

Fauna of Tadoba-Andhari Tiger Reserve

(Maharashtra)



Conservation Area Series 25

Fauna of Tadoba-Andhari Tiger Reserve (Maharashtra)

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Kolkata**

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FAUNA OF TADOBA-ANDHARI TIGER RESERVE (Maharashtra)

Conservation Area Series

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TADOBA ANDHARI TIGER RESERVE – AN OVERVIEW

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INTRODUCTION

Protection of Forests and wild life in India has a long history. Seldom has any culture been so deeply and consistently associated with animals and trees as could be seen in this part of country, back from pre historic times through rulers of different dynasties to the present times. The area of Tadoba Andhari Tiger Reserve, as it is named today was notified as the Reserved forest as early as in 1879 under the Indian Forest Act VII of 1878 by the Central Province Gazette Notification No. 917 (2) dated 4.2.1879. It also contained other areas of the District Chandrapur. The rich wildlife in this reserved forest received attention of wildlife lovers as early as in 1905, when it was declared as a shooting block. To protect the wildlife, restrictions on hunting except by special permits by the then Central Province and Berar Government in 1935, an area of 45 sq.kms around Tadoba lake was constituted as a “Sanctuary”

In 1955, this area was declared as a National park and there were no rights over the Reserved Forests, however, concessions were given to the agriculturists for certain forest produce (like cattle grazing and extraction of bamboo at concessional rates). In Tadoba National Park, all the forest activities were stopped since 1968 except collection of Tendu leaves. There after 1992 onwards, collection of Tendu leaves is also totally stopped.

Administratively, the Area 116.55 sq. kms of Tadoba National park, as declared under the then Madhya Pradesh National Park Act 1955 was transferred to the Maharashtra State in 1956 (Gazetteer of Chandrapur Dist, Kunte, (Ed.), 1973). Adjoining area of Andhari Wildlife sanctuary was declared in 1986 as a protected area and as an extension to Tadoba National Park, vide Govt. of Maharashtra Notification No. WLP-1085/Cr.-75/F-7 (iii) dated 25.2.1986, as per section 66(4) of the wildlife (Protection) Act 1972, (Amended up to 1991),.

PRESENT STATUS

The Govt. of India constituted Tadoba National Park and Andhari Wildlife Sanctuary under centrally sponsored “Project Tiger” scheme, in 1993. Both fall under contiguous bio-geographic areas. The total area of 578.51 sq.kms (116.55 sq. kms. of Tadoba National Park and 461.96 sq. kms of Andhari wildlife sanctuary) has been declared as “Tadoba–Andhari Tiger Reserve” vide Govt. of Maharashtra, Revenue and Forests Department Resolution No. WLP/1094/CR./1094–CR 225/F–1, dated 23.2.1995. The management of Tadoba–Andhari

Tiger Reserve is under the control of the Deputy Conservator of Forests, Tadoba National Park Division, Chandrapur. The area of this tiger reserve is divided into 3 Ranges 7 rounds and 34 beats (Farooqui, 1996 ?). Jagir Singh (1996?) published Status Report of National Parks and Sancturies in Maharashtra (In Marathi , Limited Circulation).

LOCATION

The area of Tadoba Andhari Tiger Reserve falls in 20° 25' 50" to 20° 04' 53" N latitude and 79° 33' 34" E longitude. The entire area comes under District Chandrapur of Maharashtra State and involves Chandrapur, Bhadrawati, Chimur, Warore and Sindewani Tahsils. It has its offices at Tadoba. Tadoba lies 45 kms. North of the District headquarter, Chandrapur and about 200 kms from the other main city, Nagpur. The other fair weather motorable road from Nagpur, is still shorter, about 140 kms and runs through Khadsingi. The nearest railway stations are Chandrapur and Warora on the Central Railway The nearest airport is Nagpur. Terrain of Tadoba Andhari Tiger Reserve is undulating with gently rolling hills covered with dry deciduous forest.

DRAINAGE AND WATER BODIES

Tadoba is gifted with the centrally located magnificent 120 hectare, perennial natural water body. Tall and evergreen Jamun trees border this large reservoir and provide good nesting sites for a variety of birds. A good road runs along the periphery of this lake offering an excellent opportunity for Ornithologists and wild life observers. The rest houses at Tadoba are located in the eastern bank of this graceful water body.

Andhari is the main river in the area. It originates from Pandharpauni in Tadoba National Park and flows southwards to join the river Wainganga. The portion of this river towards the South of Dewada – Kolsa road is perennial, whereas during its course between Jamin and Dewad – Kolsa, retains water at pockets, which are termed "Dohs" Bhanukundi Nalla originates from Katezari in Tadoba National Park and joins Erai River. In addition to these streams and rivers, as many as 10 large water tanks are available in the protected area, which are permanent water source. These tanks help in maintaining the water in pockets of downstream through seepage. Besides these 7 more water tanks are available along the periphery outside the protected area, where wildlife frequents from the Tiger Reserve to quench the thirst. In spite of these water sources, water remains a scarce commodity, particularly during hot months of the year. Several water troughs specially constructed for use of wildlife have to be regularly filled in artificially. A tank of moderate size is also available adjoining the rest house at Kolsa.

SEASONS

Summer : This season begins from end of February to July, with increasing heat and rising the mercury to about 30°C to 47°C, which returns back to normal 25°C only after onset of monsoon. May and June are the hottest months. The dry and hot air blows in this season.

Monsoon : This season extends between mid June to mid October. Heavy shower occurs between July to December. Slight rain also occurs in October/November brought by North East wind. Average rainfall is measured to be 1175 mm annually.

Winter : Cold winter in true sense does not prevail in the area. However, pleasant weather is available from November to the end of January when minimum temperature of 9°C is recorded.

VEGETATION

The forest type of the tract as per Champion and Seth (1968) classification belongs to the sub group 5, A southern tropical Dry Deciduous Forest type, with teak as dominant species. Bamboo is prominent in Andhari forest than in Tadoba proper. The whole area contains 11.48 % of teak forest, 76.16 % of mixed forests, 7.17 % of grasslands and about 5.19 % degraded area. Two varieties of wild rice (*Oryza* sp.) exist in the patches of Katezari area. Teak (*Tectona grandis*); Haldu (*Adina cordifolia*); Dhawada (*Anogeissus latifolia*); Sissum (*Delborgia paniculata*); Jamun (*Engenia jambolana*); the flame of forests (*Butea frondosa*); Moha (*Madhuca latifolia*); Bibba (*Semecarpus anaecardium*) and Karu (*Sterculia urens*) are some of the noteworthy trees and shrubs. Besides this several shrubs and climbers are present in the forest.

Malhotra and Moorthy (1992) worked out the flora of Tadoba National Park. Rao (2005) presented an overview on floristic studies with notes on habitat conservation and further management strategies. The main non-timber forest produce of the tract are tendu leaves, moha flowers and gum.

ACCOMMODATION

A variety of accommodation is available in Tadoba Andhari Tiger Reserve, mainly at Tadoba Proper and at Kolsa. At Tadoba, holiday homes and youth hostels are also available. Booking for those can be had from Deputy Conservator of Forests, Tadoba National Park, at Chandrapur. Forest department manages accommodation facilities inside and near the protected area. At Tadoba Rest house (4 suites); Guest house (4 suites); one holiday home (3 suites); one dormitory (36 beds) and at Kolsa one rest house (5 suites) are available for tourists. Canteen facility is available only at Tadoba. At Mohorli a new tourist complex is recently formed which has a good 'nature interpretation centre' and few huts for stay. Two mini buses ferry from Chandrapur to Tadoba to provide insight of the Protected Area to the tourists.

PRESSURES ON THE TIGER RESERVE

Fire : The entire protected area is vulnerable to fire, which not only damages the vegetation but destroys wildlife habitat. It has been estimated that entire Kolsa range is susceptible to fire and about 14% area is accounted for 100% burning involving 8 compartments.

Almost 66% area of Mohorli Range receives fire damage of which about 33% area received 100% burning (Farooqui, 1996?). Very tall trees with huge girth fall prey to the forest fire. Survey parties have witnessed forest fire, particularly in hot summer season. Dry deciduous nature of the forest results in dumping of the leaves and dry twigs covering the tree bases, almost throughout the area. Wind helps in spreading fire at a very fast rate and it is left beyond human control, particularly with scarcity of water in the area.

Grazing by livestock : A total of 53 villages are located in the periphery of the Protected Area. For grazing needs of the live stock, villagers are partly or entirely dependent on the Protected Area. Indiscriminate grazing denudes the adjoining area and fear to transmit diseases from the cattle to the wildlife cannot be ignored. Grazing potential of the area has carefully been calculated and it is established that in certain localities the pressure is more than 300 to 500% of the capacity. It seems difficult to control the impact of over-grazing by the live stock from those villages, which do not have their own protected forest or pasture lands. Thus pressure on protected area remains the matter of concern (Farooqui, 1996).

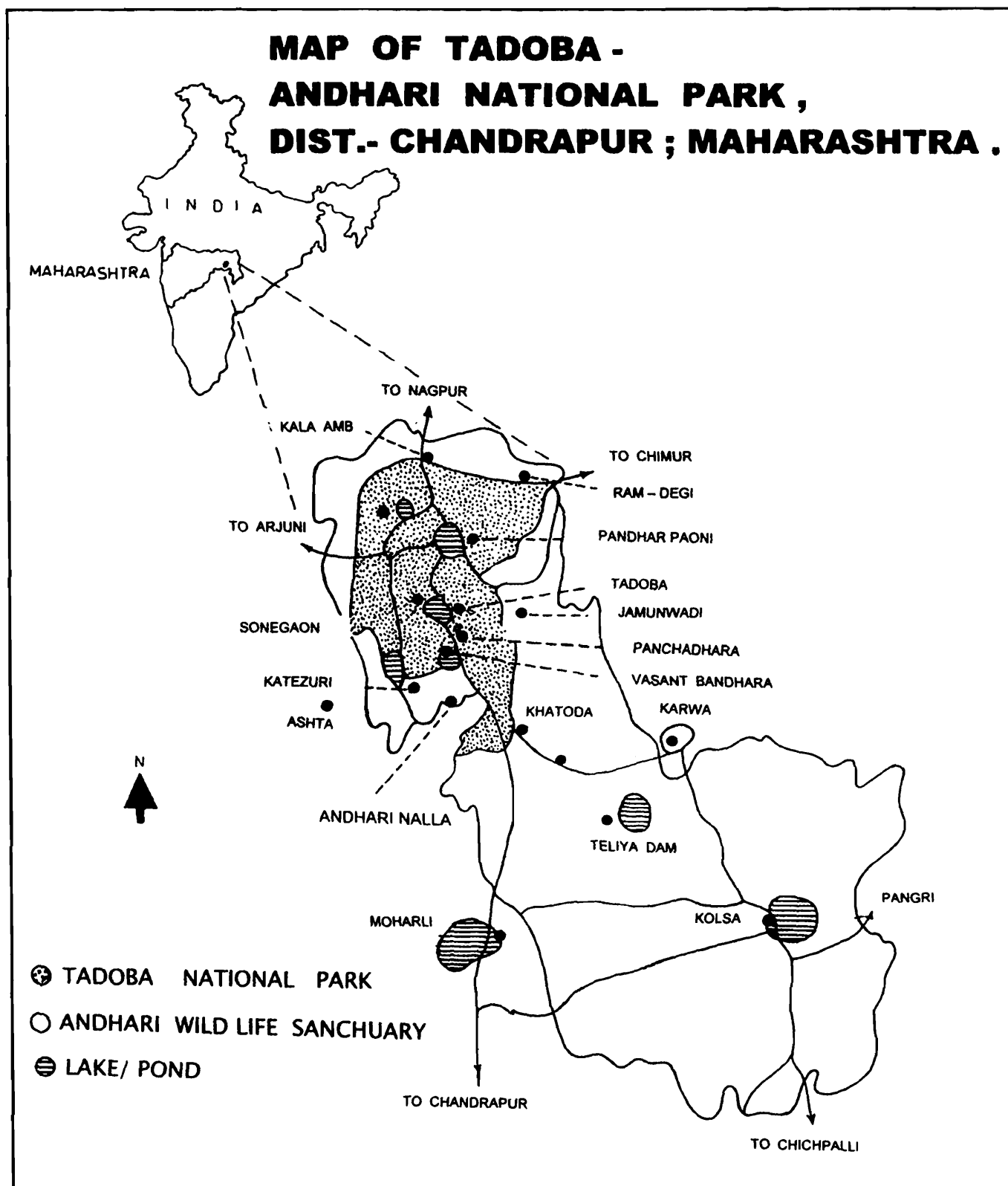
Human Activities : While describing the state of art of pressure by human interference (Farooqui, 1996?) following major areas were identified :

Illicit falling of bamboos : Area of Mohorli Range and Kolsa Range are rich in bamboo clusters. Comparatively it is easy to cut bamboos and transport them either manually or on bicycles. Being lighter in weight than timber, bamboo are illicitly cut and sold. Patrolling of the area brings down the incidences but it seems, it has not been possible to completely check the felling of bamboos.

Fuel wood collection : Compartments in the periphery of the protected area are affected by fuel wood collection because population of all the 53 villages around it are totally dependent on forest for their fuel requirement.

Tourism : Tadoba Andhari is a very popular tourist spot and about 50,000 people visit this area annually. These comprise nature lovers, visitors, students, pilgrims and tourists.

There are 14 entry points to the protected area, out of which 10 have check gates to regulate public entry. However, mobile vigil is inadequate due to less number of staff and vehicles engaged for patrolling. There are 15 hides and 15 machans, where from tourists can observe wildlife. Hides and Machans are mostly installed in Tadoba National Park. While discussing pressures on the area, Karanth (2005) observed, "The fact is that a large portion of these buffer areas is under severe stress and spillover effects on the Tiger Reserve could be enormous in the long run. The area on the periphery of the Tiger Reserve, with the weakest surveillance of the protection staff thus is virtually a no man's land and ideal ground for movement of antisocial and illicit gangs. It is not easy for the staff of any one division to control such localities"



Map 1: Map of Tadoba-Andhari Tiger Reserve



A bird eye-view of Tadoba lake and surrounding forested area

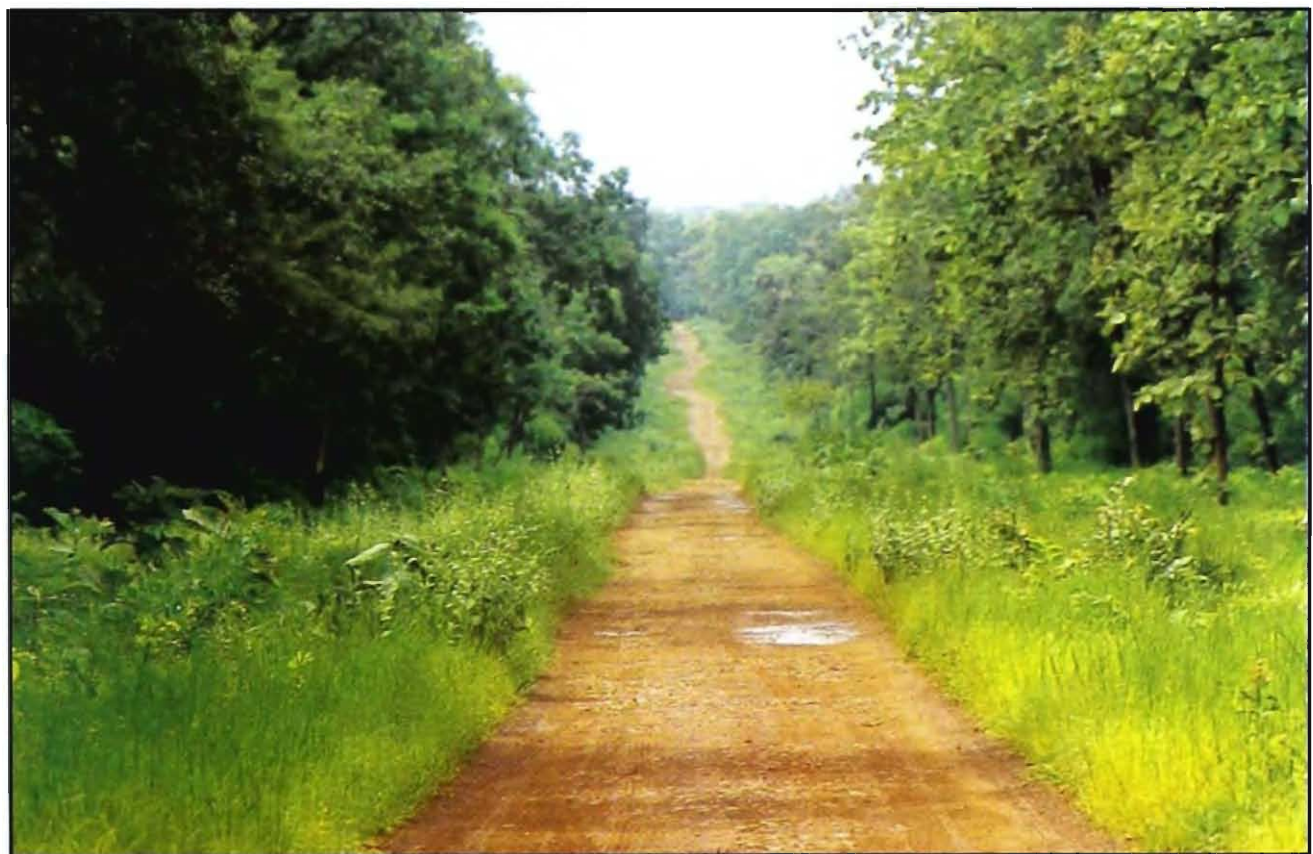


Survey party on the bank of Tadoba lake

MAHABAL : *Tadoba-Andhari Tiger Reserve - An Overview*



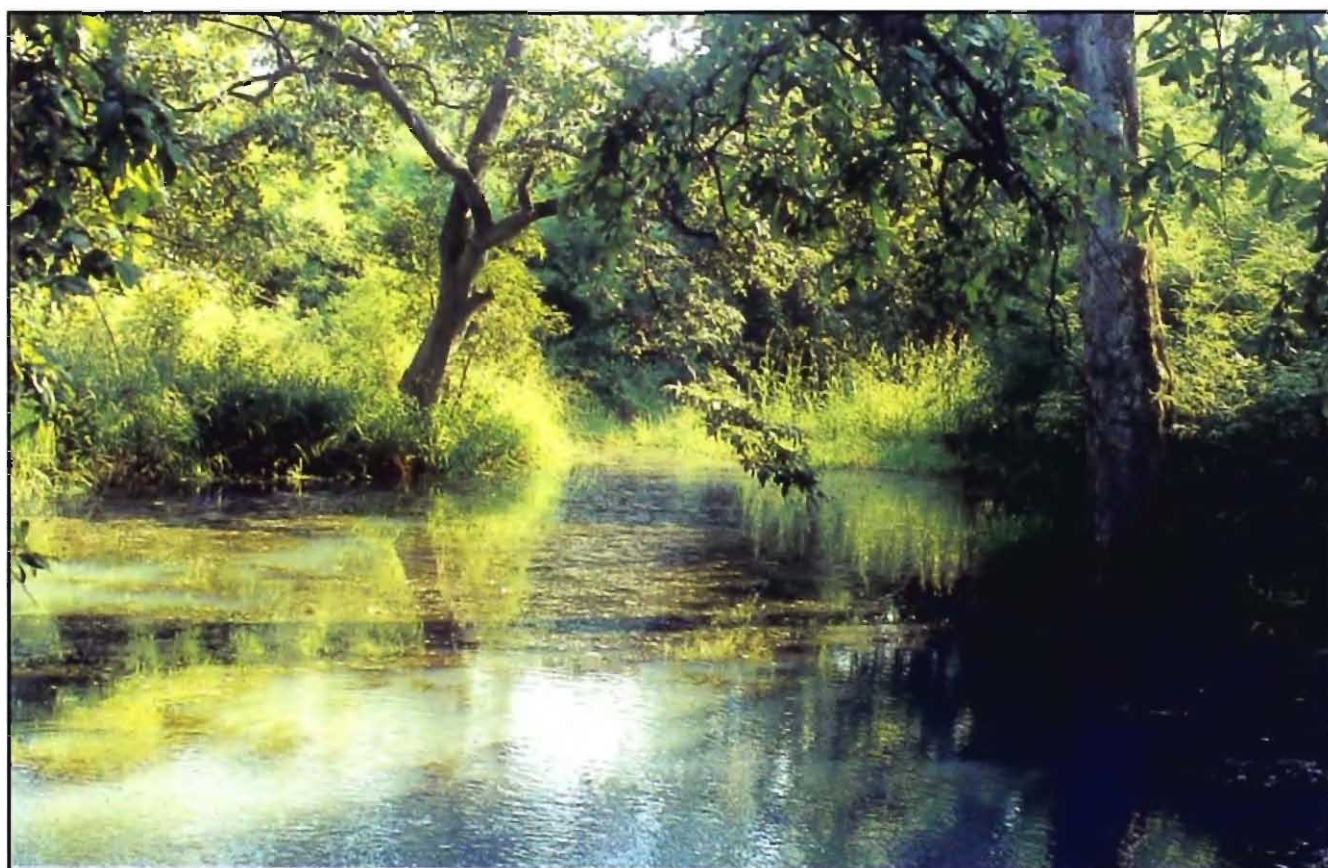
A view of Andhari lake and surrounding forested area



Forest road inside the Tadoba National Park



A thickly forested area with undergrowth of shrubs



A nalla flowing through the dense forest of the park

MAHABAL : *Tadoba-Andhari Tiger Reserve - An Overview*



A typical Southern tropical dry deciduous forest dominated by Teak trees



A 'machan' in core area of the park



A black scorpion *Heterometrus granulomanus* (Fam : Scorpionidae)



A female Gaint Wood Spider on web male spider is also seen on her body



A Sun Spider *Galcodes indicus*
(Fam : Solifugae)



A pair of Sun Spider *Galcodes indicus*
(Fam : Solifugae)



A Wood Spider *Nephila maculata* (Fam : Araneidae) feeding on Dragon fly (Odonata)



An insect cocoon on tree

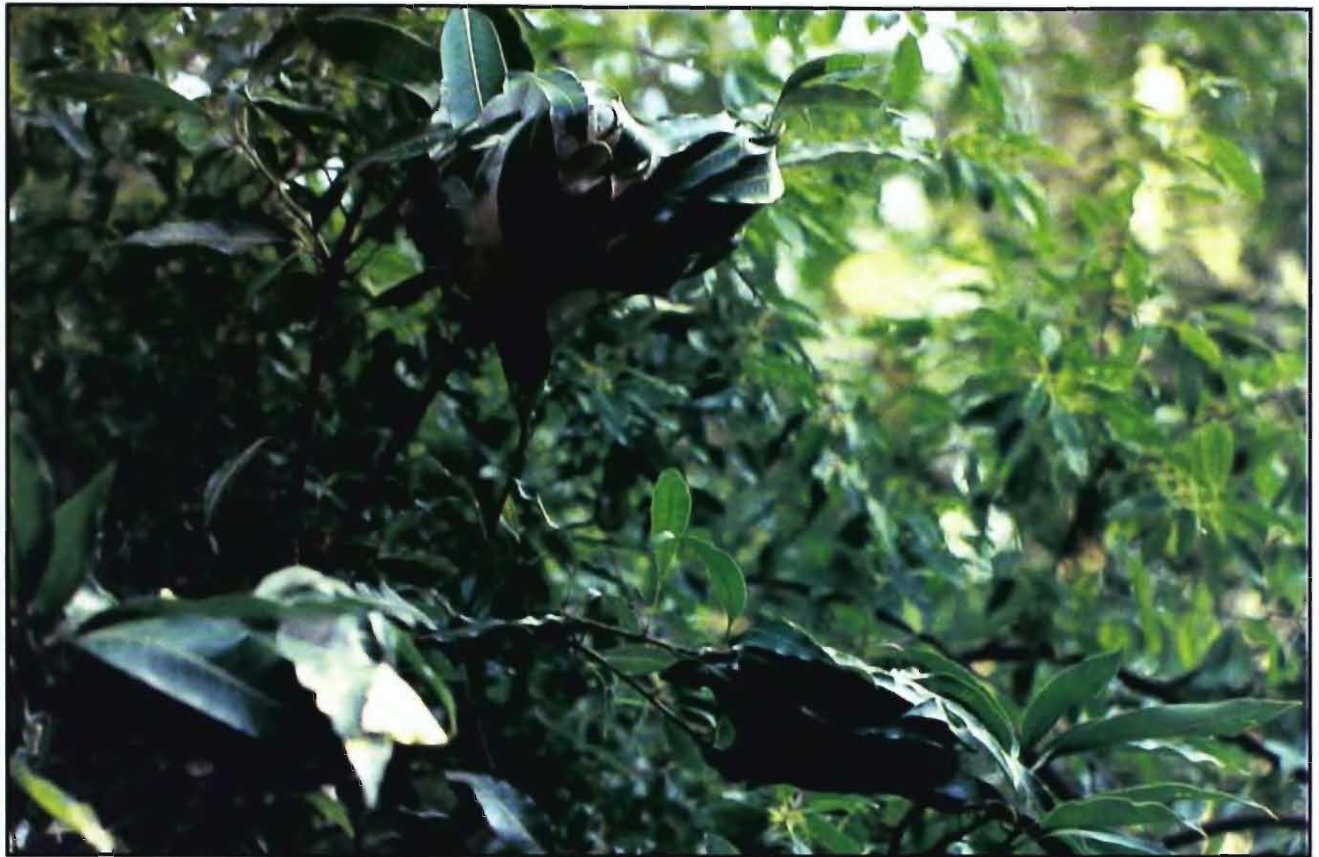


A Termite mound in forested area



Termites on a rock

MAHABAL : *Tadoba-Andhari Tiger Reserve - An Overview*



A colony of Red Ant forming nest on mango tree



A lizard waiting for prey near Tadoba lake



A crocodile in 'Crocodile Breeding Centre'

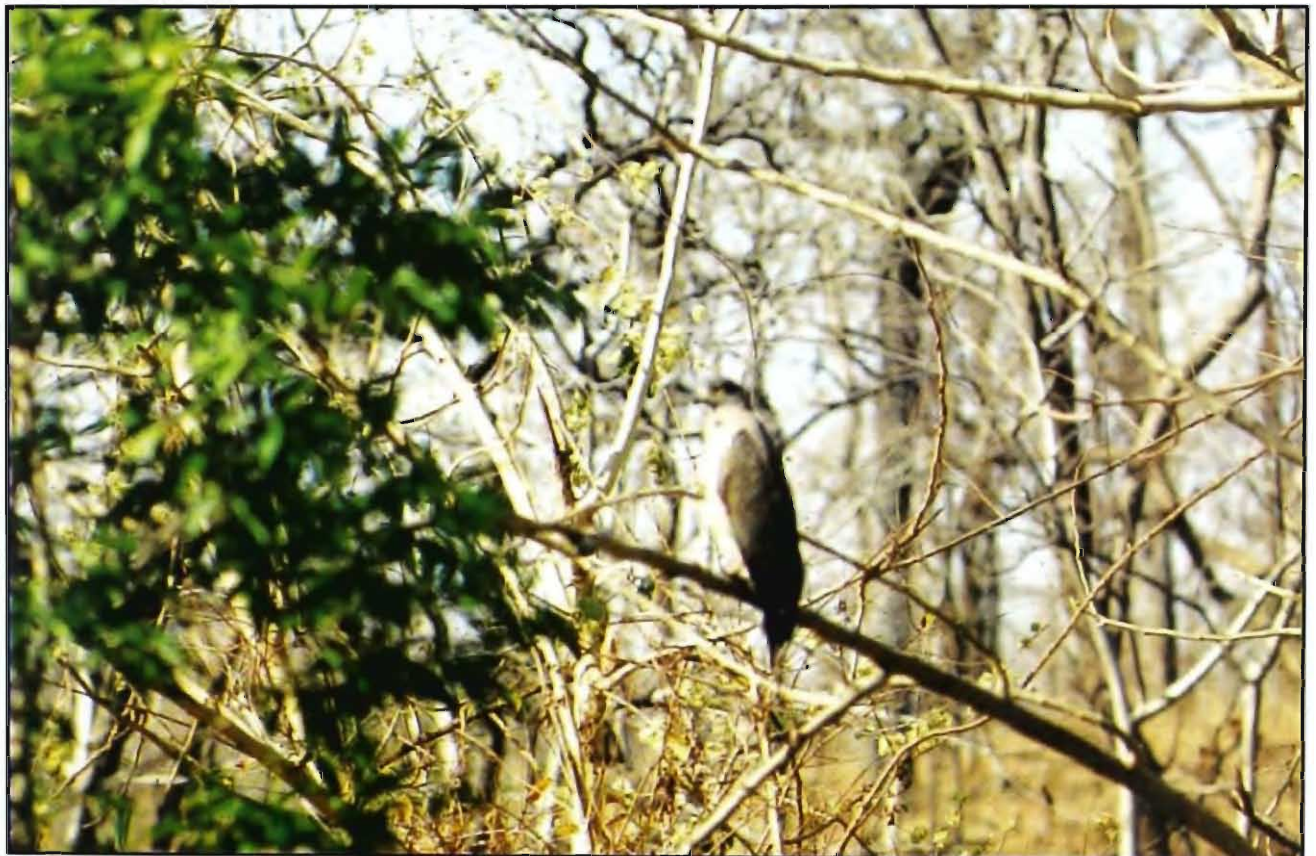


Egg of an crocodile in Tadoba National Park

MAHABAL : *Tadoba-Andhari Tiger Reserve - An Overview*



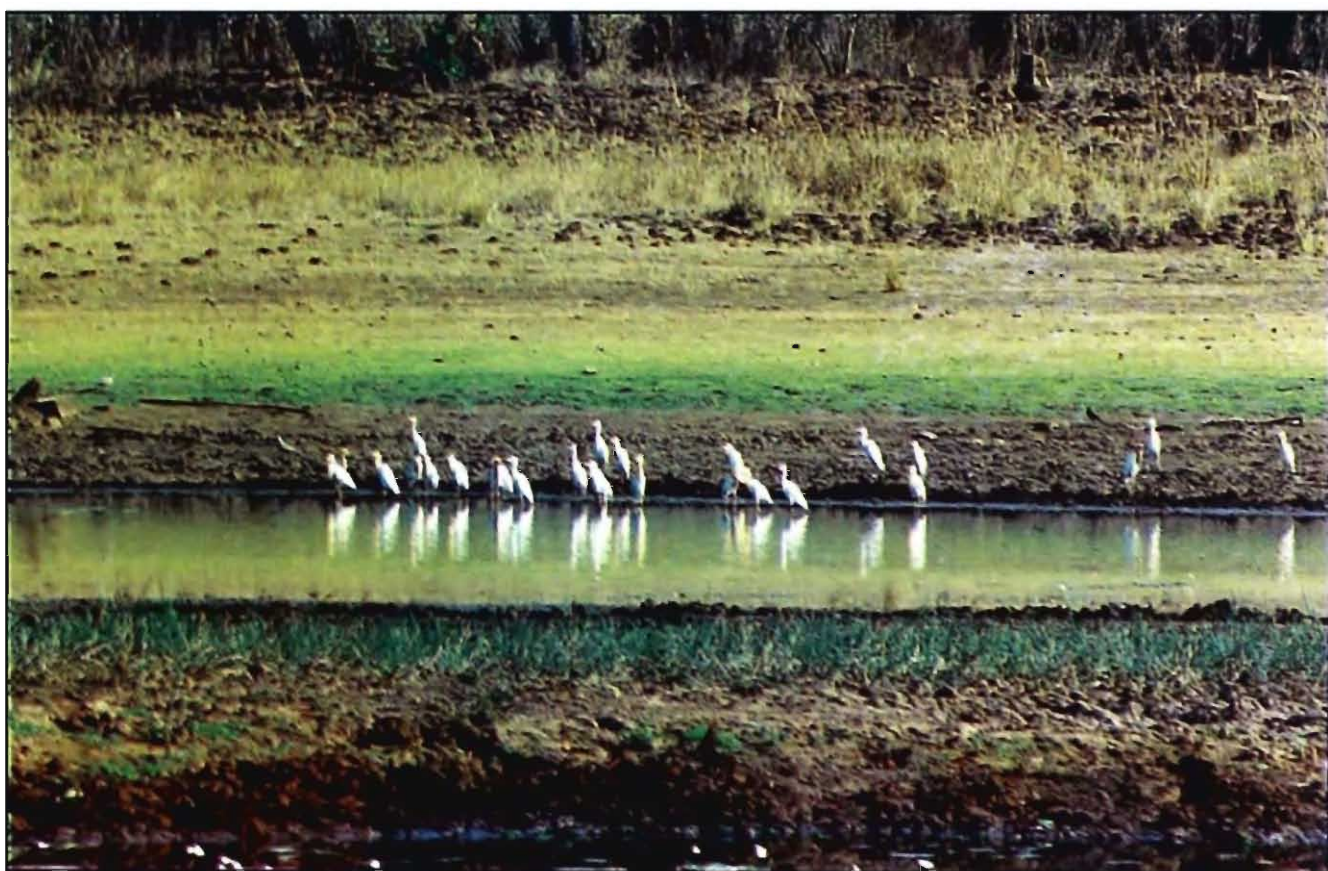
A fresh water Turtle *Lissemys punctata* from Tadoba lake



