black line through eye. Sexes alike.

Distribution : Widespread in India, common in plains and hills.

35. *Milvus migrans* (Boddaert) **Black Kite**

1968. *Milvus migrans* : Ali & Ripley, *H. B. No. 133, Vol. 1* : 227.

Material examined : Jabalpur, Pachpedi, 22.iii.1963 (1 ex.), 27.iv.1963 (2exs.), purchased.

Diagnosis : Adult is fairly uniform dark rufous-brown, with shallow fork to tail. Shows variable pale crescent at base of primaries on under wing and pale band across median coverts on upper wing. Sexes alike.

Distribution : Throughout India.

36. *Neophron percnopterus* (Linnaeus) **Egyptian Vulture**

1968. *Neophron percnopterus* : Ali & Ripley, *H. B. No. 187, Vol. 1* : 312.

Material examined : Jabalpur Dist. Panagar vill. 28.viii.1965.(1ex.); coll. H.Khajuria.

Observations : Observed at Katangi, Jabalpur.

Diagnosis : A small vulture, with long pointed wings, small and pointed head and wedge-shaped tail. Adult has bare yellowish face, dirty white neck ruff, body, wing-coverts and tail, and black flight feathers.

Distribution : Widespread in Indian plains and hills, up to 2500 m. in Himalayas.

**37. *Gyps bengalensis* (Gmelin)
Indian White-backed Vulture**

1968. *Gyps bengalensis* : Ali & Ripley, *H. B. No. 185, Vol. 1* : 307.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Adult from below, mainly white, underwing-coverts contrast with blackish under parts and black leading edge to underwing. From above, has blackish mantle and wing coverts, and white rump and back. Sexes alike.

Distribution : Common and widespread throughout India.

**38. *Gyps indicus* (Scopoli)
Long-billed Vulture**

1968. *Gyps indicus* : Ali & Ripley, *H. B. No. 182, Vol. 1* : 304.

Observations : Commonly sighted bird in Jabalpur.

Diagnosis : Above, light to dark brown, the feathers edged paler (scalloped). Head, nape, and neck patchily covered with white brown hair-like feathers or down. Below, a distinct ruff of soft white feathers at base of neck. Underparts pale brown, almost sandy, with broad pale shaft-stripes. Sexes alike.

Distribution : Rajasthan, Gujarat and peninsular India south of the Gangetic Plain. Not in extreme SW India or Sri Lanka.

**39. *Sarcogyps calvus* (Scopoli)
Red-headed King Vulture**

1968. *Sarcogyps calvus* : Ali & Ripley, *H. B. No. 178, Vol. 1* : 296.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Adult is mainly black, with bare pinkish or reddish head and cere and broad black bill, white patches at base of neck and upper thighs, and reddish legs and feet. Sexes alike.

Distribution : Widespread but rare in Northwest and Northeast India.

40. *Circaetus gallicus* (Gmelin)
Short-toed Snake-Eagle

1968. *Circaetus gallicus* : Ali & Ripley, *H. B. No. 195, Vol. 1* : 327.

Material examined : Jabalpur, Bhirki village, Chargaon road, 24.x.1970 (1 ex.), Coll. D.K. Ghosal.

Diagnosis : A thickset brown and white eagle, with large greyish owl-like head; chin, throat, upper breast pale earthy brown, while rest of under part white, barred with pale brown. Tail with 3 or 4 dark bands, the terminal one broadest. Sexes alike.

Distribution : Throughout India.

41. *Accipiter badius* (Gmelin)
Shikra

1968. *Accipiter badius* : Ali & Ripley, *H. B. No. 138, Vol. 1* : 235.

Material examined : Jabalpur, Pachpedi, 9.i.1970, & 6.xii.1971 (2ex.), Nagpur Road, 7.x.1971(1ex.); coll.H.Khajuria.

Observations : Observed on Dumna road, Jabalpur.

Diagnosis : Adult male has pale blue-grey upper parts with contrasting dark grey primaries, fine and rather indistinct grey gular stripe, pale and fine brownish-orange barring on under parts, unbarred white thighs, and unbarred or only lightly barred central tail feathers. Adult female is similar, but upper parts are pale brownish-grey.

Distribution : Throughout India.

42. *Bastatur teesa* (Franklin)
White-eyed Buzzard

1968. *Bastatur teesa* (Franklin) : Ali & Ripley, *H. B. No. 157, Vol. 1* : 257.

Material examined : Jabalpur Dist., Gwarighat, 26.xi.1964 (1ex.); Katni Road, Jabalpur Dist., 8.xi.1967 (1ex.); coll.H.Khajuria.

Diagnosis : A small grayish brown hawk with white throat, two dark cheek-stripes, and a third central stripe running down from chin. Underparts brown and whitish. Orange-yellow cere and white eyes. Rufous-tinged tail. Sexes alike.

Distribution : Throughout India

Family FALCONIDAE

43. *Falco jugger* J. E. Gray
Laggar

1968. *Falco jugger* : Ali & Ripley, *H. B. No. 208, Vol. 1* : 344.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Upperparts dark and ashy brown. Crown and nape whitish. A narrow but distinct moustachial stripe running down from in front and below eyes. Below, white or whitish with longitudinal light brown drops, larger and more numerous on flanks and thighs. Sexes alike, female larger.

Distribution : Practically throughout the subcontinent, rare in S. India.

Order GALLIFORMES

Family PHASIANIDAE

44. *Fracolinus francolinus* (Linnaeus)
Black Francolin

1969. *Fracolinus francolinus* : Ali & Ripley, *H. B. No. 238, Vol. 2* : 22.

Observations : Observed at different places in Jabalpur.

Diagnosis : Male with white ear-covert patch on otherwise black face, rufous collar, black upper mantle spotted with white and black under parts with flanks boldly spotted with white. Female has rufous patch on hind neck and pale buff to rufous-buff supercilium and ear coverts divided by dark eye stripe.

Distribution : Northwest India east to Arunachal Pradesh.

45. *Fracolinus pictus* (Jardine & Selby)
Painted Francolin

1969. *Fracolinus pictus* : Ali & Ripley, *H. B. No. 241, Vol. 2* : 27.

Observations : Observed at different places in Jabalpur.

Diagnosis : A brownish black spotted grey partridge with supercilium and face pale chestnut, throat chestnut in male, while whitish in some females.

Distribution : From Gujarat north to S. Uttar Pradesh, east to Orissa and South through the peninsula.

46. *Francolinus pondicerianus* (Gmelin)
Grey Francolin

1969. *Francolinus pondicerianus* : Ali & Ripley, *H. B. No. 245, Vol. 2* : 30.

Material examined : Jabalpur, Parapani village, 27.iv.1963 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Pariyat forest, 15.vii.1963 (1 ex.), Coll. J.S. Bhatti; Jabalpur, Bagi Village, 29.vi. 1965 (1 ex.) and Lametaghat, 14.x. 1966(1ex.), coll. H.Khajuria.

Diagnosis : Adult has buffish-white or buffish-orange throat surrounded by necklace of black spotting, fine buff, chestnut, grey-brown and dark brown barring to upper parts, fine blackish-brown barring to entire under parts.

Distribution : Throughout India except the Northeast.

47. *Coturnix coturnix* (Linnaeus)
Common Quail

1969. *Coturnix coturnix* : Ali & Ripley, *H. B. No. 250, Vol. 2* : 37.

Material examined : Jabalpur, Pachpedi, 26.vi.1963 (1 ex.), purchased.

Diagnosis : A plump and squat pale brown partridge-like bird with conspicuous buff spear-shaped streaks and irregular mottling and barring of reddish brown and black above in both sexes.

Distribution : Breeds in Pakistan, Kashmir east through Bihar and W. Bengal, south at least to Madhya Pradesh and southern Maharashtra.

48. *Perdicula asiatica* (Latham)
Jungle Bush-Quail

1969. *Perdicula asiatica* : Ali & Ripley, *H. B. No. 255, Vol. 2* : 45.

Material examined : Jabalpur, Amjharghati Forest, 23.xi.1965 (1 ex.), Coll. Mayaram.

Diagnosis : Male has rufous-orange throat and supercilium, whitish moustachial stripe, brownish ear-coverts, orange-buff vent and under parts heavily barred with black. Female is vinous-buff on the under parts, without black barring.

Distribution : From Gujarat east to Orissa, north to Himachal Pradesh and south throughout the peninsula.

49. *Galloperdix spadicea* (Gmelin)
Red Spurfowl

1969. *Galloperdix spadicea* : Ali & Ripley, *H. B. No. 275, Vol. 2* : 67.

Material examined : Jabalpur, Amjharghati Forest, 27.xi.1965 (1 ex.), Coll. D.N. Basu.

Diagnosis : Male, with brownish-grey head and neck and dark brown crown, rufous upper parts and under parts scaled with grey and buff and brownish-black unbarred tail. Female has browner head and neck, buffish-brown upper parts with bold blackish markings, rufous under parts with irregular blackish barring and buff barring on tail.

Distribution : Widespread and locally common from Uttar Pradesh south to the peninsula; foothills up to 1250 m.

50. *Gallus gallus* (Linnaeus)
Red Junglefowl

1969. *Gallus gallus* : Ali & Ripley, *H. B. No. 299, Vol. 2* : 102.

Observations : Observed in Khamaria, Jabalpur.

Diagnosis : Male with red comb and wattle, elongated rufous-orange and golden-yellow hackles around nape and mantle, blackish-brown under parts, crimson band across back, rufous secondaries and long greenish-black, sickle-shaped tail. Female has shawl of elongated feathers across nape and mantle, and naked reddish face.

Distribution : Himalayas from Jammu & Kashmir east to Arunachal Pradesh; Northeast and East India; southward through Madhya Pradesh up to northeast Andhra Pradesh.

51. *Pavo cristatus* Linnaeus
Indian Peafowl

1969. *Pavo cristatus* : Ali & Ripley, *H. B. No. 311, Vol. 2* : 123.

Observations : Observed in Sunderpur, Jabalpur.

Diagnosis : Male with fan-like crest, glossy blue crown, neck, upper mantle and breast; metallic green lower mantle and back; spectacular glossy green train. Female lacks sweeping train.

Distribution : Throughout much of India.

Order GRUIFORMES

Family GRUIDAE

52. *Grus antigone* (Linnaeus)
Sarus Crane

1969. *Grus antigone* : Ali & Ripley, *H. B. No. 323, Vol. 2* : 141.

Observations : Observed in Panagar Block, Jabalpur.

Material examined : Jabalpur, Patan , 29.iv.1964. (1ex.), purchased.

Diagnosis : A huge, mainly pale grey crane, with reddish legs. Adult has naked scarlet head and upper neck (except for ashy green crown) and very large bill. Sexes alike.

Distribution : Recently recorded mainly from Gujarat and Rajasthan east to E. Uttar Pradesh and S. Madhya Pradesh. Formerly ranged from Pakistan and North India east to Assam and south to N. Andhra Pradesh.

Family RALLIDAE

53. *Amaurornis phoenicurus* (Pennant) White-breasted Waterhen

1969. *Amaurornis phoenicurus* : Ali & Ripley, *H. B. No. 343, Vol. 2* : 168.

Material examined : Jabalpur, Pachpedi, 13.vii.1964 (1 ex.), purchased.

Diagnosis : A familiar slaty grey sub-tailed long-legged marsh bird with prominent white face and breast, and bright rusty red under the tail. Sexes alike. Singly or in pairs.

Distribution : Throughout the Indian Union up to the base of the Himalayas; Andamans; Nicobars.

Elsewhere : Bangladesh; Pakistan; Sri Lanka; Maldives; Myanmar.

54. *Porphyrio porphyrio* (Linnaeus) Purple Moorhen

1969. *Porphyrio porphyrio* : Ali & Ripley, *H. B. No. 349, Vol. 2* : 178.

Material examined : Jabalpur, Pachpedi, 5.v.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 9.v.1961 (1 ex.), purchased; Jabalpur, Amkhas village, 4.vii.1969 (1 ex.), Coll. V.V. Rao; Jabalpur , Bilonda vill., 24.vii.1965 (1ex.).

Diagnosis : A very large rail, mainly purplish-blue in colouration, with huge red bill and red frontal shield. It has long, stout legs, huge feet and white undertail-coverts. Sexes alike.

Distribution : Throughout much of the Indian subcontinent, except parts of the north-west, north-east and Himalayas.

55. *Gallinula chloropus* (Linnaeus) Common Moorhen

1969. *Gallinula chloropus* : Ali & Ripley, *H. B. No. 347, Vol. 2* : 175.

Observations : Observed in Khamaria estate, Jabalpur.

Diagnosis : Adult breeding has yellow-tipped red bill and red frontal shield, red irides, blackish head and neck, slate-grey under parts and dark olive-brown upperparts; very striking white lateral undertail-coverts, white border to flanks, and yellow-green legs with red above knee. Adult non-breeding has duller brownish-red bill and duller leg. Sexes alike.

Distribution : Throughout most of the Indian subcontinent except parts of the north-west, north-east and Himalayas.

56. *Fulica atra* (Linnaeus)
Common Coot

1969. *Fulica atra* : Ali & Ripley, *H. B. No. 350, Vol. 2* : 180.

Material examined : Jabalpur, Ridge road, Cant., 23.ix.1960 (1 ex.), purchased; Jabalpur, Burhagarh Tank on Katni road, 18.i.1969 (1 ex.), Coll. V.S. Durve.

Diagnosis : Adult is entirely greyish-black, with white bill and frontal shield, red irides and large dull green legs and feet. Shows paler trailing edge to secondaries in flight. Sexes alike.

Distribution : Throughout much of the Indian subcontinent, except parts of the north-west, north-east and Himalayas.

Order CHARADRIIFORMES

Family JACANIDAE

57. *Hydrophasianus chirugus* (Scopoli)
Pheasant-tailed Jacana

1969. *Hydrophasianus chirugus* : Ali & Ripley, *H. B. No. 358, Vol. 2* : 199.

Material examined : Jabalpur, Budagarh Tank, 17.i.1970 (1 ex.), Coll. H.S. Sharma.

Diagnosis : Adult breeding is elaborate, with white head and fore neck, orange-yellow hind neck, dark brown body contrasting with white of wings and long downcurved tail. Adult non-breeding lacks long tail and has white under parts. Sexes alike.

Distribution : Throughout India, except most of Himalayas.

58. *Metopidius indicus* (Latham)
Bronze-winged Jacana

1969. *Metopidius indicus* : Ali & Ripley, *H. B. No. 359, Vol. 2* : 201.

Material examined : Jabalpur, Panagar, 24.i.1964 (1 ex.); Bilonda tank, Damoh Road, 24.ix. 1970.(1ex.), Coll. J.S. Bhatti.

Diagnosis : Adult has white supercilium contrasting with glossy black head, black neck and under parts and bronze-green upper parts. Further, has rufous-chestnut rump, uppertail-coverts and tail. Bill is yellow, with bright red shield. Sexes alike.

Distribution : Mainly from Gujarat and NW Uttar Pradesh east through the Nepal lowlands to NE India and Bangladesh and south throughout the peninsula.

Family ROSTRATULIDAE

59. *Rostratula benghalensis* (Linnaeus)
Greater Painted-Snipe

1969. *Rostratula benghalensis* : Ali & Ripley, *H. B. No. 429, Vol. 2* : 325.

Observations : Observed at Gokalpur Tank, Jabalpur.

Diagnosis : Adult female has striking white spectacles and white braces, which join with buff scapular lines; maroon head and neck, becoming blacker on breast, buff-crown stripe, dark greenish mantle and wing-coverts. Adult male is smaller and duller; spectacles are buff, head and neck lack maroon colouration and wing-coverts are boldly spotted with golden-buff.

Distribution : Widespread in India but few records from parts of Northwest, Central and East India.

Family CHARADRIIDAE

60. *Charadrius dubius* Scopoli
Little Ringed Plover

1969. *Charadrius dubius* : Ali & Ripley, *H. B. No. 380, Vol. 2* : 231.

Material examined : Jabalpur, Godawari village, 11.iv.1963 (1 ex.), Coll. K.B. Kumar.

Diagnosis : Adult breeding has broad black mask and frontal band, white forehead, bold yellow eye-ring and black breast-band. Non-breeding adult has brownish cap with whitish fore head, indistinct supercilium and blackish-brown breast band. Sexes alike.

Distribution : Throughout India.

61. *Vanellus malabaricus* (Boddaert)
Yellow-wattled Lapwing

1969. *Vanellus malabaricus* : Ali & Ripley, *H. B. No. 370, Vol. 2* : 218.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Adult has lobe shaped yellow wattles, long yellow legs, black cap contrasting with white supercilium, sandy brown upper parts and breast contrasting with white belly, with a narrow dark breast-band. Sexes alike.

Distribution : Throughout India.

62. *Vanellus duvaucelii* (Lesson)
River Lapwing

1969. *Vanellus duvaucelii* : Ali & Ripley, *H. B. No. 369, Vol. 2* : 216.

Material examined : Jabalpur, Lamhetaghat, 31.i.1967 (1 ex.), Coll. V.V. Rao.

Diagnosis : A distinct, riverain lapwing. In all plumages has black cap and throat with diffuse white border, grey sides to neck, cold sandy-brown upper parts and breast-band contrasting with white belly. It has a small black patch in the centre of belly and black legs and bill. Sexes alike.

Distribution : From Himachal Pradesh east through N. India and the Himalayan foothills to NE India.

63. *Vanellus indicus* (Boddaert)
Red-wattled Lapwing

1969. *Vanellus indicus* : Ali & Ripley, *H. B. No. 366, Vol. 2* : 212.

Material examined : Jabalpur, Military Grass Farm, 22.xi.1971 (1 ex.), Coll. T.D. Soota.

Diagnosis : Adult with black crown, throat and centre to breast which contrast with white cheeks, sides of breast and belly. It has black-tipped red bill, red wattle, iris and eye-ring and yellow legs. Sexes alike.

Distribution : Throughout India.

Family SCOLOPACIDAE

64. *Gallinago gallinago* (Linnaeus)
Common Snipe

1969. *Gallinago gallinago* : Ali & Ripley, *H. B. No. 409, Vol. 2* : 287.

Observations : Observed at Gokalpur Tank, Jabalpur.

Diagnosis : Dark brown and buff stripes on head, warm buff colouration to breast and prominent mantle and scapular stripes; typically, buff supercilium contrasts with white cheek-stripe and bulges less in front of eye. Sexes alike.

Distribution : Throughout India.

65. *Numenius arquata* (Linnaeus)

Eurasian Curlew

1969. *Numenius arquata* : Ali & Ripley, *H. B. No. 387, Vol. 2* : 245.

Observations : Observed at Gadheri Pond, Jabalpur.

Diagnosis : A large darkish sandy brown wader with long, slender downcurved bill. Lower parts broadly streaked; axillaries white with bold streaks of blackish.

Distribution : Winter visitor to north-west India and found as far south as Sri Lanka.

66. *Tringa totanus* (Linnaeus)

Common Redshank

1969. *Tringa totanus* : Ali & Ripley, *H. B. No. 393, Vol. 2* : 257.

Observations : Observed at Khandari Tank, Jabalpur.

Diagnosis : A large-sized sandpiper, above, greyish brown with white lower back and rump. Tail white, barred with brown.

Distribution : Northwestern India in winter.

67. *Tringa ochropus* Linnaeus

Green Sandpiper

1969. *Tringa ochropus* : Ali & Ripley, *H. B. No. 397, Vol. 2* : 263.

Material examined : Jabalpur, Dumna Airport, 16.ii.1961 (1 ex.), purchased.

Diagnosis : Head and neck ashy-brown; rest of Upperparts dark brown glossed with bronze-green. Rump and tail more or less pure white, the latter faintly barred with blackish. Below, white, finely streaked with brown on throat, breast, and flanks. Sexes alike.

Distribution : All India including Assam, Sikkim and Manipur, Andaman Islands.

Elsewhere : Pakistan, Nepal, Bhutan, and Sri Lanka.

68. *Tringa glareola* (Linnaeus)
Wood Sandpiper

1969. *Tringa glareola* : Ali & Ripley, *H. B. No. 398, Vol. 2* : 265.

