

Conservation Area Series 20

Fauna of Pench National Park (Maharashtra)

Zoological Survey of India

Conservation Area Series 20

Fauna of Pench National Park (Maharashtra)

Western Regional Station, Zoological Survey of India, Rawet Road, Akurdi, Pune-411044

Edited by the Director, Zoological Survey of India, Kolkata



**Zoological Survey of India
Kolkata**

CITATION

Editor : Director. 2004. Fauna of Pench National Park (Maharashtra), *Conservation Area Series*, **20** : 1-312. (Published Director, *Zool. Surv. India, Kolkata*)

Published : November, 2004

ISBN 81-8171-054-1

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PRICE

Indian Rs. 600.00

Foreign : \$ 40; £ 30

Published at the Publication Division By the Director Zoological Survey of India, 234/4, AJC Bose Road, 2nd MSO Building, 13th floor, Nizam Palace, Kolkata 700020 and Printed at Power Printers, New Delhi 110002.

FAUNA OF PENCH NATIONAL PARK (Maharashtra)

Conservation Area Series

No. 20	2004	1-312

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PENCH NATIONAL PARK– AN OVERVIEW

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INTRODUCTION

Pench National Park is situated at about 80 kms. east to the city of Nagpur in Maharashtra State. Nagpur District lies in the extreme northern region of Maharashtra State, bordered by Madhya Pradesh (Chattisgarh State). It is bounded in the West by Chandrapur and Bhandara Districts, in the South by Wardha District and in the East by Amravati District (all from Maharashtra State). The area of 257.26 sq. kms was declared as Pench National Park through Maharashtra State Revenue and Forest Department Notification No. GPS/1375/1217158-F-1, dated 22nd November 1975.

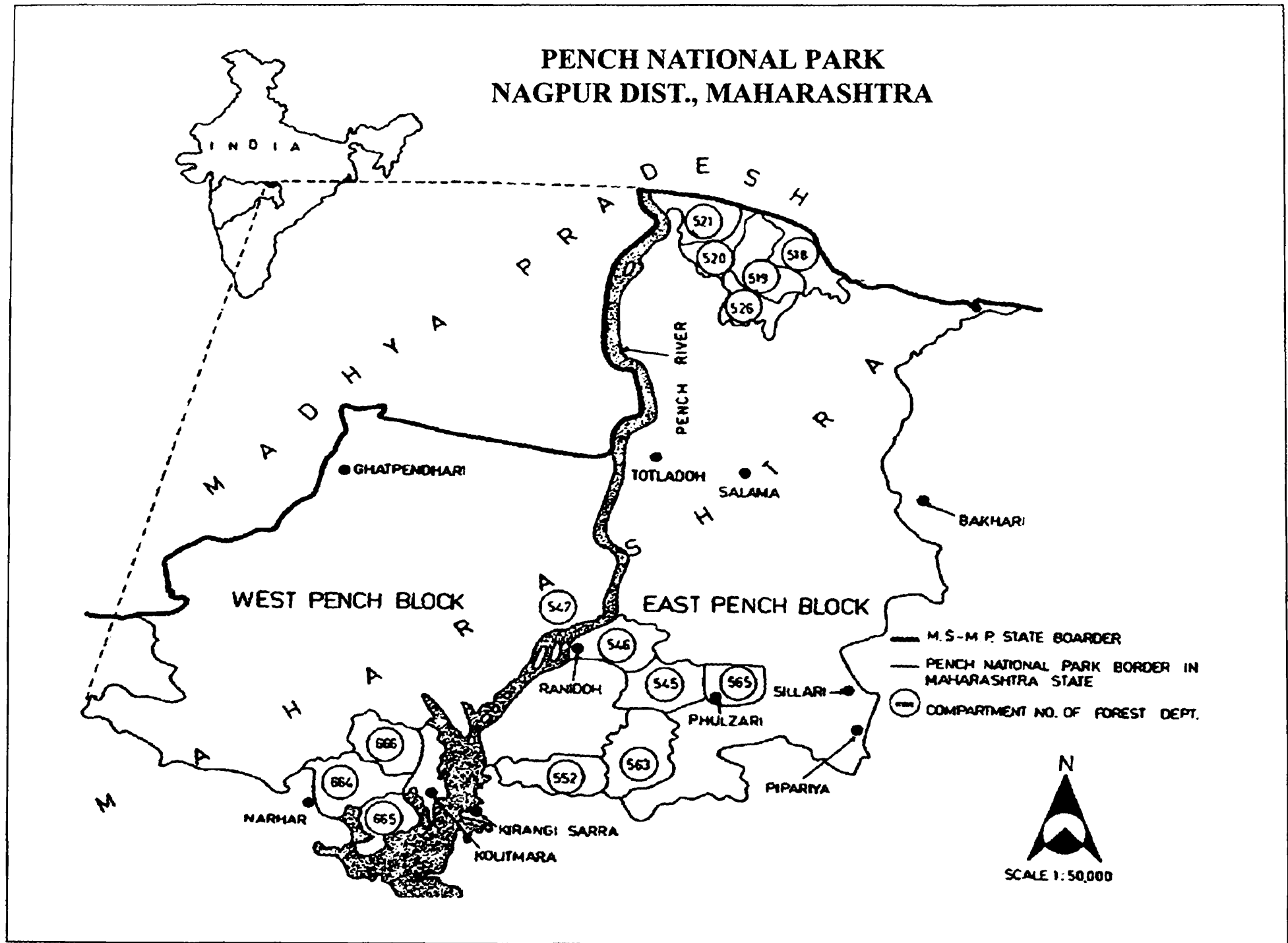
Pench National Park can be approached by rail, air or road. Nearest railway station and airport is Nagpur. From Nagpur it lies 80 kms. on Nagpur-Jabalpur National Highway No.7. The diversion to the National Park is at Jangli Paoni. The National Park has its area contiguous with Pench National Park and Sanctuary of Madhya Pradesh State, where it has a spread of about 750 sq. kms. This document, contains results of the surveys conducted in the area of Pench National Park falling under the jurisdiction of Maharashtra State alone.

TOPOGRAPHY

The terrain of Pench National Park is hilly undulating in the North by the ranges of Satpuda hills. The North eastern portion is drained by Pench river. In Nagpur District, the northern range of hills of Satpuda extend along the whole border, which are pierced only in two places, where Kanhan and Pench rivers break through. From Kanhan to Pench, it is the major range of Satpuda mountain, which dominates the land scape. Along this length the hills are well wooded where forest exists.

Altitude : Altitude of this park ranges from 275 m. to 652 m. above the sea level.

Geology : The park is situated in the Deccan trap of Satpuda mountain ranges. Alluvial soil deposited by the tributaries of two main rivers, the Kanhan and Wainganga from the top layers. This region is rich in Industrial minerals like manganese, lead, copper, mica and limestone. There are number of mines in vicinity of the park.



Drainage : The chief river in this tract is Pench, which flows down from the Satpuda range in Chhindwada District (Madhya Pradesh). Pench river meets another river, Kanhan, near Kamptee. The upper reaches of Pench river offer good patches of forest land. During monsoon, the water flows with high speed creating characteristic high banks and rocky bed of the river. Due to rapid current of flood, the rocky bed is hollow and forms deep pools here and there due to action of stream. However in hot summer the river turns into mere rivulets exposing major portions of river beds and holding water in deep carved out rocks. Hydroelectricity is generated at Totladoh, where water of river Pench is utilized.

Climate : The climate is characterized by hot summer in April to June, good rainfall in July-October and cold season in December-February. Atmospheric temperature ranges between 47.8° C (maximum) and 3.9°C (minimum). There are about 60 rainy days in a year and annual rainfall ranges between 1000-1100 mm.

People : In the park area Tribal people named MONTLY GONDS reside. Few places of sanctity are located in the park area which attract a lot of devogtees from far and near. Ambakhori is one such spot of attraction for tourists as well. Ambokhori is about 3 kms from Totladoh Forest Rest house and it has a rock image of Nagdev or Snake god. Fefdikund in East Pench and Nagdev on Saddle Dam road are also places favoured by tourists.

Administration : Deputy Conservator of Forest, Pench National Park; Nagpur-440001, is the administrative head.

Rest Houses : There are forest rest houses in Totladoh, Ranidoh and Sillari. Reservation of accommodation can be made.

About National Park

The total area of 257.26 sq. kms is declared Pench National Park. This area contains Reserved Forest of 25,47.254 ha; Protected Forest 118.845 ha and the Revenue area of 25,987.399 ha. Data of census of Wild animals received from Deputy Conservator of Forests, Wildlife Division, Pench National Park, Nagpur-440001 is presented here (Table 1).

In the National Park 246 km roads are available which are used for patrolling the area. There are 13 waterholes in the park. Some earthen bunds on the streams are also constructed which are useful for the wildlife.

Flora & Forests : Floristically Pench National Park is very rich. The Forest is tropical dry deciduous and mixed southern type. Meadows occur in some valleys. The forests are mainly situated on large blocks on Satpuda hills in North Eastern side of Nagpur District. The flora consists mainly of Teak, Bija, Saj, Salari, Tiwas, Dhaora; Tendu, Palas and Mahua trees. Bamboo is also seen in clusters at several places. Saj (*Terminalia tomentosa*); Achar (*Buchanania latifolia*); Tendu (*Diospyros tomentosa*); Salai (*Boswellia cerrata*) amongst trees and *Woodfordia*, *Antidesma*, *Clustantnus*, *Grewia*, *Nyetanthes* and *Dispyros* are dominant amongst shrubs.

Wild Life Major mammal species recorded from Pench National Park are :

1. Jackal (*Canis aureus* Linn.)
2. Wild dog [(*Cuon alpinus* (Pallas)]
3. Fox [(*Vulpes bengalensis* (Shaw)]
4. Sloth bear [(*Melursus ursinus* (Shaw)]
5. Jungle cat [(*Felis chaus affinis* Gray]
6. Leopard [(*Panthera pardus fusca* (Meyer)]
7. Tiger [(*Panthera tigris tigris* (Linn.)]
8. Wildboar [(*Sus scrofa cristatus* Wagner]
9. Chital [(*Axis axis axis* (Erxleben)]
10. Sambar [(*Cervus unicolor niger* Blainville
11. Gaur [(*Bos gaurus* Smith)
12. Nilgai [*Boselaphus tragocamelus* (Pallas)]
13. Four horned Antelope [*Tetracerus quadricornis* (Blainville)]
14. Porcupines [*Hystrix indica* Kerr]
15. Hare [*Lepus nigricollis nigricollis* Cuvier]

Analysis of the data on fauna of Pench National Park :

Faunistic survey of Pench National Park was conducted by Western Regional Station of Zoological Survey of India (WRS,ZSI), Pune. The Project was undertaken from 1994 to 1999. A total of eight surveys were conducted, in which scientists of WRS, Pune, visited the area for ecological observations and collected samples of fauna to identify it upto species level. As a result following faunal diversity is known to occur in Pench National Park. (Table 2).

Information on 425 species is recorded in this volume. Those species were either collected or observed in the field by the scientists of WRS, ZSI, Pune during the surveys undertaken by them. It has not been possible to include information on remaining groups due to lack of respective experts in the station. It is hoped that the collection will be worked out at a later date.

Group-wise Resume of Important findings

It has been noticed that mammalian species diversity is quite rich (both quantitatively and qualitatively). Orders like Chiroptera, Carnivora, Artiodactyla and Rodentia are well

Table 1. Wild Life Census

	1990	91	92	93	94
Chital	54	518	254	533	746
Gaur	72	122	176	205	276
Chowsinga	63	149	190	358	264
Neelgai	5	50	61	112	65
Sloth Bear	4	13	32	17	14
Wild boar	141	299	456	653	588
Wild dogs	39	58	100	146	41
Jungle cat	1	6		14	
Peacock	87	321	451	620	840
Jackal	7	19	8	117	11
Sambar	149	296	512	828	846

Tigers and Lepords were observed as under :

Year	Tiger	Leopard
1990-91	2	2
1991-92	4	7
1992-93	8	5
1993-94	9	7
1994-95	10	10

represented; but the endemicity in this region is very poor as only 4 endemic species (5 % of total) are recorded. The conservation status of mammalian species revealed that about 71 % species in this region are covered under Wildlife (Protection) Act 1972 revised 2002 of which about 37 % species are included in Schedule I and II of this act.

Avifaunal diversity is also rich in this National Park. Orders Passeriformes and Ciconiiformes are well represented. Only 3 species were found amongst endangered species and are included in Schedule I, Part III (Birds) of the Wild Life Protection act. Analysis of the faunal profile of Pench National Park reported here is provided in Table 2.

Table 2. Faunal Diversity of Pench National Park.

Group	Order	Suborder	Family	Subfamily	Genera	Species	Subspecies
Mammalia	9	4	12	23	52	24	47
Aves	17	2	50	8	117	170	-
Reptiles	3	3	16	-	38	49	4
Amphibia	1	-	4	-	5	7	-
Pisces	8	-	11	6	23	33	-
Mollusca	5	-	12	6	15	36	-
Cladocera	1	1	6	3	17	19	2
Insecta							
Odonata	1	2	6	13	24	38	-
Mantodea	1	-	2	5	8	9	-
Lepidoptera	1	2	7	-	52	65	-
Orthoptera	1	2	8	11	25	26	-
Centipede	1	-	2	2	6	13	-
Scorpion	1	-	2	2	3	5	-
Spider	1	-	10	-	18	19	-
Solifugi	1	-	1	-	1	1	-

Pench National Park can boast of holding rich reptilian species diversity (49 species) of which 12 are endemic, showing fairly good endemism. Further, large number of reptiles (31 species) have been found included under some or the other schedules of wildlife (Protection) Act, 1972 revised (2002) and enjoy full protection. Although the park area has enough water, providing an ideal habitat for amphibians, only 7 species could be collected. Pench river forms major habitat for fish fauna representing 33 species from 11 families. In the present collection, 10 species were found rarely occurring whereas 7 species occurred occasionally and about 16 species very common.

The arachnid fauna represents 5 species of scorpions belonging to 2 families and 19 species of spiders belonging to 10 families. All the scorpion species and some spiders of the families such as Oonopidae, Palpimanidae, Pisauridae and Theraphosidae are new reports from this National Park. 36 species of freshwater molluscs, mainly Gastropods and Bivalves have been studied. These molluscs play significant role in aquatic ecosystem. Besides this, some species serve as food for many aquatic animals and also for human beings. Some

mollusca are used in making gift articles, producing pearls and also in manufacture of poultry products. 35 species of Centipeds are known from State of Maharashtra of which 13 have been reported from this park.

Thirty-eight species of Odonata have been recorded from Pench of which two species viz. *Copera ciliata* (Selys) and *Copera vittata decanensis* Laidlaw are new records for Maharashtra state,

Cladocera represent 19 species and 2 sub species from Pench National Park. All are first records from Pench National Park of which one species viz. *Alona macronyx* Daday is reported for the first time from Indian waters. The waterbodies of this area harbour mostly Orinetal, Indo-Malayan and Tropical species.

A total of 9 species of Mantodea have been collected from the Pench National Park. All these species are reported for the first time from this area, of which 3 species viz. *Creobroter laevicollis* (Saussure), *Amantis saussurei* (Bolivar) and *Diephobe indica* Giglio-Tos are reported for the first time from Maharashtra. Thus a total of 51 species of mantids are now known to occur in the State of Maharashtra.

ACKNOWLEDGEMENTS

I am grateful to Dr. J.R.B. Alfred, Director, Zoological Survey of India, Kolkata for providing all the facilities for work and constant encouragement to undertake and complete the project on Fauna of Pench National Park. I desire to express my sincere thanks to all the members of survey teams who painstakingly collected the faunal samples, and made it available for further studies. Contribution by the experts and authors of the chapters on different groups of fauna is gratefully acknowledged.

I am grateful to the Chief Wild life Warden and Chief Conservator of Forests, Govt. of Maharashtra for his co-operation in providing permission to conduct surveys and collect faunal samples required for the studies. The authorities of the staff of Forest Department, Pench National Park deserve sincere thanks for providing facilities to the members of the survey parties.

MAMMALIA

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INTRODUCTION

Pench National Park, Dist. Nagpur, Maharashtra State, is one of the five National Parks of Maharashtra State. The Gazette Notification was issued in 1975. It has the unique distinction of being one of the oldest protected areas and some of the localities like Totladoh, Ranidoh etc. in Pench National Park are well known since British regime for harboring excellent wild life, especially tiger. Pench hydroelectric project has been built at Totladoh situated in a picturesque setting on Maharashtra - Madhya Pradesh States border. The catchments and down-stream areas near the dam wall for certain distance are surrounded by a thick forest which is supporting variety of faunal component since last so many decades.

In general, Pench National Park has an area of about 257.26 sq. kms. The National Park is, mostly, clad with beautiful forests predominated by the plant spp. like teak, ain, dhawda, haldu, salai, tiwas, kusum, arjun, mahua, bamboo etc. Vegetation of this region portrays a scenario of southern tropical dry deciduous forest.

Pench National Park exhibits rich floral and faunal diversity. It is practically impossible to cover all the groups in one communication. Hence, it has been decided to focus on Mammals only in this article. Present account is based on the material collected & species sighted during the project period and also on the bibliographic records (Ellerman and Morrison-Scott, 1951, Ellerman, 1961, Prater, 1980, Khajuria and Ghosal, 1981, Tikader, 1983, Bates et al., 1997, Agrawal *et al.* 1992, Corbet and Hill, 1992, Wilson and Reeder, 1993, and many others which have been mentioned at relevant places).

SYSTEMATIC LIST OF MAMMALIAN SPECIES REPORTED FROM PENCH NATIONAL PARK, DIST. NAGPUR, MAHARASHTRA STATE

(*Asterisk indicates species actually collected and/or sighted during project period)

Phylum CHORDATA

Class MAMMALIA

Order INSECTIVORA

Family SORICIDAE
Subfamily CROCIDURINAE

1. *Suncus etruscus* (Savi)
*2. *Suncus murinus murinus* (Lin.)

Order SCANDENTIA
Family TUPAIIDAE
Subfamily TUPAIINAE

- *3. *Anathana ellioti ellioti* (Waterhouse)

Order CHIROPTERA
Suborder MEGACHIROPTERA
Family PTEROPODIDAE
Subfamily PTEROPODINAE

4. *Rousettus l. leschenaulti* (Desmarest)
*5. *Pteropus giganteus giganteus* (Brunnich)
*6. *Cynopterus sphinx sphinx* (Vahl)

Family RHINOPOMATIDAE

7. *Rhinopoma microphyllum* (Brunnich)
8. *Rhinopoma hardwickei* Gray

Family EMBALLONURIDAE

9. *Taphozous m. melanopogon* Temminck
10. *Taphozous l. longimanus* Hardwicke

Family MEGADERMATIDAE

- *11. *Megaderma l. lyra* Geoffroy

Family RHINOLOPHIDAE

12. *Rhinolophus lepidus* Blyth

Family HIPPOSIDERIDAE

13. *Hipposideros fulvus fulvus* Gray
14. *Hipposideros lankadiva indus* (Andersen)
15. *Hipposideros speoris speoris* (Schneider)

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

16. *Scotophilus kuhlii kuhlii* Leach

*17. *Scotophilus heathi heathi* (Horsfield)

18. *Pipistrellus ceylonicus indicus* (Dobson)

*19. *Pipistrellus coromandra coromandra* (Gray)

20. *Pipistrellus tenuis mimus* Wroughton

21. *Pipistrellus d. dormeri* (Dobson)

Family MOLOSSIDAE

22. *Tadarida (Chaerephon) plicata plicata* (Buchanan)

23. *Tadarida aegyptiaca thomasi* Wroughton

Order PRIMATES

Family CERCOPITHECIDAE

Subfamily CERCOPITHICINAE

*24. *Macaca mulatta mulatta* (Zimmermann)

Subfamily COLOBINAE

*25. *Semnopithecus entellus* (Dufresne)

Order PHOLIDOTA

Family MANIDAE

26. *Manis crassicaudata* Gray

Order CARNIVORA

Family CANIDAE

27. *Canis lupus pallipes* Sykes

*28. *Canis aureus* Linn

*29. *Cuon alpinus* (Pallas)

*30. *Vulpes bengalensis* (Shaw)

Family URSIDAE

Subfamily URSINAE

*31. *Melursus ursinus* (Shaw)

Family MUSTELIDAE
Subfamily MELLIVORINAE

32. *Mellivora capensis* (Schreber)

Subfamily LUTRINAE

33. *Lutragale perspicillata* (Geoffroy)

Family VIVERRIDAE
Subfamily VIVERRINAE

*34. *Viverricula indica indica* (Desmarest)

Subfamily PARADOXURINAE

*35. *Paradoxurus h. hermaphroditus* (Pallas)

Family HERPESTIDAE
Subfamily HERPESTINAE

*36. *Herpestes edwardsii edwardsii* (Geoffroy)

37. *Herpestes smithii smithii* Gray

Family HYAENIDAE
Subfamily HYAENINAE

*38. *Hyaena hyaena hyaena* (Linn.)

Family FELIDAE
Subfamily FELINAE

*39. *Felis silvestris ornata* Gray

*40. *Felis chaus affinis* Gray

*41. *Prionailurus bengalensis bengalensis* (Kerr)

Subfamily PANTHERINAE

*42. *Panthera pardus fusca* (Meyer)

*43. *Panthera tigris tigris* (Linn.)

Order ARTIODACTYLA
Family SUIDAE
Subfamily SUINAE

*44. *Sus scrofa cristatus* Wagner

Family TRAGULIDAE

45. *Moschiola meminna* (Erxleben)

Family CERVIDAE

Subfamily CERVINAE

*46. *Axis axis axis* (Erxleben)*47. *Cervus unicolor niger* Blainville

Subfamily MONTIACINAE

*48. *Muntiacus muntjak aureus* (H. Smith)

Family BOVIDAE

Subfamily BOVINAE

*49. *Bos gaurus* Smith*50. *Boselaphus tragocamelus* (Pallas)*51. *Tetracerus quadricornis* (Blainville)

Subfamily ANTILOPINAE

52. *Antelope cervicapra cervicapra* (Linn.)53. *Gazella bennettii* (Sykes)

Order RODENTIA

Suborder SCIUROGNATHI

Family SCIURIDAE

Subfamily RATUFINAE

54. *Ratufa indica centralis* Ryley

Subfamily FUNAMBULINAE

*55. *Funambulus palmarum robertsoni* Wroughton*56. *Funambulus pennanti* Wroughton

Family PTEROMYIDAE

57. *Petaurista philippensis philippensis* (Elliot)

Family MURIDAE

Subfamily MURINAE

*58. *Mus musculus castaneus* Waterhouse

- *59. *Mus booduga booduga* (Gray)
- 60. *Mus phillipsi* Wroughton
- 61. *Vandeleuria oleracea oleracea* (Bennett)
- *62. *Rattus rattus rufescens* (Gray)
- 63. *Rattus rattus narbadae* Hinton
- 64. *Millardia meltada meltada* (Gray)
- *65. *Cremnomys blanfordi* (Thomas)
- 66. *Golunda ellioti ellioti* Gray
- *67. *Bandicota bengalensis bengalensis* (Gray)
- *68. *Bandicota indica indica* (Bechstein)

Subfamily GERBILLINAE

- 69. *Tatera indica indica* (Hardwicke)

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

- *70. *Hystrix indica* Kerr

Order LAGOMORPHA

Family LEPORIDAE

- *71. *Lepus nigricollis nigricollis* Cuvier

SPECIES-WISE BRIEF SYSTEMATIC ACCOUNT OF MAMMALS OF PENCH NATIONAL PARK

Phylum CHORDATA

Class MAMMALIA

Order INSECTIVORA

Family SORICIDAE

Subfamily CROCIDURINAE

1. *Suncus etruscus* (Savi)

1822. *Sorex etruscus* Savi, *Nuovo Giorn. de Letterati, Pisa*, 1 : 60.

1993. *Suncus etruscus* (Savi) By Rainer Hutterer In Wilson & Reeder, *Mammal Species of the World*, : 102.

Common name : English : Savi's Pygmy Shrew, Marathi : Chichundri.

Locality : Since pygmy shrew is known to occur in the adjoining areas in Nagpur Dist., it is assumed that it occurs in Pench National Park area also.

Material Examined/Sightings : Nil.

Distribution : Throughout India.

Status : Not uncommon in the region.

Conservation Status : IUCN : Lower Risk – Least Concern (Nationally) and Data Deficient (Globally) (CAMP Report, 1998).

Remarks : Perhaps the smallest of all the terrestrial mammals in size.

*** 2. *Suncus murinus murinus* (Lin.)**

1766. *Sorex murinus* Linnaeus, *Syst. Nat.*, 12th ed., 1 : 74.

1993. *Suncus murinus murinus* (Linnaeus) By Rainer Hutterer In Wilson & Reeder, *Mammal Species of the World*, : 102.

Common name : English : House shrew, Marathi : Chichundri.

Locality : Forest Rest House at Sillari.

Material Examined/Sightings : Sighted two live specimens in the garden premises near the above-mentioned Rest House.

Distribution : Throughout India.

Status : Common locally.

Conservation Status : IUCN : Lower Risk – Least Concern (Nationally) and Data Deficient (Globally) (CAMP Report, 1998).

Remarks : Large-sized Indian house shrew, being insectivorous in habit, is considered to be a farmer's friend.

Order SCANDENTIA
Family TUPAIIDAE
Subfamily TUPAIINAE

***3. *Anathana ellioti ellioti* (Waterhouse)**

1850. *Tupaia ellioti* Waterhouse, *P.Z.S.* 1849 : 107, pl. Mamm., 13.

1993. *Anathana ellioti* (Waterhouse) By Don E. Wilson In Wilson & Reeder, *Mammal Species of the World* : 131.

Common name : English : Indian/Madras Tree Shrew, Marathi : Zad Chichundri.

Locality Kolitmara area of Pench National Park, Nagpur Dist.

Material Examined/Sightings : Sighting of a live specimen in the above-mentioned locality by ZSI survey party during the project period.

Distribution : Endemic to Southern peninsular India south of Ganges.

Status : Not very uncommon locally.

Conservation Status : IUCN : Lower Risk – Near Threatened (CAMP Report, 1998).

Remarks Always mistaken as a stripeless squirrel or a young one of a mongoose. A most interesting species belonging to a primitive order, *Scandentia*, showing affinities with four different mammalian orders viz : *Insectivora*, *Carnivora*, *Rodentia* and *Primates*. Attempts were even made to place tree shrew in *Primates* (Roonwal and Mohnot, 1977). A good example of a connecting link in evolutionary studies. Hence, detailed studies covering various aspects are strongly recommended.

Order CHIROPTERA
Suborder MEGACHIROPTERA
Family PTEROPODIDAE
Subfamily PTEROPODINAE

4. *Rousettus l. leschenaulti* (Desmarest)

1820. *Pteropus leschenaulti* Desmarest, *Encycl. Meth. Mammal.*, 1 : 110.

1997. *Rousettus l. leschenaulti* (Desmarest) Bates & Harrison, *Bats of The Indian Subcontinent*, : 6-9.

Common name : English : Fulvous fruit bat, Marathi : Watwaghul.

Locality : Mansar close to Pench National Park in Nagpur Dist., Maharashtra State (Bhide & Gupta, 1986 In Bates & Harrison, 1997).

Material Examined/Sightings : None.

Distribution Throughout India.

Status Fairly common locally.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002), *Indian Wildlife (Protection) Act (1972, as amended upto 2002)*. *Schedule* : Schedule V.

Remarks : Bates and Harrison (1997) reports widespread distribution of the species in Asia.

*** 5. *Pteropus giganteus giganteus* (Brunnich)**

1782. *Vespertilio gigantea* Brunnich, *Dyrenes Historie.*, 1 : 45.

1997. *Pteropus g. giganteus* (Brunnich) Bates & Harrison, *Bats of The Indian Subcontinent*, : 12-14.

Common name : English : Indian flying fox, Marathi : Watwaghul.

Locality : Kolutmara, Ghat Pendhari, Pipariya and Sillari areas of Pench National Park, Nagpur Dist.

Material Examined/Sightings : Sighted roosts of this species at the above mentioned localities by ZSI survey parties during the project period.

Distribution : Throughout India.

Status : Not very uncommon locally.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002), *Indian Wildlife (Protection) Act (1972, as amended upto 2002)* Schedule : Schedule V; CITES Appendix : Appendix II.

Remarks : Flying fox in some places in India is considered to be a pest by farmers. Taxonomically *P. giganteus* may prove to be conspecific with *P. Vampyrus* (Corbet & Hill, 1992). If accepted, *vampyrus* is the prior name and may attract attention of law of priority.

***6. *Cynopterus sphinx sphinx* (Vahl)**

1797. *Vespertilio sphinx* Vahl, *Skr. Nat. Selsk Copenhagen*, 4 (1) : 123.

1997. *Cynopterus s. sphinx* (Vahl) Bates & Harrison, *Bats of The Indian Subcontinent*, : 18-22.

Common name : English : Short-nosed fruit bat, Marathi : Watwaghul.

Locality : Kolutmara and Sillari areas of Pench National Park, Nagpur Dist.

Material Examined/Sightings : Sighted a few examples during evening hours in the above-mentioned localities.

Distribution : Throughout India.

Status : A common species locally.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002), *Indian Wildlife (Protection) Act (1972, as amended upto 2002)*. Schedule : Schedule V.

Remarks : Prater (1980) reports that its usefulness as a cross-pollinator and seed dispersal agent is perhaps offset by its destructiveness in orchards.

Family RHINOPOMATIDAE

7. *Rhinopoma microphyllum* (Brunnich)

1782. *Vespertilio microphyllus* Brunnich, *Dyrenes Historie og Dyre-Samlingen udi Universetets Natur-Theater*, : 50 : pl.6.

1997. *Rhinopoma microphyllum* Brunnich, Bates & Harrison, *Bats of The Indian Subcontinent*, : 33-35.

Common name : English : Mouse-tailed bat, Marathi : Watwaghul.

Locality : Nagpur District (Sinha, 1980 in Bates and Harrison, 1997) which includes Pench National Park.

Material Examined/Sightings : None.

Distribution : Throughout North-Western and Central India (Bates and Harrison, 1997).

Status : Widespread in distribution. Not a threatened species locally (Bates & Harrison, 1997).

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : Corbet and Hill (1992) report that Qumsiyeh & Jones (1986) have reviewed the taxonomic status of *Rhinopoma* sp.

8. *Rhinopoma hardwickei* Gray

1831. *Rhinopoma hardwickei* Gray, *Zool. Misc.* : 37.

1997. *Rhinopoma hardwickei* Gray, Bates & Harrison, *Bats of The Indian Subcontinent* : 35-37.

Common name : English : Mouse-tailed bat, Marathi : Watwaghul.

Locality : Since the species has been reported from nearby areas of Nagpur Dist., Madhya Pradesh and Andhra Pradesh, it has been assumed that the species is occurring in Pench National Park also.

Material Examined/Sightings : None.

Distribution : Throughout India (Bates and Harrison, 1997).

Status: Not a very common species locally.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : Corbet and Hill (1992) report that Qumsiyeh & Jones (1986) have reviewed the taxonomic status of *Rhinopoma hardwickei*.

Family EMBALLONURIDAE

9. *Taphozous m. melanopogon* Temminck

1841. *Taphozous melanopogon* Temminck, *Monographies de mammalogietome*, 2 : 287.

1997. *Taphozous melanopogon* Temminck Bates & Harrison, *Bats of The Indian Subcontinent*, : 42-44.

Common name : English : Black-bearded tomb bat, Marathi : Watwaghul.

Locality : Nagpur Dist. (Bates and Harrison, 1997) which includes Pench National Park.

Material Examined/Sightings : None.

Distribution : Throughout India.

Status : A common species locally.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : Bates *et al.* (1994 b) report Champba Baoli at Mandu as super roost where they could notice thousands of individuals.

10. *Taphozous l. longimanus* Hardwicke

1820. *Taphozous longimanus* Hardwicke, *Trans. Linn. Soc. Lond.*, : 14 : 525.

1997. *Taphozous l. longimanus* Hardwicke, Bates & Harrison, *Bats of The Indian Subcontinent*, : 39-42.

Common name : English : Long-winged tomb bat/Long-armed Sheath-tailed Bat; Marathi : Watwaghul.

Locality : Nagpur Dist. (Bates and Harrison, 1997) which includes Pench National Park.

Material Examined/Sightings : None.

Distribution : Throughout India (Bates and Harrison,1997).

Status : Bates and Harrison (1997) have listed many localities from India, the species appears to be common.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : Bates and Harrison (1997) report that *T. longimanus* appears to be unable to compete with the other members of the genus such as *T. melanopogon* and/or *T. perforatus* and is not found in the same diurnal roosts.

Family MEGADERMATIDAE

*11. *Megaderma l. lyra* Geoffroy

1810. *Megaderma lyra*, Geoffroy E., *Ann. Mag. Hist. Nat. Paris*, 15 : 190.

1997. *Megaderma l. lyra*, Geoffroy E., Bates & Harrison, *Bats of The Indian Subcontinent*, : 51-54.

Common name : English : Indian false vampire bat; Marathi : Watwaghul.

Locality : Pipariya and Ranidoh areas of Pench National Park, Nagpur Dist.

Material Examined/Sightings : Sighting of roots in deserted quarters at Ranidoh and Pipariya.

Distribution : Throughout India (Bates and Harrison, 1997).

Status : Bates and Harrison (1997) have listed number of localities from India, the species appears to be fairly common in the distributional range.

Conservation Status : IUCN : Least concern (CAMP Report, 2002).

Remarks : *Megaderma l. lyra* has been kept here under genus *Megaderma* on the basis of the observations made by Wilson and Reeder (1993), Bates and Harrison (1997) and Agrawal *et al.* (1992).

Family RHINOLOPHIDAE

12. *Rhinolophus lepidus* Blyth

1844. *Rhinolophus lepidus* Blyth, : 486 : Calcutta, but see Das (1986) Bates and Harrison, 1997)

1997. *Rhinolophus luctus* Temminck, Bates & Harrison, *Bats of The Indian Subcontinent*, : 73-74.

Common name : English : Wooly or Great Eastern Horseshoe bat; Marathi : Watwaghul.

Locality : Balaghat Forests in M.P. adjacent to Nagpur Dist. border with M.P.

Material Examined/Sightings : Nil.

Distribution : Throughout India (Corbet and Hill, 1992).

Status : Bates and Harrison (1997) has reported number of collection localities throughout India. However, the population status of the species appears to be not very common.

Conservation Status : IUCN : Near Threatened (CAMP Report, 2002).

Remarks : Though worldwide in distribution, the species appears to be secretive in nature.

Family HIPPOSIDERIDAE

13. *Hipposideros fulvus fulvus* Gray

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

1997. *Hipposideros fulvus fulvus* Gray, Bates & Harrison, *Bats of the Indian Subcontinent* : 86-88.

Common name: English : Fulvous Leaf-nosed bat; Marathi : Watwaghul.

Locality : Nagpur Dist. (Bates and Harrison, 1997) which includes Pench National Park.

Material Examined/Sightings : Nil.

Distribution : Throughout India (Corbet and Hill, 1992).

Status : Bates and Harrison (1997) have listed number of isolated collection localities from India. The populations are geographically widespread and common but not threatened.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : According to Bates and Harrison (1997) the species is endemic to the Indian subcontinent except for a marginal population in Eastern Afghanistan.

Remarks : *H. galeritus* specimens collected from Indian localities have been referred to as *Hipposideros galeritus brachyotus* by Corbet and Hill (1992) and Bates and Harrison (1997).

14. *Hipposideros lankadiva indus* (Andersen)

1918. *Hipposideros indus* Andersen, *Annals. Mag. Nat. Hist.*, 2 : 382

1997. *Hipposideros lankadiva indus* (Andersen), Bates & Harrison, *Bats of The Indian Subcontinent*, : 99-100.

Common name : English : Kelaart's Leaf-nosed bat; Marathi : Watwaghul.

Locality : Since the species has been reported from the areas like Chandrapur (Bates and Harrison, 1997) near Nagpur Dist. (which includes Pench National Park), it has been assumed that the species is occurring in Pench National Park also.

Material Examine/Sightings : None.

Distribution : Central India (Corbet and Hill, 1992), Endemic to India.

Status : Bates and Harrison (1997) have listed number of collection localities in Central India.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : *Hipposideros lankadiva indus* is a high flyer and may be seen in the early evening in the company of *Pipistrellus* spp. It is also known to share the roost with *Taphozous melanopogon* and *Megaderma lyra* (Khajuria and Ghoshal, 1984).

*15. *Hipposideros speoris speoris* (Schneider)

1800. *Vespertilio speoris* Schneider, In Schreber, J. C. D. *Die Saugerthiere*, : 59 b.

1997. *Hipposideros speoris speoris* (Schneider), Bates & Harrison, *Bats of The Indian Subcontinent*, : 93-96.

Common name : English : Schneider's Leaf-nosed bat; Marathi : Watwaghul.

Locality : Pench river, Pench National Park.

Material Examined/Sightings : ZSI survey party collected one specimen during the project period.

Distribution : Throughout India (Corbet and Hill, 1992).

Status : Bates and Harrison (1997) have listed number of isolated but large colonies in India.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : *Hipposideros speoris speoris* (Schneider) is a low flyer close to ground with skilled slow flights. It is also known to share the roost with *H. fulvus* and *Megaderma lyra* (Bates and Harrison, 1997).

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

16. *Scotophilus kuhlii kuhlii* Leach

1821. *Scotophilus kuhlii* Leach, *Trans. Linn. Soc. Lond.*, 13 : 72.

1992. *Scotophilus kuhlii kuhlii* Leach Corbet and Hill, *The Mammals of the Indomalayan Region*, : 129.

Common name : English : Asiatic Lesser Yellow House bat; Marathi : Watwaghul.

Locality : Nagpur Dist. in Which Pench National Park is located (Bates and Harrison, 1997).

Material Examined/Sightings : None.

Distribution : Throughout India (Bates and Harrison, 1997).

Status : Bates and Harrison (1997) have listed number of collection localities in India. According to them the distribution is worldwide and status fairly common.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : *Scotophilus kuhlii kuhlii* Leach is one of the first bats to appear in the evening with slow and steady flights. The colonies are characterized by their unpleasant smell.

*17. *Scotophilus heathi heathi* (Horsfield)

1831. *Nycticejus heathi* Horsfield *Proc. Zool. Soc. Lond.*, : 113.

1997. *Scotophilus heathi heathi* Horsfield Bates & Harrison, *Bats of The Indian Subcontinent*, : 146-149.

Common name : English : Asiatic Greater Yellow House bat; Marathi : Watwaghul.

Locality : Sillari and Kolutmara Rest Houses and around, Pench National Park.

Material Examined/Sightings : Collected four specimens from the above-mentioned localities during the project period.

Distribution : Throughout India (Bates and Harrison, 1997).

Status : Bates and Harrison (1997) have listed number of collection localities in India. According to them the distribution is fairly wide and status apparently common.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : *Scotophilus kuhlii kuhlii* Leach and *Scotophilus heathi heathi* (Horsfield) possess overlapping distribution.

18. *Pipistrellus ceylonicus indicus* (Dobson)

1878. *Vesperugo indicus* Dobson, *Cat. Chiroptera Br. Mus.*, : 222.

1997. *Pipistrellus ceylonicus indicus* (Dobson), Bates & Harrison, *Bats of The Indian Subcontinent*, : 177-179.

Common name : English : Pipistrelle bat; Marathi : Pakoli.

Locality : Nagpur Dist. including Pench National Park (Bates and Harrison, 1997).

Material Examined/Sightings : None.

Distribution : Throughout India (Bates and Harrison, 1997).

Status : Bates and Harrison (1997) have listed large number of collection localities in India. According to them the distribution is fairly wide and status apparently common.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : Corbet and Hill (1992) and Bates and Harrison (1997) have upheld Lal's (1984) view of treating Indian *Pipistrellus ceylonicus* populations as *Pipistrellus ceylonicus indicus*.

19. *Pipistrellus coromandra coromandra* (Gray)

1838. *Scotophilus coromandra* Gray, *Mag. Zool. Bot.*, 2 : 498.

1997. *Pipistrellus coromandra coromandra* (Gray) Bates & Harrison, *Bats of The Indian Subcontinent*, : 172-174.

Common name : English : Coromandel Pipistrelle, Indian Pipistrelle, Little Indian bat;
Marathi : Pakoli.

Locality : The species is known to occur in the adjoining areas of Pench Tiger Reserve, Balaghat, and Jabalpur in M.P (Harshey and Kailash Chandra, 2001).

Material Examined/Sightings : None.

Distribution : Throughout India (Corbet and Hill, 1992).

Status : Bates and Harrison (1997) have listed number of collection localities in India. According to them the distribution is fairly wide and status apparently common in India.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : The flight of *P. coromandra* is rather slow, fluttering and erratic. It hunts around big trees and flies amongst the foliage.

20. *Pipistrellus tenuis mimus* Wroughton

1899. *Pipistrellus mimus* Wroughton. *J. Bombay nat. Hist. Soc.*, 12 : 722.

1997. *Pipistrellus tenuis mimus* Wroughton, Bates and Harrison, *Bats of the Indian Subcontinent*, : 174-177.

Common name : English : Least Pipistrelle, Indian Pygmy Pipistrelle, Indian Pygmy bat;
Marathi : Pakoli.

Locality : The species is known to occur in nearby areas like Chikhalda, and Chandrapur in Maharashtra State and Hoshangabad, Jabalpur and Satpura National Park in M.P. (Bates and Harrison, 1997 and Harshey and Kailash Chandra, 2001).

Material Examined/Sightings : None.

Distribution : Throughout India (Corbet and Hill, 1992).

Status : Bates and Harrison (1997) have listed number of collection localities in Indian subcontinent. According to them the distribution is fairly wide and status apparently common in India.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : Sinha (1980), Corbet and Hill (1992) and Bates and Harrison (1997) have considered the specimens from India as *P. tenuis mimus*.

21. *Pipistrellus d. dormeri* (Dobson)

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

1997. *Pipistrellus d. dormeri* Dobson Bates & Harrison, *Bats of the Indian Subcontinent*, : 185-187.

Common name : English: Dormer's bat; Marathi : Pakoli.

Locality : The species is known to occur in nearby areas like Chikhald, and Chandrapur in Maharashtra State and Hoshangabad, Jabalpur and Satpura National Park in M.P. (Bates and Harrison. 1997 and Harshey and Kailash Chandra, 2001).

Material Examined/Sightings : None.

Distribution : Throughout India (Corbet and Hill, 1992).

Status : Bates and Harrison (1997) have listed number of collection localities in Indian subcontinent. According to them the distribution is fairly wide and status apparently common in India.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : The individuals of this species fly with the rapid wing beats with steady glides. They hunt close to their roosts.

Family MOLOSSIDAE

22. *Tadarida (Chaerephon) plicata plicata* (Buchanan)

1800. *Vespertilio plicatus* Buchanan *Trans. Linn. Soc. Lond.*, **5** : 261, pl. 13.

1997. *Tadarida (Chaerephon) plicata plicata* (Buchanan) Bates & Harrison, *Bats of The Indian Subcontinent* : 112-114.

Common name : English : Wrinkle-lipped Free-tailed bat; Marathi : Watwaghul.

Locality : The species is known to occur in nearby areas like Mandla, Balaghat and Kanha National Park in M.P. (Harshey and Kailash Chandra, 2001).

Material Examined/Sightings : None.

Distribution : Throughout India (Corbet and Hill, 1992).

Status : Bates and Harrison (1997) have reported the distribution of the species world-wide, though very little is known about its population status in India. Moreover, number of the colonies located in India are very limited.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : The individuals of this species are strong, swift and high flyers. They fly with their ears facing downwardly.

23. *Tadarida aegyptiaca thomasi* Wroughton

1919. *Tadarida thomasi* Wroughton *J. Bombay nat. Hist. Soc.*, **26** : 732.

1997. *Tadarida aegyptiaca thomasi* Wroughton Bates & Harrison, *Bats of The Indian Subcontinent* : 110-112.

Common name : English : Egyptian Free-tailed bat; Marathi : Watwaghul.

Locality : The species is known to occur in nearby areas like Chandrapur in Maharashtra State and Mandu, Burhanpur and Khandwa in M.P. (Harshey and Kailash Chandra, 2001).

Material Examined/Sightings : None.

Distribution : Throughout India (Corbet and Hill, 1992).

Status : Bates and Harrison (1997) have reported the distribution of the species as worldwide with number of colonies in India. As per these authors the status of the species is common and widespread.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002).

Remarks : The individuals of this species are strong, swift and high flyers. They fly with their ears facing downwards. They emerge out of their roosts about half an hour after the sunset. They hunt far away from the roosting sites at the height of 31 metres to 77 metres (Bates and Harrison, 1997).

Order PRIMATES

Family CERCOPITHECIDAE

Subfamily CERCOPITHICINAE

*24. *Macaca mulatta mulatta* (Zimmermann)

1780. *Cercopithecus mulatta* Zimmerman, *Geogr. Gesch. Mensch.*, 2 : 195.

1992. *Macaca mulatta mulatta* (Zimmerman), Agrawal, V. C. *et al.*, *Fauna of West Bengal*, Part 1, ZSI, Publ., Calcutta, : 89.

Common name : English : Rhesus Macaque; Marathi : Makad/Lal Makad.

Locality : Ramtek, Totladoh, Salama and Ambakhori areas of Pench National Park, Maharashtra State.

Material Examined/Sightings : Sighted small troops in the above mentioned localities by ZSI Survey parties during the project period.

Distribution : India North of Godavari river (Fooden *et al.*, 1981).

Status : Roonwal and Mohnot (1977) and Prater (1980) have reported the status of the species as common and widespread in North India.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002), *Indian Wildlife (Protection) Act* (1972, as amended upto 2002) *Schedule* : II Part : I *CITES* : Appendix : II.

Remarks : The species is involved in domestic as well as international trade for pharmaceutical purpose. There is an alarming increase in number of cases resulting in capture and export of live monkeys for experimental purposes also.

Subfamily COLOBINAE

*25. *Semnopithecus entellus* (Dufresne)

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

1989. *Semnopithecus entellus entellus* (Dufresne), Groves C. P. *A Theory of Human and Primate Evolution* Oxford Univ. Press N.Y. 375 pp. In *Mammal Species of the World* By Wilson D. R. and Reeder 1993 (Eds). Smithsonian Institution Press Washington, : 273.

Common name : English : Common or Hanuman Langur; Marathi : Vanar.

Locality : Totladoh, Salama, Ambakhori etc. areas in Pench National Park, Maharashtra State.

Material Examined/Sightings : Sighted about 12 troops at different times in Pench National Park by ZSI Survey parties during the project period.

Distribution : Practically whole of India.

Status : Roonwal and Mohnot (1977) and Prater (1980) have reported the status of the species as common and widespread in peninsular India.

Conservation Status : IUCN : Least Concern (CAMP Report, 2002), *Indian Wildlife (Protection) Act* (1972, as amended upto 2002) *Schedule* : II Part : I *CITES*: Appendix : I.

Remarks : The species is known to be worshipped by Hindus. Napier (1985) (In Corbet and Hill, 1992) reviewed the taxonomy of the species under Subfamily *Colobinae* and separated previously known *Presbytis entellus* as *Semnopithecus entellus* on the basis Head and Body and Tail length and colour of Neonatal coat.

Order PHOLIDOTA

Family MANIDAE

26. *Manis crassicaudata* Gray

1827. *Manis crassicaudata* Gray, in Griffith's *Cuvier Animal. Kingd.*, 5 : 282.

1993. *Manis crassicaudata* Gray By Duane A. Schlitter In Wilson & Reeder, *Mammal Species of the World*, : 415.

Common name : English : Indian Pangolin; Marathi : Khavalya Manjar.

Locality : The species has been known to occur in nearby areas of Pench National Park in Maharashtra State and Madhya Pradesh.

Material Examined/Sightings : None.

Distribution : Peninsular India.

Status : Chakraborty *et al.* (2002) have reported sporadic occurrence of the species throughout the Indian plains from lower hills of Himalayas to Kanyakumari.

Conservation Status : IUCN : Lower risk – near threatened (Nationally) and Data Deficient (Globally) (CAMP Report, 1998), *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : I Part : I CITES : Appendix : II, Red Data Book (National, 1994) : Vulnerable.

Remarks : The species is known to be hunted for domestic trade of body parts for medicinal and other usages.

Order CARNIVORA

Family CANIDAE

27. *Canis lupus pallipes* Sykes

1827. *Canis lupus pallipes* Sykes, *Proc. Zool. Soc. Lond.*, : 101.

1992. *Canis lupus pallipes* Sykes, Corbet and Hill, *The Mammals of the Indomalayan region*, : 186-188.

Common name : English : Indian Wolf; Marathi : Landga.

Locality : Known to occur in adjoining areas of Pench Tiger Reserve in M. P.

Material Examined/Sightings : None.

Distribution : South of Himalayas through the desert zone to the dry open country in peninsular India.

Status : CAMP Report (1998) has reported that though number of wolf populations have been reported from many localities, there is a general decline in its actual population in the country. Agrawal *et al.* (1992) have reported the status of the species as rare in peninsular India.

Conservation Status : Red Data Book (National, 1994): Vulnerable, IUCN : Lower risk-near threatened (Nationally) and Data Deficient (Globally) (CAMP Report, 1998), *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : I, Part I, CITES : Appendix : I.

Remarks : The species is known to be hunted for trade of fur and body parts in domestic as well as international markets. The farmers to protect their livestock from predation are also killing it.

***28. *Canis aureus* Linn.**

1758. *Canis aureus* Linnaeus, *Systema naturae* Vol., 1 st, 10th ed. Holmia : 40.

1992. *Canis aureus* Linnaeus, Corbet and Hill, *The Mammals of the Indomalayan region*, : 188.

Common name : English : Asiatic Jackal, Golden Jackal, Jackal; Marathi : Kolha.

Locality : Gawalighat area of Pench National Park, Maharashtra State.

Material Examined/Sightings : Sighted number of pugmarks in the above mentioned locality by ZSI survey party during the project period.

Distribution : Practically whole of India.

Status : CAMP Report (1998) has reported that though number of jackal populations has been reported from many localities, there is a general decline in its actual population in the country due to threat from hunting, poisoning and trade for parts.

Conservation Status : IUCN : Lower risk – least concern (Nationally) and Data Deficient (Globally) (CAMP Report, 1998), *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule : II Part : II CITES : Appendix : III.*

Remarks : The jackal is hunted for trade of fur and body parts in domestic as well as international markets. The farmers to protect their livestock from predation are also killing it. As per the census conducted by Forest Dept. authorities, there were 11 jackals in Pench National Park in 1994.

***29. *Cuon alpinus* (Pallas)**

1811. *Canis alpinus* Pallas, *zoogr. Ross. Asiat.*, 1

1993. *Cuon alpinus* (Pallas), By Wozencraft In Wilson & Reeder, *Mammal Species of the World*, : 282.

Common name : English : Indian Wild Dog, Dhole; Marathi : Kolsum, Dhole.

Locality : Gawalighat, Ranidoh, Ghatpendhari areas in Pench National Park, Dist. Nagpur, Maharashtra State.

Material Examined/Sightings : Sighted number of small packs at different times in the above mentioned localities by ZSI survey parties during the project period.

Distribution : Practically whole of India.

Status : CAMP Report (1998) has reported that though number of wild dog populations have been reported from many localities, there is a general decline in its actual population in the country due to threat from declining population of prey species and loss of habitats.

Conservation Status : IUCN : Lower risk – near threatened (CAMP Report, 1998), *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule : II Part : I *CITES* : Appendix : II.

Remarks : As per the census conducted by Forest Dept. authorities, there were 41 wild dogs in Pench National Park in 1994.

***30. *Vulpes bengalensis* (Shaw)**

1800. *Canis bengalensis* Shaw, *Genl. Zool.*, 1, 2 : 300.

1992. *Vulpes bengalensis* (Shaw), Corbet and Hill, *The Mammals of the Indomalayan region*, : 189-190.

Common Name : English : Bengal Fox Marathi : Khokad.

Locality : Sillari area in Pench National Park, Dist. Nagpur, Maharashtra State.

Material Examined/Sightings : Sighted one individual in the above mentioned locality by the ZSI survey party during the project period.

Distribution : Throughout India.

Status : The species has been reported from number of localities in India, however the populations are fragmented; IUCN Criteria proposed as per the CAMP Report (1998) : Lower risk-near threatened (Nationally), Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule : II Part II, *CITES* : Appendix III.

Remarks : The species faces threat for its survival from illegal trade for its fur, from hunting, from fragmentation of populations and habitat destructions.

Family URSIDAE

Subfamily URSINAE

***31. *Melursus ursinus* (Shaw)**

1792. *Bradypus ursinus* Shaw, *Nat. Misc.*, 2 (unpaged), pls. 58–59

1993. *Melursus ursinus*(Shaw), By Wozencraft In Wilson & Reeder, *Mammal Species of the World* : 337.

Common Name : English: Sloth bear; Marathi: Aswal.

Locality : Bodhaljhira and Ghatpendhari areas of Pench National Park, Maharashtra State.

Distribution : Throughout India.

Status : The species has been reported from many localities in India, however, the populations are fragmented; *IUCN Criteria proposed as per the CAMP Report (1998)* : Vulnerable (Nationally), Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule I Part I, *CITES* : Appendix : I.

Remarks : For generic taxonomic status see remarks of Corbet and Hill (1992) and Wilson and Reeder (1993) under Family Ursidae. There is a considerable disagreement over the relationship at generic level and the taxonomic placements of the species in the *Ursidae* genera. Illegal wildlife trade of the body parts is a recent and serious threat in addition to the threat due to loss of habitat and fragmentary populations. As per the census conducted by Forest Dept. authorities, there were 24 sloth bears in Pench National Park in 1994.

Family MUSTELIDAE

Subfamily MELLIVORINAE

32. *Mellivora capensis* (Schreber)

1776. *Viverra capensis* Schreber, *Saugeth*, pl., 125.

1993. *Mellivora capensis* (Schreber) By Wozencraft In Wilson & Reeder, *Mammal Species of the World*, : 315.

Common Name : English : Ratel or Honey Badger; Marathi : Chandi Aswal.

Locality : Known to occur in the nearby areas like Nawegaon National Park in Maharashtra State.

External Distribution : Throughout India.

Status : Though the distribution is wide, the species has been reported from limited localities in India due to its secretive habits, preferential habitats and nocturnal behavior. Moreover, the populations are fragmented; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near threatened (Nationally), Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule I Part I, *CITES* : Appendix : Nil; *Red Data Book (National, 1994)* : Insufficiently Known.

Remarks : Nil.

Subfamily LUTRINAE

33. *Lutragale perspicillata* (Geoffroy)

1826. *Lutra perspicillata* I. Geoffroy, *Dict. Class Hist. Nat.* 9 : 519.

1993. *Lutragale perspicillata* Geoffroy By Wozencraft In Wilson & Reeder, *Mammal Species of the World* : 313.

Common Name : English : Smooth-coated Indian Otter/ Smooth Indian Otter; Marathi : Pan Manjar.

Locality : Otters are known to occur in the nearby areas of Nawegaon National Park in Maharashtra State.

Distribution : Throughout India.

Status : Though the distribution is wide the populations are fragmented. Once very common in distribution, but now its population has greatly reduced due to the destruction of its habitat.; *IUCN Criteria proposed as per the CAMP Report (1998)* : Not Evaluated (Nationally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule II Part II; *CITES* : Appendix : II.

Remarks : Nil.

Family VIVERRIDAE

Subfamily VIVERRINAE

***34. *Viverricula indica indica* (Desmarest)**

1817. *Viverra indica* Desmarest, *Nouv. Dict. Hist. Nat.*, Paris, 7 : 170.

1992. *Viverricula indica indica* Desmarest Corbet and Hill, *The Mammals of the Indomalayan region*, : 206.

Common Name : English : Small Indian civet; Marathi : Jowadi Manjar.

Locality : Small Indian civet was sighted in Ghatpendhari region in Pench National Park by the ZSI Survey parties during the project period.

Distribution : Throughout India excluding deserts.

Status : Though the distribution is wide and the populations are many, they are fragmented. Once very common in distribution, now its population is declining due to the destruction of its habitat, hunting for medicine and local illegal trade for body parts; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near threatened (Nationally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule II Part II; *CITES* : Appendix : III.

Remarks : The care of the young ones is left entirely to the mother. The civets can easily be tamed. Some are kept under domestication for the regular extraction of the secretion from the scent glands.

Subfamily PARADOXURINAE

***35. *Paradoxurus h. hermaphroditus* (Pallas)**

1777. *Viverra hermaphrodita* Pallas, In Schreber, *Die Saugethiere*, 3 : 426.

1992. *Paradoxurus hermaphroditus hermaphroditus* (Pallas), Corbet and Hill, *The Mammals of the Indomalayan region*, : 207-208.

Common Name : English : Common Palm civet or Toddy cat; Marathi: Ud Manjar.

Locality : Common Palm civet or Toddy cat was sighted in Totladoh and Bukharikund regions in Pench National Park by the ZSI Survey parties during the project period.

Distribution : Throughout India excluding deserts.

Status : Though the distribution is wide and the populations are many, they are fragmented. They are fairly common in distribution, but, its population is declining due to the destruction of its habitat, hunting for medicine and local illegal trade for body parts; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule II Part II; *CITES* : Nil; *Red Data Book* (International, 1996) : Vulnerable.

Remarks : The young ones are born in all seasons and are usually offered shelter in tree holes or under a rock. The civets can easily be tamed. Some are kept under domestication for the regular extraction of the secretion from the scent glands.

Family HERPESTIDAE

Subfamily HERPESTINAE

***36. *Herpestes edwardsii edwardsii* (Geoffroy)**

1818. *Ichneumon edwardsii* E. Geoffroy, *Descr. Egypte*, : 2 : 139.

1993. *Herpestes edwardsii edwardsii* (E. Geoffroy), By Wozencraft In Wilson & Reeder, *Mammal Species of the World*, : 305.

Common Name : English : Indian Grey Mongoose; Marathi : Mungus.

Locality : Indian gray mongoose was sighted at places like Sillari, Totaldoh, Ghatpendhari etc. at different times in Pench National Park by ZSI Survey parties during the project period.

Distribution : Throughout India.

Status : Distribution of mongoose is wide and populations are many. Fairly common; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule II Part II, *CITES* : Appendix : III.

Remarks : The mongoose can easily be tamed. However threat to its population due to hunting for medicine, trophies and food and also for local illegal trade for body parts for making articles like brushes etc. cannot be ruled out.

37. *Herpestes smithii smithii* Gray

1818. *Herpestes smithii* Gray, *Charlesw. Mag. N. H.*, 1 : 578.

1993. *Herpestes smithii smithii* Gray, By Wozencraft In Wilson & Reeder, *Mammal Species of the World*, : 306.

Common Name : English : Indian ruddy mongoose; Marathi : Mungus.

Locality : Known to occur in Pench Tiger Reserve in M. P.

Distribution : Throughout the forested areas of Central and Southern India.

Status : Distribution of mongoose is wide and populations are many. Being a forest dwelling species, ruddy mongoose is rarely seen; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule II Part II; *CITES* : Appendix : III.

Remarks : Ruddy mongoose is also killed for body parts for making articles like brushes, trophies etc. for local and domestic trade.

Family HYAENIDAE

Subfamily HYAENINAE

*38. *Hyaena hyaena hyaena* (Linnaeus)

1758. *Canis hyaena* Linnaeus, *Syst. Nat.*: 10th Ed. 1 : 40.

1992. *Hyaena hyaena hyaena* (Lin.), Agrawal, V. C. *et al.*, *Fauna of West Bengal*, Part 1, ZSI, Publ., Calcutta, : 107.

Common Name : English: Striped Hyaena; Marathi : Taras.

Locality : Sighting of hyaena in Central Phulzari and Ghatpendhari areas of Pench National Park has been reported by the ZSI survey parties during the project period.

Distribution : Throughout India.

Status : Not very uncommon in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near threatened (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule III; *CITES* : Appendix : No.

Remarks : Hyaena is killed for fur and body parts for local, domestic and international trade. Pradhan (1999) has reported illegal trade of hyaena's fur. Inclusion of hyaena in CITES Appendix is strongly recommended.

Family FELIDAE

Subfamily FELINAE

***39. *Felis silvestris ornata* Gray**

1777. *Felis ornata* Gray, *Illustr. Ind. Zool.*, : 1 : pl. 2.

1993. *Felis silvestris ornata* Gray, By Wozencraft In Wilson & Reeder, *Mammal Species of the World*, : 290.

Common Name : English : India Desert Cat; Marathi : Jangli Manjar.

Locality : Koltimara and Central Phulzari areas in Pench National Park, Maharashtra State.

Distribution : Throughout India.

Status : Rare in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near threatened (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule I Part I (Desert Cat : *Felis libyca* = *Felis silvestris ornata*); *CITES : Appendix* : II; *Red Data Book (National, 1994)* : Endangered.

Remarks : Desert cat is also hunted for fur and body parts for local and domestic trade. *Felis libyca* has been merged in *Felis silvestris*.

***40. *Felis chaus affinis* Gray**

1830. *Felis affinis* Gray, *Illustr. Ind. Zool.*, : 1 : pl.3.

1993. *Felis chaus affinis* Gray, By Wozencraft In Wilson & Reeder, *Mammal species of the World*, : 289-290.

Common Name : English : India Jungle Cat; Marathi : Ran Manjar, Baul.

Locality : Jungle cat has been sighted in Ranidoh and Saddle Dam areas of Pench National Park by ZSI survey parties and Forest Dept. authorities during the project period.

Distribution : Throughout India.

Status : Not uncommon in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near threatened (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule II Part II; *CITES : Appendix* : II.

Remarks : Jungle cat is also killed for fur and body parts for local and domestic trade. Some tribals kill them for food. Agrawal *et al.* (1992) and Wilson and Reeder (1993) retained subspecific status of *Felis chaus affinis*. Though the status of *Felis chaus affinis* has been retained in the present studies on the basis of these observations, revisionary taxonomic studies of the species is strongly recommended to sort out proper placement of the subspecies.

41. *Prionailurus bengalensis bengalensis* (Kerr)

1792. *Felis bengalensis* Kerr, Anim. Kingd., : 151.

1992. *Prionailurus bengalensis bengalensis* Kerr, Corbet and Hill, *The Mammals of the Indomalayan region*, : 222.

Common Name : English : Leopard Cat; Marathi : Wagati.

Locality : Known to occur in Pench National Park, Maharashtra State.

Distribution : Throughout India.

Status : Rare at least in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near threatened (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule I Part I; *CITES* : Appendix : I; *Red Data Book (National, 1994)* : Vulnerable.

Remarks : Leopard cat is also killed for fur and body parts for local and domestic trade. Some tribals kill them for preparation of trophies. These beautiful cats are also trapped live for commercial trade. Earlier *Prionailurus* was synonymised in Genus *Felis*. However most of the taxonomists have chosen to emphasize their distinctiveness by placing them in monotypic genus.

Subfamily PANTHERINAE

*42. *Panthera pardus fusca* (Meyer)

1794. *Felis fusca* Meyer, Zool. Ann., 1 : 394.

1993. *Panthera pardus fusca* Meyer, By Wozencraft In Wilson & Reeder, *Mammal Species of the World*, : 298.

Common Name : English: Leopard/Panther; Marathi : Bibtya Wagh.

Locality : Pugmarks of leopard were sighted in Kolitmara and Gawalighat areas of *Pench National Park* by the ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Throughout India.

Status : Not uncommon in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Vulnerable (Nationally) and Data Deficient (Globally); *Indian Wildlife*

(Protection) Act (1972, as amended upto 2002) Schedule : Schedule I Part I; CITES : Appendix : I; Red Data Book (National, 1994) : Vulnerable.

Remarks : Large number of leopard skins are involved in the illegal wildlife trade. Leopard is killed for fur and body parts trade in local, domestic and international market for various reasons. These beautiful cats are also trapped live for commercial trade. As per the leopard census conducted in Pench National Park by Forest Dept. authorities in 1994 the leopard population was around 10.

***43. *Panthera tigris tigris* (Linn.)**

1758. *Felis tigris* Linnaeus, *Syst. Nat.*: 10th Ed., : 41.

1993. *Panthera tigris tigris* Linnaeus, By Wozencraft In Wilson & Reeder, *Mammal Species of the World*, : 298.

Common Name : English : Royal Bengal Tiger/Tiger; Marathi : Dhanya Wagh/Pateri Wagh.

Locality : Tiger has been sighted in Gawalighat and Ranidoh areas, while fresh pugmarks were sighted in Bodhaljhira and Phulzari areas of Pench National Park by the ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Throughout India except the North-Western region.

Status : Not uncommon in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Endangered (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule I Part I; *CITES : Appendix : I; Red Data Book (National, 1994)* : Vulnerable.

Remarks : Large number of tiger skins in the cat skin trade is involved in the illegal trade. Tiger is also killed for fur and body parts trade in domestic and international market for various reasons. These beautiful cats are also trapped live for commercial trade. As per the tiger census conducted in 1994 in Pench National Park, the tiger population was around 10.

Order ARTIODACTYLA

Family SUIDAE

***44. *Sus scrofa cristatus* (Wagner)**

1839. *Sus cristatus* Wagner, *Munch. Gelehrt. Anz.*, 9 : 435.

1993. *Sus scrofa cristatus* Wagner, By Peter Grubb In Wilson & Reeder, *Mammal Species of the World*, : 379.

Common Name : English : Indian Wild Boar; Marathi : Randukkar.

Locality : Wild Boar has been sighted in Gawalighat and Ambakhori areas of Pench National Park by the ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Throughout India.

Status : Not uncommon in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule III, *CITES* : No.

Remarks : Wild Boar is a great destructor of the standing crops and other cultivated areas. It is a prolific breeder and breeds round the year. Since Wild Boar is believed to be a destructor of the standing crops, it is considered as agricultural pests by the agriculturists and farmers. Therefore they kill wild boars by various methods to save the crops. It is also killed for its meat and body parts for various purposes. As per the 1995 census of some wildlife species conducted by the Forest Dept. authorities, Wild Boar population was around 588 in Pench National Park.

Family TRAGULIDAE

45. *Moschiola meminna* (Erxleben)

1777. *Moschus meminna* Erxleben, *Syst. Regn. Anim., Mamm.*, : 322.

1993. *Moschiola meminna* (Erxleben), By Peter Grubb In Wilson & Reeder, *Mammal Species of the World*, : 379.

Common Name : English : Indian Chevrotain or Mouse Deer, Marathi : Pisor Harin.

Locality : Pench National Park.

Distribution : Throughout India.

Status : Uncommon in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – near threatened (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule I Part I; *CITES* : No; Red Data Book (National, 1994) : Vulnerable.

Remarks : Nil.

Family CERVIDAE

Subfamily CERVINAE

*46. *Axis axis axis* (Erxleben)

1777. *Cervus axis* Erxleben, *Syst. Regn. Anim., Mamm.*, : 312.

1993. *Axis axis axis* (Erxleben), By Peter Grubb In Wilson & Reeder, *Mammal Species of the World*, : 379.

Common Name : English : Spotted Deer, Chital, Marathi : Chital.

Locality : Small herds of spotted deers were sighted in Phuljhari and Saddle Dam areas of Pench National Park by the ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Throughout India.

Status : Fairly common in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule IV; *CITES* : No.

Remarks : Spotted deer is a prolific breeder and new herds can be seen at the interval of six months. They are hunted for its meat, for food and body parts for various purposes including for making trophies. As per the 1995 census of some wildlife species conducted in Pench National Park by the Forest Dept. authorities, the Spotted Deer population was around 746.

***47. *Cervus unicolor niger* Blainville**

1816. *Cervus niger* Blainville, *Bull. Soc. Philom.*, : 76.

1993. *Cervus unicolor* Kerr, By Peter Grubb In Wilson & Reeder, *Mammal Species of the World*, : 387.

Common Name : English : Sambar, Marathi : Sambar.

Locality : Herds of sambar were sighted in Phuljhari, Sillari, Totladoh, Bodhaljhira and Saddle Dam areas in Pench National Park by the ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Central India for the subspecies.

Status : Fairly common in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule III; *CITES* : No.

Remarks : Sambar is hunted for its meat, for food and body parts for various purposes including making trophies. Shed sambar antlers are also sold in the illegal wildlife trade. Sambar is a favorite prey species of tiger and wild dogs. As per 1995 census of some wildlife species conducted in Pench National Park by the Forest Dept. authorities, the sambar population was around 846.

Subfamily MONTIACINAE

***48. *Muntiacus muntjak aureus* (H. Smith)**

1872. *Cervus aureus* H. Smith, *Griffith's Cuvier Anim. Kingd.*, 4 : pl. Opposite p. 148.

1993. *Muntiacus muntjak aureus* (H. Smith), By Peter Grubb In Wilson & Reeder, *Mammal Species of the World*, : 389.

Common Name : English : Indian Muntjac or Barking Deer, Marathi : Bhekar.

Locality : Barking Deer was sighted in catchment areas of the reservoir in Pench National Park by the ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Central India for the subspecies.

Status : Seen occasionally in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule III; *CITES* : No.

Remarks : Barking deer is hunted for its meat for food and body parts for various purposes including making trophies. Threats to the survival of the species are also due to habitat destructions, human interference and domestic trade.

Family BOVIDAE

Subfamily BOVINAE

***49. *Bos gaurus* Smith**

1827. *Bos gaurus* H. Smith, *Griffith's Cuvier Anim. Kingd.*, 4 : pl. Opposite p. 399.

1992. *Bos gaurus* H. Smith, Corbet and Hill, *The Mammals of the Indomalayan region*, : 264.

Common Name : English : Indian Gaur, Marathi : Gava.

Locality : Herds of gaur have been sighted in Phuljhari, Bodhaljhira and catchment areas of the reservoir in Pench National Park by ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Peninsular India.

Status : Fairly common in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Vulnerable (Nationally) and Data Deficient (Globally); *Red Data Book, National (1994)* : Vulnerable; *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule I Part I; *CITES* : Appendix : I.

Remarks : Peter Grubb in Wilson and Reeder (1993) has included *Bos gaurus* in *Bos frontalis*. However *Bos gaurus* has been retained here based on the comments given in Corbet and Hill (1992). Gaur is hunted for its meat for food and body parts for various purposes including making trophies. As per the 1995 census of some wildlife species conducted in Pench National Park by Forest Dept. authorities, the gaur population was around 276.

***50. *Boselaphus tragocamelus* (Pallas)**

1766. *Antilope tragocamelus* Pallas, *Misc. Zool.*, : 5.

1993. *Boselaphus tragocamelus* (Pallas), By Peter Grubb In Wilson & Reeder, *Mammal Species of the World*, : 401.

Common Name : English : Blue Bull, Marathi : Nilgai.

Locality : Nilgai has been sighted in Central Phuljhari and also in areas near Bukhari tank in Pench National Park by the ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Peninsular India.

Status : Seen occasionally in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule III; *CITES* : Appendix : No.

Remarks : Nilgai is hunted for its meat for food and body parts for various purposes including making trophies. Threats to the survival of the species are also due to habitat destructions, human interference and domestic trade. As per the 1995 census of some wildlife species conducted in Pench National Park by Forest Dept. authorities, the Nilgai population was around 65.

***51. *Tetracerus quadricornis* (Blainville)**

1816. *Cerophorus (Cervicapra) quadricornis* Blainville, *Bull.Soc. Philom. Paris*, : 75 & 78.

1993. *Tetracerus quadricornis* (Blainville), By Peter Grubb In Wilson & Reeder, *Mammal Species of the World*, : 403.

Common Name : English : Four Horned Antelope, Marathi : Choushinga.

Locality : Choushinga has been sighted near catchment areas of the reservoir in Pench National Park by ZSI survey parties and Forests Dept. authorities during the project period.

Distribution : Throughout India except in North-East India.

Status : Uncommon in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near threatened (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule I Part I; *CITES* : Appendix : No, *Red Data Book, National (1994)* : Vulnerable.

Remarks : Nil.

Subfamily ANTILOPINAE

52. *Antelope cervicapra cervicapra* (Linn.)

1758. *Capra cervicapra* Linnaeus, *Syst. Nat.* 10th Ed., I : 69.

1992. *Antelope cervicapra cervicapra* (Linnaeus), By Peter Grubb In Wilson & Reeder, *Mammal Species of the World*, : 395.

Common Name : English : Blackbuck or Indian Antelope, Marathi : Kalvit.

Locality : Rahmani (1991) reported occurrence of blackbuck in Nagpur Dist.

Distribution : Throughout the drier parts of peninsular India except in North-East India.

Status : Uncommon in Pench National Park; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule I Part I; *CITES* : Appendix : III (Nepal), *Red Data Book, National (1994)* : Vulnerable.

Remarks : Blackbuck is hunted for its meat for food and skin and body parts for various purposes including making trophies. Threats to the survival of the species are also due to habitat destructions, human interference and domestic commercial trade. In some areas it is reported to be responsible for the crop damage.

53. *Gazella bennettii* (Sykes)

1831. *Antelope bennettii* Sykes, *P.Z.S.* 1830-31 : 104.

1993. *Gazella bennettii* (Sykes), By Peter Grubb In Wilson & Reeder, *Mammal Species of the World* : 396.

Common Name : English : Indian Gazelle or Chinkara, Marathi : Chinkara.

Locality : Possible occurrence in open and drier parts of Pench National Park.

Distribution : North-Western and Central India.

Status : Not yet sighted in Pench National Park area; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule I Part I; *CITES* : Appendix : No; *Red Data Book, National (1994)* : Vulnerable.

Remarks : Gazelle is hunted for its meat for food and skin and body parts for various purposes including making trophies. Threats to the survival of the species are also due to habitat destructions, human interference and domestic commercial trade.

Order RODENTIA
Suborder SCIUROGNATHI
Family SCIURIDAE
Subfamily RATUFINAE

54. *Ratufa indica centralis* Ryley

1913. *Ratufa indica centralis* Ryley, *J. Bombay N. H. Soc.*, **22** (3) : 436.

1993. *Ratufa indica centralis* Ryley, Wilson & Reeder, *Mammal Species of the World*, : 437.

Common Name : English : Indian Giant squirrel, Marathi : Shekru.

Locality : Thick forested areas in Pench National Park. Type locality, Hoshangabad in Madhya Pradesh, is not very far, hence its possible occurrence in the park area is not ruled out.

Distribution : Thick forested areas of central India.

Status : Not yet sighted inside Pench National Park area; *IUCN Criteria proposed as per the CAMP Report (1998)* : Vulnerable, *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule II; *CITES* : Appendix : I; *Red Data Book, National (1994)* : No.