Crested Serpent Eagle *Spilornis cheela* from forested area



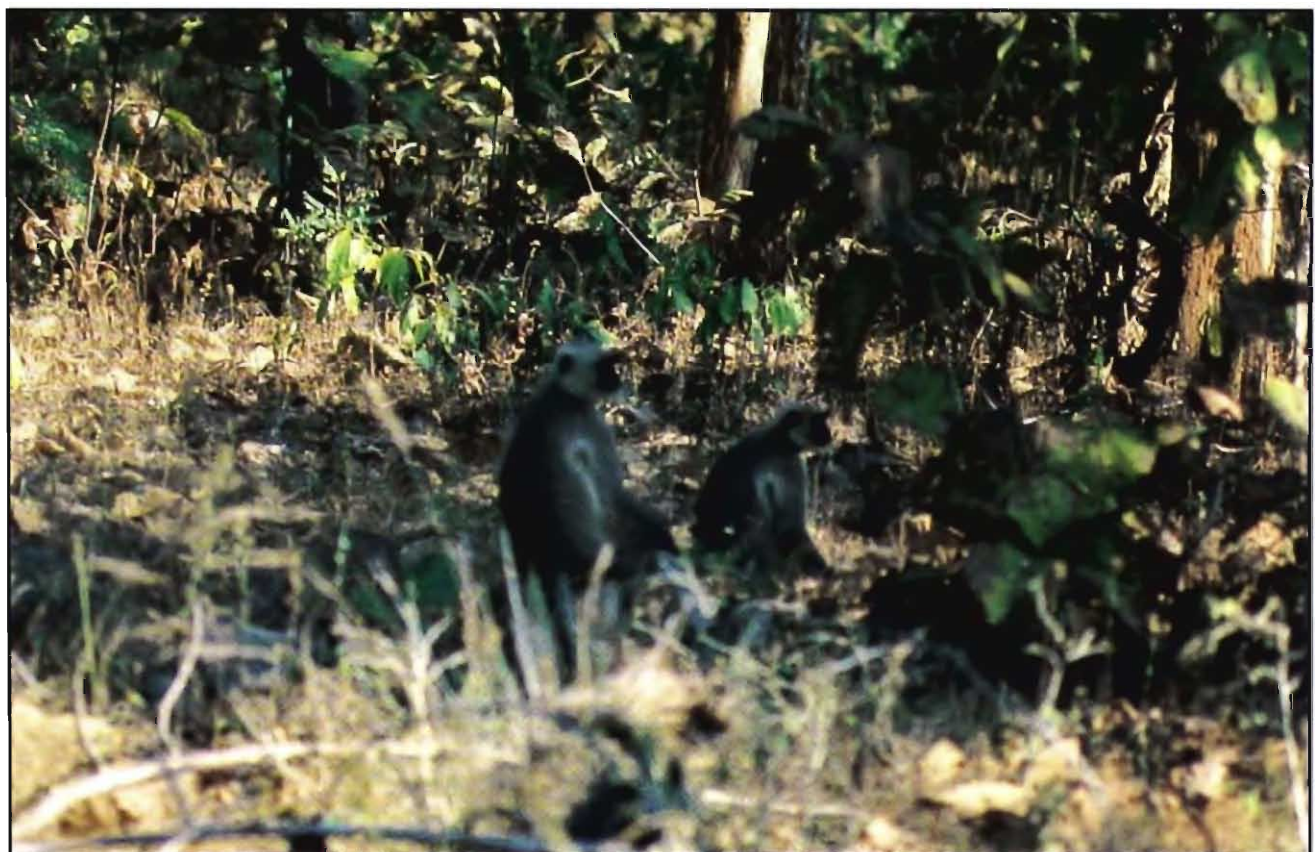
Little Cormorants and a Black Drongo resting on a tree near Tadoba lake



A flock of Cattle Egret *Bubulcus Ibis* near a stagnant water pool



A winter migratory flock of Brahminy Sheel duck *Tadoma ferruginea*



Common Langur *Presbytis entellus* in Teak forest

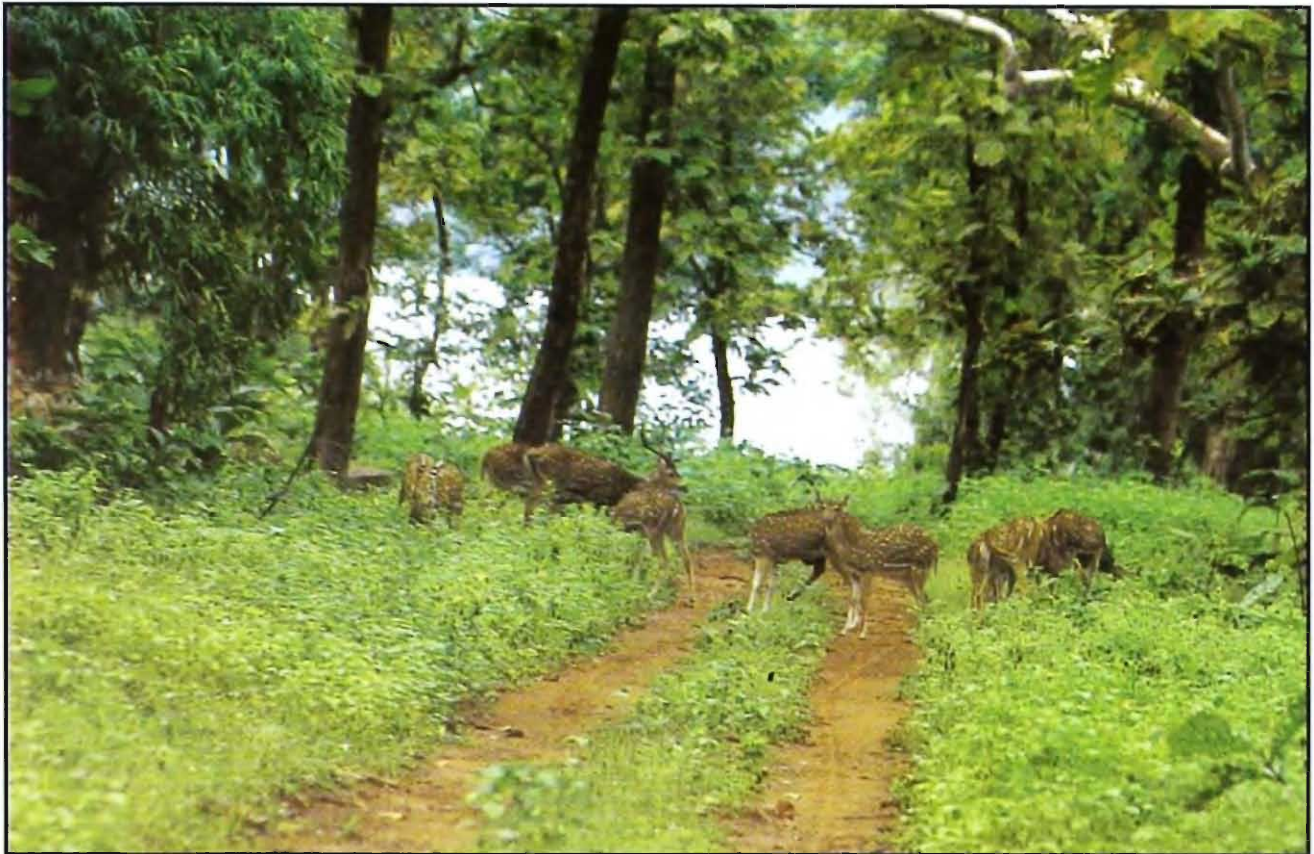


A wounded tree shrew *Anathana ellioti* (Waterhouse)



A herd of Bison in thickly forested area

MAHABAL : *Tadoba-Andhari Tiger Reserve - An Overview*



A herd of Spotted Deer in open forested area



A close-view of herd of a Spotted Deer in open forested area



Droppings of Deers



Marking of claws of a Sloth Bear while climbing on a tree for a honey comb



Droppings of Cat family

PREDATION BY TIGER/PANTHER

Incidences of attack by tigers/panthers on the live stock of the villages in and around the tiger reserve do occur. Those are duly reported upon and compensation is granted by the govt. Few cases of encounter with the tiger and leopard with human beings are also reported occasionally.

Fauna : An account of fauna existing in Tadoba National Park is available from past records, which mainly confine to prominent animals. Out of 41 species of mammals recorded from the area, 9 are endangered viz. Tiger, Panther, Rusty spotted cat, Leopard cat, Sloth bear, Rattle, Gaur, Four horned antelope and Indian pangolin (Kunte (Ed.) 1973). An account of Avifauna in the form of checklist of Tadoba National Park, Chandrapur (Rajkondawar, 1991) is available, wherein 181 species are recorded. These birds are listed alongwith their local name, habitat, period of stay (for migratory birds) and status. This seems to be the only comprehensive account on any faunal group occurring in the Tiger Reserve. Three bird species viz. Large whistling Teal, Great horned Owl and Osprey feature amongst the endangered species. Steep decline in the tiger population in terrestrial area of South Chandrapur Circle has been recorded (Chaudhary, 2003). Patil (2005), has dealt with various aspects of this tiger reserve, in an compendium.

The Project Tiger authorities conduct yearly census for wildlife. Data for the year 1995–2004 was made available by the Conservator of Forests and Field Director Project Tiger (Table I) Chandrapur (Maharashtra).

In spite of a great diversity of fauna inhabiting the area, there had been no systematic exploration of Tadoba–Andhari Tiger Reserve. Western Regional Station of Zoological Survey of India conducted a total of 11 surveys during the years 1994 to 2001 and collected faunal samples for systematic studies. During the course of time Kulkarni *et.al* (1999) recorded observations on perdition of dragonflies by giant wood spider, *Nephila maculata* (Fabr.). Prasad *et.al.* (2000) described occurrence of andromorphic female of Odonata species *Neurothemis intermedia intermedia* Rambur) An account of Odonata attracted at light in the Tadoba Andhari Tiger Reserve was given (Sharma *et.al.* 2000);. Patil and Kulkarni (2000) recorded a fresh water turtle *Lissemys punctata* in this tiger reserve.

Table-I : Census Figures of Tadoba-Andhari Tiger Reserve (1995-2004)

| Animal | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Tiger | 37 | 40 | 42 | 43 | 36 | 38 | 35 | 35-40 | 38-40 | 44 |
| Leopard | 24 | 30 | 24 | 15 | 23 | 23 | 22 | 20-22 | 20-22 | 22 |
| Leopard Cat | 3 | 3 | 9 | - | Present | - | - | - | - | - |
| Jungle Cat | 92 | 126 | 55 | 44 | 100-110 | 100-110 | 28 | 80-100 | Present | Present |
| Wild Dog | 242 | 257 | 369 | 1758 | 80-100 | 80-100 | 65 | 60-80 | 80-100 | 100-250 |
| Jackel | 95 | - | 82 | 79 | 90-100 | 90-100 | 65 | 20-30 | 15-20 | 15-20 |
| Sloth Bear | 154 | 168 | 213 | 165 | 150-200 | 150-200 | 105 | 100-125 | 120-150 | 130-170 |
| Ratel | - | 15 | 8 | 1 | Present | Present | 2 | Present | Present | Present |
| Mongoose | - | 245 | - | 184 | Present | Present | Present | Present | Present | Present |
| Indian Civet | 51 | 28 | 16 | - | - | - | - | - | - | - |
| Hyena | - | 2 | 2 | 5 | Present | Present | 2 | Present | Present | Present |
| Wild Boar | 1484 | 1676 | 2099 | 195 | 1600-1900 | 1600-1900 | 2027 | 1800-2000 | 1400-1600 | 1600-1800 |
| Spotted Deer | 2909 | 3231 | 2896 | 2039 | 2500-2800 | 2500-2800 | 2506 | 2500-3000 | 2100-2500 | 2400-2700 |
| Sambar | 605 | 673 | 888 | 669 | 800-1000 | 800-1000 | 713 | 700-900 | 850-1100 | 900-1150 |
| Barking Deer | 629 | 633 | 615 | 512 | 600-675 | 600-675 | 302 | 300-400 | 325-400 | |
| Indian Bison | 683 | 746 | 820 | 1052 | 1200-1400 | 1200-1400 | 527 | 800-1000 | 900-1100 | 1200-1350 |
| Blue Bull | 192 | 234 | 284 | 228 | 250-300 | 250-300 | 209 | 200-250 | 250-300 | 275-325 |
| Four-Horned Antelope | 125 | 154 | 149 | 145 | 150-200 | 150-200 | 78 | 80-100 | 75-100 | 90-130 |
| Indian Pangolin | 16 | 12 | 14 | 2 | Present | Present | 28 | Present | Present | Present |
| Porcupine | 26 | 49 | 30 | 22 | 30-35 | 30-35 | 2 | 30-35 | Present | Present |
| Langur | 1832 | 2335 | 3296 | 2770 | 3500-3800 | 3500-3800 | 3011 | 3000-3500 | 2500-3000 | 2600-2900 |

Source : Conservator of Forests and Field Director, Tadoba Andhari Tiger Reserve, Chandrapur (Maharashtra)

As a result of the surveys and studies conducted by the Western Regional Station of the Zoological Survey of India, comprehensive account of faunal diversity in 15 groups of fauna in Tadoba Andhari Tiger Reserve is provided in Table-II.

Table-II. Faunal Diversity of Tadoba-Andhari Tiger Reserve

| Sl. No. | Group | Order | Sub-order | Family | Sub-family | Genera | Species | Subspecies |
|---------|------------------------|-------|-----------|--------|------------|--------|---------|------------|
| 1 | Mammalia | 9 | 4 | 12 | 25 | 52 | 20 | 60 |
| 2 | Aves | 17 | — | 55 | 8 | 139 | 192 | — |
| 3 | Reptilia | 3 | 3 | 16 | — | 41 | 50 | 4 |
| 4 | Amphibia | 1 | — | 4 | — | 7 | 10 | — |
| 5 | Pisces | 9 | — | 18 | 7 | 52 | 84 | — |
| 6 | Mollusca | 4 | — | 12 | — | 15 | 36 | — |
| 7 | Scorpionida | 1 | — | 2 | 2 | 3 | 4 | — |
| 8 | Areanida | 1 | — | 6 | — | 19 | 29 | — |
| 9 | Solifugi | 1 | — | 1 | — | 1 | 1 | — |
| 10 | Centipedes | 1 | — | 2 | 2 | 6 | 13 | — |
| 11 | Cladocera | 1 | 1 | 6 | — | 23 | 40 | — |
| 12 | Odonata | 1 | 2 | 6 | 11 | 17 | 41 | — |
| 13 | Lepidoptera | 1 | 2 | 7 | — | 50 | 68 | — |
| 14 | Mantodea | 1 | — | 2 | 6 | 9 | 10 | 1 |
| 15 | Hemiptera (Aquatic) | 1 | — | 6 | 11 | 14 | 25 | — |

SUMMARY

An account of 688 species and subspecies is provided in this volume. It cannot be claimed that this is the full account of total biodiversity of the Tadoba-Andhari Tiger Reserve. Collection belonging to other faunal groups still remains to be identified, which may be published at a later date.

ACKNOWLEDGEMENTS

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I am grateful to the Chief Wildlife Warden and Chief Conservator of Forests, Govt. of Maharashtra, Nagpur for his co-operation in providing special purpose permits for Survey and collection of samples for identification of various groups of fauna available in Tadoba Andhari Tiger Reserve. Help extended by the authorities and staff of Tadoba Andhari Tiger Reserve is duly acknowledged.

I would like to record my sincere thanks to all survey party members, who participated and to all the author scientists of the Zoological Survey of India, who have contributed the chapters on various faunal groups.

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MAMMALIA

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INTRODUCTION

Tadoba-Andhari Tiger Reserve exhibits rich floral and faunal diversity. However, no consolidated account is available on its 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 the present 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, Farooqui, 1997 and many others which have been mentioned at relevant places).

SYSTEMATIC LIST

(*Asterisks indicate 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.)

3. *Suncus stoliczkanus* (Anderson)

Order SCANDENTIA
Family TUPAIIDAE
Subfamily TUPAIINAE

*4. *Anathana ellioti ellioti* (Waterhouse)

Order CHIROPTERA
Suborder MEGACHIROPTERA
Family PTEROPODIDAE

Subfamily PTEROPODINAE

5. *Rousettus l. leschenaulti* (Desmarest)*6. *Pteropus giganteus giganteus* (Brunnich)*7. *Cynopterus sphinx sphinx* (Vahl)

Suborder MICROCHIROPTERA

Family RHINOPOMATIDAE

*8. *Rhinopoma hardwickei* Gray9. *Rhinopoma microphyllum* (Brunnich)

Family EMBALLONURIDAE

10. *Taphozous m. melanopogon* Temminck11. *Taphozous l. longimanus* Hardwicke12. *Taphozous (Liponycteris) nudiventris* Cretzschmar13. *Taphozous (Saccolaimus) saccolaimus* (Temminck)

Family MEGADERMATIDAE

*14. *Megaderma spasma horsfieldii* Blyth15. *Megaderma (Lyroderma) l. lyra* Geoffroy

Family RHINOLOPHIDAE

16. *Rhinolophus luctus* Temminck17. *Rhinolophus rouxii rouxii* Temminck

Family HIPPOSIDERIDAE

18. *Hipposideros ater ater* Templeton19. *Hipposideros fulvus fulvus* Gray20. *Hipposideros galeritus brachyotus* (Dobson)*21. *Hipposideros lankadiva indus* (Andersen)22. *Hipposideros speoris speoris* (Schneider)

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

*23. *Scotophilus kuhlii kuhlii* Leach24. *Scotophilus heathi heathi* (Horsfield)25. *Pipistrellus ceylonicus indicus* (Dobson)26. *Pipistrellus coromandra coromandra* (Gray)*27. *Pipistrellus tenuis mimus* Wroughton28. *Pipistrellus d. dormeri* (Dobson)

Subfamily MINIOPTERINAE

29. *Miniopterus schreibersi fuliginosus* (Hodgson)

- Family MOLOSSIDAE
30. *Tadarida (Chaerephon) plicata plicata* (Buchannan)
31. *Tadarida aegyptiaca thomasi* Wroughton
- Order PRIMATES
- Family CERCOPITHECIDAE
- Subfamily CERCOPITHICINAE
- *32. *Macaca mulatta mulatta* (Zimmermann)
- Subfamily COLOBINAE
- *33. *Semnopithecus entellus entellus* (Dufresne)
- Order PHOLIDOTA
- Family MANIDAE
34. *Manis crassicaudata* Gray
- Order CARNIVORA
- Family CANIDAE
35. *Canis lupus pallipes* Sykes
- *36. *Canis aureus* Linn
- *37. *Cuon alpinus* (Pallas)
- *38. *Vulpes bengalensis* (Shaw)
- Family URSIDAE
- Subfamily URSINAE
- *39. *Melursus ursinus* (Shaw)
- Family MUSTELIDAE
- Subfamily MELLIVORINAE
- *40. *Mellivora capensis* (Schreber)
- Subfamily LUTRINAE
- *41. *Lutragale perspicillata* (Geoffroy)
- Family VIVERRIDAE
- Subfamily VIVERRINAE
- *42. *Viverricula indica indica* (Desmarest)
- Subfamily PARADOXURINAE
- *43. *Paradoxurus h. hermaphroditus* (Pallas)
- Family HERPESTIDAE
- Subfamily HERPESTINAE

- | | | |
|------|---|----------------|
| | Order | RODENTIA |
| | Suborder | SCIUROGNATHI |
| | Family | SCIURIDAE |
| | Subfamily | RATUFINAE |
| *61. | <i>Ratufa indica centralis</i> | Ryley |
| | Subfamily | FUNAMBULINAE |
| *62. | <i>Funambulus palmarum robertsoni</i> | Wroughton |
| *63. | <i>Funambulus pennanti</i> | Wroughton |
| | Family | PTEROMYIDAE |
| *64. | <i>Petaurista philippensis philippensis</i> | (Elliot) |
| | Family | MURIDAE |
| | Subfamily | MURINAE |
| *65. | <i>Mus musculus castaneus</i> | Waterhouse |
| *66. | <i>Mus musculus homourus</i> | Hodgson |
| *67. | <i>Mus booduga booduga</i> | (Gray) |
| 68. | <i>Mus platythrix</i> | Bennett |
| *69. | <i>Mus phillipsi</i> | Wroughton |
| 70. | <i>Vandeleuria oleracea oleracea</i> | (Bennett) |
| *71. | <i>Rattus rattus rufescens</i> | (Gray) |
| *72. | <i>Rattus rattus narbadae</i> | Hinton |
| 73. | <i>Millardia meltada meltada</i> | (Gray) |
| *74. | <i>Cremnomys blanfordi</i> | (Thomas) |
| 75. | <i>Golunda ellioti ellioti</i> | Gray |
| *76. | <i>Bandicota bengalensis bengalensis</i> | (Gray) |
| *77. | <i>Bandicota indica indica</i> | (Bechstein) |
| | Subfamily | GERBILLINAE |
| 78. | <i>Tatera indica indica</i> | (Hardwicke) |
| | Suborder | HYSTRICOGNATHI |
| | Family | HYSTRICIDAE |
| *79. | <i>Hystrix indica</i> | Kerr |
| | Order | LAGOMORPHA |
| | Family | LEPORIDAE |
| *80. | <i>Lepus nigricollis nigricollis</i> | Cuvier |

SYSTEMATIC ACCOUNT

(*Asterisks indicate species actually collected and/or sighted during project period)

| | |
|-----------|--------------|
| 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 nearby areas like Nagpur and Amaraoti districts, it is assumed that it occurs in the current study area also.

Material examined/Sightings : None.

Distribution elsewhere : Throughout India.

Status : Not uncommon locally.

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

Remarks : Perhaps the smallest of all the Indian 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 : Tadoba and Kolsa.

Material examined/Sightings : Sighted live specimens in the gardens near rest houses in the above mentioned localities.

Distribution elsewhere : 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, shrew is considered to be farmer's friend.

3. *Suncus stoliczkanus* (Anderson)

1877. *Crocidura (Pachyura) stoliczkana* Anderson, *J. Asiat. Soc. Beng.* : 46 : 270.

1993. *Suncus stoliczkanus* (Anderson) by Rainer Hutterer. *In* : Wilson & Reeder, *Mammal Species of the World* : 103.

Common name : English : Anderson's shrew, Marathi : Chichundri.

Locality : Tadoba - Andhari Tiger Reserve.

Material examined/Sightings : None.

Distribution elsewhere Peninsular India (Corbet and Hill, 1992).

Status : Uncommon locally.

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

Remarks : Medium-sized shrew. Being insectivorous in habit, the shrew is considered to be farmer's friend.

| | |
|-----------|------------|
| Order | SCANDENTIA |
| Family | TUPAIIDAE |
| Subfamily | TUPAIINAE |

*4. *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 : Tadoba, Mahurli And Kolsa areas in Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : Sighted live specimens in the above mentioned localities by Forest Dept. authorities and ZSI survey parties during the project period.

Distribution elsewhere : 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 |

5. *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* : Bates and Harrison (1997) reported occurrence of this species from adjoining district like Nagpur.

Material examined/Sightings : None.

Distribution elsewhere : 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.

*6. *Pteropus giganteus giganteus* (Brunnich)

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

1997. *Pteropus g. giganteus* (Brunnich) Bates & Harrison, *Bats of the Indian Subcontinent* : 9-13

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

Locality : Tadoba and Chandrapur.

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

Distribution elsewhere : 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.

***7. *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 : Moharli and Kolsa.

Material examined/Sightings : Sighted a few specimens in the late evening hours at the above mentioned localities by ZSI survey parties during the project period.

Distribution elsewhere : 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 to orchards.

Suborder MICROCHIROPTERA

Family RHINOPOMATIDAE

***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 : Near Tadoba Rest House.

Material examined/Sightings : Collected one specimen during the project period.

Distribution elsewhere : 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*.

9. *Rhinopoma microphyllum* (Brunnich)

1782. *Vespertilio microphyllum* Brunnich *Dyrenes Historie og Dyre-Samlingenudi Universitetets Natur-Theater. Band 1. Kobenhavn* 50, Pl. 6.

1997. *Rhinopoma microphyllum* (Brunnich) Corbet and Hill, *The Mammals of the Indomalayan Region* : 82.

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

Locality : Sinha, (1980) reported occurrence of *R. microphyllum* in the adjoining areas of Nagpur Dist. hence its occurrence in Tadoba–Andhari Tiger Reserve area has been assumed here.

Material examined/Sightings : None.

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

Status : Not very common species locally.

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

Remarks : Nil.

Family EMBALLONURIDAE

10. *Taphozous m. melanopogon* Temminck

1841. *Taphozous melanopogon* Temminck, *Monographies de mammalogie.... tome 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 : Naidu and Thakre (1980) (In Bates and Harrison (1997) reported occurrence of *Taphozous m. melanopogon* in the adjoining areas of Nagpur Dist. hence its occurrence in Tadoba–Andhari Tiger Reserve area has been assumed here.

Material examined/Sightings : None.

Distribution elsewhere : Throughout India.

Status : A common species locally.

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

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

11. *Taphozous l. longimanus* Hardwicke

1821. *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 : Chandrapur Dist. (Bates and Harrison, 1998).

Material examined/Sightings : None.

Distribution elsewhere : 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.

12. *Taphozous (Liponycteris) nudiventris* Cretzschmar

1830-31. *Taphozous nudiventris* Cretzschmar J. *Saugethiere*. In : *Atlas zu der Reise innordlichen Afrika von Edouard Ruppell* : 70.

1997. *Taphozous (Liponycteris) nudiventris* Cretzschmar, Bates & Harrison, *Bats of the Indian Subcontinent* : 46-48.

Common name : English : Naked-rumped tomb bat; Marathi : Watwaghul.

Locality : Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : None.

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

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

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

Remarks Bates and Harrison (1997) report that *T. (Liponycteris) nudiventris* appears to associate with *Rousettus leschenaulti* and *Hipposideros speoris*. The flight of the species is strong, fast and straight.

13. *Saccolaimus saccolaimus* (Temminck)

1838. *Taphozous saccolaimus* Temminck, *Tijdschrift Natuurl. Gesch. Physiol.* : 5 : 14.

1992. *Saccolaimus saccolaimus* (Temminck) by Karl F. Koopman. In : Wilson & Reeder, *Mammal Species of the World* : 159.

Common name : English : Pouch bearing bat; Marathi : Watwaghul.

Locality : Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : None.

Distribution elsewhere : 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 some regions.

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

Remarks : Bates and Harrison (1997) and Corbet and Hill (1992) preferred to retain *Saccolaimus* as a subgenus of Genus *Taphozous*. However, Wilson and Reeder (1993), on the basis of the observations made by Barghorn (1977), treated *Saccolaimus* as a separate genus.

Family MEGADERMATIDAE

*14. *Megaderma spasma horsfieldii* Blyth

1863 *Megaderma horsfieldii* Blyth, *Cat. Mamm. Mus. Asiat. Soc., Bengal* : 23.

1997 *Megaderma spasma horsfieldi* Blyth, Bates & Harrison. *Bats of the Indian Subcontinent* : 54-55.

Common name : English : Lesser false vampire bat; Marathi : Watwaghul

Locality : Deserted Rest House in Kolsa area, Tadoba-Andhari Tiger Reserve

Material examined/Sightings : Collected two specimens from the above mentioned locality during the project period.

Distribution elsewhere : Throughout peninsular India.

Status : Bates and Harrison (1997) have listed number of localities from India, the species appears to be a bit uncommon in some regions.

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

Remarks : Bates and Harrison (1997) have not offered any comments on the subspecific status of the nominate subspecies. The Subspecific status of *M. spasma* has been retained here on the basis of the observations made by Corbet and Hill (1992). Bates and Harrison (1997) report that the species is widespread but probably never abundant. *M. spasma* is a secretive species the population of which is fairly stable but vulnerable due to destruction of its forest habitat.

15. *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 : Chandrapur and Nagpur Dist. (Bates and Harrison, 1997).

Material examined/Sightings : None.

Distribution elsewhere : 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 its 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

16. *Rhinolophus luctus* Temminck

1834. *Rhinolophus luctus* Temminck, *Tijdschrift Natuurl. Gesch. Physiol.* **1** : 23.

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

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

Locality : Tadoba-Andhari Tiger Project.

Material examined/Sightings : None.

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

Status : Though Corbet and Hill (1992) have reported the distribution of the species throughout India, Bates and Harrison (1997) have listed very few collection localities from India. The population status of the species appears to be unclear.

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

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

17. *Rhinolophus r. rouxii* Temminck

1835. *Rhinolophus rouxii* Temminck, *Monogr. Mammal.*, **2** : 30b.

1997. *Rhinolophus rouxii* Temminck, Bates & Harrison, *Bats of The Indian Subcontinent* : 61-64.

Common name : English : Rufous/Roux's Horseshoe bat; Marathi : Watwaghul.

Locality : Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : None.

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

Status : Though Corbet and Hill (1992) have reported the distribution of the species throughout India, Bates and Harrison (1997) have listed isolated collection localities from India excluding central part. According to them the population status of the species appears to be fairly common.