Observations : Observed at Gokalpur Tank, Jabalpur.

Diagnosis : A slim sandpiper, with heavily spotted under parts, distinct white supercilium and streaked breast ending in breast-band. Adult breeding has heavily streaked breast and barred flanks. Adult non-breeding has more uniform grey-brown upper parts, spotted whitish. Sexes alike.

Distribution : Throughout India.

69. *Actitis hypoleucos* (Linnaeus)
Common Sandpiper

1969. *Actitis hypoleucos* : Ali & Ripley, *H. B. No. 401, Vol. 2* : 271.

Observations : Sighted in Jabalpur.

Material examined : District Jabalpur , Dumna Aerodrome , 16.ii.1961(1ex.).

Diagnosis : A small sandpiper, with olive-brown upper parts strongly contrasting with white under parts, long tail projecting well beyond closed wings and constant bobbing action when feeding. Adult breeding has irregular dark streaking and barring on upper parts. Adult non-breeding is duller and more uniform above with less distinct breast pattern.

Distribution : Throughout India.

70. *Calidris minuta* (Leisler)
Little Stint

1969. *Calidris minuta* : Ali & Ripley, *H. B. No. 416, Vol. 2* : 301.

Observations : Observed at Gokalpur Tank, Jabalpur.

Diagnosis : Adult non-breeding is brownish-grey above and white below, with grey patches on sides of breast; a straighter all-black bill and dark legs. Adult breeding is more rufous, in colouration, with a more extensive white throat and shows cream V on mantle. Sexes alike.

Distribution : Much of the Indian subcontinent, except parts of the northwest and northeast and most of Himalayas.

Family RECURVIROSTRIDAE

71. *Himantopus himantopus* (Linnaeus)
Black-winged Stilt

1969. *Himantopus himantopus* : Ali & Ripley, *H. B. No. 430, Vol. 2* : 329.

Material examined : Jabalpur, near Panagar, 17.xi.1970 (1 ex.), Coll. D.K. Ghosal.

Diagnosis : An elegant, very long-legged, black and white wader, with fine, straight black bill. Adult with mainly white head, neck and under body, contrasting with upperparts and reddish-pink legs. Both sexes can have dusky grey on crown, nape and hind neck. Female has browner mantle and scapulars than male.

Distribution : Throughout India.

Family LARIDAE

72. *Sterna aurantia* J. E. Gray
River Tern

1969. *Sterna aurantia* : Ali & Ripley, *H. B. No. 463, Vol. 3* : 48.

Observations : Observed near Katangi, Jabalpur.

Diagnosis : Large-sized, with longer and stouter bill. Adult breeding has large orange-yellow bill, black cap and nape, and red legs and feet. Adult non-breeding lacks long tail-streamers and bill is yellower with variable dark tip.

Distribution : Throughout the Indian subcontinent except the Himalayas, parts of Northwest and Northeast.

Order COLUMBIFORMES

Family PTEROCLIDIDAE

73. *Pterocles exustus* (Temminck)
Chestnut-bellied Sandgrouse

1969. *Pterocles exustus erlangeri* : Ali & Ripley, *H. B. No. 487, Vol. 3* : 82.

Material examined : Jabalpur, Gadheri village, 27.iv.1963 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : A yellowish sandy-grey pintailed pigeon-like ground bird of dry open plains country, with a narrow black band across breast in both sexes. In flight stout bullet-shaped body with tapering tail-end, pointed shortish sickle-like wings, and double-noted call *Kut-ro* diagnostic.

Distribution : Throughout peninsular India eastward to Bengal, southward to Madurai and Tirunelveli districts.

Family COLUMBIDAE

74. *Columba livia* Gmelin
Blue Rock Pigeon

1969. *Columba livia* : Ali & Ripley, *H. B. No. 517, Vol. 3* : 125.

Material examined : Jabalpur, on Katni road, 5.viii.1966 (1 ex.), Coll. V.V. Rao; Sasan, Patan Road, 20.vii.1966 (2ex.).

Diagnosis : Adult is greyish, with metallic green and purple sheen on neck, blackish terminal band on grey tail and short, broad black bars across inner wing. Sexes alike.

Distribution : Throughout India.

75. *Streptopelia orientalis* (Latham)
Oriental Turtle-Dove

1969. *Streptopelia orientalis* : Ali & Ripley, *H. B. No. 530, Vol. 3* : 142.

Observations : Sighted in Jabalpur.

Diagnosis : A large reddish-brown dove with scaly-patterned upperparts, black 'chessboards' on sides of neck, and dove-grey tips to tail feathers.

Distribution : Widely spread over northern and peninsular India.

76. *Streptopelia senegalensis cambayensis* Gmelin
Little Brown Dove

1969. *Streptopelia senegalensis cambayensis* : Ali & Ripley, *H. B. No. 541, Vol. 3* : 155.

Material examined : Jabalpur, Katangi Hills, 18.xi.1968 (1 ex.); Pachpedi, 15.xi.1971(1ex.), Coll. H. Khajuria.

Diagnosis : A small slim pinkish brown-and-grey dove. Above, head and neck lilac-pink with a miniature 'chessboard' in black and rufous on either side of foreneck; rest of upper plumage earthy brown with prominent grey patches on wing-shoulders. Below, breast pinkish brown; rest of underparts white. Tail graduated, with much white near tips of the outer feathers. Sexes alike.

Distribution : Throughout India.

77. *Streptopelia chinensis* (Scopoli)
Spotted Dove

1969. *Streptopelia chinensis* : Ali & Ripley, *H. B. No. 537, Vol. 3* : 152.

Material examined : Jabalpur, Pariyat forest, 13.vii.1970 (1 ex.), Coll. D.K. Ghosal.

Diagnosis : Adult scaled or spotted with pinkish-buff; with extensive black and white chequered patches on sides of neck which meet on nape, grey cast to crown and ear-coverts contrasting with strongly vinaceous-pink tinged upper nape and neck sides, throat and breast and darker grey-brown rump and tail with blackish base to outer tail feathers. Sexes alike.

Distribution : Throughout India.

**78. *Streptopelia tranquebarica* (Hermann)
Red Collared-Dove**

1969. *Streptopelia tranquebarica* : Ali & Ripley, *H. B. No. 535, Vol. 3* : 149.

Material examined : Jabalpur, Gadheri village, 11.iv.1963 (1 ex.), Coll. K.B. Kumar; Jabalpur, Pachpedi, 31.iii.1964 (1 ex.), purchased.

Diagnosis : A small, stocky dove with black half-collar and striking greyish-white sides to tail. Male has blue-grey head, pinkish-maroon mantle and wing-coverts, and deep pink under parts. Female has darker buffish-grey under parts and slightly darker fawn-brown upper parts.

Distribution : Throughout India.

**79. *Streptopelia decaocto* (Frivaldszky)
Eurasian Collared-Dove**

1969. *Streptopelia decaocto* : Ali & Ripley, *H. B. No. 534, Vol. 3* : 147.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : A sandy-brown dove with black half-collar, white sides to tail and white underwing-coverts, with paler fawn upper parts; paler pinkish-grey under parts with grey undertail-coverts, more white at tip of tail and white underwing. Sexes alike.

Distribution : Throughout India.

**80. *Chalcophaps indica* (Linnaeus)
Emerald Dove**

1969. *Chalcophaps indica* : Ali & Ripley, *H. B. No. 542, Vol. 3* : 157.

Observations : Observed at Kutangar (Kundam road), Jabalpur.

Diagnosis : A brownish-pink dove, with glistening emerald bronze-green upperparts (excluding tail) and conspicuous white forehead and eyebrows. In flight, chestnut underside of wings diagnostic. Sexes alike.

Distribution : Throughout the Indian subcontinent, most of Himalayas and South West India.

81. *Treron phoenicoptera* (Latham)
Yellow-legged Green-Pigeon

1969. *Treron phoenicoptera* : Ali & Ripley, *H. B. No. 503, Vol. 3* : 106.

Material examined : Jabalpur, Lamhetaghat, 15.vii.1964 (1 ex.), Coll. D.N. Basu; Jabalpur, on Nagpur road, 7.vii.1964 (1 ex.), Coll. D.N. Basu.

Diagnosis : Sexes alike, although female is duller. A large green pigeon, with grey cap and pale greenish-yellow forehead and throat, broad olive-yellow band around neck, narrow grey band across upper mantle, pale greyish-green upper parts, olive-yellow band across base of grey tail, mauve shoulder patch and yellow legs and feet.

Distribution : Throughout peninsular India except much of the northwest, Himalayas and extreme of E. India.

Order PSITTACIFORMES

Family PSITTACIDAE

82. *Psittacula eupatria* (Linnaeus)
Alexandrine Parakeet

1969. *Psittacula eupatria* : Ali & Ripley, *H. B. No. 546, Vol. 3* : 166.

Observations : Observed on Katangi road, Jabalpur.

Diagnosis : A very large, all green parakeet, with huge red bill and maroon shoulder patch. Male has black chin stripe joining pink and turquoise hind collar, both of which are lacking on female and immature.

Distribution : Common and widespread in N. India, sporadic south of 18° N; plains up to 1600 m. in Himalayas and up to 900 m. in peninsular hills.

83. *Psittacula krameri* (Scopoli)
Rose-ringed Parakeet

1969. *Psittacula krameri* : Ali & Ripley, *H. B. No. 549 & 550, Vol. 3* : 169 & 171.

Material examined : Jabalpur, Pachpedi, 14.vii.1965 (1 ex.), purchased; Jabalpur, Pachpedi, 19.vi.1968 (1 ex.), purchased; Jabalpur, Lamhetaghat, 10.iv.1969 (1 ex.), Coll. H. Khajuria.

Diagnosis : An all green parakeet with bright red bill. Male has black chin stripe joining pink hind collar. Female lacks the chin stripe and collar and is all green.

Distribution : Throughout India.

84. *Psittacula cyanocephala* (Linnaeus)
Plum-headed Parakeet

1969. *Psittacula cyanocephala* : Ali & Ripley, *H. B. No. 557, 558, Vol. 3* : 178, 179.

Material examined : Jabalpur, Lametaghat, 10.iv. 1969 (1ex.), Pachpedi, 2.v.1964 & 18.v.1965(2ex.).

Observations : Observed on Kundam road, Jabalpur.

Diagnosis : A small bodied, long-tailed parakeet. Adult male has plum-red and purplish-blue head, yellow upper mandible and white tipped blue-green tail. Adult female has greyish head.

Distribution : Himalayas from NE Pakistan east to Bangladesh, south through much of the peninsula, except parts of the northwest and northeast; Sri Lanka.

Order CUCULIFORMES

Family CUCULIDAE

85. *Clamator jacobinus* (Boddaert)
Pied Crested Cuckoo

1969. *Clamator jacobinus* : Ali & Ripley, *H. B. No. 571, Vol. 3* : 197.

Material examined : Jabalpur, Pachpedi, 20.vi.1964 (1 ex.), purchased; Jabalpur, Pachpedi, 4.viii.1969 (1 ex.), purchased; Nagpur Road, 5.viii.1971 (2ex.), Bank of Narmada, 8.vii.1964 (1ex.).

Diagnosis : A medium-sized pied cuckoo with prominent crest. Adult has black wings with white patch at base of primaries; all white under parts (with faint buffish wash) and prominent white tips to tail feathers. Sexes alike.

Distribution : Throughout much of the Indian subcontinent, except parts of the northwest and Himalayas.

86. *Hierococcyx varius* (Vahl)
Brainfever Bird

1969. *Hierococcyx varius* : Ali & Ripley, *H. B. No. 573, Vol. 3* : 200.

Material examined : Jabalpur, Lamhetaghat road, 14.xii.1966 (1 ex.), Coll. V.V. Rao.

Diagnosis : A medium-sized cuckoo, with greyish upper parts, whitish throat, variably mottled with grey, rufous under parts; breast, belly and flanks have faint dark barring. Sexes alike.

Distribution : Throughout much of the Indian subcontinent, except parts of the northwest.

87. *Cuculus micropterus* Gould Indian Cuckoo

1969. *Cuculus micropterus* : Ali & Ripley, *H. B. No. 576, Vol. 3* : 204.

Material examined : Jabalpur, Ridge road, 16.viii.1971 (1 ex.), purchased; Jabalpur, Amkhas, 4.ix.1970 (1 ex.), Coll. H.S. Sharma; Pachpedi, 29.xi.1967, 26.iii.1971, 24.xii.1963 (3 ex.).

Diagnosis : Brown colouration to upper parts and tail, broad barring on under parts, and pronounced white barring and spotting on tail. Female is similar to male, but has rufous-buff wash to base of grey breast.

Distribution : Breeds in Himalayas and eastern subcontinent and southward throughout the subcontinent.

88. *Cacomantis sonneratii* (Latham) Banded Bay Cuckoo

1969. *Cacomantis sonneratii sonneratii* : Ali & Ripley, *H. B. No. 582, Vol. 3* : 215.

Material examined : Jabalpur, Katangi Hill, 1.ix.1967 (1 ex.), purchased.

Diagnosis : A small slim cuckoo; above, bright rufous or bay colour, conspicuously crossbarred with brown; below, including sides of head and neck, whitish with fine wavy brown cross-bars. Tail largely rufous, tipped with white and subtipped with black. Sexes alike.

Distribution : Widely scattered in the monsoon season practically throughout India, sparse in the north, fairly common in the Deccan and southern India.

89. *Eudynamys scolopacea* (Linnaeus) Asian Koel

1969. *Eudynamys scolopacea* : Ali & Ripley, *H. B. No. 590, Vol. 3* : 227.

Material examined : Jabalpur, on Lamhetaghat road, 14.xii.1966 (1 ex.), Coll. V.V. Rao; Jabalpur, Pachpedi, 14.vii.1965 (1 ex.), purchased.

Diagnosis : A very large, long tailed cuckoo. Male is glossy black all over (with green iridescence), with a dull lime-green bill and brilliant red eye. Female is brown above (with faint green gloss), spotted and barred with white and buff, and white below, strongly barred with dark brown.

Distribution : Throughout India.

90. *Centropus sinensis* (Stephens)
Greater Coucal

1969. *Centropus sinensis* : Ali & Ripley, *H. B. No. 602, Vol. 3* : 243.

Material examined : Jabalpur, Amkhas village, 19.iii.1963 (1 ex.), Coll. D.N. Basu; Jabalpur, Maharajpur village, 7.v.1963 (1 ex.), Coll. D.N. Basu; Jabalpur, Richhai village, 17.v.1963 (1 ex.), Coll. D.N. Basu.

Diagnosis : Large, with glossy black head, body and tail, contrasting chestnut wings and red eyes. Sexes alike.

Distribution : Throughout India.

Order STRIGIFORMES

Family TYTONIDAE

91. *Tyto alba* (Scopoli)
Barn Owl

1969. *Tyto alba stertens* : Ali & Ripley, *H. B. No. 606, Vol. 3* : 250.

Material examined : Jabalpur, Pachpedi, 1.vi.1971 (1 ex.), purchased.

Diagnosis : A typical owl with large round head and a conspicuous ruff of stiff feathers surrounding a comically pinched white monkey-like facial disc. Above, golden buff and grey, finely stippled with black and white. Much yellowish brown about the shoulders and on wings. Below, silky white, more or less tinged with buff and usually spotted dark brown. Sexes alike.

Distribution : All India from Jammu eastward through the Gangetic Plain to Bengal, Assam, Nagaland and Manipur, south throughout the peninsula to Kanyakumari.

Family STRIGIDAE

92. *Otus bakkamoena* Pennant
Collared Scops-Owl

1969. *Otus bakkamoena marathae* : Ali & Ripley, *H. B. No. 622, Vol. 3* : 268.

Material examined : Jabalpur, Pachpedi, 5.ii.1970 (1 ex.), purchased.

Diagnosis : A little 'horned' or 'eared' owl, with a prominent pale collar at base of hindneck. Sexes alike. Wing 152-162 mm.

Distribution : Resident. Approximately between lat. 20° and 24° N. from Gujarat eastward through Maharashtra and Madhya Pradesh to Orissa and southern W. Bengal.

93. *Bubo bubo* (Linnaeus)
Eurasian Eagle-Owl

1969. *Bubo bubo* : Ali & Ripley, *H. B. No. 625, Vol. 3* : 271.

Material examined : Jabalpur, Pachpedi, 27.i.1967 (1 ex.), purchased.

Diagnosis : A large brown owl, streaked and mottled tawny buff and black, with two prominent upstanding black 'horns' or ear-tufts above the head. Sexes alike.

Distribution : Resident; sparsely scattered over extensive tracts of high mountain country chiefly between 1800-4500 mt.

94. *Bubo coromandus* (Latham)
Dusky Eagle-Owl

1969. *Bubo coromandus coromandus* : Ali & Ripley, *H. B. No. 630, Vol. 3* : 278.

Material examined : Jabalpur, Ridge road, 22.iv.1967 (1 ex.), purchased.

Diagnosis : A large horned owl, more grey or sooty washed than tawny, and with paler yellow eyes. When perched, the horns stand erect close to each other like twin spiers. Sexes alike.

Distribution : Resident; widely distributed in well-wooded, well-watered tracts throughout the subcontinent south of the Himalayas.

95. *Athene brama* (Temminck)
Spotted Owlet

1969. *Athene brama* : Ali & Ripley, *H. B. No. 652, Vol. 3* : 302.

Material examined : Jabalpur, Pachpedi, 9.vi.1971 (1 ex.), purchased; Jabalpur, Pachpedi, 15.vi.1967, 16.vi.1967, 9.vi.1971 (3 ex.), purchased; Jabalpur, Amkhas, 5.vi.1965 (1 ex.), Coll. V.V. Rao.

Diagnosis : A small owl, with white spotting on upper parts, including crown and diffuse brown spotting on under parts; pale facial discs and nuchal collar. Sexes alike.

Distribution : Throughout India except parts of the northeast and Himalayas.

Order CAPRIMULGIFORMES

Family CAPRIMULGIDAE

96. *Caprimulgus asiaticus* Latham
Common Indian Nightjar

1970. *Caprimulgus asiaticus* : Ali & Ripley, *H. B. No. 680, Vol. 4* : 21.

Material examined : Jabalpur, Pachpedi, 14.vii.1965 (1 ex.), purchased.

Diagnosis : A small, generally grey nightjar, with relatively short wings and tail, boldly streaked crown, rufous-buff markings on nape forming distinct collar, bold black centre and broad buff edges to scapulars, relatively unmarked central tail feathers. Sexes alike.

Distribution : Widespread in India, foothills up to 1500 m.

Order APODIFORMES

Family APODIDAE

97. *Apus affinis* (J. E. Gray)
House Swift

1970. *Apus affinis* : Ali & Ripley, *H. B. No. 703, Vol. 4* : 51.

Material examined : Jabalpur, Pachpedi, 21.vi.1969 (1 ex.); Lametaghat, 11.vii.1965 (1 ex.), purchased.

Diagnosis : A small, stocky, blackish swift with a broad white rump and blackish under parts. Tail is either square-ended or has shallow fork. Sexes alike.

Distribution : Throughout the Indian subcontinent except parts of the Northeast.

Order CORACIIFORMES

Family ALCEDINIDAE

98. *Alcedo atthis* (Linnaeus)
Small Blue Kingfisher

1970. *Alcedo atthis* : Ali & Ripley, *H. B. No. 723, Vol. 4* : 76.

Material examined : Jabalpur, Panagar tank, 7.vi.1967 (1 ex.), Mandla Road, 25.i.1967(1 ex.), Pariat River, 31.v.1969(1 ex.).

Observations : Observed on Katangi road, Jabalpur.

Diagnosis : A small, brilliant turquoise-blue and orange kingfisher, with orange ear-coverts, paler greenish-blue upper parts (crown, scapulars and wings) with pale turquoise-blue line down back and pale orange under parts. Sexes alike.

Distribution : Throughout India.

99. *Halcyon smyrnensis* (Linnaeus)
White-breasted Kingfisher

1970. *Halcyon smyrnensis* : Ali & Ripley, *H. B. No. 735, Vol. 4* : 89.