Remarks : Hoffman Robert S., Anderson C. G., Thorington, R. W. And Heaney, L. R. in Wilson and Reeder (1993) has placed Genus *Ratufa* in the Subfamily *Sciurinae*. However it has been kept under *Ratufinae* here following the comments given in Corbet and Hill (1992). Indian giant squirrel is hunted for its meat for food and skin and body parts for various purposes including making trophies. Threats to the survival of the species are also due to habitat destructions, habitat isolation restricting to few individuals near sacred springs and riverine forests, human interference and domestic as well as international commercial trade. Considering the threats to the survival of the species, it is, hereby, strongly recommended that all the Giant Squirrel species should be brought under Schedule I Part I of Indian Wildlife (Protection) Act.

Subfamily SCIURINAE

***55. *Funambulus palmarum robertsoni* Wroughton**

1916. *Funambulus robertsoni* Wroughton, *J. Bombay N. H. Soc.*, **24** : 647.

1992. *Funambulus palmarum robertsoni* Wroughton, Wilson & Reeder, *Mammal Species of the World*, : 426.

Common Name : English : Indian three striped palm squirrel, Marathi : Pateri Khar.

Locality : Small groups were sighted in Central Phuljhari, Ranidoh and Ghatpendhari areas of Pench National Park during project period by ZSI survey parties.

Distribution : The subspecies is endemic to Central India.

Status : Not very uncommon in the region; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : Corbet and Hill (1992) synonymised *Funambulus palmarum robertsoni* Wroughton in *Funambulus palmarum* (Lin.) under Subfamily Funambulinae without any comments on key characters. However *Funambulus palmarum robertsoni* Wroughton has been retained here under Subfamily Sciurinae following the comments of Hoffman Robert S., Anderson C. G., Thorington, R. W. and Heaney, L. R. in Wilson and Reeder (1993).

***56. *Funambulus pennanti* Wroughton**

1905. *Funambulus pennanti* Wroughton, *J. Bombay N. H. Soc.*, **16** : 411.

1992. *Funambulus pennanti* Wroughton, Agrawal, V. C. *et al.*, *Fauna of West Bengal*, Part 1, ZSI, Publ., Calcutta, : 128-129.

Common Name : English : Indian five striped northern palm squirrel, Marathi : Pateri Khar.

Locality : Small groups were sighted in Mansar, Pipriya, Ranidoh and Ambakhori areas of Pench National Park during the project period.

Distribution : Peninsular India south of Himalaya.

Status : Not very uncommon in the region; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : IV; *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : Indian squirrel is hunted for its meat for food and skin and body parts for various purposes including making small trophies and some other articles like brushes etc. Threats to the survival of the species are also due to habitat destructions and isolation, human interference and domestic commercial trade.

Family PTEROMYIDAE

57. *Petaurista philippensis philippensis* (Elliot)

1839. *Pteromys philippensis* Elliot, *Madras J. Litt. Sci.*, **10** : 217.

1992. *Petaurista philippensis philippensis* (Elliot), Wilson & Reeder, *Mammal Species of the World*, : 463.

Common Name : English : Common giant flying squirrel, Marathi : Udnari Khar.

Locality : Thick forested areas in Pench National Park.

Distribution : Peninsular India south of Himalaya.

Status : Not yet sighted inside Pench National Park area; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near threatened (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule : II Part II; *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : The flying squirrel is hunted for its meat for food. Threats to the survival of the species are also due to habitat destructions, fragmentation, human interference and domestic trade.

Family MURIDAE
Subfamily MURINAE

***58. *Mus musculus castaneus* Waterhouse**

1843. *Mus castaneus* Waterhouse, *Ann. Mag. nat. Hist.*, 12 : 134.

2000. *Mus musculus castaneus* Waterhouse, Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 122.

Common Name : English : House Mouse, Marathi : Gharatil Undir.

Locality : Sighting in the residential premises in Pipariya area in Pench National Park during the project period.

Distribution : Throughout India.

Status : Common in residential premises; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : The species is a prolific breeder and considered to be a pest species since it causes damage to the food grains stored in godowns. It is also responsible to cause extensive damage to the public as well as private properties and articles of merchandise due to its habit of gnawing by its ever-growing chisel-shaped incisors.

***59. *Mus booduga booduga* (Gray)**

1837. *Leggada booduga* Gray, *Charlesworth's Mag. Nat. Hist.*, 1 : 586.

2000. *Mus booduga booduga* (Gray), Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 122-126.

Common Name : English : Little Indian Field Mouse, Marathi : Shetatil Undir.

Locality : Collected two specimens from Saddle Dam and Ranidoh areas of Pench National Park during the project period.

Distribution : Throughout India.

Status : Common in the fields; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : Agrawal (2000) has pointed out number of anomalies in the taxonomy of *booduga* complex and rightly concluded that till the confusions were removed, *Mus dunni*, *Mus terricolor* and *Mus booduga* should be treated as synonyms of *Mus.booduga* as was done earlier by Ellerman (1961) due to lack of proper demarcation between the populations under study. The species is a prolific breeder and considered to be a pest species since it causes damage to the crops. It is also responsible to cause extensive damage to the public as well as private properties due to its habit of gnawing by its ever-growing chisel-shaped incisors.

60. *Mus phillipsi* Wroughton

1912. *Mus phillipsi* Wroughton, *J. Bombay nat. Hist. Soc.* **21** : 772.

2000. *Mus phillipsi* Wroughton, Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : **180** : 127-129.

Common Name : English : Wroughton's small spiny Mouse, Marathi : Undir.

Locality : Ellerman (1961) has reported *Mus phillipsi* from Berar region (Currently known as Vidharbha region which includes Pench National Park in Nagpur Dist.), while Agrawal has reported wide occurrence of *Mus phillipsi* in Western, Central and southern India.

Distribution : Throughout India.

Status : Endemic species not common in the region; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Data Deficient (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : Ellerman (1961) thought this form as a subspecies of *Mus cervicolor*. However Marshall (1977) rightly treated it as a separate species on the basis of spiny fur, white venter and well-developed supraorbital ridges on the skull.

61. *Vandeleuria oleracea oleracea* (Bennett)

1832. *Mus oleracea* Bennett, *Proc. Zool. Soc. Lond.*, 1832 : 121.

2000. *Vandeleuria oleracea oleracea* (Bennett), Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 62-65.

Common Name : English : Indian Long-tailed Tree Mouse, Marathi : Undir.

Locality : Ellerman (1961) has reported *Vandeleuria o. oleracea* from Berar region (Currently known as Vidharbha region which includes Pench National Park in Nagpur Dist.), while Agrawal (2000) reported occurrence of *Vandeleurea o. oleracea* almost throughout India.

Distribution : Throughout peninsular India.

Status : Not very common in the region; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : Female Indian Long-tailed Tree Mouse can build a nest in any place that is about a few feet above the ground.

***62. *Rattus rattus rufescens* (Gray)**

1837. *Mus rufescens* Gray, *Ann. Mag. Nat. Hist.*, 1 : 585.

2000. *Rattus rattus rufescens* (Gray), Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 135.

Common Name : English : House Rat, Marathi : Undir.

Locality : Collected 5 specimens from the residential areas in Sillari and Pipariya in Pench National Park during the project period.

Distribution : Throughout India.

Status: common; *IUCN iteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : The species is a prolific breeder and considered to be a pest species since it causes damage to the food grains stored in godowns. It is also responsible to cause extensive damage to the public as well as private properties and articles of merchandise due to its habit of gnawing by its ever-growing chisel-shaped incisors. The species is also known to be responsible for causing number of diseases, including rat bite fever, plague, leptospirosis etc.

63. *Rattus rattus narbadae* Hinton

1918. *Rattus rattus narbadae* Hinton, *J. Bombay N. H. Soc.*, **26** : 77.

1992. *Rattus rattus narbadae* Hinton, Corbet and Hill, *The Mammals of the Indomalayan region*, : 337.

Common Name : English : White-bellied House Rat, Marathi : Undir.

Locality : Isolated human settlements in forested areas in Pench National Park. Type locality, Hoshangabad and other nearby areas like Balghat in Madhya Pradesh is not very far, hence its occurrence in this region is not ruled out.

Distribution : Endemic subspecies occurring throughout Central India.

Status : Uncommon; *IUCN Criteria proposed as per the CAMP Report (1998)* : No; *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES Appendix* : No; *Red Data Book, National (1994)* : No.

Remarks : The species is a prolific breeder and considered to be a pest species since it causes damage to the stored food grains. It is also responsible to cause extensive damage to the public as well as private properties and articles of merchandise due to its habit of gnawing by its ever-growing chisel-shaped incisors. The species is also known to be a carrier of number of diseases, including rat bite fever etc.

64. *Millardia meltada meltada* (Gray)

1837. *Golunda meltada* Gray, *Mag. Nat. Hist.*, **1** : 586.

2001. *Millardia meltada* (Gray), Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : **180** : 110-112.

Common Name : English : Soft-furred Metad, Marathi : Undir.

Locality : Recorded localities like Chandrapur Dist., in Maharashtra and Sagar and Hoshangabad in Madhya Pradesh are not very far, hence its occurrence in Pench National Park is not ruled out.

Distribution : Throughout peninsular India.

Status : Uncommon in the region; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : Earlier Ellerman (1961) considered *Millardia* as a subgenus of *Rattus*. However latter revisionary taxonomic studies confirmed its generic status. While doing so *Millardia meltada* was divided in three subspecies that were accepted by Corbet and Hill (1992). But

recently Agrawal (2000) has synonymised all the three subspecies in *Millardia meltada*. However Pradhan *et al.* (Comm.) do not agree with the merger and hold the view that *Millardia meltada* distinctly consists of three subspecies viz. *meltada*, *pallidior* and *singuri*. Same views have been adopted here. The species is a prolific breeder and considered to be an agricultural pest species since it causes damage to the standing crops.

***65. *Cremnomys blanfordi* (Thomas)**

1881. *Mus blanfordi* Thomas, *Ann. Mag. nat. Hist.*, (5) 7 : 24.

2000. *Cremnomys blanfordi* (Thomas), Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 107-108.

Common Name : English : Blanford's Rat, Marathi : Undir.

Locality : One specimen near Koltimara Rest House was collected during the project period.

Distribution : Throughout peninsular India.

Status : Not uncommon in the region; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Near Threatened (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : *Cremnomys blanfordi* was originally placed under *Mus*, subsequently in *Rattus* and finally in *Cremnomys* (Corbet and Hill, 1992 and Agrawal, 2000). These rats live in open scrub jungles and/or on bare hill-sides. In forest it can change its habit from fossorial to arboreal. It makes untidy and large nests in a hole, crevices or in trees.

66. *Golunda ellioti ellioti* Gray

1837. *Golunda ellioti* Gray, *Charlesworth's. Mag. nat. Hist.*, (1) 7 : 586.

2000. *Golunda ellioti ellioti* Gray, Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 139-142.

Common Name : English: Indian Bush Rat, Marathi: Undir.

Locality : Reported localities for this species from the region in past are Berar, Hoshangabad, Balaghat, Sagar etc. which are not very far from Pench National Park. Hence it is assumed that Indian Bush rat is occurring in Pench National Park region also.

Distribution : Throughout India.

Status : Uncommon in the region; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least Concern (Nationally) and Not Evaluated (Globally); *Indian*

Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : V (Vermis);
CITES : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : The species is a prolific breeder and considered to be an agricultural pest species since it causes damage to the plantations. Earlier it was causing extensive damage to the coffee plantation in Sri Lanka.

***67. *Bandicota bengalensis bengalensis* (Gray)**

1835. *Arvicola bengalensis* Gray, *Illust. Ind. Zool.*, 2 : pl 21.

2000. *Bandicota bengalensis bengalensis* (Gray), Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 146-148.

Common Name : English : Indian Mole Rat, Marathi : Ghus.

Locality : Sighted one specimen in the crop fields near Mansar during the project period.

Distribution : Throughout India.

Status : Common; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : *B. bengalensis* is considered to be an agricultural pest No. 1 or, rather, 'enemy' pest No. 1, since it causes damage on large scale not only to the food grains stored in godowns but also to the standing crops. Its gnawing habit to keep the evergrowing incisors in shape and its habit of making complex burrow systems for not only living but also for hoarding the food stuff make it a nuisance for the human life. It is responsible to cause extensive damage to the public as well as private properties and articles of merchandise due to these habits. Overall loss from agricultural point of view due the activities of this species is roughly around 20-25%. The species is a prolific breeder. One pair of bandicoot rat can produce approximately 200+young ones in a year. The species is also known to be a vector for number of diseases, including rat bite fever, plague, leptospirosis etc. However, Chakraborty (1985) (as cited in Agrawal *et al.* (1992) has reported it to be playing an important role in biological control of several pestiferous species of molluscs and crabs in West Bengal.

***68. *Bandicota indica indica* (Bechstein)**

1800. *Mus indicus* Bechstein, *Veber Vierf. Thiere.*, 2 : 497.

2000. *Bandicota indica indica* (Bechstein), Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 148-151.

Common Name : English: Large Bandicoot Rat, Marathi : Ghus.

Locality : One live specimen was sighted in the fields near Pipariya village during project period.

Distribution : Throughout India.

Status : Common; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : Like earlier species, *Bandicota bengalensis*, *B. indica indica* is also considered to be an agricultural pest or, rather, 'enemy' pest of highest order, since it causes damage on large scale not only to the food grains stored in godowns but also to the standing crops. Its gnawing habit to keep the ever-growing incisors in shape and its habit of making complex burrow systems for not only living but also for hoarding the food stuff make it a nuisance for the human life. It is responsible to cause extensive damage to the public as well as private properties and articles of merchandise due to these habits. The species is a prolific breeder. One pair of bandicoot rat can produce approximately 100+ young ones in a year. The species is also known to be a vector for number of diseases, including rat bite fever, plague, leptospirosis etc.

Subfamily GERBILLINAE

69. *Tatera indica indica* (Hardwicke)

1807. *Dipus indicus* Hardwicke, *Trans Linn. Soc. Lond.*, 8 : 279.

2000. *Tatera indica indica* (Hardwicke), Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 27-31.

Common Name : English : Indian Antelope Rat, Marathi : 'Gondedar sheputwala undir'

Locality : Recorded locality, reported in past, like Chanda (Chandrapur) in Maharashtra State and Hoshangabad in Madhya Pradesh with similar habitats is not very far, hence occurrence of the species in Pench National Park is not ruled out.

Distribution : Throughout India.

Status : Common; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : V (Vermis); *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : *Tatera indica* is considered to be an agricultural pest or, rather, 'enemy' pest of highest order, since it causes damage on large scale not only to the stored food grains in the field but also to the standing crops. Its gnawing habit to keep the ever-growing incisors

in shape and its habit of making complex burrow systems for not only living but also for hoarding the food stuff make it a nuisance for the human life. The species is a prolific breeder. The species is also known to be a natural vector for number of diseases including the dreaded disease like plague.

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

***70. *Hystrix indica* Kerr**

1792. *Hystrix cristata* var *indica* Kerr, *Anim. Kingd.*, : 213.

2000. *Hystrix indica* Kerr, Agrawal, V. C., *Rec. zool. Surv. India, Occ. Paper No.*, : 180 : 160-162.

Common Name : English : Indian crested porcupine, Marathi : 'Salu or Salindar'

Locality : Quills of Indian crested porcupine were sighted in Phuljhari and Ghatpendhari areas of Pench National Park during the project period.

Distribution : Throughout India.

Status : Common; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : IV; *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : *Hystrix indica* is considered to be an agricultural pest or, rather, 'enemy' pest of highest order, since it causes damage on large scale to the standing crops. Its gnawing habit to keep the ever-growing incisors in shape and its fossorial habits make it a nuisance for the human life. It has a curious habit of gnawing bones, horns and antlers (Agrawal, 2000). The species is a prolific breeder. Agrawal (2000) concludes that there are no subspecies in *Hystrix indica*.

Order LAGOMORPHA

Family LEPORIDAE

***71. *Lepus nigricollis nigricollis* Cuvier**

1823b. *Lepus nigricollis* Cuvier, F. *Dictionnaire des sciences naturelle*, Strasbourg & Paris : 26 : 299-316.

1992. *Lepus nigricollis nigricollis* Cuvier, F., Corbet and Hill, *The Mammals of the Indomalayan region* : 413-415.

Common Name : English : Indian black-naped hare or Indian Hare, Marathi : 'Sasa'

Locality : Indian blacknaped hare was sighted in many places in Pench National Park during the project period.

Distribution : Throughout India.

Status : Common; *IUCN Criteria proposed as per the CAMP Report (1998)* : Lower risk – Least concern (Nationally) and Not Evaluated (Globally); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : IV; *CITES* : Appendix : No; *Red Data Book, National (1994)* : No.

Remarks : *Lepus nigricollis* is considered to be causing damage to the agricultural fields, orchards etc. The species is a prolific breeder.

RESULTS AND DISCUSSION

The systematic list of mammalian species given above reports the occurrence of 71 mammalian species/subspecies in Pench National Park. Out of these, 38 species (53.5%) were actually collected and/or sighted during the project period 1991-1996, while 33 species (46.5%) were included in the list on the basis of the literature consulted (Fig. 1). The list clearly indicates that Pench National Park area possesses fairly good mammalian species diversity.

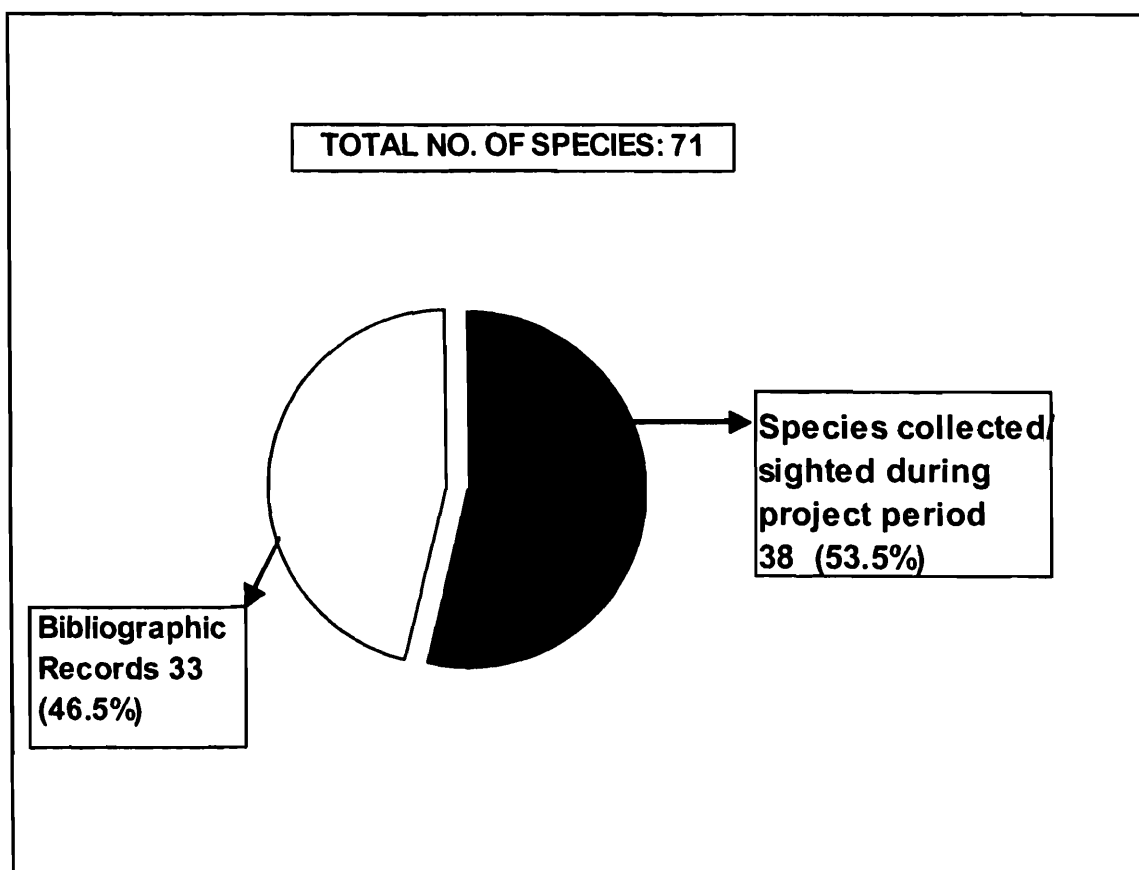


Fig. 1. Mammalian Species Record.

If the species are sorted out in various categories given in Table 1, it will be seen that 71 species/subspecies of 52 genera belonging to 25 sub-families in 25 families grouped under nine mammalian orders have been reported from this region. The table further shows a broad spectral diversity at all the levels at every stage. It has been expressed very well particularly in orders like *Chiroptera*, *Carnivora*, *Artiodactyla* and *Rodentia* (Fig; 2).

Table 1 : Mammalian Diversity in Pench National Park

Sl. No.	Order	Families	Subfamilies	Genera	Species	Subspecies
1.	INSECTIVORA	1	1	1	2	2
2.	SCANDENTIA	1	1	1	1	1
3.	CHIROPTERA	5	2	11	18	15
4.	PRIMATES	1	2	2	2	1
5.	PHOLIDATA	1	-	1	1	-
6.	CARNIVORA	7	9	13	17	11
7.	ARTIODACTYLA	4	6	10	10	5
8.	RODENTIA	4	4	12	16	13
9.	LAGOMORPHA	1	-	1	1	1
TOTAL : Nine Orders		25	25	52	68	49

Fig. 2 shows order-wise representation of mammalian species. Class *Mammalia* is represented by nine orders with predominance of *Chiroptera*, *Carnivora* and *Rodentia* followed by *Artiodactyla*. It will be seen that more than 75% mammalian species belong to the orders *Chiroptera*, *Carnivora* and *Rodentia*. Incidentally Chiropteran representation is very well in the region (Total 18 spp.).

Some of the most interesting species thriving in the region are : *Anathana ellioti ellioti*, *Rhinopoma hardwickei*, *Scotophilus spp.*, *Manis crassicaudata*, *Cuon alpinus*, *Panthera pardus fusca*, *Panthera tigris tigris*, *Lutragale perspicillata*, *Viverricula indica*, *Felis silvestris ornata*, *Bos gaurus*, *Tetracerus quadricornis*, *Boselaphus tragocamelus*, *Ratufa indica centralis*, *Petaurista philippensis philippensis*, *Cremnomys blanfordi*, *Hystrix indica* etc.

When the Indian endemic species status of the mammalian species/subspecies reported from Pench National Park was studied (Fig. 3), it was noticed that there were only 4 Indian endemic species (5% of total 71 mammalian species/subspecies) belonging to orders *Scandentia*

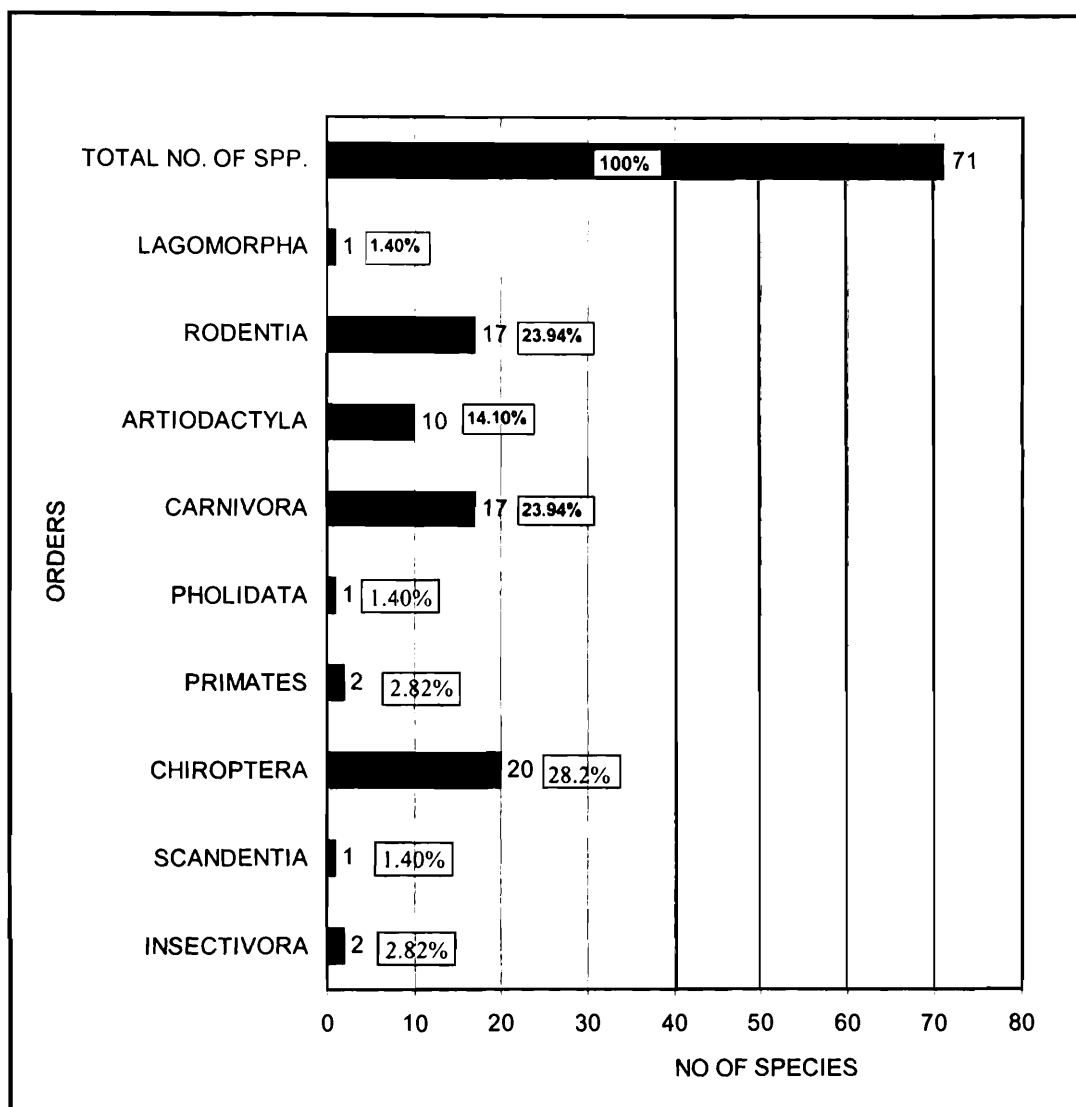


Fig. 2. Order-wise Mammal Species.

(1) and *Rodentia* (3). Therefore, though mammalian species diversity is rich, the Indian mammalian species endemicity in this region is, however, poor.

Order SCANDENTIA

1. *Ananthana ellioti ellioti* (Waterhouse)

Order RODENTIA

1. *Ratufa indica centralis* Ryley
2. *Mus phillipsi* Wroughton
3. *Rattus rattus narbadae* Hinton

Conservation status of the mammalian species under Indian Wildlife (Protection) Act 1972 (as amended up to 2002) was also studied. It was found that 50 out of 71 mammalian

Fig. 3. Indian Endemic Mammal Species in Pench National Park.
(Total 71 species)

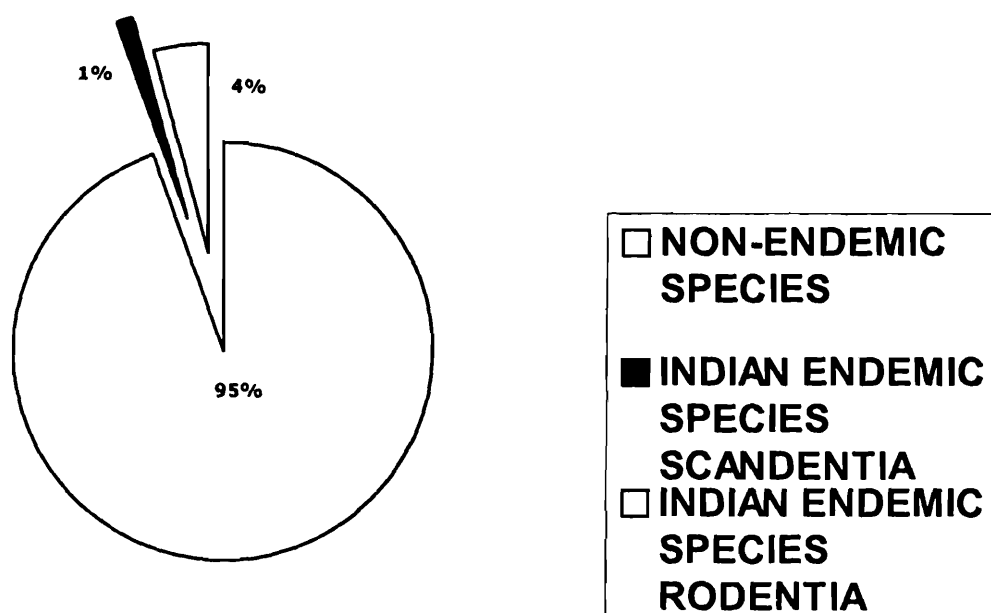
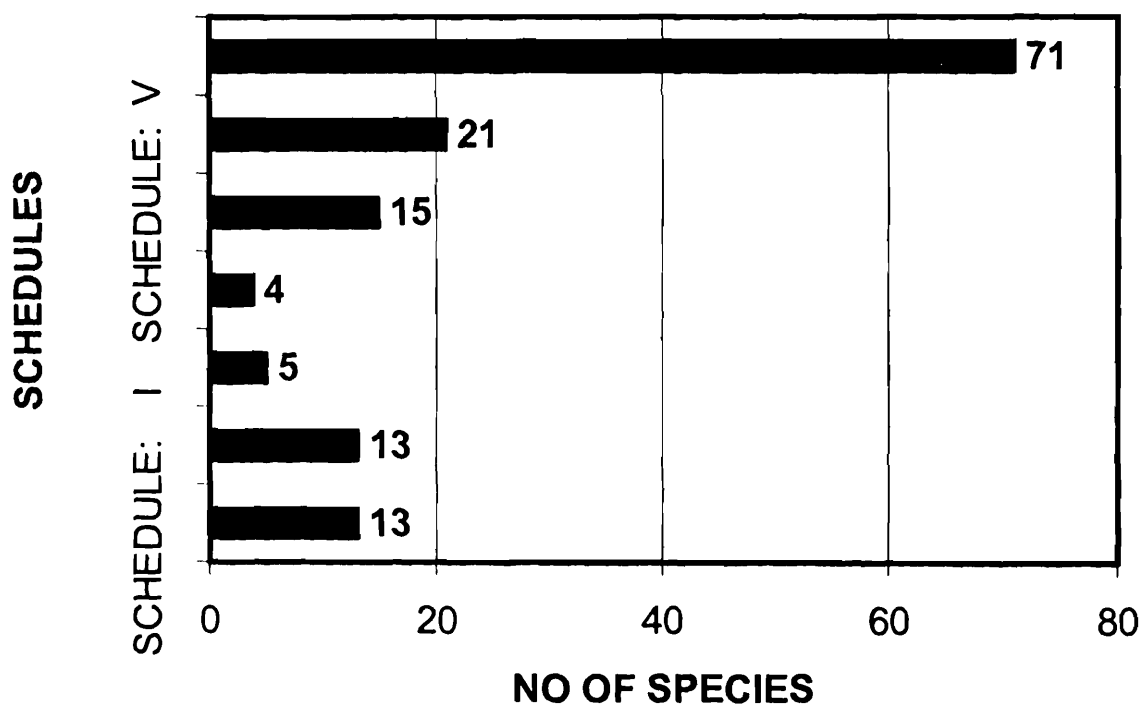


Fig. 4. Mammalian Species Under Wildlife Schedules.



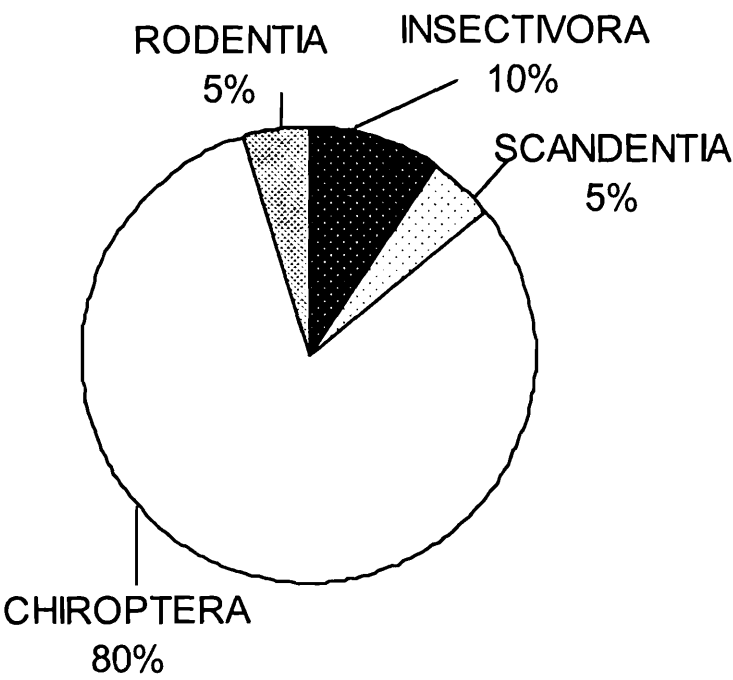
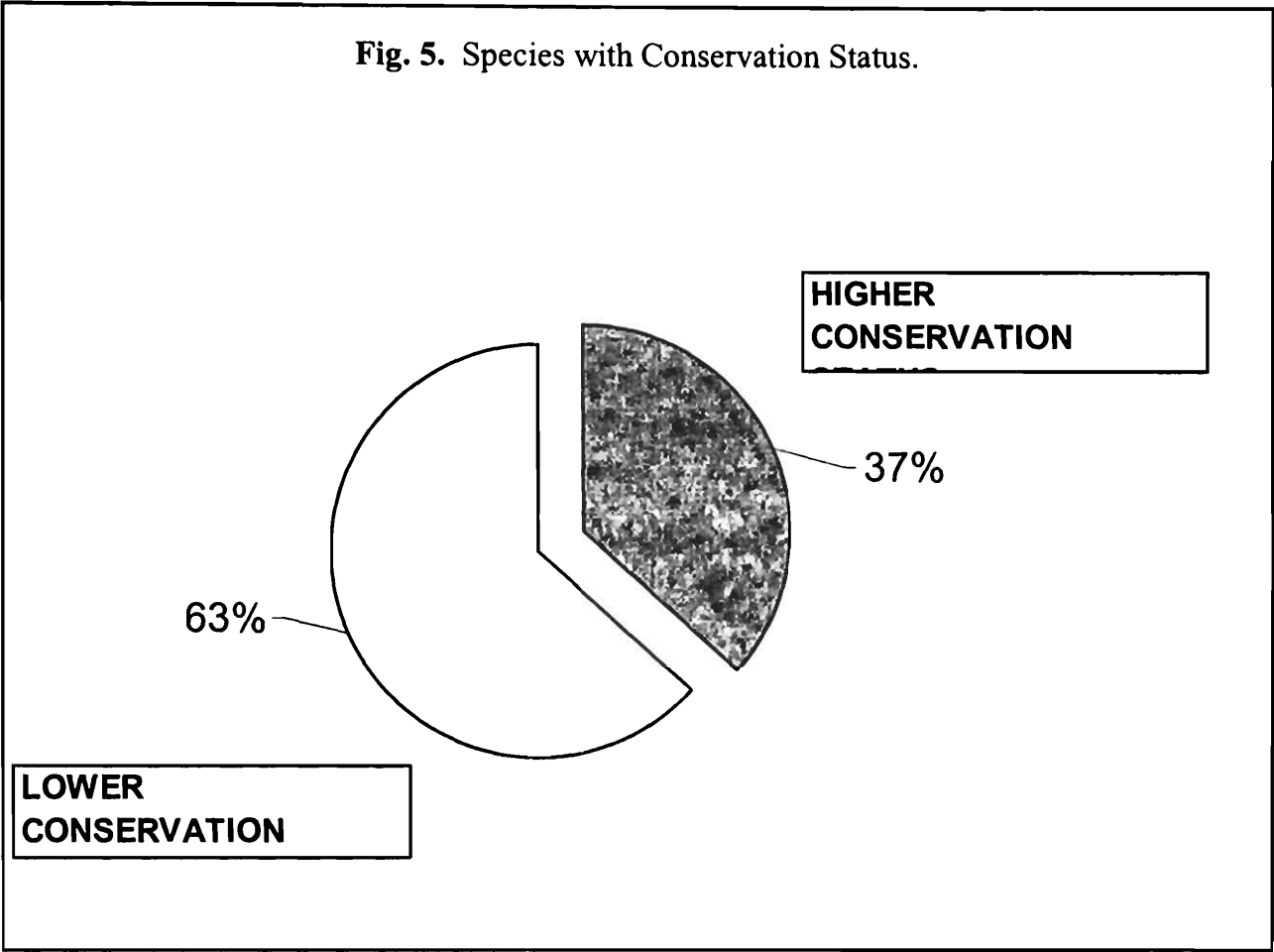


Fig. 6. Unscheduled Mammal Species.
(Total 21 species)

species/subspecies have been included in all the five schedules of the Act (Fig. 4). Thus, about 70.5% of the mammal species are protected in this region under Wildlife (Protection) Act of India. Further, of these 71 species 26 species (37%) are under higher conservation status (Indian Wildlife Act Schedule I and II, (Fig. 5). However, on the other hand, there are about 21 mammalian species, mostly microchiropteran bat species (17: 80% of the unscheduled species), which have not been listed under any of the wildlife Act schedules (Fig. 6).

Finally, following conclusions can be drawn on the basis of above observations :

1. Pench National Park can boast of rich mammalian species diversity, quantitatively as well as qualitatively. However, Indian endemism representation of the mammalian species in this region is remarkably poor.
2. Some of the most interesting mammalian species other than *Panthera tigris tigris* and *Panthera pardus fusca* which can attract attention are *Anathana ellioti ellioti*, *Lutragale perspicillata*, *Ratufa indica centralis*, *Petaurista philippensis philippensis*, *Felis silvestris ornata*, *Rattus rattus nerbadae* etc.
3. Fairly large number of mammalian species (26 : 37%) with higher conservation status of Schedule I and Schedule II of Wildlife (Protection) Act, 1972 (2002), CITES Appendix I & II and IUCN categories from Endangered to Vulnerable could be recorded, while about 29.67% of the total mammal species dominated by microchiropteran bats with no status under Wildlife (Protection) Act have also been reported from this region.

ACKNOWLEDGEMENTS

The author is grateful to Dr. J.R.B. Alfred, Director, Zoological Survey of India, Kolkata, for giving him the opportunity to undertake the assignment. Thanks are also due to the Officer-in-Charge, ZSI, Western Regional Station, Pune, for providing the facilities.

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AVES

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INTRODUCTION

Bird study in India received a great impetus with the publications of Jerdon's (1862-64) *Birds of India*. A number of workers therefore started studying the avifauna of their respective regions. Some of these, gave emphasis in Deccan Plateau particularly Davidson & Wenden (1878), Davidson (1875) and Ali (1933-34). After a gap of about forty years a check list of birds of Maharashtra State (Abdulali, 1973) was published. In Vidarbha region of Maharashtra in earlier years birds of Nagpur area Blanford (1867), Mc Master (1871) and in recent years birds of Nagpur by Armous (1978), Garde (1980, 1993), checklist of birds from Pench National Park by Forest Department, Nagpur (Anon, 1990), and that of Madhya Pradesh (Heweston, 1956) have been studied. This paper is also a part of avifaunal studies in Pench National Park and it includes a systematic list of birds recorded in this area with the analysis of their food habits and status.

The inventory of birds of this area comprises 170 species of which about 60% species have been mainly observed by the author during the survey period during 29 September to 15 October 1996, whereas the rest of the bird species have been compiled on the basis of published and unpublished literatures. Birds were observed with the help of 7x50 pair of binoculars. The identification of birds and its species account (residential status, food habits, distribution and breeding season) in tabular form is based on Ali & Ripley (1968-1974, 1995-96), Woodcock (1984) and Grimmett *et al.* (2000).

In the systematic list of birds in the tabular form of (Table-2), the common names, scientific names and family sequence have been followed as per standardised common and scientific names of the birds by Manakadan & Pittie (2001).

OBSERVATIONS AND RESULTS

In this Pench National Park, areas like Amba Khari, Fefdikund, Ranidoh were found to be good spots for bird community. Various species of water birds were found to be in good numbers particularly at Pipriya Talav. On Saddle dam road in Bodaljira compartment an hunting party of 14 Black Drongos *Dicrurus macrocercus* and 24 Golden Orioles *Oriolus*

Table 1. Avian Diversity in Pench National Park

Orders	Families	Subfamilies	Genera	Species
1. PODICIPEDIFORMES	1	-	1	1
2. PELECANIFORMES	2	-	2	3
3. CICONIIFORMES	3	-	11	12
4. ANSERIFORMES	1	-	3	8
5. FALCONIFORMES	2	-	11	15
6. GALLIFORMES	1	-	6	10
7. GRUIFORMES	2	-	3	3
8. CHARDRIIFORMES	6	-	8	10
9. COLUMBIFORMES	1	-	3	6
10. PSITTACIFORMES	1	-	1	3
11. CUCULIFORMES	1	-	6	7
12. STRIGIFORMES	1	-	3	4
13. CAPRIMULGIFORMES	1	-	1	2
14. APODIFORMES	1	-	1	1
15. CORACIIFORMES	5	-	8	9
16. PICIFORMES	2	-	3	4
17. PASSERIFORMES	19	8	46	72
Total : 17 Orders	50	8	117	170
*(21)	(88)	(11)	(432)	(1342)

*(Bird diversity in Indian Subcontinent is given in paranthesis)

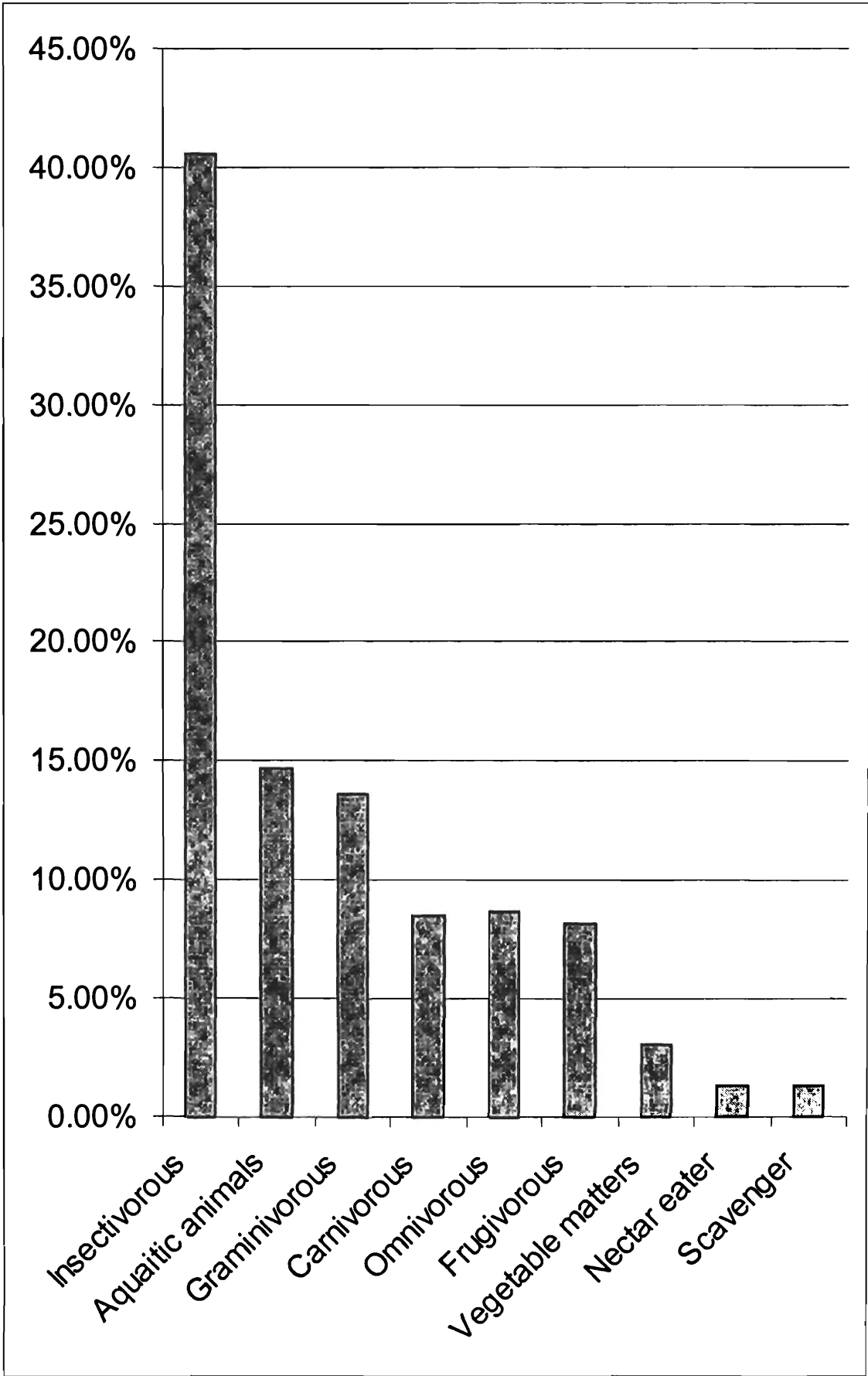


Fig. 1 Food habits of birds of Pench National Park

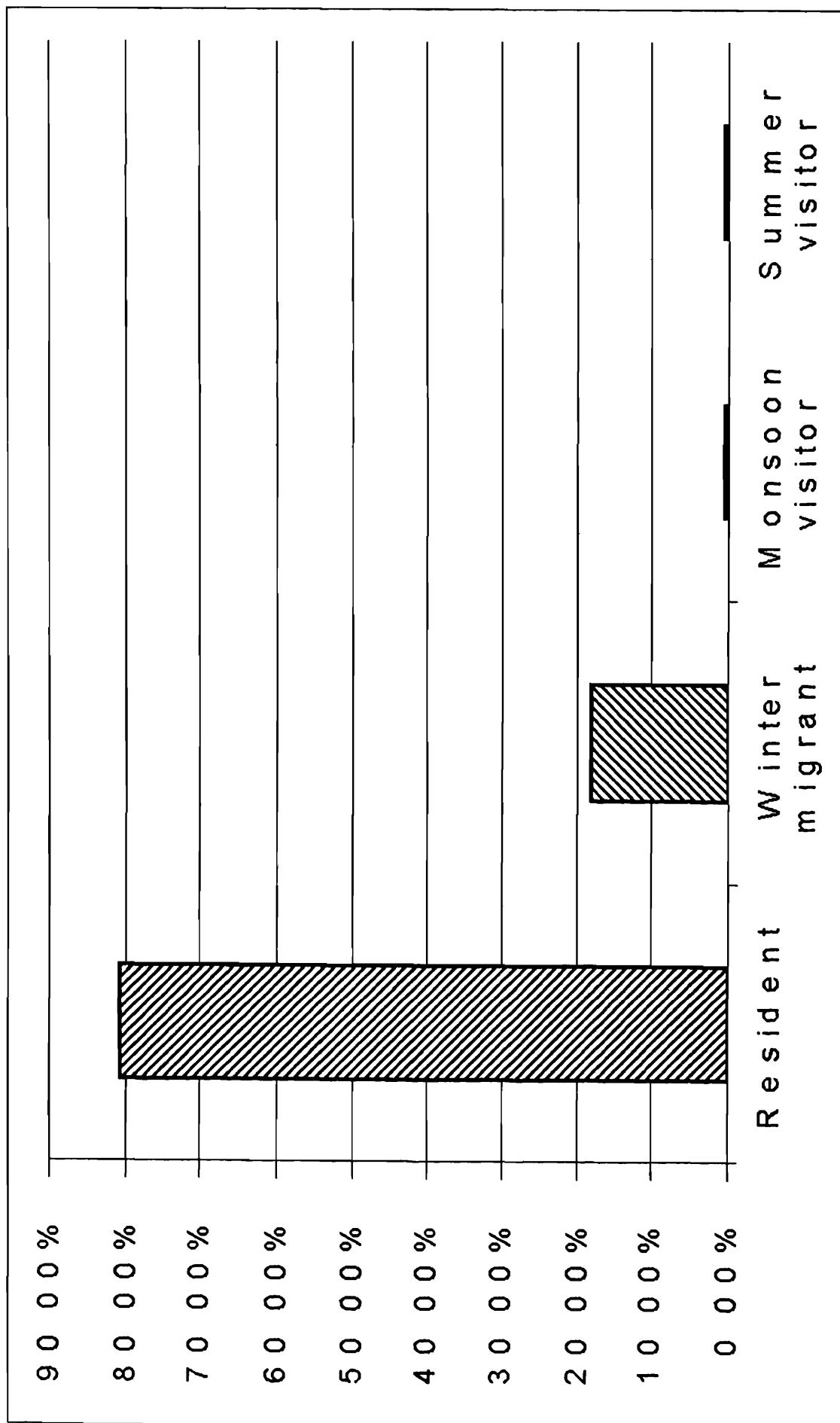


Fig. 2. Status of birds of Pench National Park

oriolus and 2 Black-headed Orioles *Oriolus xanthornis* were noticed to be feeding together. A flock of 10 Jungle Babbler was also found in very close vicinity of this hunting party. Similarly, a mixed hunting party of such orioles and drongos were observed on Ghat Pendhari road on the way to Kolutmara. A pure hunting party of Tree-Pies *Dendrocitta vagabunda* was also noticed in this area. A flock of 14 Spotted Dove *Streptopelia chinensis* was also observed feeding in this area at a muddy place. A communal roost of Indian Myna *Acridotheres tristis* and House Crow *Corvus splendens* was noticed near Totladoh village settlement.

A total 170 species of birds have been recorded in this park area which classified into various categories as shown in Table 1. It shows that these 170 species belonging to 117 genera under 50 families are grouped into 17 avian orders. This clearly shows that this National Park in Maharashtra State possess a substantial bird diversity as compared to the avian diversity of Indian subcontinent. Further, it can be pointed out that at generic and species level, orders like Ciconiiformes, Falconiformes, Charadriiformes and Passeriformes are well represented in forested and aquatic areas of Pench.

In order of food preference histogram has been plotted for birds of Pench (Fig. 1). This indicates that about 40.6% are insectivorous birds followed by aquatic animal eaters 14.7% and graminivorous 13.6%. Percentage of nectar eaters and scavenger bird species is very less in the area. This study is based on the account given in Ali & Ripley (1968-1974).

Status of birds of this national park has been plotted in Fig. 2. It shows that 80.6% bird species are resident showing local and seasonal movements depending upon water conditions, availability of food, suitable nesting places, etc. About 18.2% bird species are winter visitors (with some passage migrants) migrating during September/October to March in this area. The remaining are monsoon and summer visitors.

If the conservation status of these birds of Pench is considered, *Gyps bengalensis* Indian Whitebacked Vulture (Family : Accipitridae), *Pavo cristatus* Indian Peafowl (Family : Phasianidae) and *Gallus sonnerati* Grey Junglefowl (Family : Phasianidae) are included under Schedule I, Part III (Birds) and Schedule II, Part II of Indian Wildlife (Protection) Act, 1972 as amended upto 2002 respectively. Further, Indian Whiteback Vulture *Gyps bengalensis* is included in the Threat Category as Critical in Red List of Threatened species by IUCN (2002).

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Table 2. Birds of Pench National Park showing status, food habits and distribution

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
1.	5	Order PODICIPEDIFORMES Family PODICIPEDIDAE <i>Tachybaptus ruficollis</i> (Pallas)	Little Grebe Dabchick	R, C	Aq A&I	Pipariya	Throughout Indian Subcontinent	April to October; depend upon rains
2.	28	Order PELECANIFORMES Family PHALACROCORACIDAE <i>Phalacrocorax niger</i> (Vieillot)	Little Cormorant	R, C	Aq A	Pipariya	- do	July to Sept. in heronries
3.	26	<i>Phalacrocorax carbo</i> (Linnaeus)	Great Cormorant	R, O	Aq A	Pench Nat. Park	- do	Sept. to Feb. in large heronries
4.	29	Family ANHINGIDAE <i>Anhinga melanogaster</i> Pennant	Darter/Snake bird	R, Unc	Aq A Fish	Saddle Dam Pipriya	- do	June to Sept.
5.	49	Order CICONIIFORMES Family ARDEIDAE <i>Egretta garzetta</i> (Linnaeus)	Little Egret	R, C	Aq A	Phulzari, Pipariya	Throught Indian Subcontinent	July to Sept; Mixed heronries
6.	36	<i>Ardea cinerea</i> Linnaeus	Grey Heron	R, O	Aq A	PNP	All India	July to October
7.	37	<i>Ardea purpurea</i> Linnaeus	Purple Heron	R, O	Aq A	PNP	- do	June to October
8.	46	<i>Casmerodius albus</i> (Linnaeus)	Eastern Large Egret	R, UnC	Aq A&I	Saddle Dam	Throught Subcontinent	July to Sept. in mixed heronries

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
9.	47, 48	<i>Mesophoyx intermedia</i> (Wagler)	Median Egret	R, C	Aq A	- do -	- do -	- do -
10.	44	<i>Bubulcus ibis</i> (Linnaeus)	Cattle Egret	R, C	Aq A	Phulzari, Fefd-idkund, Pipariya	- do -	- do -
11.	42	<i>Ardeola grayii</i> (Sykes)	Indian Pond-Heron	R, C	Aq A & I	Phulzari Pipariya	- do -	May to Sept.
		Family CICONIIDAE						
12.	61	<i>Anastomus oscitans</i> (Boddaert)	Asian Openbill-Stork	R, C Dam	Aq A & CR	Suddle	All Indian Union	July to Sept (in mixed heronries)
13.	62	<i>Ciconia episcopus</i> (Boddaert)	White-necked Stork	R, O	Aq A & I	PNP	All India	July to Sept.
		Family THRESKIORNITHIDAE						
14.	69	<i>Threskiornis melanocephalus</i> (Latham)	Oriental White Ibis	R/WV UnC	OM	PNP	All India	June to Oct; depend upon monsoon & also extralimital
15.	70	<i>Pseudibis papillosa</i> (Temminck)	Black Ibis	R, C	OM	PNP	Gangetic plain, Peninsular India	March to Oct. in small pure heronries
16.	72	<i>Platalea leucorodia</i> Linnaeus	Eurasian Spoonbill	WV, O	Aq A & Vg	PNP	All India	Extralimital

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
17.	88	Order ANSERIFORMES Family ANATIDAE <i>Dendrocygna javanica</i> (Horsfield)	Lesser Whistling-Duck	R, UnC	Aq A & Vg	PNP	All India	June to October, depending upon monsoon
18.	90	<i>Tadorna ferruginea</i> (Pallas) Shelduck	Brahminy	WV, C	OM	PNP	All India	Extralimital; breeds also in Ladakh at high altitude
19.	103	<i>Anas penelope</i> Linnaeus	Eurasian Wigeon	WV, C	OM	PNP	All India	Extralimital
20.	97	<i>Anas poecilorhyncha</i> J.R. Forster	Spot-billed Duck	R, UnC	Vg	PNP	Throughout Indian Subcontinent	July to October depending on water
21.	105	<i>Anas cybeata</i> Linnaeus	Northern Shoveller	WV, UnC	Aq A	PNP	All India	Extralimital
22.	93	<i>Anas acuta</i> Linnaeus	Northern Pintail	WV, C	Vg	PNP	- do -	- do -
23.	104	<i>Anas querquedula</i> Linnaeus	Garganey	WV, UnC	Vg	PNP	- do -	- do -
24.	94	<i>Anas crecca</i> Linnaeus	Common Teal	WV, UnC	Vg	PNP	- do -	- do -
25.	124	Order FALCONIFORMES Family ACCIPITRIDAE <i>Elanus caeruleus</i> (Desfontaines)	Black-shouldered Kite	R, C	CR	Phulzari, Pipariya	Himalayan foothills to Kanyakumari	All year

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
26.	133	<i>Milvus migrans</i> (Boddaert)	Black Kite	R, UnC	OM	Saddle Dam Amba Khari Kolitmara	All India	Sept. to April
27.	135	<i>Haliastur indus</i> (Boddaert)	Brahminy Kite	R, UnC	CR	Totladoh	- do -	Dec. to March
28.	174	<i>Haliaeetus leucoryphus</i> (Pallas)	Pallas's Fish-Eagle	R/WV UnC	CR, Fish	Saddle Dam	N. India upto S. Orissa	October to Feb., extralimital
29.	175	<i>Ichthyophaga ichthyaetus</i> (Horsfield)	Greater Grey-headed Fish-Eagle	R, UnC	CR, Fish	PNP	N. India, Himalaya to Kerala sparsely distributed	Nov. to January
30.	185	<i>Gyps bengalensis</i> (Gmelin)	Indian White-backed Vulture	R, C	SC	Fefdikund, Pipariya	All India	October to March
31.	197	<i>Spilornis cheela</i> (Latham)	Lesser Crested Serpent-Eagle	R, C	CR	Saddle Dam, Kolitmara	Northern India	March to May
32.	193	<i>Circus aeruginosus</i> (Linnaeus)	Western Marsh-Harrier	WV, C	CR	PNP	All Indian Union	Extralimital
33.	190	<i>Circus macrourus</i> (S.G. Gmelin)	Pallied Harrier	WV, C	CR	PNP	Entire Indian Union	- do -
34.	138	<i>Accipiter badius</i> (Gmelin)	Shikra	R, C	CR	Ambakhari	All India	March to June
35.	148	<i>Accipiter nisus</i> (Linnaeus)	Eurasian Sparrowhawk	R, C	CR	Bodalzira	- do -	April to June
36.	170	<i>Aquila clanga</i> Pallas	Greater Spotted Eagle	R, O	CR	PNP	N. India south upto 20°N Latitude	April to June

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
37.	168	<i>Aquila rapax</i> (Temminck)	Twany Eagle	R, C	CR	PNP	Entire Indian Union	Nov. to April
38.	161	<i>Spizaetus cirrhatus</i> (Gmelin)	Changeable Hawk-Eagle	R, C	CR	Koltimara	Throughout Peninsular India	- do -
		Family FALCONIDAE						
39.	221	<i>Falco naumanni</i> Fleischer	Lesser Kestrel	WV, UnC	CR	PNP	All India	Extralimal
		Order GALLIFORMES						
		Family PHASIANIDAE						
40.	241	<i>Francolinus pictus</i> (Jerdine & Selby)	Painted Francolin	R, UnC	GR	PNP	M.P., Maharashtra	June to September
41.	245	<i>Francolinus pondicerianus</i> (Gmelin)	Grey Francolin	R, UnC	GR	Saddle Dam	Northern India	March to September
42.	250	<i>Coturnix coturnix</i> (Linnaeus)	Common Quail	R/WV UnC	GR, I	Pipariya Bodalzira	All India	March to July & Extralimal
43.	252	<i>Coturnix coromandelica</i> (Gmelin)	Black-breasted or Rain Quail	R, C	GR	Bodalzira, Pipriya	- do -	March to October
44.	255	<i>Perdicula asiatica</i> (Latham)	Jungle Bush-Quail	R, C	GR	Saddle Dam, Purva Kutumba Bodalzira	Central & South India	August to April
45.	275	<i>Galloperdix spadicea</i> (Gmelin)	Red Spurfowl	R, C	GR	PNP	Peninsular India	January to June

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
46.	278	<i>Galloperdix lunulata</i> (Valenciennes)	Painted Spurfowl	R, UnC	GR	PNP	- do -	- do
47.	299	<i>Gallus gallus</i> (Linnaeus)	Red Junglefowl	R, O	GR	PNP	- do -	March to May
48.	301	<i>Gallus sonneratii</i> (Temminck)	Grey Junglefowl	R, C	GR	Saddle Dam, Purva Kutumba	- do -	February to May
49.	311	<i>Pavo cristatus</i> Linnaeus	Indian Peafowl	R, C	OM	Phulzawri, Bodalzira, Saddle Dam	Throughout Subcontinent	June to September
		Order GRUIFORMES						
		Family TURMICIDAE						
50.	318	<i>Turnix suscitator</i> (Gmelin)	Common Buttonquail	R, UnC	Vg	Saddle Dam, Pipriya	Continental and Peninsular India south of 23° N Latitude	June to Oct.
		Family RALLIDAE						
51.	343	<i>Amaurornis phoenicurus</i> (Pennant)	White-breasted Waterhen	R, C	I, Vg	Pipariya, Kolutmara	North India south to 20° N Latitude	June to Oct.
52.	350	<i>Fulica atra</i> Linnaeus	Common Coot	R, C	OM	Saddle Dam, Pipariya Tank	All India	May to Sept.

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
53.	380	Order CHARADRIIFORMES Family CHARADRIIDAE <i>Charadrius dubius</i> Scopoli	Little Ringed Plover	R, C	I	PNP	Throughout the subcontinent	March to May
54.	370	<i>Vanellus malabaricus</i> (Boddaert)	Yellow-wattled Lapwing	R, UnC	I	PNP	- do	March to July
55.	366	<i>Vanellus indicus</i> (Boddaert)	Red-wattled Lapwing	R, C	I, Vg	Kirangi, Pipariya	All India	March to Sept.
56.	394	Family SCOLOPACIDAE <i>Tringa totanus</i> (Linnaeus)	Common Redshank	WV, UnC	Aq A	PNP	All India	Extralimal
57.	398	<i>Tringa glareola</i> Linnaeus	Wood Sandpiper	WV, C	Aq A	PNP	All India	Extralimal
58.	401	<i>Actitis hypoleucos</i> Linnaeus	Common Sandpiper	WV, C	Aq A	PNP	- do -	- do -
59.	430	Family RECURVIROSTRIDAE <i>Himantopus himantopus</i> (Linnaeus)	Black-winged Stilt	R, O	Aq A	PNP	- do -	- do -
60.	436	Family BURHINIDAE <i>Burhinus oedicephalus</i> (Linnaeus)	Stone-Curlew	R, UnC	OM	PNP	- do	Feb. to Aug.

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
61.	440	Family GLAREOLIDAE <i>Cursorius coromandelicus</i> (Gmelin)	Indian Courser	R, O	I	PNP	- do - but patchily distributed	March to Aug.
62.	463	Family LARIDAE <i>Sterna aurantia</i> J.E. Gray	River Tern	R, C	Aq A	Kolitmara	Throughout Indian Union	March to May
63.	517	Order COLUMBIFORMES Family COLUMBIDAE <i>Columba livia</i> Gmelin	Blue Rock Pigeon	R, C	GR	Totladoh	All India	All year
64.	541	<i>Streptopelia senegalensis</i> (Linnaeus)	Little Brown Dove	R, C	GR	Pipariya	- do -	- do -
65.	537	<i>Streptopelia chinensis</i> (Scopoli)	Spotted Dove	R, C	GR	Phulzari, Saddle Dam	- do -	- do -
66.	535	<i>Streptopelia tranquebarica</i> (Hermann)	Red Collared-Dove	R, C	GR	Pipariya	U.P., Bihar to Peninsular India upto Tamil Nadu	- do -
67.	534	<i>Streptopelia decaocto</i> (Frivaldszky)	Eurasian Collared-Dove	R, C	GR	Pipariya, Saddle Dam	Entire Indian Union	- do -
68.	504	<i>Treron phoenicoptera</i> (Latham)	Yellow-legged Green Pigeon	R, C	GR	Saddle Dam, Puruakutumba	All peninsular India	March to June

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
69.	545	Order PSITTA CIFORMES Family PSITTACIDAE <i>Psittacula eupatria</i> (Linnaeus)	Alexandrine Parakeet	R, C	FR	PNP	N. India, Gangetic plain upto 18° N Latitude	Dec. to April
70.	550	<i>Psittacula krameri</i> (Scopoli)	Rose-ringed Parakeet	R, A	FR	Saddle Dam & Pipariya	Peninsular India south to 20° N Latitude	Jan. to May
71.	558	<i>Psittacula cyanocephala</i> (Linnaeus)	Plum-headed Parakeet	R, C	FR	Bodalzira, Pipariya Ambakhari	- do -	Dec. to April
72.	570	Order CUCULIFORMES Family CUCULIDAE <i>Clamator jacobinus</i> (Boddaert)	Pied Crested Cuckoo	MV, C	I	PNP	N. India, peninsular India to 18° N Latitude	Parasite on Babblers
73.	577	<i>Hierococcyx varius</i> (Vahl)	Brainfever Bird	R, C	I	Totladoh	Entire subcontinent	- do -
74.	576	<i>Cuculus micropterus</i> Gould	Indian Cuckoo	R, UnC	I	- do -	- do -	- do - and Drongos

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
75.	578	<i>Cuculus canorus</i> Linnaeus	Common Cuckoo	R, UnC	I	Ambakhari Ranidoh	Throughout peninsula	- do - & Shrikes.
76.	590	<i>Eudynamys scolopacea</i> (Linnaeus)	Asian Koel	R, C	FR, I	-do-	Entire subcontinent	- do - on House & Jungle Crows
77.	596	<i>Phaenicophacus lescheneultii</i> (Lesson)	Sirkeer Malkoha	R, UnC	I	PNP	N. India, south to peninsular India upto 18° N Latitude	June to Aug. (Non parasitic)
78.	602	<i>Centropus sinensis</i> (Stephens)	Greater Coucal	R, C	CR, I	PNP	Peninsular India upto Kerala	All year
		Order STRIGIFORMES Family STRIGIDAE						
79.	617	<i>Otus scops</i> (Linnaeus)	Oriental Scops-Owl	R, C	I	PNP	- do-	Feb. to May
80.	622	<i>Otus bakkamoena</i> Pennant	Collared Scops-Owl	R, C	I, CR	PNP	Khandesh, M.P. to N. Bengal	Jan. to April
81.	627	<i>Bubo bubo</i> (Linnaeus)	Eurasian Eagle-Owl	R, C	CR, Crabs	PNP	Punjab-Himalaya south peninsula to Kanyakumari	Oct. to May

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
82.	650	<i>Athene brama</i> (Temminck) Order CAPRIMULGIFORMES Family CAPRIMULGIDAE	Spotted Owlet	R, C	I, CR	Fefdikund, Pipariya	Entire Gangetic plains south to 20° N Latitude	Feb. to April
83.	671	<i>Caprimulgus indicus</i> Latham	Indian Jungle Nightjar	R, C	I	PNP	All India	March to June
84.	680	<i>Caprimulgus asiaticus</i> Latham Order APODIFORMES Family APODIDAE	Common Indian Nightjar	R, C	I	PNP	All India	Feb. to Sept.
85.	703	<i>Apus affinis</i> (J.E. Gray) Order CORACIIFORMES Family ALCEDINIDAE	Indian House Swift	R, C	I	Ambakhuri, Phulzari	All India, except Kerala	All year
86.	723	<i>Alcedo atthis</i> (Linnaeus)	Small Blue Kingfisher	R, C	Aq A	Pipariya, Saddle Dam, Ranidoh	N. subcontinent, south upto 20° N Latitude	March to June
87.	730	<i>Halcyon capensis</i> (Linnaeus)	Stork-billed Kingfisher	R, C	Aq A	PNP	All India	Jan. to August

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
88.	736	<i>Halcyon smyrnensis</i> (Linnaeus)	White-breasted Kingfisher	R, C	Aq A	Pipariya, Saddle Dam, Ranidoh	All India & peninsula	Jan. to Aug.
89.	719	<i>Ceryle rudis</i> (Linnaeus)	Lesser Pied Kingfisher	R, UnC	Aq A	Totladoh	All India	All Year
		Family MEROPIDAE						
90.	750	<i>Merops orientalis</i> Latham	Small Bee-eater	R, C	I	Totladoh, Badalzira, Saddle Dam, Kolitmara	Throughout Indian subregion	Feb. to June
		Family CORACIIDAE						
91	755	<i>Coracias benghalensis</i> (Linnaeus)	Indian Roller	R, C	I	Phulzari, Saddle Dam, Kolitmara, Pipariya	Continental India, south to 20° N Latitude	March to June
		Family UPUPIDAE						
92.	765	<i>Upupa epops</i> Linnaeus	Common Hoopoe	W/R, C	I	Bodalzira, Pipariya, Kiranga	All India	April to June & Extralimital
		Family BUCEROTIDAE						
93.	767	<i>Ocyrceros birostris</i> (Scopoli)	Indian Grey Hornbill	R, C	FR	Phulzari, Bodalzira, Saddle Dam	- do -	March to June

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
94.	774	<i>Anthracoceros albirostris</i> (Shaw) Order PICIFORMES Family CAPITONIDAE	Oriental Pied Hornbill	R, UnC	FR	PNP	N. India	April - May
95.	780	<i>Megalaima zeylanica</i> (Gmelin)	Brown-headed Barbet	R, C	FR	Fefdikund, Ambakhari	Continental India, Gujarat to W. Bengal through N. Maharashtra	Feb. to June
96.	792	<i>Megalaima haemacephala</i> (P.L.S. Muller) Family PICIDAE	Coppersmith Barbet	R, C	FR	Pipriya Rd., Totladoh	Throughout Indian Union	Nov. to June
97.	847	<i>Dendrocopos mahrattensis</i> (Latham)	Yellow-fronted Pied Wood Pecker	R, C	I	Phulzari, Saddle Dam, Ranidoh	Practically all India	Feb. to May
98.	819	<i>Dinopium benghalensis</i> (Linnaeus)	Lesser Golden-backed Woodpecker	R, C	I	Bodalzira, Saddle Dam Ambakhari & Andhra Pradesh	Subcontinent, N. Maharashtra	Feb. to July
99.	867	<i>Pitta brachyura</i> (Linnaeus) Order PASSERIFORMES Family PITTIDAE	Indian Pitta	RMV,	I, CR UnC	PNP	Throughout the subcontinent	May to August

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
100	883	Family ALAUDIDAE <i>Ammomanes phoenicurus</i> (Franklin)	Rufous-tailed - Finch-Lark	R/C	GR	Phulzari, Pipariya	North & N. India	March to July
101	902	<i>Galerida deva</i> (Sykes)	Sykes's Crested Lark	R, UnC	GR	PNP	Central plateau country	Mar. to Sept.
102.	907	<i>Alauda gulgul</i> Franklia	Eastern or Small Skylark	R, C	GR	Saddle Dam, Kolutmara, Kiranga	Peninsular India, including N. Maharashtra, M.P.	Mar. to Aug.
103.	914	Family HIRUDINIDAE <i>Hirundo concolor</i> Sykes	Dusky Crag-Martin	R, C	I	Pipriya	Entire peninsula south to Kerala	Feb. to Mar. & July to Aug.
104.	916	<i>Hirundo rustica</i> Linnaeus	Common Swallow	WV, C	I	Pipariya, Kolutmara	More or less throughout the country	Extralimital
105.	925	<i>Hirundo daurica</i> Linnaeus	Red-rumped Swallow	WV, C	I	PNP	- do -	-do-
106.	1885	Family MOTACILLIDAE <i>Motacilla alba</i> Linnaeus	White Wagtail	WV, C	I	Pipariya, Totladoh	Himalaya foothills to S through Indian peninsula	Extralimital

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
107.	1891	<i>Motacilla maderaspatensis</i> Gmelin	Large Pied Wagtail	R, C	I	Fefdikund, Totladoh	- do -	Mar. to May
108.	1883	<i>Motacilla citreola</i> Pallas	Citrine Wagtail	WV, C	I	PNP	N. India, M.P. to Assam	Extralimal
109.	1876	<i>Motacilla flava</i> Linnaeus	Yellow Wagtail	WV, C	I	Ambakhari, Bodalzira	All India	- do -
110.	1884	<i>Motacilla cinerea</i> Tunstall	Grey Wagtail	WV, C	I	PNP	Throughout peninsula	- do
111.	1859	<i>Anthus rufulus</i> Vieillot	Paddyfield Pipit	R, C	I	Pipariya	- do - except far east and Kerala	Nov. to June
112.	1852	<i>Anthus hodgsoni</i> Richmond	Oriental Tree Pipit	WV, UnC	I	PNP	Entire Indian peninsula	Extralimal
		Family CAMPEPHAGIDAE						
113.	1072	<i>Coracina macei</i> (Lesson)	Large Cuckoo-Shrike	R, UnC	I	Saddle Dam	- do -	Jan. to Oct.
114.	1093	<i>Pericrocotus cinnamomeus</i> (Linnaeus)	Small Minivet	R, C	I	PNP	Rajasthan, M.P., Orissa, south through peninsula to Tamil Nadu	Feb. to Sept.
115.	1081	<i>Pericrocotus flammeus</i> (Forster)	Scarlet Minivet	R, C	I	Purva Kutumba	Tapti River in Gujarat S. through Maharashtra to Kerala	June to Sept.