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

Remarks : According to Brosset (1962b), there is vigorous sexual segregation for at least part of the year with the males living alone or in small groups, while females living in large colonies. Sreenivasan *et al.* (1973) suggest that males are excluded from the colonies during the period of parturition and lactation.

Family HIPPOSIDERIDAE

18. *Hipposideros ater ater* Templeton

1848. *Hipposideros ater ater* Templeton, In Blyth, *Journal Asiat. Soc. Bengal.*, **17** : 252

1997. *Hipposideros ater ater* Templeton, Bates & Harrison, *Bats of the Indian Subcontinent* : 81-84.

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

Locality : Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : None.

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

Status : Though Corbet and Hill (1992) have reported the distribution of the species throughout India, Bates and Harrison (1997) have listed isolated collection localities from India. According to them the populations are geographically very widespread and not threatened.

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

Remarks : According to Bates and Harrison (1997) the colonies consist of the individuals of both the sexes.

19. *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 District (Sabnis, 1973 in Bates and Harrison, 1997).

Material examined/Sightings : None.

Distribution elsewhere : 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.

20. *Hipposideros galeritus brachyotus* (Dobson)

1874 c. *Phyllorhina brachyota* Dobson, *Journal Asiat. Soc. Bengal.*, 43(2) : 237-238.

1997. *Hipposideros galeritus brachyotus* (Dobson), Bates & Harrison, *Bats of the Indian Subcontinent* : 92-93.

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

Locality : Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : None.

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

Status : Bates and Harrison (1997) have listed number of isolated collection localities from India. The populations appears to be geographically widespread but with a relatively low population density. Khajuria, (1980) considers it to be a rare species in India.

Conservation status IUCN : Near Threatened (For *H. galeritus*) (CAMP Report, 2002).

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).

*21. *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 : Kolsa in Tadoba-Andhari Tiger Reserve area.

Material examined/Sightings : One specimen was netted from the above mentioned locality during the project period.

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

Status : Bates and Harrison (1997) have listed limited number of isolated but large colonies in India. Possible threats include human disturbance of roosts.

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, 1984).

22. *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 : Deccan (Sykes, 1831, in Corbet and Hill, 1992).

Material examined/Sightings : None.

Distribution elsewhere : Peninsular India including Deccan (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

*23. *Scotophilus kuhlii kuhlii* Leach

1822. *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 : Kolsa in Tadoba-Andhari Tiger Reserve area.

Material examined/Sightings : Sighted one specimen flying near the deserted Kolsa rest house during the project period.

Distribution elsewhere : 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 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 characterised by their unpleasant smell.

24. *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 : Chandrapur Dist. (Bates and Harrison, 1997).

Material examined/Sightings : None;

Distribution elsewhere : 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.

25. *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. adjoining Chandrapur Dist. (Sabnis, 1973 in Bates and Harrison, 1997).

Material examined/Sightings : None.

Distribution elsewhere : 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 (For *Pipistrellus ceylonicus*) (CAMP Report, 2002).

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

26. *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 : Chadrapur Dist. (Bates and Harrison, 1997).

Material examined/Sightings : None.

Distribution elsewhere : 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.

*27. *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 : Sighting in the evening hours at Kolsa Rest House during project period.

Material examined/Sightings : Sighted three specimens.

Distribution elsewhere : 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 (For *P. tenuis*) (CAMP Report, 2002).

Remarks : The specimens from India are referred to *P. tenuis mimus* as suggested by Sinha (1980), Corbet and Hill (1992) and Bates and Harrison (1997).

28. *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 : Chandrapur Dist. (Bates and Harrison. 1997).

Material examined/Sightings : None.

Distribution elsewhere : 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 its roost.

Subfamily MINIOPTERINAE

29. *Miniopterus schreibersi fuliginosus* (Hodgson)

1835. *Vespertilio fuligenosa* Hodgson *J. Asiat. Soc. Beng.*, 4 : 700.

1997. *Miniopterus schreibersi fuliginosus* (Hodgson) Bates & Harrison, *Bats of the Indian Subcontinent* : 198-201.

Common name : English : Schreiber's Long-fingered bat; Marathi : Watwaghul.

Locality : Tadoba–Andhari Tiger Reserve.

Material examined/Sightings : None.

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

Status : Bates and Harrison (1997) have reported the species as a common species through its extensive range..

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

Remarks : The individuals of this species are strong and fast flyers and leave their roosts soon after sunset. They do not stay near the roosts but fly directly away in different directions.

Family MOLOSSIDAE

30. *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 : Tadoba–Andhari Tiger Reserve.

Material examined/Sightings : None.

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

Status : Bates and Harrison (1997) have reported the distribution of the species worldwide, 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.

31 *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 : Tadoba–Andhari Tiger Reserve.

Material examined/Sightings : None.

Distribution elsewhere : 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 CERCOPITHECINAE

***32. *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 : Moharli, Kolsa road and Tadoba areas of Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : Sighted small troops by number of ZSI Survey parties during the project period.

Distribution elsewhere : 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

***33. *Semnopithecus entellus 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 Ed. Smithsonian Institute Press Washington : 273.

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

Locality : Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : Sighted number of troops at different places and times in the study area by ZSI Survey parties during the project period.

Distribution elsewhere : 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) 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. As per the census conducted in 1987 by the Forest Dept. authorities there were 1300+ Common langurs in Tadoba-Andhari Tiger Reserve area.

Order PHOLIDOTA

Family MANIDAE

34. *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 : Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : None.

Distribution elsewhere : Peninsular India (Corbet and Hill, 1992).

Status : Agrawal *et. al.* (1992) have reported the status of the species as rare in peninsular India.

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 : Recent status survey studies of *Manis crassicaudata* was carried out by Chakraborty *et. al* (2002). The species is known to be hunted for domestic trade of body parts for medicinal and other usages. As per the census conducted in 1987 by the Forest Dept. authorities there were four pangolins in Tadoba-Andhari Tiger Reserve area.

Order CARNIVORA

Family CANIDAE

35. *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 : Outskirts of Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : None.

Distribution elsewhere : South of Himalayas through the desert zone to the dry open country in peninsular India (Corbet and Hill, 1992).

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. It is also being killed by the farmers to protect their live stock from predation.

*36. *Canis aureus* Linn.

1758. *Canis aureus* Linnaeus, *Systema naturae*.... Vol. I 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 : Andhari part of Tadoba-Andhari Tiger Reserve.

Material examined/Sightings : Sighting in the above mentioned locality by ZSI survey party during the project period.

Distribution elsewhere : Practically whole of India.

Status : CAMP Report (1998) has stated that though number of jackal populations have been recorded 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 upto 2002) Schedule* : *Schedule* : II Part : II *CITES* : Appendix : III.

Remarks : The species is known to be hunted for trade of fur and body parts in domestic as well as international markets. It is also being killed by the farmers to protect their live stock from predation.

***37. *Cuon alpinus* (Pallas)**

1811. *Canis alpinus* Pallas, *zoogr. Ross. Asiat.* 1 : 34.

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 : Tadoba, Kolsa, Moharli and other areas within the tiger reserve;

Material examined/Sightings : Sighted number of small packs at different times in the above mentioned localities by ZSI survey parties and Forest Dept. authorities during the project period;

Distribution elsewhere : 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 upto 2002) Schedule* : II Part : I
CITES : Appendix : II.

Remarks : As per the census conducted in 1995 by the Forest Dept. authorities there were 240+ Wild Dogs in Tadoba-Andhari Tiger Reserve area.

***38. *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 : Tadoba.

Material examined/Sightings : Sighting in the above mentioned locality by ZSI survey parties during the project period.

External 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 upto 2002) 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. As per the census conducted in 1987 by the Forest Dept. authorities there were 6 Foxes in Tadoba-Andhari Tiger Reserve area.

Family URSIDAE
Subfamily URSINAE

***39. *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 : Tadoba and Kolsa in Tadoba-Andhari Tiger Reserve Territory.

Material examined/Sightings : Sighting in the above mentioned locality by ZSI survey parties during the project period.

External 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 upto 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 1995 census conducted by Forest Dept. authorities, the approximate population of sloth bear in Tadoba-Andhari Tiger Reserve area is 154.

Family MUSTELIDAE
Subfamily MELLIVORINAE

***40. *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 : Tadoba and its surrounding areas.

Material examined/Sightings : Forest Dept. authorities have reported sightings of ratel in Tadoba-Andhari Tiger Reserve area.

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 behaviour. 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 upto 2002) Schedule : Schedule I Part I, CITES : Appendix : Nil; Red Data Book (National, 1994) : Insufficiently Known.

Remarks : Weasels, Badgers and Otters differ so much from each other in appearance that it is difficult to believe that there is any relationship between them. However certain similarities in skull and molar structures show resemblance and common affinity between them.

Subfamily LUTRINAE

***41. *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 and their scats have been sighted near Tadoba lake and other water bodies in Tadoba-Andhari Tiger Reserve by the Forest Dept. authorities.

External distribution : Throughout India.

Status : Though the distribution is wide, the populations are fragmented. Once very common in distribution, 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 upto 2002) Schedule : Schedule II Part II, CITES : Appendix : II.

Remarks : Same as those given under Ratel species.

Family VIVERRIDAE

Subfamily VIVERRINAE

***42. *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 Indomalayn region* : 206.

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

Locality : Small Indian civet was sighted in Kolsa region of Tadoba-Andhari Tiger Reserve by the Forest Dept. authorities during the project period.

External 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 upto 2002) Schedule : Schedule II Part II, CITES : Appendix : III.

Remarks : The civets can easily be tamed. Some are kept under domestication for the regular extraction of the secretion from the scent glands.

Subfamily PARADOXURINAE

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

1777. *Viverra hermaphrodita* Pallas, In : Schreber, *Die Säugethiere*, 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 around Tadoba lake and Moharli areas in Tadoba-Andhari Tiger Reserve by the ZSI Survey parties and Forest Dept. authorities during the project period.

External distribution : Throughout India excluding deserts.

Status : Though the distribution is wide and the populations are many, they are fragmented. Though they are fairly 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-Least concern (Nationally) and Data Deficient (Globally); Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule II Part II, CITES : Nil; Red Data Book (International, 1996) : Vulnerable.

Remarks : The civets can easily be tamed. Some are kept under domestication for the regular extraction of the secretion from the scent glands. As per 1987 census conducted by Forest Dept. authorities, the approximate population of Common Palm Civet in Tadoba-Andhari Tiger Reserve area is 35.

Family HERPESTIDAE

Subfamily HERPESTINAE

*44. *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 grey mongoose was sighted at number of places like Moharli, Kolsa, Tadoba etc. at different times in Tadoba-Andhari Tiger Reserve by the ZSI Survey parties during the project period.

External 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 for local illegal trade for body parts can not be ruled out. Moreover, they are also used in street games performed by snake charmers.

45. *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 : Tadoba-Andhari Tiger Reserve.

External distribution : Throughout the forested areas of Central and Southern India.

Status : Distribution of Indian ruddy 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 local and domestic trade.

Family HYAENIDAE
Subfamily HYAENINAE

*46. *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 near Moharli area in Tadoba-Andhari Tiger Reserve has been recorded by the ZSI survey parties during the project period.

External distribution : Throughout India.

Status : Not very uncommon in Tadoba-Andhari Tiger Reserve; 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 (1997) has reported illegal trade of hyaena's fur. Inclusion of hyaena in CITES Appendix is strongly recommended.

Family FELIDAE
Subfamily FELINAE

***47. *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 : Indian Desert Cat; Marathi : Jangli Manjar.

Locality : Sighting of Indian Desert Cat near Kolsa area in Tadoba-Andhari Tiger Reserve has been recorded by the ZSI survey parties during the project period.

External distribution : Throughout India.

Status : Uncommon in Tadoba-Andhari Tiger Reserve; 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*.

***48. *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 Tadoba region of Tadoba-Andhari Tiger Reserve by ZSI survey parties and Forest Dept. authorities during the project period.

External distribution : Throughout India.

Status : Not uncommon in Tadoba-Andhari Tiger Reserve; 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. Corbet and Hill (1992) disagreed with the proposal of number of subspecies in *Felis chaus*. He has synonymised *Felis chaus affinis* in *Felis chaus*. However, 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 are strongly recommended to sort out proper placement of the subspecies.

***49. *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 : Leopard cat has been sighted on a road near Moharli in Tadoba region of Tadoba-Andhari Tiger Reserve by ZSI survey party and Forest Dept. authorities during the project period.

External distribution : Throughout India.

Status : Rare atleast in Tadoba-Andhari Tiger Reserve; 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 : 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

***50. *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 : Leopard has been sighted in Moharli and Tadoba areas of Tadoba-Andhari Tiger Reserve by the ZSI survey parties and Forests Dept. authorities during the project period.

External distribution : Throughout India.

Status : Not uncommon in Tadoba-Andhari Tiger Reserve; 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 : Largest number of leopard skins in the cat skin trade is involved in the illegal 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 (Pradhan, 1997). As per 1995 census conducted by Forest Dept. authorities, the approximate population of Leopards in Tadoba-Andhari Tiger Reserve area is 24.

***51. *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 Tadoba and Kolsa areas of Tadoba-Andhari Tiger Reserve by the ZSI survey parties and Forests Dept. authorities during the project period. Sightings of pugmarks, droppings and kills during the project period were also recorded from some areas of the Tiger Reserve.

External distribution : Throughout India except the North-Western region.

Status : Not uncommon in Tadoba-Andhari Tiger Reserve; 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 (Pradhan, 1997). These beautiful cats are also trapped live for commercial trade. As per 1995 census conducted by Forest Dept. authorities, the approximate population of tigers in Tadoba-Andhari Tiger Reserve area is 37.

Order ARTIODACTYLA
Family SUIDAE
Subfamily SUINAE

***52. *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 Tadoba, Kolsa, Moharli etc. areas of Tadoba-Andhari Tiger Reserve by the ZSI survey parties and Forests Dept. authorities during the project period.

External distribution : Throughout India.

Status : Not uncommon in Tadoba-Andhari Tiger Reserve; 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 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 in Tadoba-Andhari Tiger Reserve, Wild Boar population was around 1494.

Family TRAGULIDAE

53. *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 : Pisori Harin.

Locality : Tadoba-Andhari Tiger Reserve.

External distribution : Throughout India.

Status : uncommon in Tadoba-Andhari Tiger Reserve; 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 : Mouse deer is a timid and gentle creature and can easily be tamed. They are hunted for its meat for food and body parts for various purposes.

Family CERVIDAE

Subfamily CERVINAE

*54. *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 : Herds of spotted deers have been sighted in Tadoba, Kolsa and some other areas of Tadoba-Andhari Tiger Reserve by the ZSI survey parties and Forests Dept. authorities during the project period.

External distribution : Throughout India.

Status : Fairly common in Tadoba-Andhari Tiger Reserve; 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 families 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 Tadoba-Andhari Tiger Reserve, the Spotted Deer population was around 2900+.

*55. *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 Tadoba, Moharli, Kolsa etc. areas and number of other places in Tadoba-Andhari Tiger Reserve by the ZSI survey parties and Forests Dept. authorities during the project period.

External distribution : Throughout India.

Status : Fairly common in Tadoba-Andhari Tiger Reserve; 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. Threats to the survival of the species are also due to habitat destructions, human interference and domestic as well as international commercial trade. Shed sambar antlers are also involved in the commercial trade. Sambar is a favourite prey species of tiger and wild dogs. As per 1995 census of some wildlife species conducted in Tadoba-Andhari Tiger Reserve, the sambar population was around 600+.

Subfamily MUNTIACINAE

*56. *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 has been sighted in Kolsa and Tadoba areas in Tadoba-Andhari Tiger Reserve by the ZSI survey parties and Forests Dept. authorities during the project period.

External distribution : Central India for the subspecies.

Status : Fairly common in Tadoba-Andhari Tiger Reserve; 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 : Agrawal *et.al.* (1992) mentioned occurrence of three subspecies of *Muntiacus muntjak* in India. Out of these, *Muntiacus muntjak vaginalis* (Boddaert) has been reported from Bengal by them. *Cervulus tamulicus* reported from Deccan has been synonymised in *Muntiacus muntjak aureus* by Ellerman and Morrison-Scott (1952). Since Wilson and Reeder (1993) still considers *Muntiacus muntjak aureus* a valid name for this subspecies and since the name is still in usage, *Muntiacus muntjak aureus* has been tentatively retained here also. However revisionary studies of the *Muntiacus muntjak* subspecies are recommended. 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 as well as international commercial trade. As per the 1995 census of some wildlife species conducted in Tadoba-Andhari Tiger Reserve, the barking deer population was around 625+.

Family BOVIDAE
Subfamily BOVINAE

***57. *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 Kolsa and Moharli areas in Tadoba-Andhari Tiger Reserve by ZSI survey parties and Forests Dept. authorities during the project period.

External distribution : Peninsular India.

Status : Fairly common in Tadoba-Andhari Tiger Reserve; 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. Threats to the survival of the species are also due to habitat destructions, human interference and domestic as well as international commercial trade. As per the 1995 census of some wildlife species conducted in Tadoba-Andhari Tiger Reserve, the gaur population was around 630+.

***58. *Boselaphus tragocamelus* (Pallas)**

1766. *Antelope 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 Kolsa area in Tadoba-Andhari Tiger Reserve by the ZSI survey parties and Forests Dept. authorities during the project period.

External distribution : Peninsular India.

Status : Not so common in Tadoba-Andhari Tiger Reserve; 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 as well as international commercial trade. As per the 1995 census of some wildlife species conducted in Tadoba-Andhari Tiger Reserve the Nilgai population was around 190+.

***59. *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 was sighted near Moharli Forest Rest House area in Tadoba-Andhari Tiger Reserve by the ZSI survey party during the project period.

External distribution : Throughout India except in North-East India.

Status : Not common in Tadoba-Andhari Tiger Reserve; 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 Appendix : No, Red Data Book, National (1994) : Vulnerable.

Remarks : Four horned antelope 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 commercial trade. As per the 1995 census of some wildlife species conducted in Tadoba-Andhari Tiger Reserve the four horned antelope population was around 125+.

Subfamily ANTILOPINAЕ

***60. *Antilope cervicapra cervicapra* (Linn.)**

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

1992. *Antilope 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 : Sighted in the outskirts of Tadoba-Andhari Tiger Reserve by the Forests Dept. authorities during the project period.

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

Status : Not sighted inside Tadoba-Andhari Tiger Reserve; 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 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.

Order RODENTIA
Suborder SCIUROGNATHI
Family SCIURIDAE
Subfamily RATUFINAE

61. *Ratufa indica centralis* Ryley

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

1993. *Ratufa indica centralis* Ryley, by Hoffman *et. al.* *In* : Wilson & Reeder, *Mammal Species of the World* : 437.

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

Locality : Sighted in the thick forested area near Tadoba Crocodile Breeding Centre in Tadoba-Andhari Tiger Reserve.

External distribution : Thick forested areas of Central India including Tadoba-Andhari Tiger Reserve.

Status : Uncommon in Tadoba-Andhari Tiger Reserve area; IUCN Criteria proposed as per the CAMP Report (1998) : Vulnerable, Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule II, CITES Appendix : I.

Remarks : Genus *Ratufa* has been placed in Subfamily *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.

Subfamily SCIURINAE

*62. *Funambulus palmarum robertsoni* Wroughton

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

1992. *Funambulus palmarum robertsoni* Wroughton, by Hoffman et al. In : Wilson & Reeder, *Mammal Species of the World* : 426.

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

Locality : Small groups were sighted near Tadoba and Kolsa Rest Houses in Tadoba-Andhari Tiger Reserve during project period by ZSI survey parties.

External distribution : 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).

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). Indian 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 and isolation, human interference and domestic commercial trade.

*63. *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, State fauna series, 3* 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 number of places in Tadoba-Andhari Tiger Reserve during the project period.

External 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 upto 2002) Schedule : Schedule : IV.

Remarks : Number of subspecies have been described on the basis of pelage colour variations seen in the species by some authors. However *Funambulus pennanti* Wroughton has been described here as a single species on the basis of Ellerman (1961), Corbet and Hill (1992) and Agrawal *et al.* (1992). 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

*64. *Petaurista philippensis philippensis* (Elliot)

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

1992. *Petaurista philippensis philippensis* (Elliot), by Hoffman *et al.* In : Wilson & Reeder, *Mammal Species of the World* : 463.

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

Locality : Common giant flying squirrel was sighted in Tadoba Rest House area in Tadoba in Tadoba-Andhari Tiger Reserve during the project period.

External distribution : Peninsular India south of Himalaya.

Status : Uncommon in the region; 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.

Remarks : *Petaurista philippensis* was earlier considered to be a subspecies of *Petaurista petaurista*. However *Petaurista philippensis* has been considered as a separate species by Corbet and Hill (1992) and upheld by Hoffman *et al* in Wilson and Reeder(1993). 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

***65. *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 : Sighted in the residential quarters in Tadoba-Andhari Tiger Reserve area during the project period.

External 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 upto 2002) Schedule : Schedule : V (Vermis).

Remarks : The species is a prolific breeder and considered to be a pest species since it causes damage to the foodgrains stored in houses and 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 evergrowing chisel-shaped incisors.

***66. *Mus musculus homourus* Hodgson**

1845. *Mus homourus* Hodgson, *Ann. Mag. nat. Hist.*, [1] **15** : 268.

2000. *Mus musculus homourus* Hodgson, Agrawal, V.C., *Rec. zool. Surv. India, Occ. Paper No.* : **180** : 121-122.

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

Locality : Collected two specimens from the Tadoba Rest House premises in Tadoba-Andhari Tiger Reserve during the project period.

External distribution : Throughout India.

Status : Uncommon; 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).

Remarks : Same as those for *Mus musculus castaneus*.

***67. *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 : Shettil Undir.

Locality : Collected two specimens from Jamunwadi area of Tadoba-Andhari Tiger Reserve during the project period.

External 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 (Vermins).

Remarks : Agrawal (2000) has pointed out number of anomalies in the taxonomy of *hooduga* complex and rightly concluded that till the confusions were removed, *Mus dunni*, *Mus terricolor* and *Mus hooduga* should be treated as synonyms of *Mus hooduga* 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 evergrowing chisel-shaped incisors.

68. *Mus platytrix* (Bennett)

1831. *Mus platytrix* Bennett, *Proc. zool. Soc. Lond.* : 121.

2000. *Mus platytrix* Bennett, Agrawal, V.C., *Rec. zool. Surv. India, Occ. Paper No.* : 180 : 132-134.

Common name : Indian Brown spiny mouse, Marathi : Undir.

Locality : Reported to occur in Berar (Ellerman, 1961).

External distribution : Peninsular India.

Status : Endemic to India, uncommon in the region, Indian Wildlife (Protection) Act (1972) (as amended upto 2002) Schedule : Schedule V; IUCN Criteria proposed as per CAMP Report (1998) : Lower risk-least concern.

*69. *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 : Collected one specimen from the Tadoba Rest House premises in Tadoba-Andhari Tiger Reserve during the project period.

External 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 (Vermins).

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.

70. *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 : Reported to occur in Central India (Ellerman, 1961).

External 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 (Vermins).

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

*71. *Rattus rattus rufescens* (Gray)

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

1992. *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 two specimens from the isolated settlements in Tadoba area in Tadoba-Andhari Tiger Reserve during the project period.

External 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 (Vermins).

Remarks : The species is a prolific breeder and considered to be a pest species since it causes damage to the foodgrains stored on houses and 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 evergrowing chisel-shaped incisors. The species is also known to be responsible for causing number of diseases, including rat bite fever, plague, leptospirosis etc.

***72. *Rattus rattus narbadae* Hinton**

1918. *Rattus rattus narbadae* Hinton, *J. Bombay nat. Hist. 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 : Collected two specimens from the isolated settlements in Tadoba in Tadoba-Andhari Tiger Reserve.

External distribution : Endemic sub-species in Central India.

Status : Uncommon in the region; Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : V (Vermins).

Remarks : The species is a prolific breeder.

73. *Millardia meltada meltada* (Gray)

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

2000. *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 from Chandrapur District (Ellerman, 1961).

External 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 (Vermins).

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 which was accepted by Corbet and Hill (1992). But recently Agrwal (2000) synonymised all the three subspecies in *Millardia meltada*. However Pradhan *et al.* (2005) do not agree with the merger and held the view that *Milliardia 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.

***74. *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 : Collected one specimen from Jamunwadi area in Tadoba-Andhari Tiger Reserve by the ZSI survey party during the project period.

External 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).

Remarks : *Cremnomys blanfordi* was originally placed under *Mus*, subsequently in *Rattus* and finally in *Cremnomys* (Corbet and Hill, 1992 and Agrawal, 2000). These rats can also 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.

75. *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 locality for this species in past is Chandrapur Dist. on maharashtra State (Ellerman, 1961).

External distribution : Throughout India.

Status : Not 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).

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.

***76. *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 Kolsa area in Tadoba-Andhari Tiger Reserve by the ZSI survey party during the project period.

External 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 (Vermins).

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 foodgrains stored in godowns but also to the standing crops. 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.

***77. *Bandicota indica indica* (Bechstein)**

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

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

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

Locality : Sighted one specimen on Tadoba road near Moharli gate in Tadoba-Andhari Tiger Reserve during project period.

External 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 (Vermins).

Remarks : *B. indica 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 foodgrains stored in godowns but also to the standing crops. 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

78. *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 : 'Gonedar sheputlwala undir'

Locality : Recorded locality in past : Chanda Dist. (Chandrapur Dist.) in Maharashtra State.

External 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 (Vermins).

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 foodgrains in the field 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. 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

*79. *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 : Indian crested porcupine was sighted in Tadoba area in Tadoba-Andhari Tiger Reserve during the project period.

External 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.

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 evergrowing incisors in 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

***80. *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 on Kolsa - Tadoba road in Tadoba-Andhari Tiger Reserve during the project period.

External 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.

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 occurrence of 80 mammalian species/subspecies in Tadoba-Andhari Tiger Reserve. Incidentally same number of mammal species has been recorded from Melghat Tiger Project, Maharashtra State, also. Out of these, 49 species (61.25%) were actually collected and/or sighted during the project period between 1995-2000, while 31 species (38.75%) were included in the list on the basis of the literature consulted (Fig. 1). The list clearly indicates that Tadoba-Andhari Tiger Project area, like Melghat Tiger Project, possesses fairly good mammalian species diversity.

If the species are sorted out in various categories given in Table 1, it will be seen that a total of 80 species/subspecies of 52 genera belonging to 25 sub-families under 28 families grouped in 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*.

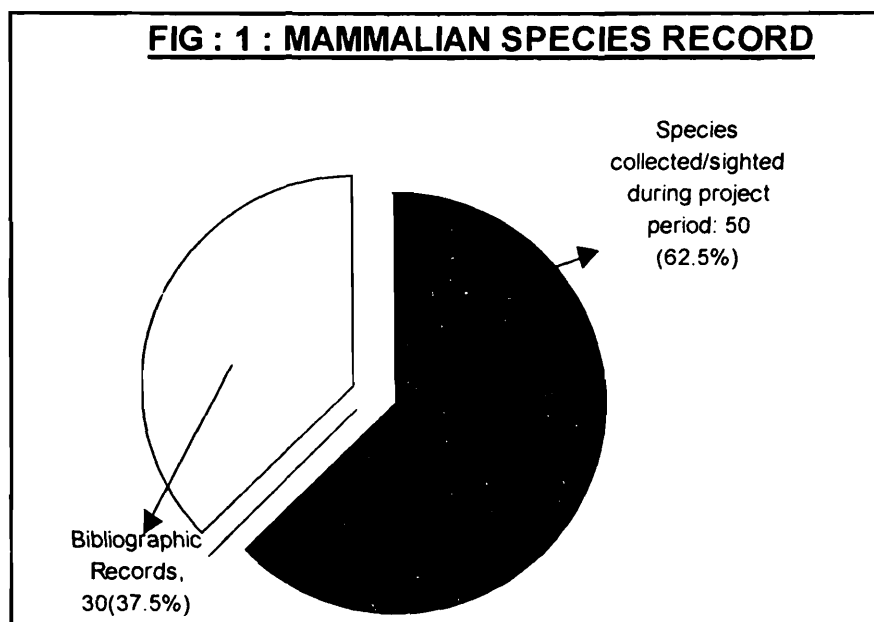


Table 1 : Mammalian Diversity in Tadoba-Andhari Tiger Reserve

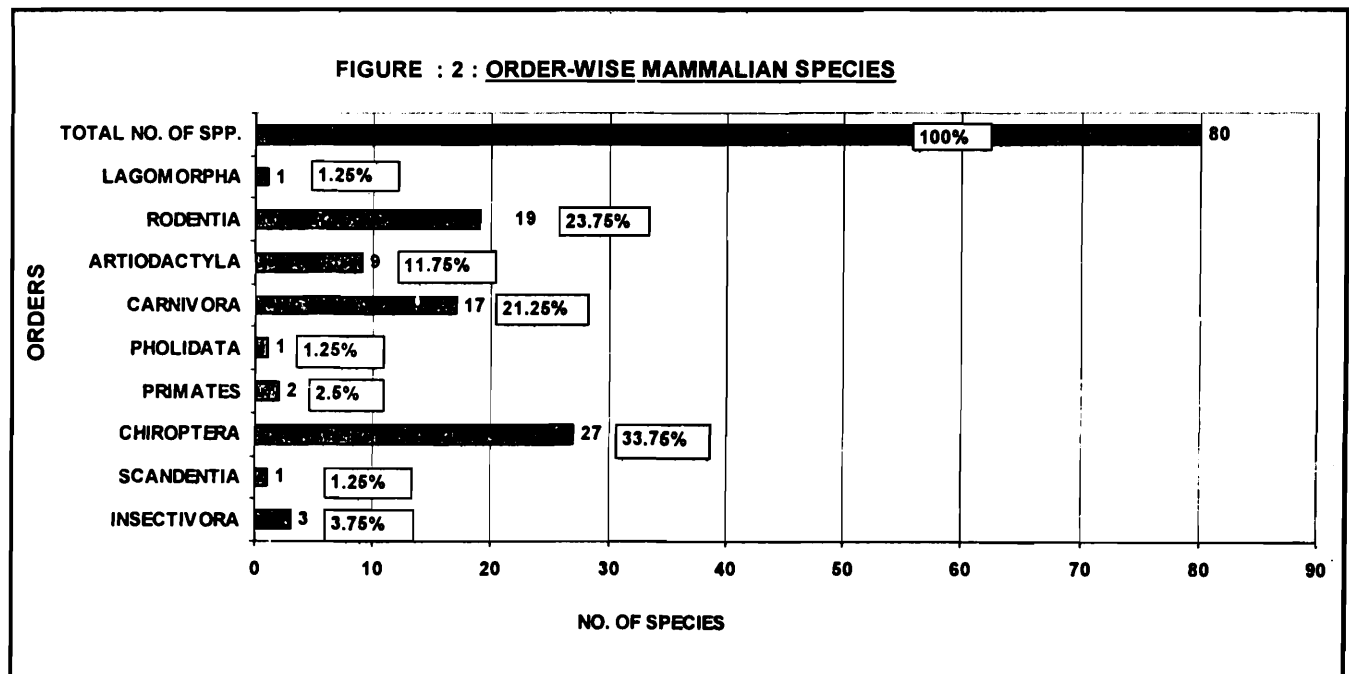
| Sl. No. | Order | Families | Subfamilies | Genera | Species & Subspecies |
|----------------------------|--------------|-----------|-------------|-----------|----------------------|
| 1. | INSECTIVORA | 1 | 1 | 1 | 3 |
| 2. | SCANDENTIA | 1 | 1 | 1 | 1 |
| 3. | CHIROPTERA | 8 | 3 | 12 | 27 |
| 4. | PRIMATES | 1 | 2 | 2 | 2 |
| 5. | PHOLIDATA | 1 | | 1 | 1 |
| 6. | CARNIVORA | 7 | 9 | 13 | 17 |
| 7. | ARTIODACTYLA | 4 | 5 | 9 | 9 |
| 8. | RODENTIA | 4 | 4 | 12 | 19 |
| 9. | LAGOMORPHA | 1 | | 1 | 1 |
| TOTAL : Nine Orders | | 28 | 25 | 52 | 80 |

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 *Chiroptera* representation is very well in the region (Total 27 spp. i.e. 34% of total mammal species reported from the region) and leads the group far ahead.