Material examined : Jabalpur, Gwarighat, 24.vi.1964 (1 ex.), Coll. D.N. Basu; Jabalpur, Padariya village, 27.xi.1965 (1 ex.), Coll. D.N. Basu; Jabalpur, Pachpedi, 26.ii.1970 (1 ex.), Coll. V.S. Durve; Patan, 26.vii.1966(2ex.); Bank of Hiran River , 18.i.1969(1ex.).

Diagnosis : A large, cosmopolitan kingfisher with large red bill, chocolate-brown head and most of under parts, white throat and centre of breast, and brilliant turquoise-blue upper parts including rump and tail. Sexes alike.

Distribution : Throughout India.

100. *Halcyon pileata* (Boddaert)
Black-capped Kingfisher

1970. *Halcyon pileata* : Ali & Ripley, *H. B. No. 739, Vol. 4* : 94.

Observations : Sighted in Jabalpur.

Diagnosis : A medium-sized kingfisher with bright coral-red bill and a large whitish wing-patch, conspicuous in flight. Readily identified also by its pale rusty underparts including underside of wings.

Distribution : Not common but frequent on the western seaboard from about Bombay southward, and up the eastern coast of the Peninsula through the Godavari delta, Sunderbans and Bangladesh, and beyond.

101. *Ceryle rudis* (Linnaeus)
Lesser Pied Kingfisher

1970. *Ceryle rudis* : Ali & Ripley, *H. B. No. 719, Vol. 4* : 71.

Material examined : Jabalpur, 26.iii.1964 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : A large, crested, black and white kingfisher, with black streaked white crown and crest, white supercilium contrasting with broad black eye-stripe and finely white-streaked black ear-coverts, white under parts with black breast band and black and white patterning of wings and tail. Female same as male but has single, usually broken, breast band.

Distribution : Throughout India, common below 1800 m.

Family MEROPIDAE

102. *Merops orientalis* Latham
Small Bee-eater

1970. *Merops orientalis* : Ali & Ripley, *H. B. No. 750, Vol. 4* : 109.

Material examined : Jabalpur, Pachpedi, 31.v.1965 (1 ex.), purchased; Jabalpur, Pachpedi, 29.v.1965 (1 ex.), purchased; Jabalpur, Pachpedi, 6.vi.1967 (1 ex.), purchased.

Diagnosis : A small green bee-eater, with blue or green throat with black gorget and variable golden-brown to rufous colouration to crown and nape. Green tail with elongated central tail feathers. Sexes alike.

Distribution : Throughout India.

103. *Merops philippinus* Linnaeus
Blue-tailed Bee-eater

1970. *Merops philippinus* : Ali & Ripley, *H. B. No. 748, Vol. 4* : 106.

Material examined : Jabalpur, Lamhetaghat, 11.v.1967 (1 ex.), Coll. H.S. Sharma.

Diagnosis : Male breeding has yellow crown and dark brown ear-coverts and throat. Male non-breeding, female and juvenile have brownish-buff upper parts, boldly streaked with dark brown and buff to pale yellowish under parts.

Distribution : Most of India, except parts of the northwest, northeast and Himalayas.

Family CORACIIDAE

104. *Coracias benghalensis* (Linnaeus)
Indian Roller

1970. *Coracias benghalensis* : Ali & Ripley, *H. B. No. 755, Vol. 4* : 116.

Material examined : Jabalpur, Delsagar, 13.xi.1963 (1 ex.), Coll. D.N. Basu; Pachpedi, 4.v.1968, (1ex.), Ridge Road, 29.xi.1971(1ex.).

Diagnosis : Adult has rufous-brown on nape and under parts, white streaking on ear-coverts and throat and greenish mantle. It has turquoise band across primaries and dark blue terminal band to tail. Sexes alike.

Distribution : Throughout India.

Family UPUPIDAE

105. *Upupa epops* Linnaeus
Common Hoopoe

1970. *Upupa epops* : Ali & Ripley, *H. B. No. 763, Vol. 4* : 124.

Material examined : Jabalpur, Pachpedi, 24.i.1961 (1 ex.), purchased; Jabalpur, Panagar, 22.v.1964 (1 ex.), purchased; Jabalpur, Pachpedi, 18.v.1968 (1 ex.), purchased; Vita Vill., 26.vi.1964,(1ex.).

Diagnosis : Mainly rufous-orange or orange-buff, with striking black and white wings and tail, black tipped fan-like crest which is usually held flat, and long, thin down curved bill. Broad, rounded wings in flight. Sexes alike.

Distribution : Throughout India except parts of NW.

Family BUCEROTIDAE

106. *Ocyrceros birostris* (Scopoli)
Indian Grey Hornbill

1970. *Tockus birostris* : Ali & Ripley, *H. B. No. 767, Vol. 4* : 130.

Material examined : Jabalpur, Lamhetaghat village, 28.iii.1963 (1 ex.), Coll. D.N. Basu; Jabalpur, Lamhetaghat, 31.i.1967 (1 ex.), Coll. V.V. Rao.

Diagnosis : Adult with broad greyish-white supercilium and dark grey ear-coverts, white tips to primaries and secondaries and white tipped tail. Female is similar to male but has smaller casque with less pronounced tip.

Distribution : Widespread in India and locally common up to 1000 m.

107. *Buceros bicornis* Linnaeus
Great Pied Hornbill

1970. *Buceros bicornis* : Ali & Ripley, *H. B. No. 776, Vol. 4* : 143.

Material examined : Jabalpur, 26.iii.1964 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : A large black-and-white hornbill with enormous horn-shaped, yellow-and-black bill surmounted by a ponderous concave-topped casque, broadly U-shaped when viewed from the front. Face, back, underparts and wings black, the last with double white bars. Neck, lower abdomen, upper and under tail-coverts and tail white, the last with a broad black subterminal band.

Distribution : The Sahyadri or Western Ghats complex from about Khandala in Maharashtra south through Goa, Western Mysore, western Tamil Nadu and Kerala.

Order PICIFORMES

Family CAPITONIDAE

108. *Megalaima zeylanica* (Gmelin)
Brown-headed Barbet

1970. *Megalaima zeylanica* : Ali & Ripley, *H. B. No. 780, Vol. 4* : 150.

Material examined : Jabalpur, Lamhetaghat, 15.i.1969 (1 ex.), Coll. V.V. Rao.

Diagnosis : A stout billed dumpy grass green arboreal bird. Head, neck, upper back and upper breast pale green. Tail bluish. A conspicuous naked orange-coloured patch around eye extending up to bill. Sexes alike.

Distribution : Lower Himalayas; continental India east through Madhya Pradesh, Orissa south to Godavari River.

109. *Megalaima haemacephala* (P.L.S. Muller)
Coppersmith Barbet

1970. *Megalaima haemacephala* : Ali & Ripley, *H. B. No. 792, Vol. 4* : 163.

Material examined : Jabalpur, Pachpedi, 8.xii.1960 (1 ex.), donated; Jabalpur, Pachpedi, 14.v.1969 (1 ex.), purchased; Jabalpur, Pachpedi, 11.xi.1963, 10.vi.1963, 14.vi.1969 (3 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 14. i.1970 (1 ex.), Coll. D.K. Ghosal.

Diagnosis : A small, brightly coloured barbet, easily identified by combination of crimson forehead and patch on breast, yellow patches above and below eye contrasting with blackish hind crown and sides of head, yellow throat, dark streaking on belly and flanks, and bright legs and feet.

Distribution : Throughout India.

Family PICIDAE

110. *Jynx torquilla* Linnaeus
Eurasian Wryneck

1970. *Jynx torquilla* : Ali & Ripley, *H. B. No. 796, Vol. 4* : 168.

Material examined : Jabalpur, Pachpedi, 29.xii.1969 (1 ex.), purchased.

Diagnosis : A slim, silvery grey-brown bird, streaked, speckled and vermiculated with black and fulvous above. Below, whitish with arrow-head markings producing a finely cross-barred pattern. Tail with 3 or 4 conspicuous dark bands. Sexes alike.

Distribution : Through Uttar Pradesh, Rajasthan, Gujarat, Maharashtra and western central India south to Kerala.

111. *Dendrocopos nanus* (Vigors)
Brown-capped Pygmy Woodpecker

1970. *Dendrocopos nanus* : Ali & Ripley, *H. B. No. 852, Vol. 4* : 231.

Material examined : Jabalpur, Katangi Hill, 8.viii.1969 (1 ex.), Coll. D.K. Ghosal; Jabalpur, on Dindori road, 23.i.1969 (1 ex.), Coll. V.V. Rao.

Diagnosis : A tiny woodpecker with white barring and spotting on upper parts, whitish supercilium and broad brown band behind eye. Throughout most of range, has streaked under parts. Male has small, often distinct, crimson patch on sides of hind crown, which is lacking on female.

Distribution : North India from Punjab, Rajasthan and Gujarat, east to Bengal, south through the peninsula.

112. *Dendrocopos mahrattensis* (Latham)
Yellow-fronted Pied Woodpecker

1970. *Dendrocopos mahrattensis* : Ali & Ripley, *H. B. No. 847, Vol. 4* : 226.

Material examined : Jabalpur, Pachpedi, 5.v.1964 (1 ex.), purchased; Jabalpur, on Nagpur road, 22.vi.1970 (1 ex.), Coll. H.S. Sharma; Jabalpur, on Nagpur road, 2.vi.1971 (1 ex.), Coll. H.S. Sharma.

Diagnosis : Yellowish forehead and fore crown, white spotted upper parts, poorly defined moustachial stripe, whitish undertail-coverts and white barring on central tail feathers. Male has scarlet hind crown and nape, female has brownish hind crown and nape.

Distribution : Throughout India except Himalayas and most of Northeast India.

113. *Dinopium benghalense* (Linnaeus)
Lesser Golden-backed Woodpecker

1970. *Dinopium benghalense* : Ali & Ripley, *H. B. No. 819, Vol. 4* : 197.

Material examined : Jabalpur, Pachpedi, N.A. (1 ex.), purchased; Jabalpur, on Nagpur road, 7.x.1971 (1 ex.), Coll. D.K. Ghosal; Jabalpur, on Dindori road, 23.i.1969 (1 ex.), Coll. V.V. Rao.

Diagnosis : A medium-sized woodpecker with golden-yellow upper parts, black and white face pattern, and black streaking or scaling on under parts. Male has scarlet crown and crest, female has white spotted black forehead and fore crown and scarlet hind crown and crest.

Distribution : Throughout India.

Order PASSERIFORMES

Family ALAUDIDAE

114. *Mirafra erythroptera* Blyth
Red-winged Bush-Lark

1972. *Mirafra erythroptera* : Ali & Ripley, *H. B. No. 877, Vol. 5 : 7.*

Material examined : Jabalpur, Pachpedi, 1.xi.1963 (1 ex.), purchased.

Diagnosis : Stout bill and rufous on wing; rufous-buff on outer tail feathers, pronounced dark spotting on breast, dark spotting on ear-coverts and malar region and more uniform whitish under parts. Hind claw equal to hind toe, and shows more rufous on wing than other bush larks. Sexes alike.

Distribution : Plains and plateaus in India; unrecorded in the northeast.

115. *Eremopterix grisea* (Scopoli)
Ashy-crowned Sparrow-Lark

1972. *Eremopterix grisea* : Ali & Ripley, *H. B. No. 878, Vol. 5 : 9.*

Observations : Observed at Kakartala Tank, Jabalpur.

Diagnosis : Male has grey crown and nape and brownish-black under parts. Female has stout greyish bill, rather uniform head and upper parts and dark grey under wing-coverts.

Distribution : Widespread throughout India but apparently absent from Himalayas.

116. *Galerida cristata* (Linnaeus)
Common Crested Lark

1972. *Galerida cristata* : Ali & Ripley, *H. B. No. 879, Vol. 5 : 37.*

Observations : Observed at Gokalpur Tank, Jabalpur.

Diagnosis : A large, sandy to sandy-grey lark with prominent crest, well streaked upper parts and breast, broader rounded wings, rufous-buff outer tail feathers and underwing. Sexes alike.

Distribution : Mainly from North India and South Nepal to East Bihar and Madhya Pradesh.

117. *Alauda gulgula* Franklin
Eastern Skylark

1972. *Alauda gulgula* : Ali & Ripley, *H. B. No. 907, Vol. 5 : 46.*

Observations : Sighted in Jabalpur.

Diagnosis : Variable in colouration and prominence of streaking on upper parts and under parts. Fine bill, buffish-white outer tail feathers and indistinct rufous wing panel. Sexes alike.

Distribution : Throughout India, except parts of the northwest and northeast.

Family HIRUNDINIDAE

118. *Hirundo concolor* Sykes
Dusky Crag-Martin

1972. *Hirundo concolor* : Ali & Ripley, *H. B. No. 914, Vol. 5* : 55.

Material examined : Jabalpur, Lamhetaghat, 11.vii.1963 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Upper parts and under parts are dark brown, with breast and belly not noticeably paler than vent. Throat is a slightly warmer and paler buff-brown, with indistinct darker brown streaking. Sexes alike.

Distribution : From N. Harayana, E. Rajasthan, Gujarat and extreme SE Pakistan east to W. Bihar and south through the peninsula, patchily distributed.

119. *Hirundo rustica* Linnaeus
Common Swallow

1972. *Hirundo rustica* : Ali & Ripley, *H. B. No. 916, Vol. 5* : 57.

Observations : Observed in Khamaria estate, Jabalpur.

Diagnosis : Glossy steel blue or purplish-blue above, pale pinkish-white below. Chestnut forehead and throat, the latter bordered by a broad glossy black pectoral band. Deeply forked 'swallow' tail, especially prominent in flight. Sexes alike.

Distribution : In winter, throughout the Indian union; Sri Lanka; Bangladesh; Pakistan; Myanmar.

120. *Hirundo smithii* Leach
Wire-tailed Swallow

1972. *Hirundo smithii* : Ali & Ripley, *H. B. No. 921, Vol. 5* : 63.

Observations : Observed in Khamaria estate, Jabalpur.

Diagnosis : Chestnut crown, glistening white under parts and underwing-coverts and fine filamentous projections to outer tail feathers (often broken or difficult to see). Sexes alike.

Distribution : Widespread except parts of the northwest, northeast and southeast India.

121. *Hirundo daurica* Linnaeus
Red-rumped Swallow

1972. *Hirundo daurica* : Ali & Ripley, *H. B. No. 925, Vol. 5* : 68.

Material examined : Jabalpur, Katangi village, 4.iii.1967 (2 exs.), Coll. H. Khajuria.

Diagnosis : Adult, with rufous-orange neck sides, rufous-orange rump, finely streaked buffish-white under parts, and black undertail-coverts. Sexes alike.

Distribution : Throughout much of the Indian subcontinent, except parts of the northwest and northeast.

122. *Hirundo fluvicola* Blyth
Streak-throated Swallow

1972. *Hirundo fluvicola* : Ali & Ripley, *H. B. No. 922, Vol. 5* : 64.

Material examined : Jabalpur, under a bridge on Hiran river, near Katangi, on Jabalpur-Katangi road, 13.iii.1964 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : A small, compact swallow with slight fork to long broad tail, lightly streaked chestnut crown and nape, dirty off-white under parts, with brown streaking on chin, throat and breast, narrow white streaks on mantle and brownish rump. Sexes alike.

Distribution : Indus plains, east to E. Uttar Pradesh and south to S. Karnataka.

Family MOTACILLIDAE

123. *Dendronanthus indicus* (Gmelin)
Forest Wagtail

1973. *Motacilla indica* : Ali & Ripley, *H. B. No. 1874, Vol. 9* : 273.

Observations : Sighted in Jabalpur.

Diagnosis : Adult with broad yellowish-white median and greater covert wing-bars and white patch on secondaries, double black band, olive upper parts, white supercilium and whitish under parts. Sexes alike.

Distribution : Northeast and Southwest India, to southernmost part of peninsula.

124. *Motacilla alba* Linnaeus
White Wagtail

1973. *Motacilla alba* : Ali & Ripley, *H. B. No. 1885, Vol. 9* : 288.

Material examined : Jabalpur, Pachpedi, 19.vi.1968 (1 ex.), purchased.

Diagnosis : Adult extremely variable, with black and white head pattern, grey or black mantle, and largely white to largely black wing-coverts. Sexes alike.

Distribution : Throughout India.

**125. *Motacilla maderaspatensis* Gmelin
Large Pied Wagtail**

1973. *Motacilla maderaspatensis* : Ali & Ripley, *H. B. No. 1891, Vol. 9* : 296.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : A very large wagtail. Adult is black and white; head is black, with white supercilium, neck, mantle and breast are also black, and wing-coverts are largely white. Sexes alike.

Distribution : Throughout India, except parts of the northwest, northeast and Himalayas.

**126. *Motacilla citreola* Pallas
Citrine Wagtail**

1973. *Motacilla citreola* : Ali & Ripley, *H. B. No. 1883, Vol. 9* : 284.

Material examined : Jabalpur, Pachpedi, 24.xii.1969 (1 ex.), purchased.

Diagnosis : Male breeding has yellow head and under parts, black or grey mantle and broad white tips to median and greater coverts. Female breeding and adult non-breeding have broad yellow supercilium that surround ear-coverts to join yellow of throat, greyish crown, nape, ear-coverts and mantle, and mainly yellow under parts.

Distribution : Throughout India.

**127. *Motacilla flava* Linnaeus
Yellow Wagtail**

1973. *Motacilla flava* : Ali & Ripley, *H. B. No. 1875, 1876, Vol. 9* : 276, 278.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Male breeding has olive-green upper parts and yellow under parts, with considerable variation in colouration of head depending on race. Female extremely variable, but often with some features of breeding male. First-winter birds typically have brownish-olive upper parts, and whitish under parts with variable yellowish wash.

Distribution : Widespread in India.

128. *Motacilla cinerea* (Gmelin)
Grey Wagtail

1973. *Motacilla cinerea* : Ali & Ripley, *H. B. No. 1884, Vol. 9* : 285.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Much longer-tailed, with white supercilium, grey upper parts and yellow vent and undertail-coverts. Male breeding has black throat, with rest of under parts of yellow. Female breeding lacks well defined black-bib, but may show black mottling on chin/throat.

Distribution : Throughout India.

129. *Anthus rufulus* Vieillot
Paddyfield Pipit

1973. *Anthus novaeseelandiae* : Ali & Ripley, *H. B. No. 1859, Vol. 9* : 253.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Well-streaked upper parts, malar region and breast; shorter tail, legs and hind claw, small bill and more horizontal carriage. Sexes alike.

Distribution : Throughout most of the subcontinent, except parts of the northwest, northeast and Himalayas.

130. *Anthus trivialis* (Linnaeus)
Eurasian Tree Pipit

1973. *Anthus trivialis* : Ali & Ripley, *H. B. No. 1854, Vol. 9* : 246.

Material examined : Jabalpur, Paharighera pond, 26.vi.1963 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Upperparts brown finely streaked with darker brown. Supercilium, double wing-bar, and outer rectrices whitish.

Distribution : The greater part of the Indian Peninsula from the Himalayas foothills up to 1400 m. east to the Brahmaputra, west to Sindh and south to the Nilgiri Hills.

131. *Anthus hodgsoni* Richmond
Oriental Tree Pipit

1973. *Anthus hodgsoni* : Ali & Ripley, *H. B. No. 1852, Vol. 9* : 243.

Material examined : Jabalpur, Pachpedi, 4.iv.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 22.ii.1963 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Greenish-olive cast to crown, mantle and scapulars and greenish-olive fringes to greater coverts, tertials and secondaries, prominent supercilium which is buffish in front of eye and white behind, distinct whitish spot and blackish patch on rear ear-coverts. Sexes alike.

Distribution : Mainly in North, Northeast, East and Southwest India.

Family CAMPEPHAGIDAE

132. *Coracina macei* (Lesson)

Large Cuckoo-Shrike

1971. *Coracina macei* : Ali & Ripley, *H. B. No. 1072, Vol. 6* : 14.

Material examined : Jabalpur, Lamhetaghat, 14.xii.1966 (1 ex.), Coll. V.V. Rao; Jabalpur, Pachpedi, 10.vi.1969 (1 ex.), purchased.