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
116.	1070	<i>Tephrodornis pondicerianus</i> (Gmelin) Family PYCNONOTIDAE	Common Woodshrike	R, UnC	I	Ambakhari	Deccan	March to Apr.
117.	1120	<i>Pycnonotus jocosus</i> (Linnaeus)	Red-whiskered Bulbul	R, C	FR	Ambakhari	Tapti River and M.P. to Kerala	Mar. to July
118.	1128	<i>Pycnonotus cafer</i> (Linnaeus)	Red-vented Bulbul	R, C	FR	Bodalzira, Saddle Dam, Ambakhari	S. peninsula N. to Maharashtra	Feb. to Nov.
119.	1138	<i>Pycnonotus luteolus</i> (Lesson) Family IRENIDAE	White-browed Bulbul	R, UnC	FR	PNP	Eastern Peninsula Gujarat, M.P. to Midnapur	Jan. to Nov.
120.	1099	<i>Aegithina tiphia</i> (Linnaeus)	Common Iora	R, C	I	Purvakutumb	Himalayan foothills S. to 20° N Latitude,	May to Sept.
121.	1107	<i>Chloropsis cochinchinensis</i> (Gmelin)	Jerdon's Chloropsis	R, C	I	Ambakhari	Central U.P., east to W. Bengal, south throughout peninsula	Nov. to May

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
122.	949	Family LANIDAE <i>Lanius cristatus</i> Linnaeus	Brown Shrike	WV, UnC	I	Kolitmara	All India roughly S. & E. of Ahmednagar to Mhow to Lucknow	Extralimal
123.	940	<i>Lanius vittatus</i> Valenciennes	Bay-backed Shrike	R, C	I	Kolitmara	Throughout peninsula to Kanyakumari	Feb. to Sept.
124.	946	<i>Lanius schach</i> Linnaeus	Rufous-backed Shrike	WV, UnC	I	Phulzari, Lamandoh	N. India, South to Maharashtra and N. Karnataka	Extralimal
125.	933	<i>Lanius excubitor</i> Linnaeus	Great Grey Shrike	R, C	I	PNP	-do-; east to M.P. to W. Bengal	Jan. to Oct.
126.	1726	Family MUSCICAPIDAE Sub Family TURDINAE <i>Monticola solitarius</i> (Linnaeus)	Blue Rock-Thrush	WV, UnC	I, CR	PNP	Himalayan foothills S. throughout India	Extralimal

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
127.	1734	<i>Zoothera citrina</i> (Latham)	Orange-headed Thrush	R, C	I	PNP	Peninsular India from Gujarat, M.P., Orissa south to T. Nadu	May to Aug.
128.	1645	<i>Luscinia svecica</i> (Linnaeus)	Blue throat	WV, UnC	I	PNP	India south Nagpur, Londa	Extralimital
129.	1661	<i>Copsychas saularis</i> (Linnaeus)	Oriental Magpie-Robin	R, C	I	Totladoh Ambakhari Gawlighat	Himalayan foothills pen-insula S. to Cauvery River	Feb. to Aug.
130.	1719	<i>Saxicoloides fulicala</i> (Linnaeus)	Indian Robin	R, C	I	Phulzari	Central India, M.P., Orissa, south to Krishna river	Feb. to July
131.	1672	<i>Phoenicurus ochruros</i> (Gmelin)	Black Redstart	WV, C	I	PNP	Peninsular India upto Karnataka & Tamil Nadu	Extralimital
132.	1697	<i>Saxicola torquata</i> (Linnaeus)	Common Stone Chat	WV, C	I	PNP	Kashmir to Arunachal Pradesh throughout peninsula upto south Karnataka	-do-

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
133.	1701	<i>Saxicola caprata</i> (Linnaeus)	Pied Bushchat	R, C	I	Totladoh Ambakhari	Central India, Bengal and south to Cauvery River	Mar. to Aug.
		Subfamily TIMALIINAE						
134.	1222	<i>Dumetia hyperythra</i> (Franklin)	Rufous-bellied Babbler	R, C	I	PNP	Himalayan foothills south to Krishna river	Mar. to Sept.
135.	1231	<i>Chrysomma sinense</i> (Gmelin)	Yellow-eyed Babbler	R, C	I	Bodalzira, Fefdikund	From a line Nasik to Gorakhpur, south upto Cauvery river, E. to Assam	June to Nov.
136.	1254	<i>Turdoides caudatus</i> (Dumont)	Common Babbler	R, C	I	Ranidoh, Purva Kutumba	Foothill of Dehradun to plains in E. M.P. & Bihar and whole of peninsula	Mar. to July
137.	1258	<i>Turdoides malcolmi</i> (Sykes)	Large Grey Babbler	R, O.	I	Saddle Dam Rd.	Punjab to U.P. and through peninsula to Tamil Nadu	ill defined

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
138.	1262	<i>Turdoides striatus</i> (Dumont)	Peninsular Jungle Babbler	R, C.	I	Phulzari, Bodalzira, Saddle Dam, Ambakhari	Gujarat to W. Madhya Pradesh, S. through the peninsula to Nilgiris	- do -
Subfamily SYLVIINAE								
139.	1517	<i>Prinia socialis</i> Sykes	Ashy Prinia	R, C.	I	Ambakhari, Bodalzira	Entire peninsula, south of Narmada river and southern Bihar	Mar. to Nov.
140.	1571	<i>Prinia inornata</i> Sykes	Plain Prinia	R, C.	I	PNP	Central India from U.P., Bihar south through Tamil Nadu	Jun. to Oct.
141.	1535	<i>Orthotomus sutorius</i> (Pennant)	Indian Tailor Bird	R, C.	I	Ambakhari	Himalayan foothills, south to Kanyakumari	Mar. to Dec.

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
142.	1411	Subfamily MUSCICAPINAE <i>Ficedula parva</i> (Bechstein)	Red-throated Flycatcher	WV & PM, C.	I	PNP	Himalayan foothills, S. to Maharashtra and Karnataka	Extralimital
143.	1445	<i>Eumyias thalassina</i> (Swainson)	Verditer	WV, C. I	Flycatcher	PNP	Wintering whole of India	- do -
144.	1442	<i>Cyornis tickelliae</i> Blyth	Tickell's Blue-Flycatcher	R, C.	I	Fefdikund, Purva-kutumba	U.P., Bihar south to Cardaman Hills east to W. Bengal, Assam	April - Aug.
145.	1448	<i>Culicicapa ceylonensis</i> (Swainson)	Grey-headed Flycatcher	WV, C	I	PNP	Winters in Central India Satpuras to 18° N Latitude	—
146.	1461	Subfamily MONARCHINAE <i>Terpsiphone paradisi</i> (Linnaeus)	Asian Paradise-Flycatcher	R, C.	I	Saddle Dam, Fefdikund	Indian Peninsula Rajasthan, M.P., south to Kerala	Mar. to Aug.

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
147.	1451	Subfamily RHIPIDURINAE <i>Rhipidura aureola</i> Lesson	White-browed Fantail-Flycatcher	R, C.	I	Bodalzira, Ranidoh	Himalayan foothills S. through Gujarat, C. Maharashtra to Orissa	Feb. to Aug.
148.	1794	Family PARIDAE <i>Parus major</i> Linnaeus	Great Tit	R, C.	I	Saddle Dam, Pipariya	Peninsular India from Rajasthan Gujarat S. to Tamil Nadu	Feb. to Aug.
149.	1899	Family DICAIEIDAE <i>Dicaeum erythrorhynchos</i> Latham	Tickell's Flowerpecker	R, C.	FR	Ambakhari	Almost all India from Himalayan foothills	Feb. to June
150.	1917	Family NECTARINIDAE <i>Nectarinia asiatica</i> (Latham)	Indian Purple Sunbird	R, C.	N	Gawalighat, Saddle Dam, Ambakhari	Himalayan foothills to Kanyakumari	varies as per season

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
151.	1933	Family ZOSTEROPIDAE <i>Zosterops palpebrosa</i> (Temminck)	Oriental White-eye	R, C	I, FR	Ranidoh	Himalayan foothills to Karnataka on west and Godavari River on east	April to Sept.
152.	1966	Family EASTRILDIDAE <i>Lonchura malabarica</i> (Linnaeus)	White-throated Munia	R, C.	GR	PNP	Throughout India	Jan to March
153.	1974	<i>Lonchura punctulata</i> (Linnaeus)	Spotted Munia	R, C.	GR	Saddle Dam	- do -	June to Sept.
154.	1938	Family PASSERIDAE Subfamily PASSERINAE <i>Passer domesticus</i> (Linnaeus)	Indian House Sparrow	R, A.	GR	Totladoh	- do -	Throughout the year
155.	1949	<i>Petronia xanthocollis</i> (Burton)	Yellow-throated Sparrow	R, UnC	GR	PNP	- do	Feb. to May
156.	1957	Subfamily PLOCEINAE <i>PlocEus philippinus</i> (Linnaeus)	Baya Weaver	R, C.	GR	Kolitmara	- do -	April to Oct.
157.	994	Family STURNIDAE <i>Sturnus pagodarum</i> (Gmelin)	Brahminy Starling	R, C.	FR	Kolitmara	-do- except NE India	Feb. to Sept.

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
158.	996	<i>Sturnus rosEus</i> (Linnaeus)	Rosy Starling	WV, UnC	OM	PNP	- do -	Extralimital
159.	1002	<i>Sturnus contrad</i> (Linnaeus)	Asian Pied Starling	R, UnC	OM	PNP	Northern India, Gangetic Plain, S. to Krishna river delta	May to Sept.
160.	1006	<i>Acridotheres tristis</i> (Linnaeus)	Common Myna	R, C.	OM	Totladoh, Piparya	Throughout the India	Mar. to Sept.
161.	1008	<i>Acridotheres ginginianus</i> (Latham)	Bank Myna	R, UnC	OM	PNP	North & C. Central India, southward to a line from Mumbai to Orissa to W. Bengal	Mar. to Aug.
162.	1010	<i>Acridotheres fuscus</i> (Wagler)	Jungle Myna	R, UnC	OM	Totladoh	Southern India northward upto M.P. and S. Orissa	Feb. to May
		Family ORIOLIDAE						
163.	953	<i>Oriolus oriolus</i> (Linnaeus)	Eurasian Golden Oriole	SV/R/C	FR	Bodalzira, Saddle Dam, Fefdikund	Winters throughout peninsula upto Kerala	April to Aug.

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
164.	959	<i>Oriolus xanthornus</i> (Linnaeus)	Black-headed Oriole	R, C.	FR	Saddle Dam, Fefdikund Kolutmara, Bodalzira	Peninsular India, south of Gangetic plain, M.P. to Orissa through N. Maharashtra	Mar. to July
		Family DICRURIDAE						
165.	963	<i>Dicrurus macrocercus</i> Vieillot	Black Drongo	R, C.	I, CR	Phulzari, Bodalzira, Gawalighat, Saddle Dam	Throughout Peninsular India	Mar. to July
166.	967	<i>Dicrurus caerulescens</i> (Linnaeus)	Indian White-bellied Drongo	R, UnC	I	Saddle Dam, Bodalzira	- do	Mar. to June
167.	976	<i>Dicrurus paradiseus</i> (Linnaeus)	Greater Racket-tailed Drongo	R, UnC	I	Fefdikund, Ranidoh	Northern India south to A.P. through Maharashtra	April to June
		Family CORVIDAE						
168.	1031	<i>Dendrocitta vagabunda</i> (Latham)	Indian Tree Pie	R, C.	OM	Phulzari Totladoh, Saddle Dam, Ambakhari, Kolutmara	Himalayan foothills S. upto Gujarat, M.P. and Maharashtra	April to June

Sl. No.	Hand Book No.	Name of the species	Common Name	Status	Food Habit	Locality	Distribution	Breeding Season
169.	1049	<i>Corvus splendens</i> Vieillot	Indian House Crow	R, C.	OM	Ambakhari, Pipariya	All India except Kerala	Mar. to Aug.
170.	1056	<i>Corvus macrorhynchos</i> Wagler	Indian Jungle	R, C.	OM	Saddle Dam Crow Pipariya, Ambakhari	Gangetic Rd., Plain, all peninsular India South to Kanyakumari	Feb. to June

ABBREVIATIONS

Status	Population Status	Food Habits
R - Resident with local and seasonal movements	A - Abundant	I - Insectivorous
WV - Winter Visitor	C - Common	AqA - Aquatic Animals
PM - Passage Migrant	O - Occasional	Vg - Vegetable Matters
MV - Monsoon Visitor	UnC - Uncommon	GR - Graminivorous
SV - Summer Visitor		FR - Frugivorous
		CR - Carnivorous
Handbook No. - As given in Ali & Replay (1968-1974).		O - Omnivorous
PNP - Pench National Park (As per the Bird list by Forest Department, Nagpur)		Sc - Scavenger
A.P. - Andhra Pradesh		N - Nectar eater
M.P. - Madhya Pradesh		
U.P. - Uttar Pradesh		

REPTILIA

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INTRODUCTION

Pench National Park, Dist. Nagpur, is one of the five National Parks situated in Vidharbha region of Maharashtra State. It exhibits rich floral and faunal diversity. It is practically impossible to cover all the groups in one communication. Since no consolidated account on the reptilian diversity from this region is available, it has been decided to focus on Reptilia only in the present article. Present account is based on the material collected & species sighted during the project period between 1991-1996 and also on the bibliographic records (Smith, 1931, 1935, 1943, Daniel, 1983, Murthy, 1985, Tikader and Sharma, 1985 and 1992, Ahmed and Dasgupta, 1992, Indraneil Das, 1995, Gayen, 1999, Sharma, 1998 and 2000 and many others which have been mentioned at relevant places). An attempt has been made, here, to report an updated information on the reptilian species and subspecies.

SYSTEMATIC LIST OF REPTILIAN SPECIES REPORTED FROM PENCH NATIONAL PARK DIST. NAGPUR, MAHARASHTRA STATE

(*Asterisk indicates species actually collected and/or sighted during project period)

Phylum CHORDATA
Class REPTILIA
Order LORICATA (CROCODILIA)
Family CROCODILIDAE

1. *Crocodylus palustris* Lesson

Order TESTUDINES (CHELONIA)
Suborder CRYPTODIRA
Family EMYDIDAE

2. *Kachuga tentoria* (Gray)
3. *Melanochelys trijuga trijuga* (Schweigger)

Family TESTUDINIDAE

4. *Geochelone elegans* (Schoepff)

Family TRIONYCHIDAE

5. *Lissemys punctata granosa* (Schoepff)
6. *Trionyx leithi* Gray

Order SQUAMATA

Suborder SAURIA (LACERTILIA)

Family GEKKONIDAE

- *7. *Hemidactylus brooki* Gray
8. *Hemidactylus gracilis* Blanford
9. *Hemidactylus frenatus* Schlegel
10. *Hemidactylus leschenaulti* Dum. & Bibr.
*11. *Hemidactylus flaviviridis* Ruppell

Family EUBLEPHARIDAE

- *12. *Eublepharis macularius* (Blyth)

Family AGAMIDAE

- *13. *Sitana ponticeriana* Cuvier
*14. *Calotes versicolor* (Daudin)
15. *Calotes rouxi* Dum. & Bibr.
*16. *Psammophilus blanfordianus* (Stoliczka)

Family LACERTIDAE

17. *Ophisops jerdoni* (Blyth)

Family CHAMAELEONIDAE

- *18. *Chamaeleo zeylanicus* Laurenti

Family SCINCIDAE

- *19. *Mabuya innotata* (Blanford)
20. *Mabuya macularia* (Blyth)
*21. *Mabuya carinata* (Schneider)
22. *Mabuya beddomii* (Jerdon)
23. *Mabuya trivittata* (Hardwicke & Gray)
24. *Riopa punctata* (Linnaeus)

Family VARANIDAE

- *25. *Varanus bengalensis* (Daudin)

Suborder SERPENTES (OPHIDIA)

Family TYPHLOPIDAE

26. *Ramphotyphlops braminus* (Daudin) = *Typhlops braminus* (Daudin)
 27. *Typhlops acutus* (Dum. & Bibr.)
 28. *Typhlops porrectus* Stoliczka

Family BOIDAE

- *29. *Python molurus molurus* (Linnaeus)
 30. *Eryx johani johani* (Russell)
 *31. *Eryx conicus* (Schneider)

Family COLUBRIDAE

- *32. *Elaphe helena* (Daudin)
 *33. *Ptyas mucosus* (Linnaeus)
 *34. *Argyrogena fasciolatus* (Shaw)
 *35. *Ahaetulla nasutus* Lacep.
 36. *Oligodon taeniolatus* (Jerdon)
 37. *Oligodon arnensis* (Shaw)
 38. *Lycodon flavomaculatus* (Wall)
 *39. *Lycodon aulicus* (Linnaeus)
 40. *Lycodon striatus* (Shaw)
 41. *Sibynophis subpunctatus* (Dum. & Bibr.)
 42. *Macropisthodon plumbicolor* (Cantor)
 *43. *Xenochrophis piscator* (Schneider)
 44. *Amphiesma stolata* (Linnaeus)
 45. *Boiga trigonata* (Schneider)
 46. *Psammophis condanururs* (Merrem)
 47. *Psammophis longifrons* Boulenger

Family ELAPIDAE

- *48. *Bungarus caeruleus* (Schneider)
 49. *Callophis melanurus* (Shaw)
 *50. *Naja naja naja* (Linnaeus)

Family VIPERIDAE

*51. *Vipera russelli* (Shaw)*52. *Echis carinatus* (Schneider)53. *Trimeresurus gramineus* (Shaw)

SYSTEMATIC ACCOUNT

Phylum CHORDATA

Class REPTILIA

Order LORICATA (CROCODYLIA)

Family CROCODYLIDAE

1. *Crocodylus palustris* Lesson1763. *Crocodylus palustris* Lesson, in *Belong. Voy. Ind. or, zool.*, : 305.2000. *Crocodylus palustris* Lesson, Sharma, In *Fauna of Gujarat, State Fauna Series, 8 Part 1, (Vertebrates)* : 257.**Common name** : English : Marsh Crocodile, Marathi : Mugger.**Locality** : As per the local unauthentic reports crocodiles were sighted in Totaladoh, in past, even before the construction of the hydroelectric project. It seems to have been sighted by the local people even in Kanhan river, a nearest tributary of Pench river in Nagpur Dist.**Distribution** : Practically throughout India.**Status** : IUCN : Vulnerable (CAMP Report, 1998); *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : I Part : II; *CITES* : Appendix : I; *Red Data Book (1994)* : Endangered.**Remarks** : The species is known to be hunted for trade for skin and body parts in domestic as well as international markets (Pradhan, 1997). Sometimes even the live specimens are traded illegally.

Order TESTUDINES (CHELONIA)

Suborder CRYPTODIRA

Family EMYDIDAE

2. *Kachuga tentoria* (Gray)1834. *Emys.tentoria* Gray, *Proc. Zool. Soc.* : 54.1997. *Kachuga tentoria* (Gray) : Tikader and Sharma : *Handbook Indian Testudines* : 74-77. Publ : Director, ZSI, Kolkata.

Common name : English : South Indian Roofed turtle, Marathi : Kasav.

Locality : Tikader and Sharma (1997) have reported the distribution of this species from Central India including Nagpur Dist. The river system including Pench river of Nagpur Dist. forms a part of Godavari river basin.

Distribution : Tikader and Sharma (1997) and Das (1995) have recorded the distribution of this species from Mahanadi, Krishna and Godavari river systems of Peninsular India. It inhabits central part of Indian peninsula.

Status : Das (1995) reports its status as very common, while CAMP Report (1998) records its status as Lower risk – least concern.

Remarks : Das (1995) reports that large specimens are occasionally exploited for flesh.

3. *Melanochelys trijuga trijuga* (Schweigger)

1814. *Emys trijuga* Schweigger, *Prodr. Mong. Chel.* 41.

2000. *Melanochelys trijuga trijuga* (Schweigger), : Sharma In *Fauna of Gujarat* (Part I) *Vertebrate* : 251.

Common name : English : Indian snail eating turtle, Marathi : Kasav.

Locality : Daniel (1983) and Tikader and Sharma (1997) reported its distribution in central part, which includes Nagpur Dist., of peninsular India.

Distribution : Tikader and Sharma (1997) and Sharma (2000) have recorded the distribution of the subspecies from Goa, Karnataka, Kerala, Maharashtra and Tamil Nadu.

Status : The subspecies is endemic within Indian limits. Sharma (2000) reports its status as Indeterminate or possibly vulnerable, while CAMP Report (1998) records its status as Lower risk – least concern.

Remarks : Though Gayen (1999) has reported the species under Family *Bataguridae*, *Melanochelys trijuga trijuga* (Schweigger) has been retained in Family *Emydidae* following Sharma (2000). Main threat to the survival of the subspecies is due to large-scale exploitation of eggs and adults for food.

Family TESTUDINIDAE

4. *Geochelone elegans* (Schoepff)

1792. *Testudo elegans* Schoepff, *Hist. Tes.* p. 111 pl. xxv.

2000. *Geochelone elegans* (Schoepff), Sharma, In *Fauna of Gujarat, State Fauna Series*, 8 Part 1, (Vertebrates): 253-254.

Common name : English : Star Tortoise or Indian starred tortoise, Marathi : Chandani Kasav.

Locality : Tikader and Sharma (1997) reported its distribution in central part, which includes Nagpur Dist., of peninsular India.

Distribution : Tikader and Sharma (1985) and Sharma (2000) have reported the distribution of starred tortoise from Peninsular India.

Status : Daniel (1983) reported the status of starred tortoise as not uncommon species in its distributional range, while Sharma (2000) considers its status as indeterminate. CAMP Report (1998) has recorded its status as vulnerable; *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : IV; CITES Appendix : Appendix II.*

Remarks : Das (1995) and Sharma (2000) report that the threat to the survival of the species can be due to hunting and habitat loss.

Family TRIONYCHIDAE

5. *Lissemys punctata granosa* (Schoepff)

1792. *Testudo granosa* Schoepff, *Hist. Tes.* p. 127, pl. xxx A & B.

2000. *Lissemys punctata granosa* (Schoepff), Sharma, In *Fauna of Gujarat, State Fauna Series, 8 Part 1, (Vertebrates) : 255.*

Common name : English : Southern flap-shelled turtle, Marathi : Kasav.

Locality : Das (1995) reports Nagpur Dist. which includes Pench National Park in Maharashtra State under distribution of the species.

Distribution : Peninsular India.

Status : Daniel (1983) and Das (1995) reports status of southern flap-shelled turtle as common, while Sharma (2000) states that its status is suspected to be threatened on account of large scale killing for flesh and eggs and also due to habitat destructions. *Indian Wildlife (Protection) Act, (1972) (as amended upto 2002) Schedule : Schedule : I Part II (Lissemys punctata).*

Remarks : Sharma (2000) suspects threat to the survival of the species due to urbanization on nesting sites also. Though Das (1995) has considered *L. punctata punctata* (Lacep.) as a subspecies from southern peninsular India, the southern Indian flap-shelled turtle has been retained here as *L. punctata granosa* (Schoepff) as per Tikader and Sharma (1985) and Sharma (2000).

6. *Trionyx leithi* Gray

1872. *Trionyx leithi*, Gray, *Ann. Mag. Nat. Hist.* (4) X : 334..

2000. *Trionyx leithi* Gray, Sharma, In *Fauna of Gujarat, State Fauna Series, 8 Part 1, (Vertebrates), : 256-257.*

Common name : English : Peninsular or Deccan Soft-shelled turtle, Marathi : Kasav.

Locality : Das (1995) reports Nagpur Dist. which includes Pench National Park in Maharashtra State under distribution of the species.

Distribution : Sharma (2000) has reported the distribution of the species from Ganga and all other river systems of peninsular India up to Chennai. He has also recorded the species from south eastern districts of Gujarat.

Status : The species is endemic within Indian limits. Sharma (2000) suspects the status of *Trionyx leithi* as endangered on account of excessive killings of adult specimens for flesh and eggs for food. *Indian Wildlife (Protection) Act, (1972) (as amended upto 2002) Schedule* : Schedule : IV, *IUCN Category as per CAMP Report (1998)* : vulnerable (for *Aspideretes leithii* (= *Trionyx leithi*)).

Remarks : Though Das (1995) and Gayen (1999) have reported merger of *Trionyx* in Genus *Aspideretes*, Genus *Trionyx* has been retained in the present communication following Tikader and Sharma (1985) and Sharma (2000).

Order SQUAMATA
Suborder SAURIA (LACERTILIA)
Family GEKKONIDAE

* 7. *Hemidactylus brooki* Gray

1845. *Hemidactylus brooki* Gray, *Cat. Liz. Brit. Mus.* : 153

2000. *Hemidactylus brooki* Gray, Sharma, In *Fauna of Gujarat, State Fauna Series*, 8 (Part I) Vertebrate : 259-260.

Common name : English : Spotted House Gecko, Marathi : Pal.

Locality : One specimen was collected from Fefarikund area in Pench National Park by ZSI survey party during the project period.

Distribution : Widely distributed in whole of India and other parts of the world.

Status : Sharma (2000) reports status of the species as very common in its wide range of distribution; *IUCN Category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : Nil.

8. *Hemidactylus gracilis* Blanford

1870. *Hemidactylus gracilis* Blanford, *J. Asiat. Soc. Beng.* : xxxix : 362 p + pl. xvi + figs. 4-6.

1992. *Hemidactylus gracilis* Blanford, Tikader and Sharma, *Handbook of Indian Lizards* : 56.

Common name : English : Square spotted Gecko, Marathi : Pal.

Locality : Smith (1933) and Tikader and Sharma (1992) reported occurrence of this species from Berar region (Vidharba in Maharashtra State) which includes Pench National Park of Nagpur Dist. in Maharashtra State.

Distribution : Tikader and Sharma (1992) reported occurrence of this species from Poona Dist. to Raipur Dist. in M.P. through Vidharbha in Maharashtra state and Nalgonda Dist. in A.P. region.

Status : Endemic species within Indian limits, Indeterminate (Tikader and Sharma, 1992); **IUCN Category as per CAMP Report (1998) :** Vulnerable.

Remarks : Nil.

9. *Hemidactylus frenatus* Schlegel

1836. *Hemidactylus frenatus* Schlegel, *Erp. Gen.* 3 : 366.

1992. *Hemidactylus frenatus* Schlegel, Tikader and Sharma, *Handbook of Indian Lizards* : 58-59.

Common name : English : Ticticky House Gecko, Marathi : Pal.

Locality : Smith (1935) and Tikader and Sharma (1992) reported the extent of distribution of this species throughout peninsular India including Nagpur Dist. in which Pench National Park is situated.

Distribution : Peninsular India, West Bengal, Andaman and Nicobar Islands.

Status : Ahmed and Dasgupta (1992) and Tikader and Sharma (1992) reported the status of *H. frenatus* as abundant and widely distributed species; **IUCN category as per CAMP report (1998) :** Lower risk – least concern.

Remarks : Nil.

10. *Hemidactylus leschenaulti* Dumeril & Bibron

1836. *Hemidactylus leschenaulti* Dumeril & Bibron *Erp. Gen.*, iii : 364.

1992. *Hemidactylus leschenaulti* Dumeril & Bibron, Tikader and Sharma, *Handbook of Indian Lizards* : 58-59.

Common name : English : Common Bark Gecko, Marathi : Pal.

Locality : Smith (1935), Tikader and Sharma (1992) and Ahmed and Dasgupta (1992) reported the extent of the distribution of this species throughout peninsular India including Nagpur Dist. in which Pench National Park is situated.

Distribution Elsewhere : Peninsular India and West Bengal in Eastern India.

Status : Abundant (Tikader and Sharma, 1992), Common (Daniel, 1983); *IUCN Category as per CAMP Report (1998)*; Lower risk – least concern.

Remarks : Daniel (1983) reports that the dark grey colour of this gecko with wary bands on the back merges with the colour of the tree bark and hence becomes difficult to locate it.

***11. *Hemidactylus flaviviridis* Ruppell**

1935. *Hemidactylus flaviviridis* Ruppell, *Neue Wirb. Faun. Abyss.*, : 18 pl. vi fig. 2.

2000. *Hemidactylus flaviviridis* Ruppell, Sharma. *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 260.

Common name : English : Yellow bellied house Gecko. Marathi : Pal.

Locality : One specimen was collected from Chikhalkhari region, while others were sighted in Sillari and Totladoh areas in Pench National Park by ZSI Survey parties during the project period.

Distribution : Whole of India.

Status : Most common (Tikader and Sharma, 1992), *IUCN category as per CAMP report (1998)* : Lower risk – least concern.

Remarks : Widely distributed in North India above 20° N.

Family EUBLEPHARIDAE

***12. *Eublepharis macularius* (Blyth)**

1854. *Cyrtodactylus macularius* Blyth, *J. Asiat. Soc. Beng.*, : xxiii : 737-738.

1992. *Eublepharis macularius* (Blyth), Tikader and Sharma, *Handbook of Indian Lizards*, : 78

Common name : English : Desert fat-tailed Gecko. Marathi : Pal.

Locality : One specimen was collected from Saddle Dam area in Pench National Park by ZSI Survey party during project period.

Distribution : Punjab, Rajasthan, Madhya Pradesh and Maharashtra State.

Status : Indeterminate (Tikader and Sharma, 1992); *IUCN category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : The species is said to be quite indifferent to the sting of scorpion.

Family AGAMIDAE

***13. *Sitana ponticeriana* Cuvier**

1844. *Sitana ponticeriana* Cuvier. *Guerin. Icon. Reg. Anim. Rept.*, : pl. x fig. 2.

2000. *Sitana ponticeriana* Cuvier, Sharma, *Fauna of Gujarat, State Fauna Series, 8* (Part 1) Vertebrates : 261.

Common name : English : Indian fan throated lizard. Marathi : Sargota.

Locality : One specimen was collected from Kirrangi Sarrah area in Pench National Park by ZSI Survey party during the project period.

Distribution : Whole of India excluding region east of Ganges in Eastern India.

Status : Very common (Daniel, 1983 and Tikader and Sharma, 1992); *IUCN category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : Nil.

***14. *Calotes versicolor* (Daudin)**

1802. *Agama versicolor* Daudin, *Hist. Nat. Rept.*, iii : 395 pl. xlv.

2000. *Agama versicolor* (Daudin), Sharma, *Fauna of Gujarat, State Fauna Series, 8* (Part 1) Vertebrates : 262.

Common name : English : Indian garden lizard. Marathi : Girgit or Rang Badalnara Sarda.

Locality : A specimen was sighted in Bodhaljhira area in Pench National Park by ZSI Survey party during the project period.

Distribution : Practically whole of India.

Status : Most common species throughout its range (Daniel, 1983, Sharma, 2000), *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened in Central India. (For *Calotes versicolor versicolor* (Daudin)).

Remarks : Nil.

***15. *Calotes rouxi* Dum. & Bibr.**

1837. *Calotes rouxi* Dumeril and Bibron, *Erp. Gen.* iv : 407.

2000. *Calotes rouxi* Dumeril and Bibron, Sharma, *Fauna of Gujarat* (Part-1) *Vertebrates* : 262.

Common name : English : Forest Calotes or Matheran olive-brown calotes, Marathi : Girgit or Rang Badalnara Sarda.

Locality : Sighted a male specimen in breeding colour in the forested area near Kolutmara in Pench National Park by ZSI Survey party during the project period.

Distribution : Peninsular India, but predominant in Western Ghats (Daniel, 1983).

Status : Though widely distributed, the species is vulnerable on account of habitat destruction (Sharma, 2000). The species is, however, endemic within Indian limits. *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Nil.

***16. *Psammophilus blanfordanus* (Stoliczka)**

1871. *Charasia blanfordana* Stoliczka, *P. Asiat. Soc. Beng.*, 1871 : 194.

1992. *Psammophilus blanfordanus* (Stoliczka), Tikader and Sharma, *Handbook of Indian Lizards*, : 106.

Common name : English : Common Indian rock lizard.

Locality : Eight specimens were collected from Gavalighat, Ranidoh, Fefarikund, Kondrautar areas in Pench National Park by the ZSI Survey parties during the project period.

Distribution : Bihar, Madhya Pradesh, Orissa, Eastern and Western Ghats in Peninsular India;

Status : In abundance (Tikader and Sharma, 1992).

Remarks : Nil.

Family LACERTIDAE

17. *Ophisops jerdoni* Blyth

1853. *Ophiops jerdoni* Blyth. *J. Asiat. Soc. Beng.*, xxii : 653.

2000. *Ophisops jerdoni* Blyth, Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 268.

Common name : English : Punjab snake eyed lacerta, Jerdon's snake eye.

Locality : Tikader and Sharma (1992) reported the extent of distribution of this species throughout central (including Nagpur Dist. in which Pench National Park is situated), western and parts of south India.

Distribution : Rajasthan, Gujarat, Maharashtra, Andhra Pradesh, Madhya Pradesh, Tamil Nadu.

Status : Commonly seen in various localities of species range (Tikader and Sharma, 1992); *IUCN Category as per CAMP Report (1998)* : Data Deficient.

Remarks : Nil.

Family CHAMAELEONIDAE

***18. *Chamaeleo zeylanicus* Laurenti**

1768. *Chamaeleo zeylanicus* Laurenti, *Syn. Rept.*, : 46.

1999. *Chamaeleo zeylanicus* Laurenti, Sharma, *Fauna of Gujarat, State Fauna Series, 8* (Part 1) Vertebrates : 263-264.

Common name : English: Indian chameleon, Marathi : Girgit or Rang badalnara sarda.

Locality : One specimen was sighted in Ranidoh area in Pench National Park by ZSI survey party during the project period.

Distribution : Peninsular India.

Status : Endangered in India on account of habitat loss (Sharma, 2000), *Wildlife (Protection) Act (1972) India (as amended up to 2002) Schedule* : Schedule : II (*Chameleo calauratus**); *IUCN category as per CAMP Report (1998)* : Vulnerable, *CITES Appendix* : Appendix II.

Remarks : **Chameleo calcaratus* has been synonymised with *Chamaeleo zeylanicus* Laurenti (Smith, 1933).

Family SCINCIDAE

***19. *Mabuya innotata* (Blanford)**

1870. *Euprepes innotatus* Blanford, *J. Asiat. Soc. Beng.*, xxxix : 354.

1992. *Mabuya innotata* (Blanford), Tikader and Sharma, *Handbook of Indian Lizards* : 123-124.

Common name : English : Bronzy-olive skink, Marathi : Sapsurali.

Locality : One specimen has been collected from Fefarikund and around area in Pench National Park by ZSI survey party during the project period.

Distribution : Madhya Pradesh and Vidharbha region of Maharashtra State in India.

Status : *Mabuya innotata* is an endemic species in India. Rare or Indeterminate (Tikader and Sharma, 1992); *IUCN category as per CAMP report (1998)* : Data Deficient.

Remarks : Nil.

20. *Mabuya macularia* (Blyth)

1853. *Euprepes macularius* Blyth, *J. Asiat. Soc. Beng.*, xxii : 652.

2000. *Mabuya macularia* (Blyth), Sharma, *Fauna of Gujarat, State Fauna Series, 8* (Part 1) Vertebrates : 265.

Common name : English : Little skink, Bronzy Grass skink; Marathi : Sapsurali.

Locality : Daniel (1983), Tikader and Sharma (1992) and Gayen (1999) reported occurrence of this species throughout the peninsular India (including Nagpur Dist. in which Pench National Park is situated).

Distribution : Peninsular India.

Status : Very common (Daniel, 1983, and Tikader and Sharma, 1992), *IUCN category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : Nil.

***21. *Mabuya carinata* (Schneider)**

1801. *Scincus carinatus* Schneider, *Hist. Amphib.*, ii : 183.

1999. *Mabuya carinata* (Schneider), Gayen, *Hamadryad*, : 24 (1) : 9.

Common name : English : Common Indian skink, Common skink, Brahminy skink; Marathi : Sapsurali.

Locality : A few specimens were sighted in Central Phuljhari, Totladoh and Bodhaljhira areas in Pench National Park by ZSI survey parties during the project period.

Distribution : Peninsular India.

Status : Very common (Daniel, 1983, Tikader and Sharma, 1992 and Sharma, 2000), *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Nil.

22. *Mabuya beddomii* (Jerdon)

1870. *Euprepes beddomii*, Jerdon, *P. Asiat. Soc. Beng.*, : p. 73.

1992. *Mabuya beddomii* (Jerdon), Tikader and Sharma, *Handbook of Indian Lizards*, : 131.

Common name : English : Beddom's South Indian skink, Common skink, Brahminy skink; Marathi : Sapsurali.

Locality : Smith (1933) and Tikader and Sharma (1992) have reported occurrence of this species in Vidharbha region including North Eastern part of Maharashtra State (Nagpur Dist. in which Pench National Park is situated).

Distribution : Peninsular India.

Status : Rare due to habitat loss (Tikader and Sharma, 1992); *IUCN category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : Nil.

23. *Mabuya trivittata* (Hardwicke & Gray)

1827. *Tiliqua trivittata* Hardwicke & Gray, *Zool. l. Jour.*, iii : 227.

1992. *Mabuya trivittata* (Hardwicke & Gray), Tikader and Sharma, *Handbook of Indian Lizards*, : 132.

Common name : English : Five striped skink, Marathi : Sapsurali.

Locality : Smith (1933) and Tikader and Sharma (1992) reported wide occurrence of this species from Central (including Nagpur Dist. in which Pench National Park is situated) and South India and consider it as endemic to these regions only.

Distribution : Central and Southern peninsular India.

Status : Endemic to Central and Southern India, Indeterminate (Tikader and Sharma, 1992); *IUCN category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : Nil.

24. *Riopa punctata* (Linnaeus)

1766. *Lacerta punctata* Linnaeus, *Syst. Nat.*, p. 369.

2000. *Riopa punctata* (Linnaeus), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 266.

Common name : English : Dotted Garden skink, Snake skink, Marathi : Sapsurali or Sapachi Mavashi.

Locality : Smith (1933) and Tikader and Sharma (1992) reported wide occurrence of this species from whole of India.

Distribution : Almost whole of India.

Status : Most common (Sharma, 2000), *IUCN category as per CAMP Report (1998)* : Lower risk – least concern. (*Lygosoma punctatus* (Gmelin) = *Riopa punctatus* (Linnaeus).

Remarks : Though Gayen (1999) and some others have considered to keep dark spotted garden skink in *Lygosoma punctata* (Gmelin), it has been retained here in *Riopa punctata* (Linnaeus) only following keys and observations reported by Daniel (1983), Tikader and Sharma (1992), Ahmed and Dasgupta (1992) and Sharma (2000).

Family VARANIDAE

*25. *Varanus bengalensis* (Daudin)

1802. *Tupinambis bengalensis* Daudin, *Hist. nat. Rept.*, 3 : 67.

1999. *Varanus bengalensis* (Daudin), Gayen, *Hamadryad*, : 24 (1) : 12-13.

Common name : English : Common Indian monitor, Monitor lizard, Indian monitor; Marathi name : Ghorpad.

Locality : Sighting of live specimens in Sillari and Mansar areas by the ZSI survey parties during the project period.

Distribution : Whole of India.

Status : The population is alarmingly dwindling throughout the country due to excessive exploitation of the adults for meat and skin (Tikader and Sharma, 1992). *Indian Wildlife (Protection) Act 1972 (as amended up to 2002) Schedule* : Schedule II Part II, *CITES* : Appendix I; *Red Data Book (1994)* : Endangered; *IUCN category as per CAMP Report (1998)* : Vulnerable.

Remarks : As per Central Zoo Authority records live specimens of this species are present in 26 Indian zoos. Pradhan (1997) has reported illegal trade of this species at national as well as at international level.

Suborder SERPENTES (OPHIDIA)

Family TYPHLOPIDAE

26. *Ramphotyphlops braminus* (Daudin)

1803. *Eryx braminus* Daudin, *Hist. nat. Rept.*, 7 : 279.

1999. *Ramphotyphlops braminus* (Daudin), Gayen, *Hamadryad*, 24 (1) : 13.

Common name : English : Common Blind snake, Worm snake; Marathi : Vala.

Locality : Murthy (1985) and Gayen (1999) reported wide occurrence of this species from whole of India.

Distribution : Whole of India.

Status : Abundant in the distributional range (Sharma, 2000 for *Typhlops braminus* = *Ramphotyphlops braminus*). *Indian Wildlife (Protection) Act 1972 (as amended up to 2002), Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Though Sharma (2000) retained this species in *Typhlops braminus* (Daudin), it has been considered here as *Ramphotyphlops braminus* (Daudin) following keys and observations made by Murthy (1985), Ahmed and Dasgupta (1992) and Gayen (1999).

27. *Typhlops porrectus* Stoliczka

1871. *Typhlops porrectus* Stoliczka, *Jour. Asiat. Soc. Beng.* 40 : 426 pl. 25.

1998. *Typhlops porrectus* Stoliczka, Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 271.

Common name : English : Slender Blind snake; Marathi : Vala.

Locality : Smith (1943), Ahmed and Dasgupta (1992), Gayen (1999) and Sharma (2000) have reported wide occurrence of this species in whole of India.

Distribution : Whole of India.

Status : Abundant in its range of distribution (Sharma, 2000), *Indian Wildlife (Protection) Act 1972 (as amended up to 2002) Schedule* : Schedule : IV

Remarks : Nil.

28. *Typhlops acutus* (Dum. & Bibr.)

1844. *Onychocephalus acutus* Dumeril & Bibron, *Erp. Gen.*, : 6 : 333.

1998. *Typhlops acutus* (Dum. & Bibr.), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 271.

Common name : English : Beaked Blind snake; Marathi name : Vala.

Locality : Smith (1943), Daniel (1983) and Ahmed and Dasgupta (1992) have reported wide occurrence of this species in the region south of Ganges in peninsular India above 16° Latitude. The species is endemic to the peninsular Indian region.

Distribution : Endemic to peninsular India from Gangetic plains to 16° Latitude.

Status : Uncommon in its range of distribution (Sharma, 2000); *Indian Wildlife (Protection) Act 1972 (as amended up to 2002) Schedule* : Schedule IV.

Remarks : The species appears to be rarer south of Latitude 16° N.

Family BOIDAE

*29. *Python molurus* (Linnaeus)

1758. *Coluber molurus* Linnaeus, *Syst. Nat.* 10th Ed. : 225.

2000. *Python molurus* (Linnaeus), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 272-273.

Common name : English : Indian rock python; Marathi : Ajgar.

Locality : One live specimen was sighted in Ghatpendhari area by Forest Dept. authorities during the project period.

Distribution : Peninsular India.

Status : Vulnerable (Sharma, 2000) and not uncommon (Daniel, 1983). *IUCN category* as

per CAMP Report (1998) : Lower risk – near threatened; *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : I Part II; *Red Data Book (1994)* : Endangered.

Remarks : Survival of the species is in danger due to illegal trade for skin, body parts and live animals at national and international level (Pradhan, 1997).

30. *Eryx johni johni* (Russell)

1801. *Boa johnii* Russell, *Ind. Serp.*, ii : 18 & 20.

2000. *Eryx johni johni* (Russell), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 273.

Common name : English : Indian Sand Boa, John's sand boa, Red Sand boa, Black Earth boa, Stump-tailed sand boa; Marathi : Dutondya.

Locality : Smith (1943), Daniel (1983), Murthy (1985) and Sharma (2000) have reported wide occurrence of this species in central plains of the Indian subcontinent.

Distribution : Whole of India.

Status : Common in distributional range (Daniel, 1983, Sharma 2000); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : IV; *IUCN category as per CAMP Workshop (1998)* : Lower risk – least concern.

Remarks : Sometimes the live snake is used in street-shows by snake charmers (Pradhan, 1997).

*31. *Eryx conicus* (Schneider)

1801. *Boa conica* Schneider, *Hist. Amphibia*, ii : 268.

2000. *Eryx conicus* (Schneider), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 273.

Common name : English : Russell's sand Boa, Russell's Earth Boa; Marathi : Durkiya ghonas.

Locality : One live specimen was sighted in Central Phuljhari area in Pench National Park by ZSI survey parties during the project period.

Distribution : Whole of India.

Status : Common in the distributional range (Daniel, 1983 and Sharma, 2000); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : IV; *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : The species is traded illegally for body parts and live individuals at domestic level (Pradhan, 1997). As per CAMP Workshop Report (1998) there is threat to the survival of the species due to loss of habitat, human interference and illegal trade.

Family COLUBRIDAE

***32. *Elaphe helena* (Daudin)**

1803. *Coluber helena* Daudin, *Hist. nat. Rept.*, iv : 277.

2000. *Elaphe helena* (Daudin), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 276.

Common name : English : Trinket Snake, Common Trinket Snake; Marathi : Taskar Sap.

Locality : One live specimen was collected from Fefarikund area in the forested part of Pench National Park by ZSI survey party during the project period.

Distribution : Peninsular India.

Status : Common in the altitudinal range of 500 m - 2000 m in its area of occurrence (Daniel, 1983 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : IV; *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Trinket snake has been collected from the urban areas also (WRS, ZSI, Collection)

***33. *Ptyas mucosus* (Linnaeus)**

1758. *Coluber mucosus* Linnaeus, *Mus. Ad. Frid.*, 1 : 37

2000. *Ptyas mucosus* (Linnaeus), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 276.

Common name : English : Indian rat Snake, Dhaman; Marathi : Dhaman.

Locality : Sighted live specimens in Central Phuljhari and Bodhaljhira areas of Pench National Park by ZSI survey parties during the project period.

Status : Though common in its range of distribution, the rat snake is subjected to the commercial exploitation on account of its large scale killing for skin and meat (Daniel, 1983 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as emended up to 2002) Schedule* : Schedule II (Part II); *CITES Appendix* : Appendix II; *IUCN category as per CAMP report (1998)* : Lower risk – near threatened.

Remarks : Killing of rat snakes on large scales for its skin is real threat to the survival of the species. Rat snake skin is involved in illegal local, domestic and international trade (Pradhan, 1997). There is a persistent erranous belief amongst illiterates that rat snake is the male of cobra. An unusual behavior seen in rat snake is a “Combat Dance” between the two males which twine around each other on the ground as well as when half erect. The “act” appears to be a part of mating behavior.

***34. *Argyrogena fasciolatus* (Shaw)**

1802. *Coluber fasciolatus* Shaw, (based on Russell, 1796 p. 26, pl. 21).

2000. *Argyrogena fasciolatus* (Shaw), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 277.

Common name : English : Banded racer, Fasciolated rat snake; Marathi : Nagin.

Locality : One specimen was collected from Ranidoh region of Pench National Park by ZSI survey party during project period.

Distribution : Peninsular India, north to Himalaya and east to West Bengal.

Status : Common in the range of distribution (Daniel, 1983 and Sharma, 2000), *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report 1998* : Lower risk – near threatened.

Remarks : When disturbed, it raises its body and tries to flatten the neck like a cobra.

***35. *Ahaetulla nasutus* Lacep.**

1789. *Coluber nasutus* Lacepede, *Hist. Nat. Serp.*, i P. 100 and ii 277 pl. 4, fig. 2.

2000. *Ahaetulla nasutus* (Lacepede), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 285.

Common name : English : Common green whip snake, Common vine snake; Marathi : Haran Tol.

Locality : One specimen was sighted in Ranidoh area by the ZSI Survey party during the project period.

Distribution : Peninsular India.

Status : Common in the range of distribution (Daniel, 1983); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : IV; *IUCN category as per CAMP Report, 1998* : Lower risk – near threatened.

Remarks : Sharma (2000) feels that the status of the species is vulnerable due to habitat loss. The whip snake is mildly poisonous. Common green whip snake closely resembles green or bamboo pit viper in coloration.

36. *Oligodon taeniolatus* (Jerdon)

1853. *Coronella taeniolata* Jerdon, *J.A.S. Bengal*, xxii : 528.

2000. *Oligodon taeniolatus* (Jerdon), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 278.

Common name : English : Streaked kukri snake, Russell's or variegated kukri snake; Marathi name : Gargar.

Locality : Smith (1943), Daniel (1983), Gayen (1999) and Sharma (2000) have reported wide occurrence of this species in plains of India including Deccan.

Distribution : Whole of India.

Status : Common snake species in its distributional range Daniel, (1983) and Sharma (2000); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN Category as per CAMP Report (1998)* : Lower risk – near threatened (for *Oligodon taeniolatus fasciatus* (Gunther) which has been merged in *Oligodon taeniolatus*).

Remarks : As per CAMP Workshop Report (1998) there is a threat to the survival of species due to loss of habitat and human interference.

37. *Oligodon arnensis* (Shaw)

1802. *Coluber arnensis* Shaw, *Gen. Zool.* iii : 526.

2000. *Oligodon arnensis* Shaw, Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 278.

Common name : English : Russel's kukri snake, common kukri snake; Marathi : Gargar.

Locality : Smith (1943), Daniel (1983), Gayen (1999) and Sharma (2000) have reported wide occurrence of this species throughout India including central parts of the country.

Distribution : Whole of India.

Status : Not uncommon and available throughout its range (Daniel, 1983 and Sharma, 2000); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : Nil.

38. *Lycodon flavomaculatus* Wall

1907. *Lycodon flavomaculatus* Wall, *J. Bombay Nat. Hist. Soc.*, xvii : 612.

2000. *Lycodon flavomaculatus* Wall, Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 280.

Common name : English : Wall's yellow-spotted wolf snake; Marathi : Kandya saap.

Locality : Smith (1943) and Sharma (2000) have recorded Berar (Now popularly known as Vidharbha region which incidentally includes Pench National Park) as the locality for this species.

Distribution : Gujarat, Western Maharashtra and Central India.

Status : Rare and secretive snake (Sharma, 2000); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Vulnerable.

Remarks : Nil.

***39. *Lycodon aulicus* (Linn.)**

1754. *Coluber aulicus* Linnaeus, *Mus. Adolph. Frider.*, 1 : 29 Pl. 12. Fig. 2.

2000. *Lycodon aulicus* (Linn.), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 280.

Common name : English : Common wolf snake; Marathi : Kandya saap.

Locality : One specimen was collected from Hattigota region of Pench National Park by ZSI survey party during the project period.

Distribution : Whole of India.

Status : Most common snake throughout its range (Daniel, 1983, Gayen, 1999 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : Nil.

40. *Lycodon striatus* (Shaw)

1802. *Coluber striatus* Shaw, *Genl. Zool.*, iii : 527.

2000. *Lycodon striatus* Shaw, Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 280.

Common name : English : Shaw's wolf snake, Northern Wolf snake, Barred wolf snake; Marathi : Kandya saap.

Locality : Smith (1943), Daniel (1983), Gayen (1999) and Sharma (2000) have reported occurrence of this species throughout India including central parts of the country.

Distribution : Whole of India.

Status : Not common (Sharma, 2000); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : IV; *IUCN Category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Nil.

41. *Sibynophis subpunctatus* (Dum. & Bibr.)

1854. *Oligodon subpunctatus* Dum. & Bibr. *Erp. Gen.*, 7 : 58.

2000. *Sibynophis subpunctatus* Dum. & Bibr Sharma, *Fauna of Gujarat (Part I), Vertebrates* : 281.

Common name : English : Dumeril's Black headed snake.

Locality : Smith (1943), and Sharma (2000) have reported occurrence of this species in Central India which includes Pench National Park in Nagpur Dist. in Maharashtra State.

Distribution : Peninsular India.

Status : Not common (Sharma, 2000); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : IV; *IUCN Category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Nil.

42. *Macropisthodon plumbicolor* (Cantor)

1839. *Tropidonotus plumbicolour* Cantor, *Proc. Zool. Soc., London* : 54.

2000. *Macropisthodon plumbicolor* (Cantor), Sharma, *Fauna of Gujarat, State Fauna Series, 8* (Part 1) Vertebrates : 282.

Common name : English : Green keel back snake; Marathi : Hara saap, Gavathia, Gavtya saap.

Locality : Smith (1943), Murthy (1985) Gayen (1999) and Sharma (2000) have reported occurrence of this species in India south of Ganges including Central India where Pench National Park is located.

Distribution : Throughout India except Ganges Valley.

Status : Common throughout its range (Sharma, 2000); *Indian Wildlife (Protection) Act (1972, as amended up to 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : When provoked, it erects its forebody and flattens its neck like a cobra, hence it is called as “green cobra” in Tamil.

*43. *Xenochrophis piscator* (Schneider)

1799. *Hydrus piscator* Schneider, *Hist. Amph.*, : 247.

2000. *Xenochrophis piscator* (Schneider) Sharma, *Fauna of Gujarat, State Fauna Series, 8* (Part 1) Vertebrates : 281.

Common name : English : Checkered keelback snake; Marathi : Virula, Pan chidda, Dhiwad.

Locality : Specimens were sighted in Kirrangi Sarrah and Totladoh areas in Pench National Park by ZSI survey parties during the project period.

Distribution : Throughout India.

Status : Commonest snake of India (Daniel, 1983 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended upto 2002) Schedule* : Schedule II Part II; *CITES Schedule* : Appendix III; *IUCN category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : Most active and vicious amongst Indian snakes.

44. *Amphiesma stolata* (Linnaeus)

1758. *Coluber stolatus* Linnaeus, *Syst. Nat.*, : 219.

2000. *Amphiesma stolata* (Linnaeus), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 281-282.

Common name : English : Striped keelback, buff stripped keelback, Marathi : Naneti.

Locality : Smith (1943), Daniel (1983) and Sharma (2000) have reported wide distribution with most common occurrence status of this species throughout India including Pench National Park.

Distribution : Throughout India.

Status : Most common snake in its range. (Daniel, 1983 and Sharma 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN Category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Two distinct colour varieties occur in India. The typical form occurs throughout India (Daniel, 1983).

45. *Boiga trigonata* (Schneider)

1802. *Coluber trigonatus* Schneider, *Bechst. transl. Lacep.*, iv : 256 pl. XI fig. 1.

2000. *Boiga trigonata* (Schneider), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) : 282-283.

Common name : English : Indian Gamma or cat snake, Marathi : Manjra.

Locality : Smith (1943), Daniel (1983) and Sharma (2000) have reported wide distribution with most common occurrence status of this species throughout India. Hence its occurrence in Pench National Park area also has been assumed here.

Distribution : Peninsular India.

Status : Common throughout its range (Daniel, 1983 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : IV; *IUCN Category as per CAMP Report (1998)* : Lower risk – least concern.

Remarks : The colour and markings of cat snakes bear close resemblance to those of *Echis carinatus*. But two species can be easily separated by the absence of head shields in viper.

46. *Psammophis condanurus* (Merrem)

1820. *Coluber condanurus* Merrem, *Tent. Syst. Amph.*, : 107.

2000. *Psammophis condanurus* (Merrem), Sharma, *Fauna of Gujarat, State Fauna Series, 8* (Part 1) Vertebrates : 284.

Common name : English : Indian sand snake, condanarous sand snake.

Locality : Smith (1943), Daniel (1983) and Sharma (2000) have reported occurrence of sand snake in Berar (Now Vidharbha) region in which Pench National Park is included.

Distribution : Throughout the peninsular India.

Status : Common or not uncommon in its distributional range (Daniel, 1983 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN Category as per CAMP Report (1998)* : Lower risk – Near threatened.

Remarks : There is a threat to the survival of this species due to loss of habitat and human interference.

47. *Psammophis longifrons* Boulenger

1896. *Psammophis longifrons* Boulenger, *Cat. Sn. Brit. Ind.*, 3 : 165.

2000. *Psammophis longifrons* Boulenger, Sharma, *Fauna of Gujarat, State Fauna Series, 8* (Part 1) Vertebrates : 284.

Common name : English : Sand snake.

Locality : Smith (1943) and Sharma (2000) have reported this species from Nagpur and Berar.

Distribution Elsewhere : Maharashtra, Andhra Pradesh, Gujarat and Madhya Pradesh in India.

Status : Rare snake known by few examples only (Sharma, 2000). *Indian Wildlife (Protection) Act (1972 as amended up to 2002) Schedule* : Schedule IV, *IUCN Category as per CAMP Report (1998)* : Lower risk-near threatened.

Remarks : CAMP Report (1998) records human interference as a threat to the survival of the species.

Family ELAPIDAE

***48. *Bungarus caeruleus* (Schneider)**

1801. *Pseudoboa caerulea* Schneider, *Hist. Amphib.* ii : 284.

2000. *Bungarus caeruleus* (Schneider), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 287.

Common Name : English : Common Indian Krait, Marathi : Manyar, Kander.

Locality : One live specimen was sighted in Bodhaljhira area in Pench National Park by ZSI survey party during project period.

Distribution : Peninsular India.

Status : Common in the range (Daniel, 1983); Becoming rare on account of habitat loss (Sharma, 2000); *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Kraits are killed for skins for illegal trade.

49. *Callophis melanurus* (Shaw)

1802. *Coluber melanurus* Shaw, *Gen. Zool.*, iii : 552.

2000. *Callophis melanurus* (Shaw), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 287.

Common Name : English : Slender coral snake.

Locality : Smith (1943), Daniel, (1983) and Sharma (2000) have reported this species from Nagpur and the then Central Province.

Distribution : Peninsular India.

Status : Uncommon (Daniel, 1983) and rare (Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Lower risk – Near threatened.

Remarks : When the snake is disturbed, it curls its tail and exhibits the red under surface.

***50. *Naja naja naja* (Linnaeus)**

1758. *Coluber naja* Linnaeus, *Syst. Nat.* 10th ed., : 221.

2000. *Naja naja naja* (Linnaeus), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 288.

Common Name : English : Indian Cobra; Marathi : Naag.

Locality : Two specimens were sighted in Gawlighat and Ghatpendhari areas of Pench National Park by ZSI survey parties during project period.

Distribution : Peninsular India.

Status : The population has been reduced drastically on account of habitat destructions, killings and trade (Daniel, 1983 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule :* Schedule II Part II; *CITES Appendix :* II, *IUCN Category as per CAMP Report :* Lower risk – near threatened.

Remarks : Cobras are killed indiscriminately on a very large scale for illegal trade of their skins (Pradhan, 1997).

Family VIPERIDAE

*51. *Vipera russelli* (Shaw)

1797. *Coluber russelli* Shaw, *Nat. Misc.*, : viii : 291.

2000. *Coluber russelli* (Shaw), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 294.

Common Name : English : Russell's viper; Marathi : Ghonas.

Locality : Two live specimens were sighted in Phuljhari and Pipariya areas of Pench National Park by ZSI survey parties during the project period.

Distribution : Whole of India.

Status : The species is abundant in some areas, uncommon or rare or even missing in other areas (Daniel, 1983 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule :* Schedule II, Part II; *IUCN Category as per CAMP Report (1998) :* Lower risk – near threatened.

Remarks : Gayen (1999) considered Russell's viper as a species under another genus *Daboia*. The species has been treated here as *Vipera russelli* (Shaw) following Sharma (2000). Russell's viper is being killed indiscriminately on a very large scale for their skins for illegal trade in local, domestic and international market (Pradhan, 1997).

*52. *Echis carinatus* (Schneider)

1801. *Pseudoboa carinata* Schneider, *Hist. Amphibia*, ii : 285.

2000. *Echis carinatus*, (Schneider), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 294 – 295.

Common Name : English : Saw-scaled viper; Marathi : Phoorsa.

Locality : One specimen was sighted in Totladoh area of Pench National Park by ZSI Survey party during the project period.

Distribution : Widely distributed in peninsular India.

Status : Common throughout its range (Daniel, 1983, and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Lower risk – near threatened.

Remarks : Saw-scaled vipers are killed indiscriminately on a very large scale for illegal trade of their skins.

53. *Trimeresurus gramineus* (Shaw)

1802. *Coluber gramineus* Shaw, *Genl. zool.* iii : 420.

2000. *Trimeresurus gramineus* (Shaw), Sharma, *Fauna of Gujarat, State Fauna Series*, 8 (Part 1) Vertebrates : 295.

Common Name : English : Bamboo Pit viper; Marathi : Hara Ghonas.

Locality : Smith (1943), Daniel (1983) and Sharma (2000) have reported occurrence of this species throughout the peninsular India.

Distribution : Peninsular India.

Status : Not uncommon in its range of distribution (Daniel, 1983 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972) (as amended up to 2002) Schedule* : Schedule : IV; *IUCN category as per CAMP Report* : Lower risk – Near threatened.

Remarks : The threat to the survival of species is due to habitat loss for urbanization.

There is a record of isolated collection of the North-East Indian species of pit viper (*Trimeresurus albolabris*) from Central Province (Nagpur) reported by Smith in 1943. Since then there is no further updated information available on its collection record from this region. Hence, the species has not been included in the present chapter following Murthy's observations on its distribution (1985).

DISCUSSION

Systematic list of reptilian species given above reports occurrence of 53 reptilian species / subspecies in Pench National Park area. As stated earlier the inventory is based on collection, sighting and bibliographic records. 53 species/subspecies belonging to one crocodile family, three freshwater turtle families, seven lizard families and five snake families have been reported. Out of 53, 22 species/subspecies (About 42%) have been actually sighted and/or

collected from the study area during the project period (1991-1996). The inventory lists one species of crocodile, four species of freshwater turtles, nineteen species of lizards and twenty eight species of snakes (including six species of poisonous snakes). Sixteen colubrid snake species have been reported from this region. The snake species are followed by six scincid and five gekkonid species. Snake species diversity apparently appears to be fairly rich in the region (28 in 53 i.e. 55% of the reptilian species reported from this region). The list clearly indicates fairly rich diversity of the reptilian species. The species-wise systematic account of the reptilian species reports, surprisingly, a fairly good Indian endemecity in the region. Twelve Indian endemic species have been reported from Pench National Park. The details of Indian endemic reptilian species are as follows :

Order TESTUDINES

Family EMYDIDAE

1. Indian snail eating turtle : *Melanochelys trijuga trijuga* (Schweiger)

Family TRIONYCHIDAE

2. Southen flap shelled turtle : *Lissemys punctata granosa* (Schoepff)
3. Deccan soft-shelled turtle : *Trionyx leithi* Gray.

Order SQUAMATA

Suborder SAURIA (Lacertilia)

Family GEKKONIDAE

4. Square spotted Gecko : *Hemidactylus gracilis* Blanford.

Family AGAMIDAE

5. Forest calotes : *Calotes rouxi* Dum. & Bibr.
6. Common Indian Rock lizard : *Psammophilus blanfordanus* (Stoliczka).

Family SCINCIDAE

7. Bronzy olive skink : *Mabuya innotata* (Blanford).
8. Five striped skink : *Mabuya trivittata* (Hard & Gray).

Suborder SERPENTES

Family TYPHLOPIDAE

9. Beaked blind snake : *Typhlops acutus* (Dum. & Bibr.)

Family COLUBRIDAE

10. Sand snake : *Psammophis longifrons* Boulenger.

Family VIPERIDAE

11. Saw-scaled viper : *Echis carinatus* (Schneider)

12. Bamboo pit viper : *Trimeresurus gramineus* (Shaw)

When conservation status of the reptilian species under Indian Wildlife (Protection) Act (1972) (as amended up to 2002) was studied, it was seen that 31 species/subspecies out of 53 (57.4 %) have been included in some or other schedules of Indian Wildlife (Protection) Act. The details, in brief, are as follows :

Wildlife Act Schedule	I (II)	II (II)	IV
CROCODYLIA	1	-	-
TESTUDINES	1	-	2
SQUAMATA (SAURIA)		2	-
SQUAMATA (SERPENTES)	1	4	20
Total	3	6	22 = 31

Finally following conclusions can be drawn :

1. Pench National Park can boast of rich reptilian species diversity.
2. It can also boast of a fairly good representation of Indian endemic reptilian species.
3. Fairly large number of reptilian species (31 in 53 *i.e.* 57.4%) have been included under some or other Wildlife (Protection) Act Schedules (1972) (as amended up to 2002) and have been offered protection from conservation point of view.

ACKNOWLEDGEMENTS

The author is grateful to Dr. J.R.B. Alfred, Director, Zoological Survey of India, Kolkata, for giving him the opportunity to undertake the assignment. Thanks are also due to the Officer-in-Charge, Zoological Survey of India, Western Regional Station for providing the facilities.

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AMPHIBIA

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INTRODUCTION

The Pench National Park is located on the banks of Pench River which flows through this park from North to South in the Satpuda Hill Ranges. The general terrain is hilly. There is a huge dam near the Park on the Pench river which also houses a hydroelectric project. The water is thus available throughout the year in the park, making the area an ideal habitat for various species of Amphibians, that require freshwater bodies to complete their life cycle. The annual rainfall is about 1100 mm, and the forest is of a dry deciduous type. There are many streams running through the park area with clear water of varying depths from 4 inches to 2 feet.

In India the work on amphibians has been started by Boulenger(1890), thereafter a number of workers studied the amphibians in the Indian region viz. Inger & Dutta (1986), Chanda (1994), and Dutta (1997). Daniel (1963 a,b), (1975) and Daniel & Sekar (1989), in their field guide to the Amphibians of Western India, have listed 29 species of amphibians from the western ghat section of the Maharashtra state. Yazdani and Mahabal 1976, Paranjape and Mulherkar (1979) have studied the amphibians from Pune district. Ravichandran and Pillay (1990) have studied amphibians of Maharashtra based on the collections from Zoological Survey of India, Western Regional Station, Pune. Sekar A.G.(1999) has given a list of 34 species of amphibians from Maharashtra. Padhye and Ghate (2002) have listed 43 species of amphibia from Maharashtra.

SYSTEMATIC LIST OF AMPHIBIAN SPECIES FROM PENCH NATIONAL PARK, DIST. NAGPUR, MAHARASHTRA

Phylum CHORDATA
Class AMPHIBIA
Order ANURA
Family BUFONIDAE

1. *Bufo melanostictus* Schn.

Family MICROHYLIDAE

2. *Microhyla ornata* (Dum. & Bibr.)

Family RANIDAE

3. *Hoplobatrachus crassus* (Jerdon)
4. *Euphlyctis cyanophlyctis* (Schn.)
5. *Limnonectes limnocharis* (Gravenhorst.)
6. *Sphaerotheca breviceps* (Schn.)

Family RHACOPHORIDAE

7. *Polypedates maculatus* (Gray)

SYSTEMATIC ACCOUNT

1. *Bufo melanostictus* Schnieder
Common Indian Toad

Diagnosis : Head, upper lip, tips of fingers, toes and metatarsal tubercles with prominent bony ridges. Tympanum $\frac{2}{3}$ diameter of the eye. First finger usually longer than the second. Skin with spine tipped warts. Colour of the dorsal side varying from greyish to brownish. Venter whitish with black striplings on the chin. Toes about $\frac{1}{2}$ webbed with small subarticular tubercles. Inner metatarsal tubercle large and elliptical, outer metatarsal tubercle small.

Materials examined : Gawlighat 2 exs. 26.9.94; Kanfautar 1 ex. 26.9.94; Hatti Gota. 2 exs. 28.9.94; Narha 2 exs. 6.10.94; Kolutmara 1 ex 7.10.94, 1 ex. 18.9.95; Gawlighat 2 exs. 11.12.95; Saddle dam 1 ex. 22.2.99.

Distribution : Throughout the Indian subcontinent and Malaysia.

2. *Microhyla ornata* (Dumeril and Bibron.)
Ornate Microhylid

Diagnosis : Size small, snout to vent length about 25 mm. Dorsal surface reddish brown with a characteristic marking on the back giving it an ornate look. Throat and chest whitish. Tympanum is not visible, indistinct. Toes webbed feebly. Subarticular tubercles small and distinct. Tibio-tarsal articulation reaches between the shoulder and the eye. Inner and outer metatarsal tubercles are small and round.

Materials examined : Bakhari Tank 1 exs. 29.9.94; Pipariya 1 ex. 26.2.99.

Distribution : Throughout Southeast Asia.

3. *Hoplobatrachus crassus* (Jerdon)
Jerdon's Bull Frog

Diagnosis : Large sized amphibians with a snout to vent length about 70 to 75mm. Dorsal surface green ventrally white. Skin granular with longitudinal folds dorsally, ventrally smooth. Tympanum two-thirds the diameter of the eye. Tibio-tarsal articulation reaching the tympanum Toes fully webbed. Sub-articular tubercles small, a strong shovel-shaped inner metatarsal tubercle present which is equal to inner toe in length, outer metatarsal tubercle absent.

Materials examined : Bakhari Tank 1 exs. 29.9.94; Tirangi Charra 1 ex. 30.9.94

Distribution : Andhra Pradesh, Bihar, Kerala, Orissa, TamilNadu, Uttar Pradesh, West Bengal, Nepal and Sri Lanka.

4. *Euphlyctis cyanophlyctis* (Schnieder.)
Skipper Frog

Diagnosis : Medium sized frogs of 45 to 55 mm snout to vent length. First and second fingers equal. Tympanum about two-thirds the diameter of the eye. Tibiotarsal articulation reaches between the eye and the nostril. Toe tips swollen and rounded, toes fully webbed, a line of porous warts on the flanks. Inner metatarsal tubercle finger like, outer metatarsal tubercle absent. Skin warty dorsally, a 'U' shaped line of warts around anus, ventrally smooth. Colour olive green above with darker marblings, ventrally white. Some specimens show dark marblings on the underside.

Materials examined : Gawlighat 2 exs. 8.12.94, 2 exs. 26.9.95; Kanar Utar Nulla 3 ex. 14.3.98; Hatti Gota. 7 exs. 28.9.94, 1 ex.16.3.98; Bakhari tank 4 exs. 29.9.94, 8 exs. 5.12.95, 3 exs. 15.9.95, 2 exs. 23.2.99, 6 exs. 28.2.99; Phephari kund 9 exs. 23.2.99; 2.12.94, 1 ex. 20.9.95, 1 ex. 6.10.96, 2 exs. 30.4.97, 2 exs. Tirangi Charra 1 ex. 22.9.97, 2 exs. 1.3.99; Ranidoh 1 ex. 8.10.96; Ambakhori 6 exs. 4.12.94, 2 exs. 21.9.95, 2 exs. 23.9.97, 3 exs. 11.3.98, 4 exs. 22.2.99; Ghatpendhri 2 exs. 24.2.99, 1 ex. 25.9.95; Kandrya Nulla 10 exs. 25.2.99; Seeta Nahar 2 exs. 27.2.99; Shiv Kund 3 exs. 1.3.99; Pipariya 6ex. 4.12.95.; Dongardeo 1 ex. 15.3.98; Kolutmara 1 ex. 7.10.94, 1 ex. 18.9.95; Saddle dam 1 ex. 3.10.96; Manpazadi Nalla 4 ex. 22.9.95; Sillari 1 ex. 28.9.95; Salona 1 ex. 28.9.95.

Distribution : Throughout India, Sri Lanka and Nepal.

5. *Limnonectes limnocharis* (Gravenhorst.)
Indian Cricket Frog

Diagnosis : Small to medium sized frogs. Toes are only half webbed. First finger longer than the second. Tympanum distinct and nearly half the diameter of the eye. Tibiotarsal articulation reaches the nostril when the legs are held alongside of the body. Subarticular tubercles small, both inner and outer metatarsal tubercles present. Skin warty above, grayish

or brownish coloured with darker markings and a dorsal vertebral band, the vertebral band is much broader in some specimens.

Materials examined : Gawlightat 9 exs. 8.12.94, 2 exs. 11.12.95; Chikhalkari Nulla 5 exs. 27.9.94; Hatti Gota. 1 exs. 28.9.94, 1 ex. 16.3.98, 1 ex. 28.2.99, 1 ex. 17.9.95; Sillari 1 ex. 18.3.98; Norhar 1 exs. 23.9.95; Ghatpendhri 1 ex. 25.9.95; Salona 2 ex. 28.9.95; Kosum Nalla 2 ex. 16.9.95; Fulzari 1ex. 13.12.95; Tirangi Charra 1 ex. 6.12.94; Paulzodi 3 exs. 10.12.94; Pench River 2 exs. 25.4.97; Saddle dam 1 ex. 20.9.97, 1 ex. 22.2.99; Totladoh 7 ex. 10.3.98; Phephari kund 5 exs. 11.3.98; Ranidoh 2 ex. 12.3.98; Dongardeo 1 ex. 15.3.98; Bakhari tank 6 exs. 29.9.94;

Distribution : Throughout the Indian Union.

6. *Sphaerotheca breviceps* Schnieder Indian Burrowing Frog

Diagnosis : Medium sized Frogs. Snout short and rounded. Tympanum is $\frac{3}{5}$ the diameter of the eye. First finger is longer than the second finger. Tibiotarsal articulation reaching the shoulder when the leg is held by the side of the body. Toes are $\frac{3}{4}$ webbed. Inner metatarsal tubercle strong, large, crescent shaped and equal in length to the inner toe. Skin smooth or finely granular on the back, coarsely granular on the belly and thighs. Colour grayish above with white marblings. Thighs marbled with yellow ventrally, throat sometimes brownish, rest of the venter white.

Materials examined : Audit point 1 exs. 7.5.97, 2 exs. 11.12.95; Moralli Nulla 1 exs. 19.9.95; Hatti Gota. 1 exs. 28.9.94; Norhar 1 ex. 23.9.95.

Distribution : Throughout the Indian Peninsula, Nepal, Mynmar, Sri Lanka.

7. *Polypedates maculatus* (Gray.) Common Tree Frog

Diagnosis : Slender frog of a medium size of about 35 to 45 mm. Vomerine teeth are present in two equal rows. Tympanum is $\frac{3}{4}$ th the diameter of the eye. First finger equal to the second. Toes are $\frac{3}{4}$ th webbed. Tips of the fingers and toes with discs inner metatarsal tubercle oval and prominent. Skin smooth above and granular on belly and thighs. Colour yellowish white above with darker spots, ventrally dull white.

Materials examined : Gawlightat 1 exs. 26.9.94; Hatti Gota. 2 exs. 28.9.94; Sillari 1 ex. 25.2.99; Narha 3 exs. 6.10.94; Kolutmara 2 ex. 7.10.94; Salona 1 ex. 29.9.95; Bodhaljira 1 ex. 3.12.94.

Distribution : Throughout India, Except Haryana, Punjab and Rajasthan.

DISCUSSION

As seen from the collections of Pench National Park there are 7 species of Amphibians present within the Park area belonging to 7 genera and 4 families of the order Anura. Prominently missing out of these collections are *Bufo stomaticus* Lutken, and *Hoplobatrachus tigerinus* (Daudin), which are commonly found in other areas throughout India. *Hoplobatrachus tigerinus* (Daudin), which is sympatric with *Hoplobatrachus crassus* (Jerdon) seems to have been replaced by the latter within that area. *Euphlyctis cyanophlyctis* and *Limnonectes limnocharis* are the commonest species within the park.

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PISCES

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INTRODUCTION

There is little account on Ichthyofauna of rivers of Vidarbha, except the literature of Gujar (1992) on Melghat and Pradhan (1997) on Wardha river basin.

Information on name of the species, common name, status distribution, localities and remarks is given in tabular form for 33 species which had also occurred in Melghat Tiger Reserve. Details about their brief identification characters, systematics and bibliography is already published in "Fauna of Melghat Tiger Project - Pisces", year 2004, pages.

For identification of fishes Day's plate, (1875-1878), Day's fauna (1889) and latest books like Jayaram (1981), Talwar and Jhingran (1991), Menon (1987, 1999), Yazdani (1990) were referred.

DISCUSSION

During survey from 1994 to 1999, it was observed that various waterbodies of Pench National Park contain 33 species comprising 23 genera, 11 families under 8 orders of fishes. Order Cypriniformes forms major bulk of 20 species, while the family Cyprinidae represents 17 species with much speciation in the subfamilies Rasborinae and Cyprininae. In the Cyprininae major carps of the genera *Labo*, *Cirrhinus* are together absent. The present paper shows an assemblage of small to medium sized fishes. In the family cobitidae only 3 species of *Noemacheilus* were collected while genera *Botia* and *Lepidocephalus* were absent. The catfishes (Order : Siluriformes) is represented by the genera *Mystus*, *Gagata* and *Heteropneustes* only. There are 4 representatives of perches. (Order : Perciformes).

The data on present collection indicates that there are 16 species common to Pench National Park while 17 are uncommon. Pench river forms major ecosystem for these fishes. Two species of fishes are exotic viz. *Oreochromis mossambica* (Peters) and *Poecilia reticulata* Peters.

Thus Pench National Park forms a beautiful yet smaller ecosystem sustaining smaller to medium sized aquarium fishes, food fishes and game fishes.

TABLE - I FAUNA OF PENCH NATIONAL PARK - PISCES

Sl. No	Name of species	Common name	Status	Locality within Pench	Distribution	Remarks
1.	Order : OSTEOGLOSSIFORMES Family : NOTOPTERIDAE <i>Notopterus notopterus</i> (Pallas)	Chalat patre, feather back	UN	Pench river Kolutmara	All over India	Carnivorous
2.	Order : CYPRINIFORMES Family : CYPRINIDAE Subfamily : CULTRINAE <i>Salmostoma boopis</i> (Day)	Boopis razor belly minnow, Alkut	UN	Piparia tank	Pinensular India, Melghat.	SL 15 mm.
3.	Subfamily : RASBORINAE <i>Barilius vagra</i> (Ham-Buch.)	Vagra baril	UN	Gavalighat	India: Himalayan & Sub Himalayan rivers, Melghat	—
4.	<i>Brachydania rerio</i> (Ham-Buch)	Zebra danio	UN	Bodhal zeera, Mungazadi nalla, Bokhari pond, Pendhar under nalla point Shiv Kund Phephari kund.	Eastern India	Good aquarium fish.