Some of the most interesting species thriving in the region are : *Anathana ellioti ellioti*, *Rhinopoma hardwickei*, *Rhinopoma microphyllum*, *Taphozous spp.*, *Hipposideros spp.*, *Scotophilus spp.*, *Tadarida spp.*, *Rhinolophus spp.*, *Manis crassicaudata*, *Cuon alpinus*.

Panthera pardus fusca, *Panthera tigris tigris*, *Mellivora capensis*, *Lutragale perspicillata*, *Viverricula indica*, *Felis silvestris ornata*, *Bos gaurus*, *Tetracerus quadricornis*, *Boselaphus tragocamelus*, *Ratufa indica centralis*, *Petaurista philippensis philippensis*, *Cremnomys blanfordi*, *Rattus rattus narbadae*, *Hystrix indica* etc.

When the Indian endemic status of the mammalian species/subspecies reported from Tadoba-Andhari Tiger Reserve was studied (Fig. 3), it was surprisingly noticed that there were only 4 endemic species (5% of total 80 mammalian species) belonging to orders *Scandentia* (1) and *Rodentia* (3). Therefore, though mammalian species diversity is rich, the endemism in this region is, however, poor.



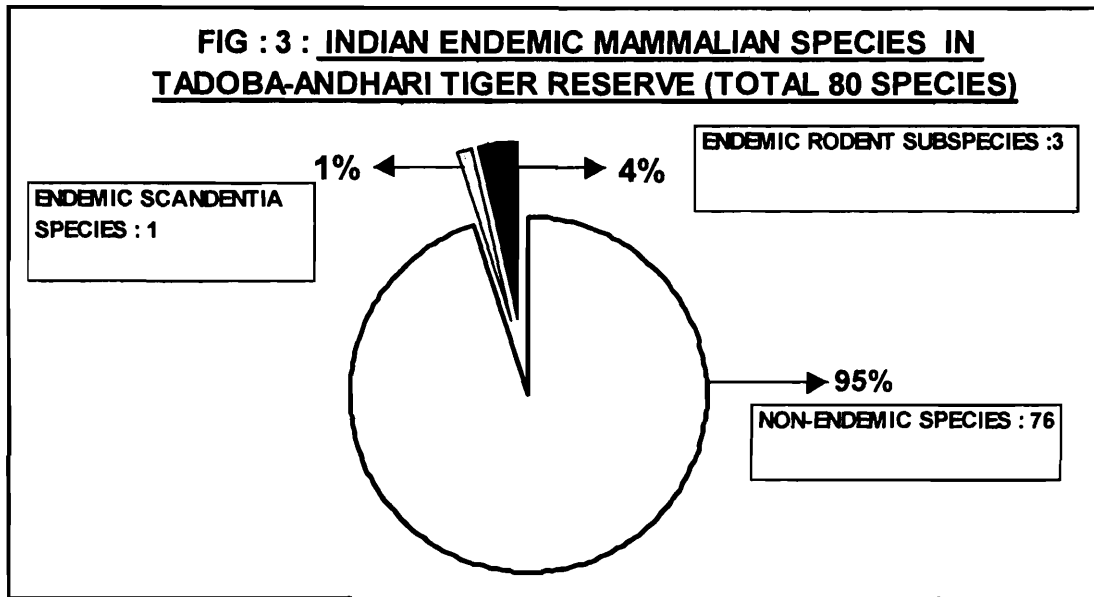
Order SCANDENTIA

1. *Ananthana ellioti ellioti* (Waterhouse)

Order RODENTIA

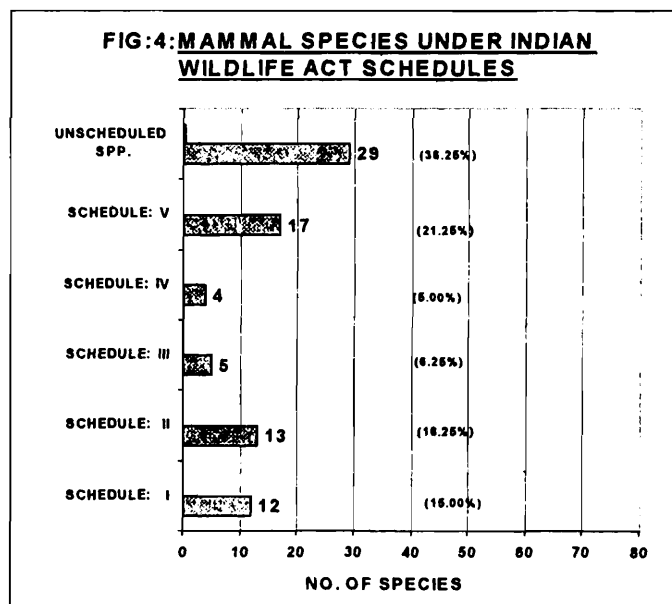
1. *Ratufa indica centralis* Ryley
2. *Mus phillipsi* Wroughton
3. *Rattus rattus narbadae* Hinton

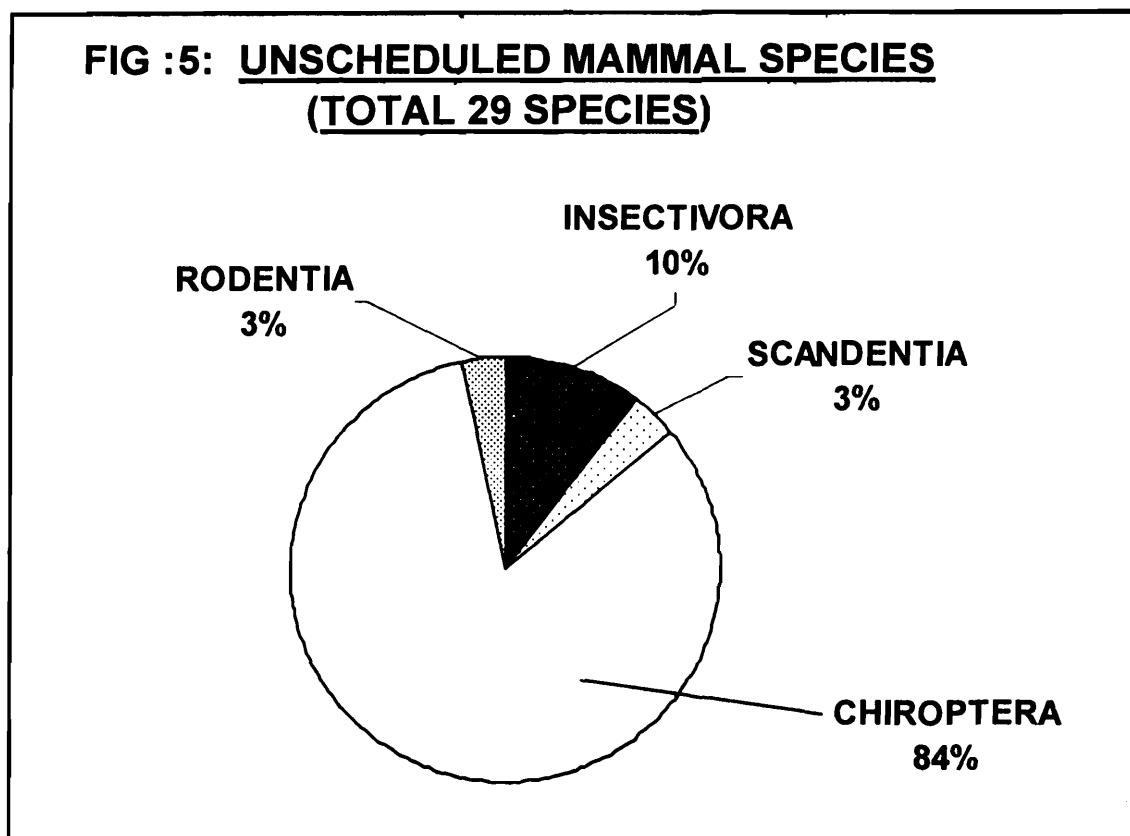
Conservation status of the mammalian species under Indian Wildlife (Protection) Act 1972 (as amended upto 2002) was also studied. It was found that 51 out of 80 mammalian species have been included in all the five schedules of the Act (Fig. 4). Further, of these 80 species 26 species (33%) are under higher conservation status (Indian Wildlife Act Schedule I and II). However, on the other hand, there are about 29 mammalian species, mostly microchiropteran bat species (24), which have not been listed under any of the wildlife Act schedules (Fig. 5).



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

1. Tadoba-Andhari Tiger Reserve, like Melghat Tiger Project, can also boast of a rich mammalian species diversity, quantitatively as well as qualitatively. However, endemic representation of the mammalian species in both the regions is remarkably poor.
2. Under the global scenario, Tadoba-Andhari Tiger Reserve, Melghat Tiger Project and Pench National Park are located in almost the same region i.e. Deccan plateau in Central India. Hence, there is a remarkable similarity in the composition of mammalian species from the entire region. It is quite likely that the picture may be similar with certain variations in other groups also.





- Some of the most interesting mammalian species other than *Panthera tigris tigris* and *Panthera pardus fusca* which can attract attention are *Anathana ellioti ellioti*, *Mellivora capensis*, *Lutragale perspicillata*, *Ratufa indica centralis*, *Petaurista philippensis philippensis*, *Felis silvestris ornata*, *Rattus rattus nerbadae* etc.
- Fairly large number of mammalian species (26 : 33%) 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 33% of the total mammal species dominated by microchiropteran bats with no status under Wildlife (Protection) Act have also been reported from this region.

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AVES

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INTRODUCTION

Birds are unique among vertebrates, as they have true ability to fly, besides this many of the birds as well can wade, swim, walk and run. Birds are found in various contrasting environments, from warm arid to cold arid zones, from sea shore to high mountains, tropic to the poles, in terrestrial as well as aquatic habitats. They feed on a wide variety of vegetation and animal food. This has attracted many naturalist and workers for study of birds in Indian subcontinent.

Jerdon's (1862-64) Birds of India received a great impetus among the bird watchers in this connection. Some of these gave emphasis in Deccan plateau particularly Davidson & Wenden (1878) and Ali (1933-34). Abdulali (1973) published a checklist of birds of Maharashtra State. In Vidharbha region particularly in Chandrapur district, there is no much work except collection of birds at Chanda and Nagpur (Blanford, 1867), occurrence of Great Crested Grebe at Tadoba (Haribal, 1986) and checklist of birds from Tadoba National Park by Forest Department, Chandrapur (Annon, 1991).

This paper is also a part of avifaunal studies from Vidharbha region, particularly an conservation area-Tadoba Andhari Tiger Reserve. 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 Tadoba-Andhari Reserve comprises 192 species, of which about 60% species have been mainly observed by the author during the survey period during October 1997, whereas the rest of the bird species have been compiled on the basis of published/unpublished literature. Birds were observed with the help of 7 x 50 pair of binoculars. The identification of birds and its species account in tabular form is based on Ali & Ripley (1968-1974, 1995-96), Woodcock (1984) and Grimmett *et al.* (1999).

In the systematic list of birds in the tabular form (Table-1), the new names (if any) are being given. Further, scientific names changed (if any) and family sequence have been followed as per standardised common and scientific names of the birds by Manakadan & Pittie (2001).

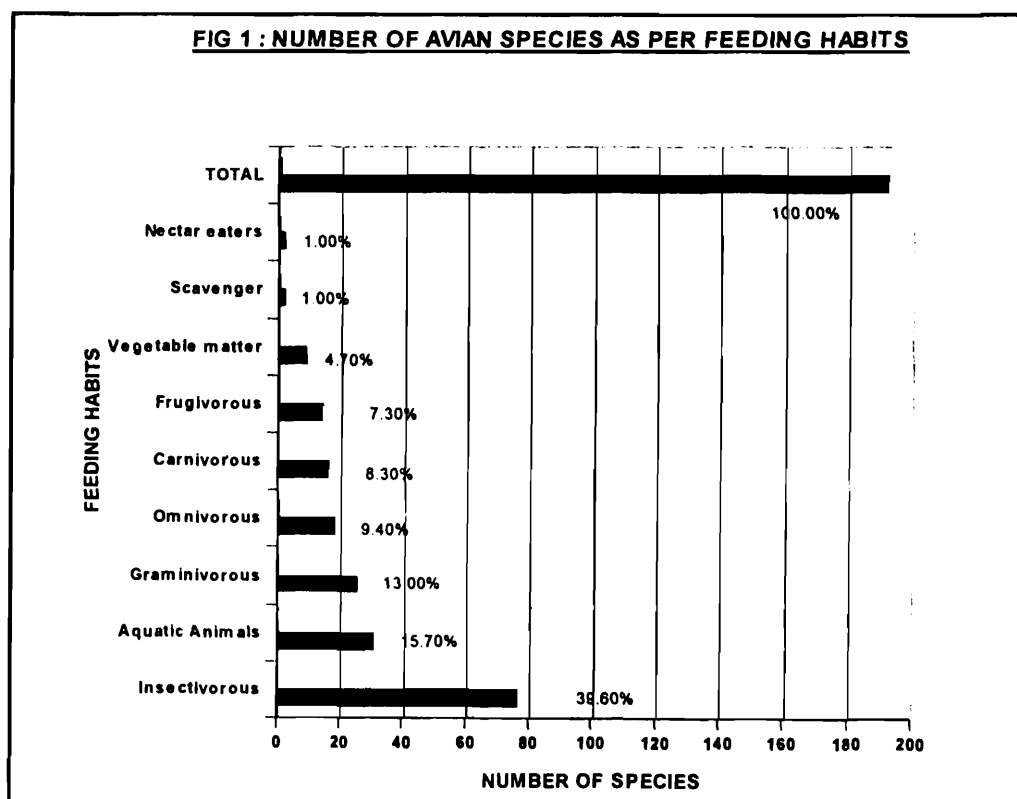
OBSERVATIONS AND RESULTS

In Tadoba-Andhari Tiger Reserve, areas like Panchdhara, Kala Amb, Tadoba Lake side, Teli Dam, Kolsa Tank were found to be good spots for bird community. At Vasant Bandhara

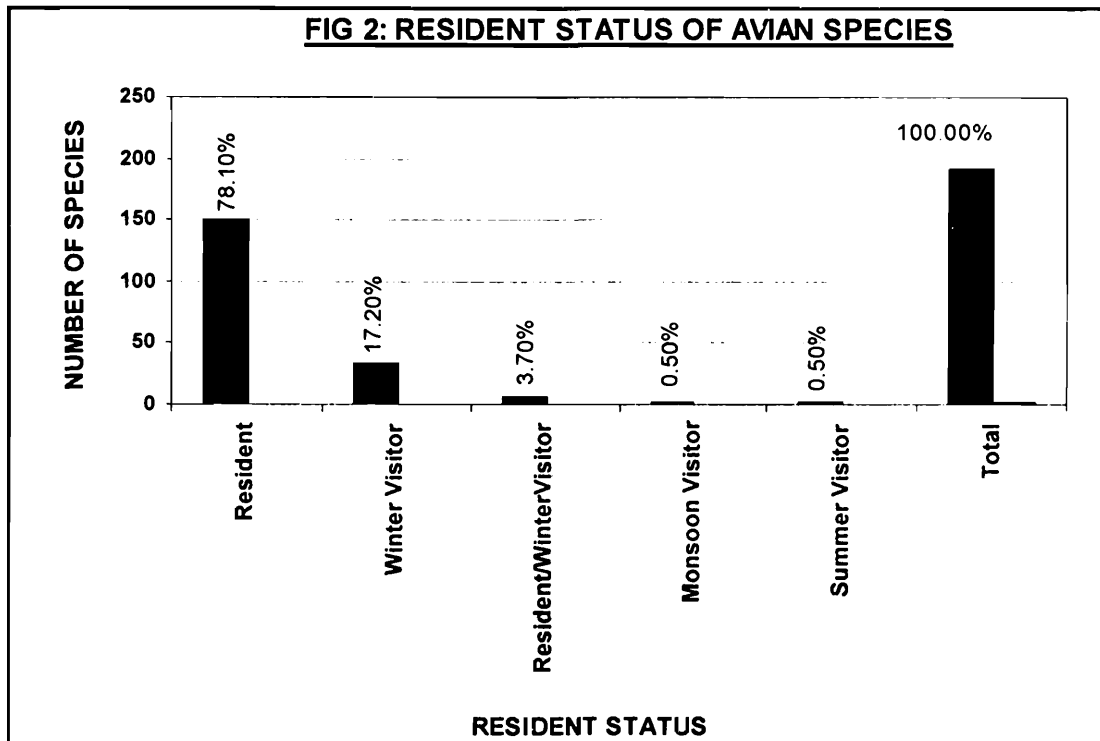
a good congregation of Plum-headed and Rose-ringed parakeets was observed during day time. Hunting parties of Tailor bird, Iora, White-eye and Purple Sunbird were noticed many times during the survey period. Once in the evening of 23rd October at about 5 o'clock because of dark cloudy weather, stormy wind with rainfall condition, it was noticed that swarms of Termite flies suddenly shoots up in the sky near Rest House close to the Tadoba Lake. To hunt them a number of different species of birds gathered in the vicinity of this rest house, such Golden Oriole (4), Black-headed Oriole (6), Red-vented Bulbul (6), Green Bee-eater (14), Black Drongo (2), and a single Indian Roller.

A total 192 species of birds have been recorded in this Tiger Reserve. (Table 1), alongwith their scientific and common names residential status, food habits, distribution and breeding season. This birds have been classified into various categories as shown in Table 2. It shows that these 192 species belonging to 139 genera under 55 families are grouped into 17 avian orders. This clearly shows that this reserve 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 this reserve. Further, of these 192 bird species 68.8% are of terrestrial in nature and the remaining 31.2% are aquatic birds depending on water bodies.

In order of food preference histogram has been plotted for birds of this reserve (Fig.1). This indicate that about 39.6% are insectivorous birds followed by aquatic animal eaters 15.7% and graminivorous 13.0%. Percentage of nectar eaters and scavenger bird species is very less in the area.



Residential status of birds of this Tiger Reserve has been plotted in Fig.2. It shows that 78.1% bird species are resident showing local and seasonal movements depending upon water conditions, availability of food, suitable nesting places, etc. About 17.2% bird species are winter visitors (with some passage migrants) migrating during September/October to March in this area. About 3.7% are partly resident and partly winter visitors. The remaining are monsoon and summer visitors.



If the conservation status of these birds of Tadoba-Andhari Tiger Reserve is considered, Indian Whitebacked Vulture *Gyps bengalensis* (Family : Accipitridae), Peregrine Falcon *Falco peregrinus* (Family : Falconidae), Indian Peafowl *Pavo cristatus* and Grey Junglefowl *Gallus sonneratii* (Family : Phasianidae) are endangered and are included under Schedule I, Part II (Birds) and Schedule II, Part II (Birds) of Indian Wildlife (Protection) Act, 1972 as amended upto 2002 respectively.

Further, when the endemicity of these avian species is considered then there are following birds endemic to this region, (Dasgupta & *et al.* 2002) Grey Junglefowl *Gallus sonneratii* (Temminck) (Fam : Phasianidae), Large Grey Babbler *Turdoides malcolmi* (Sykes) (Fam : Muscicapidae) and Green Munia *Amandava formosa* (Latham) (Fam : Estrildidae).