Diagnosis : Adult with pale grey upper parts, wings and tail, greyish-white under parts with variable amounts of faint grey barring. Male has black lores and dark grey ear-coverts, and throat and breast are uniformly grey, with rest of under parts barred. Female has paler lores, under parts are almost entirely barred; with pale barring on rump and uppertail-coverts.

Distribution : Throughout peninsular India except northwest a line from Kutch to Kumaon.

133. *Coracina melanoptera* (Rüppell)

Black-headed Cuckoo-Shrike

1971. *Coracina melanoptera* : Ali & Ripley, *H. B. No. 1079, Vol. 6* : 22.

Material examined : Jabalpur, Pachpedi, 3.vi.1969 (1 ex.), purchased; Jabalpur, Grass Farm Vita Rd., 3.vi.1969 (1 ex.), Coll. T.D. Soota.

Diagnosis : Male has dark slate-grey head, neck and upper breast, contrasting with pale-grey mantle and rest of under parts; wings are darker grey than mantle and have broad pale fringes to coverts and tertials. Female has fine whitish supercilium, uniform brown-grey crown, nape and mantle, and buffish-white under parts, barred with dark brown on throat, breast and belly.

Distribution : Mainly Himalayan foothills from Himachal Pradesh east to W. Bengal and south throughout much of the peninsula.

134. *Pericrocotus cinnamomeus* (Linnaeus)

Small Minivet

1971. *Pericrocotus cinnamomeus* : Ali & Ripley, *H. B. No. 1093, Vol. 6* : 42.

Material examined : Jabalpur, left bank of Narmada river, 11.v.1967 (1 ex.), Coll. V.S. Durve; Jabalpur, Pachpedi, 5.vi.1965, 3.i.1970 (2 ex.), purchased.

Diagnosis : Male with dark grey to black face and throat, grey crown, nape and mantle, and orange breast, wing patch and rump. Female has grey upper parts, orange wing patch and orange rump and/or uppertail-coverts.

Distribution : From Saurashtra, S. Rajasthan, Madhya Pradesh, S. Orissa south through the peninsula to Tamil Nadu.

**135. *Pericrocotus ethologus* Bangs & Phillips
Long-tailed Minivet**

1971. *Pericrocotus ethologus favillaceus* : Ali & Ripley, *H. B. No. 1085, Vol. 6* : 32.

Material examined : Recorded from literature (Ali & Ripley, 1971).

Diagnosis : Male, a slim glossy black and deep scarlet bird with a large scarlet patch on the black wing, black throat and a black-and-scarlet graduated tail. Female has a yellow throat and all the red parts of the male replaced by yellow.

Distribution : Uttar Pradesh, Madhya Pradesh, Rajasthan, Maharashtra, Gujarat, along the Himalayas.

**136. *Pericrocotus flammeus* (Forster)
Scarlet Minivet**

1971. *Pericrocotus flammeus* : Ali & Ripley, *H. B. No. 1081, Vol. 6* : 27.

Material examined : Jabalpur, Dindori road, 23.i.1969 (1 ex.), Coll. V.V. Rao.

Diagnosis : Male is of stockier build, with larger head, orange-red under parts and circular red patch at tips of tertials and inner secondaries. Female has greyish upper parts, yellow under parts and yellow wing patch.

Distribution : From western Madhya Pradesh to Orissa, Bihar, West Bengal and northern Andhra Pradesh.

**137. *Tephrodornis pondicerianus* (Gmelin)
Common Wood-Shrike**

1971. *Tephrodornis pondicerianus* : Ali & Ripley, *H. B. No. 1070, Vol. 6* : 11.

Material examined : Jabalpur, Lametaghata, 7.v.1969 (1 ex.). Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Adult with white super cilium above dark mask, grey-brown upper parts and whitish under parts, small white band across rump and dark brown tail with white sides. Sexes alike.

Distribution : Throughout India except parts of the northwest, northeast and Himalayas.

Family PYCNONOTIDAE

138. *Pycnonotus cafer* (Linnaeus)
Red-vented Bulbul

1971. *Pycnonotus cafer* : Ali & Ripley, *H. B. No. 1127, Vol. 6* : 86.

Material examined : Jabalpur, Pachpedi, 21.iv.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 25.ii.1963 (1 ex.), Coll. D.N. Basu; Jabalpur, Pariyat Forest, 13.vii.1970 (1 ex.), Coll. D.K. Ghosal; Jabalpur, Pachpedi, 19.v.1969 (1 ex.), purchased.

Diagnosis : Adult has crested black head, white rump and uppertail-coverts, white-tipped black tail and red vent. Sexes alike.

Distribution : Throughout India.

Family IRENIDAE

139. *Aegithina tiphia* (Linnaeus)
Common Iora

1971. *Aegithina tiphia* : Ali & Ripley, *H. B. No. 1099, Vol. 6* : 50.

Material examined : Jabalpur, Pachpedi, 19.v.1961 (1 ex.), purchased; Jabalpur, Napier Town, 28.ix.1960 (1 ex.), purchased; Jabalpur, Lamhetaghat, 7.v.1969 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 19.vi.1965 (1 ex.), Coll. V.V. Rao.

Diagnosis : Male breeding has black tail; crown, nape and mantle vary from entirely black to yellowish-green. Male non-breeding is similar to female, but has black tail in some races. Female has greenish to yellowish upper parts, as non-breeding male, but always has green tail.

Distribution : Throughout India except the northwest; Sri Lanka.

140. *Chloropsis cochinchinensis* (Gmelin)
Jerdon's Chloropsis

1971. *Chloropsis cochinchinensis* : Ali & Ripley, *H. B. No. 1107, Vol. 6* : 60.

Material examined : Jabalpur, Pachpedi, 27.v.1968 (1 ex.), purchased; Jabalpur, Lamhetaghat, 7.v.1960 (1 ex.), Coll. V.V. Rao.

Diagnosis : Male nominate has small violet-blue moustachial stripe, black lores and throat, diffuse yellow forehead and border to throat, golden cast to crown and nape, and bright blue shoulder patch. Female nominate is almost entirely green, with golden cast to crown and nape; throat is pale bluish-green, with brighter turquoise moustachial.

Distribution : From S. Gujarat north to C. Uttar Pradesh, east to W. Bengal and south through the peninsula.

Family LANIIDAE

141. *Lanius vittatus* Valenciennes
Bay-backed Shrike

1972. *Lanius vittatus* : Ali & Ripley, *H. B. No. 940, Vol. 5* : 85.

Material examined : Jabalpur, Chargawa road, 8.ix.1971 (2 exs.), Coll. D.K. Ghosal.

Diagnosis : Adult has black forehead and mask contrasting with pale grey crown and nape, deep maroon mantle contrasting with grey nape and rufous-brown wash to breast and flanks. Also has extensive white patch at base of primaries and white sides and tip to black tail. Sexes alike.

Distribution : Mainly from NW India east to W. Bengal and south throughout most of the peninsula.

142. *Lanius schach* Linnaeus
Rufous-backed Shrike

1972. *Lanius schach* : Ali & Ripley, *H. B. No. 946, Vol. 5* : 93.

Material examined : Jabalpur, Pachpedi, 2.ii.1961 (2 exs.), purchased; Jabalpur, Amkhas village, 4.vii.1969 (1 ex.), Coll. V.V. Rao; Jabalpur, Panagar Tank, 7.vi.1967 (1 ex.), Coll. H. Khajuria.

Diagnosis : Adult has rufous scapulars and upper back contrasting with pale grey mantle, more extensive black forehead, rufous sides to black tail and more conspicuous white flash at base of primaries. Sexes alike.

Distribution : Throughout much of the subcontinent, except parts of the northeast and northwest.

Family MUSCICAPIDAE

Subfamily TURDINAE

143. *Zoothera citrina* Latham
White-throated Ground Thrush

1973. *Zoothera citrina* : Ali & Ripley, *H. B. No. 1734, Vol. 9* : 89.

Material examined : Jabalpur, Ghat area on Nagpur road, 2.vi.1971 (1 ex.), Coll. H.S. Sharma; Jabalpur, on Nagpur road near ghat, 22.vi.1970 (1 ex.), purchased.

Diagnosis : Adult has vertical black stripes across white ear-coverts and white throat. Male has orange crown, nape, breast and belly, blue-grey mantle, rump and tail, and white vent and undertail-coverts. Female similar but has strong olive-brown wash to mantle, tertiaries and secondaries.

Distribution : Peninsular India from southern Gujarat east to W. Bengal and south through much of the subcontinent.

144. *Luscinia svecica* (Linnaeus)
Bluethroat

1973. *Erithacus svecicus* : Ali & Ripley, *H. B. No. 1644, Vol. 8* : 217.

Observations : Sighted in Jabalpur.

Diagnosis : Male : Above, brown, sides of tail rufous at base. A long, buffish supercilium. Below, throat and breast blue with a rufous, white, or rufous-and-white spot in the centre. Female like male but without any blue, this colour replaced by buffish white and brown streaks on sides of throat.

Distribution : South to Maharashtra, east to the Bhutan foothills and Jalpaiguri duars.

145. *Copsychus saularis* (Linnaeus)
Oriental Magpie Robin

1973. *Copsychus saularis* : Ali & Ripley, *H. B. No. 1661, Vol. 8* : 239.

Material examined : Jabalpur, Pachpedi, 7.i.1961 (2 exs.), purchased; Jabalpur, Pachpedi, 10.vi.1963 (1 ex.), purchased; Dindori Road, 23.i.1969(1ex.).

Diagnosis : Blackish or slate-grey and white, with long, frequently cocked tail having white at sides. Male has glossy blue-black upper parts, head and breast, white rest of under parts, and white patch on wing. Female similar, but head, breast and mantle are bluish slate-grey.

Distribution : Most of India, except parts of northwest, northeast and Himalayas.

146. *Saxicoloides fulicata* (Linnaeus)
Indian Robin

1973. *Saxicoloides fulicata* : Ali & Ripley, *H. B. No. 1719, Vol. 9* : 62.

Material examined : Jabalpur, Pachpedi, 17.x.1966 (1 ex.), Coll. D.N. Basu; Jabalpur, Madan Mahal, 20.i.1967 (1 ex.), Coll. H. Khajuria.

Diagnosis : Graduated black tail, which is frequently held cocked and reddish vent and undertail-coverts. Adult male has glossy black under parts and white shoulder patch. Female has greyish-brown upper parts and purer grey under parts and lacks white shoulder patch.

Distribution : Most of India, except the northeast, Himalayas and parts of the northwest.

147. *Phoenicurus ochruros* (Gmelin)
Black Redstart

1973. *Phoenicurus ochruros* : Ali & Ripley, *H. B. No. 1672, Vol. 8* : 255.

Material examined : Jabalpur, Pachpedi, 26.ii.1963 (1 ex.), Coll. T.H. Basu.

Diagnosis : Male has black or dark grey upper parts, black breast and rufous rest of under parts. Female has dusky brown under parts, with orange-buff wash to lower flanks and vent.

Distribution : Winters in foothills of Himalayas and Assam, south through much of India.

148. *Saxicola caprata* (Linnaeus)
Pied Bush Chat

1973. *Saxicola caprata* : Ali & Ripley, *H. B. No. 1701, Vol. 9* : 34.

Material examined : Jabalpur, on Katangi road, 11.ix.1970 (1 ex.), Coll. D.K. Ghosal.

Diagnosis : Adult male is entirely black, except for white rump, belly/vent and patch on wing. Adult female has dark brown upper parts and paler rufous-brown under parts, with paler throat and centre of belly and vent; lacks prominent supercilium.

Distribution : Most of India.

149. *Oenanthe picata* (Blyth)
Variable Wheatear

1973. *Oenanthe picata* : Ali & Ripley, *H. B. No. 1712, Vol. 9* : 50.

Observations : Sighted in Jabalpur.

Diagnosis : A black-and-white polymorphic chat with white belly. Female similar to male but black parts replaced by greyish-brown; belly more buffish.

Distribution : Common and generally distributed in winter in northwestern India southeast to Delhi, central Madhya Pradesh and northern Maharashtra.

150. *Cercomela fusca* (Blyth)
Indian Chat

1973. *Cercomela fusca* : Ali & Ripley, *H. B. No. 1692, Vol. 9* : 20

Observations : Observed in Khamaria estate, Jabalpur.

Diagnosis : Adult is uniformly rufous-brown, with darker wings and blackish tail. Juvenile is similar to adult but is darker brown, without rufous colouration. Sexes alike.

Distribution : Mainly N. Pakistan and from Jammu & Kashmir east to C. Bihar and south to N. Maharashtra and C. Madhya Pradesh.

Subfamily TIMALIINAE

151. *Pellorneum ruficeps* Swainson
Spotted Babbler

1971. *Pellorneum ruficeps* : Ali & Ripley, *H. B. No. 1154, Vol. 6* : 117.

Material examined : Jabalpur, Amkhas, 10.viii.1966 (1 ex.), Coll. V.V. Rao.

Diagnosis : A rather long-tailed barbler, with rufous or chestnut crown, prominent buff supercilium, white throat (often puffed out) and heavily streaked whitish under parts. Sexes alike.

Distribution : The hills of Indian peninsula, Narmada River to Bihar, south through Western Ghats up to Palghat Gap.

152. *Dumetia hyperythra* (Franklin)
Rufous-bellied Babbler

1971. *Dumetia hyperythra* : Ali & Ripley, *H. B. No. 1222, Vol. 6* : 181.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Olive brown above with a reddish-brown cap; below throat white, rest of under parts ochraceous. Sexes alike.

Distribution : Himalayan foothills through Uttar Pradesh to W. Bengal, south to a line Hyderabad-Jalna-Mhow-Jhansi.

153. *Turdoides caudatus* (Dumont)
Common Babbler

1971. *Turdoides caudatus* : Ali & Ripley, *H. B. No. 1254, Vol. 6* : 215.

Material examined : Jabalpur, Pachpedi, 5.vi.1965 (1 ex.), purchased; Jabalpur, Pachpedi, 4.v.1969 (1 ex.), purchased.

Diagnosis : A brownish-buff babbler with dark streaked upper parts and cross-barred tail, unstreaked whitish throat and unstreaked centre to breast, colder whitish or greyish-buff colouration to under parts, yellowish legs and feet. Sexes alike.

Distribution : Most of India except the northeast, Himalayas and east.

154. *Turdoides striatus* (Dumont)
Jungle Babbler

1971. *Turdoides striatus* : Ali & Ripley, *H. B. No. 1262, Vol. 6* : 226.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : A stocky, ash-grey to grey-brown babbler with stout yellowish bill. Throat and breast appear lightly mottled with grey, or streaked with grey or brown, and upper parts are slightly streaked. Sexes alike.

Distribution : Most of India, except parts of northwest, northeast and N. Himalayas.

155. *Alcippe poioicephala* (Jerdon)
Quaker Tit-Babbler

1972. *Alcippe poioicephala* : Ali & Ripley, *H. B. No. 1390, Vol. 7* : 123.

Observations : Observed at Khamaria Factory, Jabalpur.

Diagnosis : A large babbler with greyish crown and nape, grey-brown to olive-brown mantle, brown to rufous-brown wings and tail, and greyish-white to buff-coloured under parts, with paler throat and centre of breast. Sexes alike.

Distribution : Hills of peninsular India, south from line Kathiawar and Mt. Abu across southern Madhya Pradesh to Bihar, south to Tamil Nadu through Maharashtra, Andhra Pradesh and Karnataka.

Subfamily SYLVIINAE

156. *Prinia socialis* Sykes
Ashy Prinia

1973. *Prinia socialis* : Ali & Ripley, *H. B. No. 1517, Vol. 8* : 59.

Material examined : Jabalpur, Pachpedi, 16.v.1969, 4.iii.1968, 24.iv.1969(3ex.).

Observations : Observed at Khamaria estate, Jabalpur.

Diagnosis : Adult with white supercilium, slate-grey crown and ear-coverts, deep red eye, slate-grey or rufous-brown mantle, rufous-brown wings and tail, orange-buff wash on under parts and prominent black subterminal marks to tail feathers. Sexes alike.

Distribution : Entire Indian peninsula south of Narmada river, southern Madhya Pradesh and Bihar to Tamil Nadu and Kerala.

**157. *Acrocephalus agricola* (Jerdon)
Paddyfield Warbler**

1973. *Acrocephalus agricola* : Ali & Ripley, *H. B. No. 1557, Vol. 8* : 112.

Material examined : Jabalpur, Pachpedi, 29.xii.1969 (1 ex.), purchased; Jabalpur, Pachpedi, 16.xi.1969 (1 ex.), purchased.

Diagnosis : Above, rufous brown, rump a little paler and brighter; an indistinct pale supercilium. Below, throat whitish, rest of underparts ochraceous buff. Sexes alike.

Distribution : The whole Indian Peninsula, Assam and, Pakistan and Bangladesh.

**158. *Hippolais caligata* (Lichtenstein)
Booted Warbler**

1973. *Hippolais caligata* : Ali & Ripley, *H. B. No. 1562, Vol. 8* : 117.

Material examined : Jabalpur, Pachpedi, 29.iii.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 30.xii.1969 (1 ex.), purchased.

Diagnosis : Above, pale olive-brown; a short, whitish supercilium. Below, buffish white. Sexes alike.

Distribution : The Indian Peninsula from Madhya Pradesh and the Ganges south to Kanyakumari; east through the Bengal duars, Assam and Bangladesh.

**159. *Orthotomus sutorius* (Pennant)
Common Tailor Bird**

1973. *Orthotomus sutorius* : Ali & Ripley, *H. B. No. 1535, Vol. 8* : 81.

Material examined : Jabalpur, Pachpedi, 2.ii.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 14.ix.1967 (1 ex.), purchased.

Diagnosis : Adult with long, slightly downcurved pale bill, rufous forehead and fore crown, greenish upper parts and dull whitish or buffish under parts. Sexes alike.

Distribution : Most of India, except parts of the northwest.

Subfamily MUSCICAPINAE

160. *Cyornis tickelliae* Blyth
Tickell's Blue-Flycatcher

1972. *Muscicapa tickelliae* : Ali & Ripley, *H. B. No. 1442, Vol. 7* : 193.

Material examined : Jabalpur, Nagpur road, 4.vii.1969 (1 ex.), Coll. V.V. Rao.

Diagnosis : Male has blue upper parts, orange throat and breast, and white belly and flanks. Female has blue-grey cast to upper parts, orange breast, and white belly, flanks and undertail-coverts.

Distribution : Mainly from Gujarat and N. Uttar Pradesh east to W. Bengal and south through the peninsula.

161. *Culicicapa ceylonensis* (Swainson)
Grey-headed Flycatcher

1972. *Culicicapa ceylonensis* : Ali & Ripley, *H. B. No. 1449, Vol. 7* : 204.

Material examined : Jabalpur, Pachpedi, 24.xii.1969 (1 ex.), purchased.

Diagnosis : A tiny, restless greenish-yellow flycatches with ashy grey head, neck and breast, and bright yellow underparts. Sexes alike.

Distribution : Foothills of Himalayas south to most of peninsula west to Kutch and south about the Krishna River.

Subfamily MONARCHINAE

162. *Terpsiphone paradisi* (Linnaeus)
Asian Paradise-Flycatcher

1972. *Terpsiphone paradisi* : Ali & Ripley, *H. B. No. 1461, Vol. 7* : 218.

Material examined : Jabalpur, Pariyat river on Katni road, 31.v.1969 (1 ex.), Coll. V.V. Rao; Jabalpur, Lamhetaghat, 11.v.1967 (1 ex.), Coll. V.S. Durve; Jabalpur, near a nala on Rani Durgavati Samadhi, 26.iv.1969 (1 ex.), Coll. V.S. Durve.

Diagnosis : Male has black head and crest, with white or rufous upper parts and long tail-streamers. Female has reduced crest and lacks streamers.

Distribution : Most of India, except parts of North and northwest.

163. *Hypothymis azurea* (Boddaert)
Black-naped Monarch-Flycatcher

1972. *Hypothymis azurea* : Ali & Ripley, *H. B. No. 1465, Vol. 7* : 223.