Sl. No.	Name of species	Common name	Status	Locality within Pench	Distribution	Remarks
5.	<i>Danio aequipinnatus</i> (McClelland)	Balooki	C	Chikhalkhari nalla, Totladoh, Salama & around; Pench river near Hattigota; Pendhari rd. Dongargaon, Dongardeo; Gavalighat; Pendhar under nalla point, Shivkund, Rani doh, Fephadikund; Ambakhori.	Throughout India.	It is an aquarium fish.
6.	<i>Esomus danricus</i> (Ham-Buch.)	Flying barb	UN	Piparia tank.	Northern India, Melghat, Western Ghats	Active jumper & good aquarium fish.
7.	<i>Rasbora daniconius</i> (Ham-Buch.)	Danda	C	Ambakhori, Salama & around Pench river, Kolutmara, Hattigota, Totladoh, Ranidoh, Gavalighat, Ghat Pendhari, Ctaudi ghat, Fefdi Kund, Bokhari Pond, Dakshin Bodhaljira, Pendhar under nalla point, Shivkund.	Throughout India.	Surface feeder India

Sl. No	Name of species	Common name	Status	Locality within Pench	Distribution	Remarks
8.	<i>Barilius barila</i> (Ham-Buch.)	Barred baril	UN	Fephadikund	Throughout India	♂ with tubercles on the snout, 14 vertical bars present. SL 93 mm. ♀ smaller in length 72 mm
9.	<i>Rasbora rasbora</i> (Ham-Buch.)	Gangetic scissor tailed rasbora	UN	Totla doh, Bodhal zeera, Hatti gota Pench river, Purvakutumba, Fephadi Kund, Ambdi, Ranidoh	India : West Bengal, Assam.	Found in clear stream, median black line from eye to caudal fin distinct.
10.	Subfamily : CYPRININAE <i>Tor khudree</i> (Sykes)	Deccan Mahseer, Khadshi	UN	Totladoh; Dongargaon, Dongardeo	Peninsular India, Melghat	Hillstream game fish.
11.	<i>Puntius sophore</i> (Ham-Buch.)	Stigma barb.	C	Totladoh, nalla nr. Kolithmara, Sedael dam; Pench river, Ranidoh, Kirangi Sarra, Piparia talav	Throughout India.	Black blotch present on dorsal fin. Found in shoal.
12.	<i>Puntius conchoni</i> (Ham-Buch.)	Rosy barb.	C	Kolitmara, Chikhalkhari nalla, Pench river, Hattigota; Ctaudi ghat; Gavil ghat; Rani doh; Shiv kund; Piparia.	Throughout India.	Good Aquarium fish.

Sl. No.	Name of species	Common name	Status	Locality within Pench	Distribution	Remarks
13.	<i>Puntius ticto</i> (Ham-Buch.)	Khavali	C	Piparia Tank; Pench river, Totla doh; Rani doh; Dongargaon, Dongardeo; Ambakhori; Kirangi sarra;	Throughout India.	Hardy, surface swimmer.
14.	<i>Puntius jerdoni</i> (Day)	Jerdon's Carp	UN	Gavil ghat	India : Western Ghats, South Kanara	It is a medium sized fish.
15.	<i>Osteobrama c. cotio</i> (Ham-Buch.)	Cotio	UN	Pench river nr. Hattigota.	Northern India; Melghat.	SL = 142 mm.
16.	<i>Catla catla</i> (Ham-Buch.)	Catla	C	Totla doh	Northern India; Wardha river, Melghat,	Major Carp & food fish, introduced into south India
Subfamily : GARRINAE						
17.	<i>Garra gotyla gotyla</i> (Gray)	Gotyla, Singachamallya	UN	Pench river, Totladoh; Fephadikund; Ambakhori;	Northern India, Deccan plateau, Western Ghats, Melghat.	Hill stream fish.
18.	<i>Garra mullya</i> (Sykes)	Mallya	C	Totladoh; Ambakhori; Chikhalkhari nalla; Pench river, Hattigota; Dongargaon, Dongardeo; Gavali ghat; West	Throughout India except Assam & Himalaya	Bottom dweller.

Sl. No.	Name of species	Common name	Status	Locality within Pench	Distribution	Remarks
19.	Family : BALITORIDAE Subfamily : NOEMACHEILINAE <i>Noemacheilus botia</i> (Ham-Buch.)	Stone loach	C	of Ghat Pendhari beat; Ranidoh; Kandry utar; Ambakhori, Salama & around; nalla near Koltimara; Pench river; Hattigota; Piparia tank; Ambdi; Dongardeo Ghat pendhari beat; Gavil ghat; Penhar under nalla point; Shiv Kund; Rani-doh; Sita nahan; Ghat pendhari; Kandry utar; Kanar utar nalla.	Peninsular India, Chotta Nagpur Plateau (Bihar), Bastar (M.P.) Melghat.	Indicator of water pollution, 11 blotches present on some specimens
20.	<i>Noemacheilus d. denisoni</i> Day	Stone loach	C	Totladoh; Chikhalkhari nalla; Ambakhori; Salama & around; Pench river; Hattigota; Phephari kund Ranidoh; Dongargaon,	Throughout India	6 distinct bands, broader than inter space present.

Sl. No.	Name of species	Common name	Status	Locality within Pench	Distribution	Remarks
21.	<i>Noemacheilus evezardi</i> Day	Stone loach	UN	Dongerdeo; Gavil ghat; Dongargaon, W. of Ghat pendhari; Lamandoh; Shiv kund; Kandry utar; Kanar utar nalla. Ambakhori; Pench river nr. Hattigota; Dongardeo, W. Ghat pendhari beat; Laman doh; Bokhari talav; Kandry utar.	Maharashtra : Western Ghat Krishna and Godavari river basin; Madhya Pradesh; Satpura range; Panchmari hills, Melghat.	—
	Order : SILURIFORMES					
	Family : BAGRIDAE					
22.	<i>Mystus cavasius</i> (Ham-Buch.)	Gangetic mystus	C	Pench river, Kolutmara	Throughout India.	It is nocturnal, carnivorous fish.
23.	<i>Gagata nangra</i> (Ham-Buch)	Kosi nangra	UN	Kirangi sarra	India : Ganga, Yamuna river Systems.	It occurs in reaches in rivers.
	Family : HETEROPNEUSTIDAE					
24.	<i>Heteropneustes fossilis</i> (Bloch)	Stinging cat fish	C	Kirangi Sarra; Piparia talav;	Throughout India.	It is an air breathing fish.

Sl. No.	Name of species	Common name	Status	Locality within Pench	Distribution	Remarks
25.	Order : PERCIFORMIS Family : AMBASSIDAE <i>Pseudambassis ranga</i> (Ham-Buch.)	Indian glassy perch.	C	Ambakhori; Pench river, Hattigota; Piparia tank; Rani doh;	Throughout India.	Good aquarium fish, builds nest.
26.	<i>Oreochromis mossambica</i> (Peters)	Tilapia	Ex-C	Pench river, Kolutmara Totladoh, ctaudi ghat Ambakhori, Ranidoh.	East Africa to Natal, widely distributed in India.	Carnivorous, voracious feeder, harmful to native stock.
27.	Order : MUGILIFORMES Family : MUGILIDAE <i>Rhinomugil corsula</i> (Ham.-Buch.)	Gangetic gray mullet, Vardoli.	C	Ambakhori;	India : U.P., Vugarm West Bengal, Orissa, Tamilnadu, Maharashtra.	It swims with eyes above water surface.
28.	Family : GOBIIDAE <i>Glossogobius giuris</i> (Ham.-Buch.)	Tank goby	C	Kolutmara, Pench river;	Throughout India.	It inhabits primary freshwater & Estuaries
29.	Order : CHANNIFORMES Family : CHANNIDAE <i>Channa orientalis</i> Bloch & Schneider	Asiatic snake head	C	Mungazadi nalla; Ranidoh; Totladoh; Ambakhori;	Throughout India.	Pectoral fins spotted in zones. Anal with black spot.

Sl. No.	Name of species	Common name	Status	Locality within Pench	Distribution	Remarks
30.	<i>Channa punctatus</i> (Bloch.) Order : CYPRINODONTIFORMES Family : POECILIDAE	Spotted snake head.	C	Kirangi Sarra; Bodhlalzeera; Pench river, Kolutmara; Piparia tank; Totla doh; Dongardeo, Western Ghat Pendhari beat	Throughout India.	Pectoral fins plain.
31.	<i>Poecilia reticulata</i> Peters Order : SYNBRANCHIFORMES Family : MASTACEMBELIDAE	Guppy	Ex, C	Pench river, Ranidoh, Gavil ghat.	Tropical America, introduced into India.	Males are orange coloured, females are olivaceous.
32.	<i>Mastacembelus a. armatus</i> (Lacepede)	Spiny eel	C	Pench river, Kolutmara;	Throughout India	These are nocturnal fishes.
33.	<i>Mastacembelus pancalus</i> Ham.-Buch.	Spiny eel	C	Pench river, Kolutmara;	India : Wardha river, Melghat, Satpura ranges.	—

C = Common,

UN = Uncommon

Ex = Exotic

SUMMARY

In the 10 surveys of Pench National Park from 1994 - 1999, the ichthyofauna is represented by 33 species, comprising 23 genera of 11 families under 8 orders. Out of which 16 fish species are common smaller sized fishes.

ACKNOWLEDGEMENTS

I am grateful to the Director, Zoological Survey of India, Kolkata and Dr. Anil S. Mahabal, Scientist 'E', Officer-in-Charge, Zoological Survey of India, Pune for the facilities and to Dr. G.M. Yazdani, Ex. Scientist 'SF' for guidance. My sincere thanks are due to various survey parties for collecting valuable fish specimens under this project.

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MOLLUSCA

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INTRODUCTION

Freshwater Mollusca plays a significant role in aquatic ecosystem. The food value of aquatic molluscs are already dealt by Subba Rao and Dey (1989) and Subba Rao (1993). These includes *Lamelliden marginalis*, *L. corrianus*, *Pila globosa*, *Bellamya bengalensis* etc. Several freshwater forms are reported to be utilised for manufacturing poultry feeds and buttons, and a few others act as intermediate hosts and indicators of pollution.

The present study includes freshwater Gastropods and Bivalvia and few land molluscs from Pench National Park, Nagpur, Maharashtra. A perusal of the literature reveals the work of many malacologists; mention may be made of Annandale (1919 a); Anandale and Prasad (1919); Hora (1926 a, b); Tonapi and Mulherkar (1963); Tonapi (1971); Subba Rao and Mitra (1975, 79); Surya Rao *et. al.* (2002) and recently Patil and Ramakrishna (in Press). In all the present study includes 36 species from land and freshwater environs of Pench National Park.

SYSTEMATIC LIST

Phylum MOLLUSCA
Class GASTROPODA
Subclass PROSOBRANCHIA
Order MESOGASTROPODA
Family VIVIPARIDAE
Subfamily BELLAMYINAE

1. *Bellamya bengalensis f. typica* (Lamarck)
- *2. *B. bengalensis f. doliaris* (Gould)
3. *B. bengalensis f. annandalei* (Kobelt)
4. *B. bengalensis f. eburnea* (Annandale)
5. *B. dissimilis* (Mueller)

Family BYTHYNIIDAE

6. *Digoniostoma pulchella* (Benson)

*Zoological Survey of India, M-Block, New Alipore, Kolkata - 700 053

7. *D. cerameopoma* (Benson)

*8. *Gabbia orcula* Frauenfeld

Family AMPULLARIIDAE

9. *Pila globosa* (Swainson)

*10. *P. virens* (Lamarck)

Family THIARIDAE

Subfamily THIARINAE

11. *Thiara (Thiara) scabra* (Mueller)

*12. *Tarebia lineata* (Gray)

13. *T. (Melanoides) tuberculata* (Müller)

Subfamily PALUDOMINAE

*14. *Paludomus (Paludomus) obesus* (Philippi)

Order BASOMMATOPHORA

Family LYMNAEIDAE

15. *Lymnaea (Pseudosuccinea) acuminata f. typica* (Lamarck)

*16. *L. (P) acuminata f. brevissima* Annandale & Rao

17. *L. (P) acuminata f. patula* Troschel

18. *L. (P) acuminata f. rufescens* Gray

19. *L. (P) luteola f. typica* (Lamarck)

*20. *L. (P) luteola f. australis* Annandale and Rao

21. *L. (P) luteola f. succinea* Deshayes.

Family PLANORBIDAE

Subfamily BULININAE

22. *Indoplanorbis exustus* (Deshayes)

23. *Gyraulus convexiusculus* (Hutton)

Class BIVALVIA

Order UNIONIDA

Family UNIONIDAE

Subfamily UNIONINAE

24. *Lamellidens consobrinus* (Lea)

25. *L. corrianus* (Lea)

26. *L. marginalis* (Lamarck)

Family AMBLEMIDAE

*27. *Perreysia (Perreysia) annandalei* Preston

*28. *Perreysia (P) corrugata nagpoorensis* (Lea)

29. *Parreysia (P) favidens* (Benson)
 30. *P. (P) corrugata* (Mueller)
 31. *P. (P) corrugata laevirostris* Benson
 *32. *P. (P) cylindrica* Annandale and Prashad
 33. *P. (Radiatula) caerulea* Lea

Order VENEROIDA

Family CORBICULIDAE

34. *Corbicula striatella* Deshayes

Land Mollusca

Order STYLOMMATOPHORA

Family CERSTUIDAE

Subfamily NEPACINAE

35. *Rachis punctatus* Anton

Family GLESSULIDAE

- *36. *Glessula notigena* Benson

Family SUBULINIDAE

37. *Lamellaxis gracile* Hutton.

*from earlier records.

SYSTEMATIC ACCOUNT

Class GASTROPODA

Order MESOGASTROPODA

Family VIVIPARIDAE

Genus *Bellamya* Jousseaume 1886

1. *Bellamya bengalensis* f. *typica* (Lamarck)

1822. *Paludina bengalensis* Lamarck, *Hist. nat. Anim. sans. Vert.*, **6**, **2** : 174.

1921. *Vivipara bengalensis* Annandale, *Rec. Indian. Mus.*, **22** : 267.

1921. *Vivipara bengalensis* f. *typica* (Lamarck) Subba Rao, Das and Mitra, *Rec. zool. Surv. India*, **77** : 225, p 1, fig.5.

1989. *Bellamya bengalensis* f. *typica* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 45, fig. 55.

Material Examined : 3 exs., Pench, Nagpur dist. Kolitmara, Date 09-12-1995, Coll. R.M. Sharma; 4 exs., Kolitmara, date 28-04-1997, Coll. S.G. Patil.

Distribution : India : Maharashtra, Pench National Park, Nagpur dist., Melghat Tiger Reserve, Amaravati, dist., Ujani Wetland, Solapur dist. common through out rest of India.

Elsewhere : Bangladesh, Myanmar, Sri Lanka.

Status : Most common throughout.

Remarks : Annandale (1921) recognised 11 forms under this species on difference in shell of which 3 forms found in Maharashtra, Pune dist. This species is used as food in some part of Eastern India.

***2. *Bellamya bengalensis f. doliaris* (Gould)**

1843. *Paludina doliaris* Gould. *Proc. Bost. Soc. nat. Hist.*, 1 : 144.

1922. *Vivipara bengalensis* (Lamarck) Race *doliaris*, Annandale and Sewell, *Rec. Indian Mus.*, 23 : 273-274 pl. fig. 9.

1989. *Bellamya bengalensis f. doliaris* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 45, fig. 55.

Distribution : India : Maharashtra, Pench National Park, Melghat, Amaravati dist., Ujani, Solapur dist. Madhya Pradesh, Orissa.

Elsewhere : Myanmar.

Status : Common in Pune, Nasik, Maharashtra; Parts of West Bengal, Orissa, Assam and Madhya Pradesh.

Remarks : It can be separated from *typica*, being smaller in size more conical also biangulate at body whorl. It was reported to choke water supply system in Calcutta and Nagpur (Subba Rao, 1993).

3. *Bellamya bengalensis f. annandalei* (Kobelt)

1909. *Vivipara annandalei* Kobelt, *Nachr. Malak. Ges.*, Frankfurt, 60 : 161 162.

1921. *Vivipara bengalensis* Phase *annandalei*, Annandale & Sewell, *Rec. Indian Museum*; Calcutta, 22 : 276, pl. 2 figs 5-8.

1989. *Bellamya bengalensis f. annandalei* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 46, fig. 57.

Material examined : 2 exs., Nagpur dist; Pench, Ambakhori, date 26-04-1997, Coll. S.G. Patil, 2 exs., Ghodga Nala, Pench, date 09-10-1996, Coll. A.S. Mahabal.

Distribution : India : Maharashtra : Pench National park, dist. Nagpur, Orissa, Rajasthan, Bihar, West Bengal, Andhra Pradesh and Tamil Nadu.

Remarks : Shell usually thinner, Translucent with steadily increasing whorls are less rounded and straight sides.

4. *Bellamya bengalensis f. eburnea* (Annandale)

1921. *Vivipara bengalensis* race *eburnea* Annandale & Sewell, *Rec. Indian Mus.*, 22 : 274-275, Pl. 2, figs. 1,2

1989. *Bellamya bengalensis f. eburnea* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 47, fig. 59.

Material examined : 1 ex., Pench National Park, Pipariya, dated 04-12-1995, Coll. R.M. Sharma.

Distribution : India : Maharashtra : Pench National Park, Pipariya, Nagpur District, Orissa, Madhya Pradesh, West Bengal, Andhra Pradesh and Tamil Nadu.

5. *Bellamya dissimilis* (Mueller)

1774. *Nerita dissimilis* Mueller, *Hist. Verm. Terr. Fluv.*, 2 : 184.

1960. *Viviparus dissimilis* : Satyamurti, *Bull. Madras Govt. Mus.*, 6 (4) : 33-34.

1989. *Bellamya dissimilis* Subba Rao, *Handbook-Freshwater Molluscs of India*, : 48, fig. 64-67.

Material examined : 3 exs., Pench National Park, Hathigota date 28-04-1997, Coll. S.G. Patil; 5 exs., Ambakhori, Pench National Park, date 26-04-1997, Coll. S.G. Patil.

Distribution : India : Pench National Park, Maharashtra, Orissa, West Bengal, Peninsular and Northern India.

Remarks : Body whorl subangulate at the periphery.

Family BITHYNIIDAE

Genus *Digoniostoma* Annandale

6. *Digoniostoma pulchella* (Benson)

1836. *Paludina pulchella* Bension. *J. Asiat. Soc. Bengal*, 5 : 746. *Type locality* : Mirzapur, U.P. Hanley and Theabalds.

1876. *Conch. Indica* Pl. 38, figs. 5, 6. *Digoniostoma pulchella* Annandale, *Rec. Indian Mus.*, 22 : 541.

1989. *Digoniostoma pulchella* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 80, fig. 113, 114, 119, 120.

Material examined : 2 exs., Koltimara, Pench, date 28-04-1997, Coll. S.G. Patil.

Distribution : India : Maharashtra : Pench National Park, dist. Nagpur, Common through out Assam, in east and Jammu in North West.

Remarks : Shell elongate, subumbilicate, with conical spire whorls rounded aperture oval.

7. *Digoniostoma cerameopoma* (Benson)

1830. *Digoniostoma cerameopoma* (Benson) *Gleanings in Science*, Calcutta, 2 : 125.

1989. *Digoniostoma cerameopoma* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 79, fig. 121.

Material examined : 2 exs., Pench River bed, Pench National Park, date 30-11-95, Coll. P.P. Kulkarni.

Distribution : India : Maharashtra : Pench National Park dist. Nagpur, Maharashtra; Orissa, Assam, Madhya Pradesh, Punjab, Bihar, West Bengal.

Genus **Gabbia** Tryon, 1865.

***8. *Gabbia orcula* Frauenfeld**

1862. *Bithynia orcula*, Frauenfeld, *Verhandl. Zool. Bot. Geschaft*, P 1154.

1921. *Amnicola* (Alocinma) *orcula* : Annandale, *Rec. Ind. Mus.*, **22** : 540.

1989. *Gabbia orcula* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 76.

Distribution : India : Maharashtra, Nathsagar, Orissa, Assam, Punjab, Uttar Pradesh, Rajasthan, West Bengal.

Family PILIDAE

Genus **Pila** Roeding, 1798

9. *Pila globosa* (Swainson)

1822. *Ampullaria globosa* Swainson; *Zool. Illustrations* vol., **2** : pl. CXIX. *Type locality* : Rivers of India.

1989. *Pila globosa* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 58, fig. 80-82.

Material examined : 2 exs., Pench National Park, Kolitmara, 28-04-1997, Coll. S.G. Patil.

Distribution : India : Maharashtra : Pench National Park, Melghat Tiger Project, Dist. Amravati; Madhya Pradesh, Uttar Pradesh, Bihar, West Bengal, Orissa and Assam.

Remarks : Many larval trematodes were recorded from this species. These appear to have little less inflated whorl, more conical spine and sub canalculate sutures.

***10. *Pila virens* (Lamarck)**

1822. *Ampullaria virens* Lamarck, *Hist., nat., Anim., sans., Vert.*, **6** (2) : 179. *Type locality* : Not mentioned.

1925. *Pila virens*, Prashad, *Mem. Indian Mus.*, **8** : 75 pl. XIV, fig. 13.

1989. *Pila virens* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 60, fig. 87.

This species is variable in its colour. The shape of spine also varies and difficult to separate from its closely related species, *P. globosa* Subba Rao, 1989.

Distribution : It is common species in South India, also in Maharashtra. Not found in present collection.

Family THIARIDAE

Subfamily THIARINAE

Genus **Thiara** Roeding, 1786

11. *Thiara (Thiara) scabra* (Mueller)

1774. *Buccinum scabrum* Mueller, *Hist. verm Terr Fluv.*, **2** : 136. *Type locality* : Tranquebar.

1850. *Melania acanthica* Lea, *Proc. zool. Soc. Lond.*, p. 394.

1973. *Thiara (Thiara) scabra* Pace, *Malac Review suppl.*, 1 : 52, pl. 12, figs. 1, 2 pl. 13, fig. 3.

Material examined : 2 exs., Nagdeo Pahad, Pench National Park, dist. Nagpur, Date : 20-09-1995, Coll. R.H. Kamble; 2 exs., Ambakhori, Pench National Park Date 26-04-1997, Coll. S.G. Patil.

Status : Common throughout India except Kashmir.

Distribution : India : Maharashtra. Melghat Tiger Reserve, Ujani, Pench National Park, dist. Nagpur, Throughout except Kashmir.

Elsewhere : Coasts of Indo-Pacific, from Zanzibar to New Hebrides, North to the Philippines, various Pacific Islands.

Genus *Tarebia* H.A. Adams, 1854

*12. *Tarebia lineata* Gray

1828. *Helix lineata* Gray, in wood's Index Test suppl., p. 24, fig. 68. *Type locality* : Ganges.

1915. *Tiara (Tarebia) lineata* Preston, *Fauna British India. Mollusca* (Freshwater Gastropoda and Pelecypoda), : 34.

In Press. *Tarebia lineata* Mitra and Dey, *Fauna of Andhra Pradesh* : Mollusca (Land and Freshwater)

Distribution : India : Kotezari, Tadoba, dist. Chandrapur, West Bengal, Bihar, Madhya Pradesh, Uttar Pradesh, Assam; Bhutan; Burma; Sri Lanka.

Remarks : This species often synonymised with *T. granifera* Lamarck but easily distinguished from the former by the absence of rows of nodules and presence of distinct dark spiral lines.

13. *Thiara (Melanoides) tuberculata* (Mueller)

1974. *Nerita tuberculata* Mueller, *Hist. verm Terr Fluv.*, 2 : 191. *Type locality* : Coromandel coast.

1836. *Melania pyramis* Benson, *J. Asiat. Soc. Beng.*, 5, 357, *Type locality* : Ganges.

1969. *Melanoides (Melanoides) peddamunjalensis* Roy and Roy Chowdhuri, *Proc. zool. Soc. Calcutta*, 22 : 48, p.14, fig. 12-17. *Type locality* : Peddamunigal Nagarjunakonda Nalgonda dist. A.P.

1976. *Melanoides (Melanoides) tuberculatus* : Starmuehler, *Ann. Natur. Hist. Mus. Wien.*, 80 : 591.

1989. *T. (M.) tuberculata* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 103, fig. 183-184.

Material examined : 5 exs., Hathigota, 28-04-1997, Coll. S.G. Patil.

Distribution : India : Maharashtra, Pench National Park, Nagpur, Melghat; Ujani Wetland Solapur, Orissa throughout India except Kashmir, North and South Africa, Eastern Mediterranean countries, South east Asia, Southern China, Malaysia, Malay Archipelago, North Australia, various Pacific Islands and North to Ryukyu Islands of Japan, New Hebrides.

Remarks : Shells are typically narrowly elongate and distinctly sculptured and differ from the shells collected from sandy river beds, rounded whorl, distinctly sculptured with vertical ribs and spiral striae and also with dark brown dots or streaks here and there.

Subfamily PALUDOMINAE

Genus *Paludomus* SWAINSON 1840

*14. *Paludomus (Paludomus) obesus* Philippi

1842. *Melania obesa* Philippi, *Abbild Beschreib Conch*, 2 : 170, *Melania* pl. 4, fig. 3. *Type locality* : "Patria Nova Hollandia.

1989. *Paludomus (Paludomus) obesus* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 115, fig. 232.

Distribution : India : Maharashtra, Pench National Park, Bombay, Khandala, Ahmednagar and Ratnagiri.

Subclass PULMONATA

Order BASOMMATOPHORA

Family LYMNAEIDAE

Genus *Lymnaea* Lamarck, 1799

15. *Lymnaea (Pseudosuccinea) acuminata f. typica* Lamarck

1822. *Limnaea acuminata* Lamarck, *Hist. Nat. Anim. Sans. Vert.*, 6. pt. 2 : 160.

1925. *Lymnaea (Pseudosuccinea) acuminata* Annandale & Rao, *Rec. Indian Mus.*, 27 : 177.

1989. *Lymnaea (Pseudosuccinea) acuminata f. typica* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 127, fig. 258, 259.

Material examined : 5 exs., Kolutmara, Pench National Park, date 28-04-1997, Coll. S.G. Patil; 10 exs., Ambakhori, Pench, date 26-04-1997, Coll. S.G. Patil.

Distribution : Common throughout, including Orissa and Pench National Park, Nagpur dist.

*16. *Lymnaea (Pseudosuccinea) acuminata f. brevissima* Annandale & Rao.

1925. *Lymnaea acuminata* Annandale & Rao, *Rec. Indian Mus.*, 27 : 182, fig. III, 1 Nagpur.

1989. *Lymnaea (Pseudosuccinea) acuminata f. brevissima* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 126.

17. *Lymnaea (Pseudosuccinea) acuminata f. patula* Troschel

1837. *Lymnaea patula* Troschel, in Weighman's *Archiv. fur. Natur.*, 3 : 167.

1989. *Lymnaea (Pseudosuccinea) acuminata f. patula* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 126-127, figs. 256, 257.

Material examined : 2 exs., Hathigota, Pench National Park, date 28-04-1997, Coll. S.G. Patil.

Distribution : Throughout India.

Remarks : Hubendick (1951) considers it as synonymus with race *rufescens* Gray.

18. *Lymnaea (Pseudosuccinea) acuminata f. rufescens* Gray

1820. *Limnaea rufescens* Gray, in Sowerby's *Recent & fossil*, 1 : *Limnaea*, fig. 2.

1989. *Lymnaea (Pseudosuccinea) acuminata f. rufescens* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 127, figs. 258, 259.

Distribution : India : Maharashtra, Ujani, Dist. Solapur, Melghat, Amaravati dist. widely distributed in rest of the India.

Elsewhere : Pakistan, Bangladesh, Myanmar.

Remarks : Occur in permanent water bodies with abundant vegetations. It is easily recognised by its thin transparent shell, large inflated body whorl with a short, acuminate spine, aperture widely open, columella twisted.

19. *Lymnaea (Pseudosuccinea) luteola f. typica* Lamarck.

1822. *Lymnaea luteola* Lamarck, *Hist. nat. Anim. Sams. Vert.*, 6 (2) : 160.

1825. *Lymnaea luteola* Annandale & Rao, *Rec. Indian Mus.*, 27 : 183.

1989. *Lymnaea (Pseudosuccinea) luteola f. typica* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 128-129, figs. 275, 276.

Material examined : 5 exs., Ambakhori Pench National Park, dist. Nagpur, date 26-11-1997, Coll. S.G. Patil.

Status : Common throughout India.

Distribution : India : Maharashtra : Pench National Park, Melghat Tiger Reserve, Ujani, Solapur.

Elsewhere : Sri Lanka and Myanmar.

Remarks : This species is reported to be very particular about its habitat and is often found in temporary waterbodies. They bury themselves in dormant conditions. It is reported to be a pest to paddy and Azola, Intermediate host for many parasites of live stocks. This species can be distinguished from its mere ovate shell with narrower aperture and less pointed spine.

*20. *Lymnaea (Pseudosuccinea) luteola f. australis* Annandale and Rao

1925. *Limnaea (Pseudosuccinea) luteola f. australis* Annandale and Rao, *Rec. Indian Mus.*, 27 : 184, fig. iv, 3.

1943. *Lymnaea (Pseudosuccinea) luteola australis* Ray, *J. Asiat Soc. Beng.*, 9 : 64.

1989. *Lymnaea (Pseudosuccinea) luteola f. australis* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 128-129, figs. 279, 280.

Distribution : India : Maharashtra, Melghat, Amaravati, Pune, Satara, Assam, Bihar, Uttar Pradesh, Punjab, Madhya Pradesh, Karnataka, Kerala, Tamil Nadu.

Elsewhere : Ceylon, Myanmar, Bangladesh and Pakistan.

Remarks : A smaller form, spine comparatively longer body whorl well rounded, sutures rather shallow.

21. *Lymnaea (Pseudosuccinea) luteola f. succinea* Deshayes.

1834. *Lymnaea luteola f. succinea* Deshayes, *Voy. Belanger, zool.*, : 418, Pl. ii, fig. 13, 14.

1989. *Lymnaea (Pseudosuccinea) luteola f. succinea* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 128-129, figs. 286, 287.

Material examined : 2 exs., Bokari Tank; Pench National Park, date 5-12-1995, Coll. R.M. Sharma.

Distribution : India : Maharashtra : Pench National Park, Bokari Tank, dist. Nagpur, Assam, West Bengal, Andhra Pradesh, Tamil Nadu.

Family PLANORBIDAE

Subfamily BULININAE

Genus *Indoplanorbis* Annandale & Prasad, 1921

22. *Indoplanorbis exustus* (Deshayes)

1834. *Planorbis exustus* Deshayes, in Belanger, *Voy. Belanger Indes. Orientales, Zoologie*, : p. 417, pl. 1, figs. 11-13. *Type locality* : Malbar coast.

1921. *Indoplanorbis exustus* Annandale & Prasad, *Rec. Indian Mus.*, **22** : 472.

1956. *Indoplannorbis exustus* Benthem Jutting, *Treubia* **23** (2) 471 Rajgopal and Subba Rao 1968. *Proc. Symposium on Mollusca*, pt. 1 : p. 110.

1989. *Indoplannorbis exustus* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 142, figs. 326, 327.

Material examined : 4 exs., Kolitmara, Pench National Park, dist. Nagpur, date 28-04-1997, Coll. S.G. Patil; 2 exs., Baker tank, Pench, date 23-02-1999, Coll. M. S. Pradhan.

Distribution : India : Maharashtra : Pench National Park, Ujani Wetland, Melghat, Throughout the plains of India, Jammu and Kashmir.

Elsewhere : Pakistan, Persia, Sri Lanka, Myanmar, Malaya, Indo China, Thailand, Sumatra, Java, Celebes.

Remarks : This species is a known vector snail is implicated as intermediate host for the largest number of parasites.

Genus *Gyraulus* (Charpentier, 1837)23. *Gyraulus convexiusculus* (Hutton)

1849. *Planorbis convexiusculus* Hutton, *J. Asiat. Soc. Beng.* **18** (2) : 657.

1956. *Gyraulus convexiusculus* Benthem Jutting, *Treubia*, **23** (2) : 463.

1989. *Gyraulus convexiusculus* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 154, figs. 362- 364.

Material examined : 2 exs., Pench river, Pench National Park, dist. Nagpur, date 07-12-1995, Coll. S.G. Patil.

Distribution : India : Maharashtra : Pench National Park, dist. Nagpur, Melghat, dist. Amravati, Common throughout.

Elsewhere : Extends from Iran to Philippines.

Remarks : Maximum diameter, rarely exceeds 5 mm, whorls 4 or 5 rounded, suture well defined peripheri subangulate, closely and obliquely striate, umbilicus wide all the whorl distinctly seen above, aperture ovate lunate.

Class: BIVALVIA

Order UNIONOIDA

Family UNIONIDAE

Subfamily UNIONINAE

Genus *Lamellidens* Simpson, 1900

24. *Lamellidens consobrinus* (Lea)

1859. *Unio consobrinus* Lea, *Proc. Acad. Nat. Sci. Philad*, **3** : 331, *Type locality* : China.

1921. *Lamellidens consobrinus* Prashad, *Rec. Indian. Mus.*, **22** : 608.

1989. *Lamellidens consobrinus* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 164, figs. 384, 385.

Material examined : 2 exs., Pench River bed, date 30-11-1995, Coll. R.M. Sharma.

Distribution : Pench National Park, dist. Nagpur, Maharashtra, India and Sri Lanka.

Remarks : Shell rhomboidal, thick, umbones more inflated than in *L. marginalis*, dorsal margin curved and obliquely truncate, posterior side obtusely angled, anterior side rounded, left valves with two ragged cardinals.

25. *Lamellidens corrianus* Lea.

1834. *Unio carrianus* Lea *Trans. Amer. Phil. Soc.* (2) **5** : 65.

1921. *Lamellidens corrianus* : Prashad, *Rec. Indian Mus.*, **24** : 106.

1989. *Lamellidens corrianus* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 165, figs. 386, 387.

Material examined : 2 exs., Kolutmara, Pench National Park, dist. Nagpur, date 28-04-97, Coll. S.G. Patil.

Distribution : India : Maharashtra : Pench National Park, Common throughout India.

26. *Lamellidens marginalis* (Lamarck, 1819)

1819. *Unio marginalis* Lamarck, *Hist. Nat. Anim. Sans. Vert.* 4 : 79, type locality Bengal.

1900. *Lamellidens marginalis* Simpson, *Proc. U.S. natn. mus.*, 22 : 854 Prashad, 1921, *Rec. Indian Mus.*, 22 : 606, fig. 29A.

1989. *Lamellidens marginalis* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 168, figs. 404, 405.

Material examined : 2 exs., Kolutmara, Pench National Park, dist. Nagpur, date 28-04-97 Coll. S.G. Patil.

Shell oblong, ovate thin very smooth, Periostracum blackish brown shining, light brown border along the ventral margin, posterior side broad, roundedly angular, two curved lateral teeth

Distribution : India : Maharashtra, Pune, Pench National Park, Nagpur, Melghat, Amaravati dist., Assam, Manipur, West Bengal, Bihar, Uttar Pradesh, Tamil nadu.

Elsewhere : Myanmar and Pegu.

Family AMBLEMIDAE

Subfamily PARREYSIINAE

Genus *Parreysia* Connad, 1853

*27. *Parreysia (Parreysia) annandalei* Preston

1912. *Parreysia annandalei* Preston, *Rec. Indian Mus.*, 7 : 302. *Type locality* : Gowhaty.

1989. *Parreysia (Parreysia) annandalei* Subba Rao, *Handbook-Freshwater Molluscs of India*, : p. 176, figs. 444, 445.

Shell oval convex, coarsely and concentrically ribbed Anterior side sharply rounded and posterior side bluntly subrostrate.

Distribution : India : Maharashtra : Pench National Park, Melghat, Assam.

28. *Parreysia (Parreysia) favidens* Benson

1860. *Unio favidens* Benson, *Ann. Mag. nat. Hist.*, 10, 188.

1989. *P. (P.) favidens* Subba Rao, *Handbook-Freshwater Molluscs of India*, : 180, figs. 466, 467, 484, 485.

Material examined : 2 exs., Pench river, Pench National Park, date 30-11-95, Coll. R.M. Sharma.

Thicker larger more inequilateral, both anterior and posterior margins angulate, cardinal teeth strong and broad.

Distribution : India, common throughout including, Pench National Park, (as above).

Elsewhere : Bangladesh, Myanmar and Pakistan.

29. *Parreysia (Parreysia) corrugata* (Muller)

1774. *Mya corrugata* Mueller, *Verm. Terr., et. Fluv.*, Pt. 2, P. 214, No. 398. *Type locality* : Rivers of Coromandel.

1900. *Parreysia corrugata* Simpson, *Proc. U.S. natn. Mus.* **22** : 841. Preston, 1912, *Rec. Indian Mus.*, **7** : 297.

1989. *P. (P.) corrugata* Subba Rao, *Handbook-Freshwater Molluscs of India*, : 179, figs. 448, 449.

Material examined : 2 exs., Pench River bed, Pench National Park, date 30-11-95, Coll. R.M. Sharma.

Shell green elliptic to oval scarcely inequilateral; Ventral margin convex, lunule, well marked, cardinal teething strong, not lameller, sculptured somewhat radiating, oblique linear ridges.

Distribution : Common with wide range of distribution, Maharashtra, Melghat, Andhra Pradesh, Bihar, Karnataka, Punjab.

Elsewhere : China, Bangladesh.

*30. *Parreysia (Parreysia) corrugata* (Muller) sub. sp. *nagpoorensis* (Lea)

1859. *Unio nagpoorensis* Lea. *Proc. Acad. Natw. Sci. Phila.*, **3** : 331.

1960. *Parreysia (Parreysia) corrugata* var. *nagpoorensis*. Satyamurti, *Bull. Madras Govt. Mus., N. S. Nat. Hist. Soc.* **6** (4) : 144-145.

Distribution : India : Maharashtra : Amaravati, Melghat, Pune, Maharashtra, Andhra Pradesh, Tamil Nadu & West Bengal.

31. *Parreysia (Parreysia) corrugata* (Mueller) sub.sp. *laevirostris* Benson

1862. *Unio laevirostris* Benson, *Ann. Mag. nat. Hist.*, (3) **10** : 191.

1900. *Parreysia corrugata* (Mueller) var. *laevirostris* : Simpson, *Proc. U.S. natn. Mus.*, **22** : 842, Preston 1912. *Rec. Indian Mus.*, **7** : 297.

1989. *P. (P.) corrugata* sub sp. *laevirostris* Subba Rao, *Handbook-Freshwater Molluscs of India*, : 179, figs. 452, 453.

Material examined : 2 exs., Pench River bed, Pench National Park, dist. Nagpur, date 30-11-95, Coll. R.M. Sharma.

Distribution : India : Maharashtra, Pench National Park, Pusad, Melghat, Assam, Bihar, Andhra Pradesh & Bangladesh.

***32. *Parreysia (Parreysia) cylindrica* Annandale and Prashad**

1919. *Parreysia (Parreysia) cylindrica* Annandale and Prashad, *Rec. Indian Mus.*, **16** : 150, pl. iv, figs. 6, 7. Type locality : Yenna river, Upper Krishna watershed at Medha, Maharashtra.

1989. *P. (P.) cylindrica* Subba Rao, *Handbook-Freshwater Molluscs of India*, : 180, figs. 4606, 461.

Shell thick, dorsal margin straight and anterior margin broadly rounded, umbonal region sculptured with corrugated ridges.

Remarks : Closely resembles to *P. favidens* in all characters except in the shell, which is more elongated.

Subgenus ***Radiatula*** Simpson

33. *Parreysia (Radiatula) caerulea* (Lea)

1831. *Unio caeruleus* Lea, *Trans. Amer. Phil. Soc.*, **4** : 95, pl. 13, fig. 25. Type locality : Hoogly river, 100 miles above Calcutta.

1915. *Nodularia (N) caerulea* Preston. *Fauna British India*, Mollusca (Freshwater Gastropoda and Pelecypoda) : 136.

1989. *P. (R.) caerulea* Subba Rao, *Handbook-Freshwater Molluscs of India*, : 188, figs. 516, 517.

Material examined : 1 ex., Pench River, Pench National Park, date 30-11-95 Coll. R.M. Sharma; 2 exs., Bodhaljira, 31-05-97. Coll. S.G.Patil.

Variable, in grown up valves sculpture restricted to umbonal region, posterior umbonal carina very distinct.

Distribution : India : Maharashtra, Melghat dist. Amaravati, Pench National Park, dist. Nagpur. Assam, Bihar, Orissa, Punjab Sind, Uttar Pradesh, West Bengal

Elsewhere : Myanmar.

Order VENEROIDA

Family CORBICULIDAE

Genus ***Corbicula*** Megerie Von Muhlfield

34. *Corbicula striatella* Deshayes

1854. *Corbicula striatella* Deshayes, *Proc. Zool. Soc. Lond.*, **22** : 344. Type locality : Pondicherry, Prashad, 1928, *Mem. Indian Mus.*, **9** : 18, Pl. iii, fig. 9-11.

1861. *Corbicula subradiata*, Prime, *Proc. Acad. Nat. Sci. Phila* : P. 128, Prashad, 1921, *Rec. Indian Mus.* **22** : 613.

1989. *Corbicula striatella* Subba Rao, *Handbook-Freshwater Molluscs of India*, : 204, figs. 575, 576.

Material examined : 2 exs., Kiranjishara, date 22-09-97 Coll. Dr. D.B. Bastawade; 2 exs., Ambakori, date 13-03-98, Coll. R.H. Kamble.

Shell thick, large, tumid, triangular ovate to ovate, dorsal margin arched, more on the anterior side than on the posterior.

Distributions : Common Indian species and occurs throughout India, Maharashtra, Melghat.

Elsewhere : Pakistan, Peshawar, Sindh and Myanmar.

Land Mollusca

Order STYLOMMATOPHORA

Family CERASTUIDAE

Subfamily NAPACINAE

Genus *Rhachis* Albers, 1850.

35. *Rhachis punctatus* Anton.

1839. *Butinus punctatus* Anton, *Verzeich Conch* : 42.

2004. *Rhachis punctatus* : Mitra, Dey & Ramakrishna. *Pictorial Handbook on Indian Land Snails*. (In press)

Material examined : 3 exs., Ambakori date 01-12-95, Coll. R.M. Sharma - Near neem tree.

Distribution : India, West Bengal, Maharashtra, Tamil Nadu, Uttar Pradesh, Orissa.

Family GLESSULIDAE

Family SUBULINIDAE

Genus *Glessula* von Martens, 1960

*36. *Glessula notigena* Benson

1860. *Achatina notigena* Benson, *Ann. Mag. nat. Hist.* (3) **5** : 462. *Type locality* : Mahabaleshwar Ghats.

1914. *Glessula notigena* Gude, *Fauna of British India, Moll.* **II** : 412.

Distribution : India : Maharashtra, West Bengal, Assam.

Genus *Lamellaxis* Strebel & Pfeiffer, 1882

37. *Lamellaxis gracile* Hutton.

1834. *Bulimus*, Hutton, *J. Asiat Soc. Bengal*; 3 : 84, 93, 1914. *Opeas gracile* : *Gude Fauna of British India, Mollusca*, 2 : 365.

1989. *Lamellaxis gracile* Subba Rao, Thakur and Mitra, *Fauna of Orissa, State Fauna Series 1, Mollusca Terrestrial*, p. 26, Fig. 2c.

Material examined : 2 exs., Audit point, Pench National Park, Date 07-05-97, Coll. S.G. Patil.

Distribution : India : Maharashtra : Pench National Park, Nagpur, common throughout India.

SUMMARY

A total number of 37 species under 15 genera and 12 families are recorded from Pench National Park, dist. Nagpur. Out of this 33 species under 12 genera and 9 families are of freshwater habitat and 3 species, 3 genera and 3 families are of land Mollusca. Among freshwater forms *Bellamya bengalensis* was found most common. The Molluscan fauna of Pench National Park is quite interesting and rich especially on the river side near Totaladoh and Ranidoh area. More detailed study of the area on land Mollusca of Pench National Park may reveal the existence of a few more species of land Mollusca.

ACKNOWLEDGEMENTS

We are thankful to Director, Zoological Survey of India, Kolkata for allowing to do the work and to Dr. Anil S. Mahabal, Scientist 'E' & Officer-in-Charge, of Zoological Survey of India, Western Regional Station, Pune for facilities. Thanks are also to Shri S.C. Mitra, Officer-in-Charge, Mollusca Section, Zoological Survey of India, Kolkata for the help in identification.

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CRUSTACEA : CLADOCERA

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INTRODUCTION

The order Cladocera belong to the subclass Branchiopoda which are minute crustaceans, commonly known as the 'Waterfleas' are usually inhabit in litoral, limnatic or benthic zones of all types fresh water habitat. The work on Cladocera was started mainly due to their importance in biological processes of inland water and their significance as biological indicators. They are primary consumers, directly utilising primary producers and hence they form a major food source for many aquatic animals such as fishes, copepods and insect larvae.

Studies of Cladocera fauna from Maharashtra state was not well known before it was initiated by Rane, 1993; 2001, 2003 (in press) which deals with fauna of Ujani wetland and Melghat Tiger Project. Study of Cladocera fauna from other conservation areas of Indian wet lands was earlier studied by Rane, 1984 for Kanha National Park; Venkatraman, 1992 for Keoladeo National Park; Raghunathan & Rane 2001 for Nagarhole National Park; Rane (in press, 2003) for Melghat Tiger Project. The present study on Cladocera from Pench National Park based on zooplankton samples from various types of fresh water habitats by different parties of Zoological Survey of India, Western Regional Station, Pune, which resulted in enumeration of 19 species, 2 subspecies belonging to 17 genera under 6 families and 3 subfamilies.

MATERIAL AND METHODS

This study deals with taxonomy and distribution of Cladocera fauna from Pench National Park. The order Cladocera is represented by six families namely: Sididae, Daphniidae, Moinidae, Bosminidae, Macrothricidae and Chydoridae. During the survey zooplankton samples were collected through out Pench National Park from various types of habitats namely, marshes, ponds, reservoirs, lakes, dames, rivers and miscellaneous water bodies. Cladocera samples were collected using plankton nets with circular mouth of 30 cms in diameter. The fauna usually were collected in shallow water, among vegetation and in open waters. The nets were dragged among the vegetation close to the bottom of shallow water. Oblique hauls were taken from lakes and ponds and near the bottom to collect bottom dwelling species. The

concentrated samples were preserved in 5% to 10% formalin in the field itself and were stored in sampling bottles for their further studies in laboratories. Temporary slides were made in glycerine and important diagnostic characters were studied using stereo-binocular microscope.

LIST OF SPECIES COLLECTED

Phylum ARTHROPODA

Class CRUSTACEA

Subclass BRANCHIOPODA

Superorder DIPLOSTRACA

Order CLADOCERA

Suborder EUCLADOCERA

Superfamily(a) SIDOIDEA

Family (I) SIDIDAE

1. *Pseudosida bidentata* var *szalayi* Daday

2. *Latonopsis australis* Sars

3. *Diaphanosoma excisum* Sars

Superfamily(b) CHYDOROIDAE

Family (II) DAPHNIIDAE

4. *Ceriodaphnia cornuta* Sars

5. *Daphnia carinata* King

6. *Simocephalus vetulus* (O.F. Muller)

7. *Simocephalus serrulatus* (Koch)

Subfamily (i) SCAPHOLEBERINAE

8. *Scapholeberis kingi* Sars

Family (III) MOINIDAE

9. *Moina micrura* Kurz

Family (IV) BOSMINIDAE

10. *Bosmina longirostris* (O.F. Muller)

Family (V) MACROTHRICIDAE

11. *Macrothrix spinosa* King

- 12. *Echinisca triserialis* Brady
- 13. *Echinisca odiosa* (Gurney)
- 14. *Ilyocryptus spinifer* Herrick

Family (VI) CHYDORIDAE
Subfamily (ii) CHYDORINAE

- 15. *Chydorus faviformis* Birge
- 16. *Chydorus ventricosus* Daday
- 17. *Dunhevedia crassa* King

Subfamily (iii) ALONINAE

- 18. *Alona davidi punctata* (Daday)
- 19. *Alona macronyx* Daday
- 20. *Biapertura karua* (King)
- 21. *Eryalona orientalis* (Daday)

SYSTEMATIC ACCOUNT

1. *Pseudosida bidentata* var. *szalayi* Daday

1884. *Pseudosida bidentata* Herrick, *Geol. and Nat. Hist. Survey Minnesota; Ann. Rep.*, **12** : 1-191, p. 20, pl. k, fig. 9.
1898. *Pseudosida szalayi* Daday, *Termes Fuzetek., Budapest* **21** : 64-66, figs. 33 a d.
1961. *Pseudosida bidentata* var. *szalayi* : Thomas, *Crustaceana*, **3** : 1-8.
1988. *Pseudosida bidentata* var. *szalayi* Michael and Sharma, *Fauna of India, Cladocera*, : 38-39, figs. 6, a-e.

Material examined and locality : Pench National Park: 2 exs., Shivkunda, 1.3.99 (Coll. M.S. Pradhan); 1 ex., Gawaliaghat, 12.11.96 (Coll. A. Mahabal); 1 ex., Bokhari talao, 5.12.95 (Coll. R.M. Sharma); 2 exs., Ambakhori, 14.12.94 (Coll. P.P. Kulkarni).

Diagnostic characters : Body elongated oval; head short, eye relatively small and situated near to the anteroventral corner. Antennules unsegmented, long and attached to the posteroventral part of the head, with olfactory setae on each side and long flexible flagellum. Antenna not extending beyond the posterior margin of valves. Ventral margin with a series of long setae followed by series of spinules on the posteroventral corner. Postabdomen with about 10-11 clusters of spinules. Claw with large basal spines and a very small spine proximal to them. Median projection at the base of claws on the ventral side. Length 1.00 mm.

Distribution : INDIA : Rajasthan, Kerala, Andaman and Nicobar, Tripura, Tamil Nadu.

Elsewhere : South-East Asia, South Africa, Sri Lanka, Malaysia, South America, Thailand, Sumatra and Australia.

Remarks : Thomas (1961 b) stated that there has been a lot of confusion between *P. bidentata* Herrick and *P. szalayi* Daday because the only distinguishing character between two species is the absence of median projection in *bidentata* and its presence in *szalayi*, at the base of claws on ventral aspect. This difference being not sufficient to differentiate the two species. He further mentioned that the specimens with median projection may be treated as *P. bidentata* var. *szalayi* Daday.

2. *Latonopsis australis* Sars.

1888. *Latonopsis australis* Sars, *Forh. vid. Selsk., Christiania*, No., 7 : pp. 6-15, pl. 1, figs. 1-6.

Material examined and locality : Pench National Park: 1 ex., Totaladoh, 30.11.95 (Coll. R.M. Sharma); 1 ex., Kolutmara, 7.10.94; 4 exs., Saddle Dam at Sillari, 22.2.99; Shivkunda near Totaladoh, 1.3.99 (Coll. M. S. Pradhan); 1 ex., Lamandoh, 1.5.97 (Coll. S.G. Patil); 2 exs., Ranidoh of Pench river, 8.10.96 (Coll. A. Mahabal).

Diagnostic characters : Large head, body connected without noticeable fold. Elongated body; ventral margin of valve with numerous long setae; three setae at the posteroventral corner especially long. Head without a distinct rostrum. Eye located in the middle part of head. Ocellus small located immediately in front of the base of the labrum. Antennules long and segmented, attached to the anteroventral corner of head. Antenna on the thick base. Antennal setae 4-7/0-1-4. Two ventral most setae of triarticulate branch especially large with hooked ends. Postabdomen relatively small, conical, slightly dilated in proximal part. Small anal teeth arranged singly, 7-9 and situated closer to distal end of abdomen. Claw much incurved with two basal spines, Length: 1.1 mm.

Distribution : INDIA : Maharashtra, Rajasthan, Tripura, Tamil Nadu.

Elsewhere : Australia, Oriental region.

Remarks : *Latonopsis australis* is separable from other species *Latonopsis brehmi* by its comparative smaller size, by having fewer setae on the antenna and claw having two basal spines which the later have three.

3. *Diaphanosoma excisum* Sars.

1885. *Diaphanosoma excisum* Sars, *Forb. vid. Selsk., Christiania*, No. 8 : pp. 13-18, pl. 2, figs. 1-3.

Material examined and locality : Pench National Park : 4 exs., Pench river near Totaladoh dam, 30.11.95 (Coll. R.M. Sharma), 10 exs., Saddle dam at Sillari, 22.2.99 (Coll. M.S. Pradhan).

Diagnostic characters : Carapace almost oblong in outline and posterior end abruptly truncate. Posterodorsal corner of valve almost ending in right angle. Posteroventral corner with variable number of denticles followed by delicate cilia; number of denticles sometimes differing even on the two valves. Head large, oblong quadratic and obtusely truncated anteriorly. Eye relatively large, with numerous crystalline lenses; located in the frontal portion of head, close to the ventral margin. Antenna not reaching posterior margin of valves. Postabdomen narrow with fine setules. Claw with three basal spines, decreasing in size proximally. Length: 0.8 mm.

Distribution : INDIA : Kerala, Rajasthan, Assam, West Bengal, Maharashtra, Andaman & Nicobar and Tripura.

Elsewhere : Common in tropics and subtropics.

4. *Ceriodaphnia cornuta* Sars

1885. *Ceriodaphnia cornuta* Sars, *Norske, Vidensk. Selsk Forhandl. Christiania*, **8** : 26-28, pl. 5, figs. 1-3.

1894a. *Ceriodaphnia rigaudi* Richard, *Revue Biol. Nord. France*, **6** : p. 367.

Material examined and locality : Pench National Park : 10 exs., Piparia tank, 4.12.95; several females from Totaldoh, 30.11.95 (Coll. R.M. Sharma).

Diagnostic characters : Carapace of female broadly oval in outline, produced posteriorly into short projection, lying slightly above the longitudinal axis. Valve distinctly reticulate with large polygonal or hexagonal cells, free edges of valve smooth. Head small, depressed and separated from body by distinct ocular depression, with rounded frontal part and produced in front of antennule into a very acute, short and deflexed rostrum. Head also with short spine or horn over eye on anterior margin in some specimens. Eye large, ocellus small. Antennule small, fusiform not extending to the tip of rostrum; lateral sensory seta somewhat distal in middle. Postabdomen moderately broad, with 5-6 anal spines. Claw short, stout, and finely setulate. Length: 0.6 mm.

Distribution : INDIA : Tamil Nadu, Kerala, Maharashtra, West Bengal, Rajasthan, Madhya Pradesh, Karnataka, Punjab, Haryana, Himachal Pradesh, Bihar, Meghalaya, Tripura, Andaman & Nicobar Islands.

Elsewhere : Cosmotropical, China, Japan, Australia, South East Asia.

5. *Daphnia carinata* King

1853. *Daphnia carinata* King, *Pap. and Proc. Roy. Soc. van Diemen Land, Hovortown*, **2** (2) : 246, pl. I, and VI A.

Material examined and locality : Pench National Park : 7 exs., Gawalighat, 11.10.96; 5 exs., Piparia tank, 29.9.96 (Coll. A. Mahabal).

Diagnostic characters : Carapace oblong, dorsal margin evenly arched and forming a slight concavity in anterior region; posterior spine rather elongated and slightly upturned. Posterior spine with small spines which extend to the middle region of ventral margin of valves, those on dorsal margin extend to cervical region. Head large, with semicircular anterior margin. Rostrum recurved and generally in contact with ventrolateral carapace margin. Antennular mounds very small set close to rostrum, ocellus small. Abdominal processes three. Postabdomen conically tapering distally with 10-13 anal spines. Claws short, stout, and curved, three combs with 12, 17 and 30 teeth. Ephippium with two eggs; egg locates obliquely disposed, separated by unmelanised ephippial matrix. Length: upto 2 mm.

Distribution : INDIA : Tamil Nadu, Uttar Pradesh, Karnataka, Manipur, Andra Pradesh, Himachal Pradesh, Rajasthan, West Bengal, Punjab, Haryana, Bihar.

Elsewhere : Australia, Africa, Indonesia, Sri Lanka.

6. *Simocephalus vetulus* (O.F. Muller)

1776. *Daphne vetula* (O.F. Muller), *Zool. Daniae Prodrum seu Animalium Norvegiae, etc., Havnia*, P. 199, No. 2399.

1900. *Simocephalus vetulus* : Lilljeborg, *Nova Acta Regiae Societatis Scientiarum Upsaliensis*, ser. 3, 19 : 166-173, tab xxiv, figs. 8-18.

Material examined and locality : Pench National Park: 4 exs., Phepharikund, 5.9.94; 1 ex. Bhukheri Tank, 29.9.94; 1 ex., Tataladoh, 26.12.99 (Coll. M.S. Pradhan); 2 exs., Paparia Tank, 4.12.95 (Coll. R.M. Sharma).

Diagnostic characters : Carapace rounded, trigonal in outline, considerably extended posteriorly; no posterior spine present; posterodorsal corner with blunt angle. Dorsal margin arched; posterior part of dorsal margin with distinct denticles. Head small, prominent, rounded in front. Eye moderately large, ocellus large and elongated. Postabdomen very broad, deeply emarginate with about 10 anal spines, curved and denticulate. Length upto 2 mm.

Distribution : INDIA : West Bengal, Tamil Nadu, Rajasthan, Punjab, Kashmir, Karnataka, Kumaon - W. Hymalaya, Bihar, Northern Uttar Pradesh, Andaman and Nicobar islands, Tripura, Maharashtra.

Elsewhere : Tibet, England, Australia, Switzerland, Turkey, Russia and N. S. America.

7. *Simocephalus serrulatus* (Koch)

1841. *Daphnia serrulata* Koch, *Friedrich, Pustel., Rosemberg. Hefts.*, 8 : 35-37, pl. 17.

1900. *Simocephalus serrulatus* Lilljeborg, *Nova Acta Regiae Societatis Scientiarum Upsaliensis*, 3 (19) : 179, pl. 20 figs. 9-16.

Material examined and locality : Pench National Park : 7 exs., Ranidoh, 8.10.96 (Coll. A. Mahabal); 1 ex., Shivkunda near Totaladoh, 1.3.99 (Coll. M.S. Pradhan).

Diagnostic characters : Carapace broadly oval or rhomboidal outline, strongly widened behind. Dorsal margin evenly arched, ventral margin bulging in middle and posterior protuberance slightly above the median axis of body. Posterior part of dorsal margin and terminal protuberance denticulated. Head comparatively small, with dorsal margin evenly curved and front forming below an acute angle armed with a number of minute denticles; rostral projection small. Eye comparatively large; ocellus small, almost rhomboidal in form. Postabdomen with about 8 denticles. Claw long, slender with fine setules on the concave margin. Length: 1.00 mm.

Distribution : INDIA : Tamil Nadu, Garohills, Meghalaya, Rajasthan, Tripura.

Elsewhere : North and South America, Africa, Java, Europe, Australia, New Zealand, South and East Asia, China.

8. *Scapholeberis kingi* Sars

1903. *Scapholeberis kingi* Sars, *Archiv. Math. Natur. Christiania*. **25** : 8-10, pl. 1, figs. 2 a-c.

Material examined and locality : Pench National Park - 2 exs., Pench river ditch, 7.10.94; 5 exs., Kolutmara, 7.10.94; 4 exs., Saddle Dam at Sillari 22.2.99 (Coll. M.S. Pradhan); 1 ex., Gawalighat 1.5.97; 1 ex., Ranidoh, 29.4.97; 3 exs., Lamandoh, 1.5.97 (Coll. S. G. Patil).

Diagnostic characters : Carapace oval quadrangular in outline; transversely truncated at posterior margin. Head moderate in size with large eye and small ocellus. Rostrum well developed, trilobate; middle lobe evenly rounded, with narrow hyaline membrane in front. Head never with a dorsal spine. Antennule short located behind the rostrum. Posteroventral corner of each valve produced into a short spine pointing backward. Ventral margin of valve almost straight and densely ciliated. Valve with distinct transverse striae. Postabdomen short and broad, rounded at posterior and with 4-5 anal spines. Claw moderately long, stout, and setae on its concave margin. Ephippium with one egg. Length 0.6 mm.

Distribution : INDIA : Tamil Nadu, West Bengal, Rajasthan, Meghalaya, Assam, Kashmir, Andaman and Nicobar, Tripura, Maharashtra.

Elsewhere : Africa, Australia, North America, Sri Lanka, Germany, China, Thailand, Indonesia.

Remarks : Occurs in the surface of water body.

9. *Moina micrura* (Kurz)

1874. *Moina micrura* Kurz, *Sitzeber. K. Acad. Wiss. Wein. Math. Nat.*, **70** : 13-15, pl. I, fig. 1.

Material examined and locality : Pench National Park: Several exs., Govalighat of Pench river, 4.5.97 (Coll. S.G. Patil); 4 exs., Salma area of Saddle dam, 10.10.96 (Coll. A. Mahabal).

Diagnostic characters : Head large with well developed supraocular depression. Eye large. No setules either on head or valve. Ventral margin of valve with 11-25 long setae followed by groups of short setae on the posterior margin. Antennule originated well behind the eye; antennule large thin with long basal seta. Postabdomen short, slender with distal conical part. Dorsal margin of postabdomen with groups of short setae, distal margin with bident and 5-9 feathered lateral setae; decreasing size proximally. Claw large and curved, ventral base of claw with 3-7 teeth. Concave margin of each claw with 5 setae, proximal setae comparatively larger and forming distinct pecten. Length: 0.6-1 mm.

Distribution : INDIA : Tamil Nadu, Maharashtra, Kerala, Rajasthan, West Bengal, Punjab, Haryana, Bihar, Karnataka, Tripura, Andaman and Nicobar Islands.

Elsewhere : Africa, Syria, USSR, France, Phillippines, N. America, South East Asia, Europe.

10. *Bosmina longirostris* (O.F. Muller)

1776. *Lynceus longirostris* (O.F. Muller), *Havniae*, : 1-273.

1862. *Bosmina longirostris* Sars, *Forhandi. Vidensk. Selesk. Christiania*, : 144-167.

Material examined and locality : Pench National Park : 20 exs., Totaladoh, 30.11.94 (Coll. P.P. Kulkarni); many exs., Bukhari talao, 5.12.95 (Coll. R.M. Sharma).

Diagnostic characters : Female body oval, with highest width in the middle and dorsal side evenly curved. Posterior part markedly smaller with slight hump at upper posterolateral margin. Body transparent, colour whitish-yellow. Ventro-posterior margin with two blunt mucrones with rounded tips. Ventro-posterior margin without setae, few setae may present at anteroventral angle. Two antennules markedly bent at tips, with olfactory setae situated 1/3 portion away from base. Antenna very small with setae 0-0-1-3/0-1-3. Rostrum small with thin setae on the upper margin. Eye small present near the base of rostrum with distinct eye lenses. Postabdomen quadrate with 2 pectinate claw. Proximal with 5-7 teeth and distal with 3-4 teeth. Claw bent in the middle with fine row of teeth in the distal pecten. Lower part of postabdomen slightly protrudes out with 3-4 large curved spines. Length: 0.35 to 0.39 mm.

Distribution : INDIA : Kashmir, Meghalaya, Tripura, first record of this species in Maharashtra state.

Elsewhere : Cosmopolitan.

11. *Macrothrix spinosa* King

1853. *Macrothrix spinosa* King, *Pap. Proc. Roy. Soc. van. Diemen Land, Hover Town*, 2 (2) : 25-26, pl. 6E.

Material examined and locality : Pench National Park : 2 exs. Bukheri talao, 5.12.95 (Coll. R.M. Sharma); 4 exs., Totladoh, 30.11.94; 1 ex., Ranidoh, 10.12.94 (Coll. P.P. Kulkarni); 2 exs. Totaladoh, 26.2.99; 7 exs., Shivkunda, 1.3.99 (Coll. M.S. Pradhan).

Diagnostic characters : Carapace broadly rounded-oval. Dorsal margin almost evenly arched, ventral margin subagulated in middle and obliquely ascending posteriorly; posterior end with short protuberance occurring above in line of axis of body. Head sub triangular and with slightly prominent rostral projection. A lateral view, a ridge departing from compound eye arched at level at the base of antenna and running downwards towards the ventral edge of head shield. Antennules enlarge at apex; anterior margin with several fine incisions and clusters or rows of setule and with ventral angulation. The shell is reticulated and dorsal surface with more or less distinct squamous sculpture, giving dorsal edge a minute serrulate appearance. Ventral edge of valves serrate and armed with slender spines. Eye large, ocellus small and located near tip of rostrum. Postabdomen short, bilobed, and with a row of small but strong anal denticles along the dorsal edge and row of minute lateral spines. Claw very short and with setae on the concave margin. Length: 0.4 mm.

Distribution : INDIA : Tamil Nadu, Rajasthan, Manipur, Andaman and Nicobar Islands, Tripura, Maharashtra.

Elsewhere : Thailand, Sri Lanka, Sumatra, Java, Australia, Africa, Malaysia, S. America.

Remarks : Commonly found in all type of habitats.

12. *Echinisca triserialis* Brady

1886. *Macrothrix triserialis* (Brady), *J. Linn. Soc. Lond (Zool.)*, London, 19 : 295, pl. 47, figs. 16-20.

1976. *Echinisca triserialis* Smirnov, *Zool. Inst. Acad. Nauk. USSR Newser.*, 112 : 109-110, figs. 81-89.

Material examined and locality : Pench National Park - 1 ex., Phepharikunda, 5.9.94; 1 ex., Ambakhari, 25.9.94; 1 ex., Totaladoh, 26.2.99 (Coll. M.S. Pradhan); 2 exs., Ranidoh, 29.4.97 (Coll. S. G. Patil).

Diagnostic characters : Body almost oval in outline, dorsal margin slightly arched, ventral more strongly arched and produced point posteriorly. Valves reticulate, dorsal margin with serrations, particularly in the posterior region; ventral margin with serrations and bristles and serrations on posteroventral margin arranged in group of three. Head large moderately arched with ridge over its edges. Small rostrum. Eye large, ocellus small and located near the tip of rostrum. Antennule slender, cylindrical and olfactory setae unequal in length, antennules with notches on anterior margin and sensory seta situated near the base. Postabdomen large, broad, bilobed, with anal spines on the both lobes. Claw short and curved. Length: 0.5 mm.

Distribution : INDIA : Kerala, Rajasthan, West Bengal, Andaman and Nicobar Islands, Tamil Nadu, Tripura, Maharashtra.

Elsewhere : Cosmotropical.

13. *Echinisca odiosa* (Gurney)

1907. *Macrothrix tenuicornis* Gurney, *Rec. Indian Mus.*, Calcutta, 1(2) : 25, pl.I, figs. I, 2; figs. 22.

1907. *Macrothrix odiosa* Gurney, *Rec. Indian Mus.* Calcutta, 1(2) : 175.

1930. *Gurneylla odiosa* Brehm, *Arch. Hydrobios.*, 21 : 679-686.

1976. *Echinisca odiosa* Smirnov, *Fauna of USSR, Rakoobrazn ye, Zool. Inst. Acad. Nauk*, 1(3) : 112, 118-119, figs. 94-95.

Material examined and locality : Pench National Park : 6 exs., Piparia Tank, 4.12.95 (Coll. R.M. Sharma).

Diagnostic characters : Body rounded oval; dorsal and ventral margin evenly arched, posterior end with very small protuberance above the axis of body. Shell with faint hexagonal or pentagonal reticulations; dorsal margin of body smooth, ventral margin slightly serrated anteriorly with minute, blunt teeth posteriorly, fringed with long setae. Head almost evenly reounded, with a conspicuous ridge over the eye; produced into small rostrum. Plate of labrum marked with transverse ridge. Eye moderately large, ocellus small, located near tip of rostrum. Antennules long and straight, with 3 spines at tip. Sensory seta located near the base of antennule. Postabdomen bilobed; preanal part densely setiferous, postanal part with row of anal spines. Claw short and curved. Length: 1 mm.

Distribution : INDIA : Rajasthan, Bihar.

Elsewhere : Russia, Madagascar.

14. *Ilyocryptus spinifer* Herrick

1882. *Ilyocryptus spinifer* Herrick, *10th Annual Rep. Geol. and Nat. Hist. Survey, Minn.*, : 39-41, pl. 8, figs. 1-5.

Material examined and locality : Pench National Park - 2 exs., Pipariya tank, 4.12.95; 1 ex., Bukhari talao, 5.12.95 (Coll. R.M. Sharma).

Diagnostic characters : Body form oval-triangular in outline. Posterior and ventral edge of valves rounded and usually bearing long and branched setae. Head keeled, Antennules long biarticulated (two segmented) and attached to ventral side of head. Antennary setae usually long. Postabdomen large, broad and anus opening in the depression on the dorsal margin of postabdomen; with 5-7 preanal spines and 4-8 postanal lateral spines. Claw long, slightly curved with basal spines of unequal length. Length: 0.7 mm.

Distribution : INDIA : Kerala, Rajasthan, West Bengal, Meghalaya, Andaman and Nicobar, Tripura, Tamil Nadu, Maharashtra.

Elsewhere : Pantropical, North America, China, Australia, Cuba, S.E. Asia.

Remarks : Occurs at the bottom debris.

15. *Chydorus faviformis* Birge

1893. *Chydorus faviformis* Birge, *Trans. Wis. Acad. Sci. Arts and letts.*, **9** : 307-308, pl. XIII, figs. 7-8

Material examined and locality : Pench National Park : 2 exs., Kolutmara dam back water, 2.10.94; 2 exs., Phapharikunda, 5.9.94 (Coll. M.S. Pradhan).

Diagnostic characters : Body rounded in outline, posterodorsal and posteroventral corner of valves not distinct. Valve and shield with deep polygonal cells. Rostrum pointed. Antennules not reaching apex of rostrum. Antennae extending beyond apex of antennules plate of labrum with convex anterior margin and with slightly pointed apex. Ocellus situated almost midway between eye and apex of rostrum. Postabdomen wide, with rounded apex. Preanal corner distinctly projecting. Anal spine 9-10. Groups of lateral setae present. Claw with setae on its concave margin and with two basal spines. Tip of claw provided with two spines of unequal length. Length: 0.44 mm.

Distribution : INDIA : Kashmir, Assam, Tripura.

Elsewhere : Northeast of North America, Sri Lanka, China, Malaysia, Australia, S.E. Asia.

16. *Chydorus ventricosus* Daday

1898. *Chydorus ventricosus* Daday, *Termis Furetk.*, **21** : 28-29, figs. 10, a-d.

Material examined and locality : Pench National Park - 2 exs., Totaladoh, 26.2.99 (Coll. M.S. Pradhan); 1 ex., Gawalighat, 4.5.97 (Coll. S.G. Patil).

Diagnostic characters : Body almost oval in outline. Postero-dorsal and posteroventral corner of valve rounded, without denticles. Ventral margin strongly bulged in the middle, with 11-15 long setae at the anteroventral margin. 25-35 submarginal setae posterior to the bulge. Posterior margin with double line, provided with thin rim of transverse setae. Valve with faint polygonals with wavy margins. Rostrum long, pointed, fornices expanded. Antennules thick about half length of rostrum. Labral plate long, broadly rounded and slightly indented on the anterior margin near tip. Ocellus about half diameter the size of eye, located closer to eye than to apex of rostrum. Postabdomen elongated, slightly tapering distally and preanal corner distinct, with 9-10 marginal spines and 4-7 lateral groups of setules. Claw with setae on concave margin; bearing long slender basal spine and with setae attached subterminally on convex margin. Length : 0.5 mm.

Distribution : INDIA : Tamil Nadu, Gujarat, Andaman and Nicobar, Rajasthan, Tripura, Maharashtra.

Elsewhere : Sri Lanka, China, Java, East Africa, South America (Paraguay).

17. *Dunhevedia crassa* King

1852. *Dunhevedia crassa* King, *Pap. and proc. Roy. Soc. Van Diemens Lond., Hovert Town*, 2 : 261, pl. VII F.

Material examined and locality : Pench National Park : 1 ex., Salama area of Saddle dam, 10.10.96 (Coll. A. Mahabal); 1 ex., Fefrikunda, 30.4.97 (Coll. S.G. Patil).

Diagnostic characters : Body almost oval in outline, maximum height slightly before the middle. Posteroventral corner of valve with one denticle. Ventral margin of valve with feathered setae, which are longest in the middle. Antennules ending slightly before apex of the rostrum; thick and tapering distally; lateral sensory seta situated on a tubercle and sensory papillae all most half as long as antennules. Plate of labrum without denticles with produced apex. Ocellus situated nearer to eye than to apex of rostrum. Postabdomen oval with 15-18 anal spines and numerous lateral groups of setae. Length: 0.35 mm.

Distribution : INDIA : West Bengal, Maharashtra, Gujarat, Rajasthan, Andaman and Nicobar, Triupura, Tamil Nadu, Kerala.

Elsewhere : Holarctic region, Ethiopian region, Indo-Malayan, Australia, Southern part of Europe, USSR, S.E. Asia.

18. *Alona davidi punctata* Daday

1898. *Alona punctata* Daday, *Termes, Fuzetck*, 21 : 39-40, figs. 18 a-c.

1939. *Alona davidi* var. *punctata* Gauthier, *Bull. Inst. fr. Afr. noire* I : 176-182, figs. 10.

Material examined and locality : Pench National Park : 2 exs., Totaladoh, 30.11.94 (Coll. P.P. Kulkarni); 1 ex., Phephari Kunda, 5.9.94 (Coll. M.S. Pradhan).

Diagnostic characters : Body almost oval in outline, maximum height slightly before the middle region. Valves punctate. Rostrum blunt. Postabdomen widest in middle with 10-12 groups of lateral anal spines and groups of fine setae. Claw with one basal spine and groups of fine setae. Claw with one basal spine and with setae on the concave margin. Ventral margin of valve projecting in the middle. Rostrum blunt. Plate of labrum rounded. Ocellus smaller than eye, slightly near to eye than to apex of rostrum. Claw with one rather large basal spine; setae on the concave margin. Length: 0.6 mm.

Distribution : INDIA : West Bengal, Tamil Nadu, Maharashtra.

Elsewhere : Ethiopian, Australian region, Argentina.