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Table 1: Birds of Tadoba-Andhari Tiger Reserve 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>Tactybaptus ruficollis</i> (Pallas) | Little Grebe/ Dabchick | R,C | Aq A&I | Tadoba lake Teli Dam | Throughout Indian Subcontinent | April to October; depend upon rains |
| 2. | 3 | <i>Podiceps cristatus</i> (Linnaeus) | Great Crested Grebe | WV,O | Aq A&I | Tadoba | Northen subcontinent | NW subcontinent during June-Aug. |
| 3. | 28 | Order : PELECANIFORMES Family : PHALACROCORACIDAE <i>Phalacrocorax niger</i> (Vieillot) | Little Cornorant | R,C | Aq A | Tadoba lake | do | July to Sept. in heronries |
| 4. | 29 | Family : ANHINGIDAE <i>Anhinga melanogaster</i> Pennant | Darter/Snake bird | R, UnC | Aq A- Fish | Kolsa Tank Teli Dam | do | June to Sept. |
| 5. | 49 | Order : CICONIIFORMES Family : ARDEIDAE <i>Egretta garzetta</i> (Linnaeus) | Little Egret | R, C | Aq A | Andhari lake, Kolsa Tank | Throughout Indian Subcontinent | July to Sept; Mixed heronries |
| 6. | 36 | <i>Ardea cinerea</i> Linnaeus | Grey Heron | R, O | Aq A | TNP | All India | July to October |
| 7. | 37 | <i>Ardea purpurea</i> Linnaeus | Purple Heron | R, O | Aq A | TNP | do | June to October |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|----------------------|-------------|------------|---------------------------------------|-------------------------------------|---|
| 8. | 46 | <i>Casmerodius albus</i> (Linnaeus) | Eastern Large Egret | R, UnC | Aq A&I | Teli Dam Ramdegi Rd. Kolsa Tank | Throughout India Subcontinent | July to Sept. in mixed heronries |
| 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 | - do - | - do - | - do - |
| 11 | 42. | <i>Ardeola grayii</i> (Sykes) | Indian Pond-Heron | R, C | Aq A&I | - do - | - do | May to Sept. |
| | | Family : CICONIIDAE | | | | | | |
| 12. | 61. | <i>Anastomus oscitans</i> (Boddaert) | Asian Openbill-Stork | R, C | Aq A&CR | TNP | All Indian Union | July to Sept in mixed heronries |
| 13. | 62. | <i>Ciconia episcopus</i> (Boddaert) | White-necked Stork | R, O | Aq A&I | TNP | All India | July to Sept. |
| | | Family : THRESKIORNITHIDAE | | | | | | |
| 14. | 69. | <i>Threskiornis melanocephalus</i> (Latham) | Oriental White Ibis | R/WV UnC | OM | TNP | All India | June to October depend upon monsoon & also extralimital |
| 15. | 70. | <i>Pseudibis papillosa</i> (Temminck) | Black Ibis | R, C | OM | TNP | Gangetic plain, Peninsular India | March to October in small pure heronries |
| 16. | 72. | <i>Platalea leucorodia</i> Linnaeus | Eurasian Spoonbill | WV,O | Aq A&Vg | TNP | All India | Extralimital |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|-----------------------|---------|------------|---------------------|--------------------------------|--|
| | | Order : ANSERIFORMES Family : ANATIDAE | | | | | | |
| 17. | 88. | <i>Dendrocygna javanica</i> (Horsfield) | Lesser Whistling-Duck | R, UnC | Aq A&Vg | TNP | All India | June to October, depending upon monsoon |
| 18. | 90. | <i>Tadorna ferruginea</i> (Pallas) | Brahminy Shelduck | WV,C | OM | TNP | All India | Extralimal : breeds also in Ladakh at high altitude. |
| 19. | 115. | <i>Sarkidiornis melanotus</i> (Pennant) | Comb Duck | R, O | Vg, I | TNP | All India | July to Sept. |
| 20. | 114 | <i>Nettapus coromandelianus</i> (Gmelin) | Cotton Teal | R, C | Vg, AqA | - do - | - do - | June to Sept. |
| 21. | 97 | <i>Anas poecilorhyncha</i> J.R. Forster | Spot-billed Duck | R, UnC | Vg | Teli Dam Andhari | Throughout Indian Subcontinent | July to October |
| 22. | 105 | <i>Anas clypeata</i> Linnaeus | Northern Shoveller | WV, UnC | Aq A | - do - | All India | Extralimal |
| 23. | 93 | <i>Anas acuta</i> Linnaeus | Northern Pintail | WV,C | Vg | - do - | - do - | - do - |
| 24. | 94 | <i>Anas crecca</i> Linnaeus | Common Teal | WV, UnC | Vg | - do - | - do - | - do |
| 25. | 107 | <i>Rhodonessa rufina</i> (Pallas) | Red-crested Pochard | WV,O | OM | TNP | - do - | - do - |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|--------------------------------|---------|------------|------------------|---|------------------|
| 26. | 109 | <i>Aythya nyroca</i> (Guldenstadt) | Ferruginous Pochard | WV,C | OM | TNP | - do | - do - |
| 27. | 111 | <i>Aythya fuligula</i> (Linnaeus) | Tufted Pochard | WV, UnC | OM | TNP | - do - | - do - |
| | | Order : FALCONIFORMES | | | | | | |
| | | Family : ACCIPITRIDAE | | | | | | |
| 28. | 124 | <i>Elanus caeruleus</i> (Desfontaines) | Black-shouldered Kite | R, C | CR | Katezari Ramdegi | Himalayan foothills to Kanyakumari | All year |
| 29. | 133 | <i>Milvus migrans</i> (Boddaert) | Black Kite | R, UnC | OM | Tadoba Lake | All India | Sept. to April |
| 30. | 135 | <i>Haliastur indus</i> (Boddaert) | Brahminy Kite | R, UnC | CR | - do - | - do - | Dec. to March |
| 31. | 175 | <i>Ichthyophaga ichthyaetus</i> (Horsfield) | Greater Grey-headed Fish-Eagle | R, UnC | CR Fish | - do - | N. India, Himalaya to Kerala sparsely distributed | Nov. to January |
| 32. | 187 | <i>Neophron percnopterus</i> (Linnaeus) | Egyptian Vulture | R, UnC | SC | Ramdegi | All India | Feb. to May |
| 33. | 185 | <i>Gyps bengalensis</i> (Gmelin) | Indian White-backed Vulture | R, C | SC | - do - | All India | October to March |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---------------------------------------|------------------------------|---------|------------|------------------|-----------------------------|-----------------|
| 34. | 195 | <i>Circaetus gallicus</i> (Gmelin) | Short-toed Snake-Eagle | R,Un | CR | - do - | - do - | Dec. to March |
| 35. | 197 | <i>Spilornis cheela</i> (Latham) | Lesser Crested Serpent-Eagle | R, C | CR | TNP | Northern India | March to May |
| 36. | 193 | <i>Circus aeruginosus</i> (Linnaeus) | Western Marsh-Harrier | WV,C | CR | TNP | All Indian Union | Extralimalal |
| 37. | 190 | <i>Circus macrourus</i> (S.G. Gmelin) | Pallied Harrier | WV,C | CR | TNP | Entire Indian Union | - do - |
| 38. | 138 | <i>Accipiter badius</i> (Gmelin) | Shikra | R, C | CR | Katezari Andhari | All India | March to June |
| 39. | 148 | <i>Accipiter nisus</i> (Linnaeus) | Eurasian Sparrow-hawk | R, C | CR | - do - | - do - | April to June |
| 40. | 157 | <i>Butastur teesa</i> (Franklin) | White-eyed Buzzard | R, C | CR | - do - | - do - | Feb to May |
| 41. | 168 | <i>Aquila rapax</i> (Temminck) | Twany Eagle | R, C | CR | TNP | Entire Indian Union | Nov. to April |
| 42. | 161 | <i>Spizaetus cirrhatu</i> s (Gmelin) | Changeable Hawk-Eagle | R, C | CR | TNP | Throughout Peninsular India | - do |
| | | Family : FALCONIDAE | | | | | | |
| 43. | 224 | <i>Falco tinnunculus</i> Linnaeus | Common Kestrel | WV, UnC | CR, I | TNP | All India | Extralimalal |
| 44. | 209 | <i>Flaco peregrinus</i> Tunstall | Peregrine Falcon | WV, UnC | CR | TNP | - do | - do |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|------------------------------|----------|------------|------------|--------------------------|-----------------------------------|
| | | Order : GALLIFORMES Family PHASIANIDAE | | | | | | |
| 45. | 241 | <i>Francolinus pictus</i> (Jerdine & Selby) | Painted Francolin | R, UnC | GR | TNP | M.P., Maharashtra | June to Sept. |
| 46. | 245 | <i>Francolinus pondicerianus</i> (Gmelin) | Grey Francolin | R, UnC | GR | TNP | Northern India | March to Sept. |
| 47. | 250 | <i>Coturnix coturnix</i> (Linnaeus) | Common Quail | R/WV UnC | GR, I | TNP | All India | March to July & also Extralimital |
| 48. | 252 | <i>Coturnix coromandelica</i> (Gmelin) | Black-breasted or Rain Quail | R, C | GR | TNP | - do - | March to October |
| 49. | 255 | <i>Perdicula asiatica</i> (Latham) | Jungle Bush-Quail | R, C | GR | Panchdhara | Central & South India | August to April |
| 50. | 275 | <i>Galloperdix spadicea</i> (Gmelin) | Red Spurfowl | R, C | GR | - do - | Peninsular India | January to June |
| 51. | 301 | <i>Gallus sonneratii</i> (Temminck) | Grey Junglefowl | R, C | GR | Kala Amb | - do - | February to May |
| 52. | 311 | <i>Pavo cristatus</i> Linnaeus | Indian Peafowl | R, C | OM | Andhari | Throughout Subcontinent | June to September |
| | | Order : GRUIFORMES Family : TURNICIDAE | | | | | | |
| 53. | 318 | <i>Turnix suscitator</i> (Gmelin) | Common Buttonquail | R, UnC | Vg | TNP | Continental & Peninsular | June to October |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|-------------------------|---------|------------|----------------------|--|-----------------|
| 54. | 323 | Family : GRUIDAE <i>Grus antigone</i> (Linnaeus) | Saras Crane | R, UnC | OM | TNP | India south of 23° N Latitude Himalayan foothills to Godavari delta | July to Dec. |
| 55. | 343 | Family : RALLIDAE <i>Amaurornis phoenicurus</i> (Pennant) | White-breasted Waterhen | R, C | I, Vg | Panchdara Karva Tank | North India south to 20° N Latitude | June to Oct. |
| 56. | 346. | <i>Gallicrex cinerea</i> (Gmelin) | Watercock | R, O | Vg | TNP | All India | June to Sept. |
| 57. | 349. | <i>Porphyrio porphyrio</i> (Linnaeus) | Purple Moorhen | R, O | OM | Andhari, Tadoba Lake | Throughout peninsula | - do - |
| 58. | 347 | <i>Gallinula chloropus</i> (Linnaeus) | Common Moorhen | R/WV, C | OM | - do | All India | - do - |
| 59. | 350 | <i>Fulica atra</i> Linnaeus | Common Coot | R, C | OM | Tadoba Lake | All India | May to Sept. |
| 60. | 358 | Order : CHARADRIIFORMES Family : JACANIDAE <i>Hydrophasianus chirurgus</i> (Scopoli) | Pheasant-tailed Jacana | R, C | Vg, I | Andhari Ramdegi | All India | June to Sept. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|------------------------|---------|------------|-------------------|-----------------------------|-----------------|
| 61. | 359 | <i>Metopidius indicus</i> (Latham) | Bronze-winged Jacana | R, UnC | Vg, I | - do - | - do - | - do |
| | | Family : ROSTRATULIDAE | | | | | | |
| 62. | 429. | <i>Rostratula benghalensis</i> (Linnaeus) | Greater Painted-Snipe | R, UnC | AqA, Vg | TNP | - do - | - do - |
| | | Family : CHARADRIIDAE | | | | | | |
| 63. | 380 | <i>Charadrius dubius</i> Scopoli | Little Ringed Plover | R, C | I | TNP | Throughout the subcontinent | March to May |
| 64. | 370 | <i>Vanellus malabaricus</i> (Boddaert) | Yellow-wattled Lapwing | R, UnC | I | Panchdhara Kalamb | - do - | March to July |
| 65. | 366 | <i>Vanellus indicus</i> (Boddaert) | Red-wattled Lapwing | R, C | I, Vg | Andhari | All India | March to Sept. |
| | | Family : SCOLOPACIDAE | | | | | | |
| 66. | 409 | <i>Gallinago gallinago</i> (Linnaeus) | Common Snipe | WV, UnC | AqA | TNP | All India | Extralimital |
| 67. | 388. | <i>Numenius arquata</i> (Linnaeus) | Curlew | WV, UnC | AqA | TNP | - do - | - do - |
| 68. | 394 | <i>Tringa totanus</i> (Linnaeus) | Common Redshank | WV, UnC | AqA | TNP | - do - | - do - |
| 69. | 396. | <i>Tringa nebularia</i> (Gunner) | Common Greenshank | WV, UnC | AqA | TNP | - do - | - do - |
| 70. | 397. | <i>Tringa ochropus</i> Linnaeus | Green Sandpiper | WV,C | AqA | TNP | - do - | - do - |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|--------------------|--------|------------|--------------|-------------------------|-----------------|
| 71. | 398 | <i>Tringa glareola</i> Linnaeus | Wood Sandpiper | WV,C | Aq A | TNP | - do - | - do - |
| 72. | 401 | <i>Actitis hypoleucos</i> Linnaeus | Common Sandpiper | WV,C | Aq A | TNP | - do - | - do - |
| | | Family : RECURVIROSTRIDAE | | | | | | |
| 73. | 430 | <i>Himantopus himantopus</i> (Linnaeus) | Black-winged Stilt | R, O | Aq A | Andhari Lake | - do - | April to Aug. |
| | | Family : BURHINIDAE | | | | | | |
| 74. | 436 | <i>Burhninus oediconemus</i> (Linnaeus) | Stone-Curlew | R, UnC | OM | TNP | - do - | Feb. to Aug. |
| | | Family : LARIDAE | | | | | | |
| 75. | 463 | <i>Sterna aurantia</i> J.E. Gray | River Tern | R, C | Aq A | Andhari Lake | Throughout Indian Union | March to May |
| | | Order : COLUMBIFORMES | | | | | | |
| | | Family : PTEROCLIDIDAE | | | | | | |
| 76. | 492 | <i>Pterocles indicus</i> (Gmelin) | Painted Sandgrouse | R, UnC | GR, Vg | TNP | All India except NE & E | All year |
| | | Family : COLUMBIDAE | | | | | | |
| 77. | 517 | <i>Columba livia</i> Gmelin | Blue Rock Pigeon | R, C | GR | Tadoba | All India | All year |
| 78. | 541 | <i>Streptopelia senegalensis</i> (Linnaeus) | Little Brown Dove | R, C | GR | Ramdegi Rd | - do - | - do - |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|----------------------------|--------|------------|----------------------|--|----------------------|
| 79. | 537 | <i>Streptopelia chinensis</i> (Scopoli) | Spotted Dove | R, C | GR | - do - | - do - | - do - |
| 80. | 534 | <i>Streptopelia decaocto</i> (Frisvaldszky) | Eurasian collared-Dove | R, C | GR | - do - | Entire Indian Union | - do - |
| 81. | 504 | <i>Treron phoenicoptera</i> (Latham) | Yellow-legged Green Pigeon | R, C | GR | - do - | All | March to June |
| | | Order : PSITTACIFORMES Family : PSITTACIDAE | | | | | | |
| 82. | 545 | <i>Psittacula eupatria</i> (Linnaeus) | Alexandrine Parakeet | R, C | FR | Ramdegi, Tadoba lake | N. India, Gangetic plain upto 18° N Latitude | Dec. to April |
| 83. | 550 | <i>Psittacula krameri</i> (Scopoli) | Rose-ringed Parakeet | R, A | FR | Everywhere in TNP | Peninsular India south to 20° N Latitude | Jan. to May |
| 84. | 558 | <i>Psittacula cyanocephala</i> (Linnaeus) | Plum-headed Parakeet | R, C | FR | Kala Amb Katezari | - do - | Dec. to April |
| | | Order : CUCULIFORMES Family : CUCULIDAE | | | | | | |
| 85. | 570 | <i>Clamator jacobinus</i> (Boddaert) | Pied Crested Cuckoo | MV,C I | | TNP | N. India, peninsular India to 18° N Latitude | Parasite on Babblers |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|------------------|--------|------------|--------------------|---|-----------------------------------|
| 86. | 573 | <i>Hierococcyx varius</i> (Vahl) | Brainfever Bird | R, C | I | Ramdegi, Panchdara | Entire subcontinent | - do |
| 87. | 576 | <i>Cuculus micropterus</i> Gould | Indian Cuckoo | R, UnC | I | - do - | - do - | - do - on Drongos |
| 88. | 578 | <i>Cuculus canorus</i> Linnaeus | Common Cuckoo | R, UnC | I | - do - | Throughout peninsula | - do - on Babblers & Shrikes |
| 89. | 584 | <i>Cacomantis passerinus</i> (Vahl) | Plaintive Cuckoo | R, UnC | I | Panchdara, Andhari | - do - | - do on Warblers, Tailor Birds |
| 90. | 590 | <i>Eudynamys scolopacea</i> (Linnaeus) | Asian Koel | R, C | FR, I | - do | Entire subcontinent | - do - on House & Jungle Crows |
| 91. | 596 | <i>Phaenicophaeus leschenaultii</i> (Lesson) | Sirkeer Malkoha | R, UnC | I | TNP | N. India, south to peninsular India upto 18° N Latitude | June to Aug. (Non parasitic) |
| 92. | 602 | <i>Centropus sinensis</i> (Stephens) | Greater Coucal | R, C | CR, I | TNP | Peninsular India upto Kerala | All year |
| | | Order : STRIGIFORMES Family : STRIGIDAE | | | | | | |
| 93. | 627 | <i>Bubo bubo</i> (Linnaeus) | Eurasian | R, C | CR, | Panchdara, | Punjab- | Oct. to May |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|----------------------------|--------|----------------|-------------------|---|-----------------|
| 94. | 650 | <i>Athene brama</i> (Temminck) | Eagle-Owl Spotted Owlet | R, C | Crabs I, CR | Andhari - do - | Himalaya south peninsula to Kanyakumari Entire Gangetic plains south to 20° N Latitude | Feb. to April |
| 95. | 671 | <i>Caprimulgus indicus</i> Latham | Indian Jungle Nightjar | R, C | I | - do - | All India | March to June |
| 96. | 680 | <i>Caprimulgus asiaticus</i> Latham | Common Indian Nightjar | R, C | I | - do - | All India | Feb. to Sept. |
| | | Order : CAPRIMULGIFORMES Family : CAPRIMULGIDAE | | | | | | |
| 97. | 707 | <i>Cypsiurus batasiensis</i> (J.E. Gray) | Palm Swift | R, UnC | I | TNP | All India | All year |
| 98. | 703 | <i>Apus affinis</i> (J.E. Gray) | Indian House Swift | R, C | I | TNP | All India, except Kerala | All year |
| | | Family : HEMIPROCNIDAE | | | | | | |
| 99. | 709 | <i>Hemiprocne coronata</i> (Tickell) | Crested Tree-Swift | R, O, | I | TNP | All India | Dec to July |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|---------------------------|---------|------------|----------------------------------|--|-----------------|
| 100. | 723 | Order : CORACIIFORMES Family : ALCEDINIDAE <i>Alcedo atthis</i> (Linnaeus) | Small Blue Kingfisher | R, C | Aq A | Kolsa Tank Tadoba Lake, Teli Dam | N. subcontinent, south upto 20° N Latitude | March to June |
| 101. | 730 | <i>Halcyon capensis</i> (Linnaeus) | Stork-billed Kingfisher | R, C | Aq A | - do - | All India | Jan. to Aug. |
| 102. | 736 | <i>Halcyon smyrnensis</i> (Linnaeus) | White-breasted Kingfisher | R, C | Aq A | - do | All India, & Peninsula | Jan. to Aug. |
| 103. | 719 | <i>Ceryle rudis</i> (Linnaeus) | Lesser Pied Kingfisher | R, UnC | Aq A | - do | All India except Kerala | All Year |
| 104. | 750 | Family : MEROPIDAE <i>Merops orientalis</i> Latham | Small Bee-eater | R, C | I | Panchdara Ramdegi | Throughout India subregion | Feb. to June |
| 105. | 748 | <i>Merops philippinus</i> Linnaeus | Blue-tailed Bee-eater | R/PM, O | I | TNP | N. India, peninsula south to Karnataka | Mar. to June |
| 106. | 755 | Family : CORACIIDAE <i>Coracias benghalensis</i> (Linnaeus) | Indian Roller | R, C | I | Andhari, | All | March to June |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|-------------------------------|--------------|------------|--------------------|--|------------------------------|
| 107. | 765 | Family : UPUPIDAE <i>Upupa epops</i> Linnaeus | Common Hoopoe | WV/R, I C | | Ramdegi - do - | continental India, south to 20° N Latitude All India | April to June & Extralimital |
| 108. | 767 | Family : BUCEROTIDAE <i>Ocyrceros birostris</i> (Scopoli) | Indian Grey Hornbill | R, C | FR | Panchdara Tadoba | - do - | March to June |
| 109. | 780 | Order : PICIFORMES Family : CAPITONIDAE <i>Megalaima zeylanica</i> (Gmelin) | Brown-headed Barbet | R, C | FR | Kala Amb, Katezari | Continental India Gujrat to W. Bengal through N. Maharashtra | Feb. to June |
| 110. | 792 | <i>Megalaima haemacephala</i> (P.L.S. Muller) Family : PICIDAE | Coppersmith Barbet | R, C | FR | - do - | Throughout Indian Union | Nov. to June |
| 111. | 852 | <i>Dendrocopos nanus</i> (Vigors) | Brown-capped Pygmy Woodpecker | R,C | I | TNP | All peninsular India to Karnataka | Feb. to July |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|---------------------------------|-----------|------------|--------------------|---|-----------------|
| 112. | 847 | <i>Dendrocopos mahrattensis</i> (Latham) | Yellow-fronted Pied Woodpecker | R, C | I | Katezari | Practically all India | Feb. to May |
| 113. | 804 | <i>Celeus brachyurus</i> (Vieillot) | Rufous Woodpecker | R, C | I | T.N.P. | Gujarat, Maharashtra south to Kerala | Feb. to April |
| 114. | 819 | <i>Dinopium benghalense</i> (Linnaeus) | Lesser Golden-backed Woodpecker | R, C | I | Andhari, Panchdara | Sub-continent N. Maharashtra & Andhra Pradesh | Feb. to July |
| | | Order : PASSERIFORMES Family : PITTIDAE | | | | | | |
| 115. | 867 | <i>Pitta brachyura</i> (Linnaeus) | Indian Pitta | R/WV, UnC | I, CR | TNP | Throughout the subcontinent | Extralimital |
| | | Family : ALAUDIDAE | | | | | | |
| 116. | 878 | <i>Eremopterix grisea</i> (Scopoli) | Ashy-crowned Sparrow-Lark | R/WV, C | GR | - do - | All India | All Year |
| 117. | 883 | <i>Ammomanes phoenicurus</i> (Franklin) | Rufous-tailed Finch-Lark | R,C | GR | - do - | North & Northern India | March to July |
| 118. | 901 | <i>Galerida cristata</i> (Linnaeus) | Crested Lark | R,C | GR,I | - do - | W. | All year |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---------------------------------|--------------------------|--------|------------|---------------------|--|-----------------------------|
| 119. | 902 | <i>Galerida deva</i> (Sykes) | Sykes's Crested Lark | R, UnC | GR | - do | peninsular India from Gujarat to Kerala Central plateau country | Mar. to Sept. |
| 120. | 907 | <i>Alauda gulgula</i> Franklin | Eastern or Small Skylark | R, C | GR | - do - | Peninsular India, including N. Maharashtra, M.P. | Mar. to Aug. |
| | | Family : HIRUDINIDAE | | | | | | |
| 121. | 914 | <i>Hirundo concolor</i> Sykes | Dusky Crag-Martin | R, C | I | Andhari, Karva Tank | Entire peninsula south to Kerala | Feb. to Mar. & July to Aug. |
| 122. | 916 | <i>Hirundo rustica</i> Linnaeus | Common Swallow | WV, CI | | - do - | More or less throughout the country | Extralimital |
| 123. | 921 | <i>Hirundo smithii</i> Leach | Wire-tailed Swallow | R,C | I | Tadoba Lake | - do - | Mar. to Sept. |
| 124. | 925 | <i>Hirundo daurica</i> Linnaeus | Red-rumped Swallow | WV,C | I | - do - | - do - | Extralimital |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|-------------------------|----------------|------------|-----------------|--|-----------------|
| 125. | 922 | <i>Hirundo fluvicola</i> Blyth | Streak-throated Swallow | R/WV, I UnC | | TNP | - do - | Mar. to June |
| | | Family : MOTACILLIDAE | | | | | | |
| 126. | 1885 | <i>Motacilla alba</i> Linnaeus | White Wagtail | WV, CI | | TNP | Himalaya foothills to South through Indian peninsula | Extralimital |
| 127. | 1891 | <i>Motacilla maderaspatensis</i> Gmelin | Large Pied Wagtail | R, C I | | Panchdhara | - do - | Mar. to May |
| 128. | 1883 | <i>Motacilla citreola</i> Pallas | Citrine Wagtail | WV, C I | | TNP | N. India, M.P. to Assam | Extralimital |
| 129. | 1876 | <i>Motacilla flava</i> Linnaeus | Yellow Wagtail | WV, C I | | TNP | - | - do - |
| 130. | 1884 | <i>Motacilla cinerea</i> Tunstall | Grey Wagtail | WV, C I | | TNP | Throighout peninsula | - do - |
| 131. | 1859 | <i>Anthus rufulus</i> Vieillot | Paddyfield Pipit | R, C I | | Andhari Ramdegi | - do - except far east and Kerala | Nov. to June |
| | | Family : CAMPEPHAGIDAE | | | | | | |
| 132. | 1072 | <i>Coracina macei</i> (Lesson) | Large Cuckoo-shrike | R, UnC | I | Panchdhara | - do | Jan. to Oct. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|----------------------|--------|------------|--------------------|--|-----------------|
| 133. | 1093 | <i>Pericrocotus cinnaimomeus</i> (Linnaeus) | Small Minivet | R, C | I | TNP | Rajasthan, M.P., Orissa, south through peninsula to Tamil Nadu | Feb. to Sept. |
| 134. | 1081 | <i>Pericrocotus flammeus</i> (Forster) | Scarlet Minivet | R, C | I | TNP | Tapti River in Gujrat south through Maharashtra to Kerala | June to Sept. |
| 135. | 1070 | <i>Tephrodornis pondicerianus</i> (Gmelin) Family : PYCNONOTIDAE | Common Woodshrike | R, UnC | I | TNP | Deccan | March to Apr. |
| 136. | 1120 | <i>Pycnonotus jocosus</i> (Linnaeus) | Red-whiskered Bulbul | R, C | FR | Panchdhara Andhari | Tapti River and M.P. to Kerala | Mar. to July |
| 137. | 1128 | <i>Pycnonotus cafer</i> (Linnaeus) Family : IRENIDAE | Red-vented Bulbul | R, C | FR | - do - | Southern peninsula north to Maharashtra | Feb. to Nov. |
| 138. | 1099 | <i>Aegithina tiphia</i> (Linnaeus) | Common Iora | R, C | I | Panchdhara Ramdegi | Himalayan foothills south to 20° N Latitude | May to Sept. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|-------------------------|---------|------------|--------------------|---|-----------------|
| 139. | 1107 | <i>Chloropsis cochinchinensis</i> (Gmelin) | Jerdon's Chloropsis | R, C | I | - do - | Central U.P., east to W. Bengal, south throughout peninsula | Nov. to May |
| 140. | 1104 | <i>Chloropsis aurifrons</i> (Temminck) | Gold-fronted Chloropsis | R,O | I | TNP | N. Indian Central & Eastern parts. | May to Aug. |
| | | Family : LANIDAE | | | | | | |
| 141. | 940 | <i>Lanius vittatus</i> Valenciennes | Bay-backed Shrike | R, C | I | Panchdhara Ramdegi | Throughout peninsula to Kanyakumari | Feb. to Sept. |
| 142. | 946 | <i>Lanius schach</i> Linnaeus | Rufous-backed Shrike | WV, UnC | I | TNP | N. India, South to Maharashtra and N. Karnataka | Extralimital |
| 143. | 933 | <i>Lanius excubitor</i> Linnaeus | Great Grey Shrike | R, C | I | TNP | - do -; east to M.P. to W. Bengal | Jan. to Oct. |
| | | Family : MUSCICAPIDAE | | | | | | |
| | | Sub Family : TURDINAE | | | | | | |
| 144. | 1734 | <i>Zoothera citrina</i> (Latham) | Orange-headed | R, C | I | TNP | Peninsular | May to Aug. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|---------------------------------|--------|------------|------------------------|---|-----------------|
| 145. | 1661 | <i>Copsychus saularis</i> (Linnaeus) | Thrush Oriental Magpie-Robin | R, C | I | Ramdegi Andhari Rd | Indian from Gujrat, M.P., Orissa south throughout Maharashtra to Tamil-Nadu Himalayan foothills Peninsula south to Cauvery River | Feb. to Aug. |
| 146. | 1719 | <i>Saxicoloides fulicata</i> (Linnaeus) | Indian Robin | R, C | I | Ramdegi Tadoba lake | Central India M.P., Orissa, south to Krishna river | Feb. to July |
| 147. | 1672 | <i>Phoenicurus ochruros</i> (Gmelin) | Black Redstart | WV,C | I | TNP | Peninsular India upto Karnataka & Tamil Nadu | Extralimital |
| 148. | 1701 | <i>Saxicola caprata</i> (Linnaeus) | Pied Bushchat | R, C | I | Ramdegi Andhari | Central India to Bengal and south to Cauvery River | Mar. to Aug. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|---------------------------|--------|------------|---------------------------------------|---|-----------------|
| 149. | 1222 | Subfamily : TIMALIINAE <i>Dumetia hyperythra</i> (Franklin) | Rufous bellied Babbler | R, C | I | Kala Amb Panchdhara | Himalayan foothills south to Krishna river | Mar. to Sept. |
| 150. | 1231 | <i>Chrysomma sinense</i> (Gmelin) | Yellow-eyed Babbler | R, C | I | Katezari, Ramdegi, Andhari Lake, etc. | From a line Nasik to Gorakhpur south upto Cauvery River, east to Assam | June to Nov. |
| 151. | 1254 | <i>Turdoides caudatus</i> (Dumont) | Common Babbler | R, C | I | - do - | Foothill of Dehradun to plains in eastern M.P. & Bihar and whole of peninsula | Mar. to July |
| 152. | 1258 | <i>Turdoides malcolmi</i> (Sykes) | Large Grey Babbler | R, O. | I | - do - | Punjab to U.P. and through peninsula to Tamil Nadu | ill defined |
| 153. | 1262 | <i>Turdoides striatus</i> (Dumont) | Peninsular Jungle Babbler | R, C. | I | - do - | Gujrat to W. Madhya | - do - |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|--------------------------|--------|------------|---------------|---|------------------------------------|
| | | Subfamily : SYLVIINAE | | | | | Pradesh, south through the peninsula to Nilgiris | |
| 154. | 1498 | <i>Cisticola juncidis</i> (Rafinesque) | Streaked Fantail Warbler | R, UnC | I | TNP | All India | Correlated with rains & vegetation |
| 155. | 1517 | <i>Prinia socialis</i> Sykes | Ashy Prinia | R, C | I | Tadoba Jungle | Entire peninsula, south of Narmada river and southern Bihar | Mar. to Nov. |
| 156. | 1503 | <i>Prinia hodgsonii</i> Blyth | Franklin's Prinia | R, C | I | - do - | N & C India, Maharashtra, Karnataka | June to Oct. |
| 157. | 1521 | <i>Prinia sylvatica</i> Jerdon | Jungle Prinia | R, C | I | - do - | From Maharashtra, M.P., South to Kanyakumari | April to Sept. |
| 158. | 1511 | <i>Prinia inornata</i> Sykes | Plain Prinia | R, C | I | - do - | Central India | Jun. to Oct. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|---------------------------|---------|------------|-----------------|--|-----------------|
| 159. | 1535 | <i>Orthotomus sutorius</i> (Pennant) | Indian Tailor Bird | R, C. I | | Ramdegi Andhari | from U.P., Bihar south through Tamil Nadu Himalayan foothills, south to Kanyakumari | Mar. to Dec. |
| 160. | 1575 | <i>Phylloscopus collybita</i> (Vieillot) | Common Chiff Chaff | WV,C I | | TNP | All India | Extralimal |
| | | Subfamily : MUSCICAPINAE | | | | | | |
| 161. | 1407 | <i>Muscicapa daurica</i> Pallas | Asian Brown Flycatcher | WV,C I | | TNP | All India | Extralimal |
| 162. | 1421 | <i>Ficedula superciliaris</i> (Jerdon) | Ultramarine Flycatcher | WV,O I | | TNP | Central India, N. Maharashtra A.P., etc. | - do - |
| 163. | 1445 | <i>Eumyias thalassina</i> (Swainson) | Verditer Flycatcher | WV,C.I | | TNP | Wintering whole of Indian Peninsula | - do - |
| 164. | 1442 | <i>Cyornis tickelliae</i> Blyth | Tickell's Blue-Flycatcher | R, C. I | | TNP | U.P., Bihar south to Cardaman hills east to | April to Aug. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|-----------------------------------|---------|------------|--------------------|---|-----------------|
| 165. | 1448 | <i>Culicicapa ceylonensis</i> (Swainson) | Grey-headed Flycatcher | WV, CI | | TNP | W. Bengal, Assam Winters in Central India Satpuras upto 18° N Latitude | Extralimal |
| | | Subfamily : MONARCHINAE | | | | | | |
| 166. | 1461 | <i>Terpsiphone paradisi</i> (Linnaeus) | Asian Paradise-Flycatcher | R, C. I | | Teli Dam, Andhari | Indian Peninsula, from Rajasthan M.P., south to Kerala | Mar. to Aug. |
| | | Subfamily : RHIPIDURINAE | | | | | | |
| 167. | 1458 | <i>Rhipidura albicollis</i> (Vieillot) | White-throated Fantail Flycatcher | R,C I | | Panchdhara Ramdegi | Most of Indian Peninsula | Mar to July |
| 168. | 1451 | <i>Rhipidura aureola</i> Lesson | White-browed Fantail Flycatcher | R, C. I | | - do - | Himalayan foothills south Through Gujarat, Central Maharashtra | Feb. to Aug. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|---------------------------|--------|------------|---------------------|--|-----------------|
| 169. | 1794 | Family : PARIDAE <i>Parus major</i> Linnaeus | Great Tit | R, C. | I | Panchdhara Teli Dam | to east to Orissa Peninsular from Rajasthan Gujarat south to Tamil Nadu through Maharashtra | Feb. to Aug. |
| 170. | 1830. | Family : SITTIDAE <i>Sitta castanea</i> Lesson | Chestnut-bellied Nuthatch | R, UnC | I | TNP | Practically All India | Feb. to May |
| 171. | 1892 | Family : DICAUIDAE <i>Dicaeum agile</i> (Tickell) | Thick-billed Flowerpecker | R,C | FR | TNP | - do - | Jan. to June |
| 172. | 1899 | <i>Dicaeum erythrorhynchos</i> Latham | Tickell's Flowerpecker | R, C | FR | Panchdhara | Almost all India from Himalayan foothills | Feb. to June |
| 173. | 1907 | Family : NECTARINIDAE <i>Nectarinia zeylonica</i> (Linnaeus) | Purple-rumped | R,C | N | Panchdhara | Peninsular | Feb. to April |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|----------------------------------|--------|------------|--------------------|---|----------------------|
| 174. | 1917 | <i>Nectarinia asiatica</i> (Latham) | Sunbird Indian Purple Sunbird | R,C | N | Kala Amb - do - | India, N. Maharastra, M.P. to Kanyakumari Himalayan foothills to Kanyakumari | varies as per season |
| | | Family : ZOSTEROPIDAE | | | | | | |
| 175. | 1933 | <i>Zosterops palpebrosa</i> (Temminck) | Oriental White-eye | R,C | I, FR | - do - | Himalayan foothills to Karnataka on west and Godavari River on east | April to Sept. |
| | | Family : EASTRILDIDAE | | | | | | |
| 176. | 1964 | <i>Amandava amandava</i> (Linnaeus) | Red Munia | R,C | GR | TNP | Throughout Indian peninsula | June to Oct. |
| 177. | 1965 | <i>Amandava formosa</i> (Latham) | Green Munia | R,UnC | GR | TNP | Central India, Maharashtra, E.Ghat | May & Jan. |
| 178. | 1966 | <i>Lonchura malabarica</i> (Linnaeus) | White-throated Munia | R,C | GR | TNP | Throughout India | Jan to March |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|--|----------------------|--------|------------|-------------------|--|---------------------|
| 179. | 1968 | <i>Lonchura striata</i> (Linnaeus) | White-rumped Munia | R,C | GR | TNP | - do - | |
| 180. | 1974 | <i>Lonchura punctulata</i> (Linnaeus) | Spotted Munia | R,C | GR | Andhari, Ramdegi | - do - | June to Sept. |
| | | Family : PASSERIDAE | | | | | | |
| | | Subfamily : PASSERINAE | | | | | | |
| 181. | 1938 | <i>Passer domesticus</i> (Linnaeus) | Indian House Sparrow | R,A. | GR | - do - | - do - | Throughout the year |
| | | Subfamily : PLOCEINAE | | | | | | |
| 182. | 1957 | <i>Ploceus philippinus</i> (Linnaeus) | Baya Weaver | R,C | GR | TNP | - do - | April to Oct. |
| | | Family : STURNIDAE | | | | | | |
| 183. | 994 | <i>Sturnus pagodarum</i> (Gmelin) | Brahminy Starling | R,C | FR | TNP | - do - except NE | Feb. to Sept. |
| 184. | 1002 | <i>Sturnus contra</i> (Linnaeus) | Asian Pied Starling | R, UnC | OM | TNP | Northern India, Gangetic Plain, south to Krishna river delta | May to Sept. |
| 185. | 1006 | <i>Acridotheres tristis</i> (Linnaeus) | Common Myna | R,C | OM | Tadoba settlement | Throughout the India | Mar. to Sept. |
| | | Family : ORIOLIDAE | | | | | | |
| 186. | 953 | <i>Oriolus oriolus</i> (Linnaeus) | Eurasian | SV/R, | FR | Panchdhara | Winters | April to Aug. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|---|-----------------------------|--------|------------|---------------------|--|-----------------|
| 187. | 959 | <i>Oriolus xanthornus</i> (Linnaeus) | Golden Oriole | C | | Tadoba Lake Andhari | throughout peninsula upto Kerala | |
| | | Family : DICRURIDAE | | | | | | |
| 188. | 963 | <i>Dicrurus macrocerus</i> Vieillot | Black-headed Oriole | R,C | FR | - do - | Peninsular India, south of Gangetic plain, M.P. to Orissa through N. Maharashtra | Mar. to July |
| 189. | 967 | <i>Dicrurus caerulescens</i> (Linnaeus) | Black Drongo | R,C | I, CR | - do - | Throughout Peninsular India | Mar. to July |
| | | Family : CORVIDAE | | | | | | |
| 190. | 1031 | <i>Dendrocitta vagabunda</i> (Latham) | Indian White-bellied Drongo | R, UnC | I | - do - | - do - | Mar. to June |
| 191. | 1049 | <i>Corvus splendens</i> Vieillot | Indian Tree Pie | R,C | OM | - do - | Himalayan foothills south upto Gujarat, M.P. and Maharashtra | April to June |
| | | | Indian House Crow | R,C | OM | Tadoba settlement | All India except Kerala | Mar. to Aug. |

| Sl. No. | Hand Book No. | Name of the species | Common Name | Status | Food Habit | Locality | Distribution | Breeding Season |
|---------|---------------|------------------------------------|--------------------|--------|------------|----------|---|-----------------|
| 192. | 1056 | <i>Corvus macrorhynchos</i> Wagler | Indian Jungle Crow | R,C | OM | - do - | Gangetic Plain, all Peninsular India south to Kanyakumari | Feb. to June |

ABBREVIATIONS

Status

R - Resident with local and seasonal movements
 WV Winter Visitor (& PM - Passage Mirgrant)
 MV Monsoon visitor
 SV - Summer Visitor

Population Status

A Abundant
 C - Common
 O - Occassional
 UnC Uncommon

Food Habaits

I Insectivorous
 AqA - Aquatic Animals
 Vg Vegetable Matters
 GR - Graminivorous
 FR Frugivorous
 CR - Carnivorous
 OM - Omnivorous
 SC - Scavenger
 N - Nectareater

Hand Book No. As given in Ali & Ripley (1968-1974)

TNP - Tadoba National Park (As per Reference : Anonymous; 1991)

M.P. Madhya Pradesh, A.P. - Andhra Pradesh,

U.P. Uttar Pradesh.