Material examined : Jabalpur, near Rani Durgavati Samadhi, 26.iv.1969 (1 ex.), Coll. V.S. Durve; Jabalpur, near a nala away from Rani Durgavati Samadhi, 15.vii.1964 (1 ex.), Coll. D.N. Basu.

Diagnosis : A partially fantailed bright blue flycatcher with whitish abdomen, velvety black patch on nape (tuft), and black gorget across foreneck. Female browner, less blue, with grey and white underparts, and lacking the black marks. Singly or separated pairs, in wooded country.

Distribution : Mainly from Gujarat and Central Uttar Pradesh, east to Arunachal Pradesh, and south through the subcontinent to Kerala.

Subfamily RHIPIDURINAE

164. *Rhipidura albicollis* (Vieillot) White-throated Fantail-Flycatcher

1972. *Rhipidura albicollis* : Ali & Ripley, *H. B. No. 1458, Vol. 7* : 214.

Observations : Observed at Bargi Dam, Jabalpur.

Diagnosis : A variable fantail with white supercilium and dark ear-coverts, olive-brown to slate-grey upper parts, and dark brown to blackish tail, which is tipped with greyish-white. Sexes alike.

Distribution : Indian peninsula from Mt. Abu, Vindhya Ranges, Madhya Pradesh and southward to Kerala.

165. *Rhipidura aureola* Lesson White-browed Fantail-Flycatcher

1972. *Rhipidura aureola* : Ali & Ripley, *H. B. No. 1451, Vol. 7* : 207.

Material examined : Jabalpur, near a nala away from Rani Durgavati Samadhi, 26.iv.1969 (1 ex.), purchased; Jabalpur, on Nagpur road, 26.vi.1970 (1 ex.), Coll. H.S. Sharma; Jabalpur, on Lamhetaghat road, 14.xii.1966 (1 ex.), Coll. V.V. Rao.

Diagnosis : Adult with broad white supercilium, blackish throat, white breast and belly, and white spotting on wing-coverts. Sexes alike.

Distribution : Throughout India.

Family PARIDAE

166. *Parus major* Linnaeus Great Tit

1973. *Parus major* : Ali & Ripley, *H. B. No. 1794, Vol. 9* : 169.

Material examined : Jabalpur, on Dindori road, 23.i.1969 (1 ex.), Coll. V.V. Rao.

Diagnosis : A distinctive tit, with white cheeks and nape patch contrasting with black of rest of head, black centre of breast and line down belly, greyish mantle, and white greater-covert wing-bar and fringes to tertials. Sexes alike.

Distribution : Himalayan foothills, east to Arunachal Pradesh; widespread in NE and throughout peninsular India.

167. *Parus xanthogenys* Vigors
Black-lored Yellow Tit

1973. *Parus xanthogenys* : Ali & Ripley, *H. B. No. 1810, Vol. 9* : 188.

Material examined : Jabalpur, Pachpedi, 10.vi.1965 (1 ex.), purchased.

Diagnosis : A crested black and yellow tit with whitish or yellowish wing-bars, black forehead and lores, more uniform greenish upper parts, olive rump and yellowish wing-bars. Sexes alike.

Distribution : E. Gujarat, S. Rajasthan, Madhya Pradesh, Bihar, south to Eastern Ghats to Krishna river and Western Ghats to Mahabaleshwar.

Family DICAETIDAE

168. *Dicaeum erythrorhynchos* (Latham)
Tickell's Flowerpecker

1974. *Dicaeum erythrorhynchos* : Ali & Ripley, *H. B. No. 1899, Vol. 10* : 10.

Material examined : Recorded from literature (Ali & Ripley, 1974).

Diagnosis : A plain olive-brown bird with greyish white underparts, rather like a female sunbird but smaller, with the bill much shorter and flesh-coloured. Sexes alike.

Distribution : From Dharmasala and Kangra east along the Himalayan foothills and adjacent plains of Uttar Pradesh to the Jalpaiguri duars and Bhutan foothills and through Assam to Dibrugarh and North Cachar, south to Bengal, Bihar and the Indian Peninsula from Jabalpur and Baroda south to Kanyakumari.

Family NECTARINIIDAE

169. *Nectarinia zeylonica* (Linnaeus)
Purple-rumped Sunbird

1974. *Nectarinia zeylonica sola* : Ali & Ripley, *H. B. No. 1907, Vol. 10* : 22.

Material examined : Jabalpur, Pachpedi, 20.vi.1966 (1 ex.), purchased, Katangi, 8.vii.1969(1ex.).

Diagnosis : Male. Above, crown metallic green. Back deep chestnut. Rump metallic purple. A metallic green shoulder-patch. Below, throat metallic purple. Sides of head and band across lower throat deep chestnut. Breast and centre of belly lemon-yellow. Flanks greyish-white. Female. Above, brown, more rufous on wing. Throat and flanks greyish-white. Breast and centre of belly lemon-yellow.

Distribution : Peninsular India south of a line from Maharashtra, Madhya Pradesh and Bihar, southern Bengal and Bangladesh.

170. *Nectarinia asiatica* (Latham)
Purple Sunbird

1974. *Nectarinia asiatica* : Ali & Ripley, *H. B. No. 1917, Vol. 10* : 35.

Material examined : Jabalpur, Pachpedi, 17.v.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 2.vi.1965 (1 ex.), purchased; Jabalpur, Pachpedi, 5.vi.1965 (1 ex.), purchased.

Diagnosis : Breeding male metallic dark blue and purple, pectoral tufts bright yellow and scarlet. At a distance, the bird looks all black. Male in non-breeding plumage like female, brown to olive-brown above, pale dull yellow below, but with darker wings and a broad black stripe running down middle of breast.

Distribution : Throughout the Indian Union; Bangladesh; Pakistan; Sri Lanka; Myanmar.

171. *Aethopyga siparaja* (Raffles)
Crimson Sunbird

1974. *Aethopyga siparaja seheriae* : Ali & Ripley, *H. B. No. 1927, Vol. 10* : 47.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Male : Above, crown metallic green. Sides of neck and back dark crimson. Rump bright yellow. Tail metallic green, the two central rectrices elongated. Below, chin, throat and breast scarlet with metallic purple malar streaks. Belly yellowish olive. Female entirely olive, more yellowish below.

Distribution : The Himalayan foothills from Kangra east to Sikkim thence south in the plains of eastern Bihar, northern Bengal and western Bangladesh.

Family ZOSTEROPIDAE

172. *Zosterops palpebrosus* (Temminck)
Oriental White-eye

1974. *Zosterops palpebrosus* : Ali & Ripley, *H. B. No. 1933, Vol. 10* : 57.

Material examined : Jabalpur, Pachpedi, 7.vi.1965 (2 exs.), purchased; Jabalpur, Pachpedi, 7.iii.1970 (1 ex.), purchased.

Diagnosis : Above, yellow-olive; a very distinct white eye-ring; lores and a patch under eye blackish. Below, throat and under tail-coverts bright yellow; breast greyish white, belly whitish. Sexes alike.

Distribution : All India south of the Himalayan foothills from Kashmir through Nepal, Sikkim, Bhutan and Arunachal Pradesh, excluding western Rajasthan.

Family EMBERIZIDAE

Subfamily EMBERIZINAE

173. *Melophus lathami* (Gray)
Crested Bunting

1974. *Melophus lathami* : Ali & Ripley, *H. B. No. 2060, Vol. 10* : 232.

Material examined : Jabalpur, Katangi Hill, 8.vii.1969 (1 ex.), Coll. D.K. Ghosal; Jabalpur, Amkhas, 6.iii.1969 (1 ex.), Coll. V.S. Durve.

Diagnosis : Male is bluish-black with prominent crest and with mainly chestnut wings and tail. Female has shorter crest and chestnut edges to feathers of wings and tail, sandy-brown upper parts with dark brown streaking and paler under parts.

Distribution : Northeast and Central India, Madhya Pradesh, Maharashtra, Orissa, Bihar and Andhra Pradesh.

Family ESTRILDIDAE

174. *Amandava amandava* (Linnaeus)
Red Munia

1974. *Amandava amandava* : Ali & Ripley, *H. B. No. 1964, Vol. 10* : 101.

Observations : Observed at Khamaria estate, Jabalpur.

Diagnosis : Breeding male mainly red with white spotting. Non-breeding male and female have red bill, red rump and uppertail-coverts and white tips to wing-coverts and tertials.

Distribution : Throughout the Indian peninsula, south to Madurai.

175. *Lonchura striata* (Linnaeus)
White-rumped Munia

1974. *Lonchura striata* : Ali & Ripley, *H. B. No. 1968, Vol. 10* : 108.

Material examined : Jabalpur, Pachpedi, 29.i.1970 (1 ex.), purchased; Jabalpur, Pachpedi, 7.viii.1969 (1 ex.), purchased.

Diagnosis : A small brown-and-white finch with a heavy bluish conical bill and pointed tail. Above, forehead, wings and tail blackish brown. Back brown with very fine pale shaft-streaks; rump white. Below, throat and breast blackish-brown; belly creamy white. Sexes alike.

Distribution : The Indian Peninsula from southern Bihar, southern Madhya Pradesh and southeastern Gujarat south through Kerala and Tamil Nadu.

176. *Lonchura punctulata* (Linnaeus)
Spotted Munia

1974. *Lonchura punctulata* : Ali & Ripley, *H. B. No. 1974, Vol. 10* : 113.

Material examined : Jabalpur, Pachpedi, 7.viii.1969 (1 ex.), purchased; Jabalpur, Pachpedi, 19.iv.1969 (1 ex.), purchased.

Diagnosis : Adult (breeding). Above, chocolate-brown with faint pale shaft-streaks. Upper tail-coverts and tail tawny-olive, rump barred with white. Below, sides of head, neck and lower throat chestnut, chin and throat much darker. Breast and flanks speckled black and white; belly white. Sexes alike.

Distribution : The whole of India eastwards along the lower Himalayas to Bhutan and Bangladesh and south to Kanyakumari and Sri Lanka.

177. *Lonchura malacca* (Linnaeus)
Black-headed Munia

1974. *Lonchura malacca* : Ali & Ripley, *H. B. No. 1978, Vol. 10* : 118.

Observations : Sighted in Jabalpur.

Diagnosis : Adult with black head, neck and upper breast, rufous brown upper parts, white or chestnut lower breast and flanks and black centre of belly, vent and undertail-coverts.

Distribution : Mainly Northeast, East, Central and South India; Bangladesh.

Family PASSERIDAE

Subfamily PASSERINAE

178. *Passer domesticus* (Linnaeus)
House Sparrow

1974. *Passer domesticus* : Ali & Ripley, *H. B. No. 1938, Vol. 10* : 63.

Observations : Commonly sighted in Jabalpur.

Diagnosis : Male breeding has grey crown, chestnut nape, black throat and upper breast. Male non-breeding can be much duller with black throat much reduced. Female has pale buff supercilium, dark brown streaking on buffish mantle, and unstreaked greyish-white under parts.

Distribution : Most of India, except parts of the northeast and northwest.

179. *Petronia xanthocollis* (Burton)
Yellow-throated Sparrow

1974. *Petronia xanthocollis* : Ali & Ripley, *H. B. No. 1949, Vol. 10* : 80.

Material examined : Jabalpur, Pachpedi, 10.iii.1969 (1 ex.), purchased; Jabalpur, near ghat on Nagpur road, 6.viii.1969 (1 ex.), Coll. V.S. Durve.

Diagnosis : Adult male has long, fine bill, uniform brownish-grey head and upper parts, yellow patch on lower throat and white tips to median and greater coverts. Adult female is similar but with buff-tinged tips to median coverts and yellow patch on throat reduced or absent.

Distribution : Throughout India.

Subfamily PLOCEINAE

180. *Ploceus manyar* (Horsfield)
Streaked Weaver

1974. *Ploceus manyar* : Ali & Ripley, *H. B. No. 1962, Vol. 10* : 98.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Male breeding has golden-yellow crown contrasting with dark brown sides of head and throat. Male non-breeding, female and juvenile typically have boldly streaked throat, breast and flanks.

Distribution : Mainly Pakistan, SE Nepal, Assam, Gujarat, Bangladesh, Sri Lanka.

181. *Ploceus philippinus* (Linnaeus)
Baya Weaver

1974. *Ploceus philippinus* : Ali & Ripley, *H. B. No. 1957, Vol. 10* : 88.

Material examined : Jabalpur, 26.vii.1963 (1 ex.), purchased.

Diagnosis : Male breeding has yellow crown and dark brown ear-coverts and throat. Male non-breeding, female and juvenile have brownish-buff upper parts, boldly streaked with dark brown and buff to pale yellowish under parts.

Distribution : Most of India, except parts of the northwest, northeast and Himalayas.

Family STURNIDAE

182. *Sturnus malabaricus* (Gmelin) Grey-headed Starling

1972. *Sturnus malabaricus* : Ali & Ripley, *H. B. No. 987, Vol. 5* : 152.

Observations : Commonly sighted bird in Jabalpur.

Diagnosis : A small, trim, silvery grey-and-rufous sociable myna. Above, head and Upperparts silvery-or brownish grey; tail largely ferruginous. Wing-quills black and grey. Below, chin, throat and breast lilac-grey or pale rufous; rest of underparts bright rufous. Sexes more or less similar.

Distribution : Practically throughout the Indian Union.

183. *Sturnus pagodarum* (Gmelin) Brahminy Starling

1972. *Sturnus pagodarum* : Ali & Ripley, *H. B. No. 994, Vol. 5* : 160.

Material examined : Jabalpur, Pachpedi, 3.iv.1961, 23.vi.1967 (2 ex.), purchased; Jabalpur, Pachpedi, 28.viii.1969 (1 ex.), Coll. D.N. Basu.

Diagnosis : Adult has black on crown and crest which extends across nape, with rest of head, neck and under parts rufous-orange, grey upper parts and wings with darker flight feathers, yellowish bill with blue base, and blue or yellow skin behind eye. Sexes alike.

Distribution : Most of India, except parts of northwest and northeast.

184. *Sturnus contra* Linnaeus Asian Pied Starling

1972. *Sturnus contra* : Ali & Ripley, *H. B. No. 1002, Vol. 5* : 172.

Material examined : Jabalpur, 30.i.1963 (1 ex.), purchased; Jabalpur, Pachpedi, 24.viii.1967 (1 ex.), purchased; Grass Farm, 3.vi.1969(2ex.).

Diagnosis : Adult is black and white, with orange orbital skin and large, pointed yellowish bill. It has white ear-coverts, black throat and breast contrasting with pale grey

to dirty white under parts and white scapular line and inner wing-coverts contrasting with black wings. Sexes alike.

Distribution : Northeast, central and southeast India.

185. *Acridotheres tristis* (Linnaeus)
Common Myna

1972. *Acridotheres tristis* : Ali & Ripley, *H. B. No. 1006, Vol. 5* : 177.

Material examined : Jabalpur, Pachpedi, 21.i.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 2.ix.1967 (1 ex.), Coll. J.S. Bhatti.

Diagnosis : Adult with yellow orbital skin, glossy black on head and breast merging into maroon-brown of rest of body, large white patch at base of primaries, white tip to tail and white vent. Sexes alike.

Distribution : Most of India, except parts of northeast and northwest.

186. *Acridotheres ginginianus* (Latham)
Bank Myna

1972. *Acridotheres ginginianus* : Ali & Ripley, *H. B. No. 1008, Vol. 5* : 181.

Observations : Sighted in Jabalpur.

Diagnosis : Adult distinguished by smaller size, orange-red orbital patch, orange-yellow bill, orange-buff patch at base of primaries and on underwing-coverts and orange-buff tip to tail. Sexes alike.

Distribution : Pakistan east to Assam and Bangladesh and south to C. Maharashtra and N. Orissa.

187. *Acridotheres fuscus* (Wagler)
Jungle Myna

1972. *Acridotheres fuscus* : Ali & Ripley, *H. B. No. 1009, Vol. 5* : 183.

Material examined : Recorded from literature (Homkar & Shrivastava, 2000).

Diagnosis : Adult has prominent tuft of feathers at base of bill, white patch at base of primaries and white tip to tail and lacks bare orbital skin. Sexes alike.

Distribution : Mainly Himalayas from N. Pakistan east to Arunachal Pradesh south to Bangladesh and N. Orissa, W. India.

Family ORIOLIDAE

188. *Oriolus oriolus* (Linnaeus)
Eurasian Golden Oriole

1972. *Oriolus oriolus* : Ali & Ripley, *H. B. No. 953, Vol. 5* : 103.

Material examined : Jabalpur, Pachpedi, 3.ii.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 30.vi.1969 (1 ex.), Coll. D.N. Basu; Katanga, 8.viii.1969(1ex.).

Diagnosis : Adult male has small black eye patch, golden-yellow head and body, largely black wings with yellow primary coverts and tips to tertials/secondaries, and yellow and black tail. Female has yellowish-green upper parts, blackish streaking on whitish under parts, brownish-olive wings, yellow rump and brownish-olive tail with yellow corners.

Distribution : Most of India.

189. *Oriolus xanthornus* (Linnaeus)
Black-headed Oriole

1972. *Oriolus xanthornus maderaspatensis* : Ali & Ripley, *H. B. No. 959, Vol. 5* : 110.

Material examined : Jabalpur, Gwarighat, 24.vi.1964 (1 ex.), Coll. D.N. Basu; Jabalpur, Pariat road, 27.vii.1963 (1 ex.), Coll. S. Chakrapani; Nagpur Road, 22.vi.1967(1ex.).

Diagnosis : Adult. Brilliant golden yellow with jet-black head, throat and upper breast, and some black in wings and tail. Sexes alike, but upperparts of female tinged with olive.

Distribution : Peninsular India south of the Gangetic Plain, from Gujarat and Madhya Pradesh east to southern Bihar, Orissa and Andhra Pradesh.

Family DICRURIDAE

190. *Dicrurus macrocercus* Vieillot
Black Drongo

1972. *Dicrurus macrocercus* : Ali & Ripley, *H. B. No. 963, Vol. 5* : 117.

Material examined : Jabalpur, Pachpedi, 19.v.1969 (1 ex.), Coll. H. Khajuria; Jabalpur, Ridge road, 24.xi.1971 (1 ex.), Coll. H. Khajuria.

Diagnosis : Adult is glossy blue-black, with deeply forked tail, white rectal spot, shiny blue-black throat and breast, black belly, flanks and undertail-coverts. Sexes alike.

Distribution : Most of India, except parts of the northwest, northeast and Himalayas.

191. *Dicrurus paradiseus* (Linnaeus)
Greater Racket tailed Drongo

1972. *Dicrurus paradiseus* : Ali & Ripley, *H. B. No. 976, Vol. 5* : 136.

Material examined : Jabalpur city, without

Diagnosis : A large metallic black drongo with conspicuous backward –curving crest on forehead, and two long wire like spatulatipped streamers intail. Sexes alike.

Distribution : Lower Himalayas to Assam, Manipur, Mezoram, Northern India up to Andhra Pradesh (17° N) latitude, in South and 21° N latitude in Gujarat on west.

Family CORVIDAE

192. *Dendrocitta vagabunda* (Latham)
Indian Treepie

1972. *Dendrocitta vagabunda* : Ali & Ripley, *H. B. No. 1032, Vol. 5* : 218.

Material examined : Jabalpur, Pachpedi, 15.ii.1963 (1 ex.), purchased; Jabalpur, Rani Durgavati Samadhi, 20.ix.1966 (1 ex.), Coll. V.V. Agrawal.

Diagnosis : Adult with uniform slate-grey hood, rufous-brown mantle and scapulars, pale grey wing-coverts and band across tertials contrasting with black of rest of wing, fulvous-buff under parts, and black tipped silvery-grey tail. Sexes alike.

Distribution : Most of India, except parts of northwest, northeast and Himalayas.

193. *Corvus splendens* Vieillot
House Crow

1972. *Corvus splendens* : Ali & Ripley, *H. B. No. 1049, Vol. 5* : 244.

Material examined : Jabalpur, Pachpedi, 26.ix.1963 (3ex.), purchased; Jabalpur, Pachpedi, 19.vi.1963 (1 ex.), purchased.