19. *Alona macronyx* Daday

1898. *Alona macronyx* Daday, *Termtud. Fuz*, **21** : 35-37, figs. 15 a-c.

1966. *Kurzia yunnanensis* Shen, Tai and Chang, *Anim. Taxon*, **3** : 29-42.

1983. *Indialona jabalpurensis* Rane, *J. Bombay nat. His. Soc.*, **80** : 194-195.

Material examined and locality : Pench National Park - 4 exs., Piparia tank, 4.12.95 (Coll. R.M. Sharma); 1 ex., Gavalighat, 11.10.96 (Coll. A. Mahabal).

Diagnostic characters : Body, broadly rectangular, dorsal margin uniformly curved, forming a distinct angle with posterior margin. Rostrum short, tapering to blunt apex. Ocellus about half size of eye; closer to eye than to apex of rostrum. Three head pores. Antennules not reaching apex of rostrum. Sensory setae unequal in size with one seta longer than others. Antenna short, weakly developed. Each branch with 3 terminal swimming setae. Labrum strongly curved, ventral margin varies from round to truncate, sometimes with small notch near posteroventral angle. About 10 groups of fine spines along the posteroventral angle, posterior most spine each group is the longest. There spine groups followed by a marginal row of fine setules which continue as a submarginal series towards the posterodorsal corner. Posterior half of the carapace with 10-15 prominent longitudinal setae. Postabdomen suprectangular, tapers gradually towards the distal end. Ventral margin straight with 12-15 long denticles and lateral surface with 9-12 groups of setules. Claw long, strong, concave surface with two groups of fine setules. Basal spine single, slender and long (about half the length of claw). Length: 0.42-0.50 mm.

Distribution : INDIA : New record.

Elsewhere : Sri Lanka, Celebes, Philippines, W. Malaysia, Southern China, Indonesia, Burma, Bangladesh, Sumatra, Thailand.

Remarks : This is distributed only in the oriental region. *Alona macronyx* has unique combination of characters that facilitates its diagnosis from all other Cladocera. They are broadly rectangular body and a broad based distally tapering postabdomen with long basal spine about the half the length of claw. *Indialona jabalpurensis* was described by Rane (1983). It differs from *A. macronyx* in having a claw without any setules on the concave surface of claw, the postabdomen having about 30 denticles, the posterior corner of carapace with 6 small equally spaced denticles and the sensory setae of antennule not extending beyond the apex of rostrum. However, Rajapaksha and Fernando, (1985) stated that the postabdomen claw of all Chydorids species have row of fine setules on the concave surface. Rajapaksha and Fernando have studied material of *A. macronyx* from different places of oriental region and stated that there are two distinct groups of setules present on claw but these setules are sometimes very difficult to observe even under high magnification. This may be the reason that Rane (1983) considered the claw setules absent in *I. jabalpurensis*. The presence of 5-10 groups of fine spines along posteroventral corner of carapace of *A. macronyx* and in this group the posterior most spine is stoutest and largest in each group, this

is visible as equally spaced discrete spines and appears as 6 denticles which was one of the distinctive character of *I. jabalpurensis*. In *A. macronyx* about 12-15 denticles on the postabdomen which are in groups and each group with a few subsidiary denticles all if are counted they are appeared to be more than 30. Rajapaksha and Fernando (1985) *Indialona jabalpurensis* Rane treated as junior synonym of *A. macronyx*.

20. *Biapertura karua* (King)

1853. *Alona karua* King, *Pap. Proc. R. Soc. Van. Diemens Land.*, 2 : 260, pl. VIII.

1971. *Biapertura karua* Smirnov, *USSR, Acad. Sci. Zool. Institute, Nova Ser. Leningrad* No. 101 : 479-480

Material examined and locality : Pench National Park - 5 exs., Ambakhori 25.9.94 (Coll. M.S. Pradhan).

Diagnostic characters : Body oval in outline, maximum height slightly before middle. Posteroventral corner of valve with 2-3 denticles, separated from each other by margin of valve. Valve striated with sometimes with polygones. Antennules almost reaching apex of rostrum. Plate of labrum rounded. Ocellus smaller than eye. Postabdomen with 7-8 small and spines. Lateral setae in groups, first setae of some of the distal groups projecting small basal spine. Length: 0.33 mm.

Distribution : INDIA : Meghalaya, West Bengal, Tamil Nadu, Andaman Nicobar Islands, Tripura, Maharashtra.

Elsewhere : Cosmopolitan.

21. *Euryalona orientalis* (Daday)

1898. *Alonopsis orientalis* (Daday), *Termes, Fuzetek*, 21 : 45-46, figs. 21-22.

1905. *Euryalona orientalis* Daday, *Zoologica Stuttgart*, 18 : 180-181, pl. XI, figs. 14-15.

Material examined and locality : Pench National Park - 2 exs., Bukhari tank of Sillari, 23.2.99 (Coll.: M.S. Pradhan).

Diagnostic characters : Body almost quadrangular in outline. Posterodorsal and posteroventral corners of valve rounded, without denticles. Head shield with only one head pore. Antennules almost reaching apex of rostrum blunt apex. Plate of labrum with convex anterior margin and ocellus smaller than eye. Postabdomen long, narrow and slightly curved with about 20 anal denticles, decreasing in size proximally. Claw with basal spine and under setae on the proximal half of concave margin. Length: 1 mm.

Distribution : INDIA : Tamil Nadu, Andaman and Nicobar Islands, Tripura, West Bengal, Maharashtra.

Elsewhere : Shore of Gulf. Maxico, North east China, Indo-Malayan, Ethiopian and Neotropical regions.

SUMMARY

The paper deals with a systematic account of 19 species and 2 subspecies belonging to 6 families and 17 genera of Cladocera from. Pench National Park of Maharashtra state. Each of the species is provided with diagnostic characters and distribution in India and abroad. Occurrence of one of the rare species *Alona macronyx* an only oriental species recorded for first time from India is a important finding from this region. The waterbodies of this area harbour mostly oriental, Indo-Malayan and tropical elements.

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INSECTA : ODONATA

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INTRODUCTION

Dragon and Damsel flies, as they are aptly described, Odonates form the most noticeable insects while on flight as well as at rest. Being prominent, this group attracted attention of workers since long and first record of Indian Odonate dates back to more than 250 years. (Fraser 1933-36) published 3 volumes on Fauna of British India : Odonata which are still regarded as most authentic consolidated taxonomic work. Recently (Prasad & Varshney 1995) published checklist of Indian Odonates which includes 499 species.

Prasad (1996) published an account of Odonata from Maharashtra state, based on the collections present in National Zoological Collection of Zoological survey of India, Kolkata and Pune. The collection contained 46 species and subspecies. Kulkarni *et. al.* (2002) reported *Pseudagrion microcephalum* (Rambur) from Melghat Tiger Reserve amongst 24 other known species from the state. Thus the total of 84 species are recorded from the state of Maharashtra.

Faunistic Surveys of Pench National Park, Dist. Nagpur, were undertaken by Western Regional Station, Zoological survey of India, Pune during the years 1994-1999. A total of 500 (approx.) specimens were collected. All this collection was identified and recorded here. This revealed record of two species of Odonata, viz. *Copera ciliata* (Selys) and *Copera vittata deccanensis* Laidlaw (Rambur) to be new for Maharashtra State. As the area of Pench National Park was surveyed for the first time by Z.S.I. and there is no specific record of Odonate species from this area, all the 38 species are recorded for the first time from there.

Order ODONATA
Suborder ZYGOPTERA
Superfamily COENAGRIONOIDEA
Family COENAGRIONIDAE
Subfamily PSEUDAGRIONINAE
Genus *Ceriagrion* Selys, 1876

1. *Ceriagrion coromandelianum* (Fabr.)

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Genus *Pseudagrion* Selys, 18762. *Pseudagrion decorum* (Rambur)3. *Pseudagrion rubriceps rubriceps* (Selys)

Subfamily ISCHNURINAE

Genus *Ischnura* Charp., 18404. *Ischnura aurora aurora* (Brauer)5. *Ischnura senagalensis* (Rambur)Genus *Rhodishnura* Laidlaw, 19196. *Rhodishnura nursei* (Morton)

Subfamily AGRIOCNEMIDINAE

7. *Agriocnemis pygmaea* (Rambur)

Family PLATYCNEMIDIDAE

Subfamily PLATYCNEMIDINAE

Genus *Copera* Kirby, 18908. *Copera ciliata* (Selys)9. *Copera marginipes* (Ramb.)10. *Copera vittata deccanensis* Laidlaw

Family PROTONEURIDAE

Subfamily DISPARONEURINAE

Genus *Disparoneura* Selys, 186011. *Disparoneura quadrimaculata* (Ramb.)

Superfamily LESTOIDEA

Family LESTIDAE

Subfamily LESTINAE

Genus *Lestes* Leach, 181512. *Lestes viridulus* Rambur

Suborder ANISOPTERA

Superfamily AESHNOIDEA

Family GOMPHIDAE

Subfamily ONYCHOGOMPHINAE

Genus *Paragomphus* Cowley, 193413. *Paragomphus lineatus* (Selys)

Subfamily LINDENIINAE

Genus *Ictinogomphus* Cowley, 1934

- 14.
- Ictinogomphus rapax*
- (Rambur)

Family AESHNIDAE

Subfamily AESHNINAE

Genus *Anax* Leach, 1815

- 15.
- Anax guttatus*
- (Burmeister)

- 16.
- Anax immaculifrons*
- Rambur

Genus *Gynacantha* Rambur, 1842

- 17.
- Gynacantha bayadera*
- Selys

Superfamily LIBELLULOIDEA

Family CORDULIIDAE

Subfamily MACROMIINAE

Genus *Epopthalmia* Burmeister, 1839

- 18.
- Epopthalmia vittata vittata*
- Burmeister

Family LIBELLULIDAE

Subfamily LIBELLULINAE

Genus *Orthetrum* Newman, 1833

- 19.
- Orthetrum glaucum*
- (Brauer)

- 20.
- Orthetrum pruinsum neglectum*
- (Rambur)

- 21.
- Orthetrum sabina sabina*
- (Drury)

- 22.
- Orthetrum taeniolatum*
- (Schn.)

Genus *Potamarcha* Karsch, 1890

- 23.
- Potamarcha congener*
- (Rambur)

Subfamily SYMPETRINAE

Genus *Acisoma* Rambur, 1842

- 24.
- Acisoma panorpoides panorpoides*
- Rambur

Genus *Brachythemis* Brauer, 1868

- 25.
- Brachythemis contaminata*
- (Fabr.)

Genus *Bradinopyga* Kirby, 1893

- 26.
- Bradinopyga geminata*
- (Rambur)

Genus *Crocothemis* Brauer, 1968

27. *Crocothemis servilia servilia* (Drury)

Genus *Diplacodes* Kirby, 1889

28. *Diplacodes trivialis* (Rambur)

Genus *Neurothemis* Brauer, 1867

29. *Neurothemis intermedia intermedia* (Rambur)

30. *Neurothemis tullia tullia* (Drury)

Subfamily TRITHEMISTINAE

Genus *Trithemis* Brauer, 1868

31. *Trithemis aurora* (Burmeister)

32. *Trithemis festiva* (Rambur)

33. *Trithemis kirbyi kirbyi* Selys

34. *Trithemis pallidinervis* (Kirby)

Subfamily TRAMEINAE

Genus *Pantala* Hagen, 1861

35. *Pantala flavescens* (Fabr.)

Genus *Tramea* Hagen, 1867

36. *Tramea basilaris burmeisteri* Kirby

37. *Tramea virginia* (Rambur)

Genus *Tholymis* Hagen, 1867

38. *Tholymis tillarga* (Fabr.)

SYSTEMATIC ACCOUNT

Order ODONATA

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

Family COENAGRIONIDAE

Subfamily PSEUDAGRIONINAE

Genus *Ceriagrion* Selys, 1876

1. *Ceriagrion coromandelianum* (Fabr.)

1798. *Agrion coromandelianum* Fabr., *Ent. Syst. Suppl.*, : 287

1842. *Agrion cerinum* Ramb., *Ins. Neurop.*, : 279

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

Diagnostic characters : Labium pale yellow; labrum, clypeus, gene, bases of mandibles and frons bright citron yellow. In female face pale olivaceous. Pro-thorax and thorax uniformly olive green, the posterior lobe of pro thorax and the dorsum of thorax often tinted with orcherus. Pterostigma golden yellow, framed in brown nervures. Distinguishing character of this species is, abdomen bright citron-yellow, without markings.

Material examined and locality : 1 ♂, Sillari rest house, 3.10.1994, Coll. M.S. Pradhan; 1 ♂, 1 ♀, Bakhari pond, 5.12.1995, Coll. R.M. Sharma; 1♂, Ranidoh, 8.10.1996; 1 ♂ , Gawlighat, 11.10.1996, Coll. A.S. Mahabal.

Distribution : Throughout India, Sri Lanka, Myanmar, Malaysia and South China.

Remarks : Breeds in weedy ponds and tanks, may be found for the greater part of the year on the banks and breeds in water bodies. Specimens from the above localities show 9 – 12 post nodal nervures in fore wings and 8 – 10 in the hind wings. In one female specimen 13 post nodel nervures were found in hind wing.

Genus *Pseudagrion* Selys, 1876

2. *Pseudagrion decorum* (Rambur)

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

1933. *Pseudagrion decorum*, Fraser, *Fauna Brit India, Odon.*, 1 : 286–289.

Diagnostic characters : This species has white labrum with rest of the head up to posterior ocelli pale bluish green. Light blue ground colour, thorax pale blue, pterostigma diamond shaped with fine black lines, mid dorsal carinal ridge and a thick black humeral stripe. Beautifully bluish green colour distinguishes this species from other species of the genus. Anal appendages narrowly bifid at the apex. Inferior anal appendages short and half of the length of superior.

Material examined and locality : 1♂, Phefadikund, 2.12.1994, Coll. P.P. Kulkarni; 1 ♂, Ranidoh, 7. 12 1995, Coll. R.M. Sharma.

Distribution : Throughout continental India, Myanmar, Napal and Sri Lanka.

Remarks : Common species in India, found on permanent and temporary water bodies. Rare in hill streams. Specimens from above localities have 10 – 11 post nodal nervures in fore wings, 8 – 9 in hind wings.

3. *Pseudagrion rubriceps rubriceps* Selys

1876. *Pseudagrion rubriceps* Selys, *Bull. Acad. Belg.*, (2) XII : 510

1931. *Pseudagrion rubriceps*, Fraser, *Rec. Indian Mus.*, XXXIII : 448

1995. *Pseudagrion rubriceps rubriceps*, Prasad and Varshney, *Oriental Ins.*, 29 : 389

Diagnostic characters : Labium citron yellow; labrum, bases of mandibles, genae, clypeus and frons bright orange; vertex and occiput dark olivaceous; prothorax black, marked with pale blue; thorax olivaceous green with golden tinge up to first lateral suture with black stripes. Legs yellow; femora black on outer and posterior surface with 4 to 5 spines; tibiae speckled with black on flexor surface. Wings with pterostigma strongly brassed, less than one cell, reddish brown, diamond shaped; 10 post nodal nervures in fore wing and 9 in the hind. (Prasad *et.al.* 1987) studied collection of 8 species of the genus with notes on their measurements, collection data and variations with keys for their identification.

Material examined and Locality : 1♂, Bakhari Pond, 5.12.1995; 2 ♂♂, 1 ♀, Ranidoh, 7.12.1995, Coll. R. M. Sharma.

Distribution : Throughout India, Formosa, Indo China, Malaysia, Myanmar, Nepal and Taiwan.

Remarks : Earlier records show collection of this species from Pune and Wardha (Prasad 1996) and also from Melghat Tiger Reserve, Dist. Amravati from Maharashtra State (Kulkarni and Prasad, in Press). Mainly found in plains but also recorded from Ootakmund Nilgiris, 7250' and Coorg 4000' elevations.

Subfamily ISCHNURINAE

Genus *Ischnura* Charp, 1840

4. *Ischnura aurora aurora* (Brauer)

1858. *Agrion delicatum* Hagen, *Verh. Zool.-bot. Ges. Wien.*, 8 : 479.

1865. *Ischnura aurora*, Brauer, *Verh. Zool.-bot. Ges. Wein.*, 15 : 510.

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

1995. *Ischnura aurora aurora*, Prasad and Varshney, *Oriental Ins.*, 29 : 390.

Diagnostic Characters : Labium white; Labrum citron yellow; vertex bronzed black; eyes beautifully olive green, with semilunar spot bordering it. Prothorax bronzed black on dorsum, sides and anterior lobe blue. Thorax black on dorsum, Legs pale citron-yellow, wings: pterostigma differs in fore & hind wings, in fore wings kite shaped, broader than long rose red for proximal half; in the hind wing much smaller about half the size. Abdomen citron yellow except segments 8 to 10 which are azure blue.

Material examined and Locality : 1♂, Dakshin Bodalzira, 5.10.1996, Coll. A.S. Mahabal; 1♂, Ranidoh, 19.9.1997, Coll. D.B. Bastawade; 1♂, Pipariya Talav, 17.3.1998, Coll. R.H. Kamble.

Distribution : Throughout India, in Maharashtra Khed, Pune, Buldhana, Aurangabad; Australia; Indonesia; Malaysia; Myanmar; Nepal; New Guinea; Papua; Philippines; Sri Lanka and Sondaic Archipelago.

Remarks : Widely distributed, found in grasses & marshy places around water bodies. Specimens from above localities show 7 post nodal nervures in fore wings and 5 to 6 in hind wings.

5. *Ischnura senegalensis* (Rambur)

1842. *Agrion senegalensis* Rambur, *Ins. Neurop.*, 276

1876. *Ischnura senegalensis*, Selys, *Bull. Acad. Belg.* (2) Vol. 12 : 273

1933. *Ischnura senegalensis*, Fraser, *Fauna Brit. India, Odon.*, 1 : 348 -351

Diagnostic characters : Labium pale yellow; labrum pale blue, narrowly black along the base; genae, bases of mandibles, anteclypeus and a broad fascia traversing the frons, pale azure blue. Posterior lobes of prothorax not prolonged. Thorax bronze black on dorsum, the sides palest green, pale yellow beneath, narrow citron yellow or pale green antehumeral stripes extending the whole length of the dorsum. Second abdominal segment steely metallic blue on dorsum. Wings hyaline; pterostigma of fore wings very oblique, diamond shaped, black but the outer angle and costal border narrowly white, tinted with blue on the upper surface of wing covering less than one cell.

Material examined and locality : 1♂, Ambakhori, 23.9.1997; 1♀, Dakshin Bodalzira, 25.9.1997, Coll. D.B. Bastawade.

Distribution : Throughout India; Sri Lanka; Myanmar; Japan; Philippines; Africa; Indonesia.

Remarks : Earlier records of this species are from Pune, Maharashtra State (Prasad 1996). The present collection showed 9 post nodal nervures in fore wings and 7 – 8 in hind wings.

Genus *Rhodischnura* Laidlaw, 1919

6. *Rhodischnura nursei* (Morton)

1907. *Ischnura nursei* Morton, *Trans. Ent. Soc. London* : 306 – 307.

1919. *Rhodischnura nursei* Laid., *Rec. Ind. Mus.*, 16 : 171, 177-178.

1995. *Rhodischnura nursei*, Prasad & Varshney, *Oriental Ins.*, 29 : 391.

Diagnostic characters : Labium light yellow; labrum, bases of mandibles, genae, anteclypeus and frons pale greenish yellow; post clypeus, vertex and occiput black. Eyes green above, pale greenish yellow below. Thorax broadly black on dorsum, marked with narrow green antehumeral stripes. Wings hyaline, pterostigma of forewing diamond shaped, proximal and

posterior borders thickened, black, distal thinner, black, costal pale yellow, membrane pale, red on the inner half changing to pink and then hyaline at the distal angle, covering less than one cell. Pterostigma in hind wing much smaller, hyaline, uncolored, borders similar to that of fore wing. In female pterostigma of all wings pale, with thick black proximal and posterior borders as in the hind wing of male, that of fore wing nearly twice the size of that of hind wing. Abdominal segments 1–4 bright crimson.

Material examined and locality : 4 ♀♀, Phefadikund, 2.12.1994, Coll. P.P. Kulkarni, 1 ♀, Ranidoh, 8.10.1996, Coll. A.S. Mahabal.

Distribution : Bihar, Gujarat, North India, Rajasthan and Maharashtra (Nagpur).

Remarks : The bright crimson citron – yellow and black abdomen will serve to distinguish this species from any other. In *Ischnura aurora*, of the same size, has the abdomen citron yellow and black and sometime the basal segment red, but the terminal segments are azure blue. Specimens from Pench National Park were found with 7 to 8 post nodal nervures in fore wings and 6 to 7 in the hind wings.

Subfamily AGRIOCNEMIDINAE

Genus *Agriocnemis* Selys, 1877

7. *Agriocnemis pygmaea* (Rambur)

1842. *Agrion pygmaeum* Rambur, *Ins., Neurop.*, : 278.

1882. *Agriocnemis velaris* Selys, *Ann. Soc. Espan. Hist. Nat.*, 11 : 29.

1913. *Agriocnemis hyacanthus* Tillyard, *Proc. Linn. Soc. N.S. Wales*, 37 : 457

1933. *Agriocnemis pygmaea*, Fraser, *Fauna Brit. India, Odon.*, 1 : 398-401.

Diagnostic characters : Labium palest yellow, labrum entirely brilliant, metallic blue; anteclypus, bases of mandibles, genae and the frons narrowly pale apple green; occiput with very small rounded postocular spots. Thorax black on dorsum as far as the anterior-lateral suture, marked with narrow antehumeral apple green stripes, very small black spots on the upper part of the postero-lateral suture. Wings hyaline, pterostigma pale yellow in the fore wings, black in the hind wing. That of the hind wing slightly shorter than the fore. In female, pterostigma similar in all wings, yellow, framed in darker coloured nervures covering less than one cell. Abdominal segments 1 to 6 with the ground color pale greenish yellow, the terminal segments brick red, marked with bronzed black.

Material examined and locality : 4♂♂, 3♀♀, Phefadikund, 2.12.1994, Coll. P.P. Kulkarni; 2♀♀, Gawalighat, 11.12.1995, Coll. R.M. Sharma; 1♀, Totladoh forest rest house (At night), 10.10.1996, Coll. A.S. Mahabal; 1♀, Ranidoh, 19.9.1997, Coll. D.B. Bastawade.

Distribution : Throughout India, Sri Lanka, Myanmar, Singapore, Java, Philippines, Formosa, China, Australia, Afghanistan, Bangladesh, HongKong, Indonesia, Japan, Kampuchea, Malaysia, Nepal, Pakistan, Papua, Seychelles, Taiwan and Thailand.

Remarks : Prasad (1996) recorded this species from Maharashtra state (Kalyan, Aurangabad, Buldhana, Warwand, Colaba and Pune). One female collected light at Totladoh, Pench National Park.

Family PLATYCNEMIDIDAE

Subfamily PLATYCNEMIDINAE

Genus *Copera* Kirby, 1890

8. *Copera ciliata* (Selys)

1863. *Psilocnemis annulata* Selys, *Bull.Acad.Belg.*, (2) : 16 : 172.

1886. *Psilocnemis subannulata* Selys, *Mem. Cour.*, 38 : 125.

1933. *Copera annulata*, Fraser, *Fauna Brit. India, Odon.*, 1 : 203 – 206

1995. *Copera ciliata*, Prasad & Varshney, *Oriental Ins.*, 29 : 392.

Diagnostic characters : Labium white; labrum, genae, bases of mandibles and clypeus pale blue. Labrum with a tiny median black point at base. Frons and vertex in front and laterally pale blue, with a broad bronzed black triangular area. Thorax dark bronzed bluish green on dorsum, marked on each side with a narrow, complete pale blue antehumeral stripes lying in juxtaposition to the humeral suture. Legs very long, hind femora extending nearly to the end of 2nd abdominal segment wholly black on dorsum. Anal appendages strongly arched, black at apices. Wings hyaline, pterostigma reddish-brown, framed in white and thick black nervures, poorly braced. 13–16 post nodal nervures in fore wings, 12–14 in the hind wings.

Material examined and locality : 2♀♀, Ranidoh, 16.9.1995, Coll. R.H. Kamble; 1 ♀, Bakhari talav. 6.10.1996; 2♀♀, Totladoh, 12.10.1996, Coll. A.S. Mahabal.

Distribution : India; (Assam, Himachal Pradesh, Meghalaya, Uttar Pradesh, West Bengal, Manipur, South India); Malaysia; Indo China; China; Japan.

Remarks : This species breeds in weedy ponds and small lakes. Specimens from the Pench National Park had 12–16 post nodal nervures in fore wings and 9–15 in hind wings. Available literature revealed this species as a new record for Maharashtra State.

9. *Copera marginipes* (Rambur)

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

1933. *Copera marginipes*, Fraser, *Fauna Brit, India. Odon.*, 1 : 192-197.

Diagnostic Characters : Labium pale brownish white, labrum pale greenish yellow, frons and vertex bronzed black, eyes bordered with white stripes. Prothorax and thorax bronzed black on dorsum, legs variably bright orange to dull reddish. Wings, pterostigma brown. Abdomen bronzed black upto middle of segment 8, from which to the end pale bluish white to creamy white. Superior anal appendages only one fourth the length of inferiors. Females with posterior lobe of prothorax without spines. Fraser (1933) has described Ceylon, Coorg, Westcoast, Deccan, Assam & Bengal forms with variation in colour patterns.

Material examined and Locality : 1 ♂, Gawlighat, 8.12.1994, Coll. P.P. Kulkarni; 1 ♂, Ranidoh, 7. 12.1995, Coll. R.M. Sharma; 2 ♂♂, Phefadikund, 21.9.1997, Coll. D.B. Bastawade.

Distribution : India : (Assam, Bihar, Chandigarh, Madhya Pradesh, Maharashtra (Lone, Pune, Khandala, Hingoli, Wardha, Gondhonkher, Buldhana), Rajasthan, South Andaman Islands, West Bengal, Western Ghats & Western Himalaya); Indonesia; Malaysia; Myanmar; Nepal; Sri Lanka and Thailand.

Remarks : Specimens examined found with 11–12 post nodal nervures in fore wings and 8–10 in the hind wings.

10. *Copera vittata deccanensis* Laidlaw

1863. *Psilocnemis vittata* Selys, *Bull. Acad. Belg.*, (2) Vol. 16 : 170

1890. *Copera vittata* Kirby, *Cat. Odon.*, : 129.

1917. *Copera vittata deccanensis* Laidlaw, *Rec. Ind. Mus.*, 13 : 338

1995. *Copera vittata deccanensis*, Prasad & Varshney, *Oriental Ins.*, 29 : 393

Diagnostic characters : Labrum, genae and anteclypeus greenish white. Frons and occiput dark, with a broad creamy white transverse band covering the ocelli. A pair of linear post ocular lines present. Prothorax black above, with lateral yellow marks, bright lemon yellow below. Thorax black dorsally, creamy white antehumeral bands present, sides yellow, dotted with black. Legs lemon yellow, the posterior pair of tibiae distinctly though slightly dilated. Abdomen black, segment 2 with fine longitudinal yellow line dorsally, 4–7 with small apical bluish white lunules, 9 white above, 10 entirely white. Anal appendages : Superiors white, inferiors white tipped with black. The female is colored as the male though duller, the legs and under surface of the thorax being dull white. On segment 9 of the abdomen is a square apical white mark. Segment 10 is brown below and the general colour of the abdomen is rich brown and not black.

Material examined and locality : 3 ♀♀, Ambakhori, 23.9.1997, 1 ♀, Dakshin Bodalzira, 25.9.1997, Coll. D.B. Bastawade.

Distribution : India : Western Ghats, West coast of India, South India (Coorg, Malabar, Nilgiri Wynaad, Parambikulam).

Remarks : It prefers regions of heavy rainfall. Female specimens examined were found with 14 – 16 postnodal nervures in forewings and 13–14 in the hind wings. This species is recorded for the first time from Maharashtra State and shows distributional extension from Southern India (Part of Western Ghat) to Central India.

Family PROTONEURIDAE

Subfamily DISPARONEURINAE

Genus *Disparoneura* Selys, 1860

11. *Disparoneura quadrimaculata* (Rambur)

1842. *Argia quadrimaculata*, Ramb. *Ins. Neurop.* : 255.

1860. *Disparoneura quadrimaculata*, Selys, *Bull. Acad. Belg.*, (2) X : 446.

1932. *Chloroneura quadrimaculata*, Fraser, *Fauna Brit. India, Odonata I* : 246 248.

1955. *Platylestes orientalis*, Baijal and Agarwal *Agra. Univ. J. Res. (Sci)*, 4 (2) : 469.

1995. *Disparoneura quadrimaculata*, Prasad & Varshney. *Oriental Ins.*, 29 : 394.

Diagnostic Characters : Labium pale whitish brown; labrum, clypeus, vertex and occiput dull brick red, labrum with a small median black spot, prothorax dull brick red, thorax bright brick red on dorsum, paler at sides, marked with black. Legs pale brown, femora speckled out word with black. Wings hyaline, the fore pair traversed by a broad blackish brown fasica, wings of male broadly barred with blackish brown across middle. Wings in females without any black markings. Abdomen brick red, marked with white brown and black, (Fraser, 1933). Female differs considerably from male and more robust in build (not in the present collection).

Material Examined and Locality : 2♂♂, Ghogra nalla near Sillari, 9.10.1996; 2 ♂♂, Kirangisarra, 10.10.1996, Coll. A.S. Mahabal; 2 ♂♂, Ambakhori, 23.9.1997, Coll. D.B. Bastawade.

Distribution : India (Central India, Delhi, Uttar Pradesh and Western Ghats, Maharashtra (Medha Venna valley, Ambenali, Satara Dist., Pune and Nagpur).

Remarks : Male specimens examined have 14–16 post nodal nervures in forewings and 12–15 postnodal nervures in the hind wings. Found in submontane areas. Mostly recorded up to 1,500' elevations.

Superfamily LESTOIDEA

Family LESTIDAE

Subfamily LESTINAE

Genus *Lestes* Leach, 1815

12. *Lestes viridulus* Rambur

1842. *Lestes viridula* Rambur, *Hist. Nat. Ins. Neurop.*, 252-253.

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

Diagnostic Characters : Labium pale yellow, labrum, clypeus, frons, vertex and occiput pale brown, behind the eyes pale yellow; eyes brown above, golden yellow below, prothorax pale brown uniformly, thorax pale yellow; dorsum of thorax with two very narrow conspicuous metallic green stripes running parallel. Legs pale yellow with black spines. Abdomen pale yellow at sides and almost white beneath. Anal appendages yellow, tipped with black. Females coloured as in males with a longitudinal black stripe on all femora.

Material examined and locality : 1 ♂, Bakhari talav, 29.9.1994, Coll. M.S. Pradhan; 1 ♀, Gawalighat, 8.12.1994, Coll. P.P. Kulkarni, 2 ♀♀, Bodalzira, 2.12.1995, Coll. R.M. Sharma; 1 ♂, Phefadikund, 6.10.1996, Coll. A.S. Mahabal.

Distribution : Throughout India and Thailand.

Remarks : Common in dry season and usually among dry long grasses. Recorded from Maharashtra State, Poona, Khandala, Chenchni, Dist. Satara (Prasad, 1996). Male specimens examined from this park show 9 – 12 postnodal nervures in fore wings and 10 – 12 in hind wings. In female 9 – 13 in both fore and hind wings.

Suborder ANISOPTERA

Superfamily AESHNOIDEA

Family GOMPHIDAE

Subfamily ONYCHOGOMPHINAE

Gensu *Paragomphus* Cowley, 1934

13. *Paragomphus lineatus* (Selys)

1850. *Gomphus lineatus* Selys, *Rev. Odon.*, : 386.

1854. *Onychogomphus lineatus*, Selys, *Bull. Acad. Belg. Xxi* (2) : 36

1924. *Mesogomphus lineatus*, Fraser, *Rec. Indian. Mus.*, **Xxvi** : 424, 477.

1995. *Paragomphus lineatus*, Prasad & Varshney, *Oriental Ins.*, **29** : 402.

Diagnostic Characters : Labium, labrum, face & frons sandy yellow, vesicle and occiput yellow, separated by narrow, transverse dark brown streak. Prothorax blackish brown, thorax sandy yellow, legs yellow, marked with black, tarsi black, femora with two rows of spines. Abdomen black marked with yellow, anal appendages yellow. Females closely resemble males, much paler than males.

Material examined and locality : 1 ♀, Pipriya Talav, 17.3.1998, Coll. R. H. Kamble.

Distribution : India : Bihar, Haryana, Himachal Pradesh, Meghalaya, West Bengal, Dehra Dun (Uttaranchal), Poona Khandala, Satara, (Maharashtra), Madras, Palaghat, Trichinopoly, Coorg and the Nilgiris; Myanmar, Nepal.

Remarks : Breeds both in still and running waters, camouflages with surroundings and a bit difficult to catch. Pale and dark forms are recorded in summer & monsoon.

Subfamily LINDENIINAE

Genus *Ictinogomphus* Cowley, 1934

14. *Ictinogomphus rapax* (Rambur)

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

1842. *Ictinus vorax*, Rambur, *Ins. Neurop.*, : 171.

1854. *Ictinus rapax*, Selys, *Bull. Acad. Belg.*, 21 : 90

1854. *Ictinus paracox*, Selys, *Bull. Acad. Belg.*, 21 : 89

1857. *Ictinus mordax*, Selys, *Mon. Gomph.*, 433

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

Diagnostic characters : Eyes bluish grey; labium yellow, bordered with brownish; labrum yellow, with a heavy black border, face and frons greenish yellow, with a black stripe. Prothorax black, marked with yellow or greenish yellow. Wings clear or when fully matured, slightly enfumed. Pterostigma black, braced, long, covering 5–6 cells. Discoidal cell of forewings with 4, of hind wings with 3 cells. Membrane whitish, nodal index. $\frac{23 - 13}{14 - 16} | \frac{21 - 12}{15 - 13}$
Legs, femora largely black. Abdomen black, marked with bright yellow, segment 8 with a broad yellow ring. Anal appendages black, as long as the two last segments, cylindrical and tapering.

Material examined and locality : 2 ♀♀, Phefadikund, 25.9.1994; 1 ♀, Pench river near Hattigota, 28.9.1994, Coll. M.S. Pradhan; 1 ♂, Kirangi Sarra, 10.10.1996, Coll. A.S. Mahabal.

Distribution : Throughout India, Myanmar, Sri Lanka and Malaysia.

Remarks : Breeds in both running and still waters, but preferably in still water.

Specimen examined from this park had nodal index varying between

$$\frac{12-21}{12-17} \bigg| \frac{22-13}{16-13} \text{ to } \frac{16-25}{16-17} \bigg| \frac{24-14}{18-16}$$

Discoidal cell of forewing with 3–4 cells and of hind wings with 2 to 3 cells.

Family AESHNIDAE

Subfamily AESHNINAE

Genus *Anax* LEACH 1815

15. *Anax guttatus* (Burmeister)

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

1842. *Anax magnus*, Rambur, *Ins. Neurop.*, : 188.

1867. *Anax guttatus*, Hagen, *Verh.zool.-bot.Ges.Wien.* 16 : 39.

1922. *Anax goliathus*, Fraser, *J.Bombay Nat. Hist. Soc.*, 28 : 900.

1995. *Anax guttatus*, Prasad & Varshney, *Oriental Ins.*, 29 : 403.

Diagnostic characters : Labium and labrum bright orcheous, the later narrowly bordered with black. Face and frons golden yellow or sometimes bright greenish yellow, usually unmarked. Eyes blue during life. Occiput bright yellow, black behind. Prothorax reddish brown, bordered with yellow and with anterior collar yellow. Thorax pale green, unmarked, save for sutures beneath, which are reddish brown. Wings hyaline, rarely enfumed, but a large part of amber-yellow on hind wing lying between discoidal cell and a point slightly distal to node. Pterostigma ferruginous above, bright ochreous beneath, covering 2 cells. Membrane black, with a patch of white at extreme base. Abdomen with orange coloured markings Anal appendages reddish brown.

Material examined and locality : 1♂, Chikalkhari nalla, 29.9.1994, Coll. M. S. Pradhan; 1♂, Purvakutumb, 4.10.1996; 1 ♂, Dakshin Bodalzira, 5.10.1996, Coll. A.S. Mahabal.

Distribution : Throughout India, Myanmar, Thailand, Java and Sumatra.

Remarks : It breeds in small weedy tanks and ponds, may be found hawking around the borders there, never wandering away from water. Nodal index of specimen from this area

$$\frac{8-15}{10-10} \bigg| \frac{16-7}{10-11} \text{ to } \frac{8-18}{10-13} \bigg| \frac{18-8}{11-12}$$

16. *Anax immaculifrons* Rambur

1842. *Anax immaculifrons* Rambur, *Ins. Neurop.*, : 189.

1936. *Anax immaculifrons*, Fraser, *Fauna Brit. India, Odon.*, 3 : 145-146.

1995. *Anax immaculifrons*, Prasad & Varshney, *Oriental Ins.*, 29 : 403.

Diagnostic characters : Labium dirty or pale ochraceous; labrum greenish yellow heavily bordered with blackish brown. Face and frons uniform pale brownish-green, with a very narrow black border at the base of frons above. Occiput palest blue. Prothorax dark reddish brown, paler laterally, posterior lobe with heavy fringe of long hairs. Thorax pale bluish-green on dorsum, turquoise-blue on sides broadly barred with jet black. Legs black. Wings hyaline, tinted with amber yellow from apex to base of discoidal cell, paler at apex, rather deeply towards the base of wing. Pterostigma ochreous to reddish brown, covering about 3 cells. Discoidal cell of forewing with 5-6 cells, 4-5 in the hind; 5-6 cubital nervures in fore wings, 4 in the hind; 12 cells in the anal loop. Abdomen, segment 1 entirely jet black, segment 2 turquoise-blue with black sutures.

Material examined and locality : 1 ♂, Paulzodi nalla, 10.12.1994, Coll. P.P. Kulkarni.

Distribution : India, Maharashtra (Bombay and Pune), Bihar, Chandigarh, Eastern Ghats, Sikkim, West Bengal and Western Himalaya; Sri Lanka.

Remarks : It breeds in all montane streams. Larvae may be seen on the muddy bottom. Eggs are inserted in the reeds by the female, which at times entirely submerges during act of oviposition.

Genus *Gynacantha* Rambur, 1842

17. *Gynacantha bayadera* Selys

1891. *Gynacantha bayadera*, Selys *Ann. Mus. Civ. Stor (x) Nat. Giacomo Doria, Genova*, 30 : 47.

1926. *Gynacantha lytoni*, Fraser, *J. Darjeeling Mus.*, 9 : 31-33.

1995. *Gynacantha bayadera*, Prasad & Varshney, *Oriental Ins.*, 29 : 404.

Diagnostic Characters : Large sized dragonfly with homogenous colour of dull brown and green. Wings long and broad, very closely reticulated and palely tinted at bases. Abdomen markedly constricted at segment 3, of even width and cylindrical from segment 4 to end of abdomen. Anal appendages bright ochreous changing to reddish brown at apices. Females identical to males in colouration.

Material examined and locality : 1 ♂, Hattigota, 27.9.1997, Coll. D.B. Bastawade; 1 ♂ Hattigota, 16.3.1998, Coll. R.H. Kamble.

Distribution : India : Karnataka, Maharashtra, Meghalaya, Orissa, Sikkim, and West Bengal; Myanmar; Malaysia and Indo China.

Superfamily LIBELLULOIDEA

Family CORDULIIDAE

Subfamily MACROMIINAE

Genus *Eupoptalmia* BURMEISTER, 1839

18. *Eupoptalmia vittata vittata* Burmeister

1839. *Eupoptalmia vittata* Burmeister, *Handb. Ent.*, 2 : 845

1867. *Azuma cynocephala*, Hagen, *Verh. zool-bot. Ges. Wien.*, 17 : 59-60.

1936. *Eupoptalmia vittata vittata*, Fraser, *Fauna Brit. India, Odon.*, 194-196.

Diagnostic characters : Dragonflies of very large size and robust build. Labium dark, ochreous labrum reddish brown, marked with two narrow bright yellow spots. Frons and vesicle dark, metallic blue. Frons with a rounded spot on each side in front and a crown shaped spot in the middle of the sulcus above. Eyes bluish green during life. Occiput black. Prothorax ochreous. Thorax dark, reddish brown, with the upper part of the dorsum and darker areas on the side with a bluish green metallic reflex and marked with citron yellow. Wings hyaline, with the extreme apices slightly enfumed and the tornal angle of the hind wing bearing a patch of bright amber colour; pterostigma short and narrow, dark blakish-brown, covering less than two cells. Abdomen dark reddish brown to dark ochreous marked with dark ochreous annules. Anal appendages pale ochreous to dark reddish-brown.

Material examined and locality : 1 ♀, Paulzodi nalla, 10.12.1994, Coll. P. P. Kulkarni.

Distribution : Peninsular India, Uttar Pradesh, West Bengal, Maharashtra (Mahabaleshwar, Poona, Khandala).

Remarks : Nodal index of the female specimen collected from this park was found as :

$$\begin{array}{r|l} 6-14 & 15-6 \\ \hline 6-10 & 10-8 \end{array}$$

Family LIBELLULIDAE

Subfamily LIBELLULINAE

Genus *Orthetrum* Newman, 1833

19. *Orthetrum glaucum* (Brauer)

1865. *Libellula glauca*, Brauer, *Varh. zool.- bot. Ges. Wien*, 15 : 1012.

1890. *Orthetrum glaucum*, Kirby, *Cat. Odon.*, 39.

1936. *Orthetrum glaucum*, Fraser, *Fauna Brit. India*, : 3 : 307-309.

Diagnostic characters : Medium sized dragonfly with face black, eyes, dark green during life. Prothorax bright yellow to dark brown, marked with yellow; thorax in old adults pruinosed dark dull blue or black. Legs black, wings hyaline, with extreme base tinted with dark amber-yellow upto the cubital nervure and up to anal triangle in hind wing; discoidal cell of hind wing entire. In female abdomen reddish brown with a broad greenish yellow stripe on mid dorsum extending up to segment 7 as against in males, pale dirty blue up to apical end of segment 8 & black for the remainder.

Material examined and locality : 1 ♀, Phefadikund nalla, 2.12.1994, Coll. P.P. Kulkarni; 1 ♂, Dongergaon, 3.12.1995, Coll. R. M. Sharma.

Distribution : Throughout India; Sri Lanka; Nepal; Philippines; Java; Indonesia; Malaya Archipelago; Papua and South China.

Remarks : Specimens examined from this park show all the colors as in the old specimens (Fraser, 1936). In one male, discoidal cell of both the hind wings traversed once. Nodal index varies from

$$\frac{10-11}{9-10} \bigg| \frac{12-10}{9-10} \text{ to } \frac{11-14}{13-12} \bigg| \frac{14-12}{11-12}$$

20. *Orthetrum pruinsum neglectum* (Rambur)

1842. *Libellula neglecta*, Rambur, *Ins. Neurop.*, 86.

1936. *Orthetrum pruinsum neglectum*, Fraser, *Fauna Brit. India, Odon.*, 3 : 311-313.

Diagnostic Characters : Head, with reddish brown colour progressively dark from labium to frons and up to vesicle & occiput; eyes blue black above, bluish-gray below during life. Prothorax and thorax reddish brown, legs black, wings hyaline with enfumed pale brown towards apices and with a reddish-brown basal marking in hind wing. Abdomen bright vermilion red in sub adults, purplish red in adults. Anal appendages red. Females differ from males in frons similar to rest of face in colour, eyes yellowish capped with brown. Thorax reddish brown, abdomen dull ochreous with sutures and borders all finely black, anal appendages dark ochreous and basal markings in wings pale and almost obsolete.

Material examined and Locality : 2♂♂, Ambakhori, 4.12.1994; 1 ♂, Gavalighat, 8.12.1994, Coll. P. P. Kulkarni; 1 ♂, Totladoh, 10.3.1998, Coll. R.H. Kamble; 1 ♂, Kandautar, 25.2.1999, Coll. M.S. Pradhan.

Distribution : India : Himachal Pradesh (Bilaspur, Kangra, Kinnaur, Kulu, Srimaur, Solan) Uttaranchal (Chamoli, Dehradun, Nainital, Pauri and Tehri Garhwal, Uttarkashi), Bihar & Dhanbad; Nepal; Myanmar; Sri Lanka; Hong Kong; Thailand and Malaya.

Remarks : Breeds in small tanks; recorded from altitude of 7,250' from Ooty, Nilgiris. Variation in nodal index is recorded in this species from

$$\frac{8-11}{10-9} \bigg| \frac{12-8}{10-9} \text{ to } \frac{9-16}{11-12} \bigg| \frac{15-9}{12-11}$$

21. *Orthetrum sabina sabina* (Drury)

1770. *Libellula sabina*, Drury, *Ill. Exot. Int.*, 1 : 114.

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

1995. *Orthetrum sabina sabina*, Prasad and Varshney, *Oriental Ins.*, 409.

Diagnostic Characters : Labium yellow, middle lobe brownish to black; labrum face and frons yellowish, variably marked on anterior surface with black; frons very deeply notched so as to form two triangular facets in front. Prothorax bright yellow, thorax greenish yellow, legs black. Abdomen greenish yellow with very broad apical black rings on segments 4 to 5, narrow ring on segment 6; segments 7 to 9 and base of 10 black. Segments 1 and 3 enormously swollen dorso ventrally as well as laterally; 4 to 6 narrow, cylindrical, 7 to 9 dilated but compressed laterally; 10th very small. Anal appendages as long as segment 9. Females exactly like males.

Material examined and Locality : 2 ♀♀, Chikhalkhari nalla, 27.9.1994, Coll. M. S. Pradhan; 1 ♂, Bodalzira, 3.12.1994; 1 ♂, 1 ♀, Kolutmara, 9.12.1994, Coll. P. P. Kulkarni; 1 ♂, 2 ♀♀, Narhar, 8.12.1995, Coll. R.M. Sharma; 1 ♂, Gawalighat, 11.10.1996, Coll. A. S. Mahabal.

Distribution : India : Bilaspur, Kangra, Sirmaur, Solan, Una, Dehra Dun, Nainital, Pauri Garhwal and Bihar Singhbhum, Dhanbad; Somalia (Somali Land); Iraq; Iran; Nepal; Sri Lanka; Burma; Thailand; Micronesia (Ocenia); Samoa Island (Pacific Ocean) Indonesia (Java, Sumba, Timor); Papua (New Guinea); Australia; Egypt; Angola and most of African continent.

Remarks : Found in all parts of India, up to 7000' (Nilgiri's), most predaceous; cannibalism is also recorded and preys on other dragonflies also. Specimens from this park showed variation in the wings in discoidal cell of one female, entire in the right fore wing, while in

the another female, traversed in the left hind wings. Nodal index varies from $\frac{8-11}{10-9} \mid \frac{12-8}{10-9}$ to

$\frac{10-14}{11-11} \mid \frac{13-10}{11-12}$

22. *Orthetrum taeniolatum* (Schn.)

1842. *Libellula neglecta*, Rambur, *Ins. Neurop.*, 86.

1845. *Libellula taeniolata*, Schneider, *Sett.Ent.Zeit.*, 6 : 111.

1936. *Orthetrum taeniolatum*, Fraser, *Fauna Brit. India*, 3 : 296-298.

Diagnostic Characters : Labium, labrum, face, frons and vesicle palest brown; occiput dark brown, prothorax & thorax pulverulent blue; legs black, hinder surface yellow, wings

hyaline not enfumed, pterostigma ochrous, between thick black nervures $\frac{9-12}{8-9} \mid \frac{12-8}{8-9}$ nodal index : Abdomen pulverulent blue; anal appendages black.

Material examined and locality : 1 ♂, Phefadi kund, 25.9.1994; 1 ♂, Sillari Rest house, 3.10.1994, Coll. R.M. Sharma; 1 ♀, Dongargaon, , Dongardeo, 5.12.1994, Coll. P. P. Kulkarni; 1 ♂, Sedaldam, 20.9.1997, Coll. D.B. Bastawade.

Distribution : Throughout India; Nepal and countries bordering Mediterranean Sea.

Remarks : A very common species in the dry zones and hot plains of India. It breeds in the deep pools left by falling streams and is therefore most common during the dry season or just prior to the onset of monsoon. Specimens examined showed variation in the nodal

index from $\frac{9-12}{12-9} \bigg| \frac{12-9}{9-9}$ to $\frac{11-13}{9-9} \bigg| \frac{12-10}{9-12}$ In one female two cubital nervures were found in the right hind wing.

Genus *Potamarcha* Karsch, 1890

23. *Potamarcha congener* (Rambur)

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

1842. *Libellula congener*, Rambur, *Ins. Neurop* : 70.

1890. *Potamarcha obscura*, Karsch, *Berlin Ent. Zeit.*, : 33 : 371.

1891. *Potamarcha congener*, Selys, *An., Soc. Espan*, 20 : 221.

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

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

Diagnostic Characters : The only species of the genus. Can be distinguished by arc situated between the first and second antenodal nervures; 2 rows of cells between I R iii and Rspl. and anal field of hind wing rather broad with cells arranged in straight rows. They are dragonflies of moderate size, coloured black brown, marked with yellow but never of metallic colour.

Material examined and Locality : 1 ♀, Pench River, Koltimara, 7.10.1996, Coll. A. S. Mahabal.

Distribution : India : Kangra, Dehradun, Bihar (Singhbhum, Dhanbad), Madhya Pradesh, West Bengal, Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra; Nepal, Myanmar; Sri Lanka; Philippines, Taiwan; Malaya Archipelago, Indonesia (Java, Sumatra); Papua (New Guinea) and North Australia.

Remarks : Common Species in India. Female specimens showed variation in the hind

wings with discoidal cell being entire. Nodal index was observed $\frac{8-12 \frac{1}{2}}{9-10} \bigg| \frac{10 \frac{1}{2}-9}{9-9}$

Subfamily SYMPETRINAE

Genus *Acisoma* RAMBUR, 184224. *Acisoma panorpoides panorpoides* Rambur

1842. *Acisoma panorpoides*, Rambur, *Ins. Neurop.*, : 28.

1936. *Acisoma panorpoides panorpoides*, Fraser, *Fauna Brit. India, Odon.*, 3 : 330 – 331.

Diagnostic characters : Small size dragonfly, coloured blue marked with black and characterized by the peculiar shape of the abdomen. Labium creamy white, labrum pale yellow, face and frons palest azure blue, the later bordered with black at base. Thorax azure blue, marbled with black. Legs black, femora striped with yellow. Wings hyaline, distal ante nodal complete; costal side of discoidal cell in fore wing nearly always elongated. Abdominal segments 1 – 6 dialated, 7 – 10 slim and cylindrical. Female entirely similar to male in colour, markings and shape, differs only in sexual characters.

Material examined and locality : 1 ♂, Pench river bed, 30.11.1995, 1 ♀, Ranidoh, 7.12.1995, Coll. R.M. Sharma; 1 ♂, Kirangi Sarra, 10.10.1996; 1♂, 1 ♀, Totladoh, 12.10.1996, Coll. A.S. Mahabal.

Distribution : India : Arunachal Pradesh, Assam, Bihar, Chandigarh, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Rajasthan, South India, Uttar Pradesh and West Bengal; China; Indonesia; Japan; Malayan Archipelago; Myanmar; Nepal; Philippines; Singapore; Sri Lanka and Thailand.

Remarks : The species has a very weak flight and keeps close to bank herbage and reeds in the heavily weeded tanks and lakes in which it breeds.

Genus *Brachythemis* Brauer, 186825. *Brachythemis contaminata* (Fabr.)

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

1842. *Libellula truncatula*, Rambur, *Ins. Neurop.*, 95

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

1995. *Brachythemis contaminata*, Prasad & Varshney, *Oriental Ins.*, 29 : 410.

Diagristic characters : Labium pale ochreous; labrum reddish; face frons and vesicle olivaceous or pale green yellow, eyes broadly contiguous; prothorax with dark reddish brown stripes traversing anterior and posterior borders of middle lobe, thorax with obscure brownish stripes, wings hyaline, reticulation reddish, with a broad bright orange fascia extending from base within 2-3 cells of pterostigma in fore wing and as far as that organ in the hind; pterostigma rust red. Abdomen reddish-ochreous, marked with obscure dorsal and sub dorsal

brown stripes. Females differ in colour, with hind wings very palely tinted with yellow at extreme base without orange fascia seen in the males, pterostigma bright ochreous. Abdomen pale olivaceous brown, with narrow black stripe on mid dorsal carina from segment 2 to end. Anal appendages yellow.

Material examined and locality : 3 ♂♂, 1 ♀, Gawlighat, 26.9.1994, Coll. M.S. Pradhan; 4 ♂♂, 2 ♀♀, Salama, 29.9.1995, Coll. R.H. Kamble; 2 ♂♂, 1 ♀, Bakhari talav, 6.10.1996, 1 ♂, Kirangisarra, 10.10.1996, Coll. A.S. Mahabal; 2 ♂♂, 1 ♀, Phefadikund, 21.9.1997, Coll. D.B. Bastawade; 2 ♀♀, Kolitmara, 12.3.1998, Coll. R.H. Kamble; 1 ♀, Seetanahar on Ghatpendhari Road, 27.2.1999, Coll. M.S. Pradhan.

Distribution : India : Throughout India, Maharashtra: Osmanabad and Pune (Khandala, Khed and Lone); China; Indonesia; Malaysia; Myanmar; Nepal; Philippines; Singapore; Sri Lanka; Taiwan and Thailand.

Remarks : It is common species in India and found in large numbers. Seen flying over water surface throughout year and recorded to undergo three generations annually. Nodal

index of the specimen examined varied from $\frac{5-6\frac{1}{2}}{6-5} \bigg| \frac{6\frac{1}{2}-9}{5-5}$ to $\frac{7-8\frac{1}{2}}{7-6} \bigg| \frac{8\frac{1}{2}-7}{6-8}$.

Genus *Bradinopyga* Kirby, 1893

26. *Bradinopyga geminata* (Rambur)

1842. *Libellula geminata* Rambur, *Ins. Neurop.* : 90.

1893. *Bradinopyga stigmata*, Kirby, *J. Linn. Soc., Zool.*, **24** : 553

1936. *Bradinopyga geminata*, Fraser, *Fauna Brit. India*, **3** : 349-350.

Diagnostic characters : Labium, labrum pale yellow or dark brown; rest of face & frons olivaceous, vesicle & occiput brown, prothorax and thorax cinereous or dirty pale yellow marbled with black. Wings hyaline, pterostigma black at centre, pure white at distal and proximal ends, discoidal cell in forewing traversed only once, but in hind wing entire. Anal triangle 3 celled, abdomen coloured very similar to thorax. Anal appendages pale creamy white. Female exactly similar to males.

Material examined and locality : 1 ♀, Ranidoh, 19.9.1997, Coll. D.B. Bastawade.

Distribution : India : Uttar Pradesh, Dehradun, Nainital, Delhi, Madhya Pradesh, Bihar, Dhanbad, West Bengal, Eastern Himalaya, Maharashtra, Satara (Ambenali); Peninsular India and Sri Lanka and Myanmar.

Remarks : This species is found in open and cultivated areas, near wells, small and cemented walls, and exhibits protective, cryptic colours. It is common in tanks.

Genus *Crocothemis* Brauer, 1868

27. *Crocothemis servilia servilia* (Drury)

1770. *Libellula servilia*, Drury, *Ill. Ex. Ins.*, 1 : 112-113.

1842. *Libellula soror*, Rambur, *Ins. Neurop.*, 82.

1936. *Cocothemis servilia servilia*, Fraser, *Fauna Brit. India*, 3 : 345 347.

Diagnostic characters : Labium ferruginous; labrum blood red, anteclypeus pale red, rest of face and frons bright blood red; eyes during life blood red above, purple laterally. Prothorax and thorax ferruginous, often blood red on dorsum during life, legs ochreous, Wings, hyaline bases of all wings marked with rich amber yellow up to cubital nervure in forewing and to first antenodal nervure nearly to arc; apices of wings lined narrowly with pale brown in old specimens.

Females differ widely in colouration from the males. Labium pale yellow; labrum, face, frons and vesicle olivaceous; prothorax and thorax olivaceous brown. Wings similar to males but markings paler, abdomen ochreous, segments 8 & 9 blackish along mid dorsal carina.

Material examined and locality : 1♂, Compartment No. 664, Near Narhar, 9.10.1994, Coll. M.S. Pradhan; 2♀♀, Dongargaon, 5.12.1994, Coll. P.P. Kulkarni; 1♂, Nagdev Pahad, 20.9.1995, Coll. R.H. Kamble; 1♂, 1♀, Kolutmara, 9.12.1995, Coll. R.M. Sharma; 3♂♂, 2♀♀, Sedaldam, 3.10.1996, Coll. A.S. Mahabal; 1♂, Dakshin Bodalzira, 25.9.1997, Coll. D.B. Bastawade; 1♀, on road from Ghatpendhri to Kolutmara, 24.9.1999, Coll. M.S. Pradhan.

Distribution : India : Himachal Pradesh : Kangra, Uttaranchal : Chamoli, Dehradun, Nainital, Pauri Garhwal, Madhya Pradesh, Bihar : Singhbhum, Dhanbad, West Bengal; Maharashtra : Buldhana (Gondhonkher), Colaba (Matheran), Osmanabad (Upla), Pune (Khed and Lone) and Satara (Lingmal Falls); Iraq; Nepal; Myanmar, Sri Lanka, Philippines; Indonesia (Sumba); Australia, Sundaic Archipelago and Japan.

Remarks : Common species in India. Adults are seen throughout the year on wing. Teneral males and females are similar in colour, pale straw-yellow, differ from mature males, may confuse identity of the species. Specimens examined show variation in nodal index from

$\frac{7-8 \frac{1}{2}}{7-7} \bigg| \frac{8 \frac{1}{2}-7}{7-7}$ to $\frac{10-12 \frac{1}{2}}{10-12} \bigg| \frac{11 \frac{1}{2}-11}{10-12}$. Discoidal cell of fore wing in two specimens

traversed and in one specimen traversed twice in forewings. Two rows of cells between IR iii and R spl found in two males and one female.

Genus *Diplacodes* Kirby, 1889

28. *Diplacodes trivialis* (Rambur)

1842. *Libellula trivialis*, Rambur, *Ins. Neurop.* : 115.

1936. *Diplacodes trivialis*, Fraser, *Fauna Brit. India*, 3 : 336-338.

Diagnostic characters : Labium, labrum and bases of mandibles creamy yellow; face, frons, and vesicle palest azure blue with fine black line at the base of frons. Prothorax pale brown to black; thorax greenish yellow with sutures finely black; the area between mid dorsal carina and humeral sutures olivaceous brown speckled with minute dots, colouration darkens with age. Legs greenish yellow, marked with black in subadults; wings hyaline with a minute yellow point in cubital space of hind wings; abdomen with segments 1 to 3 greenish yellow; remaining segments black with sub dorsal yellow stripes on segments 4-7. Females : Similar to subadult males, abdominal markings broader on segments 8 to 10.

Material examined and locality : 5 ♂♂, Sillari rest house, 3.10.1994, Coll. M.S. Pradhan; 2 ♂♂, 1 ♀, Phephdikund, 2.12.1994, Coll. P.P. Kulkarni; 2 ♀♀, Hattigate, 12.12.1995, Coll. R.M. Sharma; 1 ♀, Totladoh forest rest house (at light), 10.10.1996, Coll. A.S. Mahabal; 1 ♂, Ranidoh rest house (at light), 26.9.1997, Coll. D.B. Bastawade; 1 ♂, Ambakhori, 11.3.1998, Coll. R.H. Kamble.

Distribution : Throughout India; Nepal; Myanmar; Sri Lanka; Thailand; W. Malaysia (Malacca) and Indonesia (Sumatra).

Remarks : Common species found throughout the year near waterbodies. Also found in grassy vegetation & agricultural fields. Nodal index of specimens varies from $\frac{6-7\frac{1}{2}}{5-5} \bigg| \frac{7\frac{1}{2}-6}{6-5}$

to $\frac{6-8\frac{1}{2}}{6-6} \bigg| \frac{8\frac{1}{2}-6}{6-6}$ Discoidal cell entire in left forewing in one male and in both forewings in one female.

Genus *Neurothemis* Brauer, 1867

29. *Neurothemis intermedia intermedia* (Rambur)

1842. *Libellula intermedia*, Rambur, *Ins. Neurop* : 91.

1936. *Neurothemis intermedia intermedia*, Fraser, *Fauna Brit. India*, 3 : 357-358.

Diagnostic characters : Labium, bases of mandible, labrum, face, frons pale yellow; occiput and upper surface of eyes reddish-brown; eyes below golden yellow. Thorax with a distinct humeral reddish brown stripe, wings hyaline, palely tinted with yellow and with

broad basal amber-yellow marking at the base of all wings. Nodal index $\frac{12-12\frac{1}{2}}{11-9} \bigg| \frac{11\frac{1}{2}-11}{9-10}$

and $\frac{10-11}{10-10} \bigg| \frac{11-10}{10-9}$. Abdomen bright reddish – orangeous with sutures on segment 2 & 3

finely darker, ventro-lateral brownish strip on segment 3–8. Females resemble males but with more defined ventro-lateral stripe.

Material examined and locality : 1 ♂, Bakhari talav, 5.12.1995 ; 1 ♀, Narhar, 8.12.1995, 3 ♂♂, 4 ♀♀, Hattigate, 12.12.1995 Coll. R.M. Sharma.

Distribution : India : Himachal Pradesh, Kangra, Uttarakhand : Dehra Dun; Madhya Pradesh, Bihar, West Bengal, Maharashtra: Bombay, Deccan; Nepal; Myanmar; Sri Lanka; W. Malaysia (Malacca) and China.

Remarks : Pattern of marking on wings differentiates this species from all others within the genus. Prasad *et al.* (2000) recorded andromorphic female of this species from central India.

30. *Neurothemis tullia tullia* (Drury)

1773. *Libellula tullia*, Drury, *Ill. Exot. Ins.*, 2 : 85.

1781. *Libellula equestris*, Fabricius, *Spec. Ins.*, 1 : 523.

1793. *Libellula lineata*, Fabricius, *Ent. Syst.*, 2 : 375.

1936. *Neurothemis tullia tullia*, Fraser, *Fauna Brit. India, Odon.*, 3 : 360-362.

Diagnostic characters : Labium blackish brown, middle lobe and borders of lateral lobes paler brown; labrum, face, frons, vesicle and occiput black; eyes blackish-brown above, violaceous below. Prothorax, thorax and abdomen black, mid dorsal carina of thorax narrowly yellow. Legs black, tibiae yellow on extensor surface. Wings hyaline for apical half, opaque steely blue-black for basal half, the border of this opaque area running in both fore and hind wings from costal border, one cell distal to node in fore wings, two or three cells distal to node in hind wings in a convex curve., a broad opalescent white band bordering the black area in both wings, broad at costal border, tapering to posterior border, but not quite attaining to it.

Female differs from the male both in body colours and markings and in markings of the wings. Broad black apices of wings and sickle shaped stripe on basal half.

Material examined and locality : 6 ♂♂, 2 ♀♀ (One andromorphic female), Totladoh, 12.10.1996, Coll. A.S. Mahabal; 2 ♂♂, Dakshin Bodhalzeera, 25.9.1997, Coll. D.B. Bastawade; 1 ♀ (Andromorphic), Totladoh, 2.3.1999, Coll. M.S. Pradhan.

Distribution : India : Bihar, Himachal Pradesh, Orissa, South India, Uttar Pradesh, West Bengal, Maharashtra : Pune (Kharagwasala); China; Thailand and West Malaysia.

Remarks : This species occurs in large colonies in swamps or heavily weeded tanks; it keeps close to the shelter of the herbage and has a weak fluttering flight. Prasad *et al.* (2000) recorded andromorphism in one female collected by A.S. Mahabal from Totladoh on 12.

10.1996. After examination of other survey material andromorphism is recorded in another specimen collected by M.S. Pradhan on 2.3.1999, from the same locality. Nodal index of the

specimens examined varies from $\frac{6-11\frac{1}{2}}{7-9} | \frac{10\frac{1}{2}-6}{9-5}$ to $\frac{8-12\frac{1}{2}}{8-9} | \frac{12\frac{1}{2}-8}{9-8}$

Subfamily TRITHEMISTINAE

Genus *Trithemis* Brauer, 1868

31. *Trithemis aurora* (Burmeister)

1839. *Libellula aurora* Burmeister, *Handb Ent.* 2 : 859.

1936. *Trithemis aurora* Fraser, *Fauna Brit. India*, 3 : 383- 385.

Diagnostic characters : Labium dark ochreous, labrum dark brown, face and front of frons ochreous, changing to reddish above; eyes crimson above, brown laterally changing to liliaceous beneath. Prothorax reddish brown; thorax dull purple with obscure superior humeral brown stripe and narrow black stripe on postero-lateral suture; a short lower black line at the levels of spiracle; beneath olivaceous, marked with a black square with an angular black line crossing it. Legs black; wings hyaline with crimson reticulation and a broad amber-yellow fascia at base of wings with darker brown rays in subcostal and cubital spaces. Abdomen swollen dorso-ventrally at base; then constricted at segment 3 and again dilated fusiformly depressed and broad. Anal appendages red. Female : Differs from male in colour and shape, with wings often broadly tipped with brown up to pterostigma; reticulation bright yellow to brown, basal markings similar to males. Abdomen subcylindrical & anal appendages black.

Material examined and Locality : 3 ♀♀, Ambakhori, 4.12.1994, Coll. P.P. Kulkarni, 1 ♂, Bakhari Pond, 15.9.1995, Coll. R.H. Kamble; 1 ♂, Dongardey, 3.12.1995, Coll. R. M. Sharma; 2 ♂♂, 1 ♀, Ranidoh, 8.10.1996, Coll. A.S. Mahabal; 2 ♂♂, Phefadikund, 21.9.1997, Coll. D.B. Bastawade; 1 ♀, Totladoh, 10.3.1998, Coll. R.H. Kamble.

Distribution : Throughout India; Pakistan; Nepal; Sri Lanka; Myanmar; West. Malaysia : (Penang); Indonesia: (Borneo, Sulawesi, Java, Moluccas, Sumba, Sumatra, Timor) and Philippines.

Remarks : It is common species near hill streams, also recorded from plains in Maharashtra (Buldhana, Osmanabad, Satara and Wardha.). Nodal index of specimen examined varied

from $\frac{8-9\frac{1}{2}}{8-8} | \frac{10\frac{1}{2}-7}{8-9}$ to $\frac{10-13\frac{1}{2}}{11-11} | \frac{14\frac{1}{2}-10}{10-12}$ Two cubital nervures found in the forewings in three males and two females. Discoidal cell traversed in left hind wing of one female. Single row between I Riii and R spl. in hind wings of some specimens.

32. *Triathemis festiva* (Rambur)

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

1868. *Trithemis infernalis*, Brauer, *Verh. zool.-bot. Ges. Wien*, **18** : 736

1878. *Trithemis proserpina*, Selys, *Mitt. Mus. Dresden*, : 294.

1936. *Triathemis festiva*, Fraser, *Fauna Bri. India*, **3** : 387 – 389.

Diagnostic characters : Labium blackish brown, labrum, dark olivaceous; frons, dark brown in front; matelic violet above; prothorax dark blue; thorax black; legs black; wings hyaline with a dark brown mark at base of hind wings; abdomen black and appendages black. Females differ from adult males in labium face & frons dirty yellow, thorax greenish yellow, wings similar to males but in adults broadly dark reddish brown at apices, abdomen with a narrow mid dorsal stripe.

Material examined and locality : 1 ♂, Koltimara, 9.12.1994, Coll. P.P. Kulkarni; 2 ♂♂, Pench Riverbed, Totladoh, 30.11.1995, Coll. R.M. Sharma; 2 ♂♂, Ghogra nalla near Sillari, 9.10.1996, Coll. A.S. Mahabal; 2 ♂♂, Ambakhori, 23.9.1997, Coll. D.B. Bastawade; 1 ♂, Ambakhori, 22.2.1999, Coll. M.S. Pradhan.

Distribution : India: Himachal Pradesh: Hamirpur, Kangra, Sirmaur, Solan; Uttaranchal : Chamoli, Dehradun, Nainital, Pauri and Tehri Garhwal, Uttar Kashi; West Bengal; Assam; Maharashtra: Khed, Pune, Matheran, Colaba, Poladpur, Lingmal falls, Mahabaleshwar, Bordharan and Wanravira Wardha, Rajpur, and Gondhonkher, Buldhana; Nepal; Sri Lanka; Myanmar; West Malaysia: (Penang); Singapore; Indonesia : (Sulawesi, Java, Lesser Sunda, Sumatra); Philippines; Taiwan and Papua (new Guinea).

Remarks : It is a common species near hill streams. Adults breed in still waters or streams with sluggish current. Nodal index of specimen examined varies from $\frac{9-10\frac{1}{2}}{8-7} \mid \frac{9\frac{1}{2}-8}{7-8}$ to

$\frac{9-12\frac{1}{2}}{10-8} \mid \frac{11\frac{1}{2}-9}{9-9}$. In one male discoidal cell of hind wing traversed.

33. *Trithemis kirbyi kirbyi* Selys

1886. *Trithemis aurora*, Kirby (pars), *Proc. Zool. Soc. London* : 327, pl. 33 fig 3.

1891. *Trithemis kirbyi*, Selys, *Ann. Mus. Civ. Genova*; **30** : 465.

1912. *Trithemis kirbyi kirbyi*, Ris; *Cat. Coll. Selys. Fasc.*, **14** : 760.

1936. *Trithemis kirbyi kirbyi*, Fraser, *Fauna Brit. India*, **3** : 385 – 387.

Diagnostic characters : Labium, labrum and anteclypeus pale, frons pale yellow, occiput brown, eyes bright red above, prothorax ochraceous with a black collar, thorax golden-brown. Legs, exterior surface of tibiae, femora, yellow, with red. Wings hyaline, venation bright red,

a broad basal bright reddish yellow marking to all wings, abdomen brilliant vermilion red, with small basal black spots on mid dorsum of segments 8 & 9, anal appendages bright red. Females paler and with better defined black markings.

Material Examined and Locality : 1 ♂, Pench river, Kolutmara, 7.10.1996 Coll. A.S. Mahabal.

Distribution : India : (Himachal Pradesh, Maharashtra, South India and Uttar Pradesh) and Sri Lanka.

Remarks : Males of this species have a habit of sitting flat on slab rock, where they are most conspicuous. They are very swift on take off and on wings. Females are relatively difficult to trace.

34. *Trithemis pallidinervis* (Kirby)

1889. *Sympatrum pallidinervis*, Kirby, *Trans. Zool. Soc. Lond.*, 12 : 327.

1891. *Trithemis dryas*, Selys, *Ann. Mus. Genova*, 30 : 465.

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

Diagnostic characters : Labium pale yellow, labrum black, with two large basal citron yellow spots, clypeus and front of frons yellow or pale brown, upper surface of frons and vesicle metallic purple, occiput olivaceous or yellow, eyes reddish brown above, brown laterally and bluish gray below. Thorax olivaceous brown on dorsum and upper part of sides, brighter olivaceous on lower part of sides. Dorsum thickly coated with grayish hairs, legs very long and spidery, wings hyaline with reddish reticulation and a bright amber yellow basal marking at extreme base in forewing, pterostigma bicolorous, black with creamy white ends. Abdomen black, marked with bright yellow. Female resemble the males in most particulars. Wings similar to males but often tinted with yellow or reddish brown, especially towards apical half.

Material examined : 1 ♀, Narhar, 8.12.1995, Coll. R.M. Sharma; 1 ♂, 1 ♀, Pench River, Kolutmara, 7.10.1996, Coll. A.S. Mahabal; 1 ♂, 1 ♀, Pipriya Talav, 17.3.1998, Coll. R.H. Kamble.

Distribution : Throughout India, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Taiwan and Thailand.

Remarks : Breeds only in stagnant waters and usually in marshy grasses. The imago is generally found perched on the top of a tall reed, elevating itself by its long spidery legs, which are bunched together like stalk.

Subfamily TRAMEINAE

Genus *Pantala* Hagen, 186135. *Pantala flavescens* (Fabr.)1798. *Libellula flavescens*, Fabricius, *Ent. Syst. Suppl.*, 285.1839. *Libellula analis*, Burmeister, *Handb., Ent.*, 2 : 8521936. *Pantala flavescens*, Fraser, *Fauna Brit. India*, 3 : 414 – 416.1995. *Pantala flavescens*, Prasad and Varshney, *Oriental Ins.*, 29 : 413.

Diagnostic Characters : Rather large sized and robust built dragonfly coloured ochreous or reddish and with uncoloured wings. Head large; eyes broadly contiguous; labium pale brown with borders dark brown, anteclypeus pale brown, post clypeus & frons bright golden yellow; eyes reddish brown above, lilaceous or bluish laterally and beneath; prothorax rich ochreous, bluish laterally and beneath; thorax olivaceous, coated thickly with yellowish downy hairs; legs black, bases & exterior of femora yellowish; wings hyaline, with base of hind wing pale golden yellow upto anal loop and with narrow apical brown spot limited to posterior border of wing. Abdomen bright ochreous, sides of segments 1-4 pale yellow, 8-10 with sharply defined black mid dorsal pyriform spots with narrow end of them at bases of segments. Anal appendages ochreous, changing black towards apex. Females similar to males, with eyes olivaceous brown above; face vivid creamy yellow; wings often evenly and deputy enfumed and always without the brown spot. Abdomen more stout and robust.

Material examined and Locality : 1♂, Gawalighat, 26.9.1994, Coll. M.S. Pradhan; 1♂, 1♀, Kolutmara, 9.12.1994, Coll. P.P. Kulkarni; 1 ♀, Bakhari Pond, 15.9.1995, Coll. R.H. Kamble; 1 ♂, Ambakhori, 1.12.1995, Coll. R.M. Sharma; 1 ♀, Sedaldam, 20.9.1997, Coll. D.B. Bastawade.

Distribution : Circumtropical and subtropical in distribution; (Throughout India, China, Indonesia, Malaysia, Micronesia, Morocco, Myanmar, Sri Lanka and Thailand).

Remarks : Common species, breeds in marshes in foot hills, streams in agricultural fields. Large number of specimens emerge out and take to swarming from September to November/December. Kulkarni, *et al.* (1999), reported this species predated by giant wood spider, *Nephila maculata* (Fabr.) at Ranidoh in Pench National Park.

Genus *Tramea* Hagen, 186136. *Tramea basilaris burmeisteri* Kirby1839. *Libellula chinensis*, Burmeister, *Handb. Ent.*, 2 : 852.1889. *Tramea burmeisteri*, Kirby, *Trans. Zool. Soc. Lond.*, 12 : 316.