Table-2 : Avian Diversity in Tadoba-Andhari Tiger Reserve

| ORDERS | FAMILIES | SUBFAMILIES | GENERA | SPECIES |
|------------------------|-----------------|--------------------|---------------|----------------|
| 1. PODICIPEDIFORMES | 1 | - | 2 | 2 |
| 2. PELECANIFORMES | 2 | - | 2 | 2 |
| 3. CICONIIFORMES | 3 | - | 11 | 12 |
| 4. ANSERIFORMES | 1 | - | 7 | 11 |
| 5. FALCONIFORMES | 2 | - | 14 | 17 |
| 6. GALLIFORMES | 1 | - | 6 | 8 |
| 7. GRUIFORMES | 3 | - | 7 | 7 |
| 8. CHARDRIIFORMES | 7 | - | 12 | 16 |
| 9. COLUMBIFORMES | 2 | - | 4 | 6 |
| 10. PSITTACIFORMES | 1 | - | 1 | 3 |
| 11. CUCULIFORMES | 1 | - | 7 | 8 |
| 12. STRIGIFORMES | 1 | - | 2 | 2 |
| 13. CAPRIMULGIFORMES | 1 | - | 1 | 2 |
| 14. APODIFORMES | 2 | - | 3 | 3 |
| 15. CORACIIFORMES | 5 | - | 7 | 9 |
| 16. PICIFORMES | 2 | - | 4 | 6 |
| 17. PASSERIFORMES | 20 | 8 | 49 | 78 |
| Total 17 Orders | 55 | 8 | 139 | 192 |
| | (21) | (88) | (11) | (1342) |

*Bird diversity in Indian subcontinent is given in parenthesis.

REPTILIA

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INTRODUCTION

Tadoba-Andhari Tiger Reserve exhibits rich floral and faunal diversity. However, no consolidated account is available on its rich biodiversity. 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 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, 2000 and 2002 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

(*Asterisks indicate species actually collected and/or sighted during project period)

- | | | |
|-----|--|-----------------------|
| | Phylum | CHORDATA |
| | Class | REPTILIA |
| | Order | LORICATA (CROCODILIA) |
| | Family | CROCODYLIDAE |
| *1 | <i>Crocodylus palustris</i> Lesson | |
| | Order | TESTUDINES (CHELONIA) |
| | Suborder | CRYPTODIRA |
| | Family | EMYDIDAE |
| 2. | <i>Kachuga tentoria</i> (Gray) | |
| 3. | <i>Melanochelys trijuga trijuga</i> (Schweigger) | |
| | Family | TESTUDINIDAE |
| *4. | <i>Geochelone elegans</i> (Schoepff) | |
| | Family | TRIONYCHIDAE |

- *5. *Lissemys punctata granosa* (Schoepff)
 6. *Trionyx leithi* Gray
 Order SQUAMATA
 Suborder SAURIA (LACERTILIA)
 Family GEKKONIDAE
- *7. *Cyrtodactylus collegalensis* (Beddome)
 *8. *Hemidactylus brooki* Gray
 9. *Hemidactylus gracilis* Blanford
 10. *Hemidactylus frenatus* Schlegel
 11. *Hemidactylus leschenaulti* Dum. & Bibr.
 *12. *Hemidactylus flaviviridis* Ruppell
 Family EUBLEPHARIDAE
13. *Eublepharis macularius* (Blyth)
 Family AGAMIDAE
- *14. *Sitana ponticeriana* Cuvier
 *15. *Calotes versicolor* (Daudin)
 *16. *Calotes rouxi* Dum. & Bibr.
 *17. *Psammophilus blanfordanus* (Stoliczka)
 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. *Riopa punctata* (Linnaeus)
 Family LACERTIDAE
24. *Cabrita jerdoni* Beddome
 25. *Ophisops jerdoni* (Blyth)
 Family VARANIDAE
- *26. *Varanus bengalensis* (Linnaeus)
 Suborder SERPENTES (OPHIDIA)

Family TYPHLOPIDAE

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

Family BOIDAE

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

Family COLUBRIDAE

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

Family ELAPIDAE

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

Family VIPERIDAE

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

SYSTEMATIC ACCOUNT

Phylum CHORDATA
 Class REPTILIA
 Order LORICATA (CROCODILIA)
 Family CROCODYLIDAE

***1. *Crocodylus palustris* Lesson**

1763. *Crocodylus palustris* Lesson, in *Belong. Voy. Ind. or., zool.*, : 305.

2000. *Crocodylus palustris* Lesson, Sharma. In : *Fauna of Gujarat, State Fauna Series, 8* (Part I) Vertebrates : 257.

Common name : English : Marsh Crocodile, Marathi : Mugger.

Locality : Crocodiles were sighted in Tadoba Lake during project period.

Distribution elsewhere : Practically throughout India.

Status : IUCN Category as per CAMP Report (1998) : Vulnerable, Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : I Part : II; CITES Appendix : I, Red Data Book (1994) : Endangered.

Remarks : Crocodile Breeding Centre was successfully established for quite sometime in past in Tadoba National Park. Some young crocodile specimens bred in this Centre were released in Tapi river tributaries in Melghat Tiger Project. 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.

1998. *Kachuga tentoria* (Gray) : Sharma. *Fauna of India : Reptilia : Testudines and Crocodylians.* : Vol. I : 103-104. Publ : Director, ZSI, Kolkata.

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

Locality : Sharma (1998) has reported the distribution of this species in Godavari river system in Central India,

Distribution elsewhere : Tikader and Sharma (1997), Sharma (1998) 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. However, Sharma (1998) considers its status as vulnerable on account of large scale habitat destructions. *IUCN Category as per CAMP Report (1998)* : Lower risk-least concern.

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

3. *Melanochelys trijuga trijuga* (Schweigger)

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

2000. *Melanochelys trijuga trijuga* (Schweigger), : Sharma. In : *Fauna of Gujarat, State fauna Series, 8* (Part-I) *Vertebrates* : 251.

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

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

Distribution elsewhere : 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. *IUCN Category as per CAMP Report (1998)* : 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). The 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-I) *Vertebrates* : 253-254.

Common name : English : Star Tortoise or Indian starred Tortoise, Marathi : Chandani Kasav; *Locality* : Sighting of a live specimen in Tadoba National Park area by Forest Dept. authorities during project period.

Distribution elsewhere : 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. *IUCN Category as per CAMP Report (1998)* : 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-I) *Vertebrates* : 255.

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

Locality : Sighting of a live specimen near Tadoba lake by ZSI survey party during project period.

Distribution elsewhere : 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 distructions. *Indian Wildlife (Protection) Act, 1972 (as amended upto 2002), Schedule : Schedule : I Part II (For Lissemys punctata). IUCN Category as per CAMP Report (1998) : Lower risk-Near Threatened (For L. punctata).*

Remarks : Sharma (2000) suspects threat to thre survival of the species due to urbanisation 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, *Fauna of Gujarat, State fauna Series, 8* (Part-I) *Vertebrates* : 256-257.

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

Locality : Das (1995) reports Nagpur Dist.(Maharashtra State) which is not very far from Chandrapur Dist. under distribution of the species.

Distribution elsewhere : Sharma (2000) has reported the distribution of the species from Ganga and all other river systems of peninsular India upto 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 leithii*).*

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. *Cyrtodactylus collegalensis* (Beddome)**

1870. *Gymnodactylus collegalensis* Beddome, *Madras Month. J. Med. Sci.* **II** : 173.

2002. *Cyrtodactylus collegalensis* Beddome, Sharma, In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : **II** : 62-64.

Common name : English : South Indian Rock Gecko, Marathi : Pal.

Locality : One specimen was sighted near Khatoda gate in Tadoba National Park area by ZSI Survey party during the project period.

Distribution elsewhere : Widely distributed in whole of India.

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 brooki* Gray**

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

2002. *Hemidactylus brooki* Gray, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : **II** : 107-108.

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

Locality : One specimen was collected near Biloda Gate in Tadoba National Park area by ZSI survey party during the project period;

Distribution elsewhere : 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.

9. *Hemidactylus gracilis* Blanford

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

2002. *Hemidactylus gracilis* Gray, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 111-112.

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

Locality : Sharma (2002) reported occurrence of this species from Chanda (Chandrapur) Dist. in Berar region (now Vidharba in Maharashtra State).

Distribution elsewhere : Sharma (2002) 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.

10. *Hemidactylus frenatus* Schlegel

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

2002. *Hemidactylus frenatus* Schlegel, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 113-114.

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

Locality : Smith (1935), Tikader and Sharma (1992) and Sharma (2002) reported the extent of distribution of this species throughout peninsular India.

Distribution elsewhere : 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 throughout its range; *IUCN category as per CAMP report (1998)* : Lower risk-least concern.

Remarks : Nil.

11. *Hemidactylus leschenaulti* Dumeril & Bibron

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

2002. *Hemidactylus leschenaulti* Dumeril & Bibron, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 114-115.

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

Locality : Smith (1935), Tikader and Sharma (1992), Ahmed and Dasgupta (1992) and Sharma (2002) reported the extent of the distribution of this species throughout peninsular India.

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

Status : Abundant (Tikader and Sharma, 1992 and Sharma, 2002), 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 wavy bands on the back merges with the colour of the tree bark and hence becomes difficult to locate it.

*12. *Hemidactylus flaviviridis* Ruppell

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

2002. *Hemidactylus flaviviridis* Ruppell, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 115-116.

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

Locality : A few specimens were sighted in Tadoba Guest Houses and other residential quarters by ZSI Survey parties in Tadoba-Andhari Tiger Reserve during the project period.

Distribution elsewhere : Whole of India.

Status : Most common (Sharma, 2002), *IUCN category as per CAMP Report* (1998) : Lower risk-least concern.

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

Family EUBLEPHARIDAE

13. *Eublepharis macularius* (Blyth)

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

2002. *Eublepharis macularius* (Blyth), Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 150-152.

Common name : English : Desert Fat tailed Gecko. Marathi : Pal.

Locality : Smith (1935), Tikader and Sharma (1992) and Sharma (2002) reported the extent of the distribution of this species in Maharashtra State.

Distribution elsewhere : Punjab, Rajasthan and Maharashtra State.

Status : Undeterminate (Sharma, 2002), *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

***14. *Sitana ponticeriana* Cuvier.**

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

2002. *Sitana ponticeriana* Cuvier, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 164-166.

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

Locality : Five specimens were collected from Panchdhara, Tadoba Tank, Jamni Village and Pangli Gali areas in Tadoba-Andhari Tiger Reserve by ZSI survey parties during the project period.

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

Status : Very common (Daniel, 1983 and Sharma, 2002); *IUCN category as per CAMP Report (1998)* : Lower risk-least concern.

***15. *Calotes versicolor* (Daudin)**

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

2002. *Agama versicolor* (Daudin), Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 206-208.

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

Locality : A specimen was collected from Jaman wadi area in Tadoba-Andhari Tiger Reserve by ZSI survey party during the project period.

Distribution elsewhere : Practically whole of India.

Status : Most common species throughout its range (Daniel, 1983 and Sharma, 2002), *IUCN category as per CAMP Report (1998)* : Lower risk-near threatened in Central India. (for *Calotes versicolor versicolor* (Daudin)).

***16. *Calotes rouxi* Dum. & Bibr.**

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

2002. *Calotes rouxi* Dumeril and Bibron, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 218-220.

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 Mohorli Rest House area by ZSI

Survey party during the project period.

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

Status : Though widely distributed, the species is vulnerable on account of habitat destruction (Sharma, 2002). The species is, however, endemic within Indian limits. *IUCN category as per CAMP Report* (1998) : Lower risk-near threatened.

***17. *Psammophilus blanfordanus* (Stoliczka)**

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

2002. *Psammophilus blanfordanus* Stoliczka, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 224-226.

Common name : English : Common Indian rock lizard.

Locality : Seven specimens were collected from Khatoda, Tadoba Rest House, Panchdhara, Jamun Talav and Ambawadi areas in Tadoba-Andhari Tiger Reserve by the ZSI Survey parties during the project period.

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

Status : In abundance (Sharma, 2002).

Family CHAMAELEONIDAE

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

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

2002. *Chamaeleo zeylanicus* Laurenti, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 262-264.

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

Locality : One specimen was sighted near Jamun wadi area in Tadoba-Andhari Tiger Reserve by ZSI survey party during the project period.

Distribution elsewhere : Peninsular India.

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

Remarks : * *Chamaeleo 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.

2002. *Mabuya innotata* (Blanford), Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 273.

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

Locality : Smith (1935), Tikader and Sharma (1992) and Sharma (2002) reported the extent of the distribution of this species in Maharashtra State adjoining Madhya Pradesh State.

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

Status : *Mabuya innotata* is an endemic species in India. Rare (Sharma, 2002), *IUCN category as per CAMP Report* (1998) : Data Deficient.

20. *Mabuya macularia* (Blyth)

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

2002. *Mabuya macularia* (Blyth), Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 274-275.

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

Locality : Daniel (1983), Tikader and Sharma (1992) and Sharma (2002) reported occurrence of this species throughout the peninsular India.

Distribution elsewhere : Peninsular India.

Status : Very common (Daniel, 1983 and Sharma, 2002), *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.

2002. *Mabuya carinata* (Schneider), Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 276-278.

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

Locality : Live specimens were sighted in Panchdhara, Khatoda and number of places in Tadoba-Andhari Tiger Reserve by ZSI survey parties during the project period.

Distribution elsewhere : Peninsular India.

Status : Very common (Daniel, 1983, Tikader and Sharma, 1992 and Sharma, 2002), *IUCN category as per CAMP Report* (1998) : Lower risk-near threatened.

22. *Mabuya beddomii* (Jerdon)

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

2002. *Mabuya beddomii* (Jerdon), Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 282-283.

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.

Distribution elsewhere : Peninsular India;

Status : Rare due to habitat loss (Sharma, 2002), *IUCN category as per CAMP Report* (1998) : Lower risk-least concern.

23. *Riopa punctata* (Linnaeus)

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

2002. *Riopa punctata* (Linnaeus), Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 320-321.

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 elsewhere : 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 (2002).

Family LACERTIDAE

24. *Cabrita jerdoni* Beddome

1870. *Cabrita jerdoni* Beddome, *Madras Month. J. Med. Sci.*, : 34

2002. *Cabrita jerdoni* Beddome, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 377-378.

Common name : English : Indian Golden Cabrita.

Locality : Smith (1933) and Tikader and Sharma (1992) reported occurrence of this species from Chanda (Chandrapur) and Bhandara Dists. in SE Vidharbha region of India.

Distribution elsewhere : Almost whole of India.

Status : Common in certain localities (Sharma, 2002).

25. *Ophisops jerdoni* Blyth

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

2002. *Ophisops jerdoni* Blyth, Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 379.

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

Locality : Sharma (2000) reported the extent of distribution of this species throughout central, western and parts of south India.

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

Status : Commonly seen in various localities of species range (Sharma, 2002), *IUCN Category as per CAMP Report (1998)* : Data Deficient.

Family VARANIDAE

*26. *Varanus bengalensis* (LinnaEus)

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

2002. *Varanus bengalensis* (Linnaeus), Sharma. In : *Fauna of India and the adjacent countries : Reptilia (Sauria)* : Vol. : II : 402-405.

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

Locality : Sighting of live specimens near Bhandak, Tadoba and Kolsa areas in Tadoba-Andhari Tiger Reserve by the ZSI survey parties and Forest Dept. authorities during the project period.

Distribution elsewhere : 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, 2002), *Indian Wildlife (Protection) Act 1972 (as amended upto 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. The species is involved in illegal trade at national as well as international level (Pradhan, 1997).

Suborder SERPENTES (OPHIDIA)

Family TYPHLOPIDAE

27. *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 elsewhere : Whole of India.

Status : Abundant in the distributional range (Sharma, 2000 for *Typhlops braminus* = *Ramphotyphlops braminus*). *Indian Wildlife (Protection) Act 1972 (as amended upto 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).

28. *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 elsewhere : Whole of India.

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

***29. *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 : Vala.

Locality : Two specimens were collected from Khatoda and Katejari areas in Tadoba-Andhari Tiger Reserve region by ZSI survey parties during project period.

Distribution elsewhere : 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 upto 2002) Schedule* : Schedule : IV.

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

Family BOIDAE

***30. *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 specimen was collected from Staff Quarters Colony in Tadoba National Park area during the project period.

Distribution elsewhere : 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 upto 2002) Schedule* : Schedule : I Part : II, *Red Date Book (1994)* : Endangered.

Remarks : The 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).

***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 near Tadoba lake area in Tadoba-Andhari Tiger Reserve by ZSI survey parties during the project period.

Distribution elsewhere : Whole of India.

Status : Common in the distributional range (Daniel, 1983 and Sharma, 2000), *Indian Wildlife (Protection) Act (1972) (as amended upto 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 Pandharpavani area in the forested part of Tadoba-Andhari Tiger Reserve by ZSI survey party during the project period.

Distribution elsewhere : 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 upto 2002) Schedule* : Schedule : IV, *IUCN category as per CAMP Report (1998)* : Lower risk-near threatened.

Remarks : Trinket snake has been collected from the crowded localities in 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 near Tadoba lake and Moharli Rest House areas of Tadoba-Andhari Tiger Reserve 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 amended upto 2002) Schedule*

: Schedule II (Part II), *CITES Appendix* : Appendix II, *IUCN category as per CAMP report* (1998) : Lower risk-near threatened.

Remarks : As name suggests rat snake predate on rodent species. 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 erroneous belief amongst illiterates that rat snake is the male of the Cobra.

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 : Smith (1943), Ahmed and Dasgupta (1992), and Sharma (2000) have reported wide occurrence of this species throughout peninsular India.

Distribution elsewhere : 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 upto 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. *Coronella brachyura* (Gunther)

1866. *Zamenis brachyurus* Gunther *Ann. Mag. Nat. Hist.* (3) : 27, pl.vi, fig. A.

2000. *Coronella brachyurus* (Gunther), Sharma, *Fauna of Gujarat, State fauna Series, 8* (Part-1) : *Vertebrates* : 277.

Common name : English : Indian Smooth snake.

Locality : Smith (1943), and Sharma (2000) have reported occurrence of this species in South-East Berar (Vidharbha) region of Maharashtra State.

Distribution elsewhere : The species is endemic to Central and Western region of India.

Status : Not very common in the range of distribution (Sharma, 2000), *Indian Wildlife (Protection) Act (1972 as amended upto 2002) Schedule* : Schedule IV, *IUCN category as per CAMP Report* (1998) : Lower risk near threatened.

Remarks : Nil.

*36. *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 Tadoba National Park area by the ZSI Survey party during the project period.

Distribution elsewhere : Peninsular India.

Status : Common in the range of distribution (Daniel, 1983), *Indian Wildlife (Protection) Act (1972, as amended upto 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. The symptoms are like that of Cobra bite. Even though there is no effect of poison in man, it may occasionally cause swelling and numbness around the bitten area. Common green ship snake closely resembles green or bamboo pit viper in colouration.

37. *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-I), *Vertebrates* : 278.

Common name : English : Streaked kukri snake, Russell's or variegated kukri snake; Marathi : 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 elsewhere : Whole of India.

Status : Common snake species in its distributional range Daniel, (1983) and Sharma (2000); *Indian Wildlife (Protection) Act (1972 as amended upto 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.

38. *Oligodon arnensis* (Shaw)

1802. *Coluber arnensis* Shaw, *Gen. Zool.* iii : 526.

2000. *Oligodon arnensis* Shaw, Sharma, *Fauna of Gujarat, State fauna Series, 8* (Part-I), *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.

Distribution elsewhere : Whole of India.

Status : Not uncommon and available throughout its range (Daniel, 1983 and Sharma, 2000), *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule IV, *IUCN category as per CAMP Report (1998)* : Lower risk-least concern.

39. *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-I), *Vertebrates* : 280.

Common name : English : Wall's yellow-spotted wolf snake; Marathi : Kandya saap

Locality : Smith (1943) and Sharma (2000) have recorded Berar or Deccan as the locality for this species.

Distribution elsewhere : Gujarat, Western Maharashtra and Central India.

Status : Rare and secretive snake (Sharma, 2000), *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule IV, *IUCN category as per CAMP Report (1998)* : Vulnerable.

40. *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-I), *Vertebrates* : 280.

Common name : English : Common wolf snake; Marathi : Kandya saap.

Locality : Smith (1943) and Sharma (2000) have recorded Berar or Deccan as the locality for this species.

Distribution elsewhere : Whole of India.

Status : Most common snake throughout its range (Daniel, 1983, Gayen, 1999 and Sharma, 2000). *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule IV, *IUCN category as per CAMP Report (1998)* : Lower risk-least concern.

41. *Lycodon striatus* (Shaw)

1802. *Coluber striatus* Shaw, *Genl. Zool.* iii : 527.

2000. *Lycodon striatus* Shaw, Sharma, *Fauna of Gujarat, State fauna Series*, 8 (Part-I), *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.

Distribution elsewhere : Whole of India.

Status : Not common (Sharma, 2000), *Indian Wildlife (Protection) Act (1972 as amended upto 2002) Schedule* : Schedule : IV; *IUCN Category as per CAMP Report (1998)* : Lower risk-near threatened.

***42. *Sibynophis subpunctatus* (Dum. & Bibr.)**

1854. *Oligodon subpunctatus* Dum. & Bibr. *Erp. Gen.* 7 : 58.

2000. *Sibynophis subpunctatus* (Dum. & Bibr.), Sharma, *Fauna of Gujarat, State fauna Series*, 8 (Part-I), *Vertebrates* : 280.

Common name : English : Dumeril's Black headed snake.

Locality : Two live specimens were collected from the areas near Kolaragate and Telia dam in Tadoba-Andhari Tiger Reserve by ZSI survey parties during project period.

Distribution elsewhere : Peninsular India.

Status : Not common (Sharma, 2000), *Indian Wildlife (Protection) Act (1972 as amended upto 2002) Schedule* : Schedule : IV; *IUCN Category as per CAMP Report (1998)* : Lower risk-near threatened.

43. *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-I) : *Vertebrates* : 282.

Common name : English : Green keelback 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.

Distribution elsewhere Throughout India except Ganges Valley; *Status* : Common throughout its range (Sharma, 2000), *Indian Wildlife (Protection) Act (1972, as amended upto 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.

***44. *Xenochrophis piscator* (Schneider)**

1799. *Hydrus piscator* Schneider, *Hist. Amph.* : 247.

2000. *Xenochrophis piscator* (Schneider) Sharma, *Fauna of Gujarat, State fauna Series*, 8 (Part-I) : *Vertebrates* : 281.

Common name : English : Checkered keelback snake; Marathi : Virula, Pan chidda, Dhiwad.

Locality : Live specimens were sighted near Tadoba lake and Telia dam areas in Tadoba-Andhari Tiger Reserve by ZSI survey parties during project period.

Distribution elsewhere : 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* : Appendix III, *IUCN category as per CAMP Report (1998)* : Lower risk-least concern.

Remarks : Most active and vicious amongst Indian snakes.

*45. *Amphiesma stolata* (Linnaeus)

1758. *Coluber stolatus* Linnaeus, *Syst. Nat.* : 219.

2000. *Amphiesma stolata* (Linnaeus), Sharma, *Fauna of Gujarat, State fauna Series, 8 (Part-I) : Vertebrates* : 281-282.

Common name : English : Striped keelback, buff stripped keelback, Marathi : Naneti.

Locality : Sighted a live specimen in a small human settlement near Moharli area in Tadoba-Andhari Tiger Reserve region by ZSI survey party during project period.

Distribution elsewhere : Throughout India.

Status : Most common snake in its range. (Daniel, 1983 and Sharma 2000), *Indian Wildlife (Protection) Act (1972, as amended upto 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).

46. *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-I) : Vertebrates* : 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 Tadoba-Andhari Tiger Reserve area also has been assumed here.

Distribution elsewhere : Peninsular India.

Status : Common throughout its range (Daniel, 1983 and Sharma, 2000), *Indian Wildlife (Protection) Act (1972, as amended upto 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.

47. *Psammophis condanarus* (Merrem)

1820. *Coluber condanurus* Merrem, *Tent. Syst. Amph.* : 107.

2000. *Psammophis condanarus* (Merrem), Sharma, *Fauna of Gujarat, State fauna Series, 8 (Part-I)* : Vertebrates : 284.

Common name : English : Indian sand snake, condanarus sand snake.

Locality : Smith (1943), Daniel (1983) and Sharma (2000) have reported occurrence of sand snake in Berar (Now Vidharbha) region.

Distribution elsewhere : 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 upto 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.

48. *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-I)* : 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 upto 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

***49. *Bungarus caeruleus* (Schneider)**

1801. *Pseudoboa caerulea* Schneider, *Hist. Amphib.* ii : 284.

2000. *Bungarus caeruleus* (Schneider), Sharma, *Fauna of Gujarat, State fauna Series, 8 (Part-I) : Vertebrates* : 287.

Common Name : English : Common Indian Krait, Marathi : Manyar, Kander.

Locality : One live specimen was sighted in staff quarters area in Tadoba-Andhari Tiger Reserve by ZSI survey party during project period.

Distribution elsewhere : 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 upto 2002) Schedule IV, IUCN category as per CAMP Report (1998)* : Lower risk-near threatened.

Remarks : One of the deadliest among the poisonous snakes of the world and it can kill adult human being in minutes. The lethal dose for man is considered to be equivalent of 1 mgm of dried poison. Poison is neurotoxic. Kraits are killed for skins for illegal trade (Pradhan, 1997).

50. *Callophis melanurus* (Shaw)

1802. *Coluber melanurus* Shaw, *Gen. Zool.* iii : 552.

2000. *Callophis melanurus* (Shaw), Sharma, *Fauna of Gujarat, State fauna Series, 8 (Part-I) : 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 elsewhere : Peninsular India.

Status : Uncommon (Daniel, 1983) and rare (Sharma, 2000), *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule IV; *IUCN category as per CAMP Report (1998)* : Lower risk- near threatened.

Remarks : No information is available on the virulence of its poison. When the snake is disturbed, it curls its tail and exhibits the red under surface.

***51. *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-I) : Vertebrates* : 288.

Common Name : English : Indian Cobra; Marathi : Naag.

Locality : Live specimens were sighted on Chandrapur-Tadoba Road, near human settlements in Andhari and Khatoda areas of Tadoba-Andhari Tiger Reserve by ZSI survey parties during project period.

Distribution elsewhere : 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 upto 2002) Schedule* : Schedule II Part II, *CITES* : Appendix : II *IUCN Category as per CAMP Report (1998)* : Lower risk near threatened.

Remarks : Cobra poison acts mainly as a neurotoxin and also as a blood and cell destroyer. The Cobra bite is not fatal at all times. The lethal dose is 15-17.5 mgm. for an adult human being. Cobras are killed indiscriminately on a very large scale for illegal trade of their skins (Pradhan, 1997).

Family VIPERIDAE

*52. *Vipera russelli* (Shaw)

1797. *Coluber russelli* Shaw, *Nat. Misc.* : viii : 291.

2000. *Vipera russelli* (Shaw), Sharma, *Fauna of Gujarat, State fauna Series*, 8 (Part-I) : *Vertebrates* : 294.

Common Name : English : Russell's viper; Marathi : Ghonas.

Locality : A live specimen was sighted on Ballarpur Road near Andhari sanctuary area of Tadoba-Andhari Tiger Reserve by ZSI survey party during the project period.

Distribution elsewhere : 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 upto 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*. However, 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). A poison snake. The poison fangs function like a hypodermic nature's syringe. The lethal dose for a healthy adult man is around 50 mgm. Hence, its bite is not always fatal.

*53. *Echis carinatus carinatus* (Schneider)

1801. *Pseudoboa carinata* Schneider, *Hist. Amphibia* ii : 285.

2000. *Echis carinatus*, (Schneider), Sharma, *Fauna of Gujarat, State fauna Series*, 8 (Part-I) : *Vertebrates* : 294-295.

Common Name : English : Saw-scaled viper; Marathi : Phoorsa.

Locality : One specimen was collected from Tadoba area by ZSI Survey party during the project period.

Distribution elsewhere : Widely distributed in peninsular India.

Status : Common throughout its range (Daniel, 1983, and Sharma, 2000), *Indian Wildlife (Protection) Act (1972 as amended upto 2002) Schedule* : Schedule IV, *IUCN category as per CAMP Report (1998)* : Lower risk-near threatened.

Remarks : Poison of saw-scaled viper is supposed to be five times toxic as cobra venom and 16 times toxic of Russell's viper's venom. The lethal dose for a man is believed to be 5 mgm. Saw-scaled vipers are killed indiscriminately on a very large scale for illegal trade of their skins (Pradhan, 1997).

54. *Trimeresurus gramineus* (Shaw)

1802. *Coluber gramineus* Shaw, *Genl. zool.* iii : 420.

2000. *Trimeresurus gramineus* (Shaw), Sharma, *Fauna of Gujarat, State fauna Series, 8 (Part-I) : 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 peninsular India.

Distribution elsewhere : Peninsular India; *Status* : Not uncommon in its range of distribution (Daniel, 1983 and Sharma, 2000), *Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule* : Schedule : IV, *IUCN category as per CAMP Report (1998)* : Lower risk-near threatened.

Remarks : The threat to the survival of species is due to habitat loss for urbanisation.

DISCUSSION

Systematic list given above reports occurrence of 54 reptilian species / subspecies in Tadoba-Andhari Tiger Reserve area. As stated earlier the inventory is based on collection, sighting and bibliographic records. 54 species/subspecies belonging to one crocodyle family, two freshwater turtle families, seven lizard families and five snake families have been reported. Out of 54, 26 species/subspecies have been actually sighted and/or collected from the study area during the project period between 1991-1996. (About 58%). The inventory lists one species of crocodyle, four species of freshwater turtles, twenty species of lizards and twenty eight species of snakes (including six species of poisonous snakes). Seventeen colubrid snake species have been reported from this region. The snake species are followed by six gekkonid and five scincid species. Snake species diversity apparently appears to be fairly rich in the region. (28 in 54 i.e. 52% 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 Tadoba-Andhari Tiger Reserve. The details of endemic reptilian species are as follows :

Order TESTUDINES
Family EMYDIDAE

- 1 Indian snail eating turtle :

Melanochelys trijuga trijuga (Schweiger)

Family TRIONYCHIDAE

2. Southern flap shelled turtle :

Lissymus 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 oliv skink :

Mabuya innotata (Blanford)

Suborder SERPENTES

Family TYPHLOPIDAE

8. Beaked blind snake :

Typhlops acutus (Dum. & Bibr.)

Family COLUBRIDAE

9. Sand snake :

Psammophis longifrons Boulenger

10. Indian Smooth snake :

Coronella brachyura (Gunther)

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 upto 2002) was studied, it was seen that 32 species/subspecies out 54 (59%) 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 | 21 |
| TOTAL | 3 + | 6 + | 23=32 |

Finally, following conclusions can be drawn :

- 1 Tadoba-Andhari Tiger Reserve 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 (59%) have been included under some or other Wildlife (Protection) Act (1972, as amended upto 2002) Schedules.

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AMPHIBIA

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INTRODUCTION

The Tadoba National Park is located in Chandrapur district which is famous for its coal mines. The area is a part of the central plateau of the Deccan Peninsula. The park receives an annual rainfall of 1175 mm and the temperature ranges from 9° C. to 47° C. The Forest is of a tropical dry deciduous type with trees of Bamboo and Teak as the main species. The Tadoba lake is a huge natural lake in the center of the park having an area of about 120 hectares. Andhari is the main river in the area which originates from Pandharpauni. Bhanukundi Nalla is another big stream in the park. There are several other streams and man-made reservoirs present within the park. Most of the streams are perinneeal however there are water-pockets during the summer months. The presence of water almost throughout the year supports the life of many amphibian species within the park.