Diagnosis : Adult has black crown, face and throat contrasting with paler nape, neck and breast, giving rise to collared appearance. It has gloss to black of plumage. Sexes alike.

Distribution : Throughout India except parts of northwest, northeast and Himalayas.

194. *Corvus macrorhynchos* Wagler
Jungle Crow

1972. *Corvus macrorhynchos* : Ali & Ripley, *H. B. No. 1057, Vol. 5* : 256.

Material examined : Jabalpur, Nagakati road, 24.xi.1964 (1 ex.), Coll. H.P. Agrawal; Jabalpur, Pachpedi, 27.xi.1964 (1 ex.), purchased.

Diagnosis : Adult all black, lacking paler collar of house crow. Domed head and large bill with arched culmen. Sexes alike.

Distribution : Most of India, except parts of north and northwest.

SUMMARY

The inventory of birds of District Jabalpur comprises 194 species belonging to 140 genera under 52 families grouped into 17 avian orders. The orders like Ciconiiformes, Charadriiformes and Passeriformes are well represented in the district.

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MAMMALIA

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INTRODUCTION

A perusal of literature on mammals with special reference to Chiroptera of Jabalpur and surroundings were studied by Khajuria (1977, 1979, 1980). An account of Wildlife of Narmada valley by Khajuria (1981) provides valuable information on mammals of Jabalpur and surrounding forest. Besides some more references related to mammals of Jabalpur are available (Tiwari, 1981; Bates *et al.*, 1994 a, b, & c), but consolidated account of mammals of Jabalpur district is lacking.

The present work tries to provide the comprehensive account of mammals found in Jabalpur and surrounding forest tracts of the district. In the present account, a total of 50 species belonging to 34 genera under 18 families of 8 orders are listed with relevant information on each species.

LIST OF MAMMALS OF JABALPUR

Order INSECTIVORA

Family SORICIDAE

- | | |
|---|---------------------------|
| 1. <i>Suncus etruscus nitidofulvas</i> Anderson | Savi's Pigmy Shrew |
| 2. <i>Suncus murinus murinus</i> (Linnaeus) | House Shrew |
| 3. <i>Suncus stoliczkanus</i> Anderson | Anderson's Shrew |

Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

- | | |
|---|------------------------------|
| 4. <i>Cynopterus sphinx</i> (Vahl) | Short-nosed Fruit Bat |
| 5. <i>Pteropus giganteus</i> (Brunnich) | Indian Flying Fox |
| 6. <i>Rousettus leschenaulti leschenaulti</i> (Desmarest) | Fulvus Fruit Bat |

Suborder MICROCHIROPTERA

Family RHINOPOMATIDAE

7. *Rhinopoma hardwickeii* Gray **Lesser Rat-tailed Bat**

Family EMBALLONURIDAE

8. *Taphozous nudiventris kachhensis* Dobson **Naked-bellied Tomb Bat**
 9. *Taphozous longimanus longimanus* Hardwicke **Long-armed Sheath-tailed Bat**
 10. *Taphozous melanopogon* Temminck **Black-bearded Tomb Bat**
 11. *Taphozous perforatus perforatus* E. Geoffroy **Egyptian Tomb Bat**
 12. *Taphozous theobaldi secatus* Thomas

Family HIPPOSIDERIDAE

13. *Hipposideros fulvus fulvus* Gray **Fulvus Leaf-nosed Bat**
 14. *Hipposideros cineraceus durgadasi* Khajuria **Durga's Bat**
 15. *Hipposideros galeritus brachyotus* (Dobson) **Cantor's Leaf-nosed Bat**

Family MEGADERMATIDAE

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

Family RHINOLOPHIDAE

17. *Rhinolophus lepidus lepidus* Blyth **Little Indian Horseshoe Bat**
 18. *Rhinolophus rouxi* Temminck **Rufous Horseshoe Bat**

Family VESPERTILIONIDAE

19. *Myotis horsfieldii* Temminck
 20. *Pipistrellus ceylonicus indicus* (Dobson)
 21. *Pipistrellus coromandra coromandra* Gray **Indian Pipistrelle**
 22. *Pipistrellus mimus* Wroughton **Indian Pygmy Pipistrelle**
 23. *Pipistrellus dormeri* (Dobson) **Dormer's Bat**
 24. *Scotophilus heathi heathi* (Horsfield) **Yellow Bat**
 25. *Scotophilus kuhlii kuhlii* Leach **Lesser Yellow Bat**

Order PRIMATES

Family CERCOPITHECIDAE

26. *Macaca mulatta* (Zimmermann) **Rhesus Macaque**
 27. *Semnopithecus entellus* (Dufresne) **Common Langur**

Order PHOLIDOTA

Family MANIDAE

28. *Manis crassicaudata* Gray **Indian Pangolin**

Order CARNIVORA

Family CANIDAE

29. *Canis aureus aureus* Linnaeus **Asiatic Jackal**

30. *Vulpes bengalensis* (Shaw) **Bengal Fox**

Family FELIDAE

31. *Panthera pardus fusca* Meyer **Leopard**

Family VIVERRIDAE

32. *Paradoxurus hermaphroditus* (Pallas) **Common Indian Civet, Toddy Cat**

Family HERPESTIDAE

33. *Herpestes edwardsi nyula* (Hodgson) **Indian Grey Mongoose**

Order ARTIODACTYLA

Family BOVIDAE

34. *Gazella bennettii* (Sykes) **Indian Gazelle**

35. *Tetracerus quadricornis* (Blainville) **Chowsingha**

Family CERVIDAE

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

37. *Axis axis axis* (Erleben) **Cheetal, Spotted Deer**

38. *Cervus unicolor niger* Blainville **Sambar**

Order LAGOMORPHA

Family LEPORIDAE

39. *Lepus nigricollis nigricollis* F. Cuvier **Blacknaped Hare**

40. *Lepus nigricollis ruficaudatus* Geoffroy **Rufous-tailed Hare**

Order RODENTIA

Family MURIDAE

41. *Bandicota bengalensis* (Gray) **Lesser Bandicoot Rat**

42. *Cremnomys blanfordi* (Thomas) **Blanford's Rat**

43. *Mus booduga booduga* Gray **Indian Field Mouse**

44. *Mus musculus castaneus* Waterhouse
 45. *Mus platythrix* Bennett **Brown Spiny Mouse**
 46. *Rattus rattus narbadae* Hinton
 47. *Rattus rattus rufescens* (Gray) **Dark-bellied House Rat**
 48. *Tatera indica indica* (Hardwicke) **Indian Gerbil**
 49. *Vandeleuria oleracea* (Bennett) **Indian Long-tailed Tree Mouse**

Family SCIURIDAE

50. *Funambulus pennanti* Wroughton **Five-Striped Palm Squirrel**

Order INSECTIVORA

Family SORICIDAE

1. *Suncus etruscus nitidofulvas* Anderson
Savi's Pigmy Shrew

1877. *Crocidura (Pachyura) nitidofulvas* Anderson, *J. Asiat. Soc. Beng.*, **46** : 272 (Calcutta, West Bengal, India).

Observations : Very rare. Not seen recently.

Material examined : Jabalpur, Garha, 7.ix.1965 (1 ex.), Coll. M. L. Koshta.

Diagnosis : Small sized shrew with short fur, dark brown dorsally and silvery brown ventrally.

Distribution : India : Madhya Pradesh (Jabalpur), Bihar, Orissa.

Elsewhere : Bangladesh.

2. *Suncus murinus murinus* (Linnaeus)
House Shrew

1766. *Sorex murinus* Linn., *Syst. Nat.*, 12th ed., **1** : 74.

Observations : This species is sighted in Jabalpur.

Material examined : Jabalpur, Pachpedi, 14.vii.1960 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 19.ix.1960 (1 ex.), Coll. P. Singh; Jabalpur, Naya Bazar, 18.x.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Pachpedi, 9.i.1961 (1 ex.), Coll. P. Singh.

Diagnosis : A long pointed snout, projecting considerably beyond the lower lip. Small eyes, rounded ears, body covered with soft fur, feet and tail sparsely clad with hair. Head

and body length about 15 cm., tail about 8 cm. long. The soft fur is pale grey or tipped with brown, or the coat is ashy brown or fawn. The pinkish skin of the snout, ears, feet and tail shows through the sparse hairs.

Distribution : Throughout India. *Elsewhere* : Africa, Asia, Europe, North America.

Remarks : This large shrew is commonly seen in the houses at dusk or at night and is harmless. 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.

3. *Suncus stoliczkanus* Anderson Anderson's Shrew

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

Material examined : Jabalpur, Pachpedi, 27.xii.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, Jabalpur, Khargon, Khandwa, Hoshangabad), Maharashtra, Tamil Nadu.

Elsewhere : Bangladesh.

Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

4. *Cynopterus sphinx* (Vahl) Short-nosed Fruit Bat

1797. *Vespertilio sphinx* Vahl, *Skr. Nat. Selsk. Copenhagen*, 4(1) : 123.

Material examined : Jabalpur, 44 km. from Jabalpur, 20.xii.1967 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 8.ix.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 1.ii.1969 (1 ex.), Coll. H. Khajuria.

Diagnosis : Head and body length on an average 110 mm. Nostril at the tip of slightly bifurcated fleshy projections; upper lip deeply grooved down the centre. Dorsum grey or reddish brown, venter paler; margin of ears white. Tail vestigial rod-like.

Distribution : India : Widely distributed throughout the mainland.

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

Remarks : A common species, roosts singly or in small groups among aerial roosts of banyan, palm 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.

5. *Pteropus giganteus* (Brunnich) Indian Flying Fox

1782. *Vespertilio giganteus* Brunnich, *Dyrenes Historie*, 1 : 45.

Material examined : Jabalpur, Pachpedi, 27.viii.1960 (1 ex.), purchased; Jabalpur, Pachpedi, 3.ix.1967 (1 ex.), purchased; Jabalpur, Lamhetaghat, 25.i.1964 (2 exs.), Coll. H. Khajuria.

Diagnosis : Size of an average adult is about 23 cm. and wing span about 4 feet. These large bats have a dark brown body with black wings. The males are light yellowish on the back of the neck and shoulders. They have prominent claws (thumbs) used for moving through the branches.

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, very destructive to orchards.

6. *Rousettus leschenaulti leschenaulti* (Desmarest) Fulvus Fruit Bat

1820. *Pteropus leschenaulti leschenaulti* Desmarest, *Encycl. Meth. Mammal.* 1 : 110.

Material examined : Jabalpur, Lamhetaghat village, 23.i.1961 (3 exs.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 29.ix.1961 (3 exs.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 22.vii.1961 (1 ex.), Coll. S. Chakrapany.

Diagnosis : A medium-sized bat, head and body on an 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 : Widely distributed throughout the mainland.

Elsewhere : Pakistan, Sri Lanka, Nepal, Bhutan, Myanmar, Southern China, Tibet, Hongkong, 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

Family RHINOPOMATIDAE

7. *Rhinopoma hardwickeii* Gray
Lesser Rat-tailed Bat

1831. *Rhinopoma hardwickeii* Gray, *Zool. Misc.*, 37.

Material examined : Jabalpur, Lamhetaghat village, 26.vi.1961 (5 exs.), Coll. S. Chakrapany; Jabalpur, Madan Mahal, 14.ix.1963 (9 exs.), Coll. H. Khajuria; Jabalpur, Gwarighat, 19.ix.1963 (1 ex.), Coll. H. Khajuria.

Diagnosis : Forearm 54.5 mm to 64 mm; tail relatively larger, nearly 85 percent of forearm length. Rostrum with prominent narial swelling.

Distribution : India : Gujarat, Bihar, Delhi, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

Elsewhere : Afghanistan, Pakistan, Myanmar, and Thailand.

Family EMBALLONURIDAE

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

1872. *Taphozous kachhensis* Dobson, *J. Asiat. Soc. Beng.* 41 : 221.

Observation : This species is sighted in Jabalpur

Diagnosis : Large, wingspan 300 mm- 423 mm. Body fur not extending over wings or inter-femoral membrane. Colour blackish grey. Gular sac is absent in both sexes. Muzzle and throat without hairs. Wings from the tibia above the ankles. 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 (Jabalpur), Bihar, Delhi Gujrat, Jammu & Kashmir, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh, West Bengal.

Elsewhere : Afganistan and Pakistan.

Remarks : The bat lives in colonies of 10 to 100 individuals in boulder caves or in rocky fissures. Its flight is straight and fast. It could crawl in all directions. Feeds on insects.

**9. *Taphozous longimanus longimanus* Hardwicke
Long-armed Sheath-tailed Bat**

1825. *Taphozous longimanus* Hardwicke, *Linn. Soc. London*, 14 : 325.

2000. *Taphozous longimanus longimanus* : Chakraborty & Agrawal, *Fauna of Gujarat*, 1 : 27.

Material examined : Jabalpur, Pachpedi, 8.vii.1960 (1 ex.), Coll. H. Khajuria; Jabalpur, Pachpedi, 28.vi.1963 (1 ex.), Coll. H. Khajuria. Jabalpur, Madan Mahal Hill, 24.ix.1963 (3 exs.), purchased; Jabalpur, Madan Mahal, 3.iv.1967 (1 ex.), Coll. H. Khajuria.

Diagnosis : Wing span 370 mm-390mm; radio-metacarpal pouch moderately developed; gular sac deep, very well developed in males and often present in females; inner margin of ear smooth.

Distribution : India : Gujarat, Madhya Pradesh, widely distributed in the Indian Peninsula northwards to Rajasthan, and Tripura in the east.

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

**10. *Taphozous melanopogon* Temminck
Black-bearded Tomb Bat**

1841. *Taphozous melanopogon* Temminck, *Mon. Mamm.* 2 : 287.

Observations : This species is sighted in Jabalpur.

Material examined : Jabalpur, Pachpedi, 15.x.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Napier Town, 18.xi.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Napier Town, 19.xi.1960 (3 exs.), Coll. R.C. Sharma; Jabalpur, Napier Town, 24.xi.1960 (11 exs.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat, 9.ix.1962 (15 exs.), Coll. S. Chakrapany.

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

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

Elsewhere : Sri Lanka, Myanmar, Malaysia, Laos, Vietnam, Southern China, Andalus, Java, Kalimantan, 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.

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

1818. *Taphozous perforatus* Geoffroy, *Descr. De L Egypte*, 2 : 126.

Material examined : Jabalpur, Sita Pahad, 4.x.1963 (1 ex.), purchased; Jabalpur, Sita Pahad, 17.x.1963 (2 exs.), purchased; Jabalpur, Sasan village, 20.vii.1966 (6 exs.), Coll. H. Khajuria.

Diagnosis : Wingspan 210 mm-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.

Distribution : India : Madhya Pradesh (Jabalpur), Gujarat, Rajasthan.

Elsewhere : Egypt, Iran, Pakistan, S. Arabia and some parts of Africa.

12. *Taphozous theobaldi secatus* Thomas

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

Material examined : Jabalpur, Tauria Hill in Richhai village, 7.v.1963 (4 exs.), Coll. S. Chakrapany; Jabalpur, Richhai village, 20.iv.1965 (5 exs.), Coll. H.P. Agrawal.

Diagnosis : Dorsum prout's brown, region of neck and base of ears much lighter being smoke grey.

Distribution : India : Madhya Pradesh (Jabalpur), Maharashtra.

Elsewhere : Indonesia, Myanmar, Thailand and Vietnam.

Family HIPPOSIDERIDAE

13. *Hipposideros fulvus fulvus* Gray
Fulvus Leaf-nosed Bat

1838. *Hipposideros fulvus* Gray, *Mag. Zool. Bot.* 2 : 202.

Material examined : Jabalpur, Gwarighat, 30.i.1964 (6 exs.), Coll. H. Khajuria; Jabalpur, Katangi from a cave on Damoh road, 28.vi.1972 (1 ex.), Coll. H. Khajuria.

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, Andaman.

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

Remarks : It roosts in quieter places, in caves, crevices on hillocks. Feeds mostly on insects like beetles, mosquitos, crickets, etc.

**14. *Hipposideros cineraceus durgadasi* Khajuria
Durga's Bat**

1970. *Hipposideros cineraceus durgasasi*, Khajuria Mammalia, 34 : 623.

Material examined : Jabalpur, Gwarighat, 23.ix.1965(1 ex.), Coll. H. Khajuria 3 @ & adults, 2 young, Gwari near Bheraghat, Jabalpur, M.P.

Diagnosis : Dorsal surface brown to reddish brown. The ventral surface is almost whitish, but brown tips to the hairs on the chest, the throat, the shoulders and the sides of whole of the ventral surface in many specimens. The muzzle and shoulder darker.

Distribution : India : Madhya Pradesh (Jabalpur).

Remarks : Habitat selection and feeding habits similar to *Hipposideros fulvus*.

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

1874. *Phyllorhina brachyota* Dobson, *J. Asiat. Soc. Beng.* 43 : 237.

Material examined : Jabalpur, Agrawal Colony, 1.iii.1966 (1 ex.), Coll. Raja Ram.

Diagnosis : Forearm length about 45mm. Ears broad with blunt tip; outer margin below the tip concave; inner margin very convex. Dorsum dark brown, with spinal and shoulder region darkest; venter a little paler. Second upper premolar distinct from canine.

Distribution : India : Madhya Pradesh, probably all over the Western and Central India, Bengal.

Elsewhere : Sri Lanka.

Remarks : This bat is rare in India and therefore not much information is available about this species.

Family RHINOLOPHIDAE

**16. *Rhinolophus lepidus lepidus* Blyth
Little Indian Horseshoe Bat**

1844. *Rhinolophus lepidus* Blyth, *J. Asiat. Soc. Beng.* 13 : 480.

Material examined : Jabalpur, on Gwarighat road, 19.ix.1963 (3 exs.).

Diagnosis : Small-sized, wingspan 230mm-250mm; ears large, little shorter than head; tail completely covered by interfemoral membrane. Fur thick; dorsal hairs basally pale, apically dark brown; venter light brown. Postorbital process absent.

Distribution : India : Andhra Pradesh, Delhi, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Orissa, Uttar Pradesh, West Bengal.

Elsewhere : Nepal, and Thailand.

17. *Rhinolophus rouxi* Temminck Rufous Horseshoe Bat

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

Material examined : Recorded from literature.

Diagnosis : A medium sized Horseshoe Bat with moderate ear and noseleaf. Frontal sac absent. Lower lip with three prominent mental grooves. Margins of base of sella straight. Colour varies from brown to orange yellow.

Distribution : Madhya Pradesh (Jabalpur), Andhra Pradesh, Arunachal Pradesh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Pondicherry, Tamil Nadu, Uttar Pradesh. *Eisewhere* : Nepal, Sri Lanka and Myanmar.

Family MEGADERMATIDAE

18. *Megaderma lyra lyra* Geoffroy Indian False Vampire

1810. *Megaderma lyra* Geoffroy, *Ann. Mag. Nat. Hist. Paris*, 15 : 190.

Material examined : Jabalpur, Parasia village, 31.viii.1960 (11 exs.), Coll. S. Chakrapany; Jabalpur, Parasia village, 24.x.1960 (2 exs.), Coll. P. Singh; Jabalpur, Parasia village, 6.i.1961 (10 exs.), Coll. P. Singh; Jabalpur, Lamhetaghat village, 10.i.1961 (16 exs.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 23.i.1961 (2 exs.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 15.iii.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Lamhetaghat village, 21.iii.1961 (2 exs.), Coll. R.C. Sharma.

Diagnosis : A medium sized bat with large ears, nose leaf and tragus. Tragus bifid, the posterior margin long, narrow and acutely pointed. Posterior margin of nose leaf truncated. Dorsal surface slaty grey, ventral parts paler (dirty white). Forearm 60-70 mm. No externally visible tail.

Distribution : India : Madhya Pradesh, widely distributed throughout the state and Indian mainland from Jammu & Kashmir to Cape Camorin and from Gujrat to Assam.

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

Family VESPERTILIONIDAE

19. *Myotis horsfieldii* (Temminck)
Lesser large-toothed Bat

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

Material examined : Jabalpur, South Civil Lines, 20.xii.1960 (2 exs.), Coll. S. Chakrapany.