1936. *Tamea basilaris burmeisteri*, Fraser, *Fauna Brit. India, Odon.*, 3 : 432 – 434.

Diagnostic characters : Labium bright yellow, middle lobe black; labrum reddish – brown, very broadly bordered with black; anteclypeus and sides of postclypeus olivaceous – yellow; postclypeus and frons bright vermilion-red. Prothorax yellowish; thorax olivaceous, with a reddish tinge on dorsum and a bluish green tinge laterally; posteriolateral suture narrowly black and confluent with a second black stripe which traverses the spiracle and is incomplete above. Legs black, wings hyaline, hind wing with a rather variable dark reddish-brown marking at base, usually limited to cubital space, base of discoidal cell and hypertrigone, extreme base of anal loop and anal area adjoining cubital space; blackish brown spots surrounded by a broad areola of golden amber. Venation in this dark area bright yellow, membrane pure white. Pterostigma bright ochreous, short, that of hind wing only two thirds to that of the fore wing. Abdomen bright brick-red, marked with black. Female resembles male very closely. Wings often tinted with yellow, basal markings similar to male except that the two portions of the black area are invariably well separated.

Material Examined and Locality : 1♂, Compartment No. 534, Near Totladoh, 2.10. 1994, Coll. M. S. Pradhan; 1 ♂, Gavalighat, 11.10.1996, Coll. A.S. Mahabal.

Distribution : India : Bihar, Central India, Himachal Pradesh, Kerala, Maharashtra, Meghalaya, Nilgiri Hills, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh; Malaysia and Nepal.

Remarks : A common insect throughout the plains and not infrequently seen up to the altitudes of over 7000' in the Nilgiris.

37. *Tamea virginia* (Rambur)

1773. *Libellula chinensis*, De Geer, *Mem, Ins.*, 3 : 556.

1842. *Libellula virginia*, Rambur, *Ins. Neurop.*, : 33.

1890. *Tamea virginia*, Kirby, *Cat. Odon.*, : 3.

1936. *Tamea virginia*, Fraser, *Fauna Brit. India, Odon.*, 3 : 435-436.

1993. *Tamea virginia*, Prasad and Varshney, *Oriental Ins.*, 29 : 413.

Diagnostic Characters : Labium dark chrome-yellow, middle lobe and adjacent parts of lateral lobes black; labrum ochreous, broadly bordered with blackish-brown; face and frons olivaceous, the latter suffused with bright vermilion or rose red and with a very broad black border at base above which has a metallic blue or violaceous reflux; vesicle black in front, olivaceous behind, tipped with two small red points; occiput dark olivaceous; eyes reddish brown above lilaceous below. Prothorax dark ochreous, with a black stripe between anterior and middle lobes. Thorax dark olivaceous green. Wings hyaline, spot in hind wing dark

reddish brown, very large extending distally to distal end of discoidal cell and involving nearly whole of anal loop. Membrane blackish-brown, paler along free border; pterostigma dark ochreous, that of hind wing slightly more than half the length of that of forewing. Nodal

index $\frac{10 - 11 \frac{1}{2}}{11 - 7} \mid \frac{10 \frac{1}{2} - 10}{7 - 10}$. Abdomen bright brick red, marked with black on last three segments.

Female differs only in sexual characters and the markings on the forewing, which has a large indentation on the basal sides of wings nearly cutting it in to two spots and approaching the condition seen in *Trama bassilaris burmeisteri*.

Material Examined and Locality : 1 ♂, Chikalkhari nalla, 27.9. 1994, Coll. M. S. Pradhan.

Distribution : India : Bihar, Himachal Pradesh, Jammu and Kashmir, Maharashtra, Tamil Nadu and Uttar Pradesh; China; Indonesia; Micronesia; Myanmar; South Japan; Taiwan and Thailand.

Remarks : The very dark, sharply-defined basal marking in the hind wing, not surrounded by a golden-yellow areola serves to distinguish from the other two Indian species of *Tramea* [*T. basilaris burmeisteri* Kirby and *T. limbata* (Desjardins)].

Genus *Tholymis* Hagen, 1867

38. *Tholymis tillarga* (Fabr.)

1798. *Libellula tillarga*, Fabricius, *Ent. Syst., Suppl.* : 285.

1805. *Libellula pallida*, Palisot de Beauvais, *Ins. Afr. et Amer.* : 171.

1835. *Libellula bimaculata*, Desjardins, *Ann. Soc. Ent. France*, 4 : 4.

1936. *Tholymis tillarga*, Fraser, *Fauna. Brit. India, Odon.*, 3 : 411 – 413.

1980. *Tholymis paratillarga*, Singh & Prasad, *Zool. Beitrage*, 26 (1) : 65.

1995. *Tholymis tillarga*, Prasad & Varshney, *Oriental Ins.*, 29 : 413.

Diagnostic characters : Labium, labrum and face olivaceous or pale yellowish-brown; frons and vesicle ochreous, but often with a crimson flush; eyes brown capped with reddish, olivaceous below; occiput dark, ochreous. Prothorax and thorax golden-yellow or olivaceous with a bright reddish suffusion on dorsum. Legs ochreous. Wings hyaline, with a broad fan-shaped, smoky golden-brown fascia extending from node to base of hind wing, very deep in colour at node and somewhat longitudinally striated, paling towards base and posterior border of wing, this fascia bordered distally by a broad oval opalescent white spot about 4 cells deep; pterostigma reddish-brown between dark nervures. Abdomen bright rust red, especially on

dorsum, paler at sides of basal segments. Female closely similar to male differing in head and thorax olivaceous and without any reddish tinge. Wings without any opalescent spot and the goldenbrown fascia very pale and obscure, abdomen olivaceous brown.

Material examined and locality : 1 ♀, Rest House Totladoh, (at light), 17.9.1995, Coll. R.H. Kamble; 1 ♂, Narhar, 8.12.1995, Coll. R.M. Sharma; 1 ♀, Rest House Totladoh (at light), 10.10.1996, Coll. A.S. Mahabal; 1 ♂, 1 ♀, Sedaldam, 20.9.1997, Coll. D.B. Bastawade; 1 ♀, Dakshin Bodalzeera, 25.9.1997, Coll. D.B. Bastawade.

Distribution : Throughout India; Sri Lanka; Myanmar; Throughout Southern Asia; Australia; Tropical Africa and Madagascar.

Remarks : A common insect and found almost all the year round. The brown fascia and opalescent white spot on hind wing serves to identify it from all other species of odonata.

Nodal index of the specimens examined varied from $\frac{7-8\frac{1}{2}}{7-7} | \frac{9\frac{1}{2}-6}{6-8}$ to

$$\frac{8-10\frac{1}{2}}{9-7} | \frac{10\frac{1}{2}-9}{7-11}$$

SUMMARY

During the faunistic surveys conducted by Western Regional Station of Zoological Survey of India, approximately 500 specimens of Odonates were collected from Pench National Park, Dist. Nagpur. Altogether thirty eight species were identified. Two species viz *Copera ciliata* (Selys) and *Copera vittata deccanensis* Laidlaw form the new record for Maharashtra State. The species *Brachythemis contaminata* (Fabr.) was collected most frequently and 115 individuals were identified belonging to it. Amongst the least represented species following 7 were represented by single individuals : 1. *Paragomphus lineatus* (Selys); 2. *Anax immaculifrons* Rambur; 3. *Eupoptthalmia vittata vittata* Burmeister, 4. *Potamarcha congener* (Rambur), 5. *Bradinopyga geminata* (Rambur), 6. *Trithemis kirbyi kirbyi* Selys and *Tamea virginia* (Rambur).

ACKNOWLEDGEMENTS

The authors are grateful to the Director Zoological Survey of India Kolkata and officers in charge of Western Regional Station, Pune for all facilities to undertake surveys and workout the collection. Authorities of state Forest Department Govt. of Maharashtra and Officers and staff members of Pench National Park, Nagpur, particularly Dr. Asket Singh, Principal Chief Conservator of Forests, Maharashtra State extended cooperation. The authors are grateful to them. It may be mentioned that one of the authors, M. Prasad did not participate in faunistic surveys but has confirmed the identification of all the species recorded here.

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INSECTA : ORTHOPTERA

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INTRODUCTION

Insects of the Order Orthoptera are popularly known as “Grasshoppers and Locusts” They are the insects of moderate to large size, following incomplete metamorphosis in the lifecycle. The grasshoppers pass through 4 to 7 nymphal stages before becoming adult. Mouth parts of these insects bear strong jaws having sharply pointed and massive “teeth” for cutting and grinding the rough leafy vegetation. Their fore wings are narrow and leathery but hind wings are membranous, large, placed folded under the fore wings, when not in use. Hind legs of Orthopteran insects are stout, much longer than the other two pairs of legs. They are used in jumping or in hopping flight with suddenness. Their common name “Grasshoppers” might have been derived due to their abundance in grass and hopping habit. Abdomen is nine segmented and usually provided with a long or short ovipositor in females, which remains concealed by enlarged 9th abdominal segment, while at rest. Terminal abdominal segments may have cerci and they are invariably unsegmented. Tympanum, a peculiar ear drum, an auditory organ is situated below the wing. These insects produce a peculiar sound by rubbing the rough surface of wing against their leg. The sound is produced in the same manner as in the musical instruments with strings and a bow.

Reproduction in grasshoppers is by laying eggs in clusters embedded in a gummy matter which hardens immediately after oviposition.

Most of the Orthoptera are colored bright green, yellow, orange, red, brown or gray with mixture of these colors in degree and patches. Their colour helps camouflaging with the background and it is difficult to locate grasshoppers within the habitats. Grasshoppers are voracious feeders of foliage and they can completely denude bushes in very short time, when attack in large numbers.

The grasshoppers are grouped in to 1. The short horned grasshoppers, the Acridids and 2. The long horned grasshoppers or Tettigonids, depending up on the length of their antennae. The Acridids usually deposit their egg pods in small pockets under ground. Tettigonids usually possess a long sword shaped ovipositor and they lay eggs under the bark of trees.

Many species of Acridoidea are serious pests of crops in India. Orthoptera are most abundant during monsoon rains or immediately after rains. They have numerous enemies too,

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in particular birds like common mynah and many others, which voraciously feed on grasshoppers.

There are 35 families under Order Orthoptera, occurring world over. 17 families are included under Suborder Caelifera and 18 under Ensifera. From India 20 families are reported, those include approximately 1000 species belonging to 357 genera.

A total of 26 species of Orthoptera are included in this paper which were collected from Pench National Park, Dist. Nagpur, Maharashtra State. These species are distributed over 4 Super families, 8 families, 11 subfamilies and 25 genera.

SYSTEMATIC ACCOUNT

Order ORTHOPTERA

Suborder ENSIFERA

Super Family TETTIGONIOIDEA

Family PHANEROPTERIDAE

Genus *Letana* Walker, 1869

1. *Letana intermedia* Ingrisch

Genus *Elimaea* Stål, 1974

2. *Elimaea (Orthelimaea) securigera* Brunner

Genus *Himertula* Uvarov, 1923

3. *Himertula kinneari* (Uvarov)

Genus *Ducetia* Stål, 1874

4. *Ducetia japonica* (Thunberg)

Genus *Isopersa* Brunner, 1878

5. *Isopersa pedunculata* Brunner

Family CONOCEPHALIDAE

Genus *Coenocephalus* Thunberg 1815

6. *Coenocephalus maculatus* (Le Guillou)

Family MECOPODIDAE

Genus *Mecopoda* Servelle, 1831

7. *Mecopoda elongata* (Linn.)

Family PSEUDOPHYLLIDAE

Genus *Sathrophyllia* Stål, 18748. *Sathrophyllia femorata* (Fabricius)

Superfamily GRYLLOIDEA

Family GRILLIDAE

Subfamily GRILLINAE

Genus *Gryllus* Linne', 17589. *Grullus* sp.

Suborder CAELIFERA

Superfamily TETRIGOIDEA

Family TETRIGIDAE

Subfamily SCELIMENINAE

Genus *Euscelimena* Günther, 193810. *Euscelimena harpego* (Serville)

Subfamily TETRIGINAE

Genus *Pseudoparatettix* Günther, 193711. *Pseudoparatettix histricus* (Stål)Genus *Hedotettix* Boilvar, 188712. *Hedotettix cristitergus* Hancock

Superfamily ACRIDOIDEA

Family PYRGOMORPHIDAE

Genus *Atractomorpha* Saussure, 186113. *Atractomorpha crenulata* (Fabricius)

Family ACRIDIDAE

Subfamily ACRIDINAE

Genus *Acrida* Linne', 175814. *Acrida exaltata* (Walker)15. *Acrida indica* DirshGenus *Gonista* Boilvar, 189816. *Gonista* sp.

Subfamily GOMPHOCERINAE

Genus *Aulacobothrus* Bolivar, 190217. *Aulacobothrus* sp.

Subfamily OEDIPODINAE

Genus *Aiolopus* Fieber, 185318. *Aiolopus thalassinus tamulus* (Fabricius)Genus *Oedaleus* Fieber, 185319. *Oedalius abruptus* (Thunberg)Genus *Gastrimargus* Saussure, 188420. *Gastrimargus africanus africanus* (Saussure)Genus *Trilophidia* Stål, 187321. *Trilophidia annulata* (Thunberg)

Subfamily HEMIACRIDINAE

Genus *Hieroglyphus* Krauss, 187722. *Hieroglyphus indicus* Mason

Subfamily COPTACRIDINAE

Genus *Eucoptacra* Bolivar, 190223. *Eucoptacra saturata* (Walker)

Subfamily CATANTOPINAE

Genus *Catantops* Schaum, 185324. *Catantops pinguis innotabilis* (Walker)

Subfamily EYPREPOCNEMIDINAE

Genus *Tylotropidius* Stål, 187325. *Tylotropidius varicornis* (Walker)

Subfamily CYRTACANTHACRIDINAE

Genus *Cyrtacnathacris* Walker, 187026. *Cyrtacnathacris tatarica* (Linn.)

Order ORTHOPTERA
Suborder ENSIFERA
Superfamily TETTIGONIOIDEA
Family PHANEROPTERIDAE
Genus *Letana* Walker, 1869

1. *Letana intermedia* Ingrisch

1990. *Letana intermedia* Ingrisch, *Ent. Scand.*, **21** (3) : 260.

Diagnostic characters : Medium sized; fastigium conically produced, pronotum inflated in male, tegmina surpassing hind knees; radial sector forked (rarely unforked on one side); ninth tergite moderately projecting behind, apex subtruncate; cerci substraight behind basal curvature, with a black, baso-internal bump, internal margin with a black marked dilation of circa 1/4th the length of cercus; phallus sclerite elongate, blackish; connected with phallus by membrane; base forked and hyaline.

Material examined : Hattigota and around, 17.9.1995, 1 ♀; Mortalli Nalla, Compartment No. 517, 19.9.1995, 1 ♀; Sillari Talav and around, 28.9.1995, 1 ♀, coll. R.H. Kamble; Bodhalzeera and around, 2.12.1995, 1 ♀; Ranidoh and around, 7.12.1995, 1 ♀; Hattigate and around, 12.12.1995, 2 ♀♀, Coll. R.M. Sharma; Pephdikund and around, 23.2.1999, 1 ♀; Sillari rest house and around, 25.2.1999, 2 ♂♂, 3 ♀♀, Coll. M.S. Pradhan.

Distribution : North India (Delhi). This species is recorded for the first time from Maharashtra state.

.Genus *Elimaea* Stål, 1974

2. *Elimaea (Orthelimaea) securigera* Brunner

1891. *Elimaea securigera* Brunner, *Vesh. Zool. bot. Ges. Wien*, **40** : 47.

1990. *Elimaea (Orthelimaea) securigera*, Ingrisch, *Spixiana*, **13** (2) : 157.

Diagnostic characters : Medium sized species; fastigium cone shaped, poorly developed, anterior femour not compressed, straight; pronotum with a fine, yellowish median carinula; yellowish-brown colour may be extended to a broad band or not; tegmina slender; cerci securiform; lobes of male subgenital plate hook shaped, widely separated in the middle; female subgenital plate notched in the middle; ovipositor sickle-shaped, flat, curved upwards, apex crenulated.

Material examined : Bodhalzira, 3.12.1994, 1 ♀; Kolutmara, 9.12.1994, 1 ♂, Coll. P.P. Kulkarni; Totladoh, 16.9.1995, 1 ♀, Coll. R.H. Kamble; Totladoh Forest Rest House (Night Collection), 4.10.1996, 2 ♂♂, 2 ♀♀, Coll. A.S. Mahabal.

Distribution : India (Andaman & Nicobar Islands, Assam, Himachal Pradesh, Karnataka, Meghalaya, Rajasthan, Tamil Nadu, West Bengal). This species is recorded for the first time from Maharashtra State, India.

Elsewhere : Australia; Indonesia; Philippines; Nepal; Sri Lanka and Sunda Islands.

Genus *Himertula* Uvarov, 1923.

3. *Himertula kinneari* (Uvarov)

1923. *Himerta kinneari* Uvarov, *J. Bombay nat. Hist. Soc.*, **29** : 651.

1990. *Himertula kinneari*, Ingrisch, *Spixiana*, **13** (2) : 157.

Diagnostic characters : Last tergite large, narrowly sulcated along the middle, with the hind margin almost straight, very feeble and broadly sinuate, not obtusely excised; cerci with their apices compressed portion straight, forming an obtuse rounded angle with the base; subgenital plate with the lobes very long, strongly compressed and recurved, with the apices, acute and turned outwards.

Material examined : Kondrya Utar and around, 25.2.1999, 1 ♀, Coll. M.S. Pradhan.

Distribution : India (Bihar, Gujarat, Himachal Pradesh, Karnataka, Maharashtra, Rajasthan, West Bengal).

Elsewhere : Baluchistan; Nepal and Persia.

Genus *Ducetia* Stål, 1874

4. *Ducetia japonica* (Thunberg)

1815. *Locusta japonica* Thunberg, *Mem. Acad. Sci. St. Petersb. (Sci. Phys.)* **5** : 282.

1961. *Ducetia japonica*, Ragge, *Bull. Br. Mus. nat. Hist. (Entom.)*, **10** (5) : 182.

Diagnostic characters : Hind wings well developed; R branch of tegmina branched pectinately; cerci with interno-ventral ridge at apex; subgenital plate deeply bifurcate with contiguous lobes.

Material examined : Dongardeo, in West Ghatpindhri beat, 3.12.1995, 1 ♀, Coll. R.M. Sharma.

Distribution : India (Arunachal Pradesh, Assam, Bihar, Jammu & Kashmir, Karnataka, Kerala, Sikkim, Tamil Nadu, West Bengal).

Elsewhere : Bangladesh; China; Hainan; Indo-china; Japan; Java; Myanmar; Nepal; Sri Lanka; Thailand; Tibet; Tonkin etc.

Genus *Isopsera* Brunner, 1878

5. *Isopsera pedunculata* Brunner

1878. *Isopsera pedunculata* Brunner, *Mon. Phaneropt.*, : 219, 220.

Diagnostic characters : Head short, pronotum transverse in front, with a concavity in the middle, hind margin roundly convex; tegmina shorter than hind wing, extending beyond the hind femora; hind wing longer than tegmina, extending beyond the middle of the hind tibiae; supra anal plate transverse with a concavity in the middle, subgenital plate widely bifurcate with long narrow flat styles; cercus flat, thick, directed inwards, apex with chitinous point.

Material examined : Totladoh, 16.9.1995, 1 ♂, Coll. R.H. Kamble.

Distribution : India (Assam, Himachal Pradesh, Orissa, Rajasthan, Tamil Nadu, and West Bengal).

Elsewhere : Myanmar.

Family CONOCEPHALIDAE

Genus *Conocephalus* Tunberg, 1815.

6. *Conocephalus maculatus* (Le Guillou)

1841. *Xiphidion maculatum* Le Guillou, *Revue. Zool.* 4 : 294.

1980. *Conocephalus maculatus*, Pitkin, *Bull. Br. Mus. nat. Hist. (Ent.)* 41 (5) : 344.

Diagnostic characters : Prosternum bispinose; tegmina pigmented with comparatively large dark spots; no markings in costal and precostal areas; cross veins of costal and precostal areas of tegmina irregular to almost regular; hind femora unarmed ventrally; tibiae marked with spot towards base, dark on mid tibiae, often faint on others; hind tibiae with 6 apical spurs; male cerci with one internal spine; ovipositor short and straight.

Material examined : Ranidoh, 21.3.1998, 1 ♀, Coll. R.H. Kamble.

Distribution : India (Arunachal Pradesh, Himachal Pradesh, Madhya Pradesh, Mizoram, Sikkim, Tamil Nadu, West Bengal).

Elsewhere : Australia; Nepal. This species is widely distributed throughout Old World, its range extending eastwards to Australia and New Guinea.

Family MECOPODIDAE

Genus *Mecopoda* Serville, 1831

7. *Mecopoda elongata* (Linn.)

1758. *Gryllus (Tettigonia) elongatus* Linne, *Syst. Nat.* (10th ed.) 1 : 429.

1966. *Mecopoda elongata*, Beier, *Orthopt. Catlog.*, Part 9. 298.

Diagnostic Characters : Colour brownish, body very large, head more or less rounded; antennae slightly margined; posternum with a pair of long spines; pronotum wide at posterior margin; lateral lobes of pronotum dark-brown at least on upper margin; wings fully developed hind femora and tibiae very large; male subgenital plate bifurcated, developed conically from region of bifurcation, apex pointed and tegmina with 4- 6 white spots in the middle.

Material examined and Locality : Kosum nalla, 16.9.1995. 1 ♀; Hattigota and around, 17.9.1995, 1 ♀, Shadal dam and around, 19.9.1995, 1 ♀, Coll. R.H. Kamble

Distribution : India (Andaman & Nicobar Islands, Andhra Pradesh, Assam, Arunachal Pradesh, Himachal Pradesh, Karnataka, Maharashtra, Meghalaya, Orissa, Sikkim, Tamilnadu, Tripura, Uttar Pradesh and West Bengal).

Elsewhere : China; Australia; Celebes; Aru Island; Buru Island; Japan; Malacca; New Moluccas; Guinea; Philippines; Sunda Islands; Taiwan and Tonkin.

Family PSEUDOPHYLLIDAE

Genus *Sathrophyllia* Stål, 1874

8. *Sathrophyllia femorata* (Fabricius)

1787. *Locusta femorata* Fabricius, *Mantiss. Ins.*, 1 : 233.

1874. *Sathrophyllia femorata*, Stål, *Rec. Orthopt.*, 2 : 72.

1962. *Sathrophyllia femorata*, Beier, *Das Tierreich*, 73 : 201.

Diagnostic characters : Body colour light-brownish; head without any wrinkle or hump; vertex excavated, apex with two horny projections, pronotum without any hump, broadly rounded posteriorly; tegmina 3.5 times longer than broad, sparsely spotted with dark-brown marks; hind wings with transverse cross veins with dark-brown patches; anterior femora faintly or not undulated; anterior tibiae ventrally spined on outside; middle and hind femora undulated ventrally; ovipositor long, wide at base, directed upwards beyond the middle.

Material examined : Bodhalzira, 3.12.1994, 1 ♂, Coll. P.P. Kulkarni; Totladoh Rest House, (Night Collection), 4.10.1995, 1 ♀, Coll. A.S. Mahabal; Bodhalzira and around, 2.12.1995, 1 ♀, Coll. R.M. Sharma.

Distribution : India (Karnataka, Sikkim, Tamil Nadu and West Bengal).

Elsewhere : Borneo; Combodia; Java; Malaysia; Myanmar and Sumatra.

Superfamily GRYLLOIDEA

Family GRYLLIDAE

Subfamily GRYLLINAE

Genus *Gryllus* Linne, 1758

9. *Gryllus* sp.

1758. *Gryllus* Linne, *Syst. Nat.* (ed. X) 1 : 425.

1969. *Gryllus*, Chopard, *Fauna of India*, Orthoptera, 2 : 32.

Diagnostic characters : General shape stout; head round; legs short ; anterior tibiae with a large, oval, external tympanum and a small, round internal one; posterior tibiae non-serrulated at base; posterior femora strongly dilated; tegmina well developed; wings caudate; ovipositor slender and straight.

Material examined and locality : Totladoh, 6.12.1994, 1 ♀, Coll. P.P. Kulkarni

Distribution : The genus is cosmopolitan.

Suborder CAELIFERA

Superfamily TETRIGOIDEA

Family TETRIGIDAE

Subfamily SCELIMENINAE

Genus *Euscelimena* Günther, 1938

10. *Euscelimena harpago* (Serville)

1839. *Tetrix harpago*. Serville, *Ins. Orth.* p. 763.

1929. *Euscelimena harpago*, Hebard, *Rev. suidse Zool.*, 36 : 572.

Diagnostic characters : Vertex narrower than one of the eyes, more narrowed forward, antennae filiform; anterior femora carinated above; frontal costa furcillate, but the rami diverge moderately; humeral angles not at all provided with evident denticles; posterior angles of lateral lobes of pronotum acute produced outwards and with one spine; spine triangular acute and straight, apex sharp, not curvate; first joint of posterior tarsi longer than third; posterior tibial margins distinctly membraneous expanded.

Material examined and locality : Fepdi Kund, 20.9.1995, 2 ♂♂, 3 ♀♀, Coll. R.H. Kamble.

Distribution : India : Gujarat, Maharashtra.

Subfamily TETRIGINAE

Genus *Pseudoparatettix* Günther, 193711. *Pseudoparatettix histricus* (Stål)

1861. *Tetrix histricus* Stål, *Freg. Eugenics Resa. Orth.*, : 347.

1992. *Pseudoparatettix histricus*, Blackith, *Cat. S.E. Asian Tetrigidae* : 149.

Diagnostic Characters : Size large and body robust; head a little raised above the pronotum; pronotum moderately dilated between shoulders, extended beyond the apex of hind femora; median carina of pronotum arcuate forward, often little undulate before shoulders, low on shoulders and straight behind; hind tibiae unicoloured or obscurely marked; wings extended beyond the pronotal apex.

Material examined and locality : Kiringiserra and around, 6.12.1994, 5 ♂♂, 6 ♀♀, Coll. P.P. Kulkarni; Gawalighat and around, 11.12.1995, 2 ♂♂, 3 ♀♀, Coll. R.M. Sharma; Pipriya Talav, and around, 17.3.1998, 4 ♂♂, 4 ♀♀, Coll. R.H. Kamble.

Distribution : India : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Tamilnadu, Tripura and West Bengal.

Elsewhere : E. Afghanistan; E. Africa; Australia; Borneo; Caledonia; Celebas; S. China; Holland; Indonesia; Iran; Malaysia; New Ireland; Pakistan; Philippines; Queensland; Saudi Arabia; Solomon Islands; Sri Lanka; Sumatra and Taiwan.

Genus *Hedotettix* Bolivar, 188712. *Hedotettix cristitergus* Hancock

1915. *Hedotettix cristitergus* Hancock, *Rec. Indian Mus.*, 11 : 122.

Diagnostic characters : Vertex subequal or wider than one of the eyes; frontal carinae obtuse angled, roundly reflexed at the sides, frontal costa strongly advanced before the eyes and arcuate; antennae located between the lower fourth of eyes; pronotum angulated produced over the head; median carina of pronotum strongly compressed, very thin punctate, arcuate forward; crest highest above the shoulders; hind process of pronotum subulate, extended beyond the hind femoral apices; posterior angles of lateral lobes of pronotum narrowed; wings caudate; first joint of posterior tarsi longer than the third, the first two pulvilli spinose, the third longer, substraight below.

Material examined : Phepadikund nalla, 2.12.1994, 8 ♂♂, 5 ♀♀, Coll. P.P. Kulkarni.

Distribution : India (Madhya Pradesh, Maharashtra).

Superfamily ACRIDOIDEA

Family PYRGOMORPHIDAE

Genus *Atractomorpha* Saussure, 186113. *Atractomorpha crenulata* (Fabricius)

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

1861. *Atractomorpha crenulata*, Saussure, *Annl. Soc. Ent. Fr.*, (4) 1 : 475.

1914. *Atractomorpha crenulata*, Kirby, *Fauna Brit. India, Orthopt.* (Acridiidae) : 181.

Diagnostic characters : Medium sized, body slender, antennae short and stout, eyes oval, narrowly carinated in front, head and pronotum crenulated behind the eyes; lateral pronotal lobe always with a membranous area near posterior margin, fastigium of vertex short, tegmina large, pointed, wings pointed, shorter than tegmina, with the bases and nervus rosy. Abdomen smooth, rosy, legs long and slender.

Material examined : Hattigota, 17.9.1995, 1♀; Pipriya Talab, 27.9.1995, 1♂, Coll. R.H. Kamble.

Distribution : India (Widely distributed throughout India).

Elsewhere : Nepal; Pakistan; Bangladesh; Sri Lanka; Thailand; Malaya; N.W. Sumatra.

Remarks : Both, adults and hoppers are serious pest of young plants like Tobacco and Maize. Other crops and vegetables are also attacked.

Family ACRIDIDAE

Subfamily ACRIDINAE

Genus *Acrida* Linne' 175814. *Acrida exaltata* (Walker)

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

1914. *Acrida exaltata*, Kirby, *Fauna Brit. India Orth.* (Acrididae) : 99.

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

Diagnostic characters : Varies in size and colouration from uniformly green to ochraceous and brownish. Head less robust and elongate, conically ascending, basal part narrow, head and pronotum of equal length, pronotal disc relatively narrow; tegmina obtusely pointed, scarcely longer than hind femora; wings yellowish; tegmina without distinct coloured margin, male subgenital plate in profile short. Attains length upto 53 mm.

Material examined and locality : Totladoh and around, 6.12.1994, 1 ♀, Coll. P.P. Kulkarni; Bodhalzeera and around, 2.12.1995, 1♂, 2 ♀♀; Pipariya tank and around, 4.12.1995, 1 ♂; Bokhari Talav, near khapa, 5.12.1995, 1 ♀; Gawalighat, 11.12.1995, 1 ♂, 1 ♀, Coll. R.M. Sharma ; Ambakhori, 5.10.1996, 1 ♀, Coll. A.S. Mahabal

Distribution : Throughout India.

Elsewhere : Afghanistan; Arabia; Bangladesh; Pakistan; South-East Tibet; S.E. Persia; Yemen; W. Aden Protectorate; Sri Lanka.

Remarks : This species is common in India, feeds mostly on grasses and even other economically important vegetation.

15. *Acrida indica* Dirsh.

1954. *Acrida indica* Dirsh, *Bull. Soc. Fouad Ier. Entom.* 38 : 151.

Diagnostic characters : Head robust, strongly broadened in the basal part; antennae slightly shorter than head and pronotum together; lateral carinae of pronotum straight and almost parallel, slightly convergent forwards; transverse sulcus placed beyond the middle of pronotal disc; posterior margin of metazona acutangulate and pointed; tegmina broad, apical part a little narrowed, apex subacute; wings shorter than tegmina, broad, apex acute; subgenital plate broad, moderately long, with acute apex and with large obtuse projection in basal part.

Material examined : Pondhar Utar Point, Stream near, Station 7, 18.9.1995, 1 ♂; Shadal Dam, 19.9.1995, 2 ♀♀, Coll. R.H. Kamble; Bodhalzeera and around, 2.12.1995, 2 ♂♂, Ranidoh and around, 7.12.1995, 2 ♀♀; Gawalighat, 11.12.1995, 1♂, 1 ♀, Coll. R.M. Sharma.

Listribution : India : Maharashtra.

Genus *Gonista* Bolivar, 1898

1898. *Gonista* Bolivar, *Ann. Mus. Civ. Stor. Nat. Genova*, (2) 19 (49) : 29.

1964. *Gonista*, Bei-Bienko, G. Ya & Mishchenko, L.L. *Locusts and Grasshoppers of the U.S.S.R. and adjacent countries*, Part II. Translated from Russian; 406 (Israel Program for Scientific Translations, Jerusalem, 1964).

16. *Gonista* sp.

Diagnostic characters : Head small, shorter than pronotum; eyes situated in the central part of head; vertex strongly projecting forward; antennae sword-shaped; apex of tegmina and wings usually sharpened, rarely rounded; dorsal genicular lobes of hind femur rounded.

Material examined and locality : Bodhalzeera and around, 2.12.1995, 4 ♂♂, 1 ♀, Coll. R.M. Sharma ; Sillari resat house and around, 25.2.1999, 1 ♀, Coll. M.S. Pradhan.

Distribution : The genus is distributed in Transcaucasia, in Central and Southeastern Asia and on the islands of Malayan Archipelago.

Subfamily GOMPHOCERINAE

Genus *Aulacobothrus* Boliver 1902.

17. *Aulacobothrus* sp.

The individuals belonging to this genus are diagnosed as under :

Vertex triangular, concave above; antennae filiform, costal ridge convex, pronotum flattened, not constricted, middle carina continuous. Tegmina complete, wings fully developed; hind femora above distinctly spotted, with outer area convex; hind tibiae red, two inner spurs of the tibiae distinctly marginal, apical spur straight. First abdominal segment with an open tympanum on the side; cerci short, conical.

The specimens collected could not be identified up to species level and need further studies.

Material examined and Locality : Bodhalzeera and around, 2.12.1995, 2 ♀♀, Coll. R.M. Sharma.

Distribution : Species of this genus are known from India and they occur in Uttar Pradesh, Jammu and Kashmir, Sikkim, Tamilnadu, Chennai, Himachal Pradesh Meghalaya etc.

Elsewhere : Nepal; Sri Lanka; Indonesia.

Subfamily OEDIPODINAE

Genus *Aiolopus* Fieber, 1853

18. *Aiolopus thalassinus tamulus* (Fabricius)

1798. *Gryllus tamulus* Fabricius, *Entomologia Systematica*, Suppl. : 195.

1968. *Aiolopus thalassinus tamulus*, Hollis, *Bull. Br. Mus. nat. Hist. (Ent.)*, 22 (7) : 347.

Diagnostic characters : Green or brown in colour, with two parallel brown stripes on the vertex, running within each eye to the back of the head. A broad brown band from back of each eye to the end of pronotum. Tegmina long, subhyaline, varied with brown, mediastinal area with two alternate long brown and whitish spaces; wings greenish hyaline dusky towards hind margin. Hind femora slender; more or less reddish, as long as or longer than abdomen, hind tibiae yellow towards base, with blackish spot before and behind, blue towards the middle and red towards extremity.

Material examined and locality : Gawalighat and around, 26.9.1995, 1 ♂. Coll. R.H. Kamble.

Distribution : India (Tamilnadu, Andaman and Nicobar Islands, West Bengal, Bihar, Madhya Pradesh, Rajasthan, Himachal Pradesh, Haryana, Punjab, Uttar Pradesh, Orissa and Karnataka).

Elsewhere : Sri Lanka; Bangladesh; Pakistan; Burma; Thailand; China; Hainan; Hong Kong; Taiwan; Malaya; Singapore; Sumatra; Java; Lombok; Timor; Japan; Philippines; Borneo; Celebes; New Guinea; Papua; Australia.

Remarks : This species is reported to damage large number of crops like cabbage, cotton, maize, millets, rice, sugarcane, tea, tobacco, wheat, oat, pea etc.

Genus *Oedaleus* Fiebar, 1853

19. *Oedalius abruptus* (Thunberg)

1815. *Gryllus abruptus* Thunberg, *Mem. Acad. Sci., St. Petersburg*, 5. 233.

1884. *Oedaleus abruptus*, Saussure, *Mem. Soc. Phys. Hist. Geneve*, 28 : 117.

1914. *Oedaleus abruptus*. Kirby, *Fauna. Brit. India Orth. (Acrididae)* : 144.

Diagnostic characters : Small sized, fastigium of head almost flat, pronotum tactiform, with high sharp median carina, hind margin obtusely angular, "x" marking always with anterior and posterior arms separate. Tegmina brown with three pale bands before the middle; wings pale greenish yellow, hyaline at base, with a strong broad black transverse band ; hind tibiae with 13 inner and 12 outer spines; abdomen straw red coloured.

Material examined and Locality : Ambakhori, 1.12.1995, 1 ♀, Coll. R.M. Sharma.

Distribution : India (Andhra Pradesh, Bihar, Goa, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Meghalaya, Orissa, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal).

Elsewhere : Afghanistan; Bangladesh; China; Indo-China; Myanmar; Nepal; Pakistan; Sri Lanka and Thailand.

Genus *Gastrimargus* Saussure, 1884.

20. *Gastrimargus africanus africanus* (Saussure)

1887. *Oedaleus (Gastrimargus) marmoratus* var. *africana* Saussure, *Mem. Soc. Phys. Hist. nat. Geneve* 30 (1) : 39.

1982. *Gastrimargus africanus africanus* Ritchie, *Bull. Br. Mus. nat. Hist. (Ent.)*, 44 (4) : 248.

Diagnostic Characters : Size large, pronotum tectiform with high sharp median carina;

metazona of pronotum with "x" marking usually effaced and without pale stripe; antennae as long as head and pronotum together, tegmen surpassing hind knee by one third to one-half of hind femur length; pale bands of tegmina distinct; wings with complete fascia, basal area bright yellow, apical half of wings clear, wing tip sometimes infumate; internal ventral surfaces of hind femur blue-gray to blue-black.

Material examined and Locality : Bakhari Tank, 29.9.1994, 1 ♂, Coll. M.S. Pradhan; Bakhavi Pond and around, 15.9.1995, 2 ♀♀; Sadal dam and around, 19.9.1995, 1 ♂, 1 ♀; Ghat Pindhri and around, 25.9.1995, 1 ♀, Coll. R.H. Kamble; Ranidoh and around, 7.12.1995, 2 ♂♂, Coll. R., M. Sharma; Pipriya Tank and around, 4.12.1995, 1 ♂; Bokhari Talao, near Khapa, 5.12.1995, 2 ♂♂, 1 ♀, Coll. R.M. Sharma; Kolutmara, 12.3.1998, 1 ♂; Sillari Talav, 18.3.1998, 2 ♂♂, Coll. R.H. Kamble

Distribution : India (Andhra Pradesh, Bihar, Delhi, Goa, Himachal Pradesh, Madhya Pradesh, Orissa, Sikkim, Uttar Pradesh, West Bengal).

Elsewhere : Nepal; Saudi Arabia; Sri Lanka; Thailand; Tibet and Yemen A.R.

Genus *Trilophidia* Stål, 1873.

21. *Trilophidia annulata* (Thunberg)

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

1963. *Trilophidia annulata*, Hollis, *Trans. R. ent. Soc. Lond.*, 117 (8) : 251.

Diagnostic Characters : 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, sometimes with two indistinct brown bands; hind tibiae with a pale band towards the base and with a slight pale band beyond the middle.

Material examined : Ambakhori and around, 1.12.1995, 1 ♂, Coll. R.M. Sharma.

Distribution : India (Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Goa, Karnataka, Kerala, Himachal Pradesh, Madhya Pradesh, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal).

Elsewhere : Afghanistan; Bangladesh; Borneo; Hong Kong; Japan; Java; Korea; Malaysia; Mongolia; Myanmar; Nepal; Pakistan; Thailand and Vietnam.

Subfamily HEMIACRIDINAE

Genus *Hieroglyphus* Krauss, 1877

22. *Hieroglyphus indicus* Mason

1973. *Hieroglyphus indicus* Mason, *Bull. Brit. Mus. nat. Hist. (Entom.)* 28 (7) : 536.

Diagnostic Characters : Comparatively small in size; fastigium of vertex twice (in male) or thrice (in female) as broad as long; frontal ridge widened downwards, with shallow sulcus; median carina of pronotum entire; sulci on pronotum moderately deep, posterior sulcus slightly bow-shaped towards the centre; posterior margin obtusely-angular; prosternal process conical; tegmina and wings micropterous, reaching 2nd abdominal segment. Supra-anal plate of male with obtuse-angular apex; male cercus nearly as long as supra-anal plate, bilobate, apex oblique; subgenital plate of male with subacute apex, in female, forming acute apex; valves of ovipositor, short and robust, external lateral projection of lower valves rounded.

Material examined and Locality : Bodhalzira, 3.12.1994, 2 ♂♂, 1 ♀, Coll. P.P. Kulkarni.

Distribution : India : Maharashtra.

Subfamily Coptacridinae

Genus *Eucoptacra* Boliver, 1902

23. *Eucoptacra saturata* (Walker)

1870. *Acridium saturatum* Walker, *Cat. Derm. Salt. Brit. Mus.* 4 : 628.

1921. *Eucoptacra saturata* Uvarov, *Ann. Mag. nat. Hist.*, (9) 7 : 503.

Diagnostic Characters : Ferruginous in colour; prosternal tubercle stout and slightly acute, hind femora black beneath, as long as abdomen, hind tibiae red; tegmina with numerous small marks; hind wings hyaline, tinged with blackish.

Material examined and Locality : Bodhalzira, 3.12.1994, 3 ♂♂, Coll. P.P. Kulkarni; Ambakhori, 1.12.1995, 1 ♂, Coll. R.M. Sharma.

Distribution : India (South India, Assam, Himachal Pradesh, Madhya Pradesh, Orissa, Uttar Pradesh, West Bengal).

Remarks : There is no earlier record of this species from Maharashtra state.

Subfamily CATANTOPINAE

Genus *Cantantops* Schaum, 1853.

24. *Cantantops pinguis innotabilis* (Walker)

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

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

Diagnostic Characters : Frontal ridge finely punctured, lateral carinae distinct, eyes approximating; antennae filiform; pronotum closely punctured, lateral lobe without coloured pattern; tegmina extending beyond abdomen, under surface of body and legs pale; external

disc of hind femur without the black median spot below the upper carinula; male cercus more up covered with broadened apex and more projecting upper apical angle.

Material examined and Locality : Pipriya Talab, 27.9.1995, 2 ♂♂. Coll. R.H. Kamble.

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

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

Remarks : It is common in Indian plains and is a pest of millets, cotton, maize, rice, tea, teak etc.

Subfamily EYPREPOCNEMIDINAE

Genus *Tylotropidius* Stål, 1873.

25. *Tylotropidius varicornis* (Walker)

1870. *Heteracris varicornis* Walker, *Cat. Derm. Salt. Br. Mus.*, 4 : 667.

1914. *Tylotropidius varicornis*, Kirby, *Fauna. Brit. India, Orthoptera.* : 265.

Diagnostic Characters : Pronotum brown with lateral carinae of pale colour; prosternal tubercle compressed, bituberculate at apex; hind femora thickened at base, very slender towards the tip; hind tibiae and tarsi dull blue; supra anal plate of male elongato-triangular and sulcated; cerci straight, slightly compressed and acuminate.

Material examined : Sillari (Around rest house), 25.2.1999, 1 ♂, Coll. M. S. Pradhan.

Distribution : India (Andhra Pradesh, Goa, Himachal Pradesh, Maharashtra, Meghalaya, Orissa, Rajasthan, Tamil Nadu, West Bengal).

Elsewhere : Myanmar and Sri Lanka.

Subfamily CYSTACANTHACRIDINAE

Genus *Cyrtacanthacris* Walker, 1870

26. *Cyrtacanthacris tatarica* (Linnaeus)

1758. *Gryllus Locusta tatarica* Linnaeus, *Syst. Nat.* (10th Ed.) : 432.

1923. *Cyrtacanthacris tatarica*, Uvarov, *Ann. Mag. Nat. Hist.*, 11 (9) : 139

Diagnostic characters : Size large. General colouration yellow, a median pale yellowish band runs from fastigium of vertex to pronotum. A characteristic white patch on either sides of pronotal lobe is present. Tegmen hyaline, Tegmen without precostal vein, covered with irregular transverse reticulate brown spots. Wings hyaline, with yellowish base. Fastigium of vertex rounded, shallowly concave, with frontal ridge almost parallel sided, interocular distance narrow. Pronotum with distinct narrow median carina, prosternal spine bent and almost touches mesosternum. Posterior femur long, stout, with dark denticles at upper carina; posterior tibia with 8 internal and 6 external white red tipped spines with dark apices.

Material examined : Totladoh and around, 6.12.1994, 1 ♀, Coll. P.P. Kulkarni; Narhar, 8.12.1995, 1 ♂, Coll. R.M. Sharma; Pench River, Kolitmara and around, 7.10.1996, Coll. A.S. Mahabal.

Distribution : Widely distributed in India, Andhra Pradesh, Maharashtra, Orissa, Tamil Nadu, West Bengal.

Elsewhere : Africa and Oriental Countries.

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INSECTA : MANTODEA

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INTRODUCTION

Mantids (Mantodea : Insecta) are predatory insects that feed on a variety of insects including other mantids. They occur in all types of habitats. According to Mukherjee *et al.*, 1995, India has a diverse fauna of mantids with about 162 species under 68 genera and 6 families. About 2200 species of mantids under 220 genera are known from the world. When compared to other parts of India, the mantid fauna of Maharashtra is fairly well known. Recently Ghate & Ranade (2002) reported 33 species of mantids belonging to 21 genera in addition to the 15 species reported earlier in literature, from Maharashtra. Thus with a total figure of 48 species, the Maharashtra state harbours 29.62% of the Indian and 2% of the world mantid fauna. The present paper is based on a collection of mantids from the Pench National Park, Maharashtra, identified following Mukherjee *et al.*, 1995. The material studied is deposited in the collection of Zoological Survey of India, Western Regional Station, Pune.

The following abbreviations are used in the text :

BL – Body length (from anterior margin of head to tip of abdomen)

FW – Forewing.

PN – Pronotum

SYSTEMATIC ACCOUNT

Order MANTODEA

Family HYMENOPODIDAE

Subfamily HYMENOPODINAE

1. *Creobroter apicalis* Saussure

1869. *Creobrotra apicalis* Saussure, Mitt. Schweiz. Entomol. Ges., 3 : 73.

Diagnostic characters : Vertex with a spine; prozona granulate and pronotum with dentate lateral edges in female (and smooth in male); forewing with yellow band bordered by two

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black semi-circular rings like an eye spot and placed in the middle of the length of wing, this eye- mark encloses black dots usually 2; base of forewing with a yellow spot; hind wing magenta at base.

Measurements (in mm.) : BL ♀. 33-35; PN: 9; FW : 26-27.

Material examined : 2 ♀, INDIA : Maharashtra : Pench National Park, Nera Narhar, 6.x.1994, coll. M.S. Pradhan & party (Reg. No. E/2826).

Distribution : India: Assam, Karnataka, Manipur, Meghalaya, Orissa, Sikkim, W. Bengal and Maharashtra.

Remarks : This species has been reported earlier by Ghate & Ranade, 2002 from Pune, Maharashtra.

2. *Creobroter laevicollis* (Saussure)

1870. *Creobotra! laevicollis* Saussure, *Mitt.Schweiz. Entomol. Ges.*, 3 : 242.

Diagnostic characters : Vertex with a spine; prozona of pronotum denticulate, metazona almost smooth; forecoxa with 7 spines in female and 5-6 spines in males; forewing with a small yellow spot laterobasally; eye spot is a little in front of middle and contains one black dot; hind wing pink at base.

Measurements (in mm.) : BL : ♀ 30-32, ♂ 32; PN : ♀ 8, ♂ 8; FW : ♀ 28, ♂ 29.

Material examined : 1 ♀, Gwalighat, 26.ix.1995, coll. R.H. Kamble (Reg. No. E/2975); 1 ♀ (collected under light), Ranidoh, Rest House, 23.ix.1997, coll. D.B. Bastawade (Reg. No. E/3817); 1 ♂ (collected under light), Ranidoh Rest house, 26.ix.1997, coll. D.B. Bastawade (Reg. No. E/3819).

Distribution : India : Andhra Pradesh, Assam, Meghalaya, Sikkim, W. Bengal, Maharashtra and Indoneisa : (Java).

Remarks : This species is recorded for the first time from Maharashtra.

Family MANTIDAE
Subfamily LITURGUSINAE

3. *Humbertiella affinis* Giglio-Tos.

1917. *Humbertiella affinis* Giglio-Tos, *Bull. Soc. Entomol. Ital.*, 48 : 83.

Diagnostic characters : Body uniformly brownish; frontal sclerite with narrow blackish strip, superior edge more arched in the middle; larger internal spines of fore femora black only at apices; forewing with costal area more reticulate; 2nd anal vein 3 branched; hindwings less blackish.

Measurements (in mm.) : BL : ♂ 28-30; PN : 7, FW : 27-20.

Material examined : 1 ♂, Narhar & around, 25.x.1995, coll. R.H. Kamble, (Reg. No. E/2971); 1 ♂, Haltighat & around, 12.xii.1995, coll. R.M. Sharma, (Reg. No. E/3057); 1 ♂, Ranidoh, Rest House; 18.ix.1997, coll. D.B. Bastawade (Reg. No. E/3816);

Distribution : India: Karnataka, Orissa, Maharashtra and Sri Lanka.

Remarks : This species has been reported earlier from Sanjay Gandhi National Park, Maharashtra (Chaturvedi & Hedge, 2000). *Humbertiella* species are poorly defined and need a detailed study.

Subfamily AMELINAE

Tribe Amelini

4. *Amantis saussurei* (Bolivar)

1897. *Iridopteryx saussurei* Bolivar. *Ann. Soc. Entomol. France*. **66** : 305.

Diagnostic characters : Vertex dorsally blackish in one specimen (in other specimens with scattered black patches); frontal sclerite with 2 black dots on either side, often joining, forming a line in one specimen at hand (in other specimens no clear dots, median area of frontal sclerite blackish in the upper part); pronotum with a dark median line; supracoxal dilation prominent for a small mantis.

Measurements (in mm.) : BL: ♂ 12-14; PN: 3-3.5, FW: 11-12.

Material examined : 2 ♂, Gwalighat, 26.vi.1996. coll. M.S. Pradhan & party, (Reg. No. E/2825).

Distribution : India : Andhra Pradesh, Kerala, Tamil Nadu and Maharashtra.

Remarks : This is the first record of this species from Maharashtra.

Subfamily MANTINAE

Tribe Miomantini

5. *Deiphobe indica* Giglio-Tos.

1815. *Mantis marginata* Thunberg, *Mem. Acad. Sci. St. Petersburg*, **5** : 292.

1916. *Deiphobe indica*, Giglio-Tos, *Bull. Soc. Entomol. Ital.* **47** : 25.

Diagnostic characters : Frontal sclerite blackish; pronotum slender; metazona longer than forecoxa and distinctly carinate; in fore legs coxae denticulate; femora with discoidal and

internal spines black at tips only. forewing not exceeding abdomen; costal area yellowish white, opaque; discoidal area greenish brown; anal membrane almost transparent; hind wing with a pale round to elongate patch near the apex of discoidal area; supra anal plate triangular, apex entire, conical.

Measurements (in mm.) : BL : ♂ 91, PN : 27, FW : 49.

Material examined : 1 ♂ (collected under light), Tottadli Rest House, 18.ix.1995, R.H. Kamble (Reg. No. E/2961).

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

Remarks : This species is recorded for the first time from Maharashtra.

Tribe Mantini

6. *Hierodula (Hierodula) tenuidentata* Saussure

1869. *Hierodula tenuidentata* Saussure, *Mitt. Schweiz. Entomol. Ges.* 3 : 68.

Diagnostic characters : Frontal sclerite a little wider than high; pronotum narrower after dilation and then almost parallel except near base. fore coxae with 5 short spines and few spinules among them; both wings longer than body; costal area greenish; discoidal area hyaline.

Measurements (in mm.) : BL : ♀ 70, PN : 22, FW : 57.

Material examined : 1 ♀, Haltigota, 16.iii.1998, coll. R.H. Kamble (Reg. No. E/3920).

Distribution : India: Andamans, Bihar, Lakshadweep, Madhya Pradesh, Orissa and Maharashtra.

Remarks : Ghate & Ranade, 2002 reported this species earlier from Pune, Maharashtra.

7. *Mantis inornata* Werner.

1930. *Mantis inornata* Werner, *Proc. Zool. Soc. London* : 689.

Diagnostic characters : Body pale green; frontal sclerite with indistinct median groove, metazona of pronotum carinate; coxae with callous spots; forecoxa bordered with 6-7 minute spines; claw groove of femora with pale yellow patch; longer internal spines entirely black with extensions as parallel lines; anterior half of costal area of forewing reddish brown, almost up to tip.

Measurements (in mm.) : BL: ♂ 55, PN: 16, FW: 41.

Material examined : 1♂, Gwalihat, 24.ix.1997. coll. D.B. Bastawade, (Reg. No. E/3818).

Distribution : India : UP. Maharashtra.

Remarks : Ghate & Ranade 2002 reported this species earlier from Pune, Maharashtra.

8. *Tenodera* sp.

Material examined : 1 nymph (collected under light), Ranidoh Rest House, 26.ix.1997, coll. D.B.Bastawade (Reg. No. E/3820).

Subfamily PHYLLOTHELINAE

9. *Phyllothelys westwoodi* Wood-Mason.

1876. *Phyllothelys westwoodi* Wood-Mason. *Proc. Asiatic Soc. Bengal*, 176.

Diagnostic characters : Protuberance of vertex incised at an obtuse angle at apex, long in female; lateral edges lamellar with one prominent ridge along ventromedian and another one feeble along dorsomedian line; frontal sclerite pentagonal, as long as broad, with two distinct and incomplete carinae; pronotum slender with denticulate margins, metazona longer than forecoxa; forecoxa with internal apical lobes contiguous; upper edge yellowish with 12 black spinules; femora a little sinuate, internally black with two yellow bands, one near the claw groove in the distal half, other oblong in upper edge in middle of proximal half; middle and hind femora with a small ventro basal sharp lobe and a large rounded distal lobe. In female forewing very little longer than abdomen; costal area opaque, brown, discoidal area hyaline with brownish spots, anal area smoky; costal area of hind wing in female subhyaline and brown with apex brown.

Measurements (in mm.) : Protuberance of vertex ♀ 8, BL : 64, PN : 21, FW : 29.

Material examined : 1 ♀, (collected under light Ranidoh, Rest House, Coll. D.B. Bastawade, 26.ix.1997 (Reg. No. E.3820).

Distribution : India : Assam, Uttar Pradesh, Maharashtra and Myanmar.

Remarks : Ghate & Ranade (2002) reported this species earlier from Tadoba district, Maharashtra.

DISCUSSION

The present study records 9 species of mantids belonging to 8 genera and 2 families from the Pench National Park, Maharashtra. All the species are reported for the first time from Pench National Park. Out of these, 3 species viz. *Creobroter laevicollis* (Saussure), *Amantis saussurei* (Bolivar) and *Deiphobe indica* Giglio-Tos are reported for the first time from Maharashtra. Thus, a total of 51 species of mantids are now known to occur in Maharashtra.

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INSECTA : AQUATIC AND SEMI-AQUATIC HEMIPTERA

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INTRODUCTION

The aquatic and Semi-aquatic groups of insects are integral components of freshwater ecosystem and are over all indicators of long-term environmental conditions. Besides, poor dispersal capabilities of these insects also serve as Zoogeographical indicators. Inventorisation of this group of insects becomes imperative to understand the functional aspects of community structure in any aquatic ecosystem, which further provides information on energy flow within the respective ecosystem (Thirumalai *et al.* 2002).

The present study is based on a small collection of aquatic and Semi-aquatic hemipterans collected from Pench National park, Maharashtra, comprised of 22 species belonging to 15 genera spread over 6 families. The occurrence of *Stridulobates anderseni* Zettel & Thirumalai, hitherto known from Western Ghats is noteworthy as it is being reported for the first time from Satpura range in Western India. A key to the families is also provided.

SYSTEMATIC LIST OF AQUATIC AND SEMIAQUATIC HEMIPTERA

Order HEMIPTERA
Suborder HETEROPTERA
Infraorder NEPOMORPHA
Family NOTONECTIDAE Latreille
Subfamily ANISOPINAE Hutchinson
Genus *Anisops* Spinola

1. *Anisops barbatus* Brooks, 1951
2. *Anisops campbelli* Brooks, 1951
3. *Anisops cavifrons* Brooks, 1951
4. *Anisops nigrolineatus* Lundblad, 1933

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Subfamily NOTONECTINAE Latreille

Tribe NOTONECTINI Latreille

Genus *Enithares* Spinola

5. *Enithares ciliata* (Fabricius, 1798)

Tribe NYCHINI Hungerford

Genus *Nychia* Stal

6. *N. sappho* Kirkaldy, 1901

Family NEPIDAE Latreille

Subfamily RANATRINAE Douglas & Scott

Tribe RANATRINI Douglas & Scott

Genus *Cercotmetus* Amyot & Serville

7. *Cercotmetus pilipes* Dall 1850

Genus *Ranatra* Fabricius

8. *Ranatra elongata* Fabricius, 1790

9. *Ranatra filiformis* Fabricius, 1790

Subfamily NEPINAE Latreille

Tribe NEPINI Latreille

Genus *Laccotrephes* Stal

10. *Laccotrephes griseus* (Guerin-Meneville, 1835)

11. *Laccotrephes ruber* (Linnaeus, 1764)

Family BELOSTOMATIDAE Leach

Subfamily BELOSTOMATINAE Leach

Genus *Diplonychus* Laporte

12. *Diplonychus rusticus* (Fabricius, 1781)

Family CORIXIDAE Leach

Subfamily CORIXINAE Leach

Tribe AGRAPTOCORIXINI Hungerford

Genus *Agraptocorixa* Kirkaldy

13. *Agraptocorixa hyalinipennis hyalinipennis* (Fabricius, 1803)

Tribe CORIXINI Leach

Genus *Sigara* Fabricius

Subgenus *Tropocorixa* Hutchinson

14. *Sigara pruthiana* (Hutchinson, 1940)

Infraorder GERROMORPHA Popov
 Superfamily GERROIDEA Reuter
 Family GERRIDAE Leach
 Subfamily GERRINAE
 Genus *Aquarius* Schellenberg

15. *Aquarius adelaidis* (Dohrn) 1860

Genus *Limnogonus* Stal
 Subgenus *Limnogonus* Stal

16. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius, 1775)

17. *Limnogonus (Limnogonus) nitidus* (Mayr) 1865

Genus *Limnometra* Mayr, 1865

18. *Limnometra anadyomene* (Kirkaldy) 1901

19. *Limnometra fluviorum* (Fabricius) 1798

Subfamily HALOBATINAE

Genus *Metrocoris* Mayr

20. *Metrocoris communis* (Distant, 1910)

Subfamily PTILOMERINAE

Genus *Stridulobates* Zettel & Thirumalai

21. *Stridulobates anderseni* Zettel & Thirumalai, 2001

Family HYDROMETRIDAE

Subfamily HYDROMETRINAE

Genus *Hydrometra* Latreille

22. *Hydrometra greeni* Kirkaldy 1898

Key to the families of Aquatic and Semiaquatic Hemiptera of Pench National Park

1. Antenna conspicuous and visible in dorsal view; inserted in front of eyes, and longer than head; lives on the surface of water, walking or skating; wingless & winged forms...(semi-aquatic) 2
- Antenna hidden, not visible in dorsal view and hidden; very much shorter than head; lives in submerged water; always winged forms...(aquatic) 3
2. Body cylindrical or oval; head very much shorter than thorax; winged or wingless form GERRIDAE

- Body thin and long, head as long as entire thorax; Stick like insect with thread like legs, always winged form HYDROMETRIDAE
- 3. Rostrum short, triangular, not distinctly segmented; fore tarsi scoop-like, fringed with setae CORIXIDAE
- Rostrum long, cylindrical, distinctly segmented; fore tarsi simple without setae 4
- 4. Oblong, oval or elongate forms without abdominal appendages, swims upside down NOTONECTIDAE
- Flattened forms with or without abdominal appendages, swims normally with back towards the water surface 5
- 5. Tip of the abdomen with a long thread like slender siphon NEPIDAE
- Tip of the abdomen with a pair of distinct flat retractile strap like appendages BELOSTOMATIDAE

SYSTEMATIC ACCOUNT

Infra order NEPOMORPHA

Family NOTONECTIDAE

The members belonging to this family known as 'Back Swimmers' are truly aquatic forms which differ from all other aquatic bugs (except Pleidae and Helotrephidae) in the habit of swimming on their backs, The notonectids are small, medium sized (15-20 mm), oblong bugs, characterised by four segmented antennae, 3-4 segmented rostrum, absence of ocelli, non-raptorial legs and flattened hind legs devoid of claws.

Subfamily ANISOPINAE

1. *Anisops barbatus* Brooks

1951. *Anisops barbata* Brooks, *Kans. Univ. Sci. Bull.*, 34 : 387.

2001. *Anisops barbata* Brooks: Thirumalai, *Fauna conservation area*, 11 : 116.

Diagnosis : This species can be easily identified by its large size (over 8.1 mm). It has two tufts of hair on the facial tubercle, asymmetrical male parameres with left paramere showing moderate excavation. The female ovipositor shows a small lateral tooth-like setae near apex and teeth arranged in two longitudinal rows. This species is the largest species of *Anisops* so far reported from India and distributed from plains to the foothills of the Western Himalaya.

Material examined : 1♀, 3 Is from Sillari Talao, 28.ii.1995, Coll. R. H.Kamble.

Distribution : India; China; Indonesia; Malaya; Myanmar; Sri Lanka; Taiwan, Vietnam.

2. *Anisops campbelli* Brooks, 1951

1964. *Anisops campbelli* Brooks: Lansbury, *Ann. zool. Warszawa*, **22** : 213.

2001. *Anisops campbelli* Brooks: Thirumalai, *Fauna conservation area*, **11** : 117.

Diagnosis : The interocular space in male projects anteriorly into a very short cephalic horn. The parameres are asymmetrical with the left very deeply excavate on the posterior margin. The ovipositor with two rows of longitudinal teeth and seven tooth like lateral setae near apex. It is almost entirely confined to the Indian subcontinent.

Material examined : 2 ♀; from Ambakhori, 11.iii.1998; Coll. R. H. Kamble.

Distribution : India; Myanmar.

3. *Anisops cavifrons* Brooks

1951. *Anisops cavifrons* Brooks, *Kans. Univ. Sci. Bull.*, **34** : 418.

2001. *Anisops cavifrons* Brooks : Thirumalai, *Fauna conservation area*, **11** : 117.

Diagnosis : *A. cavifrons* can be distinguished by the presence of a procumbent spine on the fore tibia of male. In males the left paramere is 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 Cochin backwaters in Kerala.

Material examined : 1 ♂, 25 ♀ from Bokhari Talao near Khapa, 5. xii. 1995, Coll. R. M. Sharma; 1 ♂, 2 ♀ on the way to Dakshin Bodhalzeera & around, 25. ix. 1997, Coll. D. B. Bastawade.

Distribution : India; Pakistan.

4. *Anisops nigrolineatus* Lundblad

1933. *Anisops nigrolineata* Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 160.

1995. *Anisops nigrolineatus* Lundblad: Polhemus, *Cat.Het.Palaerctic region*, **1** : 65

Diagnosis : It can be easily identified by the swollen interocular space beyond the margins of the eyes in males while in females the head is rounded with the vertex extending slightly beyond the anterior margin of the eyes. This species has a remarkable discontinuous distribution having been described from Sumatra but being found mainly in Southern, central and north and Northwestern, Northeastern parts of India.

Material examined : 6 ♂, 6 ♀ and 10 Is from Pench river, 25. iv. 1997, Coll. S. G. Patil.

Distribution : India; Afghanistan; China; Bangladesh; Indonesia; Myanmar.

Subfamily NOTONECTINAE Latreille

5. *Enithares ciliata* (Fabricius)

1798. *Notonecta ciliata* Fabricius, *Suppl. Ent. Syst.*, 524.

1906. *Enithares indica* Spinola: Distant, *Fauna British India*, 3 : 42.

1910. *Enithares paviana* Distant, *Fauna British India*, 5 : 329.

1919. *E. lacta* Paiva, *Rec. Indian Mus.*, 19 : 155.

1938. *E. abbreviata* (Kirby): Hafiz and Mathai. *Rec. Indian Mus.*, 40 : 210

1968. *Enithares ciliata* (Fabricius): Lansbury, *Pacific Insects*, 10 : 413.

2001. *Enithares ciliata* (Fabricius): Thirumalai, *Fauna conservation area*, 11 : 115

Diagnosis : The mesotrochanter is rounded with a patch of black spicules in males 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.

Material examined : 1 ♀ from Tirangi chhara, 6. xii. 1994, Coll. P. P. Kulkarni; 1 ♂, 1 ♀ from Dongardeo in west Ghat Pendhari beat, 3. xii. 1995, Coll. R. M. Sharma; 1 ♂, 1 ♀ from Ambakhori, 11. iii. 1998, Coll. R. H. Kamble; 3 ♂, 2 ♀, 2 Is from Pheprikund Nala, 11. iii. 1998, Coll. R. H. Kamble; 1 ♀ from Kolutmara, 12. iii. 1998, Coll. R. H. Kamble; 3 ♂, 2 ♀ from Kanar Utarnalla, 14. iii. 1998, Coll. R. H. Kamble; 2 ♀ from Hatigate, 16. iii. 1998, Coll. R. H. Kamble; 1 ♂ from Nala on the way to Ghat Pendhari to Kolutmara, 24. ii. 1999, Coll. M. S. Pradhan; 1 ♂ from Kandrya Utar & around, 25. ii. 1999, Coll. M. S. Pradhan.

Distribution : India; Bhutan and much of South East Asia.

6. *Nychia sappho* Kirkaldy

1901. *Nychia marshalli sappho* Kirkaldy, *Ann. Mus. Genova*, 15 : 809.

1985. *Nychia sappho* Kirkaldy: Lansbury, *Beagle*, 2 : 4.

1910b. *Nychia marshalli* (Scott, 1872) : Distant, *Fauna British India*, 5 : 334.

2001. *Nychia prox marshalli* (Scott) : Thirumalai, *Fauna conservation area*, 11 : 116.

1933. *Nychia malayana* Lundblad, *Arch. Hydrobiol. Suppl.*, 12 : 148.

This genus is with only a few poorly known species in India. The species can easily be identified by the structure of the eyes, which is united basally. The fore tarsus in male is two segmented.

Material examined : 1 ex. from Pench river, 25.iv.1997, Coll. S. G. Patil.

Distribution : India; Australia; Indonesia; Malayasia; New Guinea; Sri Lanka.

Note : *Nychia marshalli* (Scott) is strictly African species and the Indian species must be called *Nychia sappho* Kirkaldy. *N. infusata* Paiva is a synonym (Polhemus, 1998 - personal communication).

Family NEPIDAE

The family Nepidae, popularly known as 'Water Scorpions', comprises of dorso-ventrally flattened or cylindrical (size ranges from 15 to 55 mm) bugs with long and slender legs, the anterior pair being raptorial. These bugs are characterised by single segmented tarsi and in the absence of ocelli. The long slender, non-retractile respiratory siphon is derived from the 8th abdominal tergum and has two spiracles at its base.

Subfamily NEPINAE

7. *Laccotrephus griseus* (Guerin)

1844. *Nepa griseus* Guerin, *Iconogr. Regne. Anim.*, 352.

1906. *Laccotrephus griseus* (Guerin) : Distant, *Fauna British India*, 5 : 314

2001. *Laccotrephus griseus* (Guerin) : Thirumalai, *Fauna conservation area*, 11 : 118

Diagnosis : This species can be identified by the presence of slightly hooked and symmetrical parameres, abdominal appendages shorter than the body, presence of an obtusely rounded tooth at the base of the anterior femora. This species is commonly found in Peninsular India. It is a very sluggish species often found under weeds or at the bottom of slow or stagnant waters.

Material examined : 6♀ from Bokhari tank, 29. ix. 1994, Coll. M. S. Pradhan; 1♀ from Koltimara, 9. xii. 1994, Coll. P. P. Kulkarni; 1♂, 1♀ from Damodar Nala, 11. xii. 1994, Coll. P. P. Kulkarni; 2♂, 5♀ from Bokhari pond & around, 15. ix. 1995, Coll. R. H. Kamble; 1♂ from Phefdikund, 20. ix. 1995, Coll. R. H. Kamble; 1♀ from Ganerlighat, 26. ix. 1995, Coll. R. H. Kamble; 16♂, 17♀, 5 Is from Bodhal zeera & around, 2. xii. 1995, Coll. R. M. Sharma; 1♂, 4♀ from Bokhari Talao near Khapa, 5. xii. 1995, Coll. R. M. Sharma; 2♀ from Sadal

dam & around, 3. x. 1996, Coll. A. S. Mahabal; 2 ♂, 1 ♀ from Bokhari Talao, 6. x. 1996, Coll. A. S. Mahabal; 1 ♀ on the way to Phefdikund & around, 21. ix. 1997, Coll. D. B. Bastawade; 1 ♂ from Kanar Uttar Nala, 14. iii. 1998, Coll. R. H. Kamble; 1 ♀ from Kandrya Uttar & around, 25. ii. 1999, Coll. M. S. Pradhan.

Distribution : India; Malaysia; Myanmar; Seychelles; Sri Lanka; Thailand.

8. *Laccotrephes ruber* (Linnaeus)

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

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

2001. *Laccotrephes ruber* (Linn.) : Thirumalai, *Fauna conservation area*, 11 : 118

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. This is a common species with wide distribution in the Indo–Australian region and is largely found in habitats like rivers, streams, tanks, etc.

Material examined : 1 ♂ from Kondrautar, Central Phuljhari, 26.ix.1994, Coll. M. S. Pradhan; 1 ♂, 1 ♀ from Bokhari tank, 29.ix.1994, Coll. M. S. Pradhan; 4.xii.1994, Coll. P. P. Kulkarni; 1 ♀ from Tirangi chhara, 6. xii. 1994, Coll. P. P. Kulkarni; 2 ♂, 2 ♀ from Kolutmara, 9. xii. 1994, Coll. P. P. Kulkarni; 2 ♂ from Damodarnalla, 11. xii. 1994, Coll. P. P. Kulkarni; 1 ♂ from Ambakhori, 1 ♀ from Mangazadi nalla, 22. ix. 1995, Coll. R. H. Kamble; 1 ♂, 1 ♀ from Sillari Talao, 28. ix. 1995, Coll. R. H. Kamble; 1 ♂ from Pench riverbed & around, Totladoh, 30. xi. 1995; 3 ♂ from Bodhalzeera & around, 2. xii. 1995, Coll. R. M. Sharma; 5 ♂, 3 ♀ from Pipariya tank & around, 4. xii. 1995; 3 ♂, 6 ♀ from Bokhari Talao near Khapa, 5. xii. 1995; 1 ♀ from Pench River at Ranidoh & around, 7. xii. 1995, all Coll. R. M. Sharma; 1 ♂ from Bokhari Talao, 6. x. 1996, Coll. A. S. Mahabal; 1 ♀ from Ghoghranala near Sillari, 9. x. 1996, Coll. A. S. Mahabal; 1 ♂ from Pipariya, 27. iv. 1997, Coll. S. G. Patil; 1 ♂, 1 ♀ from Ranidoh & around, 12. iii. 1998, Coll. R. H. Kamble; 1 ♀ from Kanar Uttar nalla, 14. iii. 1998, Coll. R. H. Kamble; 2 ♂ from Hatigate & around, 16. iii. 1998, Coll. R. H. Kamble; 1 ♂, 1 ♀ from Pheprikund, 23. ii. 1999, Coll. M. S. Pradhan; 1 ♀ from Kandrya Uttar & around, 25. ii. 1999, Coll. M. S. Pradhan; 2 ♂, 1 ♀ from Pench river near Tirangi Chhara, 1. iii. 1999, Coll. M. S. Pradhan; 2 ♂ from Totladoh & around, 2. iii. 1999, Coll. M. S. Pradhan.

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

Subfamily RANATRINAE

9. *Cercotmetus pilipes* (Dallas)

1850. *Ranatra* (*Cercotmetus*) *pilipes* Dallas, *Trans. R. ent. Soc. Lon.*, 1 : 9.

1903. *Cercotmetus pilipes* (Dallas): Montandon, Bull. Soc. Sti. Buck., 12 : 110.

1997. *C. pilipes* (Dallas): Bal & Basu, *Zool. Surv. India, State Fauna*, 6 : 267

Diagnosis : Length not more than 40mm; vertex with very distinct tubercle; antennae in male with stout spines sparsely arranged; middle and hind tibia with dense fringes of hairs; mesonotum with carination posteriorly.

Material examined : 1♂, 1♀, 1 Is from Bodhalzeera & around, 2. xii. 1995, Coll. R. M. Sharma.

Distribution : India; Bhutan.

10. *Ranatra elongata* Fabricius

1790. *Ranatra elongata* Fabricius, *Skrif. Nat. Selesk.*, 1 : 228.

1972. *Ranatra elongata* Fabricius: Lansbury, Trans. R. ent. Soc. Lond., 124 : 306.

2001. *Ranatra elongata* Fabricius: Thirumalai, *Fauna conservation area*, 11 : 118.

Diagnosis : This species can be identified by the structure of the anterior femur, which is 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. This genus is cosmopolitan in distribution and contains more than 120 species all over the world. It is reported to be feeding on tadpoles, nymph of mayflies and other aquatic hemipteran groups and during dry seasons it is known to migrate in search of suitable areas.

Material examined : 1♂, 1 Is from Bokhari tank, 29. ix. 1994, Coll. M. S. Pradhan; 1♀ from Hatigate & around, 17. ix. 1995, Coll. R. H. Kamble; 2♂, 1♀ from Dongardeo in west Ghat Pendhari beat, 3. xii. 1995, Coll. R. M. Sharma; 2♂, 2♀ from Hatigate, 8. xii. 1995, Coll. P. P. Kulkarni; 1♀ on the way to Phefdikund & around, 21. ix. 1997, Coll. D. B. Bastawade; 1♂, 1♀ from Ambakhori, 11. iii. 1998, Coll. R. H. Kamble; 3♂, 2♀ from Pheprikund nalla, 11. iii. 1998, Coll. R. H. Kamble; 1♀ from Ranidoh & around, 12. iii. 1998, Coll. R. H. Kamble; 2♂, 1♀ from Hatigate, 16. iii. 1998, Coll. R. H. Kamble; 2♂, 1 Is from Sillari Talao, 18. iii. 1998, Coll. R. H. Kamble; 3♀ from Pheprikund, 23. ii. 1999, Coll. M. S. Pradhan; 1♀ from Bokhari tank, 23. ii. 1999, Coll. M. S. Pradhan; 1♂, 3♀ from Kandryautarnall, 25. ii. 1999, Coll. M. S. Pradhan; 8♂, 3♀ from Hatigate & around, 28. ii. 1999, Coll. M. S. Pradhan; 1♂ from Totladoh & around, 2. iii. 1999, Coll. M. S. Pradhan.

Distribution : India; Australia; Nepal; Sri Lanka.

11. *Ranatra filiformis* Fabricius

1790. *Ranatra filiformis* Fabricius, *Skrit. Nat. Selsk.*, 1 : 228

2001. *Ranatra filiformis* Fabricius: Thirumalai, *Fauna of Conservation Area*, 11 : 118.