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 Pillai (1990) have studied amphibians of Maharashtra based on the collections from Zoological Survey of India, Western Regional Station, Pune. Sekar (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

| | |
|--------|-----------|
| Phylum | CHORDATA |
| Class | AMPHIBIA |
| Order | ANURA |
| Family | BUFONIDAE |

- 1 *Bufo melanostictus* Schn.
2. *Bufo stomaticus* Lutken.

Family MICROHYLIDAE

3. *Microhyla ornata* Dum. & Bibr.
4. *Ramanella montana* Jerdon.
5. *Uperodon globulosum* Gunther.

Family RANIDAE

6. *Hoplobatrachus tigerinus* (Daudin)
7. *Hoplobatrachus crassus* (Jerdon)
8. *Euphlyctis cyanophlyctis* (Schn.)
9. *Limnonectes limnocharis* (Gravenhorst.)
10. *Sphaerotheca breviceps* (Schn.)

Family RHACOPHORIDAE

11. *Polypedates maculatus* (Gray)

SYSTEMATIC ACCOUNT

Family BUFONIDAE

1. *Bufo melanostictus* Schn.
(Common Indian Toad)

Material examined : Devzari 1 ex 8.iii.95; Kala Amba 1 ex. 13.iv.2000; Panchdhara 1 ex 25.ix.94; Pandharpawani 1 ex. 17.x.97; Telia dam 1 ex. 7.iv.96; Vasant bandhara 1 ex 25.ii.95.

Diagnostic characters : Snout to vent length between 65 to 80 mm. Head, upper lip, tips of fingers, toes and metatarsal tubercles with prominent bony ridges. Tympanum 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 grayish to brownish. Venter whitish with black striplings on the chin. Toes about ½ webbed with small subarticular tubercles. Inner metatarsal tubercle large and elliptical, outer metatarsal tubercle small.

Distribution : Throughout the Indian subcontinent and Malaysia.

2. *Bufo stomaticus* Lutken
(Marbled toad)

Material examined : Devzari 2 ex. 8.iii.95.

Diagnostic characters : Size medium, snout to vent length about 60 mm. Dorsal surface of the body is tuberculated. Ventral surface is granulated except for the chin and throat which are smooth. Tympanum 2/3 diameter of the eye. Fingers free first finger always longer than the second. Tibio-tarsal articulation reaches between the shoulder and eye when the leg is held by the side of the body. Toes 2/3rd webbed. Inner and outer metatarsal tubercles equal and with sharp edges. Dorsal surface grayish venter white.

Distribution :- Assam, Bihar, Himachal Pradesh, Karnataka, Jammu and Kashmir, Maharashtra, Orissa, and West Bengal.

Family MICROHYLIDAE

3. *Microhyla ornata* Dumeril and Bibron.
(Ornate Microhylid)

Material examined : Katezari 2 exs. 31.iii.96.

Diagnostic characters : 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.

Distribution : Throughout Southeast Asia.

4. *Ramanella montana* Jerdon.
(Malabar Hill frog.)

Material examined : Ramdegi 1 ex. 14.ix.98.

Diagnostic characters : Size small, snout to vent length 35 mm. Dorsal surface brown with darker markings. Ventral surface brown with whitish markings. Skin both dorsally and ventrally smooth. Fingers moderately long with prominent discs. Toes $\frac{1}{2}$ webbed, tips of toes swollen. Inner metatarsal tubercle oval shaped, outer metatarsal tubercle blunt.

Distribution : Kerala, Maharashtra.

5. *Uperodon globulosum* Gunther.
(Balloon Frog)

Material examined : Pangli gate 1 ex. 18.ix.98.

Diagnostic characters : Medium to large sized frogs snout to vent length about 60 mm. Head small, body robust and globular. Dorsal surface brown and ventrally white. Skin smooth on the dorsal side ventrally wrinkled with granular anal region. Tympanum indistinct. Hindlimbs short, tibiotarsal articulation not reaching the shoulder when the limb is held to the side of the body. Webbing of the toes rudimentary. Inner and outer metatarsal tubercles large and shovel shaped. Inner metatarsal tubercle bigger than the outer.

Distribution : Assam, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Orissa, West Bengal.

Family RANIDAE

6. *Hoplobatrachus tigerinus* (Daudin)
(Indian Bull Frog)

Material examined : Kolsa 1 ex. .22.vii.95; Devzari 2 ex. 8.iii.95; Kate Zari 1 ex.

19.x.97.

Diagnostic characters : Large sized amphibians, snout to vent length 120 mm. Skin with longitudinal folds dorsally, ventrally smooth. Tympanum equal to the eye in diameter. Fingers moderately long and obtusely pointed. Heels overlap strongly when the hindlimbs are folded. Toes fully webbed and with swollen tips. Inner metatarsal tubercle obtusely pointed, no outer metatarsal tubercle. Colour olive green above with a vertebral streak in some specimens, limbs spotted, ventrally white.

Distribution : Throughout India, China and Sri Lanka.

**7. *Hoplobatrachus crassus* (Jerdon)
(Jerdon's Bull Frog.)**

Materials examined : Katezari 29.ix.94, 1 ex.; Andhari Nalla 23.x.97, 1 ex.

Diagnostic characters : 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.

Distribution : Andhra Pradesh, Bihar, Kerala, Orissa, Tamil Nadu, Uttar Pradesh, West Bengal, Nepal and Sri Lanka.

**8. *Euphlyctis cyanophlyctis* (Schnieder)
(Skipper Frog)**

Material examined : Ambathira 7 ex. 2.iv.96, Andhari Nalla 5 exs. 4.iv.96, 1 ex. 23.x.97; Bhanuskhindi 8 exs. 11.xii.96; Biloda gate 2 exs. 11.iii.95; Botezari 7 exs. 27.i.2001; Damni Tank 5 exs. 28.iii.99; Devazari 7 exs. 27.iii.99; Fulzari 3 exs. 20.iv.2000; Jamanbodi 2 ex. 2.iii.95; Jamani Talao 2 exs. 10.iii.95; Jamni 6 exs. 5 exs. 6.ix.94; Kala Amba 3 exs. 3.x.94, 4 ex. 21.viii.95, 2 exs. 3.iv.96, 3 exs. 24.iii.99; Kasar Bodi 2 exs. 18.iv.2000; Kate Zari 4 ex. 29.ix.94, 2 exs 2.iii.95, 8 exs. 31.iii.1996, 6 exs. 4.xii.96, 5 exs. 23.iii.99, 1 exs. 22.i.2001; Khatoda gate 3 exs. 12.iv.2000; Khatoda 9 exs. 30.ix.94; Kolsa 5 ex. 28.ii.95, 2 exs. 28.ii.95; Kolsa lake 2 ex. 26.i.2001; Kosekanar 2 exs. 10.iii.95; Mahurli 5 exs. 28.ix.94; Palasgaon 5 exs. 3.x.94; Panchdhara Nalla 4 exs. 25.ix.94, 2 exs., 6.iii.95, 4 exs. 29.iii.96, 2 exs. 20.iii.99; Pandharpawani 5 exs. 5.x.94, 8 ex. 14.vii.95, 4 ex. 26.ii.95, 2 exs. 15.ix.98; Pangadi lake 1 ex. 26.i.2001; Ramdegi 2 exs. 27.x.97, 2 exs. 15.iv.2000; Shivanzari Nalla 6 exs. 25.iii.99; Tadoba lake 9 ex. 27.ix.94, 1 ex. 25.ii.95; Telia Dam 1 ex. 13.viii.95, 11 exs. 7.iv.96; Telia Nalla 1 ex. 13.viii.95; Vasant bandhara 5 exs. 26.ix.94, 1 ex. 25.ii.95, 1 ex. 11.viii.95, 2 exs. 5.xii.96, 5 exs. 22.iii.99; Vikas Bandh 2 exs, Waghai 1 ex. 3.iii.95; 3 Km SW of Tadoba 2 exs. 7.x.94.

Diagnostic characters : 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.

Distribution : Throughout India, Shri Lanka and Nepal.

9. *Limnonectes limnocharis* (Gravenhorst.)
(Indian Cricket Frog)

Material examined : 7 km East of Tadoba 5 exs. 2.x.94; Amba Wadi 12 exs. 19.viii.95; Ambathira 7 ex. 21.x.97; Bhanuskhindi 2 exs. 11.xii.96; Crocodile centre 2 exs. 11.xii.96; Jamanbodi 5 exs. 16.viii.95; Kala Amba 2 exs. 1.iii.95, 3 exs. 9.xii.96, 5 ex. 20.x.97; Kolsa lake 1 ex. 24.x.97, 1 exs. 5.iv.96, Panchdhara Nalla 1 exs. 3.xii.96; Pandharpawani 1 exs. 17.x.97; Vasant bandhara 1 ex. 25.ii.95, 5 exs. 1.iv.96.

Diagnostic characters : 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.

Distribution : Throughout the Indian Union.

10. *Sphaerotheca breviceps* (Schnieder)
(Indian Burrowing Frog)

Materials examined : Ramdegi 1 ex. 14.ix.98.

Diagnostic characters : Medium sized Frogs. Snout short and rounded. Tympanum is 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 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.

Distribution : Throughout the Indian Peninsula, Nepal, Mynmar, Sri Lanka.

Family RHACOPHORIDAE

11) *Polypedates maculatus* (Gray.)
(Common Tree Frog)

Materials examined : Devzari 1 ex. 8.iii.95; Kate Zari 3 exs. 11.iv.2000; Panchdhara Nalla

1 ex. 6.iii.95, 1 ex. 8.iii.95, 1 ex. 29.iii.96; Rest House Tadoba 2 ex. 21.iii.99; Tadoba lake 1 ex. 27.ii.95; Vasant bandhara 1 ex. 25.ii.95.

Diagnostic characters : 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 fingertips 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.

Distribution : Throughout India, Except Haryana, Punjab and Rajasthan.

DISCUSSION

As seen from the collections of Tadoba National Park there are 11 species of Amphibians present within the Park area, belonging to 10 genera and four families of the order Anura. There are 2 Bufonid, 4 Ranid, 3 Microhylid and 1 Rhacophorid species. Among these species *Euphlyctis cyanophlyctis* is the most common followed by *Limnonectes limnocharis*. *Polypedatus maculatus* the tree frog too is fairly common within the park. *Hoplobatrachus tigerinus* and *Hoplobatrachus crassus* are also seen abundantly in the park. The presence of *Ramanella montana* and *Polypedates maculatus* in this area suggests that the park is well forested and the park is an ideal habitat for various species of Amphibians.

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PISCES

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INTRODUCTION

In India, various workers have studied Taxonomy, Biodiversity and Distribution of fishes *viz.* Hamilton–Buchanan (1822), Menon (1962) studied ichthyofauna of Himalayan rivers, Yazdani (1994) worked on fishes of Ganga river. Jayaram (1995) worked out fish species of Krishna river. Prior to that David (1963) recorded fishes of Godavari and Krishna river systems. Jayaram *et al.* (1981) studied fishes of Cauvery river. Yadav (2003) presented account on 135 species of fishes from northern part of Western Ghats. Yadav (2004) reported 33 species from Pench National Park. Further, Yadav (In Press) included 96 species in the document to be published on Fauna of Melghat Tiger Reserve. However, very scanty information is available on fishes recorded from Tadoba National Park. Hence attempt has been made here to present piscine inventory from this well known conservation area. Both Tadoba National Park and Andhari Wildlife Sanctuary harbour a very rich fish fauna in its various waterbodies *viz.* streams, ponds, puddles, rivers and lakes.

Moreover, Andhari river traversing through this National Park is a tributary of Vainganga river, which forms a part of Godavari river basin. There are various localities from where fish specimens were collected during the project period *viz.* Vasant bandhara, Pandahar Pavni, Panchdhara, Karva talav, Kolsa tank and Telia dam.

The inventory of fishes comprising 84 species of 52 genera, in 7 subfamilies of 18 families under 9 orders has been prepared. 37 fish species have been actually collected during the period of 9 surveys of Tadoba National Park and 47 species have been incorporated from the literature, particularly from Melghat Tiger Reserve (Gujar 1992) and from Vardha river (Pradhan, 1997), 84 species include 4 species with extended range of distribution.

For identification of fishes, Day's volumes (1875–1878), Day's Fauna (1889) and latest books like Jayaram (1981), (1991), Menon (1987, 1999), Talwar and Jhingran (1991) and Yazdani (1990) have been consulted.

Table 1: Fauna of Tadoba National Park Pisces

| Sl. No. | Name of species | Common Name | Status | Locality Within Tadoba | Distribution | Remarks |
|---------|--|-------------------|--------|---|--|--|
| 1 | ORDER : ANGUILLIFORMES FAMILY : ANGUILLIDAE <i>Anguilla bengalensis</i> (Gray) | Eel | C | | Throughout India, Vardha River | It is a food fish |
| 2 | <i>Goniolosa manmina</i> (Ham-Buch.) | | UNC | | India : Ganga, Vardha and Brahamputra rivers | It is north Indian species |
| 3 | ORDER : OSTEOGLOSSIFORMES FAMILY : NOTOPTERIDAE <i>Chitala chitala</i> (Ham-Buch.) | Chitala | V | - | India : Vardha river. | It has low fecundity. Males guard the eggs |
| 4 | <i>Notopterus notopterus</i> (Pallas) | Feather back | C | - | All over India : Melghat, Pench, Vardha river. | It is a food fish |
| 5 | ORDER : CYPRINIFORMES FAMILY : CYPRINIDAE SUB FAMILY : CULTRINAE <i>Chela dadiburjori</i> (Menon) | | UNC | | India : West Coast :Nagarcoil to Goa, Vardha river | Elongate Compressed body |
| 6 | * <i>Chela laubuca</i> (Ham-Buch.) | Indian glass barb | C | Stream on Palasgaon karward Vasant bandhara, Tadoba lake. | India : Vardha River | Translucent; Shining Silver fish, having 2 golden blotches, one on |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|------------------------|--|-----------------------------------|--------|---|---|--|
| 7 | <i>Salmostoma bacaila</i> (Ham-Buch.) | Large razor belly, minnow, Dental | C | - | Northern India, Orissa, Vardha river. | base of Caudal fin & the other above operculum Long jawed fish, inhabits slow running stream. |
| 8 | <i>Salmostoma clupeoides</i> (Bloch) | Alkut | C | - | Tapi river, Peninsular India, Vardha River | Attains length of 15 cm. Tasty fish |
| SUBFAMILY : RASBORINAE | | | | | | |
| 9 | <i>Amblypharyngodon mola</i> (Ham-Buch.) | Mola carpet | UNC | | Foothills of Himalaya, Vardha River, Assam | Silvery broad lateral band present on body |
| 10 | <i>Aspidoparia morar</i> (Ham-Buch.) | Aspidoparia | UNC | | Throughout Northern India | Species attains length of 17.5 cm. |
| 11 | <i>Barilius barna</i> (Ham-Buch.) | Barna baril | C | | India : Ganga, Brahmputra, Mahanadi, Vardha River | Restricted to northern India. |
| 12 | <i>Barilius bendelisis</i> (Ham-Buch.) | Jhorya | C | | Throughout India except Kerala | Males have tubercles on snout |
| 13 | * <i>Brachydanio rerio</i> (Ham-Buch.) | Zebra danio | C | Chicghat, Kalizari, Ambat hira, Vasant bandhara, Katezari, Shivan zari nalla. Kolsa, Palasgaon- | Eastern India | Good aquarium fish. |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|---------------|--------|---|------------------|--------------------------------|
| 14 | <i>Danio devario</i> (Ham-Buch.) | Devario danio | UNC | karward, Tadoba lake, Tadoba-chimur rd. Panchdhara, Kala Amba, Dori nalla, Andhari river, Kasar bodi compt No.313 Kolsa, Wagnala, Kosekonar nalla, Pandhar pavni, Botezari, Hirdi nalla Compt. 513, Khatoda gate, Karva gate rd. Jamni talav, Kala Amba, Bhanuskhindi Navegaon gate, Fulzari, Compt. 306, Devzari nalla, Kollar gate, Vikas bandhara. | | It is a popular aquarium fish. |
| 15 | * <i>Danio aequipinnatus</i> (McClelland) | | C | Biloda gate, Telia dam, Panchdhara stream, Kala | Throughout India | It also inhabits hill streams. |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|-------------|--------|---|---|-----------------------------------|
| 16 | * <i>Esomus danricus</i> (Ham-Buch.) | Flying Barb | C | Amba, Bhanuskhindi, Navegaon gate, Waghai, Devzari, Kollar gate. Pandhar Pavni, Katezari, Palasgaon-Karwar rd; Ramdeghi, Andheri river, Wagnala, Kolsa talav, Botezari, Khatoda gate, Karva gate, Navegaon gate, Waghai, Devzari, Kollar gate, Ambat hira. | Northern India, Melghat, Western Ghats, Pench | Active jumper, good aquarium fish |
| 17 | * <i>Rasbora daniconius</i> (Ham-Buch.) | Danda | C | Telia dam, Mahurli, Cichghat, Biloda gate, Pangli gate, Damni tank, Vasanth bandhara Devzari-Kolsa rd; Shivanzari nalla, Katezari, Pangdi dam, Tadoba | Throughout India | Surface feeder |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|--|-------------------------------|--------|---|-----------------------------|-----------------------------|
| 18 | * <i>Rasbora rasbora</i> (Ham-Buch.) SUBFAMILY : CYPRININAE | Gangetic scissor tail rasbora | C | lake, Ramdegghi, Tadoba-Chmur rd; Panchdhara, Kala Amba, Andhari river, Kolsa reservoir, Pandhar pavni, Kosekonar nalla, Hirdi nalla, Compt. 513, Jamni talav, Khatoda Palasgaon rd; Bhanuskhindi, Navegaon gate, Fulzari compt. 306, Ambat hira Waghai, Devzari nalla, Kollar gate, Vikas bandhara. Chicghat, Pangli gate, Vasant bandhara, Kolsa lake, Katezari, Kala amba, Telia dam. | India : West Bengal; Assam. | It is a good aquarium fish. |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|-----------------------|--------|--|--|--|
| 19 | <i>Thynnichthys sandkhol</i> (Sykes) | | R | - | India : Godavari, Vardha, Krishna, Mahanadi rivers. | Subsists on planktons |
| 20 | <i>Tor tor</i> (Ham-Buch.) | Narmada mahseer | En | - | India : Assam, Hamalaya, Mahanadi, river, Vindhya-Satpura, Vardha river. | It reaches 1.7 meters long with weight 100 kg. |
| 21 | * <i>Osteobrama cotio cotio</i> (Ham-Buch.) | Cotio | C | Kala amba | India : Vardha river. | Trapezoid shaped body, anal fin long |
| 22 | <i>Osteobrama vigorsii</i> (Sykes) | Bhima Osteobrama | C | - | India : Krishna, Godavari river systems, Pune. | Dorsal fin spine strong |
| 23 | * <i>Puntius amphibius</i> (Val.) | Scarlet banded Khavli | C | Telia dam; 7 km E of Tadoba, Katezari, Wagnalla Pandhar pavni stream, Tadoba-Mahurli rd; Khatoda-Palasaon Navegaon gate. | India : Rajasthan, U.P., Bihar, Goa, Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, Madhya-Pradesh, Orissa. | Elongated barb. |
| 24 | <i>Puntius conchoni</i> (Ham-Buch.) | Rosy barb | UNC | - | Throughout India | It is an aquarium fish |
| 25 | * <i>Puntius filamentosus</i> (Val.) | Black spot Khavli | C | Hirdi nalla, Compt. 513. | India : Krishna, Cauvery, Andhara Pradesh, | Dorsal fin ray extended. Finger like blotch |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|--|---------------|--------|---|---|---|
| 26 | * <i>Puntius sophore</i> (Ham-Buch.) | Khavali | C | Katezari, Wagnala Kolsa talav, Khatoda - Palasgaon rd, Navegaon gate, Katejara | Karnataka, Tamil-Nadu, Goa. Widely distributed in India. | on base before caudal fin. Black blotch on dorsal fin present |
| 27 | * <i>Puntius s. sarana</i> (Ham-Buch.) | Olive barb | C | - | India : North to Krishna river system | Plant feeder, prolific breeder |
| 28 | * <i>Puntius ticto</i> (Ham-Buch.) | Khavali, barb | C | Devzari-kolara rd; Kolsa lake, Palasgaon-Karva rd; Ramdegghi, Kala amba, Vasant bandhara, Shivanzari nalla, Kasarbodi, Compt. 313, Pandhar Pavni, Katezari, Botezari, Jamni talav, Bhanuskhindi, Telia dam, Navegaon gate, Fulzari, Compt. 306, Ambat hira, | All over India | Body with two black blotches, one on above pectoral fin & other on caudal peduncle. |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|-------------------------------------|-----------------------------|--------|------------------------------------|---|---|
| 29 | <i>*Puntius chola</i> (Ham-Buch.) | Khavali, Swamp barb | UNC | Waghai, Amba wadi Navegaon gate | All over India | Black blotch present near base of caudal fin |
| 30 | <i>Catla catla</i> (Ham-Buch.) | Catla, carp | C | - | India : Tapi river, Vardha river, W. Ghats | It is a major carp. |
| 31 | <i>Cirrhinus cirrhosus</i> (Bloch). | Cauvery white carp | EN | - | Peninsular India | Rostral barbels present |
| 32 | <i>Cirrhinus reba</i> (Ham-Buch.) | Reba Camp | C | - | Throughout India | Can be cultured in ponds |
| 33 | <i>Labeo bata</i> (Ham-Buch.) | Bata Labeo | C | - | Peninsular India | It is food fish |
| 34 | <i>Labeo boggut</i> (Sykes) | Boggut labeo, Sande | C | - | Northern India, upto Cauvery river | Slender specimens, popular for stocking ponds |
| 35 | <i>Labeo calbasu</i> (Ham-Buch.) | Kalbans, Kanas | C | - | India | It is food fish |
| 36 | <i>Labeo fimbriatus</i> (Bloch) | Fringed lipped carp, Tambir | UNC | - | India : Vardha river, Gavilgahar range, Melghat | It is a common major carp in Tamil Nadu |
| 37 | <i>Labeo rohita</i> (Ham-Buch.) | Rohu, Tambda masa | C | - | North and Central India | Major carp, food fish |
| | Subfamily : GARRINAE | | | | | |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|--|----------------|--------|--|---|----------------------------------|
| 38 | <i>Garra gotyla gotyla</i> (Gray). | Gotyla | C | - | India : Himalaya, Chota Nagpur, Vardha river | It is a food fish |
| 39 | * <i>Garra mullya</i> (Sykes) | Mallya | C | Jamni talav, Pandhar pavni, Tadoba - Mahurli rd. | Throughout India, except Assam and Himalaya | Bottom dweller. |
| 40 | <i>Crossocheilus latius latius</i> (Ham-Buch.) Family : BALITORIDAE Subfamily : Noemacheilinae | Gangetic latia | UNC | - | India : Ganga, Brahmaputra, Mahanadi, Krishna, Vardha river | Inhabits mountain streams. |
| 41 | * <i>Noemacheilus botia</i> (Ham-Buch.) | Stone loach | C | Botezari, Hirdi nalla, Khatoda gate, Kala amba, Fulzari comt.306, Panchdhara, Waghai, Jamni talav, Navegaon gate, Telia dam, Kalizari, Ambat hira, Kolsa lake, Katezari, Shivanzari nalla, Pagdi dam, Ram degi | India : Ganga, Brahmaputra; Peninsular rivers. | It is bio-indicator of pollution |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|-------------|--------|---|---|---|
| 42 | * <i>Noemacheilus d. denisoni</i> Day | Stone loach | C | Tadoba-Chimur rd; Dori nalla, Andheri river, Pandhar pavni Kala amba, Kolsa reservoir | Peninsular India, Chota Nagpur, Bastar (M.P.), Melghat, Vardha river, Pench. India: M.S., W. Ghats, Satpura range, Panchmari hills, Melghat, Pench. | A species of <i>Schistura</i> 8 branched dorsal fin rays. Body marked with brown bands |
| 43 | * <i>Noemacheilus evezardi</i> Day | Stone loach | UNC | Cichghat, Kala amba, Tadoba Chimur rd; Panchdhara stream, Andhari river, Hirdi nalla, Compt. 513, Bhanuskhindi. | India : Maharashtra, Western Ghats, Satpura range, Panchmari hills, Melghat, Pench. | Nasal barbels present, caudal fin rounded. L.L. Short, dorsal fin with 7 branched rays |
| 44 | * <i>Noemacheilus keralensis</i> (Rita & Nalbant) | Stone loach | UNC | Telia dam | India : Western Ghats, Kerala, Melghat. | A <i>Indoreonectes</i> species with black vertical bands, splitting below L.L., into numerous stripes or spots. |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|--|----------------------------|--------|---|---|--|
| 45 | FAMILY : COBITIDAE <i>*Lepidocephalus guntea</i> (Ham-Buch.) | Loach | C | Kala amba, Kolsa lake, Katezari, Ambat hira, Waghai, Devzari nalla, Kolar gate, Vikas bandhara, Kate jara, Palasgaon-Karwa rd; 7km. E. of Tadoba, Tadoba-Chimur rd; Panchdhara, Tadoba lake, Vasant bandhara, Shivanzari nalla, Andheri Kosekonar nalla, Pandhar pavni, Khatoda gate, Karva gate. | North India | Inhabits flowing or clear standing water |
| 46 | <i>Lepidocephalus thermalis</i> (Val.) | Malabar Loach | C | - | India Kerala, Karnataka, Maharashtra, Vardha river. | 8-10 irregular blotches present on flanks. |
| 47 | ORDER : SILURIFORMES FAMILY : BAGRIDAE <i>Aorichthys aor</i> (Ham-Buch.) | Long whiske - red cat fish | UNC | - | India : Ganga, Jamuna, Braham- | It is a giant cat fish |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|--|-----------------|--------|---|---|--|
| 48 | <i>Aorichthys seenghala</i> (Sykes) | Shingta | UNC | - | putra, Mahanadi, Tapi, Krishna, Cauvery, Vardha rivers. India : Himalayan and Peninsular rivers. | It is a food fish. |
| 49 | * <i>Mystus bleekeri</i> (Day) | Singhala | C | Kala amba, Katezari, Waghai, Kate jara, Pandhar pavni, Crocodile centre, Tadoba lake, Tadoba-Chimur rd Panchdhara stream vasant bandhara, Khatoda gate-Karva gate rd; | Throughout India | It is a food fish. |
| 50 | * <i>Mystus cavasius</i> (Ham-Buch) | Gangetic mystus | C | Navegaon gate | Throughout India | Good food fish |
| 51 | <i>Rita pavementata</i> (Valenciennes) | Gogra Rita | UNC | - | India : Rivers upto Krishna river system. | Three pairs of barbels present, dorsal, pelvic fin spine doubly serrated |
| | FAMILY : SILURIDAE | | | | | |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|----------------|--------|--|--|--|
| 52 | <i>*Ompok bimaculatus</i> (Bloch). | Butter catfish | C | Waghai, Vasant bandhara, Crocodile centre, Tadoba lake, Tadoba-Chimur rd. Panchdhara Stream, Katezari, Wagh nalla, Kolsa tank. | Throughout India, Vardha river, Melghat. | Good food fish |
| 53 | <i>*Wallago attu</i> (Schneider) FAMILY : SCHILBEIDAE SUBFAMILY : AILINAE | Boal | UNC | Amba wadi, Vasant bandhara | Throughout India | It is an aggressive fish. |
| 54 | <i>Ailia coila</i> (Ham-Buch.) SUBFAMILY : SCHILBEINAE | Gangetic ailia | UNC | - | India : Ganga, Jamuna, Brahamputra, Mahanadi, Vardha rivers. | Surface to mid water fish, moves in shoal. |
| 55 | <i>Clupisoma garua</i> (Ham-Buch.) | Garua baccha | UNC | - | Northern India, Vardha river | It is a bottom dweller |
| 56 | <i>Eutropiichthys vacha</i> (Ham-Buch.). | Batchwa vacha | UNC | - | Northern India, Orissa, Bihar, West Bengal. | It is food fish |
| 57 | <i>*Proeutropiichthys t. taakree</i> (Sykes) | Indian taakree | UNC | Kala amba, | Peninsular India, | It is endemic to |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|------------------|--------|------------------------|--------------------------------------|---|
| 58 | <i>Pseudotropius atherinoides</i> (Bloch) | Indian potasi | UNC | Bhanuskhindi | Vardha river. | peninsular India |
| 59 | <i>Silonia silondia</i> (Ham-Buch.) | - | UNC | - | Peninsular India, Vardhã river. | Bright coloured Aquarium fish. |
| 60 | <i>Pangasius pangasius</i> (Ham-Buch.) | Pungas | V | - | India : Gangetic basin, Vardha river | It is a common food fish |
| | FAMILY : PANGASIIDAE | | | | | |
| 61 | <i>Bagarius bagarius</i> (Ham-Buch.) | Goonch | V | - | Throughout India | Feeds on foul and decaying animals |
| | FAMILY : SISORIDAE | | | | | |
| 62 | * <i>Clarias batrachus</i> (Linn.) | Magur | En | Kala amba, Tadoba lake | Throughout India, Vardha river | It goes down stream for breeding. Its usual habit is rapid rocky pools. |
| | FAMILY : CLARIIDAE | | | | | |
| 63 | * <i>Heteropneustes fossilis</i> (Bloch) | Stinging Catfish | C | Katezari, Kala amba | Throughout India | Air breather |
| | FAMILY : HETEROPNEUSTIDAE | | | | | |
| | Order : Atheriniformes | | | | | |
| | FAMILY : BELONIDAE | | | | | |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|---------------------------|--------|---|--|--|
| 64 | * <i>Xenentodon cancila</i> (Ham-Buch.) ORDER : PERCIFORMES SUBORDER : PERCOIDEI FAMILY : AMBASSIDAE | Freshwater garfish | UNC | Kolsa nalla | Throughout India, Gavilgarh, Melghat, Vardha river | Surface living larvivorous, good aquarium fish |
| 65 | * <i>Chanda nama</i> (Ham-Buch.) | Elongated glass perch | C | Amba wadi, Telia dam, Shivanzari nalla, Tadoba lake | Throughout India, Vardha river, Melghat. | Useful in Malaria & guinea worm control (Talwar & Jhingran 1991) |
| 66 | <i>Pseudambasis ranga</i> (Ham-Buch.) | Glassy fish | C | - | Throughout India | Good aquarium fish |
| 67 | * <i>Pseudambasis baculis</i> (Ham. Buch.) FAMILY : CICHLIDAE | Himalayan glassy perchlet | C | Kolsa talav | Northern India, Vardha river | Longitudinal band present on flank. |
| 68 | * <i>Oreochromis mossambica</i> (Peters) | Talapia | C | Cichghat, Katezari, Panchdhara, Waghai, Jamni talav, Kala amba, Vikas bandhara, Ambat hira, Telia dam, Katejara, Biloda gate, Pangli gate, Vasant bandhara, Kolsa | Throughout India | Exotic fish eats eggs & fry, hence harmful to native Stock. It is prolific breeder and voracious killer. |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|----------------|--------|---|---|-------------------------------|
| | | | | lake, Shivanzari nalla, Pangdi dam, Crocodile Centre, Tadoba lake, Ramdeggi, Tadoba-Chimur rd; Kala amba, Dori nalla, Andheri river, Kasarbodi, Compt 313, Kosekonar nalla, Pandhar pauni, Tadoba-Mahuri rd; Botezarili, Hirdi nalla Compt. 513, Khatoda gate, Karva gate rd; | | |
| | FAMILY : NANDIDAE SUBFAMILY : NANDIDINAE | | | | | |
| 69 | <i>Nandus nandus</i> (Ham-Buch.) | Mottled Nandus | C | - | Throughout India | Common in India. |
| | SUBFAMILY : BADINAE | | | | | |
| 70 | <i>Badis badis</i> (Ham-Buch.) | Badis | UNC | - | India : Hamalayan rivers, Vardha river. | Solitary, Shy, colourful fish |
| | SUBORDER : GOBIOIDEI FAMILY : GOBIIDAE | | | | | |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|--------------------|--------|---|------------------|---|
| 71 | <i>*Glossogobius giuris</i> (Ham-Buch) | Tank goby | C | Waghai, Andhari nalla, Telia dam, Tadoba tank, Talai dam, Pandhar pavni, Kolsa tank, Khatoda gate, Karva gate. | Throughout India | Inhabits primarily Freshwater and estuaries; also the sea |
| | FAMILY : CHANNIDAE | | | | | |
| 72 | <i>Channa murulius</i> (Ham-Buch) | Maral | C | - | Throughout India | Giant snake head |
| 73 | <i>*Channa orientalis</i> (Bloch & Schneider) | Snakehead | C | Telia dam, Kala amba, Fulzari compt. 306, Ambat hira, Jamni talav, Andhari nalla, Panchdhara, Katejara, Kalizari, Pandhar pavni, Vasanth bandhara, Katezari, Shivanzari nalla, Kolsa, Kala Amba, Wagnalla, Kolsa tank, Kosekonar nalla, | Throughout India | Pelvic fin very small |
| 74 | <i>*Channa punctatus</i> (Bloch) | Spotted snake head | C | Pandhar pavni, Kasarbodi in | Throughout India | It is sympatric species with |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|-------------------|--------|--|---|---|
| 75 | <i>Channa striatus</i> (Bloch) ORDER : MUGILIFORMES FAMILY : MUGILIDAE | Banded snake head | UNC | Compt. 313, Kolsa, Botezari, Hirdi nalla, Compt. 513. | Throughout India | <i>C. orientalis</i> Good food fish, breeds throughout year. |
| 76 | <i>Rhinomugil corsula</i> (Ham-Buch.) ORDER : SYNBRANCHIFORMES FAMILY : MASTACEMBELIDAE | Vardoli | UNC | - | India : U.P., Bihar, Orissa, W. Bengal, Tamil Nadu, Maharashtra Vardha river. | Known as Gangetic grey mullet. |
| 77 | <i>Macrogathus aral</i> (Bloch & Schneider) | Spiny eel | UNC | - | Throughout India | Carnivorous nocturnal, bottom feeder. Occurs in muddy and brackish waters |
| 78 | * <i>Mastacembelus a. armatus</i> (Lacepede) | Spiny eel | C | Andhari-nalla, Crocodile centre, Tadoba lake, Kolsa reservoir. | Throughout India | It is a good food fish |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|---|-------------|--------|--------------------------------------|---|--|
| 79 | <i>Mastacembelus punctalus</i> Ham-Buch. FAMILY : CYPRINIDAE SUBFAMILY : CYPRININAE | Spiny eel | UNC | - | Throughout India | It occurs in fresh and brackish waters |
| 80 | * <i>Puntius shalynius</i> Yazdani & Talukdar | Barb | UNC | Pangli gate, Bote zari | Khasi and Jaintia hills | Barbels absent, 1st ray of dorsal fin ossified, serrated. L.L. in complete with 20-23 scales, 2 black spots present on tail. |
| 81 | <i>Gonoproktopterus kolus</i> (Sykes) | Kolus | C | - | India : M.P. Peninsular rivers, South India | It has prolonged snout. |
| 82 | * <i>Rohtee ogilbii</i> Sykes FAMILY : HOMALOPTERIDAE | Rohtee | UNC | Kolsa reservoir, Kasarbodi compt 313 | Peninsular India | Mouth small, directed upwards, eyes large, barbels absent, D fin ray strong serrated. A procum-bent predorsal spine present. |