Diagnosis : For almost black on dorsal surface, deep brown with greyish tint on ventral surface; head and body length 4.9-5.9 cm, forearm length 3.7-4cm.

Distribution : India : Madhya Pradesh (Jabalpur, Mandla, Gwalior), Maharashtra.

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

20. *Pipistrellus ceylonicus indicus* (Dobson)

1878. *Vesperugo indicus* Dobson, *Cat. Chiroptera. Brit. Mus.*, 222.

Material examined : Jabalpur, Pachpedi, 5.xi.1963 (6 exs.), purchased; Jabalpur, Pachpedi, 24.x.1963 (1 ex.), purchased; Jabalpur, Pachpedi, 9.x.1963 (1 ex.), purchased.

Diagnosis : Forearm length being on average 36 mm. Dorsum brown to greyish brown, venter pale brown. Ear subtriangular, extending two-thirds the distance from eye to nostril when laid forward; tragus with straight inner margin and a triangular lobe at base. Glandular swellings between eye and nostril often present.

Distribution : India : Andhra Pradesh, Bihar, Karnataka, Kerala, Gujarat, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh.

Elsewhere : Pakistan and Bangladesh.

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

1838. *Scotophilus coromandra* Gray, *Mag. Zool. Bot.*, 2 : 498.

Material examined : Jabalpur, Pachpedi, 3.viii.1963 (8 exs.), purchased; Jabalpur, Pachpedi, 30.x.1963 (3 exs.), purchased; Jabalpur, Pachpedi, 31.v.1961 (2 exs.), Coll. H. Khajuria; Jabalpur, Pachpedi, 29.x.1963 (1 ex.), Coll. A. Paul.

Diagnosis : Small-sized, forearm average length 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 : Throughout India except Gujarat, Rajasthan, Jammu & Kashmir.

Elsewhere : Afghanistan, Pakistan, Sri Lanka.

22. *Pipistrellus mimus* Wroughton Indian Pygmy Pipistrelle

1899. *Pipistrellus mimus* Wroughton, *J. Bombay nat. Hist. Soc.* 12 : 722.

Material examined : Jabalpur, Pachpedi, 28.ix.1963 (2 exs.), purchased; Jabalpur, Pachpedi, 27.vii.1963 (1 ex.), purchased; Jabalpur, Pachpedi, 31.v.1961 (1 ex.), purchased; Jabalpur, Pachpedi, 12.ix.1963 (1 ex.), purchased.

Diagnosis : Small-sized, forearm average length 28 mm. Dorsum dark brown to bistre brown, venter slightly paler; face, ears, wing membrane almost black. Ear widely spaced, scarcely triangular with tragus about half the height of the ear.

Distribution : India : Widely distributed throughout the mainland.

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

23. *Pipistrellus dormeri* (Dobson) Dormer's Bat

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

Material examined : Jabalpur, Pachpedi, 11.ix.1963 (2 exs.), purchased; Jabalpur, Pachpedi, 3.viii.1961 (1 ex.), Coll. S. Chakrapany; Jabalpur, Pachpedi, 11.x.1963 (6 exs.), purchased; Jabalpur, Bai ka Bagicha, 8.vii.1963 (1 ex.), Coll. P. Singh.

Diagnosis : Medium-sized, forearm average length 34. Ears subtriangular, 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.

24. *Scotophilus heathi heathi* (Horsfield) Yellow Bat

1831. *Nycticejus heathi* Horsfield, *Proc. zool. Soc. Lond.*, 113.

Material examined : Jabalpur, Pachpedi, 28.vi.1963 (1 ex.), purchased; Jabalpur, Napier Town, 18.xi.1960 (1 ex.), Coll. S. Chakrapany; Jabalpur, Lamhetaghat village, 20.v.1961 (1 ex.), Coll. H. Khajuria.

Diagnosis : Forearm length more than 56 mm. Fur short and sleek; dorsum olive to grey 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.

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

25. *Scotophilus kuhlii kuhlii* Leach Lesser Yellow Bat

1822. *Scotophilus kuhlii* Leach, *Linn. Soc. Lond.* 13 : 72 (India, according to Hill & Thonglongya, 1972).

Material examined : Jabalpur, Sadar Bazar, Cantt., 4.x.1963 (13 exs.), Coll. H. Khajuria; Jabalpur; Pachpedi, 16.vi.1963 (1 ex.), purchased; Jabalpur, Pachpedi, 10.vii.1963 (4 exs.), purchased; Jabalpur, Pachpedi, 11.vii.1962 (34 exs.), purchased; Jabalpur, Victoria Garden, 5.x.1963 (5 exs.), Coll. H. Khajuria; Jabalpur, Pachpedi, 3.vii.1961 (5 exs.), purchased.

Diagnosis : Tragus semicircular, concave anteriorly, prominently convex, posteriorly having slender tip and forward pointing. Small ear, rounded at tips. Fur short dense and sleek. Colour dark brown dorsally and ventral parts creamy white with reddish tinge. Tip of the tail free.

Distribution : Widely distributed in the Indian Union, including Nicobar Islands.

Elsewhere : Bangladesh, Pakistan, Sri Lanka and Myanmar.

Order PRIMATES

Family CERCOPITHECIDAE

26. *Macaca mulatta* (Zimmermann) Rhesus Macaque

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

Material examined : Sighted in and around Jabalpur.

Diagnosis : A medium sized or tolerably large Macaque, with the tail uniformly hairy throughout, typically pendulous, not carried in an arch above the level of the buttocks. The head, shoulders, arms, and foreback generally olivaceous in hue, but the loins, rump, and

the base of the tail are orange-red in varying intensities. The face is sometimes suffused with red.

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

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

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

**27. *Semnopithecus entellus* (Dufresne)
Common Langur**

1797. *Simia entellus* Dufresne, *Bull. Soc. Philom., Paris*, I, 7 : 49.

Material examined : Jabalpur, Bhiloda village, 15.ii.1961 (1 ex.), Coll. D. Banerjee.

Diagnosis : Relatively thinner, typically shorter coat, the whisker hairs concealing the ears to a much lesser extent. Upper side tolerably uniform, darker or lighter shining sepia-brown, rather paler on the shoulders and head. Limbs apart from the hands and feet, and the tail nearly the same colour as the back, but the tail-tip often pale and the legs below the knee often paler than the thigh. Hands and feet black or brown.

Distribution : India : Madhya Pradesh : throughout the state, Bihar; Delhi; Haryana : Maharashtra, 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 was 16 to 25. Young ones were mostly observed from Feb. to May.

Order PHOLIDOTA

Family MANIDAE

**28. *Manis crassicaudata* Gray
Indian Pangolin**

1827. *Manis crassicaudata* Gray, *In Griffith's Cuvier Anim. Kingd.* 5 : 282.

Observations : Known to occur in Jabalpur district.

Diagnosis : The head and body measures 60-75 cm. in length and the tail about 45 cm. long. The upper side of the body, the tail and the outer side of the limbs are covered with large overlapping scales, the longitudinal rows of which vary from 11-13. The

undersurface of the body is clothed with coarse, bristly hair. A less prominent ear-conch is present.

Distribution : India : Madhya Pradesh (Jabalpur, Hoshangabad, Mandla, Morena), 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.

Order CARNIVORA

Family CANIDAE

29. *Canis aureus aureus* Linnaeus Asiatic Jackal (E.); Gidar or Siar, Phial (H.)

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

Observations : This species is sighted in forested area of Jabalpur.

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 greyish 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, Haryana, Himachal Pradesh, Maharashtra, Punjab, Rajasthan.

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

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

30. *Vulpes bengalensis* (Shaw) Bengal Fox

1800. *Canis bengalensis* Shaw, *Gen. Zool.*, 1, 2 : 330.

Material examined : Jabalpur, Rani Durgavati Road, 25.vi.1963 (1 ex.), Coll. D.N. Basu.

Diagnosis : Body relatively smaller and slimmer, about 45-60 cm. in the head and body length and 25-30 cm. in the length of tail. Body colour greyish, tail black-tipped, ears being the same tint as the nape, or sometimes darker. Mammae two pairs.

Distribution : Throughout India.

Elsewhere : Bangladesh, Nepal.

Family FELIDAE

31. *Panthera pardus fusca* Meyer
Panther, Leopard

1794. *Panthera fusca* Meyer, *Zool. Ann.*, 1 : 394.

Material examined : Jabalpur, Pachpedi, 30.iii.1965 (1 ex.), Coll. H. Khajuria.

Diagnosis : About 170-215 cm. in total length including tail and about 60 cm. at shoulder height. The coat is sleek and shorthaired. The ground colour varies from pale yellow, rich tawny to rufous fawn and has dark spots arranged in rosettes all over the sides of the body and the tail, except at the tip, which is ringed. The spots down the middle of the back and on the head, limbs and belly are solid black instead of being arranged in rosettes. A bold and aggressive large cat capable of attacking adult human being.

Distribution : Throughout India.

Elsewhere : Sri Lanka, Nepal and Africa.

Remarks : Diurnal as well as nocturnal. Shy animal, good tree climber, occasionally carrying its prey to a safe height for protection from scavengers. Terrestrial. Hunts 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 a time. Life span 15 years.

Family VIVERRIDAE

32. *Paradoxurus hermaphroditus* (Pallas)
Common Indian Civet, Toddy Cat

1777. *Viverra hermaphroditus* Pallas, *In Schreber, Saugeth*, 3 : 426.

Material examined : Jabalpur, Pachpedi, 30.xii.1960 (1 ex.), purchased; Jabalpur, Pachpedi, 9.xi.1964 (1 ex.), purchased.

Diagnosis : Longitudinal stripes on the back; spots on the sides, shoulders and thighs and sometimes on the base of the tail. Hairs on the neck directed backwards. Contour hairs are typically long and shaggy. Facial vibrissae black. The head typically shows a variable

pattern, the 'mask', composed of white patches on a black ground. Legs black. Tail also black, at least at the end, generally paler at the base and sometimes faintly striped.

Distribution : Peninsular India.

Elsewhere : South and Southeast Asia.

Family HERPESTIDAE

33. *Herpestes edwardsi nyula* (Hodgson) Indian Grey Mongoose (E.)

1836. *Mangusta (Herpestes) nyula* Hodgson, *J. Asiat. Soc. Beng.* 5 : 236 (Nepal).

Observations : Common.

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

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

Elsewhere : Nepal and Bangladesh.

Remarks : Diurnal as well as nocturnal. Found singly or in groups of upto 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.

Order ARTIODACTYLA

Family BOVIDAE

34. *Gazella bennettii* Sykes Indian Gazelle

1831. *Gazella bennetti* Sykes, *Proc. zool. Soc. London*, 1830-31 : 104.

Material examined : Jabalpur, Pachpedi, 27.ix.1963 (1 ex.).

Diagnosis : A full grown male measures about 65 cm. at the shoulder with horns averaging 25-40 cm. while the horns of a doe usually 10-13 cm. The body above is light chestnut, the colour deepening where it joins the white of the underparts on the flanks and buttocks. There is a white streak down each side of the face and a dusky patch above the nose. The horns of the male have a S-shaped curve, with 15-25 rings. Horns of female are smooth, hornless females also found.

Distribution : Throughout India.

Elsewhere : Iran and Pakistan.

35. *Tetracerus quadricornis* (Blainville)
Chowsingha

1816. *Cerophorus (Cervicapra) quadricornis* Blainville, *Bull. Soc. Philom. Paris* : 75, 78.

Material examined : Recorded from literature.

Diagnosis : The male possesses four smooth horns on the head, the posterior pair about 8-10 cm. in length are situated on top of the head and the anterior pair, about 2-3 cm. long, or even smaller are located on the forehead between and above the eyes. The female is hornless. The standing height of a male is about 65 cm. at the shoulder. The fur is thin, harsh and soft. The coat colour varies from brown to rufous brown above, and white below. A dark stripe runs down the front of each leg.

Distribution : Throughout India except the Northeast.

Elsewhere : Nepal.

Family CERVIDAE

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

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

Observations : This species is sighted in Jabalpur. Rare.

Diagnosis : Head and body length varies from 80 to 100 cm; height at shoulder from 41 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 : Throughout India in thickly wooded hilly tracts up to 1828 m.

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

Remarks : Diurnal. Found singly or in groups of 3 to 4. Voice a distinct 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 a litter.

37. *Axis axis axis* (Erxleben)
Cheetal, Axis Deer, Spotted Deer (E.)

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

Observations : Common.

Diagnosis : Head and body length varies from 137-152 cm., height at shoulder from 91-97 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 : Peninsular India, northwards to Kumaon and Sikkim, eastwards 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. Habitually entering cultivation near villages. All male herds may be seen. In forests, generally found associated with Langurs who drop titbits from tree tops. Feeds on grasses, leaves, flowers and fruits.

38. *Cervus unicolor niger* Blainville Sambar

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)

Observations : Common.

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

Distribution : India : Madhya Pradesh (Balaghat, Betul, Chhindwara, Hoshangabad, Mandla, Morena, Raisen, Rajgarh, Shivpuri) Andhra Pradesh, Bihar, 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 bathing in lakes, river and marshes. Feeds on grasses, leaves and fruits.

Order LAGOMORPHA

Family LEPORIDAE

39. *Lepus nigricollis nigricollis* F. Cuvier
Blacknaped Hare

1823. *Lepus nigricollis* Cuvier, *Dict. Sci. Nat.*, 26 : 307.

Material examined : Jabalpur, Rani Durgavati Samadhi road, 25.vi.1963 (1 ex.), Coll. D.N. Basu.

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. Ears long, while the tail is short and greyish.

Distribution : Throughout India except in high altitudes.

Elsewhere : Bangladesh, Nepal, Pakistan, Sri Lanka.

40. *Lepus nigricollis ruficaudatus* Geoffroy
Rufous-tailed Hare (E.), Khargosh (H.)

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

Material examined : Sighted at many places in the district.

Diagnosis : Head and body 40-50 cm in length, grey patch on nape. 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 (Jabalpur, Hoshangabad, Gwalior, Narsinghpur, Shahdol and Sagar), Orissa, Rajasthan, Sikkim, Uttaranchal, West Bengal.

Elsewhere : Nepal.

Order Rodentia

Family Muridae

41. *Bandicota bengalensis* (Gray)
Lesser Bandicoot Rat

1961. *Bandicota bengalensis* : Ellerman, *Fauna of India, Mammalia, Rodentia*, 3(2) : 817.

Material examined : Jabalpur, Military Grass Farm, Cantt., 24.iv.1961 (1 ex.), Coll. P. Singh; Jabalpur, Pachpedi, 14.x.1969 (2 exs.), purchased.

Diagnosis : Above dark brown, occasionally blackish, very rarely pale brownish or almost reddish. Fur usually short and harsh. The tail short, but usually over three-quarters of the head and body length (often over 80% of it). Hand with four fingers, all clawed, and foot with five toes, all clawed, the outer digits shorter than the central three, but the hallux is not so long as D. 5; fifth finger shorter than the other fingers. Mammae very variable.

Distribution : Throughout India.

Elsewhere : Sri Lanka, Nepal, Myanmar, Malay Peninsula, Indonesia.

42. *Cremnomys blanfordi* (Thomas) Blanford's Rat

1881. *Mus blanfordi* Thomas, *Ann. Mag. nat. Hist.* 7 : 24.

Material examined : Jabalpur, Madan Mahal, 11.viii.1961 (1 ex.), Coll. P. Singh; Jabalpur, Garha, 5.viii.1961 (1 ex.), Coll. P. Singh; Jabalpur, Madan Mahal, 22.vi.1961 (2 exs.), Coll. P. Singh; Jabalpur, Garha, 9.ix.1965 (1 ex.), Coll. M.L. Koshta.

Diagnosis : The colour of the back varies from lighter or reddish-brown to grey. Dorsal fur is dark grey basally. Feet most often white. Belly and underparts white. Tail is long, usually exceeding 120% of head and body length; usually wholly dark basally and wholly white terminally. The tail is well haired and tends to be slightly tufted terminally. Foot with five toes, all bearing claws, the fifth hind toe rather long, not very much shorter than the central three.

Distribution : East to Bihar and West Bengal, North to Madhya Pradesh, Peninsular India.

Elsewhere : Sri Lanka.

43. *Mus booduga booduga* Gray Indian Field Mouse

1837. *Leggada booduga* Gray, *Charlesworth's Mag. nat. Hist.*, 1 : 586.

Material examined : Jabalpur, Nagaghati, 14th mile on Jabalpur-Mandla road, 27.iii.1962 (1 ex.), Coll. P. Singh; Jabalpur, near 13th milestone on Jabalpur-Mandla road, 24.i.1962 (1 ex.), Coll. R. C. Sharma.

Diagnosis : Head and body length 80 mm. at highest. Tail usually shorter than head and body length. The fur usually without spines. Colour above brown, lighter or darker, sometimes sandy. Feet usually are whitish or pale. Tail is nearly constantly bicolor (dark above, pale below). Underparts are whitish or grey, or dull grey. Hand with four clawed fingers and foot with five toed claws. Mammae usually 10.

Distribution : Throughout India.

Elsewhere : Myanmar, Pakistan, Sri Lanka.

44. *Mus musculus castaneus* Waterhouse
House Mouse

1961. *Mus musculus castaneus* : Ellerman, *Fauna of India, Mammalia, Rodentia*, 3(2) : 743.

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.

Diagnosis : Dark-bellied and commensal indoor type of house-mouse. Tail usually dark.

Distribution : Throughout India.

Elsewhere : Philippines.

45. *Mus platythrix* Bennett
Brown Spiny Mouse

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

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 : Throughout India.

Elsewhere : Pakistan, Myanmar.

46. *Rattus rattus narbadae* Hinton

1961. *Rattus rattus narbadae* : Ellerman, *Fauna of India, Mammalia, Rodentia*, 3(2) : 580.

Material examined : Jabalpur, Jagpura Ward, 19.ix.1960 (2 exs.), Coll. P. Singh; Jabalpur, Napier Town, 18.ix.1960 (2 exs.), Coll. P. Singh; Jabalpur, Kachpura Ward, 16.x.1960 (1 ex.), Coll. P. Singh; Jabalpur, Garha, 15.ix.1965 (1 ex.), Coll. M.L. Koshta.

Diagnosis : Short toothed white bellied subspecies. The tail is rather long, mostly exceeding 130% of head and body. Mammae variable.

Distribution : India : Madhya Pradesh, Maharashtra, Gujarat, Karnataka, Kerala, Tamil Nadu.

**47. *Rattus rattus rufescens* (Gray)
Dark-bellied House Rat**

1961. *Rattus rattus rufescens* : Ellerman, *Fauna of India, Mammalia, Rodentia*, 3(2) : 575.

Material examined : Jabalpur, Military Grass Farm, Cantt., 24.iv.1961 (1 ex.), Coll. P. Singh; Jabalpur, Tripuri village, 15.ix.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Pachpedi, 19.ix.1966 (1 ex.), Coll. R.L. Thapa.

Diagnosis : Dorsal colour rufous, hair of belly rough with rusty tinge. The tail is apparently more than 120% of the head and body length.

Distribution : Almost throughout India.

Elsewhere : Pakistan, Thailand, Malaysia.

**48. *Tatera indica indica* (Hardwicke)
Indian Gerbil**

1807. *Dipus indicus* Hardwicke, *Trans. Linn. Soc. Lond.* 8 : 279.

2000. *Tatera indica indica* : Chakraborty & Agrawal, *Fauna of Gujarat*, 1 : 61.

Material examined : Jabalpur, Madan Mahal, 22.vi.1961 (1 ex.), Coll. P. Singh.

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

Distribution : India : Madhya Pradesh, Maharashtra, Gujarat, Andhra Pradesh, Bihar, Delhi, Haryana, Himachal Pradesh, Jammu & Kashmir, Orissa, Punjab, Rajasthan, Uttar Pradesh, West Bengal.

Elsewhere : Iran, Afghanistan, Pakistan, and Nepal.

**49. *Vandeleuria oleracea* (Bennett)
Indian Long-tailed Tree Mouse**

1961. *Vandeleuria oleracea* : Ellerman, *Fauna of India, Mammalia, Rodentia*, 3(2) : 512.