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*. This species is mostly found among vegetation, fringing the shallower parts of water, clinging to submerged vegetation and feeds on nymphs of dragonflies and mosquito pupae.

Material examined : 1♂, 2♀, 2 Is from Bokhari pond & around, 15. ix. 1995, Coll. R. H. Kamble; 1♂ from Ambakhori, 21. ix. 1995, Coll. R. H. Kamble; 1♂, 2♀, 1 Is from Piparia Talao, 27. ix. 1995, Coll. R. H. Kamble; 1♂, 1♀ from Pench riverbed & around, Totladoh, 30. xi. 1995, Coll. R. M. Sharma; 10♂, 9♀, 1 Is from Bodhalzeera & around, 2. xii. 1995, Coll. R. M. Sharma; 6♂, 9♀ from Pipariya tank & around, 4. xii. 1995, Coll. R. M. Sharma; 9♂, 12♀, 10 Is from Bokhari Talao near Khapa, 5. xii. 1995, Coll. R. M. Sharma; 4♂, 1♀, 1 Is from Pench river at Ranidoh & around, 7. xii. 1995, Coll. R. M. Sharma; 1♂, 1♀ from Ranidoh, 8. x. 1996, Coll. A. S. Mahabal; 1♂, 3♀ from Piparia, 27. iv. 1997, Coll. S. G. Patil; 1♂, 4♀, 1 Is from Bodhalzeera, 3. v. 1997, Coll. S. G. Patil; 1♀ from Ambakhori, 11. iii. 1998, Coll. R. H. Kamble; 1♀ from Ranidoh & around, 12. iii. 1998, Coll. R. H. Kamble; 1♂ from Pipariya Talao, 17. iii. 1998, Coll. R. H. Kamble; 1♂, 2♀ from Saddle dam, 22. ii. 1999, Coll. M. S. Pradhan; 1♂ from Bokhari tank, 23. ii. 1999, Coll. M. S. Pradhan; 1♀ from Pipariya & around, 26. ii. 1999, Coll. M. S. Pradhan.

Distribution : India; China; Nepal; Pakistan; Phillipines; Sri Lanka.

Family BELOSTOMATIDAE

This family includes the largest of the aquatic hemipterans. Members of this family are large (size ranges from 10 to 110mm), flat, brown, oval or oblong insects, commonly known as 'Giant Water Bugs'. The most distinctive adult belostomatid feature is a pair of retractile, strap-like appendages at the abdominal apex, possessing a spiracle basally.

Subfamily BELOSTOMATINAE

12. *Diplonychus rusticus* (Fabricius)

1781. *Nepa rustica* Fabricius, *Ent. Sept.*, 4 : 62

1906. *Sphaerodema rusticum* (Fab.) : Distant, *Fauna British India*, 3 : 36.

1961. *D. rusticus* (Fab.) : Lauck & Menke, *Ann. Entomol. Soc. Amer.*, 54 : 649.

D. rusticus (Fab.) : Thirumalai, *Fauna of Conservation Area*, 11 : 119.

1980. *Diplonychus indicus* Venkatesan & Rao, *J. Bombay nat. Hist. Soc.* 88 : 299.

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. This species is commonly found in fishponds and voraciously feeds on fish fry, mosquito larvae and other aquatic organisms.

Material examined : 1♀ from Ambakhori, 4. xii. 1994, Coll. P. P. Kulkarni; 2 Is from Damodar nalla, 11. xii. 1994, Coll. P. P. Kulkarni; 1♀, 3 Is from Bokhari pond & around, 15. ix. 1995, Coll. R. H. Kamble; 3♀, 10 Is from Bokhari Talao near Khapa, 5. xii. 1995, Coll. R. M. Sharma; 1♂ from Hatigate, 8. xii. 1995, Coll. P. P. Kulkarni; 1♀, 1 Is from Pipariya tank & around, 22. xii. 1995, Coll. R. M. Sharma; 1♂, 1♀, 1 Is from Kolitmara, 12. iii. 1998, Coll. R. H. Kamble; 2♂ from Bokhari tank, 23. ii. 1999, Coll. M. S. Pradhan; 1♂, 1 Is from Pench river near Tirangi chhara, 1. iii. 1999, Coll. M. S. Pradhan.

Distribution : India; Australia; China; Indonesia; Japan; Malayasia; Myanmar; New Gunea; New Zealand; Sri Lanka; Thailand.

Family CORIXIDAE

The Corixidae or 'Water Boatmen', the largest family of aquatic Hemiptera, is characterised by single segmented front tarsus called 'pala' which is flattened, scoop- shaped. The scutellum is exposed or concealed and the male abdominal segments are asymmetrical. The corixid labium is broadly fused with the head and possesses distinct transverse grooves and channels on its outer surface that harbours the stylets. The size ranges from 1.8-16mm.

Subfamily CORIXINAE

13. *Agraptocorixa (Agraptocorixa) hyalinipennis hyalinipennis* (Fabricius)

1803. *Sigara hyalinipennis* Fabricius, *Syst. Rhyn Brusvigae*, 105.

1926. *Agraptocorixa hyalinipennis* (Fabricius): Jaczewski, *Ann. Zool. Mus. Polon. Warsaw*, 5 : 18

1989. *Agraptocorixa hyalinipennis* (Fabricius): Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No. 18* : 11.

2001. *Agraptocorixa hyalinipennis* (Fabricius): Thirumalai, *Fauna conservation area*, 11 : 113.

This species can be very easily recognized by its uniform hyaline brown coloration, unmarked elytra and pronotum. The abdominal sixth dorsum bearing the strigil, produced backwards as a well-defined peduncle. *A. hyalinipennis* is the only species of the genus so far known from India and commonly found to inhabit the ditches, puddles and stagnant pools in various parts of the country including Eastern and Western Ghats.

Material examined : 1♂ from Sillari Talao, 28. ix. 1995, Coll. R. H. Kamble.

Distribution : India; Myanmar; New Guinea; Pakistan; Taiwan.

Genus *Sigara* FabriciusSubgenus *Tropocorixa* Hutchinson14. *Sigara pruthiana* (Hutchinson, 1940)

1940. *Corixa (Tropocorixa) pruthiana* Hutchinson, *Trans. Connecticut Acad. Art. Sci.*, **33** : 447.

1989. *C. (T). pruthiana* Hutchinson: Thirumalai, *Rec. zool. Surv. India, Occ. Pap. No.*, **118** : 3.

Diagnosis : General colour pale yellow or brown and palae are parallel sided with pegs uniformly, closely placed. The right paramere of male with broad base, a central blunt process on the dorsal margin, a well marked subapical tubercle on the ventral margin and a broad elongate beak at the apex.

Material examined : 1♂ from Kanar Utarnalla, 14. iii. 1998, Coll. R. H. Kamble.

Distribution : India; Pakistan.

Infra order GERROMORPHA

Superfamily GERROIDAE

Family GERRIDAE

The gerrids, popularly known as 'Water Striders' or 'Pond Skaters' are elongate or oval insects with sub apical claws, hind femora reaching beyond the apex of abdomen and the middle legs, usually distinctly longer than the hind ones. The body is covered with a velvety hydrofuge, hair-pile and the colour varies from black or grey to brown, the dorsum being marked with light grey or yellow lines or spots. Macropterous, brachypterous, micropterous and apterous forms are frequently encountered. The size ranges from 2-40 mm.

Subfamily GERRINAE

15. *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.

2002. *Aquarius adalaidis* (Dohrn): Thirumalai, *Rec. zool. Surv. India*, **100** (1-2) : 60.

Diagnosis : The first antennal segment is the longest, the head, rostrum, pronotum and forelegs are black. The hind margin of pronotum is 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 very common species inhabiting the permanent waterbodies in India, with both macropterous and apterous forms. This species is found in all lentic habitats and also recorded from deep wells in Southern India.

Material examined : 2♂ from Ghoghranalla near Sillari, 9. x. 1996, Coll. A. S. Mahabal; 1♂, 1♀ (w) from Kolutmara, 12. iii. 1998, Coll. R. H. Kamble; 1♂ (macrop.) from Sadal dam, 22. ii. 1999, Coll. M. S. Pradhan.

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

16. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius, 1775)

1775. *Cimex fossarum* Fabricius, *Syst. Ent.*, 727.

1868. *Limnogonus fossarum* Stal, *K. Svenska Vetensk. Akad.*, **7** : 133.

1903. *Gerris fossarum* (Fabricius): Distant, *Fauna British India*, **2** : 178.

1960. *L.(L). fossarum* (Fabricius) : Matsuda, *Kans. Univ. Sci. Bull.*, **41** : 198

1975. *L.(L). fossarum* (Fabricius) : Andersen, *Ent. Scand. Suppl.*, **7** : 30

2002. *L. (L). fossarum* (Fabricius) : Thirumalai, *Rec. zool. Surv. India*, **100** (1-2) : 62.

Diagnosis : A median yellow line on the anterior pronotal lobe extending to its entire length separates this species from all the known species. The connexivum does not terminate in a prominent spine. A very common species of Gerrinae in Indo-Australian regions, found in wide variety of habitats including hot springs, brackish pools, from Sea level to about 1000 meters.

Material examined : 2♀ from Pheprikund, 23. ii. 1999, Coll. M. S. Pradhan.

Distribution : China; Hong Kong; India; Indonesia; Japan; Malaysia; Myanmar; Philippines; Singapore; Taiwan; Thailand; Vietnam.

17. *Limnogonus (Limnogonus) nitidus* (Mayr)

1865. *Hydrometra nitida* Mayr, *Verh. zool.-bot. Ges. Wien*, **15** : 443.

1903a. *Gerris nitida* (Mayr): Distant, *Fauna British India*, **2** : 178.

- 1908b. *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.
2002. *L. (Limnogonus) nitidus* (Mayr): Thirumalai, *Rec. zool. Surv. India*, 100 (1-2) : 62

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

Material examined : 1 ♀ (w) from Pench riverbed & around, Totladoh, 30. xi. 1995, Coll. R. M. Sharma.

Distribution : India; Indonesia; Malasia; Maldiv Islands; Myanmar; Nepal; Singapore; Sri Lanka; Thailand; Veitnam.

18. *Limnometra anadyomene* (Kirkaldy)

1901. *Gerris anadyomene* Kirkaldy, *Entomologist*, 34 : 117.
1915. *Tenagonus anadyomene* (Kirkaldy) : Bergroth, *Zool.Meded.Leiden*, 1 (2) : 122.
1934. *Limnometra anadyomene* (Kirkaldy) : Lundblad, *Arch.Hydrobiol.Suppl.*, 12 : 371.
1960. *Tenagonus (Limnometra) anadyomene* (Kirkaldy) : Matsuda, *Kans. Univ. Sci. Bull.*, 41 : 206.
1986. *Tenagonus (Limnometra) longispinulus* (Kirkaldy) : Thirumalai, *Rec. zool. Surv. India*, 84(1-4) : 11
1995. *Limnometra anadyomene* (Kirkaldy) : Andersen, *Steenstrupia*, 21 : 117.
2002. *Limnometra anadyomene* (Kirkaldy) : Thirumalai, *Rec. zool. Surv. India*, 100 (1-2) : 63.

Diagnosis : This species can be easily identified by the second tarsal segment of front leg longer than first, middle femur longer than the total body in male and about equal in female; the abdominal connexival spines in males surpassing the first genital segment and not the abdominal tip and never do so in females. It is interesting to note that in this species, females are strikingly broader and larger than males. Its habitat is highly restricted to forest streams.

Material examined : 1 ♂, 3 ♀ on the way to Sadal tank & around, 20. ix. 1997, Coll. D. B. Bastawade.

Distribution : Borneo; Burma; India; Malaya; Phillipine Islands; Srilanka; Sumatra.

19. *Limnometra fluviorum* (Fabricius)

1798. *Cimex fluviorum* Fabricius, *Ent. Syst. Suppl.*, 543.
- 1903a. *Gerris fluviorum* (Fab.) : Distant, *Fauna British India*, 2 : 177
- 1903a. *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 : 206.
- 1995a. *Limnometra fluviorum* (Fab.) : Andersen, *Steenstrupia*, 21 : 118
2002. *Limnometra fluviorum* (Fab.) : Thirumalai, *Rec. zool. Surv. India*, 100 (1-2) : 63

Diagnosis : It is differentiated from other known species of this genus by the presence of a spine like projection on the dorsolateral rear margin of the middle coxae. It is a commonly found gerrid species in Southern India occurring in a wide variety of fresh water habitats.

Material examined : 1♂ (w), 1♂ (Apt.) from Kondrautar, Central Phuljhari, 26. ix. 1994, Coll. M. S. Pradhan; 3♂, 5♀ (w) from Ambakhori, 4. xii. 1994, Coll. P. P. Kulkarni; 11♂, 10♀ (w), 1 Is from Tirangi chhara, 6. xii. 1994, Coll. P. P. Kulkarni; 30♂, 34♀ (w) from Paul zodi, 10. xii. 1994, Coll. P. P. Kulkarni; 4♂, 3♀, 5 Is from Kosum nalla, 6. ix. 1995, Coll. R. H. Kamble; 4♂, 4♀ (w) from Dongardeo in west Ghat Pendhari beat, 3. xii. 1995, Coll. R. M. Sharma; 16♂, 12♀ (w) from Hatigate, 8. xii. 1995, Coll. P. P. Kulkarni; 7♂, 3♀ (w); 4♂, 6♀ (Apt.); 12 Is from Ghatpendri, 6. v. 1997, Coll. S. G. Patil; 1♀ (w) from Pheprikund nalla, 11. iii. 1998, Coll. R. H. Kamble; 1♀ (w) from the nalla on the way to Ghat Pendhari to Kolutmara, 24. ii. 1999, Coll. M. S. Pradhan.

Distribution : India; Philippines; Sri Lanka.

Subfamily HALOBATINAE

20. *Metrocoris communis* (Distant)

- 1910a. *Euodus communis* Distant, *Ann. Mag. nat. Hist.*, 5 (8) : 151.
1929. *Metrocoris communis* (Distant): Esaki, *Ann. Mag. nat. Hist. Soc.*, 4 (10) : 419.
1965. *Metrocoris communis* (Distant): Den Boer, *Zool. Verh. Leiden*, 74 : 13.
1993. *Metrocoris communis* (Distant): Chen & Nieser, *Steenstrupia*, 19 (2) : 49.
2002. *Metrocoris communis* (Distant): Thirumalai, *Rec. zool. Surv. India*, 100 (1-2) : 65.

Diagnosis : A small (4.5 to 5.8 mm) oval, black and yellow water strider with black

marking on dorsal side of head and thorax. The pronotum of wingless forms with 'T' shaped black pattern and the winged form with a median black longitudinal stripe almost reaching tip with a pair of lateral black stripes on posterior lobe. The 7th ventral segment of female with a tuft of dark brown hairs on either side laterally. *M. communis* found abundant in still or smooth flowing shaded streams, where they stroke and glide across the surface.

Material examined : 4♂, 2♀ (Macrop.) from Ambakhori, 4. xii. 1994, Coll. P. P. Kulkarni; 1♂ (macrop.) from Hatigate & around, 17. ix. 1995, Coll. R. H. Kamble; 1♀ (Macrop.), 1 Is from Pench River, 25. iv. 1997, Coll. S. G. Patil; 1♂ (Macrop.) from Ghatpendri, 6. v. 1997, Coll. S. G. Patil; 1♂ (Apt.) on the way to Phefdikund & around, 21. ix. 1997, Coll. D. B. Bastawade; 1♂, 4♀ (w); 2♀ (Apt.), 2 Is from Totladoh & around, 10. iii. 1998, Coll. R. H. Kamble; 5♂ (Apt.); 1♂, 2♀ (Macrop.), 3 Is from Pheprikund nalla, 11. iii. 1998, Coll. R. H. Kamble; 8♂, 1♀ (Apt.) from Ambakhori, 11. iii. 1998, Coll. R. H. Kamble.

Distribution : India; Afghanistan; Iran; Iraq; Oman.

Subfamily PTILOMERINAE

Genus *Stridulobates* Zettel & Thirumalai

21. *Stridulobates anderseni* Zettel & Thirumalai

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

Diagnosis : The first 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.

Material examined : 2♂, 2♀, 1Is from Hatigate & around, 17. ix. 1995, Coll. R. H. Kamble.

Distribution : INDIA.

Note : It is interesting to note that the present report is the first record of this species outside the Western Ghats area.

Family HYDROMETRIDAE

Subfamily HYDROMETRINAE

22. *Hydrometra greeni* Kirkaldy, 1898.

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

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

1994. *Hydrometra greeni* Kirkaldy: Thirumalai, *Rec. zool. Surv. India, Occ. Pap.* No. **165** : 29

1995. *Hydrometra greeni* Kirkaldy: Polhemus & Polhemus, *Bishop. Mus. Occ. Pap.*, **43** : 22.

2002. *Hydrometra greeni* Kirkaldy: Thirumalai, *Rec. zool. Surv. India*, **100** (1-2) : 79.

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

Material examined : 1♀ from Pench river, 25. iv. 1997, Coll. S. G. Patil.

Distribution : India; Bangladesh; China; Nepal; Sri Lanka; Sumatra; Thailand; Vietnam.

SUMMARY

The present study is based on a small collection of aquatic and Semi-aquatic hemipterans collected from Pench National park, Maharashtra, comprised of 22 species belonging to 15 genera spread over 6 families. The occurrence of *Stridulobates anderseni* Zettel & Thirumalai, hitherto known from Western Ghats is noteworthy as it is being reported for the first time from Satpura range in Western India. A key to the families is also provided.

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INSECTA : LEPIDOPTERA : RHOPALOCERA AND GRYPOCERA

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INTRODUCTION

Butterflies are an integral part of the forest ecosystem. They show distinct patterns of habitat utilization. Being highly sensitive to changes in the environment, they are easily affected by even relatively minor perturbations in the habitat so much so that, they have been considered as indicators of environmental quality and health of an ecosystem (Rosenberg *et al.*, 1986). There is an intimate association between butterflies and plants and their lives are exceptionally interlinked (Feltwell, 1986), which leads to different patterns in their distribution depending on the availability of their food plants.

Although enough work has been done on the butterflies of different regions, studies based on the Protected Areas (PAs) in India are scanty. Barring the enumeration of 38 species of butterflies from Pench Tiger Reserve (Chandra *et al.*, 2002) in Madhya Pradesh (a contiguous area with the Pench National Park falling in the political division of Maharashtra), there is no comprehensive account of the butterflies and skippers occurring in the Pench National Park as such. Baseline data of Protected Areas are of immense value as they provide the foundation for a meaningful approach in diversity analyses and conservation strategies.

The present account of butterflies and skippers from Pench National Park is based on a collection of approximately 450 examples referable to 65 species in 52 genera spread over 7 families. However, this list is not exhaustive as the butterfly diversity existing in the reserve could certainly be much more than that recorded here. The nomenclature followed here is after Varshney (1993, 1994, & 1997). Under the systematic account, the original reference to the species and the subsequent important ones are cited, for most of the species dealt with, except for a few for which the original references could not be traced out.

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SYSTEMATIC ARRANGEMENT OF BUTTERFLIES RECORDED FROM PENCH NATIONAL PARK

Order LEPIDOPTERA

Suborder RHOPALOCERA

Superfamily PAPILIONOIDEA

I. Family PAPILIONIDAE

Subfamily PAPILIONINAE

Tribe **Leptocircini**

1. *Pathysa nomius* Esper.
2. *Graphium sarpedon* (Linn.)

Tribe **Papilionini**

3. *Papilio demoleus* Linn.
4. *Papilio polytes* Linn.
5. *Chilasa clytia* (Linn.)

Tribe **Troidini**

6. *Pachliopta aristolochiae* (Fab.)

II. Family PIERIDAE

Subfamily PIERINAE

Tribe **Pierini**

7. *Pieris canidia* Sparrman
8. *Belenois aurota* (Fab).
9. *Cepora nerissa* (Fab).
10. *Delias eucharis* (Drury)
11. *Appias albina* (Boisduval)

Tribe **Colotini**

12. *Ixias marianne* (Cramer)
13. *Colotis etrida* (Boisduval)

Subfamily COLIADINAE

14. *Catopsilia pomona* (Fab.)
15. *Catopsilia pyranthe* (Linn.)
16. *Terias brigitta* (Stall)
17. *Terias hecabe* (Linn.)

18. *Terias laeta* Boisduval

19. *Terias blanda* (Boisduval)

III. Family DANAIDAE

Subfamily DANAINAE

20. *Danaus chrysippus* (Linn.)

21. *Danaus genutia* (Cramer)

22. *Tirumala limniace* (Cramer)

Subfamily EUPLOEINAE

23. *Euploea core* (Cramer)

IV. Family SATYRIDAE

Subfamily SATYRINAE

Tribe **Melanitini**

24. *Melanitis leda* (Linn.)

Tribe **Lethini**

25. *Lethe rohria* (Fab.)

Tribe **Mycalesini**

26. *Mycalesis mineus* (Linn.)

Tribe **Ypthini**

27. *Ypthima asterope* Klug.

28. *Ypthima huebneri* Kirby

V. Family NYMPHALIDAE

Subfamily BIBLIDINAE

29. *Ariadne ariadne* (Linn.)

Tribe **Argynnini**

30. *Phalanta phalantha* (Drury)

Subfamily NYMPHALINAE

Tribe **Vanessidi**

31. *Cynthia cardui* (Linn.)

32. *Precis iphita* (Cramer)

33. *Junonia almana* (Linn.)

34. *Junonia hierta* (Fab.)

35. *Junonia lemonias* (Linn.)

36. *Junonia orithya* (Linn.)

37. *Junonia atlites* (Linn.)

Tribe **Hypolimini**

38. *Hypolimnias bolina* (Linn.)

39. *Hypolimnias misippus* (Linn.)

Subfamily LIMENITIDINAE

Tribe **Neptini**

40. *Neptis hylas* (Linn.)

Tribe **Limenitidini**

41. *Moduza procris* (Cramer)

Tribe **Euthaliini**

42. *Symphaedra nais* (Forster)

43. *Euthalia lubentina* (Cramer)

Subfamily CHARAXINAE

Tribe **Charaxini**

44. *Charaxes solon* (Fab.)

Subfamily ACRAEINAE

45. *Acraea terpsicore* (Linn.)

VI. Family LYCAENIDAE

Subfamily POLYOMMATINAE

Tribe **Polyommagini**

46. *Jamides bochus* Stoll

47. *Jamides celeno* (Cramer)

48. *Catochrysops strabo* (Fab.)

49. *Lampides boeticus* (Linn.)

50. *Leptotes plinius* (Fab.)

51. *Castalius rosimon* (Fab.)

52. *Tarucus nara* (Kollar)

53. *Zizina otis* Fab.

54. *Pseudozizeeria maha* (Kollar)

55. *Zizula hylax* (Fab.)

56. *Celastrina lavendularis* Moore

57. *Euchrysops cnejus* (Fab.)

58. *Freyeria trochylus* (Freyer)

Subfamily APHNAEINAE

59. *Spindasis vulcanus* (Fab.)

Suborder GRYPocERA•

VII. Family HESPERIIDAE

Subfamily COELIADINAE

60. *Hasora chromus* Cramer

61. *Badamia exclamationis* (Fab.)

Subfamily PYRGINAE

62. *Spialia galba* (Fab.)

63. *Pseudocladenia indrani* (Moore)

Subfamily HESPERIINAE

64. *Telicota ancilla* Mabilie

65. *Baoris sinensis* (Moore)

SYSTEMATIC ACCOUNT

1. *Graphium sarpedon* (Linn.)

The Common Bluebottle

1758. *Papilio sarpedon* Linn. *Syst. Nat.* ed. 10 : 461

1939. *Graphium sarpedon*: Talbot, *Fauna Brit. India, Butterflies*, 1 : 219

1987. *Graphium sarpedon*: Larsen, *J. Bombay nat. Hist. Soc.*; 84 : 45

1993. *Graphium sarpedon* : Varshney, *Oriental Insects*, 27 : 350

Material examined : 1 ex. Dongardeo Ghatpendri Beat, 3.xii. 1995. R.M.Sharma & Party.

2. *Pathysa nomius* (Esper.)

The Spot Swordtail

1801. *Papilio nomius* Esper, *Die Auslandsche Schmetterlinge* : 210

1932. *Pathysa nomius*: Evans, *Identification of Indian Butterflies* : 54

1939. *Graphium nomius*: Talbot, *Fauna Brit. India, Butterflies*, 1 : 207

1987. *Pathysa nomius*: Larsen, *J. Bombay nat. Hist. Soc.*; 84 : 46

1993. *Pathysa nomius*: Varshney, *Oriental Insects*, 27 : 351

Material examined : 1 ex. Dongardeo Ghatpendri Beat, 3.xii. 1995. R.M.Sharma & Party.

3. *Papilio demoleus* Linn. The Lime Butterfly

1758. *Papilio demoleus* Linnaeus, *Syst. Nat.* ed. 10 : 464

1895. *Papilio demoleus*: Rothschild, *Nov. Zool.* 2 : 279

1907. *Papilio demoleus*: Bingham, *Fauna Brit. India Butterflies*, 2 : 39

1939. *Papilio demoleus*: Talbot, *Fauna Brit. India Butterflies*, 1 : 187

1993. *Papilio demoleus*: Varshney, *Oriental Insects*, 27 : 352

Material examined : 2 exs. Phefdikund Nallah, 2.xii.1994; 1 ex. Tirangi Charra, 6.xii.1994; 2 exs. Kolutmara, 9.xii. 1994, P.P. Kulkarni & party; 2 exs. Ambakhori, 1.xii.1995, 1 ex. Dongardeo Ghatpendri Beat, 3.xii.1995, 1 ex. Ranidoh, 7.xii.1995, 2 exs. 8.xii.1995, 1 ex. Gawlighat, 11.xii.1995, 2 exs. Hathigate, 12.xii.1995, R.M. Sharma & Party; 1ex., Kolutmara, 7.x.1996, 1ex., Ranidoh, 8.x.1996, GhograNallah nr. Sillari, 9.x.1996; A.S. Mahabal & Party; 1 ex. Dakshin Bodhalzeera, 25.ix.1997, D.B. Bastawade & Party; 1 ex. Ambakhori, 22.ii.1999, 1 ex. Hatigate, 28.ii.1999, M. S. Pradhan & party.

4. *Papilio polytes* Linn. The Common Mormon

1758. *Papilio polytes* Linnaeus, *Syst. Nat.* ed. 10 : 460

1939. *Papilio polytes*: Talbot, *Fauna Brit. India, Butterflies*, 1 : 176

1987. *Papilio polytes*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 43

1993. *Papilio polytes*: Varshney, *Oriental Insects*, 27 : 352

Material examined : 3 exs. Ambakhori, 4.xii.1994, 1 ex. Gawlighat, 8.xii.1994, 1 ex. Kolutmara, 9.xii.1994. P.P. Kulkarni & party; 3 exs. Kosum Nallah ,16.ix.1995, R.H. Kamble & Party; 1 ex. Ambakhori, 1.xii.1995, 2 exs. Narhar, 8.xii.1995, 1 ex. Nallah nr. Kolutmara, 9.xii.1995, R.M. Sharma & Party; 1 ex. Sedal dam, 3.x.1996, 1 ex. Ambakhori, 5.x.1996, 1 ex. Dakshin Bodhalzeera, 5.x.1996, 1 ex. Ghogra Nallah nr. Sillari, 9.x.1996, 1 ex. Kirangi Charra, 10.x.1996, A.S. Mahabal & Party; 2 exs. Kirangi Charra, 22.ix.1997, D.B. Bastawade & Party; 1 ex. Seetanahan, 27.ii.1999, M. S. Pradhan & party.

5. *Chailasa clytia* (Linn.) The Common Mime

1758. *Papilio clytia* Linnaeus, *Syst. Nat.* ed. 10 : 479

1889. *Chilasa clytia*: Hampson, *J. Asiatic Soc. Bengal*, lvii : 363

1987. *Chilasa clytia*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 41

1993. *Chilasa clytia*: Varshney, *Oriental Insects*, 27 : 353

Material examined : 1 ex. Dongardeo Ghatpendri Beat, 3.xii. 1995. R.M. Sharma & Party.

6. *Pachliopta aristolochiae* (Fab.)

The Common Rose

1775. *Papilio aristolochiae* Fabricius, *Syst. Ent.* : 443

1932. *Tros aristolochiae*: Evans, *Identification of Indian Butterflies* : 44

1939. *Polydorus aristolochiae*: Talbot, *Fauna Brit. India Butterflies*, 1 : 86

1987. *Pachliopta aristolochiae*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 40

1993. *Pachliopta aristolochiae*: Varshney, *Oriental Insects*, 27 : 354

Material examined : 1ex. Kirangi Charra, 6.xii.1994, P.P. Kulkarni & Party; 2 exs. Ambadi, 24.ix. 1995, R.H. Kamble & Party; 1 ex. Ambakhori, 1.xii.1995, 2 exs. Ranidoh, 7.xii.1995, 1 ex. Narhar, 8.xii.1995, 1 ex. Nallah nr. Kolutmara, 9.xii.1995, 2 exs. Hatigate, 12.xii.1995, R.M. Sharma & Party; 1 ex. Bokhari Talao, 6.x.1996, A.S. Mahabal & Party; 1 ex. Dakshin Bodhalzeera, 25.ix.1997, D.B. Bastawade & Party.

7. *Pieris canidia* Sparrman

The Indian Cabbage White

1768. *Pieris canidia* Sparrman, *Amaen. Acad.*, 7.

1939. *Pieris canidia*: Talbot, *Fauna Brit. India Butterflies*, 1 : 425

1993. *Pieris canidia*: Varshney, *Oriental Insects*, 27 : 357

Material examined : 1 ex. Pipariya, 8.xii.1995, R.M.Sharma & Party.

8. *Belenois aurota* (Fab.)

The Pioneer or Caper White

1793. *Papilio aurota* Fabricius, *Syst. Ent* : 197

1904. *Anapheis mesentina*: Moore : 158

1932. *Anapheis aurota*: Hemming, : 283

1932. *Belenois mesentina*: Evans, *Identification of Indian Butterflies* : 71

1987. *Anapheis aurota*: Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 48

1993. *Belenois aurota*: Varshney, *Oriental Insects*, **27** : 358

Material examined : 7 exs. Narhar, 8.xii.1995, R.M. Sharma & Party.

**9. *Cepora nerissa* (Fab.)
The Common Gull**

1775. *Papilio nerissa* Fabricius, *Syst. Ent.*, : 471

1932. *Huphina nerissa*: Evans, *Identification of Indian Butterflies* : 72

1939. *Cepora nerissa*: Talbot, *Fauna Brit. India Butterflies*, **1** : 362

1987. *Cepora nerissa*: Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 47

1993. *Cepora nerissa*: Varshney, *Oriental Insects*, **27** : 358

Material examined : 1ex. Nallah nr. Kolutmara, 9.xii.1995, R.M. Sharma & party.

**10. *Delias eucharis* (Drury)
The Common Jezebel**

1773. *Papilio eucharis* Drury, *Illustr. Nat. Hist.*, Pl x, figs. 5,6

1939. *Delias eucharis*: Talbot, *Fauna Brit. India Butterflies*, **1** : 352-356

1987. *Delias eucharis*: Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 46

1993. *Delias eucharis*: Varshney, *Oriental Insects*, **27** : 359

Material examined : 1ex. Ambakhori, 1.xii.1995, 1 ex. Ranidoh, 7.xii.1995, 2exs. Nallah nr. Kolutmara, 9.xii.1995, R.M.Sharma & Party; 1 ex. Pipariya Talao, 17.iii. 1998, R.H.Kamble & party.

**11. *Appias albina* (Boisduval)
The Common Albatross**

1836. *Pieris albina* Boisduval, sp. *Gen. Lep.*, **1** : 480

1907. *Appias albina*: Bingham, *Fauna Brit. India Butterflies*, **2** : 212

1986. *Appias albina*: Ghosh & Chaudhary, *Rec. zool. Surv. India*, **84** : 116

1993. *Appias albina*: Varshney, *Oriental Insects*, **27** : 359

Material examined : 1ex. Ambakhori, 1.xii.1995, 1 ex. Narhar, 8.xii.1995, R.M. Sharma & Party.

**12. *Ixias marianne* (Cramer)
The White Orange Tip**

1779. *Papilio marianne* Cramer, *Pap. Exot.*, iii : 41
1871. *Ixias marianne*: Butler, *Proc. Zool. Soc.*, : 250
1939. *Ixias marianne*: Talbot, *Fauna Brit. India Butterflies*, 1 : 440
1987. *Ixias marianne*: Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 51
1993. *Ixias marianne*: Varshney, *Oriental Insects*, **27** : 361

Material examined : 5 exs. Narhar, 8.xii.1995, R.M. Sharma & Party.

**13. *Colotis etrida* (Boisduval)
The Little Orange Tip**

1836. *Anthocharis etrida* Boisduval, *Spec. Gen. Lep.* 1 : 576
1907. *Colotis etrida*: Bingham, *Fauna Brit. India Butterflies*, **2** : 270
1987. *Colotis etrida*: Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 50
1993. *Colotis etrida*: Varshney, *Oriental Insects*, **27** : 362

Material examined : 4 exs. Nallah nr. Kolutmara, 9.xii.1995, R.M.Sharma & Party.

**14. *Catopsilia pomona* (Fab.)
The Lemon or Common Emigrant**

1775. *Papilio pomona* Fabricius, *Syst. Ent.*, : 479
1932. *Catopsilia pomona*: Evans, *Identification of Indian Butterflies*, : 75
1939. *Catopsilia pomona*: Talbot, *Fauna Brit. India Butterflies*, 1 : 493
1987. *Catopsilia pomona*: Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 52
1993. *Catopsilia pomona*: Varshney, *Oriental Insects*, **27** : 362

Material examined : 1 ex. Phepadi Kund Nallah, 2.xii.1994, 1 ex. Gawlighat, 8.xii.1994, 1 ex. Kolutmara, 9.xii.1994, P.P. Kulkarni & Party; 3 exs. Ambakhori, 1.xii.1995, 1 ex. Narhar, 8.xii.1995, 1 ex. Gawlighat, 11.xii.1995, R.M. Sharma & Party; 2 exs. Ranidoh, 19.ix.1997, D.B. Bastawade & Party.

**15. *Catopsilia pyranthe* (Linn.)
The Mottled Emigrant**

1758. *Papilio pyranthe* Linnaeus, *Syst. Nat.* ed. **10** : 469

1881. *Catopsilia pyranthe*: Lep. Ceylon, 1 : 124

1939. *Catopsilia pyranthe*: Talbot, *Fauna Brit. India Butterflies*, 1 : 497

1987. *Catopsilia pyranthe*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 52

1993. *Catopsilia pyranthe*: Varshney, *Oriental Insects*, 27 : 362

Material examined : 2 exs. Dongardeo, Ghatpendri Beat, 3.xii.1995; 1 ex. Ranidoh, 7.xii.1995; 1 ex. Nallah nr. Kolutmara, 9.xii.1995; 1 ex. Hatigate, 12.xii.1995; R.M. Sharma & Party.

16. *Terias brigitta* (Stoll) The Small Yellow

1780. *Papilio brigitta* Stoll In Cramer, *Uitl. Kapellen*, 4 : 82

1867. *Terias brigitta* Wallace, *Trans. Ent. Soc. Lond.* 4 : 323

1939. *Eurema brigitta*: Talbot, *Fauna Brit. India Butterflies*, 1 : 515

1993. *Terias brigitta*: Varshney, *Oriental Insects*, 27 : 363

Material examined : 1ex. Ambakhori, 4.xii.1994, P.P. Kulkarni & Party; 1 ex. Nallah nr. Kolutmara, 9.xii.1995; R.M. Sharma & Party; 1 ex. Phefdikund Nallah, 11.iii. 1998, R.H. Kamble & Party.

17. *Terias laeta* Boisduval The Spotless Grass Yellow

1836. *Terias laeta* Boisduval, *Sp. Gen. Lep.*, 1 : 674

1939. *Eurema laeta*: Talbot, *Fauna Brit. India Butterflies*, 1 : 517

1987. *Eurema laeta*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 53

1993. *Terias laeta*: Varshney, *Oriental Insects*, 27 : 363

Material examined : 2 exs. Totladoh, 30.xi. 1995; 1 ex. Ambakhori, 1.xii.1995; 2exs. Bodhalzeera, 2.xii.1995; 1 ex. Dongar deo, Ghatpedri Beat, 3.xii.1995; 1 ex. Ranidoh, 7.xii.1995; R.M. Sharma & Party; 1 ex. Sadal dam, 20.ix.1997; 1 ex. Kirangi Charra, 22.ix.1997, D.B. Bastawade & Party.

18. *Terias hecabe* (Linn.) The Common Grass Yellow

1758. *Papilio hecabe* Linnaeus, *Syst. Nat.* ed. 10 : 470

1932. *Terias hecabe*: Evans, *Identification of Indian Butterflies*, : 78

1939. *Eurema hecabe*; Talbot, *Fauna Brit. India Butterflies*, 1 : 526

1993. *Terias hecabe*: Varshney, *Oriental Insects*, 27 : 364

Material examined : 1 ex. Phefdikund Nallah, 2.xii.1994; 2 exs. Gawlighat, 8.xii.1994, P.P. Kulkarni & Party; 2 exs. Totladoh, 30.xi.1995, 1 ex. Ambakhori, 1.xii.1995; 2exs. Bodhalzeera, 2.xii.1995, R.M. Sharma & Party; 2 exs. Sedaldam, 3.x.1996; 1 ex. Ambakhori, 1.x.1996; 2 exs. Ghogra Nallah nr. Sillari, 9.x.1996, 1 ex. Phefdikund, 6.x.1996, A.S. Mahabal & Party; 1 ex. Pawani, 26.ix.1997, D.B. Bastawade & Party; 1 ex. Phefdikund, 23.ii.1999, 2 exs. Totladoh, 2.iii.1999, M.S. Pradhan & Party.

**19. *Terias blanda* (Boisduval)
The Three spot Grass Yellow**

1836. *Eurema blanda* Boisduval, *Spec.Gen.Lep.* 1 : 577

1939. *Eurema blanda*: Talbot, *Fauna Brit. India Butterflies*, 1 : 522

1987. *Eurema blanda*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 53

1993. *Terias blanda*: Varshney, *Oriental Insects*, 27 : 364

Material examined : Dongargaon Dongardeo, 5.xii.1994, P.P. Kulkarni & Party; 3 exs. Nallah nr. Kolutmara, 9.xii.1995; R.M. Sharma & Party.

**20. *Danaus chrysippus* (Linn.)
The Plain or Common Tiger**

1758. *Papilio chrysippus* Linnaeus, *Syst. Nat.* ed. 10 : 471

1932. *Danaus chrysippus*: Evans, *Identification of Indian Butterflies*, : 88

1947. *Danaus chrysippus*: Talbot, *Fauna Brit. India Butterflies*, 2 : 20

1987. *Danaus chrysippus*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 313

1993. *Danaus chrysippus*: Varshney, *Oriental Insects*, 27 : 365

Material examined : 1ex Gawlighat, 8.xii.1994, P.P. Kulkarni & Party; 1 ex. Totladoh, 30.xi.1995, 3 exs. Ambakhori, 1.xii.1995, 1 ex. Bodhalzeera, 2.xii.1995, 1 ex. Nallah nr. Kolutmara, 9.xii.1995, 1ex.Gawlighat11.xii.1995, R.M. Sharma & Party; 1ex. Sedaldam, 3.x.1996, A.S. Mahabal & Party; 1 ex. Kirangi Charra, 22.ix.1997, 1 ex. Ambakhori, 23.ix.1997, D.B. Bastawade & Party.

21. *Danaus genutia* (Cramer)
The Striped Tiger

1779. *Papilio genutia* Cramer, *Pap. Exot.*, 3 : 23
 1882. *Danais genutia*: Distant, *Rhopalocera Malayana* : 18
 1947. *Danaus plexippus*: Talbot, *Fauna Brit. India Butterflies*, 2 : 25
 1987. *Danaus genutia*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 314
 1993. *Danaus genutia*: Varshney, *Oriental Insects*, 27 : 365

Material examined : 1 ex. Sedaldam, 19.ix.1995, R.H. Kamble & Party; 1 ex. Ambakhori, 1.xii.1995, 3 exs. Bodhalzeera, 2.xii.1995, 2exs. Dongardeo, Ghatpendri Beat, 3.xii.1995, 1 ex. Hatigate, 12.xii.1995, R.M. Sharma & Party; 1 ex. Dakshin Bodhalzeera, 5.x.1996, 1 ex. Phefdikund, 6.x.1996, 1 ex. Kolitmara, 7.x.1996, A.S. Mahabal & Party; 1 ex. Gawlighat, 24.ix.1997, D.B. Bastawade & Party.

22. *Tirumala limniace* (Cramer)
The Blue Tiger

1775. *Papilio limniace* Cramer, *Pap. Exot.*, 1 : 92
 1932. *Danais limniace*: Evans, *Identification of Indian Butterflies* : 87
 1947. *Danaus limniace*: Talbot, *Fauna Brit. India Butterflies*, 2 : 31
 1987. *Tirumala limniace*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 314
 1993. *Tirumala limniace*: Varshney, *Oriental Insects*, 27 : 366

Material examined : 1 ex. Nallah nr. Kolitmara, 9.xii.1995, R.M. Sharma & Party.

23. *Euploea core* (Cramer)
The Common Crow

1780. *Papilio core* Cramer, *Pap. Exot.*, 3 : 133
 1932. *Euploea core*: Evans, *Identification of Indian Butterflies* : 90
 1947. *Euploea core*: Talbot, *Fauna Brit. India Butterflies*, 2 : 67
 1987. *Euploea core*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 315
 1993. *Euploea core*: Varshney, *Oriental Insects*, 27 : 367

Material examined : 2 exs. Kolitmara, 9.xii.1994, P.P. Kulkarni & Party; 2 exs. Kosum Nallah, 16.ix.1995, 1 ex. Sedaldam, 19.ix.1995, R.H. Kamble & Party; 3 exs. Ambakhori, 1.xii.1995, 2 exs. Dongardeo, Ghatpendri Beat, 3.xii.1995. 1ex. Gawlighat, 11.xii.1995, R.M.

Sharma & Party; 1 ex. Bokhari Talao, 6.x.1996, A.S. Mahabal & party; 2 exs. Kirangi Charra, 22.ix.1997, D.B. Bastawade & Party; 1 ex. Phefdikund Nallah, 11.iii.1998, 2 exs. Dongardeo Ghatpendri, 15.iii.1998, R.H. Kamble & Party; 1 ex. Ambakhori, 22.ii.1999, 1 ex. Phefdikund, 23.ii.1999, 1 ex. Hatigate, 28.ii.1999, 1 ex. Totladoh, 2.iii.1999, M.S. Pradhan & Party.

24. *Melanitis leda* (Linn.)
The Common Evening Brown

1775. *Papilio leda* Linnaeus. *Syst. Nat.*, 1 : 773

1775. *Papilio ismene* Cramer, *Pap. Exot.*, 1 : 41

1947. *Melanitis leda*: Talbot, *Fauna Brit. India Butterflies*, 2 : 366

1994. *Melanitis leda*: Varshney, *Oriental Insects*, 28 : 152

Material examined : 1 ex. Ambakhori, 1.xii.1995, 1 ex. Bodhalzeera, 2.xii.1995, 1 ex., Bokhari Talao, 5.xii. 1995, R.M. Sharma & Party; 2 exs. Ambakhori, 22.ii.1999, 1 ex. Kandrya Utar, 25.ii.1999, 3 exs. Sillari Rest house, 25.ii.1999, M.S. Pradhan & Party.

25. *Lethe rohria* (Fab.)
The Common Tree brown

1787. *Papilio rohria* Fabricius, *Mant. Ins.* 2 : 45

1905. *Lethe rohria*: Bingham, *Fauna Brit. India Butterflies*, 1 : 80

1994. *Lethe rohria*: Varshney, *Oriental Insects*, 28 : 153

Material examined : 1 ex. Kolutmara, 18.ix.1995, R.H. Kamble & Party.

26. *Mycalesis mineus* (Linn.)
The Dark Brand Bush Brown

1767. *Papilio mineus* Linnaeus, *Syst. Nat.*, 1 : 768

1947. *Mycalesis mineus*: Talbot, *Fauna Brit. India Butterflies*, 2 : 134

1994. *Mycalesis mineus*: Varshney, *Oriental Insects*, 28 : 157

Material examined : 2 exs. Bodhalzeera, 2.xii.1995, 4 exs. Dongardeo, Ghatpendri Beat, 3.xii.1995, 2 exs. Narhar, 8.xii.1995, R.M. Sharma & Party.

27. *Ypthima asterope* Klug.
The Common Three ring

1832. *Ypthima asterope* Klug. *Symb. Phys.*

1947. *Ypthima asterope*: Talbot, *Fauna Brit. India Butterflies*, 2 : 324

1994. *Ypthima asterope*: Varshney, *Oriental Insects*, 28 : 159

Material examined : 1 ex. Hatigate, 12.xi.1995, R.M. Sharma & Party; 1 ex. Phefdikund, 6.x.1996, A.S. Mahabal & Party.

28. *Ypthima huebneri* Kirby Common Four ring

1871. *Ypthima huebneri* Kirby, *Cat. Diurn. Lep.*, : 95

1947. *Ypthima huebneri*: Talbot, *Fauna Brit. India Butterflies*, 2 : 329

1987. *Ypthima huebneri*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 565

1994. *Ypthima huebneri*: Varshney, *Oriental Insects*, 28 : 159

Material examined : 1 ex. Ambakhori, 1.xii.1995, R.M. Sharma & Party.

29. *Ariadne ariadne* (Linn.) The Angled Castor

1763. *Papilio ariadne* Linnaeus, *Centur. Ins.*:

1994. *Ariadne ariadne*: Varshney, *Oriental Insects*, 28 : 167

Material examined : 2 exs. Kolutmara, 9.xii.1994, P.P. Kulkarni & Party; 1 ex. Ranidoh, 7.xii.1995, 6 exs. Narhar, 8.xii.1995, 1 ex. Nallah nr. Kolutmara, 9.xii.1995, 4 exs. Gawlighat, 1.xii.1995, R.M. Sharma & Party; 1 ex. Phefdikund, 23.ii.1999, M.S. Pradhan & Party.

30. *Phalanta phalantha* (Drury) The Common Leopard

1770. *Papilio phalantha* Drury, *Exot. Inst.*, 1 : 41

1932. *Atella phalantha*: Evans, *Identification of Indian Butterflies* : 187

1980. *Phalanta phalantha*: Varshney et. al. *Rec. zool. Surv. India, Occ. Paper No. 31* : 18.

1994. *Phalanta phalantha*: Varshney, *Oriental Insects*, 28 : 171

Material examined : 3 exs. Narhar, 8.xii.1995, 1 ex. Gawlighat, 11.xii.1995, R.M. Sharma & Party; 1 ex. Ranidoh, 19.ix.1997, D.B. Bastawade & Party; 1 ex. Sillari Talao, 18.iii.1998, R.H. Kamble & Party.

31. *Cynthia cardui* (Linn.)
The Painted Lady

1758. *Papilio cardui* Linnaeus, *Syst. Nat.* ed. 10 : 475
1932. *Vanessa cardui*: Evans, *Identification of Indian Butterflies* : 177
1971. *Cynthia cardui*: Field, *Smithson. Contr. Zool.* 84 : 37
1994. *Cynthia cardui*: Varshney, *Oriental Insects*, 28 : 175

Material examined : 1 ex. Ambakhori, 1.xii.1995, R.M. Sharma & Party.

32. *Precis iphita* (Cramer)
The Chocolate Pansy

1779. *Papilio iphita* Cramer, *Pap. Exot.* 3 : pl. 209
1932. *Precis iphita*: Evans, *Identification of Indian Butterflies* : 177
1994. *Precis iphita*: Varshney, *Oriental Insects*, 28 : 176

Material examined : 1 ex. Ambakhori, 4.xii.1994, 2 exs. Dongargaon Dongardeo, 5.xii.1994, P.P. Kulkarni & Party; 1 ex. Dongardeo, Ghatpendri Beat, 3.xii.1995, 1 ex. Narhar, 8.xii.1995, 1 ex. Gawlighat, 11.xii.1995, R.M. Sharma & Party.

33. *Junonia almana* (Linn.)
The Peacock Pansy

1758. *Papilio almana* Linnaeus, *Syst. Nat.* ed. 10 : 472
1905. *Junonia almana*: Bingham, *Fauna Brit. India Butterflies*, 1 : 361
1994. *Junonia almana*: Varshney, *Oriental Insects*, 28 : 176

Material examined : 1 ex. Ambakhori, 1.xii.1995, R.M. Sharma & party.

34. *Junonia hierta* (Fab.)
The Yellow Pansy

1798. *Papilio hierta* Fabricius, *Ent. Syst. Suppl.* : 424
1932. *Precis hierta*: Evans, *Identification of Indian Butterflies* : 176
1987. *Junonia hierta*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 569
1994. *Junonia hierta*: Varshney, *Oriental Insects*, 28 : 176

Material examined : 1 ex. Ambakhori, 1.xii.1995, R.M. Sharma & party.

35. *Junonia lemonias* (Linn.)**The Lemon Pansy**

1758. *Papilio lemonias* Linnaeus, *Syst. Nat.* ed. 10 : 473

1905. *Junonia lemonias*: Bingham, *Fauna Brit. India Butterflies*, 1 : 357

1987. *Junonia lemonias*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 570

1994. *Junonia lemonias*: Varshney, *Oriental Insects*, 28 : 176

Material examined : 2 exs. Dongargaon, Dongardeo, 5.xii.1994, P.P. Kulkarni & Party; 1 ex. Pipariya Talao, 27.ix.1995, R.H. Kamble & Party; 1 ex. Totladoh, 30.xi.1995, 2 exs. Ambakhori, 1.xii.1995, 2 exs. Bodhalzeera, 2.xii.1995, 3 exs. Dongardeo Ghatpendri Beat, 3.xii.1995, 2 exs. Narhar, 8.xii.1995, 1 ex. Hatigate, 12.xii.1995, R.M. Sharma & Party; 1 ex. Dongardeo-Ghatpendri, 15.iii.1998, R.H. Kamble & Party; 1 ex. Seetanahan, 27.ii.1999, M.S. Pradhan & Party.

36. *Junonia orithya* (Linn.)**The Blue Pansy**

1758. *Papilio orithya* Linnaeus, *Syst. Nat.* ed. 10 : 473

1905. *Junonia orithya* Bingham, *Fauna Brit. India Butterflies*, 1 : 358

1987. *Junonia orithya* Larsen, *J. Bombay Nat. Hist. Soc.*, 84 : 569

1994. *Junonia orithya*: Varshney, *Oriental Insects*, 28 : 176

Material examined : 4 exs. Bodhalzeera, 3.xii.1994, P.P. Kulkarni & Party; 1. 1ex. Ambakhori, 1.xii.1995, 1 ex. Pipariya Tank, 4.xii.1995, 1 ex. Hatigate, 12.xii.1995, R.M. Sharma & Party; 2 exs. Ranidoh, 8.x.1996, A.S. Mahabal & Party.

37. *Junonia atlites* (Linn.)**The Grey Pansy**

1763. *Papilio atlites* Linnaeus, *Centur. Ins.* : 24

1886. *Junonia atlites*: de Niceville, *Butterflies of India Burma & Ceylon* 2 : 69

1994. *Junonia atlites*: Varshney, *Oriental Insects*, 28 : 176

Material examined : 1 ex. Kirangi Charra, 6.xii.1994, P.P. Kulkarni & Party; 1 ex. Hatigate, 16.iii.1998, R.H. Kamble & Party; 1 ex. Kandrya Utar, 25.ii.1999, M.S. Pradhan & Party.

38. *Hypolimnias bolina* (Linn.)
The Great Eggfly

1758. *Papilio bolina* Linnaeus, *Syst. Nat.* ed. 10 : 479

1905. *Hypolimnias bolina*: Bingham, *Fauna Brit. India Butterflies*, 1 : 386

1994. *Hypolimnias bolina*: Varshney, *Oriental Insects*, 28 : 177

Material examined : 1 ex., Fefdikund Nallah, 2.xii.1994, P.P. Kulkarni & Party; 1 ex. Gawlighat, 11.xii.1995, R.M. Sharma & Party; 2 exs. Ranidoh, 19.ix.1997, D.B. Bastawade & Party.

39. *Hypolimnias misippus* (Linn.)
The Danaid Eggfly

1764. *Papilio misippus* Linnaeus, *Mus. Ulr.*, : 264

1905. *Hypolimnias misippus*: Bingham, *Fauna Brit. India Butterflies*, 1 : 388

1987. *Hypolimnias misippus*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 571

1994. *Hypolimnias misippus*: Varshney, *Oriental Insects*, 28 : 177

Material examined : 1 ex. Kolutmara, 9.xii.1994, P.P. Kulkarni & Party; 2 exs. Narhar, 8.xii.1995, 1 ex. Gawlighat, 11.xii. 1995, R.M. Sharma & Party.

40. *Neptis hylas* (Linn.)
The Common Sailor

1758. *Papilio hylas* Linnaeus, *Sys. Nat.*, ed. 10 : 486

1927. *Neptis hylas*: Fruhstorfer, In Seitz, *The Macrolepidoptera of the world, The Indo-Australian Rhopalocera*, 9 : 101

1994. *Neptis hylas*: Varshney, *Oriental Insects*, 28 : 178

Material examined : 1 ex. Phefdikund, 2.xii.1994, 1 ex. Ambakhori, 4.xii.1994, 2 exs. Dongargaon Dongardeo, 5.xii.1994, Kirangi Charra, 6.xii.1994, P.P. Kulkarni & Party; 2 exs. Totladoh, 30.xi. 1995, 5 exs. Ambakhori, 1.xii.1995, 1 ex. Dongardeo, Ghatpendri Beat, 3.xii.1995, R.M. Sharma & Party; 1 ex. Pawni, 26.ix.1997, D.B. Bastawade & Party; 1 ex. Phefdikund, 11.iii.1998, 1 ex. Sillari Talao, 18.iii.1998, R.H. Kamble & Party; 1 ex. Kandrya Utar, 25.ii.1999, 1 ex. Totladoh, 2.iii.1999, M.S. Pradhan & Party.

41. *Moduza procris* (Cramer)
The Commander

1777. *Papilio procris* Cramer, *Pap. Exot.*, 2 : pl. 106

1905. *Moduza procris*: Bingham, *Fauna Brit. India Butterflies* 1 : 291

1932. *Limenitis procris*: Evans, *Identification of Indian Butterflies* : 161

1994. *Moduza procris*: Varshney, *Oriental Insects*, 28 : 181

Material examined : 1 ex. Kolutmara, 9.xii.1994, P.P. Kulkarni & Party; 2 exs. Narhar, 8.xii.1995, R.M. Sharma & party.

42. *Symphaedra nais* (Forster)

The Baronet

1771. *Papilio nais* Forster, *Nov. Spec. Ins. Cent.*, 1 : 73

1932. *Euthalia nais*: Evans, *Identification of Indian Butterflies* : 157

1987. *Symphaedra nais*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 577

1994. *Symphaedra nais*: Varshney, *Oriental Insects*, 28 : 184

Material examined : 1 ex. Totladoh, 30.xi.1995, 4 exs. Ambakhori, 1.xii.1995, 2 exs. Nallah nr. Kolutmara, 9.xii.1995, R.M.Sharma & Party; 1 ex. Sedaldam, 3.x.1996, 1 ex. Ambakhori, 5.x.1996, A.S.Mahabal & Party; 1 ex. Seetanahan, 27.ii.1999, 1 ex. Totladoh, 2.ii.1999, M.S.Pradhan & Party.

43. *Euthalia lubentina* (Cramer)

The Gaudy Baron

1777. *Papilio lubentina* Cramer, *Pap. Exot.*, 2 : Pl. clv, figs. C,D

1886. *Euthalia lubentina*: de Niceville, *Butterflies of India Burma & Ceylon* 2 : 220

1994. *Euthalia lubentina*: Varshney, *Oriental Insects*, 28 : 184

Material examined : 1 ex. Gawlighat, 11.xii.1995, R.M. Sharma & Party.

44. *Charaxes solon* (Fab.)

The Black Rajah

1793. *Papilio solon* Fabricius, *Ent. Syst.* 3 : 69

1886. *Charaxes solon*: de Niceville, *Butterflies of India Burma & Ceylon* 2 : 280

1987. *Charaxes solon*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 580

1994. *Charaxes solon*: Varshney, *Oriental Insects*, 28 : 190

Material examined : 1 ex. Kosum Nallah, 16.ix.1995, R.H. Kamble & Party; 1 ex. Gawlighat, 11.xii.1995, R.M. Sharma & Party.

**45. *Acraea terpsicore* (Linn.)
The Tawny Coster**

1775. *Papilio violae* Fabricius, *Syst. Ent.*, : 460

1905. *Telchinia violae*: Bingham, *Fauna Brit. India Butterflies*, 1 : 471

1987. *Acraea terpsicore*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 580

1994. *Acraea terpsicore*: Varshney, *Oriental Insects*, 28 : 191

Material examined : 2 exs. Ambakhori, 1.xii.1995, 2 exs. Pipariya Tank, 4.xii.1995, 1 ex. Hatigate, 12.xii.1995, R.M. Sharma & Party; 1 ex. Phefdikund, 11.iii.1998, 2 exs. Pipariya Tank, 17.iii.1998, R.H. Kamble & Party; 1 ex. Ambakhori, 22.ii.1999, M.S. Pradhan & Party.

**46. *Jamides bochus* Stoll
The Dark Cerulean**

1782. *Papilio bochus* Cramer, *Pap. Exot.* 4 : 210

1819. *Jamides bochus* Hubner, *Verz. Bekannt. Schmet.* 5 : 71

1987. *Jamides bochus*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 298.

1987. *Jamides bochus*: Varshney, *Oriental Insects*, 31 : 93.

Material examined : 1 ex. Totladoh, 30.xi.1995, 1 ex. Narhar, 8.xii.1995, R.M. Sharma & Party.

**47. *Jamides celeno* (Cramer)
The Common Cerulean**

1987 *Jamides celeno*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 298

1997. *Jamides celeno*: Varshney, *Oriental Insects*, 31 : 93

Material examined : 1 ex. Ranidoh & around, 7.xii.1995, 1 ex. Hatigate & around, 12.xii.1995, R.M. Sharma & Party.

**48. *Catochrysops strabo* (Fab.)
The Forget-Me-Not**

1793. *Hesperia strabo* Fabricius, *Ent. Syst.*, 3 : 287

1907. *Catochrysops strabo*: Bingham, *Fauna Brit. India Butterflies*, 2 : 411

1987. *Catochrysops strabo*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 297

1997. *Catochrysops strabo*: Varshney, *Oriental Insects*, 31 : 93

Material examined : 2 exs. Ranidoh & around, 7.xii.1995, 2 exs. Narhar, 8.xii.1995, 1 ex. Nallah nr. Kolutmara, 9.xii.1995, R.M. Sharma & Party.

49. *Lampides boeticus* (Linn.)

The Pea Blue

1767. *Papilio boeticus* Linnaeus, *Syst. Nat.* ed. 12 : 78

1907. *Polyommatus boeticus*: Bingham, *Fauna Brit. India Butterflies*, 2 : 432

1962. *Lampides boeticus*: Cantlie, The Lycaenidae portion of Brigadier Evans, *The Identification of Indian Butterflies*, 1932 : 69

1997. *Lampides boeticus*: Varshney, *Oriental Insects*, 31 : 94

Material examined : 1 ex. Kolutmara, 9.xii.1994, P.P. Kulkarni & Party; 1 ex. Ambakhori, 1.xii.1995, 1 ex. Bokhari Talao, 5.xii.1995, 3 exs. Narhar, 8.xii.1995, 1 ex. Gawlighat, 11.xii.1995, R.M. Sharma & Party; 2 exs. Phefdikund, 21.ix.1997, D.B. Bastawade & Party; 1 ex. Dongardeo-Ghatpendri, 15.iii.1998, R.H. Kamble & Party.

50. *Leptotes plinius* (Fab.)

The Zebra Blue

1997. *Leptotes plinius*: Varshney, *Oriental Insects*, 31 : 94

Material examined : 1 ex. Narhar, 8.xii.1995, R.M. Sharma & Party.

51. *Castalius rosimon* (Fab.)

The Common Pierrot

1775. *Papilio rosimon* Fabricius, *Syst. Ent.* : 523

1890. *Castalius rosimon*: deNiceville, *Butterflies of India Burma & Ceylon* 3 : 197

1997. *Castalius rosimon*: Varshney, *Oriental Insects*, 31 : 94

Material examined : 2 exs. Bodhalzeera, 2.xii.1995, 2 exs. Dongardeo, Ghatpendri Beat, 3.xii.1995, 1 ex. Bokhari Talao, 5.xii.1995, 1 ex. Gawlighat, 11.xii.1995, 2 exs. Hatigate-Ranidoh, 12.xii.1995, R.M. Sharma & Party; 2 exs. Totladoh, 2.iii.1999, M.S. Pradhan & Party.

52. *Tarucus nara* (Kollar)

The Rounded Pierrot

1848. *Lycaena nara* Kollar, *Hugel's Kaschmir*, 4 : 421.

1890. *Tarucus nara*: deNiceville, *Butterflies of India Burma & Ceylon* 3 : 190

1987. *Tarucus nara*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 292

1997. *Tarucus nara*: Varshney, *Oriental Insects*, 31 : 95

Material examined : 1 ex. Ranidoh & around, 7.xii.1995, R.M. Sharma & Party.

53. *Zizina otis* Fab.
The Lesser Grass Blue

1997. *Zizina otis* : Varshney, *Oriental Insects*, 31 : 94

Material examined : 8 exs. Pipariya Tank & around, 4.xii.1995, R.M. Sharma & Party.

54. *Pseudozizeeria maha* (Kollar)
The Pale Grass Blue

1848. *Lycaena maha* Kollar, in *Huegel's Kashmir*, 4 : 422

1907. *Zizeeria maha*: Bingham, *Fauna Brit. India Butterflies*, 2 : 355

1997. *Pseudozizeeria maha*: Varshney, *Oriental Insects*, 31 : 96

Material examined : 1 ex. Narhar, 8.xii.1995, R.M. Sharma & Party.

55. *Zizula hylax* (Fab.)
The Tiny Grass Blue

1775. *Papilio hylax*. Fabricius, *Syst. Ent.* : 526

1907. *Zizera gaika*. Bingham, *The fauna of British India (Butterflies)*. 2 : 359

1997. *Zizula hylax*: Varshney, *Oriental Insects*, 31 : 96

Material examined : 1 ex. Hatigate & around 12.xii.1995, R.M.Sharma & Party.

56. *Celastrina lavendularis* Moore
The Plain Hedge Blue

1997. *Celastrina lavendularis*: Varshney, *Oriental Insects*, 31 : 99

Material examined : 1 ex. Hatigate& around, 12.xii.1995, R.M. Sharma & Party.

57. *Euchrysops cnejus* (Fab.)
The Gram Blue

1798. *Hesperia cnejus* Fabricius, *Ent. Syst. Suppl.* : 480

1962. *Euchrysops cnejus*: Cantlie, The Lycaenidae portion (except the Arhopala group) of Brigadier Evans, *The Identification of Indian Butterflies*, 1932 : 65

1997. *Euchrysops cnejus*: Varshney, *Oriental Insects*, 31 : 104

Material examined : 2 exs. Dongardeo, Ghatpendri Beat, 3.xii.1995, 2 exs. Ranidoh & around, 7.xii.1995, 1 ex. Narhar, 8.xii.1995, 2 exs. Nallah nr. Kolutmara, 9.xii.1995, 1 ex. Gawlighat & around, 11.xii.1995, 4 exs. Hatigate & around, 12.xii.1995, R.M. Sharma & Party, 2 exs. Sedal dam & around, 3.x.1996, A.S. Mahabal & Party.

58. *Freyeria trochylus* (Freyer)
The Grass Jewel

1997. *Freyeria trochylus*: Varshney, *Oriental Insects*, 31 : 107

Material examined : 1ex. Dongardeo, Ghatpendri Beat, 3.xii.1995, 2 exs. Pipariya Tank & around, 4.xii.1995, 1 ex. Ranidoh & around, 7.xii.1995, 1 ex. Gawlighat & around, 11.xii.1995, R.M. Sharma & Party, 2 exs. Dakshin Bodhalzeera & around, 25.ix.1997, D.B.Bastawade & Party.

59. *Spindasis vulcanus* (Fab.)
The Common Silverline

1775. *Papilio vulcanus* Fabricius, *Syst. Ent.* : 519

1890. *Aphnaeus vulcanus*: deNiceville, *Butterflies of India Burma & Ceylon*, 3 : 349

1997. *Spindasis vulcanus*: Varshney, *Oriental Insects*, 31 : 110

Material examined : 1 ex. Hatigate-Ranidoh, 12.xii.1995, R.M. Sharma & Party; 1 ex. 2.iii.1999, M.S. Pradhan & Party.

60. *Hasora chromus* (Fab.)
The Common Banded Awl

1957. *Hasora chromus*: Wynter-Blyth, *Bombay nat. Hist. Soc.* : 467

1987. *Hasora chromus*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 581

Material examined : 1 ex. Gawlighat & around, 11.xii.1995, R.M.Sharma & Party.

61. *Badamia exclamationis* (Fab.)
The Brown Awl

1775. *Papilio exclamationis*: Fabricius. *Syst. Ent.*, : 530

1957. *Badamia exclamationis*: Wynter-Blyth, *Bombay nat. Hist. Soc.* : 470

1987. *Badamia exclamationis*: Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 582

Material examined : 1 ex. Nallah nr. Kolutmara, 9.xii.1995, 1 ex. Gawlighat & around, 11.xii.1995, R.M. Sharma & Party.

62. *Spialia galba* (Fab.)

The Indian Skipper

1957. *Spialia galba* : Wynter-Blyth, *Bombay nat. Hist. Soc.* : 466

1988. *Spialia galba* : Larsen, *J. Bombay nat. Hist. Soc.*, **85** : 28

Material examined : 1 ex. Pipariya Tank, 4.xii.1995, 1 ex. Gawlighat, 11.xii.1995, R.M. Sharma & Party.

63. *Pseudocladenia indrani* (Moore)

The Tricolour Pied Flat

1932. *Coladenia indrani*.: Evans, *The Identification of Indian Butterflies* : 341

2000. *Pseudocladenia indrani*: Kunte, *Butterflies of Peninsular India* : 201.

Material examined : 1 ex. Ambakhori & around, 23.ix.1997, D.B. Bastawade & Party.

64. *Telicota ancilla* Mabille

The Dark Palm Dart

1949. *Telicota ancilla* Evans, *A catalogue of Hesperiiidae from Europe*

1981. *Telicota ancilla*: Varshney *et al.*, *Rec. zool. Surv. India, Occ. Paper No.* **31** : 12

2000. *Telicota ancilla*: Kunte, *Butterflies of Peninsular India* : 217

Material examined : 2 exs. Ambakhori, 1.xii.1995, 1 ex. Bodhalzeera, 2.xii.1995, 6 exs. Gawlighat & around, 11.xii.1995, R.M. Sharma & Party.

65. *Baoris sinensis* (Moore)

The Large Branded Swift

1957. *Baoris sinensis*: Wynter-Blyth, *Bombay nat. Hist. Soc.* : 485

1988. *Spialia galba*: Larsen, *J. Bombay nat. Hist. Soc.*, **85** : 37

Material examined : 2 exs. Gawlighat & around, 11.xii.1995, R.M. Sharma & party.

SUMMARY

The paper embodies the systematic account of butterflies and skippers collected during different surveys conducted by Western Regional Station, Pune in the Pench National Park, Maharashtra State.

The study resulted in the enumeration of 65 species belonging to 52 genera spread over seven families viz. Papilionidae (6), Pieridae (13), Danaidae (4), Satyridae (5), Nymphalidae (17), Lycaenidae (14) and Hesperidae (6). The figures in paranthesis indicate the number of species treated under each family.

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CHILOPODA : CENTIPEDE

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INTRODUCTION

Pench National Park, now recognised as Pench Tiger Reserve is situated 85 kms. NW. of Nagpur, on the border of Maharashtra and Madhya Pradesh States. It provides beautiful niches and terrestrial habitats for centipedes in mixed deciduous forest like Kirangi sarra, Totla doh, Ambakhori, Fephadikund and Ranidoh.

Literature on Centipedes of India is scanty except a study of Scolopendrids of Deccan by Jangi & Dass (1984) and Khanna (2001) exclusively provided checklist of Indian centipedes. Khanna & Yadav (1997) dealt with an account of centipedes of the genus *Scolopendra*. As early as in 1955 Jangi has studied centipedes of Nagpur with description of new species. Pench National Park comes in the vicinity of Nagpur, hence species from the literature are considered here.

The present paper deals with an inventory of 12 species occurring in the Pench National Park comprising 6 genera, 3 tribes, 2 subfamilies under 2 families of the order Scolopendromorpha.

SYSTEMATIC LIST OF CENTIPEDE SPECIES REPORTED FROM PENCH NATIONAL PARK

(* Asterisk indicate species actually collected)

Superphylum ARTHROPODA
Phylum UNIRAMIA
Subphylum MYRIAPODA
Class CHILOPODA
Subclass EPIMORPHA
Order SCOLOPENDROMORPHA
Family SCOLOPENDRIDAE
Subfamily SCOLOPENDRINAE
Tribe **Scolopendrini**

1. *Scolopendra amazonica* (Bucherl)

2. *Scolopendra morsitans* Linnaeus *
3. *Scolopendra hardwickei* Newport
4. *Cormocephalus nigrificatus* Verhoeff. *
5. *Cormocephalus westwoodi* (Newport) *
6. *Cormocephalus dentipes* Pocock *
7. *Cormocephalus pilosus* Jangi

Tribe **Asanadini**

8. *Asanada indica* Jangi & Dass
9. *Asanada sokotrana* Pocock

Subfamily OTOSTIGMINAE

Tribe **Otostigmini**

10. *Rhysida nuda subnuda* Jangi
11. *Rhysida longipes longipes* (Newport)

Family CRYPTOPIDAE

12. *Cryptops orientalis* Jangi

1. *Scolopendra amazonica* (Bücherl)

1946. *Scolopendra morsitans amazonica* Bucherl, *W. Mem. Inst. Butantan*, **19** : 135-137.
1959. *Scolopendra amazonica*, Jangi, *Ent. News*; **70** : 257-259.
1984. *Scolopendra amazonica*, Jangi & Dass, *J. Scient. Indl. Res.*, **43** (2) : 27-54.
1997. *Scolopendra amazonica*, Khanna & Yadav, *Rec. zool. Surv. India*, **96** (1-4) : 211-220.
2000. *Scolopendra amazonica*, Rathnasabapathy & Yadav, *Zoo's Print J.*, **15** (9) : 327-328.
2001. *Scolopendra amazonica*, Khanna, *Ann. For.* **9** (2) : 199-219.

Diagnostic characters : Body elongate, flat with 21 pairs of legs, spiracles triangular. Cephalic plate overlapping first tergite. 20th pair of legs without tarsal spur, prefemur of anal legs ventrally with 3 rows of 3 spines in each.

Distribution : Cosmopolitan. Throughout India : Nagpur (Jangi, 1955) Melghat.

Status : Common.

Remarks : Centipedes are nocturnal, carnivorous, cryptic creatures. This species is found concealed beneath stones, available in the rainy season Yadav (1993a).

***2. *Scolopendra morsitans* Linnaeus**

1758. *Scolopendra morsitans* Linnaeus, *Syst. nat.*, **10** : 638.
1955. *Scolopendra morsitans*, Jangi, *Ann. Mag. Nat. Hist.*, **8** : 69-80.
1959. *Scolopendra morsitans*, Jangi, *Ent. News.*, **70** : 257-259.
1984. *Scolopendra morsitans*, Jangi & Dass, *J. Scient. Indl. Res.*, **43** (2) : 27-54.
1997. *Scolopendra morsitans*, Khanna & Yadav, *Rec. zool. Surv. India*, **96** (1-4) : 211-220.
2000. *Scolopendra morsitans*, Rathinasabapathy & Yadav, *Zoo's Print J.*, **15** (9) : 327-328.
2001. *Scolopendra morsitans*, Khanna, *Ann. For.* **9** (2) : 199-219.

Diagnostic characters : Large, robust specimens, 20th pair of legs having tarsal spur. Anal leg prefemur with 3 rows of 3 spines in ventral side.

Material examined : 1 exs, Ranidoh, 19-09-1997, D.B. Bastawade; 1 ex., Fefdikund, 21-09-1997, D.B. Bastawade.

Distribution : Cosmopolitan. Throughout India; Nagpur (Jangi 1955), Melghat.

Status : Common.

Remarks : *S. morsitans* Linn. and *S. amazonica* (Bucherl) are sympatric (sibling) species. In males anal leg prefemur, femur and tibia are dorsally flat and marginate while in females, rounded. The specimens are colourful (Yadav, 1999).

3. *Scolopendra hardwickei* Newport

1844. *Scolopendra hardwickei* Newport, *Ann. Nat. Hist.*, **13** : 97.
1955. *Scolopendra hardwickei*, Jangi, *Ann. Mag. Nat. Hist.*, **12** (8) : 69-80.
1984. *Scolopendra hardwickei*, Jangi & Dass, *J. Scient. Indl. Res.*, **43** (2) : 27-54.
1997. *Scolopendra hardwickei*, Khanna & Yadav, *Rec. zool. Surv. India*, **96** (1-4) : 211-220.
1997. *Scolopendra hardwickei*, Rathinasabapathy, and Daniel, *Zoo's Print*, **12** (8) : 1.
2000. *Scolopendra hardwickei*, Rathinasabapathy & Yadav, *Zoo's Print J.*, **15** (9) : 327-328.
2001. *Scolopendra hardwickei*, Khanna, *Ann. For.* **9** (2) : 199-219.

Diagnostic characters : Body banded with alternate yellow, black, dark green bands. Anal legs ventrally without spines.

Distribution : India : Andaman and Nicobar Islands, Madhya Pradesh, Maharashtra; Melghat, Gujarat, Tamil Nadu.

Status : Uncommon.

Remarks : It is an interesting colourful species, measuring about 10-12 cm in length.

***4. *Cormocephalus nigrificatus* Verhoeff**

1937. *Cormocephalus nigrificatus* Verhoeff, *Zool. Anz. Leipzig*, **120** : 81.

1984. *Cormocephalus nigrificatus*, Jangi & Dass, *J. Sci. Indl. Res.*, **43** (2) : 27-54.

2001. *Scolopendra nigrificatus*, Khanna, *Ann. For.*, **9** (2) : 199-219.