Material examined : Recorded from literature.

Diagnosis : Very small mice. Tail much longer than the head and body. Fur soft. Tail not very well haired. 8 mammae. Feet with abnormal and peculiar digits, as regards development or absence of claws.

Distribution : India : Madhya Pradesh, Maharashtra, Gujarat, Bihar, Karnataka.

Elsewhere : Sri Lanka, Nepal.

Family SCIURIDAE

50. *Funambulus pennanti* Wroughton Five-Striped Palm Squirrel

1905. *Funambulus pennanti* Wroughton, *J. Bombay nat. Hist. Soc.*, 16 : 411.

Material examined : Jabalpur, Bheraghat road, 29.iv.1961 (1 ex.), Coll. R.C. Sharma; Jabalpur, Kachpura Ward, 26.ix.1960 (2 exs.), Coll. P. Singh; Jabalpur, Chamanpura Ward, 13.x.1960 (1 ex.), Coll. P. Singh.

Diagnosis : The tail is about as long as body, or a little more or less. There are four mammae. Feet and digits without peculiarity, no functional thumb and fourth finger slightly dominant as a rule. The fur is short. The back is brownish or greyish, the feet pale, often whitish. The back has five whitish or white stripes separated by four dark brown bands. The underparts are white or whitish.

Distribution : Throughout India but more widespread in Central and Northern India.

Elsewhere : Iran, Nepal, and Pakistan.

SUMMARY

The present work provides the comprehensive account of mammals found in Jabalpur and surrounding forest tracts of the district, which is indicate 50 species belonging to 34 genera under 18 families of 8 orders.

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ANNEXURE-I

The following listed invertebrate species comprise the past records from Jabalpur district revealed through the review of pertinent literature.

1. PROTOZOA

The Protozoa of Jabalpur is represented by 5 species of Sporozoa. All these species have been recorded from Jabalpur by Mandal (1987). Genus *Eimeria* is represented by 4 species and genus *Isospora* by 1 species.

LIST OF PROTOZOA RECORDED FROM JABALPUR

Class SPOROZOA

Subclass HAPLOSPORIDIA

Order EUCOCCIDAE

Family EIMERIIDAE

1. *Eimeria brunetti* Levine
2. *Eimeria cerdonis* Vetterling
3. *Eimeria deblickei* Douwes
4. *Eimeria neodeblickei* Vetterling
5. *Isospora* sp.

REFERENCE

Mandal, A.K. 1987. *The fauna of India and adjacent countries, Protozoa: Sporozoa : Eucocidiidea: Eimeriidae* : xvii + 460 pp.

2. PLATYHELMINTHES

The Platyhelminthes of Jabalpur are represented by 9 species of flatworms under 6 genera and 2 families. All these species have been recorded from Jabalpur by Mehra (1980).

LIST OF FLATWORMS RECORDED FROM JABALPUR

Class TREMATODA

Subclass DIGENIA

Order FASCIOLATOIDEA

Family ECHINOSTOMATIDAE

1. *Artyfechinostomum indicum* (Bhalerao)
2. *Artyfechinostomum sufrartyfex* Lane
3. *Chaunocephalus ferox* (Rud.)
4. *Echinoparyphium dollfusi* (Agarwal)
5. *Echinoparyphium indicum* (Rai)
6. *Episthmium bursicola* (Creplin)
7. *Paryphostomum dollfusi* (Agrawal)
8. *Paryphostomum giganticum* (Rai & Agarwal)

Family OPISTHORCHIIDAE

9. *Opisthorchis (Opisthorchis) mehrai* (Agarwal)

REFERENCE

Mehra, H.R. 1980. *The fauna of India and the Adjacent Countries, Platyhelminthes, Vol. 1, Trematoda*, xii + 418 pp.

3. NEMATHELMINTHES

The roundworm fauna of Jabalpur is represented by only 1 species of nematoda, *Ascaridia columbae* (Gmelin) recorded by Baylis (1936).

Class NEMATODA

Order ASCAROIDEA

Family HETERAKIDAE

1. *Ascaridia columbae* (Gmelin)

REFERENCE

Baylis, H. A. 1936. *The Fauna of British India including Ceylon and Burma, Nematoda, Vol. 1 (Ascaroidea and Stongyloidea)* : 408 pp.

4. ARANEAE

Spiders make up a considerable portion of the biodiversity of Jabalpur. They are widespread and are found in many types of habitats. In general, they are known to be diverse predators in terrestrial ecosystems and perform an important role in keeping the insect populations in check. 88 species under 18 families represent the spider fauna of Jabalpur. The spiders of Jabalpur have been compiled by Gajbe (2003).

LIST OF SPIDERS OF JABALPUR

Family SCYTODIDAE

1. *Cetodes* sp.

Family PHOLCIDAE

2. *Artema atlanta* Walckenaer
3. *Pholcus* sp.

Family OONOPIDAE

4. *Triaeris* sp.

Family ERESIDAE

5. *Stegodyphus sarasinorum* Karsch

Family OECOBIIDAE

6. *Oecobius putus* Cambridge

Family HERSILIIDAE (Two-tail spiders)

7. *Hersilia savignyi* Lucas

Family ULOBORIDAE

8. *Uloborus danolius* Tikader
9. *Uloborus jabalpurensis* Bhandari & Gajbe

Family TETRAGNATHIDAE

10. *Eucta* sp.

Family ARANEIDAE (Orb-web spiders)

11. *Leucauge decorata* (Blackwall)
12. *Nephila maculata* (Fabricius)
13. *Argiope aemula* (Walckenaer)
14. *Chorizopes tikaderi* Bhandari & Gajbe

15. *Cyrtophora cicatrosa* (Stoliczka)
16. *Cyrtophora citricola* (Forsk.)
17. *Cyrtophora jabalpurensis* Gajbe & Gajbe
18. *Cyclosa moonduensis* Tikader
19. *Cyclosa confraga* (Thorell)
20. *Cyclosa spinifera* Simon
21. *Larinia chloris* (Audouin)
22. *Larinia bhadatae* Bhandari & Gajbe
23. *Zygeilla indica* Tikader & Bal
24. *Araneus mitifica* (Simon)
25. *Neoscona nautica* (Koch)
26. *Neoscona mukerjei* Tikader
27. *Neoscona rumpfi* (Thorell)
28. *Neoscona elliptica* Tikader & Bal
29. *Neoscona theis* (Walckenaer)
30. *Neoscona platnicki* Gajbe & Gajbe
31. *Neoscona biswasi* Bhandari & Gajbe

Family LYCOSIDAE (Wolf spiders)

32. *Hippasa partita* (O.P. Cambridge)
33. *Hippasa pisaurina* Pocock
34. *Hippasa hansae* Gajbe & Gajbe
35. *Hippasa fabreae* Gajbe & Gajbe
36. *Hippasa wigglesworthi* Gajbe & Gajbe
37. *Pardosa mukundi* Tikader & Malhotra
38. *Pardosa birmanica* Simon
39. *Pardosa jabalpurensis* Gajbe & Gajbe
40. *Arctosa indicus* Tikader & Malhotra
41. *Lycosa nigrotibialis* Simon
42. *Lycosa shaktae* Bhandari & Gajbe

Family OXYOPIDAE (Lynx spiders)

43. *Oxyopes jabalpurensis* Gajbe & Gajbe
44. *Oxyopes ketani* Gajbe & Gajbe
45. *Oxyopes pankaji* Gajbe & Gajbe
46. *Peucetia jabalpurensis* Gajbe & Gajbe
47. *Peucetia ashae* Gajbe & Gajbe

Family AGELENIDAE

48. *Tegenaria* sp.

Family DICTYNIDAE

49. *Dictyna shiprai* Tikader

Family GNAPHOSIDAE (Ground spiders)

50. *Gnaphosa poonaensis* Tikader
51. *Callilepis rukminiae* Tikader & Gajbe
52. *Callilepis lambai* Tikader & Gajbe
53. *Scopodes maitraiae* Tikader & Gajbe
54. *Megamyrmecon ashae* Tikader & Gajbe
55. *Scotophaeus poonaensis* Tikader
56. *Liodrassus tikaderi* Gajbe
57. *Drassodes oppenheimeri* Tikader
58. *Sosticus jabalpurensis* Bhandari & Gajbe
59. *Sergiolus lamhetaghatensis* Gajbe & Gajbe
60. *Poecilochroa barmani* Tikader
61. *Herpyllus goaensis* Tikader
62. *Zelotes jabalpurensis* Tikader & Gajbe

Family HETEROPODIDAE

63. *Heteropoda* sp.

Family PHILODROMIDAE (Crab spiders)

64. *Philodromus durvei* Tikader
65. *Philodromus jabalpurensis* Gajbe & Gajbe
66. *Philodromus ashae* Gajbe & Gajbe

67. *Philodromus pali* Gajbe & Gajbe
68. *Tibellus jabalpurensis* Gajbe & Gajbe
69. *Thanatus jabalpurensis* Gajbe & Gajbe
70. *Thanatus ketani* Bhandari & Gajbe

Family THOMISIDAE (Crab spiders)

71. *Thomisus sundari* Gajbe & Gajbe
72. *Thomisus rajani* Bhandari & Gajbe
73. *Runcinia yogeshi* Gajbe & Gajbe
74. *Oxyptila amkhasensis* Tikader
75. *Oxyptila jabalpurensis* Bhandari & Gajbe
76. *Xysticus minutus* Tikader
77. *Xysticus bengalensis* Tikader & Biswas
78. *Xysticus jabalpurensis* Gajbe & Gajbe
79. *Xysticus bharatae* Gajbe & Gajbe
80. *Xysticus tikaderi* Bhandari & Gajbe
81. *Synaema decorata* Tikader
82. *Monaeses jabalpurensis* Gajbe & Rane
83. *Tmarus jabalpurensis* Gajbe & Gajbe
84. *Misumenoides* sp.

Family SALTICIDAE (Jumping spiders)

85. *Marpissa dhakuriensis* Tikader
86. *Marpissa mandali* Tikader
87. *Phidippus* sp.
88. *Rene* sp.

REFERENCES

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5. CLADOCERA

The cladoceran fauna of Jabalpur is represented by 8 species. Rane (1979, 1983 a, b, 1984, 1985 a, b, c) described 7 species pertaining to three families from Jabalpur, Madhya Pradesh.

LIST OF CRUSTACEA RECORDED FROM JABALPUR

Order CLADOCERA

Family DAPHNIDAE

1. *Simocephalus surekhae* Rane

2. *Simocephalus vamani* Rane

Family SIDIDAE

3. *Latonopsis fasciculata* Daday

4. *Latonopsis fernandoi* Rane

Family: Bosminidae

5. *Bosminopsis devendrai* Rane

Family CHYDORIDAE

6. *Camptocercus latikae* Rane

7. *Indialona jabalpurensis* Rane

8. *Oxyurella sangramsagari* Rane

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Rane, P. D. 1985c. A new species of the genus *Camptocercus* Baird, 1843 (Cladocera) from Madhya Pradesh, Central India. *Crustaceana*, 48(2) : 113-116.

6. INSECTA : BLATTARIAE

Two species of cockroaches, viz., *Periplaneta americana* (Linn.) and *Blattella germanica* (Linn.) are being recorded herein from Jabalpur. Both the species are cosmopolitan in distribution.

Suborder BLATTOIDEA

Family BLATTIDAE

1. *Periplaneta americana* (Linnaeus)

Family BLATTELLIDAE

2. *Blattella germanica* (Linnaeus)

REFERENCE

Mandal, A.K. 1995. Insecta : Blattariae. In : *Fauna of Meghalaya, State Fauna Series*, 4(Part-3) : 353-384.

7. INSECTA: MANTODEA

Mantids are carnivorous insects, which play an important role in the natural control of insect pests. They have peculiar habits of camouflage, prey-capture and reproductive behaviour. They are common in the warm and moist climate of tropical rain forests. In India, they are more common in the North-eastern region but less common in the Eastern- and Western Ghats. Some species are also found in the arid areas. About 432 genera and 2210 species are known from the world. Mukherjee *et al.* (1995) have recorded 162 species under 68 genera from India. The mantid fauna of Jabalpur is represented by 2 species recorded by Mukherjee *et al.* (1995).

Family HYMENOPODIDAE

1. *Ephestiasula pictipes* (Wood - Mason)

Family MANTIDAE

2. *Humbertiella indica* Saussure

REFERENCE

Mukherjee, T. K., Hazra, A. K. & Ghosh, A. K. 1995. The mantid fauna of India (Insecta : Mantodea). *Ori. Ins.*, 29 : 185-358.

8. INSECTA: ISOPTERA

The Isoptera (termites) of Jabalpur are represented by 7 species belonging to 4 genera under 2 families. These insects are pests of wood and wood products and are of considerable economic importance.

LIST OF ISOPTERA RECORDED FROM JABALPUR

Family RHINOTERMITIDAE

Subfamily COPTOTERMITINAE

1. *Coptotermes kishori* Roonwal & Chhotani

Family TERMITIDAE

Subfamily AMITERMITINAE

2. *Speculitermes cyclops* (Wasmann)3. *Speculitermes goesswaldi* Roonwal & Chhotani4. *Odontotermes assmuthi* Holmgren5. *Odontotermes feae* (Wasmann)6. *Odontotermes guptai* Roonwal & Bose7. *Odontotermes gurdaspurensis* Holmgren & Holmgren

REFERENCES

Chhotani, O.B. 1997. *The Fauna of India, Isoptera (Termites)*, Vol. 2 : 1-800. Published by the Director, Zool. Surv. India.

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9. INSECTA : THYSANOPTERA

The Thysanoptera (thrips) of Jabalpur are represented by 32 species belonging to 29 genera under 3 families. The thrips are found on vegetation and some species are known to be pests of cultivated plants.

LIST OF THYSANOPTERA RECORDED FROM JABALPUR DISTRICT

Family AEOLOTHRIPIDAE

1. *Allelothrips pandyani* (Rama. & Marg.)
2. *Gelothrips cinctus* (Hood)
3. *Indothrips bhushani* Bhatti
4. *Melanthrips indicus* Bhatti
5. *Mymarothrips bolus* Bhatti
6. *Streothrips arorai* Bhatti

Family THIRIPIDAE

7. *Anascirtothrips arorai* Bhatti
8. *Astrothrips lantana* Bhatti
9. *Arathrips cus* Bhatti
10. *Ayyaria chaetophora* Karny
11. *Baliothrips bambusae* (Shum.)
12. *Bathrips melanicornis* (Shumsher)
13. *Caliothrips graminicola* (Bagnall & Cameron)
14. *Caliothrips indicus* (Bagnall)
15. *Caprithrips orientalis* Bhatti
16. *Corcithrips hartwigi* Bhatti
17. *Dendrothrips albus* Bhatti
18. *Dendrothrips minutus* (Ananthakrishnan)
19. *Dendrothripoides innoxius* (Karny)
20. *Dorcadothrips indicus* Bhatti
21. *Ernothrips lobatus* Bhatti
22. *Exothrips anolis* (Bhatti)

23. *Exothrips hemavarna* (Ram. & Marg.)
24. *Microcephalothrips abdominalis* (Crawford)
25. *Noathrips prakashi* Bhatti
26. *Parthenothrips dracaenae* (Heeger)
27. *Rhipiphorothrips cruentatus* Hood
28. *Scolothrips indicus* Priesner
29. *Thrips apicatus* Priesner
30. *Zaniothrips ricini* Bhatti

Family PHLAEOTHIRIPIDAE

31. *Haplothrips gowdeyi* (Franklin)
32. *Margaritothrips flavus* Bhatti

REFERENCE

Ananthakrishnan, T. N. & Sen, S. 1980. *Taxonomy of Indian Thysanoptera* : 1-234 +19 pls. Published by the Director, Zool. Surv. India.

10. INSECTA : HYMENOPTERA

The order Hymenoptera is represented by 4 species under 4 families. One of the species, *Henicospilus flavicaput* (Morley) was recorded from Jabalpur by Morley (1913).

LIST OF HYMENOPTERA RECORDED FROM JABALPUR

Family APIDAE

1. *Apis cerana indica* Fabricius

Family MUTILLIDAE

2. *Mutilla sexmaculata* Swed.

Family FORMICIDAE

3. *Dorylus orientalis* Westwood

Family ICHNEUMONIDAE

4. *Henicospilus flavicaput* (Morley)

REFERENCES

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- Morley, C. 1913. *The Fauna of British India including Ceylon and Burma, Hymenoptera, Vol. 3, Ichneumonidae-I. Ichneumonides Deltoidei* : xxxvi + 531 pp.
-

11. INSECTA : DIPTERA

The Diptera or 'two-winged flies' comprise common insects like mosquitoes, gnats, midges and houseflies. The Dipteran fauna of Jabalpur region is represented by 11 species belonging to 4 genera under 2 families, viz., Culicidae and Muscidae.

LIST OF DIPTERA RECORDED FROM JABALPUR

Family CULICIDAE

1. *Anopheles culicifacies* Giles
2. *Anopheles fluviatilis* James
3. *Anopheles jeyporiensis* James
4. *Anopheles hyrcanus* var. *nigerrimus* Giles
5. *Anopheles pallidus* Theobald
6. *Anopheles subpictus* Grassi
7. *Anopheles theobaldi* Giles
8. *Culex (Culex) bitaeniorhynchus* Giles
9. *Culex (Culex) mimulus* Edwards

Family MUSCIDAE

Subfamily PHAONIINAE

10. *Xenosia bina brunneifemorata* Van Emden

Subfamily MUSCILINAE

11. *Musca (Byomyia) fasciata* (Stein)

REFERENCES

- Barraud, P. J. 1934. *The Fauna of British India including Ceylon and Burma, Diptera, Vol. 5* : 463 pp., 8 pls.
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12. MOLLUSCA

The molluscan fauna of Jabalpur is represented by 27 species. Agrawal (1976) recorded 4 species from Jabalpur.

LIST OF MOLLUSCA RECORDED FROM JABALPUR

Class GASTROPODA

Subclass PROSOBRANCHIA

Order MESOGASTROPODA

Family PILIDAE

1. *Pila globosa* (Swainson)

2. *Pila virens* (Lamarck)

Family VIVIPARIDAE

Subfamily BELLAMYINAE

3. *Bellamya bengalensis* (Lamarck)

4. *Bellamya variatus* (Frauenfeld)

Family THIARIDAE

5. *Thiara pyramis* (Benson)

Subclass PULMONATA

Order BASOMMATOPHORA

Family LYMNAEIDAE

6. *Lymnaea(Pseudosuccinia) acuminata* (Lamarck)

7. *Lymnaea (Pseudosuccinia) luteola* Lamarck

Family PLANORBIDAE

8. *Indoplanorbis exustus* (Deshayes)

Order MEGAGASTROPODA

Order STYLOMMATOPHORA

Family CERSTUIDAE

9. *Rachis bengalensis* (Lamarck)

10. *Rachis punctatus* (Anton)

Family SUBULINIDAE

11. *Glessula mullorum* (Blanford)

12. *Glessula paupercula* (Blanford)

13. *Lamellaxis gracile* (Hutton)

14. *Subulina octona* (Bruguière)

Family ARIOPHANTIDAE

15. *Euplecta aceducta* Benson

16. *Zootecus insularis* (Ehrenberg)

Order SOLEOLIFERA

Family VERONICELLIDAE

17. *Laevicaulis alte* (Férussac)

Class BIVALVIA

Order UNIONOIDA

Superfamily UNIONACEA

Family UNIONIDAE

18. *Lamellidens corrianus* (Lea)

19. *Lamellidens marginalis* (Lamarck)

Family AMBLEMIDAE

20. *Indonaia (Nodularia) andersoniana* (Nevill)

21. *Indonaia (Nodularia) caerulea* (Lea)

22. *Parreysia favidens* (Benson)

23. *Parreysia wynegungaënsis* (Lea)

Order VENEROIDA

Family CORBICULIDAE

24. *Corbicula inflata* Clessin
25. *Corbicula occidens* Deshayes
26. *Corbicula picta* Clessin
27. *Corbicula striatella* Deshayes

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