Diagnostic characters : Cephalic plate posteriorly with 2, anteriorly diverging sutures, legs without tarsal spurs. 21st tergite without longitudinal median sulcus. Lateral margination absent on tergites anterior to 21. Maxillipedes without preformal process.

Material examined : 2 exs., Kirangi sarra, 6-12-1994, P.P. Kulkarni.

Distribution : India : Kerala : Trivendrum, Maharashtra, Melghat.

Status : Uncommon.

Remarks : Although it is restricted to Western Ghats, this species has extended its range of distribution in Pench area. These are long slender specimens.

***5. *Cormocephalus westwoodi* (Newport)**

1845. *Cormocephalus westwoodi* Newport, *Trans. Linn. Soc.*, London, **19** : 349-439.

1984. *Cormocephalus westwoodi*, Jangi & Dass, *J. Scient. Indl. Res.*, **43** (2) : 27-54.

2001. *Cormocephalus westwoodi*, Khanna, *Ann. For.* **9** (2) : 199-219.

Diagnostic characters : The 21st tergite with a complete longitudinal median sulcus. Lateral tergal margination being anywhere from 2nd to 19th tergite, 6½ to 13 basal antennal segments glabrous.

Material examined : 1 ex, Fefdikund, 02-12-1994, P.P. Kulkarni.

Distribution : Deccan, Melghat.

Status : Uncommon.

Remarks : It is an old world species.

***6. *Cormocephalus dentipes* Pocock**

1891. *Cormocephalus dentipes*, Pocock, *Ann. Nat. Hist. Ser.*, **6**, **7** : 66.

1984. *Cormocephalus dentipes*, Jangi & Dass, *J. Scient. Indl. Res.*, **43** (2) : 27-54.

1994. *Cormocephalus dentipes*, Khanna, *Rec. zool. Surv. India, Fauna Conserv. Area, Rajaji Natl. Park*, **5** : 237-243.

2001. *Cormocephalus dentipes*, Khanna, *Ann. For.*, **9** (2) : 199-219.

Diagnostic characters : Lateral tergal margination present anterior to tergite 21. 21st tergite without longitudinal median sulcus. Anal legs tuberculate in males.

Material examined : 2 exs., Ambakhori, 22-02-1999, M.S. Pradhan. **Distribution** : India : Andaman Nicobar Islands; Delhi, Himachal Pradesh, Meghalaya, Mizoram, Madhya Pradesh, Orissa, West Bengal, Uttar Pradesh, Uttaranchal.

Status : Uncommon.

Remarks : These are small centipedes measuring 2-3 cm. in length.

7. *Cormocephalus pilosus* Jangi

1955. *Cormocephalus pilosus* Jangi, *Ann. Mag. nat. Hist. Ser.* **12** (8) : 69-80.

1984. *Cormocephalus pilosus*, Jangi & Dass, *J. Scient. Indl. Res.*, **43** (2) : 27-54.

1993. *Cormocephalus pilosus*, Yadav, *Rec. zool. Surv. India*, **93** (1-2) : 165-174.

2001. *Scolopendra pilosus*, Khanna, *Ann. For.*, **9** (2) : 199-219.

Diagnostic characters : The 21st tergite with a complete longitudinal median sulcus. Lateral tergal margination being anywhere. Lesser number of antennal segments glabrous. Coxopleural process present. Anal leg pilose with spurred claw.

Distribution : India : Maharashtra,; Melghat, Amravati Dist., Nagpur Dist; Andhra Pradesh, Karnataka, Madhya Pradesh, Goa, Pondicherry and Tamil Nadu.

Status : Common.

Remarks : It is easily recognised by its pilose anal legs.

Tribe Asanadini

8. *Asanada indica* Jangi & Dass

1984. *Asanada indica* Jangi & Dass, *J. Scient. Indl. Res.*, **43** (2) : 27-54.

1993. *Asanada indica*, Yadav, *Rec. zool. Surv. India*, **93** (1-2) : 165-174.

2002. *Asanada indica*, Khanna, *Ann. For.*, **9** (2) : 199-219.

Diagnostic characters : Body elongate, small (about 2 cm. in length) slender, terminal leg segment without coxopleural pores. Anal legs without spines, claw serrated. Anal leg possesses with dorsal groove. Short antennae 17 segmented, 6 glabrous. Legs without tarsal spur. Legs 1-20 pairs with 2 claw spurs. Anal legs short, thick. Paired longitudinal median sulcus complete on 20th tergite. 21st tergite more than twice as broad as long. Longitudinal median sulcus groove present on posterior half of anal leg prefemur and femur.

Distribution : India : Maharashtra, Melghat.

Status : Uncommon.

Remarks : These smaller centipedes are generally found below cowdung, in termite mounds etc.

9. *Asanada sokotrana* Pocock.

1891. *Asanada sokotrana* Pocock, *Ann. Mag. nat. Hist.*, 7 : 51-68 & 221-231.

1984. *Asanada sokotrana*, Jangi & Dass, *J. Scient. Indl. Res.*, 43 (2) : 27-54.

1993. *Asanada sokotrana*, Yadav, *Rec. zool. Surv. India*, 93 (1-2) : 165-174.

2001. *Asanada skotrana*, Khanna, Checklist, *Ann. For.*, 9 (2) : 199-219.

Diagnostic characters : Paired longitudinal median sulcus complete on tergite 21st, which is more than twice as broad as long. Longitudinal median sulcus groove present throughout on anal leg femur.

Distribution : Maharashtra : Nagpur District, Melghat, Aurangabad, Parbhani and Pune District; Kerala and Tamil Nadu.

Status : Uncommon.

Remarks : These centipedes occur in the rainy season, remain concealed beneath the stones and dry barks.

Subfamily OTOSTIGMINAE

Tribe Otostigmini

10. *Rhysida nuda subnuda* Jangi

1955. *Rhysida nuda subnuda* Jangi, *Ann. Mag. nat. Hist.*, Ser. 12 (8) : 69-80.

1984. *Rhysida nuda subnuda*, Jangi and Dass, *J. Scient. Indl. Res.*, 43 (2) : 27-54.

2000. *Rhysida nuda subnuda*, Rathinasabapathy & Yadav, *Zoo's Print J.* 15 (9) : 327-328.

2001. *Rhysida nuda subnuda*, Khanna, *Ann. For.*, 9 (2) : 199-219.

Diagnostic character : 10 pairs of round spiracles are present. Maxillipedes with medium dental process. Tergites having Permedian longitudinal sutures. These are long sturdy brownish grey - greenish black coloured actively wandering centipedes; 20th pair of legs with tarsal spur and 1st pair with femoral.

Distribution : India : Andhra Pradesh, Karnataka, throughout Maharashtra, Nagpur (Jangi and Dass, 1984); Melghat, Orissa, Tamil Nadu.

Status : Common.

Remarks : These centipedes are found below stones, dry cowdungs, noticed abundant in the monsoon.

11. *Rhysida longipes longipes* (Newport)

1845. *Rhysida longipes* Newport, *Trans. Linn. Soc., London*, 19 : 349-439.

1955. *Rhysida longipes longipes*, Jangi, *Ann. Mag. Nat. Hist., Ser.*, 12, 8 : 69-88.

1984. *Rhysida longipes longipes*, Jangi & Dass, *J. Scient. Indl. Res.*, 43 (2) : 27-54.

2001. *Rhysida longipes longipes*, Khanna, *Ann. For.*, 9 (2) : 199-219.

Diagnostic character : Tergites with para median sutures and marginate laterally, coxoploural process with lateral spinc. Profemur of anal legs with postcromedical spiny process.

Distribution : India : Goa, Madhya Pradesh, Maharashtra : Nagpur; Melghat, Amravati District; Karnataka.

Status : Common In Deccan area.

Remarks : It occurs abundantly in monsoon months (breeding season) below stones and boulders nearby waterbody.

Family CRYPTOPIDAE

12. *Cryptops orientalis* Jangi

1955. *Cryptops Orientalis* Jangi, *Ann. Mag. Nat. Hist. Ser.*, 12, 8 : 69-80.

Diagnostic character : Blackish brown to yellowish coloured blind centipedes. Two curved markings present on head. Tergites setose with medium longitudinal sulcus and transverse sulci. Walking legs 1-19 with bisegmented tarsi, prefemur of anal legs ventrally, thorny with medial tooth and 9 other saw like; 1st tarsus with 3 saw like teeth.

Distribution : India : Maharashtra, Nagpur; Melghat.

Status : Common.

Remarks : These are cryptic, subterranean, blind centipedes.

DISCUSSION

Out of 35 species of centipedes found in Maharashtra State (Khanna, 2001), Pench National Park constitutes 12 species comprising 6 genera, 3 tribes, 2 subfamilies under two families viz. *Scolopendridae* and *Cryptopidae* (blind centipedes).

Most of the collection was made in monsoon and winter months. The genus *Cormocephalus* constituting smaller centipedes of the length 2-3 cms. forms predominant group. The genera *Scolopendra*, *Asanada* and *Rhysida* (Otostigminae) are less represented while *Digitipes*, *Otostigmus* and *Ethmostigmus* could not be collected, while in the Western Ghats there are about 42 species, Yadav (1993b).

Out of 35 species of centipedes, 4 were actually collected, and 8 have been revealed from literature (Jangi, 1955, Jangi & Dass, 1984). It is presumed that still more species may be available in the forest area of Pench National Park.

SUMMARY

The Pench National Park, harbours 12 species of centipedes which need immediate protection.

ACKNOWLEDGEMENTS

The author is grateful to the Director, Zoological Survey of India; to Dr. Anil S. Mahabal, Scientist 'E' and Officer-in-Charge, Western Regional Station, Zoological Survey of India, Pune for the facilities and to Dr. Vinod Khanna, Asstt. Zool., Northern Regional Station, Zoological Survey of India, Dehra Dun for reviewing the paper.

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- Yadav, B.E. 1993b. Scolopendridae (Chilopoda) of Western Ghats with some first records from the Stae of Maharashtra, India. *Rec. zool. Surv. India*, **93** (3-4) : 321-328.
- Yadav, B.E. 1999. Colour pattern in scolopendrid centipedes. *Zoo's Print J.*, **14** (8) : 96.

SCORPIONIDA, ARANEAE AND SOLIFUGI

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INTRODUCTION

So far there is no report on Arachnid fauna from Pench National Park, Dist. Nagpur, Maharashtra. The present inventories and the systematic reports are being made to the fauna belonging to Arachnid orders Scorpionida, Araneae (Spiders) and Solifugi. About 232 specimens belonging Scorpionida (37), Araneae (Spiders) (192) and Solifugi (3) were studied for their identification and other details. The other Arachnid orders such as Phalangida and Chelonethi (Pseudoscorpionida) have been collected but are not being reported due to the want of expert workers, literature and revisionary studies of the types of known species from India. Present studies report 5 species of Sorpiones belonging to 2 Families, 22 species of Araneae (Spiders) of 7 Families and 1 species of Solifugi under the Family Galeodidae. There are some species of Spiders, which have been identified up to family and generic taxa due to the want of literature and key for identifications but are being reported here to note their existence in the reserve area of Pench National Park.

INVENTORY OF SPECIES REPORTED

Class ARACHNIDA

Order SCORPIONIDA

Family BUTHIDAE

Subfamily BUTHINAE

1. *Mesobuthus tamulus tamulus* (Fabricius) 19 ♀♀, 12 ♂♂
2. *Lychas (Endotrichus) laevifrons* Pocock 2 ♂♂.
3. *Stenochirus sarasinorum* Pocock 1 ♂

Subfamily CENTRURINAE

4. *Isometrus (Reddyanus) rigidulus* (Pocock) 1 ♀, 1 ♂

Family SCORPIONIDAE

5. *Heterometrus (Chersonesometrus) fulvipes* (Koch) 1 ♀.

6. *Heterometrus (Chersonesometrus) granulomanus* Couzjin 1 ♂

Order ARANEAE

Family ARANEIDAE

7. *Nephila maculata* (Fabricius) 56 ♀♀, 13 ♂♂.

8. *Neoscona theis* (Walkanaer) 1 ♀.

9. *Neoscona laglaize* (Simon) 2 ♀♀.

10. *Neoscona lugubris* (Walkanaer) 1 ♀.

11. *Neoscona excelsus* (Simon) 1 ♀, 1 ♂.

12. *Neoscona mukerjei* Tikader 2 ♀♀, 5 ♂♂.

13. *Cyclosa hexatuberculata* Tikader & Bal 6 ♀♀.

14. *Cyclosa moonduensis* Tikader & Bal 2 ♀♀.

15. *Argiope aemula* (Blackwall) 5 ♀♀.

16. *Argiope pradhani* Sinha 1 ♀, 1 ♂.

17. *Leucauge decoratus* (Blackwall)

18. *leucauge pondae* Tikader 2 ♀♀.

Family ERESIDAE

19. *Stegodyphus sarasinorum* Karsch 1 ♀.

Family THOMISIDAE

20. *Thomisus sarojii* Basu 1 ♀.

Family LYCOSIDAE

21. *Lycosa phipsoni* Pocock 1 ♀.

22. *Hippasa partita* (Cambridge) 2 ♀♀.

23. *Pardosa sumatrana* (Thorell) 1 ♀.

24. *Pardosa birmanica* Simon 1 ♀.

Family PHOLCIDAE

25. *Crossopriza lyoni* (Blackwall) 2 ♀♀.

26. *Artema atlanta* Walckenaer 1 ♀.

Family TETRAGNATHIDAE

27. *Tetragnatha mandibulata* Walckenaer 6 ♀♀, 4 ♂♂.

Family OXYOPIDAE

28. *Oxyopus naliniae* Gajbe 1 ♀.

Family PALPIMANIDAE

29. *Palpimanus vultuosus* Simon 2 ♀♀.

Family OONOPIDAE

30. *Triaeris melghaticus* Bastawade 3 ♀♀, 1 ♂♂.

Order SOLIFUGI

Family GALEODIDAE

31. *Galeodes indicus* Pocock 3 ♀♀.

SYSTEMATIC ACCOUNT OF SPECIES REPORTED

Class ARACHNIDA

Order SCORPIONIDA

Family BUTHIDAE

Subfamily BUTHINAE

Genus *Mesobuthus* Vachon

1. *Mesobuthus tamulus tamulus* (Fabr.)

1798. *Buthus tamulus* : Frabricius, *Syst. Suppt.*, : 294.

1900. *Buthus tamulus tamulus* : Pocock, *Fauna of Brit. India, Arachnida*, : 23.

1973. *Mesobuthus tamulus tamulus* : Vachon, *Bull. Mus. natn. Hist. nat., paris*, 3e ser., Zool. **104** (140) : 857-958.

1983. *Mesobuthus tamulus tamulus* : Tikader & Bastawade, *Fauna of India, Scorpions*, **3** : 1 673.

Common name : Yellow Scorpion.

Local name : Pivala Vinchu (Marathi), Chol (Karnataka), Bichhi (Bangla).

Diagnostic characters : Body yellowish-red, darker on middle and sub-lateral portions of mesosomal tergites and prosomal and metasomal carinae. Body size ranges between 60-80 mm, Pectinal teeth count 25 -35, may reach up to 40 in case of ♂. Pedipalps slender, narrow

on manus in ♀ but more robust and globular in ♂, with 'A' type Trichobothria of β pattern on femora. Males little smaller and slender in body size.

Locality : Entire Pench National Park.

Material examined : 16 ♀♀, 8 ♂♂; *Coll. Dr. R. H. Kamble*, Loc. Ranidoh, Dt. 12.03.1998, Reg. No. I/2817; *Coll. Dr. M. S. Pradhan*, Loc. Hattigota, dt. 28.09.1994, Reg. No. I/2181; *Coll. Dr. S. G. Patil*, Loc. Ambakhori, dt.03.05.1997, Reg. No. I/2793; *Coll. Dr. D. B. Bastawade*, Loc. Bodazira, Dt. 20.09.1997, Reg. No. I/2775, Loc. Pawani, dt. 26.09.1997, Reg. No. I/2773, Loc. Ambakhori, Dt. 23.09.1997, Reg. No. I/2778, Loc. Hattigota, Dt. 27.09.1997, Reg. No. I/2779; *Coll. Dr. R. M. Sharma*, Loc. Fulzeri, Dt. 13.12.1995, Reg. No. I/2501.

Sightings : Actually sighted and collected from 25 different places in Reserve area.

Distribution : All over Indian sub-continent, could be recognized in 4 sub-species.

Status : Very commonly occurring species.

Habits and habitats : Mostly found in drier areas, hide under smaller to medium size stones, boulders, occasionally under bricks, cow dung and rarely in burrows and loose crevices. Common intruders of human settlements, remain in dark and undisturbed corners of houses. Sting haemotoxic, some times fatal to children and weak persons.

Genus *Lychas* C. Koch

2. *Lychas (Endotrichus) laevifrons* Pocock

1897. *Lychas laevifrons* Pocock, *J. Bombay nat. Hist. Soc.*, **11** : 113.

1983. *Lychas (Endotrichus) laevifrons* : Tikader & Bastawade., *Fauna of India, Scorpions*, **3** : 79-85.

Common name : Brown Scorpion.

Local name : Rakhat Vinchu (Marathi).

Diagnostic characters : Body size medium, color yellowish-dark brown to blackish, prosoma more darker with few yellow spots, mesosomal tergites with 4 darker and 5 yellowish bands, metasoma more darker on last two segments and telson, sting with a sub-aculear spine, carapace with no carinae but granular sparsely throughout, tergite I-VI also with only weak median carina each and more granular on lateral portions, metasomal segments carinated and almost all carinae evenly and minutely granular but more granular and crenulate on last two segments, pectinal teeth 20-22 in number, 'A' type trichobothria with β pattern on femora and of *Endotrichus* sub-type.

Material examined : 2 ♂♂.

Distribution : This species occurs fairly common in Gujarat, Madhya Pradesh, Bihar, West Bengal, Orissa and Northern Maharashtra (Vidarbha region and rarely in Southern Maharashtra).

Status : Rare occurrence, first authentic report from Melghat in particular.

Habit and habitats : Normally arboreal in habit, hides under loose barks of large to medium size trees at 4-6' high, some times perverted to lead terrenian habits under medium to small stones and boulders. Sting toxicity much less and non-fatal.

Genus *Stenochirus* Pocock

3. *Stenochirus politus* Pocock

1899. *Stenochirus politus* : Pocock, *J. Bombay nat. Hist. Soc.*, 12 : 153 158.

1983. *Stenochirus politus* : Tikader & Bastawade, *Fauna of Indian, Scorpions*, 3 : 153-58.

Common name : Black Scorpion.

Local name : Kala Vinchu (Marathi).

Diagnostic characters : Body size medium to small, color dark brown to black with light spots on prosoma and mesosomal tergite I-VI, body surface smooth and finely punctate, metasoma smooth carinae obsolete, posterior IV and V segments wider than long with only lobate inferior lateral carinae, sting vesicle pyriform twice as long as deep; Pedipalp manus slender 'A' type Trichobothria with α pattern on femora. Pectinal teeth count 15/15.

Locality : Pench National Park.

Material examined : 1 ♂ *Coll. Dr. S. G. Patil*, Loc. Ambakhori, Dt. 03.05.1997, Reg. No. I/2793.

Sightings : Actually collected from above locality.

Distribution : INDIA : Near Chennai, Tamil Nadu (unpublished data), Kanara District, Karnataka, Melghat, Amaravati District, Maharashtra, Mandala National Park, Madya Pradesh.

Status : Very rarely occurring species.

Habits and habitats : Not exactly known. Probably inhabit through loosely fixed rocks and crevices and might be preferring to stay in loose soil between the stones and crevices or in close association of roots and rocks. Recently known an unusual case of house intrusion at Channai by R. Whitekar and Ashok Captain.

Genus *Isometrus* Hemp. & Ehren.

4. *Isometrus (Reddyanus) rigidulus* Pocock

1897. *Isometrus rigidulus* : Pocock, *J. Bombay nat. Hist. Soc.*, 11 : 113.

1983. *Isometrus (Reddyanus) rigidulus* : Tikader & Bastawade., *Fauna of India, Scorpions*, 3 : 262-267.

Common name : Scorpion.

Local name : Vinchu (Marathi).

Diagnostic characters : Body size small, color blakish with yellow stripes on mesosomal tergites, variegated on prosoma and darker on metasomal carinae but paler on pedipalps and legs. Pectinal count 14-15, males with more robust manus and some times granular, 'A' type Trichobothria with β pattern on femora and sub-type of *Reddyanus*. Sting with triangular sub-aculear spine.

Locality : Pench National Park.

Material examined : 1♀, 1♂ Coll. Dr. R. H. Kamble, Loc. Ranidoh, Dt. 12.03.1998, Reg. No. I/2828.

Sighting : Actually sighted, collected and studies from above localities in reserve area.

Distribution : INDIA : Melghat Tiger Project, Maharashtra and Gwalior, Madya Pradesh.

Status : Rarely occurring species.

Habits and habitats : Normally found under small stones and boulders and rarely under loose barks of large trees of different forest plant species at 5 to 6' height. This specimen was collected from under bark of *Ficus glomeratus*. Nothing is known about its toxicity and toxin.

Family SCORPIONIDAE
Subfamily SCORPIONINAE

Genus *Heterometrus* Hemp. & Ehrem.

Subgenus *Chersonesometrus* Counzjin

5. *Heterometrus (Chersonesometrus) fulvipes* (Koch)

1838. *Palamnaeus fulvipes* : C. Koch, *Arachn.*, 4 : 45.

1900. *Palamnaeus fulvipes bengalensis* : Pocock, *Fauna Brit. India: Arachnida* : 89.

1983. *Heterometrus (Chersonesometrus) fulvipes* : Tikader & Bastawade. *Fauna of India, Scorpions*, 3 : 599-603.

Common name : Black Scorpion.

Local name : Ingali (Marathi), Kakada Bichhi (Bangla).

Diagnostic Characters : Large Scorpion, body measuring up to 90 mm in length, color dark black except telson and legs, carapace smooth to weakly granular, notched on middle anterior margin deeply, mesosomal tergites weakly granular on lateral margins otherwise smooth, metasoma stout and strong with robust telson having strongly curved sharp aculeus. Pedipalps exceptionally

large, expanded and dorsal surface convexed with few larger granules, 'C' type trichobothria with 3 Ventrals on Patellae. Pectines well developed, yellow and teeth count 13/13. Spine formulae for Tarsomere II for Legs I - IV : 3/5 3/5 , 3/5 3/5, 4/5 4/5 and 4/6 4/6.

Locality : Pench National Park.

Material examined : 1♀ *Coll. Dr. M. S. Pradhan*, Loc. Chikhalkhari Nalha, Dt. 06.10.1994, Reg. No. I/2183.

Sighting : Actually collected and studied from above localities.

Distribution elsewhere : INDIA : Ajmer Dist., Rajasthan, Panch Mahal and Kathiawar Dists., Gujarat; Talegaon, Malegaon, Niphad, Chandoor, Sinnar, Dist. Nasik, Chanda, Dist. Chandrapur, Chalisgaon, Dist. Jalgaon, Melghat Tiger Project, Dist. Amravati and Mumbai in Maharashtra.

Status : Rarely encountered species.

Habits and habitats : Truly burrowing species, prepares tunnels up to 10 - 11" deep in soft loose soil, prefers support of large to medium sized boulders on hill side slopes. Active burrow making during pre and post monsoon seasons.

6. *Heterometrus (Chersonesometrus) granulomanus* Couzijn

1981. *Heterometrus (Chersonesometrus) granulomanus* Couzijn, *Zool. Verin.*, **184** : 142.

1982. *Heterometrus (Chersonesometrus) granulomanus* : Tikader & Bastawade, *Fauna of India, Scorpions*, **3** : 577-582.

Common name : Black Scorpion.

Local name : Ingali (Marathi), Kakada Bichhi (Bangla).

Diagnostic characters : Large Scorpion, body measuring up to 100-115 mm in length, color dark black except telson and legs. Pedipalp manus flat and more enlarged, fully granular on dorsal surface. Legs carinated on femur. Carapace weakly granular on lateral portions. Mesosomal tergites granular on lateral and posterior lateral portions. Spine formula on legs I -IV 3/5 3/5, 3/4 3/5, 3/5 3/5 & 3/53/5. Pectinal teeth 15/15.

Locality : Pench National Park.

Material examined : 1♂. *Coll Dr. M. S. Pradhan*, Loc. Hattigota, Dt. 29.09.1994, Reg. No. I/2180.

Sighting : Actually collected and studied from above localities.

Distribution : INDIA : Podicherry; Tamil Nadu (Type-locality); Palni Hills and Kodai Canal, Kerala; Madhya Pradesh.

Status : Rarely encountered species.

Habits and habitats : Truly burrowing species, prepares tunnels up to 10 - 11" deep in soft loose soil, prefers support of large to medium sized boulders on hill side slopes and old logs lying unremoved on ground from forested areas. Active burrow making during pre and post monsoon seasons.

Order ARANEAE

Family ARANEIDAE (ORB -WEAVING SPIDERS)

Genus *Nephila* Leach

7. *Nephila maculata* (Fabricius)

1793. *Aranea maculata* Fabricius, *Ent. Syst.*, 2 : 425.

1900. *Nephila maculata* : Pocock, *Fauna Brit, India, Arachn.*, : 217.

1982. *Nephila maculata* : Tikader, *Fauna of India, Spiders, Araneae : Araneidae*, 2(1) : 97-99.

Common name : Giant Wood Spider.

Local name : Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Large spiders inhabiting wooded and forest area of Indian subcontinent, females spin enormously large individual webs of much sticky threads and sit at center of the web, normally head positioned towards ground, body size range from 35 to 45 mm. Males comparatively smaller in body size and also differ in color pattern and never found to spin webs but hang around the female in variable numbers. Two variants seen in this area and differ in having colors on legs, one variety bears dark black legs where as the other has light to dark brown legs. Their bite is not fatal but portion remains painful and swollen for 6-8 hrs.

Locality : Throughout Melghat Tiger Reserve.

Material examined : 56 ♀♀, 13 ♂♂. *Coll. Dr. M. S. Pradhan*, Loc. Bekhari Tank, Dt. 29.09.1994, Reg. No. I/2185, Loc. Hattigota, Dt. 28.09.1994, Reg. No. I/2187, Loc. Pharihari, Dt. 26.09.1994, Loc. Chikharkhari, Dt. 28.09.1994, Reg. No. I/2186, Loc. Kanerphari, Dt. 01.10.1994, Reg. No. I/2189; *Coll. Dr. P. P. Kulkarni*, Loc. Paurzodi, Dt. 10.12.1994, Reg. No. I/2556, Loc. Trangichhora, Dt. 06.12.1994, Reg. No. I/2558, Loc. Dongargaon, Dt. 05.12.1994, Reg. No. I/2561, Loc. Damodar Nalha, Dt. 11.12.1994, Reg. No. I/2557; *Coll. Dr. R. M. Sharma*, Loc. Dongardeo, Dt. 03.12.1995, Reg. No. I/2496, Loc. Bokhari Talao, Dt. 05.12.1995, Reg. No. I/2493, Loc. Fulzari, Dt. 13.12.1995, Reg. No. I/2495; *Coll. Dr. A. S. Mahabal*, Loc. Ambakhori, Dt. 05.10.1996, Reg. No. I/2706.

Sightings : Actually sighted and collected from 12 different places in the reserve area.

Distribution : INDIA : Forested areas of Uttaranchal, Uttar Pradesh, Madhya Pradesh, Bihar, Chhatisgarh, West Bengal, Sikkim, Entire North Eastern states, Maharashtra, Goa, Karnataka, Tamil Nadu, Kerala and Andaman and Nicobar; SRI LANKA; MYANMAR; MALAYSIA; CHINA; AUSTRALIA; JAPAN AND NEW GUINEA.

Status : Commonly occurring species in forested areas.

Habits and habitats : Spins large sticky webs between adjacent large trees and patiently waits for prey, generally feeds on medium to large bodied insects such as Dragon flies and grass hoppers and eventually smaller bird caught in to the net. Many males are always noticed on the periphery of the web, are very small and comparatively light brown in colour.

Genus *Neoscona* Simon

8. *Neoscona theis* (Walcknaer)

1841. *Epeira theis* Walcknaer, *Hist. nat. Ins. Apt.*, 2 : 53.

1904. *Neoscona theis* : F. O. P. Cambridge, *Biologia. Oent. am. Aran.*, 2 : 470.

1980. *Neoscona theis* : Tikader, *Fauna of India, Spiders, Araneidae*, 2(1) : 269-271.

Common name : Spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body size smaller 8-10 mm, abdomen sub-oval with a conspicuous mid-longitudinal chalk white bar having four pairs of lateral projections and guarded by deep brown or black patches. Epigyne with out a rim at the base.

Locality : Pench National Park.

Material examined : 1♀, *Coll. Dr. M. S. Pradhan*, Loc. Hattigota, Dt. 28.09.1994, Reg. No. I/2187.

Sightings : Sighted and collected from 2 different localities.

Distribution : This species known to found from Maharashtra, Gujarat, Orissa and West Bengal; and SOUTH NEW GUINEA.

Status : Rarely occurring species and difficult to notice and collect.

Habit and habitats : Prepares smaller snares along with rolling of small to medium size leaves at centric or eccentric place of the web, web may be at considerable highest from ground level. It becomes difficult to notice and collect these spiders from such nest in fields. Preys on smaller insects and other invertebrates entangle in to the net.

9. *Neoscona laglaizei* (Simon)

1977. *Epeira laglaizei* Simon, *Annls. Soc. ent. Fr.*, 7(5) : 77.

1900. *Araneus laglaizei* : Pocock, *Fauna Brit. India, Arachn.*, : 224.

1981. *Neoscona laglaizei* : Tikader & Bal, *Rec. zool. Surv. India, Occ. Pap.*, 24 : 27.

Common name : Spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body 8 - 10 mm in length, abdomen tapering and pointed posteriorly with 2 pairs of light coloured bands in middle, body colour yellowish gray, female epigyne with short broad scape directed upwards distally and with a pair of elongated dark spots.

Locality : Pench National Park.

Material examined : 2 ♀♀, *Coll. Dr. D.B. Bastawade*, Loc. Dakshinbodhalzira, Dt. 25.09.1997, Reg. No. I/2781, Loc. Ambakhori, Dt. 27.09.1997, Reg. No. I/2782.

Sightings : Sighted and collected from 3 different localities.

Distribution : INDIA : Ootacamund, Tamil Nadu; SRI LANKA : Perandeniya, Trincomali, MYANMAR : Tounghnoo. Tharrawaddy, Rangoon, Tenasser, JAVA and INDI-AUSTRO-MALAYASIA.

Status : Rarely occurring species and reported for the first time from Melghat area.

Habits and habitats : Prepares smaller snares along with rolling of small to medium size leaves at centric or eccentric place of the web and hides in rolling of the leaf, web may be at considerable highest from ground level. It becomes difficult to notice and collect these spiders from such nest in fields. Preys on smaller insects and other invertebrates entangle in to net. Many times seen along with other species of *Neoscona*.

10. *Neoscona lugubris* (Walckenaer)

1841. *Epeira lugubris* Walckenaer, *Hist. Nat. Ins. Apl.*, 2 : 34.

1960. *Araneus lugubris* : Chrysanthus, *Novt. Guinea (Zool)*, 10(3) : 60.

1981. *Neoscona lugubris* : Tikader, *Fauna of India, Araneae : Araneidae*, 2(1) : 255-257.

Common name : Orb-weaving spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body size about 10 mm long, cephalothorax and legs light yellowish brown but chalk white on abdomen, abdomen sub-triangular, tapering behind, with greenish instinct marks, ventral white band between epigastric furrow and spinnerets. Epigynal scape

thin, broad, narrowed behind with a deep constriction at the base with lateral lobes, internal genitalia with a pair of double looped spermathecae.

Locality : Pench National Park.

Material examined : 1♀, *Coll. Dr. M.S. Pradhan*, Loc. Pharihari, Dt. 26.09.1994, Reg. No. I/2188.

Sighting : Actually collected and reported.

Distribution : INDIA : Pune, Maharashtra, Dangs, Gujarat; AUSTRO-MALAYSIA, SOUTH NEW GUNEA, JAPAN and CHINA.

Status : Rarely occurring in India.

Habits and Habitats : Not much of the information available, spins webs through medium sized bushed and shrubs and keeps itself in a dried and rolled piece of leaf, mostly at the centre of the orb.

11. *Neoscona excelsus* (Simon)

1889. *Glyptogona excelsus* Simon, *J. Asiat. Soc. Beng.*, **58** : 337.

1895. *Epeira excelsus* : Bank, *Jl. N. Y. ent. Soc.*, **4** : 90.

1905. *Araneus excelsus* : Simon, *Bull. Dep. Zool. Punjab Univ.*, **1** : 179.

1981. *Neoscona excelsus* : Tikader & Bal, *Rec. zool. Surv. India, occ. Pap.*, **24** : 25.

1982. *Neoscona excelsus* : Tikader, *Fauna of India, Aranaea: Araneidae*, **2**(1) : 261-63.

Common name : Orb-weaving spiders.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body small, about 5 mm in length, cephalothorax and legs brownish and abdomen blackish brown, posterior median eyes encircled with blackish ring, abdomen globular with a tailular hump black at the tip, chalk white folium patch on dorsum, with 4 pairs of blackish sigilla on mid-dorsal portion. Epigyne with short and broad scape not much bent, internal genitalia with two pairs of pouched spermathecae.

Locality : Pench National Park.

Material examined : 1♀, 1♂, *Coll. Dr. D. B. Bastawade*, Loc. Ambakhori, Dt. 27.09.1997, Reg. No. I/2782.

Sighting : Actually collected and reported.

Distribution : INDIA : Mahabaleswar, Pune, Maharashtra; Rajkot, Gujarat; Chota Nagpur, Bihar; Eastern Himalayas; Kalinpong, West Bengal; PAKISTAN, Rawalpindi.

Habit and habitats : No information available so far.

12. *Neoscona muckerjei* Tikader

1980. *Neoscona muckerjei* Tikader, *Proc. Indian Acad. Sci.*, 89(3) : 247.

1981. *Neoscona muckerjei* : Tikader, *Fauna of India, Araneae : Araneidae*, 2(1) : 246-253.

Common name : Orb-weaving spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body about 10 mm long, cephalothorax and legs yellowish and the cephalothorax with conspicuous 'V' shaped brown patches, legs also yellowish, abdomen dark brown with various coloured clubbed patches (having tremendous colour variations), epigyne with moderately thin scape with deep constriction and a pair of lateral lobes, internal genitalia with a pair of 3 pouched spermathecae.

Locality : Pench National Park.

Material examined : 2♀♀, 5 ♂♂, *Coll. Dr. D. B. Bastawade*, Loc. Dakshinbodalzira, Dt. 25.09.1997, Reg. No. I/2781, Loc. Ambakhori, Dt. 27.09.1997, Reg. No. I/2782, Loc. Fepadikund, Dt. .09.1997, Reg. No. I/2780; *Coll. Dr. M. S. Pradhan*, Loc. Bekhari Tank, Dt. 29.09.1994, Reg. No. I/2185; *Coll. Dr. R. H. Kamble*, Loc. Dongardeo, Ghatpendri, Dt. 15.03.1998, Reg. No. I/2825.

Sightings : Actually collected and reported.

Distribution : INDIA : Pune, Maharashtra (Type-locality) and West Bengal.

Status : Most common species in the reported localities.

Habits and habitats : Observed to prepare geometrically designed fine and delicate webs in grasses, bushes and shrubs at the heights of 4 to 6', occasionally found above through large and big trees, feed on smaller insects entangle in web, exhibits tremendous colour variations thus attract wrong identification.

Genus *Cyclosa* Menge

13. *Cyclosa hexatuberculata* Tikader & Bal

1982. *Cyclosa hexatuberculata* Tikader & Bal, *Fauna of India, Araneae : Araneidae*, 2(1) : 197 - 199.

Common name : Orb-weaving spiders.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body thin and elongated about 7-10 mm in length, cephalothorax yellowish with some blackish patches, legs yellowish banded with blackish brown colour, abdomen yellowish brown with silvery and blackish patches, cephalothorax elongated narrowed anteriorly, anterior and posterior pair of eyes recurved, abdomen also elongated with two dorsal humps, two pairs of lateral humps, epigyne with a prominent cone shaped scape with basal bulged portion, internal genitalia with a pair of rounded spermathecae.

Locality : Pench National Park.

Material examined : 6 ♀♀, Coll. Dr. D. B. Bastawade, Loc. Dakshinbodazira, Dt. 25.09.1997, Reg. No. I/2781, Loc. Ambakhori, Dt. 27.09.1997, Reg. No. I/2782, Loc. Pawani, Dt. 26.09.1997, Reg. No. I/2783,

Sightings : Actually collected and reported.

Distribution : INDIA : BSI garden, Pune, Maharashtra.

Status : Not very rare.

Habits and Habitats : Spins smaller, delicate, geometrical webs through bushes and shrubs, prefer to sit in the center camouflaging the thickened threads of the web, feeds on smaller and tiny insects caught in to the web.

14. *Cyclosa moondensis* Tikader

1963. *Cyclosa moondensis* Tikader, *J. Univ. Poona Sci. & Tech.*, **24** : 46.

1983. *Cyclosa moondensis* : Tikader, *Fauna of India, Araneae : Araneidae*, **2(1)** : 191-193.

Common name : Orb-weaving spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Elongated body measuring 6-8 mm in length, cephalothorax and legs blackish brown but abdomen dark black with few silvery spots and patches, three pairs of posterior lateral humps present, caudal hump biforked, epigyne with short bent scape bulged at the base, internal genitalia with notched orifice and a pair of obliquely placed spermathecae.

Locality : Pench National Park.

Material examined : 2♀♀, Coll. Dr. D. B. Bastawade, Loc. Saddle Dam, Dt. 02.09.1997, Reg. No. I/2786. Loc. Ambakhori, Dt. 27.09.1997, Reg. No. I/2782.

Sightings : Actually collected and reported.

Distribution : INDIA : Moondhava, Poona (Type-locality), Ahmadnagar, Maharashtra.

Status : Not very common species.

Habits and habitats : Prepares smaller, geometrical web mostly in vertical plane, prefer to sit in the center, camouflaging with the web threads thus go unnoticed, feeds on minute insects entangled in web.

Genus *Argiope* Audouin

15. *Argiope aemula* (Walckenaer)

1841. *Epeira aemula* Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 118.

1871. *Argiope magnifica* : L. Koch, *Arachn. Austrat.*, 1(1) : 27.

1877. *Argiope aemula* : Thorell, *Annali Mus. Civ. Geneva*, 25 : 164.

1900. *Argiope aemula* : Pocock, *Fauna Brit. India, Arachnida*, : 223.

1982. *Argiope aemula* : Tikader, *Fauna of India, Araneae : Araneidae*, 2(1) : 119 -121.

Common name : Signature spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Medium size body about 20–25 mm in length, general body colour Yellowish gray, yellowish brown on cephalothorax, deep brown on legs and grayish white with blackish stripes and reticulation on abdomen, cephalothorax narrowing in front, anterior and posterior rows of eyes strongly procurved, legs long, spined and femur bearing yellowish patch ventrally, abdomen oval, truncated in front and partly overlapping cephalothorax, pair of ventral longitudinal yellow stripes between gastric furrow and spinnerets, epigyne roughly triangular, narrowing in front with a pair of basal round bulging, internal genitalia with a pair of unipouched spermathecae.

Locality : Pench National Park.

Material examined : 5♀♀, Coll. Dr. D. B. Bastawade, Loc. Ambakhori, Dt. 27.09.1997, Reg. No. I/2782, Coll. Dr. M. S. Pradhan, Loc. Bekhari Tank, Dt. 29.09.1994, Reg. No. I/2185, Coll. Dr. R. M. Sharma, Loc. Fulzari, Dt.13.12.1995, Reg. No. I/2495.

Sightings : Actually collected and reported.

Distribution : INDIA : Kerala, Tamil Nadu, Maharashtra, West Bengal, Andaman and Nicobar Islands; SRI LANKA; MYANMAR; INDO-AUSTRO-MALAYSIA.

Habits and habitats : Prefer to inhabit through forested areas, prepare medium sized geometrical webs in vertical plane, typically strengthen the web by preparing X shaped stabilimentum due to which they are known as “Signature Spiders”, keeps facing towards ground, feeds on smaller to medium sized insects get in to the nest.

16. *Argiope pradhani* Sinha

1951. *Argiope pradhani* Sinha, *Rec. Indian Mus.*, **49** : 76.

1982. *Argiope pradhani* : Tikader, *Fauna of India, Araneae : Araneidae*, **2**(1) : 123–125.

Common name : Signature Spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic character : Body size 15–20 mm long, cephalothorax and legs yellowish brown, grayish on abdomen with 8–9 brown transverse bands but ventrally dirty brown, pair of yellowish bands present between epigastric furrow and spinnerets and elongate oval in shape, cephalothorax narrowed in front, both rows of eyes procurved, legs strong, long, spined, yellow to brown transverse bands present, epigyne roughly pentagonal, narrowed in front with a pair of smaller bulging at the base and a median 'Y' shaped patch present, internal genitalia with a pair of single elliptically pouched spermathecae.

Locality : Pench National Park.

Material examined : 1♀, 1♂, *Coll. Dr. R. H. Kamble*, Loc. Ranidoh, Dt. 12.03.1998, Reg. No. I/2826.

Sightings : Actually collected and reported.

Distribution : INDIA : West Bengal, Assam, Sikkim.

Status : Occasionally encountered through forested areas.

Habits and habitats : No information available but may be of same nature as to the other *Argiope* sp. known.

Genus *Leucauge* White17. *Leucauge decorata* (Blackwall)

1864. *Tetragnatha decorata* Blackwall, *Ann. Mag. nat. Hist.*, **14** (3) : 44.

1900. *Argyropeira celebesiana* : Pocock, *Fauna Brit. India, Arachn.*, : 216.

1921. *Leucauge decorata* : Gravely, *Rec. Indian Mus.*, **22** (4) : 454.

1984. *Leucauge decorata* : Tikader, *Fauna of India, Araneae : Araneidae*, **2** (1) : 79–80.

Common name : Spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body 9–12 mm in length, abdomen elongated and not much pointed posteriorly and bent upwards, with a pair prominent anterior hump, body colour

yellowish on cephalothorax and legs with greenish shades on legs, abdomen silvery white with blackish patches and lines of light coloured bands, female epigyne plate like having a thin semilunar rim anteriorly.

Locality : Pench National Park.

Material examined : 10 ♀♀, *Coll. Dr. D. B. Bastawade*, Loc. Dakshinbodazira, Dt. 25.09.1997, Reg. No. I/2781, Loc. Ambakhori, Dt. 27.09.1997, Reg. No. I/2782, *Coll. Dr. R. H. Kamble*, Loc. Feprikund Nalha, Dt. 11.03.1998, Reg. No. I/2824, Loc. Ranidoh, Dt. 12.03.1998, Reg. No. I/2826, *Coll. Dr. M. S. Pradhan* Loc. Bekhari Tank, Dt. 29.09.1994, Reg. No. I/2185.

Sightings : Sighted and collected from 5 different localities.

Distribution : INDIA : Ootacamund, Tamil Nadu; SRI LANKA : Perandeniya, Trincomali, MYANMAR : Tounghnoo. Tharrawaddy, Rangoon, Tenasser, JAVA and INDI-AUSTRO-MALAYSIA.

Status : rarely occurring species and reported for the first time from Melghat area.

Habits and habitats : These spiders prepare Two tier nests (webs) upper tier remains of very much irregular mesh of web thread, where as the second tier is dome shaped and prepared bellow the first, where the individual spider remain in an inverted position. Generally females are seen to occupy such nests along with chain of their star shaped flat, dirty gray coloured egg cocoon attached to web tread on one side.

18. *Leucause pondae* Tikader

1970. *Leucause pondae* Tikader, *Rec. zool Surv. India*, 64(1-4) : 44.

1982. *Leucause pondae* : Tikader, *Fauna of India, Araneae : Araneidae*, 2(1) : 89-91.

Common name : Orb-weaving Spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body size small, about 5-6 mm long, body colour pale yellowish, light greenish on legs, abdomen grayish with silvery specks, cephalothorax longer than wide, cephalic region elevated, thoracic region with posterior trifold groove, both rows of eyes recurved, legs long slender, delicate, femur, tibiae with black bands.

Locality : Pench National Park.

Material examined : 2♀♀, *Coll. Dr. P. P. Kulkarni*, Dt. 02.12.1994, Reg. No. I/2562.

Sightings : Actually collected and reported.

Distribution : INDIA : Sikkim.

Status : Rarely reported species.

Habits and habitats : Prepares smaller, geometrical, delicate webs in horizontal or oblique plane, preferably near to streams and water bodies, remains at ventral side of the web and feeds on smaller insects attracted towards water.

Family ERESIDAE

Genus *Stegodyphus* Simon

19. *Stegodyphus sarasinorum* Karsch

1892. *Stegodyphus sarasinorum* Karsch, *Berl. ent. Zeits.*, **36** : 275.

1900. *Stegodyphus sarasinorum* : Pocock, *Fauna of Brit. India, Arachnida*, : 209.

1964. *Stegodyphus sarasinorum* : Bradoo & Joseph, *Indian J. Ent.*, **32**(1) : 16–21.

1987. *Stegodyphus sarasinorum* : Tikader, *Handbook of Indian Spiders*, : 150–151.

Common name : Social Spiders.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Medium sized spiders, about 10–12 mm in length, cephalothorax longer than wide, truncated on anterior margin, four median eyes forming quadrangle, narrowed in front, posterior laterals far behind, legs short and strong, abdomen oval, spinnerets with exceptionally large cribellum, they spin labyrinthine tube ending blindly at one end and the other expands in to a broad sheet of web.

Locality : Pench National Park.

Material examined : 1♀, *Coll. Dr. D. B. Bastawade*, Loc. Dakshinbodalzira, Dt. 25.09.1997, Reg. No. I/2781.

Sighting : Actually collected and reported.

Distribution : INDIA : Widely distributed in Kerala, Tamil Nadu, Andhra Pradesh, Karnataka, Goa and Maharashtra.

Status : Commonly found in suburban and forested areas.

Habits and habitats : These are social spiders and gregarious in their habits, they feed on captive alive and all members of a colony share the prey. They are most active in pre and post monsoon and hibernate in the web-tubes in winter. Their webs are too sticky and compactly spun to escape the prey once entangled in the web.

Family THOMISIDAE

Genus *Thomisus* Walkenaer

20. *Thomisus sarojii* Basu

1963. *Thomisus sarojii* Basu, *Sci. & Cult.*, 29(2) : 606.

1980. *Thomisus sarojii* : Tikader, *Fauna of India, Araneae : Thomisidae*, 1(1) : 46-48.

Common name : Crab Spider.

Local name : Khekada Koli (Marathi), Makadi (Hindi).

Dignostic characters : Medium size body, ranging between 15–20 mm in length, cephalothorax smaller as compared to abdomen, longer than wide, almost subquadrangle, slightly narrowed anteriorly, body colour yellowish white and greenish on legs, cephalothorax with projecting rectangular white clypeus, except larger posterior medians remaining eyes equal in size, legs I & II subequal, III & IV shorter, Femur, tibiae and metatarsus each with five pairs of strong spines, abdomen roughly triangular with two lateral tuberculating, medially bearing black spots, connected with each other with a black transverse band, epigyne small, triangular, pointed anteriorly, bearing a pair of minute spermathecae.

Locality : Pench National Park.

Material examined : 1♀, *Coll. Dr. R. H. Kamble*, Loc. Hattigota, Dt. 16.09.1995, Reg. No. I/2920.

Sightings : Actually collected and reported.

Distribution : INDIA : West Bengal.

Status : Rarely found.

Habits and habitats : Non orb-weaving spider, prefer to stay in foliages and flowers of colourful nature, generally hides in flower petals and underneath of leaves. Feeds on insects attracted towards foliages and flowers. Catches prey in direct attacks and prefer to feed on Dipterans.

Family LYCOSIDAE

Genus *Lycosa* Latreille

21. *Lycosa phipsoni* Pocock.

1899. *Lycosa phipsoni* Pocock, *J. Bombay nat. Hist. Soc.*, 12 : 751.

1900. *Lycosa phipsoni* : Pocock, *Fauna of Bri, India, Arachnida*, : 253.

1924. *Lycosa phipsoni* : Gravely, *Rec. Indian Mus.*, 26 : 590.

1980. *Lycosa phipsoni* : Tikader & Malhotra, *Fauna of India, Araneae : Lycosidae*, 1(2) : 398–400.

Common name : Wolf-spider.

Local name : Langada Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body large 20-25 mm in length, body colour yellowish to pale brown, darker on cephalic region, centre with conspicuous fovea and brown bands extend laterally from it, abdomen almost oval, broadest just behind of middle, pale with few brown spots present, ventral side black patch between epigastric furrow and spinnerets, epigyne almost triangular with lateral notch and black spots at the base, internal genitalia with obliquely placed minute spermathecae.

Locality : Pench National Park.

Material examined : 1♀, *Coll. Dr. P. P. Kulkarni*, Loc. Trangichhora, Dt. 06.12.1994, Reg. No. I/2558.

Sightings : Actually collected and reported.

Distribution : INDIA : Maharashtra, Mumbai, Pune, Satara, and Nasik Dists.

Status : Not very rare.

Habits and habitat : These are expert ground dwelling hunters, generally found near the streams and aquatic bodies in isolated areas. Females are known to carry their young ones on their abdomen and often sacrifice for the want of food for young ones.

Genus *Hippasa* Simon

22. *Hippasa partita* (Cambridge)

1876. *Hippas partita* (Cambridge), *Proc. Zool. Soc.*, : 541 – 630.

1897. *Hippasa deserticola* : Simon, *Bull. Mus. Hist Nat.*, 3 (7) : 290.

1924. *Hippasa partita* : Gravely, *Rec. India Mus.*, 26 : 588.

1980. *Hippasa partita* : Tikader & Malhotra, *Fauna of India, Araneae : Lycosidae*, 1(2) : 291–293.

Common name : Wolf spider.

Local name : Landaga Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body size smaller about 6–10 mm in length, colour pale brown to greenish brown, cephalothorax longer than wide and cephalic region abruptly narrowing, anterior row of eyes procurved and wider than the second row, bases of the posterior eyes

with black conspicuous patches, centre of thoracic region with a conspicuous fovea from where thin brown bands radiate towards lateral margins, abdomen longer than wide, oval and pointed behind, anterior portion with pale lens shaped markings and rest with greenish brown and pale patches, ventral side with three longitudinal bands, apical piece of posterior spinnerets as long as basal piece, epigyne of wide 'W' shape outline with a median orifice and a pair of lateral minute round pouched spermathecae.

Locality : Pench National Park.

Material examined : 2♀♀, Coll. Dr. R. M. Sharma, Loc. Gawalighat, Dt. 11.12.1995, Reg. No. I/2494.

Sightings : Actually collected and reported.

Distribution PAKISTAN : Karachi.

Status : Rare.

Habits and habitats : No information available.

Genus *Pardosa* Koch

23. *Pardosa sumatrana* (Thorell)

1890. *Lycosa sumatrana* Thorell, *Ann. Mus. Stor. nat. Genova*, **30** : 136.

1935. *Lycosa arorai* : Dyal, *Bull. Dept. Zool. Punjab Univ.*, **1** : 140.

1951. *Lycosa sumatrana* : Sinha, *Rec. Indian Mus.*, **48(2)** : 33.

1980. *Pardosa sumatrana* : Tikader & Malhotra, *Fauna of India Spiders, Araneae : Lycosidae*, **1(2)** : 353–355.

Common Name : Wolf spider.

Local name : Landaga Koli (Marathi), Makadi (Hindi).

Diagnostic Characters : Smaller body ranging from 6–10 mm in length, brownish in colour, cephalothorax brown with a pale median and two lateral pale bands extending from anterior to posterior margins, a distinct fovea at the center of cephalic region, abdomen longer than wide oval pointed behind, anterior mid dorsal with lens shaped longitudinal marks, rest provided with dark brown and pale patches and black spots, epigyne broader almost hexagonal with a median plate of inverted 'T' shape and a pair of round median spots, internal genitalia with a pair of elongated and elliptical pouched spermathecae and 'S' shaped ductile on inner side.

Locality : Pench National Park.

Material examined : 1♀, Coll. Dr. M. S. Pradhan, Loc. Chikhalkhara Nalha, Dt. 26.09.1994, Reg. No. I/2186.

Sightings : Actually collected and reported.

Distribution : INDIA : Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, West Bengal, Meghalaya, Arunachal Pradesh, Bihar, Madhya Pradesh, Gujarat, Rajasthan, Himachal Pradesh and Nicobar Islands; NEPAL, BANGLA DESH, SUMATRA and SRI LANKA.

Status : Rarely found in Park area but very common species in other places.

Habits and habitats : No information available.

24. *Pardosa birmanica* Simon

1884. *Pardosa birmanica* Simon, *Ann. Mus. civ. stor. nat. Genova*, **20** : 333.

1924. *Lycosa birmanica* : Gravely, *Rec. Indian Mus.*, **26** : 607.

1971. *Pardosa bhatnagari* : Sadana, *Ent. Monthly Mag.*, **107** : 226.

1980. *Pardosa birmanica* : Tikader & Malhotra, *Fauna of India Spiders, Araneae : Lycosidae* **1(2)** : 329–331.

Common name : Wolf spider.

Local name : Landaga Koli (Marathi), Makadi (Hindi).

Diagnostic charactes : Body size smaller about 5–8 mm in length, colour dark brown to blackish brown, cephalothorax and legs dark brown, abdomen with blackish and pale patches, cephalothoraxes longer than wide, convex, cephalic region narrowing in front and slightly high, median area light brown with a sharp fovea, legs thin, long, spied and all with transverse greenish dark brown patches, abdomen longer than wide, oval, pointed behind, broadest behind the middle, epigone roughly pentagonal, notched deeply on posterior margin tucked out medially, marked with a pair of minute elliptical white markings on the posterior median portion, internal genitalia complicated with a median pair of rounded sperm thecae continued in to compact 'S' shaped duct laterally turning in side posterior and opening in middle and supported medially with 'M' shaped plate.

Locality : Pench National Park.

Material examined : 1♀, *Coll. Dr.D.B. Bastawade*, Loc. Fepadikund, Dt.12.09.1997
Reg. No. I/2780.

Sightings : Actually collected and reported.

Distribution : INDIA : Tamil Nadu, Andhra Pradesh, Maharashtra, Orissa, West Bengal, Maghalaya, Bihar, Madhya Pradesh, Gujarat, Uttar Pradesh, Rajasthan, Punjab, Himachal Pradesh; PAKISTAN; MYANMAR.

Status : Not very common in Pench but widely distributed almost all over Indian

subcontinent.

Habits and habitats : Inhabiting the damp area near streams and pools, feeds on smaller insects by direct attacks, female carry egg cocoons between the hind legs.

Family PHOLCIODAE

Genus *Crossopiza* Simon

25. *Crossopriza lyoni* (Blackwall)

1867. *Pholcus lyoni* Blackwall, *Ann. Mus. Nat. Hist.*, 19(3) : 392.

1898. *Crossopriza lyoni* : Pocock, *Fauna of India, Arachnida*, : 240.

1987. *Crossopriza lyoni* : Tikader, *Handbook of Indian Spiders*, : 170.

Common name : Short bodied cellar Spiders.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body small, about 5-6 mm long, colour brownish, cephalothorax marked with median brown stripe, abdomen yellowish brown, clouded with darker and yellowish patches, running black stripe from posterior prominence to spinnerets, ventral portion black, male and female almost alike except longer legs and femur I with a row of long spines.

Locality : Pench National Park.

Material examined : 2♀♀, *Coll. Dr. D. B. Bastawade*, Loc. Ambakhori, Dt.27.09.1997, Reg. No. I/2782.

Sighting : actually collected and reported.

Distribution : Tamil Nadu, Andhra Pradesh, Maharashtra, Uttar Pradesh ; MYANMAR.

Status : Commonly occurring species.

Habits and habitat : Sedentary orb-weavers, prefer to stay in hollow trees, bellow overhanging rocks, outcrops, pits and are the common intruders of human habitations, remain in the corners of house walls, feed on various smaller to medium size insects.

Genus *Artema* Walckenaer

26. *Artema atlanta* Walckenaer

1837. *Artema atlanta* Walck, *Ins. Apt.*, 1 : 656.

1857. *Pholcus atlanta* : Doleschall, *Nat. Tijdschr. Nederl Indie*, **13** : 408.

1899. *Artema atlanta* : Pocock, *Fauna of Brit. India, Arachnida*, : 238.

1987. *Artema atlanta* : Tikader, *Handbook of Indian Spiders*, : 170.

Common name : Short bodied cellar spiders.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body short, about 8-10 mm long, abdomen very high, globular, more than as wide, sternum posteriorly acuminate, chelicerae with two minute teeth, body colour yellowish brown, carapace with median brown patch and clypeus striped brown, legs yellow with brown on patellae, brown rings on femora and tibiae, abdomen grayish yellow, 3 rows of dusty gray spots, genitalia of brown, thickly horny plate and concave on posterior margin. Male and female alike except thick on palps and chelicerae with large serrated crest externally.

Locality : Pench National Park.

Material examined : 1♀, *Coll. Dr. D. B. Bastawade*, Loc. Pawani, Dt. 26.09.1997, Reg. No. I/2783.

Sightings : actually collected and reported.

Distribution : INDIA : Kerala, Andhra Pradesh, Maharashtra and Uttar Pradesh; PAKISTAN : Karachi; MYANMAR.

Staus : Commonly Occurring sprcies.

Habits and habitat : Almost similar to *Crossoproza lyoni*(Blackwall).

Family TETRAGNATHIDAE

Genus *Tetragnatha* Latreille

27. *Tetragnatha mandibulata* Walckenaer

1837. *Tetragnatha mandibulata* Walckenaer, *Ins. Apt.*, **2** : 211.

1900. *Tetragnatha mandibulata* : Pocock, *Fauna Brit. India, Arachn.*, : 215.

1977. *Tetragnatha mandibulata* : Tikader, *Res. zool. Surv. India*, **75** : 153-212.

Common name : Spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic Characters : Body shape narrow more elongated, about 12-15 mm long, yellowish to dark yellowish with greenish tinge and one or two pairs of whitish stripes dorsal

surface of abdomen, legs exceptionally long as compared to the body. Carapace flat and narrowed anteriorly with truncated margin, eyes in two slightly procurved rows. Chelicerae large and exceptionally long with large teeth and longer fangs, male palp with exposed round cymbium, female genitalia simple with tubular epigynum.

Locality : Near to streams and aquatic bodies in reserve area.

Material examined : 6♀♀, 4♂♂, *Coll. Dr. P. P. Kulkarni*, Loc. Bodhalzira, Dt. 03.12.1994, Reg. No. I/2559, Loc. Trangichhora, Dt.06.12.1994, Reg. No. I/2558, Loc. Phepadinalha, Dt. 02.12.1994, Reg. No. I/2562; *Coll. Dr. R. H. Kamble*, Loc. Pheparikund Nalha, Dt. 11.03.1998, Reg. No. I/2824.

Sightings : Actually located and collected from 2 different localities in reserve area.

Distribution : Almost throughout Indian sub-continent.

Status : Common species near aquatic bodies.

Habits and habitats : Normally found in the vicinity of water bodies and streams, prepare radically symmetrical delicate webs, just about 2 to 3' above water surface between available supports, feed on smaller insects visiting the streams or aquatic bodies which entangle in to the webs.

Family OXYOPIDAE

Genus *Oxyopes* Latreille

28. *Oxyopes naliniae* Gajbe

1999. *Oxyopes naliniae* Gajbe, *Rec. zool. Surv., India*, 97 (3) : 60-62.

Common name : Lynx Spider.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Body size medium about 8-10 mm in length, brilliantly coloured with red and black stripes, yellowish on legs, carapace much wider on posterior 2/3 portion and narrowed on 1/3 anterior, these are easily recognized by the peculiar arrangements of eyes, all legs conspicuously spinose, abdomen tapers behind with dorsal longitudinal stripes. Male and Female almost of same sizes and colours, genitalia broad on anterior portion while rounded posteriorly, internal genitalia with one pair of elongated 'S' shaped spermathecae with a round spot on anterior lateral portion of spermathecae and an inverted median funnel shaped structure. male palp with long, coiled duct.

Locality : Pech National Park.

Material examined : 1♀, *Coll. Dr. D. B. Bastawade*, Loc. Hattigota, Dt. 27.09.1997, Reg. No. I/2784.

Sightings : Actually collected and reported.

Distribution : Many places in Madhya Pradesh.

Status : Fairly common species in Madhya Pradesh.

Habits and habitat : Non-orb-weaving spiders, generally inhabit in bushes, shrubs and smaller trees of thick foliages, prefer to hunt prey through direct hunt, normally feed on smaller to medium size insect sheltering in foliages, there is no much sexual dimorphism, both sexes look almost alike.

Family PALPIMANIDAE

Genus *Palpimanus* Dufour

29. *Palpimanus vultuosus* Simon

1896. *Palpimanus vultuosus* Simon, *Bull. Mus. Paris*, 1(2) : 289-297.

1981. *Palpimanus vultuosus* : Platnick, *Bull. Br. arachnol. Soc.*, 5(4) : 169-173.

1987. *Palpimanus vultuosus* : Tikader, *Handbook of Indian spiders*, : 166-107.

2004. *Palpimanus vultuosus* : Bastawade, *Fauna of Melghat Tiger Reserve*, (in press)

Common name : Spiders.

Local name : Koli (Marathi), Makadi (Hindi).

Diagnostic characters : Reddish to dark reddish with brownish tinge on body, ranges between 8-10 mm in length, I pair of legs characteristically enlarged, robust with thick prolateral scopula on distal segments. Scutum present on anterior portion of abdomen, female genitalia typically with paired membranous sacs associated with basal plate and male palpi with out haematodochae.

Material examined : 4 ♂♂, Coll. Dr. D. Bastawade, Loc. Pawani, Dt. 26.09.1997, Reg. No. I/2783.

Distribution : INDIA : Maharashtra (Sangli, Kolhapur, Satara, Pune, Raigad, Nasik and Nagpur), Andhra Pradesh (Cuddapa), not much information available for other parts of India.

Status : One of the rarely occurring and sighted spiders.

Habits and habitats : Rarely occurring spiders secretive in nature, inhabit mostly under the barks of large trees like Neem, Mango, Jamun, Kusum, Anjan, Palas and rarely on teak wood. During monsoon some times seen under stone and bricks. Slow moving spiders, can easily be collected. No information is available on breeding, developments and feeding habits.

Family OONOPIDAE

Genus *Triaeris* Simon30. *Triaeris melghaticus* Bastawade

2004. *Triaeris melghaticus* Bastawade, *Fauna of Melghat Tiger Reserve*, (in press)

Diagnostic characters : Body length 2.3–2.4 mm, cephalothorax longer than wide, clothed with fine hair except median elevated area, covered with whitish and longer hair narrowed in front, cephalic region slightly raised with black ocular area on anterior portion, provided with six pearly white eyes situated in two rows, posteriors slightly procuved with medians elliptical longitudinally and larger than others; clypeus moderate, anterior margin provided with 5-6 spine like hair; sternum heart shaped and pointed anteriorly, clothed with fine short hair; chelicerae smaller and delicate, fang furrow armed with minute teeth; palps simple and modified in male with forked and hairy terminal spine like apophysis for transfer of spermatids; abdomen longer than wide, almost elliptical, slightly narrowed anteriorly and overlapping the posterior portion of cephalothorax, covered dorso-ventrally with thicker scutum except lateral narrow stripe and posterior spinnerets, clothed with fine stout shorter brown hair; epygine simple with a medium plate like structure.

Material examined : 6 ♀♀, 4 ♂♂, Coll. Dr. D. B. Bastawade, Loc. Pavani, Date : 26.09.1997, Reg. No. I/2783.

Habits and habitats : Tiny red spiders prefer to stay under smaller tree barks of large trees like Mango (*Mangifera indica*), Jamboon (*Sizygium cumini*), Jack-fruit (*Artocarpus integrifolia*), Neem (*Azadirachta indica*), Kusum, Anjan (*Terminalia formentosa*), Palas (*Butea frondosa*), Banyan (*Ficus bengalensis*) and Peepal (*Ficus religiosa*) etc. These spiders are found with other minute arthropods like Pseudoscorpions, Ants, Coleopteran, Hemipterans and Plant mites etc. Almost nothing is known about their other biological aspects.

Distribution : INDIA : Melghat Tiger Reserve, Amaravati Dist., Maharashtra.

Order SOLIFUGIDA

Family GALEODIDAE

Genus *Galeodes* Olivier31. *Galeodes indicus* Pocock

1897. *Galeodes fatalis* Pocock, *J. Bombay nat. Hist. Soc.*, 9 : 441.

1900. *Galeodes indicus* : Pocock, *Fauna of Brit. India, Arachnida*, : 142–143.

Common name : Sun / Wind Spiders.

Local name : Surya Koli.

Diagnostic characters : Body size medium, color invariably yellow, body surface clothed with fine long silky hair, mostly mistaken as Spiders. Legs exceptionally longer, thinner and IV with thin membranous structure called *malleolus*. Chelicerae exceptionally robust and strong (Largest chelicerae in Invertebrates) most actively operative and strongly dentate. Palps thin and elongate, non-chelate but strongly spined on ventral portions. Carapace (Prosoma) truncated on anteriormargin, with a pair of median eyes. Abdomen leathery, sternite I modified into genital organ, sternite V with *Ctinidia* in males, anal segment small exceeding up to upper edge.

Locality : Rarely noticeable during day time collections, only 3 ♀♀ collected at Kirangisala.

Material examined : 3 ♀♀, Coll. Dr. D. B. Bastawade, Loc. Kirangisala, Date : 22.09.1997, Reg. No. I/2792.

Sighting : Actually sighted, collected and studied from above localities.

Distribution : INDIA : Gwalior and Bilaspur (Type-locality), Madhya Pradesh; Gaya, Uttar Pradesh and Melghat Tiger Project, Amrevati Dist. and Thana Dist., Maharashtra.

Status : Rarely occurring species, reported for first time from Reserve area.

Habits and habitats : Truly nocturnal in habits, vigorous and voracious feeders; normally inhabit in drier and remote areas.

SUMMARY

Some of the specimens belonging to the families Araneidae (*Araneus*), Thomisidae (*Thomisus*), Lycosidae (*Lycosa*), Tetragnathidae (*Tetragnatha* and *Eucta*), Oxyopidae (*Oxyopus*), Salticidae (*Salticus*, *Phidippus* and *Zygoballus*), Pisauridae (*Pisaurus* and *Tinus*), Sparassidae (*Sparassus*), Hersilidae (*Hersillus*), Clubionidae, Gnaphosidae, Uoboridae (*Uloborus*) and Therphosidae (*Chilobrachyus*) were identified up to the respective genetic status mentioned in bracket owing to unavailability of mature specimens and concerned literature.

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PLATE-I



Fig. 1. View of Pench River and Forest.



Fig. 2. Forest in Pench National Park.

PLATE-II



Fig. 3. Stream and hilly area in Pench National Park.



Fig. 4. Sunset at Kiringicerra, Pench River.

PLATE-III



Fig. 5. Scorpion *Mesobuthus tamulus tamulus* (Fab.) ♂

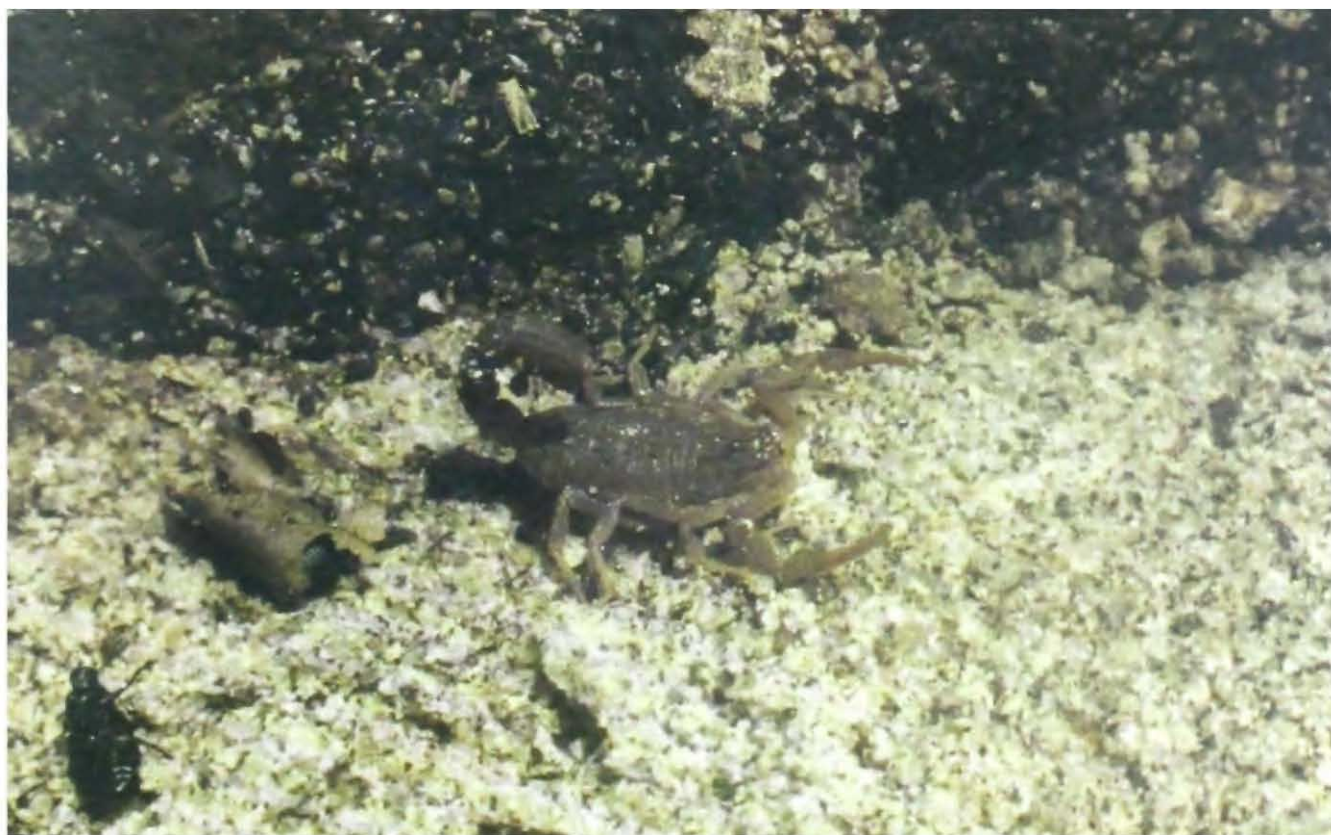


Fig. 6. Scorpion *Mesobuthus tamulus tamulus* (Fab.) ♀

PLATE-IV



Fig. 7. Spider *Argiope* sp.



Fig. 8. Mantis.

PLATE-V

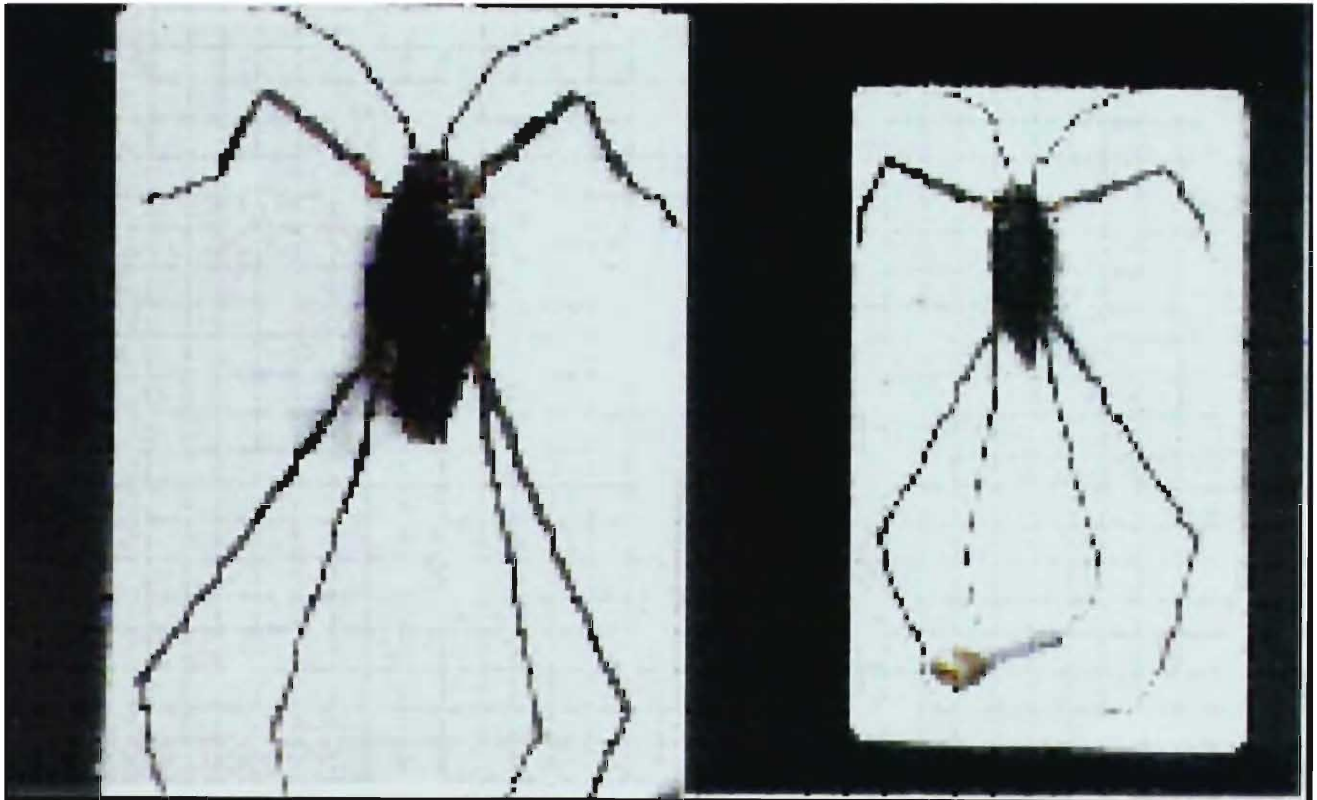


Fig. 9. *Stridulobates anderseni* Zettel and Thirumalai.



Fig. 10. Russel's viper.

PLATE-VI



Fig. 11. Rose-ringed Parakeet (-a wounded ♀).



Fig. 12. Blackheaded Oriole and Black Drongo.

PLATE-VII



Fig. 13. Claw marks of Sloth Bear on tree trunk.

PLATE-I



Fig. 14. Pugmarks of Tiger.