| Sl. No. | Name of species | Common Name | Status | Locality within Tadoba | Distribution | Remarks |
|---------|--|-------------|--------|--|--|--|
| 83 | SUBFAMILY : NEMACHEILINAE <i>*Noemacheilus moreh</i> (Sykes) | Loach | UNC | Kolsa reservoir, Panchdhara, Andhari nalla | Peninsular India, Maharashtra : Pune; Andhra Pradesh, Araku Valley, Tamil Nadu : Nilguries | An Acanthocobitid with 9 -10 branched dorsal fin rays |
| 84 | <i>*Noemacheilus zonaltemans</i> (Blyth) | Loach | UNC | Khatoda gate, Karwa gate rd. | Burma and Manipur valley | An Acanthocobitid with 10 branched rays in Dorsal fin. |
| | C = Common } Yadav (2004) UNC = Uncommon } R = Rare } As per En = Endangered } IUCN 1988 V = Vulnerable } and Menon (2004) Exo = Exotic | | | | | |

RESULTS AND DISCUSSION

In India there are about 650 species of freshwater fishes (CAMP, 1998), of these Menon (2004) has recorded about 60 freshwater fishes as threatened from India. Karmarkar and Das (2005) also have enlisted 225 freshwater fishes endemic to Indian waters.

The present account reports an inventory of piscine wealth of 84 species of 52 genera, in 7 subfamilies of 18 families under 9 orders. The account includes 37 fish species collected during project period and 47 species reported from this region by Gujar, (1992); Pradhan (1997).

The fish inventory includes barbs, carps, minnows, loaches, stone loaches, catfishes and perches. Andhari Wildlife Sanctuary composes food fishes, game fishes, aquarium fishes and larvivorous fishes. The food fishes are about 40 in number while the latter are 20 each in number. There are air breathers 7 species while only one is exotic species.

Order Cypriniformes forms major bulk of the local ichthyofauna (46 spp. i.e. 55%) followed by Siluriformes (Catfishes 18 spp. i.e. 21 %), Order Perciformes (Perches 12 spp. i.e. 14%) and miscellaneous orders 10%.

The present study indicates that in Tadoba National Park about 46 fish species are common while 31 are uncommon in occurrence. This categorization is made on the basis of abundance, extent of occurrence and literature (Yadav, 2004).

As per Menon (2004), Narmada mahseer *Tor tor* (Ham. Buch.) and *Cirrhinus cirrhosus* (Bloch) (Cyprinidae) are endangered fishes. *Thynnichthys sandkhol* (Sykes) (Cyprinidae) is a rare species, while *Pangasius pangasius* (Ham. Buch.) (Pangasidae) *Bagarius bagarius* (Ham. Buch.), (Sisoridae) and *Chitala chitala* (Ham. Buch.) (Notopteridae) are vulnerable fish species.

The present paper offers 4 new records (Extention of range of distribution) viz. *Puntius shalynius* Yazdani and Talukdar, *Rohtee ogilbii* Sykes (Cyprinidae), *Noemacheilus moreh* (Sykes) and *Noemacheilus zonaltmans* (Blyth) (Homalopteridae).

Oreochromis mossambica (Peters) (Perciformes, Cichlidae) is a prolific breeder and voracious killer hence it spreads in natural tanks by eating eggs, fry of native stocks, it is harmful to the native species, hence it should be cultivated separately.

Thus Tadoba National Park has rich ichthyofaunal diversity in the protected area and conservation of fishes is an essential task by observing close period in breeding season, giving protection to broods, fry, fingerlings and reducing water pollution and avoiding human invasion and stopping flow of sewage water in the Tadoba National Park and Andhari Wildlife Sanctuary.

SUMMARY

During the 9 surveys of Tadoba National Park 84 fish species comprising 52 genera, 18 families of 9 orders have been recorded. The fishes are declining in number and immediate conservative steps must be taken to protect the ichthyofauna herein.

| Sl.No. | ORDER | NO. OF SPECIES |
|--------|---------------|----------------|
| 1. | CYPRINIFORMES | 55% |
| 2. | SILURIFORMES | 21% |
| 3. | PERCIFORMES | 14% |
| 4. | OTHER ORDERS | 10% |

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MOLLUSCA

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INTRODUCTION

Our knowledge on Indian non marine Mollusca is based on the contributions made by several earlier workers. Important earlier contributions were by Blanford & Godwin Austin, (1908), Gude, (1914 & 1921) and Preston, (1915) and recently on freshwater Mollusca by Subba Rao (1989). Many workers attempted to study the Molluscan fauna of Maharashtra like Annandale and Prasad (1919), Hora (1926), Subba Rao & Mitra (1979), Tonapi (1971), Tonapi and Mulherkar (1963), Surya Rao *et al.* (2002). Patil & Ramakrishna (2004) studied freshwater Mollusca of Pench National Park, district Chandrapur. The present area of Tadoba Andhari Tiger Reserve, dist. Chandrapur was not surveyed earlier hence it was thought to survey this conservation area. In all 37 species belonging to 15 genera, 12 families, 4 Orders have been studied.

Socio economic Significance : These fascinating shell organism is one of the oldest group of invertebrates and very important because of its values in many things like some are edible, used in culture of pearls, for preparation of buttons and other decorative works. These organisms inhabit in practically in all type of environments like freshwater, land and marine ecosystems.

Mollusca comprises an important ecosystem. They form an integral link in food chain of eutrophic system. They serve as valuable indicator of water quality and useful for ecotoxicological studies and environmental bioassay experiments and also serve as food in many areas of the country.

DETAILS ABOUT TADoba ANDHARI TIGER RESERVE.

General Account : Tadoba Andhari Tiger Reserve is located about 200 kms. south of Nagpur district. The Tiger Reserve is spread over 500 sq. kms. and administratively this park comes under Bhadravati taluka of Chandrapur district. It is near about 300 meters above sea level and 45 kms. from Chandrapur.

The area of Tadoba has old history for its activities related to wildlife and its conservation. Being rich in wildlife the area was first restricted to 116 sq. kms. In 1993, Government of

* *Zoological Survey of India, M-Block, New Alipore, Kolkata-700053.*

India declared the total area of 509 sq. kms. as Tadoba Andhari Tiger Reserve for launching project for conservation of carnivore species, tiger *Panthera tigris* in its natural home.

A perennial large natural water body lies near the Tadoba rest house. It is surrounded by a variety of large lush green trees which provide very good nesting sites for variety of avifauna.

The lake inhabits good number of crocodiles which were released here through activities of crocodile breeding center established here. The forest is of dry deciduous type. Teak is dominant species among trees. The undergrowth mainly contains bamboo, grasses and climbers. Silver gray trunk tree with bizzare shape (Kuru) or *Sterculia urens* which secretes gum has attractive features and can be noticed from a distance. Visitors get attracted to it for its salivary appearance. The park has many species of medically important trees, shrubs and herbs. Number of watch towers have been erected mainly in vicinity of water holes for observing wildlife.

The climate of national park is typical hot zone of Vidharbha. Maximum temperatures reaches to 47°C and minimum falls upto 9°C in winters. Average rain fall is recorded of 1175 mm. Rich faunistic diversity is exhibited by the park area from insects groups to mammals.

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 | PILIDAE |
|--------|---------|

6. *Pila globosa* (Swainson)
7. *P. virens* (Lamarck)

| | |
|------------|-------------|
| Family | BYTHYNIIDAE |
| SUB Family | BYTHNIINAE |

- *8 *Digoniostoma cerameopoma* (Benson)

- 9 *D. pulchella* (Benson)
- *10 *Gabbia orcula* (Frauenfeld)
- Family THIARIDAE
- Subfamily THIARINAE
- *11. *Thiara (Thiara) scabra* (Mueller)
12. *Thiara (Tarebia) lineata* (Gray)
13. *T. (Melanoides) tuberculata* (Mueller)
- Order BASOMMATOPHORA
- Family LYMNAEIDAE
14. *Lymnaea (Pseudosuccinea) acuminata f. typica* (Lamarck)
- *15. *L. (P) acuminata f. brevissima* Annandale & Rao
16. *L. (P) acuminata f. rufescens* Gray
17. *L. (P) luteola typica* Lamarck
- *18. *L. (P) luteola f. australis* Annandale and Rao
19. *L. (P) luteola f. succinea* Deshayes
20. *L. (P) luteola f. impura* Troschel
- Family PLANORBIDAE
21. *Indoplanorbis exustus* (Deshayes)
22. *Gyraulus convexiusculus* (Hutton)
- Class BIVALVIA
- Order UNIONOIDA
- Family UNIONIDAE
- Subfamily UNIONINAE
- *23. *Lamellidens consobrinus* Lea
24. *L. marginalis* (Lamarck)
25. *L. corrianus* Lea
- Family AMBLEMIDAE
- *26. *Parreysia (Parreysia) anandalei* Preston
27. *P. (P) corrugata* Var. *nagpoorensis* Lea
28. *Parreysia (P) favidens* (Benson)
29. *P. (P) corrugata*_(Mueller)
30. *P. (P) corrugata laevirostris* Benson
- *31. *P. (P) cylindrica* Annandale and Prashad
32. *P. (Radiatula) caerulea* Lea

Order VENEROIDA
Family CORBICULIDAE

33. *Corbicula striatella* Deshayes

LAND MOLLUSCA

Class GASTROPODA
Order STYLOMMATOPHORA
Family ENIDAE
Genus *Rachis* Albers

34. *Rachis punctatus* Anton

Family SUBLINIDAE

35. *Glessula notigena* (Benson)

Family ARIOPHANTIDAE

36. *Ariophanta bajadera* (Pfeifer)

*37. *Macrochlamys indica* Godwin & Austen.

* Not actually collected.

SYSTEMATIC ACCOUNT

Class GASTROPODA
Order MESOGASTROPODA
Family VIVIPARIDAE
Genus *Bellamyia* Jousseume 1886

1. *Bellamyia 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.

1980. *Vivipara bengalensis* forma *typica* (Lamarck) Subba Rao, Das and Mitra, *Rec. zool. Surv. India*, 77, 225, p 1, fig. 5.

Material examined : 4 exs., Tadoba lake, Date 01-x-94, Coll. R.M. Sharma.

Distribution : India : Maharashtra, Melghat Tiger Reserve, Amaravati dist., Pench National Park, Nagpur dist., Tadoba Andhari Tiger Reserve, Chandrapur, Ujani Wetland, Solapur dist. common through out rest of India. *Elsewhere* : Bangladesh, Myanmar, Sri Lanka.

Remarks : Body whorl perfectly rounded with a conical spires aperture subcircular.

***2. *Bellamyia bengalensis f. doliaris* (Gould)**

1843. *Paludina doliaris* Gould. *Proc. Bost. Soc. Nat. Hist.* 1 : 144.

1921. *Vivipara bengalensis* (Lamarck) race *doliaris* : Annandale and Sewell, *Rec. Indian Mus.*, 22, 273-274 pl. fig.9.

Distribution : India : Maharashtra, Melghat, Amaravati dist., Ujani, Solapur dist. Madhya Pradesh, West Bengal. *Elsewhere* : Myanmar.

3. *Bellamyia bengalensis f. annandalei* (Kobelt)

1908. *Vivipara annandalei*, Kobelt, *Nachr. Malak. gesell.*, Frankfurt, 60 : 161-162.

1921. *Vivipara bengalensis* race *annandalei* Annandale & Sewell, *Rec. Indian Mus.*, Calcutta, 22 : 276, pl. 2, figs. 5-8.

Material examined : 2 exs., Telia dam, date 28-ix-94, Coll. R.M. Sharma; 4 exs., Telia dam date 20-viii-95, Coll. S.G. Patil.

Distribution : India : Maharashtra : Pench National Park, Nagpur, Tadoba Andhari Tiger Reserve, Dist. Chandrapur; Andhra Pradesh, Bihar, Orissa, Rajasthan, Tamil Nadu & West Bengal.

4. *Bellamyia bengalensis f. eburnea* (Annandale & Sewell).

1921, *Vivipara bengalensis* race *eburnea* Annandale Sewell *Rec. Indian Mus.*, 22 : 274-275 pl. 2, fig. 1- 2.

Material examined : 2 exs., Piparia, date 27-iv-97, Coll. S.G. Patil.

Distribution : India : Maharashtra Pench National park dist. Nagpur, Tadoba Andhari Tiger Reserve, Chandrapur, Andhra Pradesh, Madhya Pradesh, Orissa, Tamil Nadu and West Bengal.

5. *Bellamyia dissimilis* (Mueller)

1774. *Nerita dissimilis* Muller, *Hist. Verm., Terr, Fluv.*, 2 : 184.

1960. *Viviparus dissimilis*, Satyamurti, *Bull. Madras Govt. Mus.*, 6(4) : 33-34.

Material examined : 3 exs., Kala Amba, Tadoba, Date 01-iii-95, Coll. R.H. Kamble, 3 exs., Pandher Pawani, date 15-ix-98, Coll. P.P. Kulkarni..

Distribution : Maharashtra : Pench National Park, Nagpur, Tadoba Andhari Tiger Reserve, Chandrapur; Orissa, West Bengal, Penninsular and Northern India.

Remarks : Body whorl subangulate at the periphery.

Family PILIDAE

Genus *Pila* Roeding, 1798

6. *Pila globosa* (Swainson)

1822. *Ampullaria globosa* Swainson; *Zool. Illustrations* vol. 2 pl. CXIX. *Type locality* : Rivers of India.

Material examined : 2 exs., Pandhar Pawani, date 17-x-97, Coll. A.S. Mahabal, 2 exs., Pandhar Pawani, date 15-ix-98, Coll. P.P. Kulkarni; 5 exs., Pandhar Pawani date 20-i-2001 Coll. S.G. Patil.

Distribution : India : Maharashtra : Melghat Tiger Project, dist. Amaravati, Pench National Park, dist. Nagpur, Tadoba Andhari Tiger Reserve, dist. Chandrapur; Assam, Bihar, Madhya Pradesh, Orissa, Uttar Pradesh, West Bengal.

Remarks : Larval trematodes were recorded from this species. Little less inflated whorl, more conical spire sutures This is very common freshwater snail of West Bengal.

7. *Pila virens* (Lamarck)

1822. *Ampullaria virens* lamarck, *Hist. nat. anim. Sans. Vert.*, 6(2) : 179. Type locality not mentioned.

1856. *Ampullaria maura* Reeve, *Conch Icon.*, 10 *Ampullaria*, sp. no. 57, pl. xiii, fig.57. *Pila virens*, Prashad, 1925, *Mem. Indian Mus.* 8 : 75 pl. XIV, fig.13.

Material examined : 2 exs., Pandherpawani, date 15-ix-98, Coll. P.P. Kulkarni.

Distribution : Common in South India and also in Tadoba Andhari Tiger Reserve, Chandrapur, Maharashtra.

Remarks : This species is variable in its colour and difficult to separate from its closely related species, *P. globosa* Subba Rao, 1989.

Family BYTHYNIIDAE

Subfamily BITHYNIINAE

Genus *Digoniostoma* Annandale, 1920

*8. *Digoniostoma cerameopoma* Benson

1830. *Digoniostoma cerameopoma* Benson, *Gleaning in science*, 2 : 125, 1855, *J. Asiatic. Soc. Bengal*, 24; 131. Type Locality Ditch at Nanda, Madhya Pradesh.

Distribution : Maharashtra : Pench National Park, dist. Nagpur, Assam, Bihar, Madhya Pradesh, Orissa, Punjab, West Bengal.

9. *Digoniostoma pulchella* (Benson)

1836. *Paludina pulchella* Benson, *J. Asiat. Soc. Beng.*, 5 : 746. Type locality : Mirzapur U.P. Hanley and Theobald, 1876, *Conch*, India pl. 38, figs. 5, 6.

1921. *Digoniostoma pulchella*, Annandale, *Rec. Indian. Mus.*, 22 : 541.

Material examined : 1 ex., Kala Amba, date 24-iii-99, Coll. R.M. Sharma.

Distribution : India : Maharashtra, Pench National Park, Common throughout including Maharashtra as above.

Genus *Gabbia* Tryon, 1865.

*10. *Gabbia orcula* (Frauenfeld)

1862. *Bithynia orcula* Frauenfeld, *Verhandale zool. Bot. Geschft* p. 1154,

1921. *Amnicola (Aocinma)* : Annandale, *Rec. Indian Mus.*, **22** : 540.

Distribution : India : Maharashtra : Nathsagar, Assam, Orissa, Punjab, Rajasthan, Utter Pradesh & West Bengal.

Family THIARIDAE

Subfamily THIARINAE

Genus *Thiara* Roeiding, 1798

*11. *Thiara (Thiara) scabra* (Mueller)

1774. *Buccinum scabrum* Mueller, *Hist. verm Ten Fluv.*, **2** : 136. Type locality Tranquebar.

1850. *Melania acanthica* Lea, *Proc. Zool. Soc. Lond.* p. 194.

1973. *Thiara (Thiara) scabra* Pace, *Malac Review suppl*, **1** : 52, pl.12, figs.1, 2 pl 13, fig.3.

Distribution : India : Maharastra : Pench National Park, dist. Nagpur, Melghat Tiger Reserve, dist. Amravati, Ujani Wetland,. Through out India except Kashmir. *Elsewhere* : Indonesia , Java, Mauritius, Scychelles, Timor.

12. *Thiara (Tarebia) lineata* (Gray)

1828. *Helix lineata* Gray, in wood's *Index Test supp.*, p.24, fig. 68. Type locality Ganges.

1915. *Tiara (Tarebia) lineat* : Preston, *Fauna British India, Mollusca* (Freshwater Gastropoda and Pelecypoda), p.34.

Material examined : 4 exs., Ambawadi, Tadoba National Park, dist. Chandrapur, date 19-viii-95, Coll. S.G. Patil.

Distribution : Maharashtra, Ambawadi, Tadoba Andhari Tiger Reserve, dist. Chandrapur, Assam, Bihar, Madhya Pradesh, Uttar Pradesh, West Bengal; *Elsewhere* : Bhutan, Myanmar, Sri Lanka.

Remarks : Absence of rows of nodules and presence of distinct dark spiral lines.

13. *Thiara (Melanoides) tuberculata* (Mueller)

1874. *Nerita tuberculata* Mueller. *Hist. verm Torr Fluv.*, **2** : 191. Type locality Coromandel coast.

1836. *Melania pyramis* Benson, *J. Asiat. Soc. Beng.*, **5**, 357, Type locality Ganges.

1969. *Melanoides (Melanoides) peddamunigalensis* Ray and Ray 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.

Material examined : 2 exs., Panchdhara, date 23-iii-96, Coll. P.P. Kulkarni, 2 exs., Andhari nala, date 04-iv-96, Coll. P.P. Kulkarni.

Distribution : India : Maharashtra : Pench National Park, dist. Nagpur, Melghat Tiger Reserve, dist. Amaravati, Tadoba Andhari Tiger Reserve, dist. Chandrapur (as above), Ujani Wetland, dist. Solapur; Orissa throughout India except Kashmir, *Elsewhere* : 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 differ by its high spire moderately large body whorls and also with dark reddish brown dots or flamed irregularly and longitudinally arranged on the surface. These shells connected from stagnant water ponds slightly differ from those collected from sandy beds.

Order BASOMMATOPHORA

Family LYMNAEIDAE

Genus *Lymnaea* Lamarck, 1799

14. *Lymnaea (Pseudosuccinea) acuminata f. typica* (Lamarck)

1822. *Limnaea acuminata* Lamarck, *Hist. Nat. Anim. Sams. Vert.* 6 pt 2 : 160

1925. *Limnaea (Pseudosuccinea) acuminata* Annandale & Rao. *Rec. Indian Mus.*, 27 : 177.

Material examined : 2 exs., Kolsa Reservoir, date 29-i-98, Coll. P.P. Kulkarni.

Distribution : Common throughout, Maharashtra Pench National Park, Nagpur and Tadoba National Park, Chandrapur, India : Common throughout rest of India.

*15. *Lymnaea (P) acuminata f. brevissima* Annandale & Rao.

1925. *Lymnaea (P) acuminata f. brevissima* Annandale & Rao., *Rec. Indian Mus.* 27 : 182. fig III-1.

Distribution : Maharashtra Nagpur, Annandale & Rao (1925).

16. *Lymnaea(Pseudosuccinea) acuminata f. rufescens* Gray.

1820. *Limnaea rufescens*, Gray, in Sowerby's Genera of recent and fossil shells, 1 (7) : *Lymnaea*.

1889. *Lymnaea (Pseudosuccinea) acuminata f. rufescens* : Subba Rao, Mitra & Manna, Fauna of Orissa : State Fauna Series 1 (2) : 298, figs. 9E, 9F.

Material examined : 2 exs., Katezari, date 31-iii-96, Coll. S.G. Patil.

Distribution : Maharashtra : Tadoba Andhari Tiger Reserve, Chandrapur, (as above), Ujani, Dist. Solapur, Melghat, Dist. Amravati, Widely distributed in rest of India, *Elsewhere* : Pakistan, Bangladesh and Myanmar.

Remarks : Occur in perennial water bodies with abundant vegetations.

17. *Lymnaea (Pseudosuccinea) luteola f. typica* Lamark

1882. *Limnaea luteola* Lamarck, *Hist. nat. Anim. Sans Vert.*, 6 pt 2; 160.

1925. *Limnaea (Pseudosuccinea) luteola* : Annandale & Rao. *Rec. Indian Mus.*, 27 : 183.

Material examined : 2 exs., Katezari, Tadoba Andhari Tiger Reserve, date 31-iii-96, Coll. P.P. Kulkarni; 2 exs., Vasant Bandhara, date 18-x-97, Coll. A.S. Mahabal.

Distribution : India : Maharashtra : Melghat Tiger Project, dist. Amaravati, Pench National Park, dist. Nagpur, Tadoba Andhari Tiger Reserve, dist. Chandrapur (as above), common throughout.

*18. *Lymnaea (Pseudosuccinea) luteola f. australis* Annandale & Rao.

1925. *Lymnaea (Pseudosuccinea) luteola f. australis* Annandale & Rao, *Rec. Indian Mus.*, 27 : 184.

Distribution : India : Maharashtra : Melghat Tiger Reserve, dist. Amravati, Dist. Pune, Satara, Assam, Bihar, Karnataka, Kerala, Madhya Pradesh, Punjab, Tamilnadu. Uttar Pradesh, *Elsewhere* : Bangladesh, Myanmar, Pakistan and Sri Lanka.

19. *Lymnaea (Pseudosuccinea) luteola f. succinea* Deshayes

1834. *Limnaea succinea* Deshayes, *Voy. Belongar Zool.* P 418, pl. ii, fig. 13 & 14. Malabar Coast. South and North India and Kashmir.

1925. *Limnaea luteola f. succinea* Annandale & Rao, *Rec. Indian Mus.*, 27 : 185

Material examined : 2 exs., Sivanzari, Tadoba Andhari Tiger Reserve, date 19-ix-98, Coll. P.P. Kulkarni.

Distribution : India common throughout, Pench National Park, dist. Nagpur, Tadoba Andhari Tiger Reserve, dist. Chandrapur (as above); Assam, Andhra Pradesh, Tamil Nadu, Uttar Pradesh, West Bengal. *Elsewhere* : Myanmar.

20. *Lymnaea (Pseudosuccinea) luteola f. impura* Troschel

1837. *Limnaeus impurus*, Troschel, in Weigman's *Arch. f. Naturges*, 3 : 172.

Material examined : 4 exs., Pandhar Pawani, Tadoba, date 17-x-97, Coll. A.S. Mahabal.

Distribution : India : Maharashtra : Tadoba Andhari Tiger Reserve, dist. Chandrapur, Orissa, Common throughout in India.

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| Family | PLANORBIDAE |
| Subfamily | BULININAE |
| Genus | <i>Indoplanorbis</i> Annandale & Prashad, 1921 |

21. *Indoplanorbis exustus* (Deshayes)

1834. *Planorbis exustus* Deshayes, in Belanger, *Voy Indes. orientalis*, p. 417, pl.1, figs. 11-13. Type locality Malabar coast.

1956. *Indoplanorbis exustus* Benthem Jutting, *Treubia* 23(2) 471, Rajgopal and Subba Rao 1968. *Proc.Symposium on Mollusca*, pl. 1, p. 110.

Material examined : 5 exs., Katezari, Tadoba Andhari Tiger Reserve, Chandrapur, date 31-iii-96, Coll. P.P. Kulkarni, 5 exs., Vasant Bandhara, Tadoba Date 18-x-97, Coll. A.S. Mahabal; 4 exs., Panchadhara, Tadoba, date 10-viii-95, Coll. S.G. Patil, 10 exs., Katezari, date 29-ix-94, Coll. R.M. Sharma.

Distribution : India : Maharashtra, Pench National Park, dist. Nagpur, Melghat Tiger Reserve, dist. Amravati, Tadoba Andhari Tiger Reserve, dist. Chandrapur. Throughout the plains of India, Jammu and Kashmir, *Elsewhere* : Celebes; Indo-China, Java, Malaya, Myanmar, Pakistan, Persia, Sri Lanka, Sumatra, Thailand,

Remarks : This species is a known vector snail is implicated as intermediate host for the largest number of parasites.

Subfamily PLANORBINAE

Genus *Gyraulus* Agassiz in Charpentier, 1837

22. *Gyraulus convexiusculus* (Hutton)

1849. *Planorbis convexiusculus* Hutton, *J.Asiat.Soc. Bengal*; 18(2) : 657, Type locality : Afghanistan.

1956. *Gyraulus convexiusculus* Benthem Jutting, *Treubia*, 23(2) : 463.

Material examined : 2 exs., Vasant Bandhara, Tadoba Andhari Tiger Reserve, Chandrapur, date 11-viii-95, Coll. S.G.Patil.

Distribution : India : Tadoba Andhari Tiger Reserve, Chandrapur (as above), Common throughout. *Elsewhere* : Extends from Iran to Philippines.

Remarks : Maximum diameter, rarely exceeds 5 mm., whorls 4 or 5 rounded, suture well defined periphery subangulate, closely and obliquely striate, umbilicus wide, all the whorls distinctly seen above, aperture ovate lunate.

Class BIVALVIA

Order UNIONIDA

Family UNIONOIDAE

Subfamily UNIONINAE

Genus *Lamellidens* Simpson, 1900

*23. *Lamellidens consorbrinus* (Lea)

1859. *Unio consorbrinus* Lea, *Proc. Acad. Nat. Sci. Philad*, 3 : 331, type locality : China.

1921. *Lamellidens consorbrinus* : Prashad, *Rec. Indian. Mus.*, 22 : 608.

Distribution : India : Maharashtra : Pench National Park, dist. Nagpur, Melghat Tiger Project, dist. Amravati, 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.

24. *Lamellidens marginalis* (Lamarck)

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.

Material examined : 2 exs., Telia dam, Tadoba Andhari Tiger Reserve, dist. Chandrapur, date 25-10-97, Coll. A.S. Mahabal. 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, Melghat, Amaravati dist., Pench National Park, dist. Nagpur, Tadoba Andhari Tiger Reserve, dist. Chandrapur; Widely distributed in India, *Elsewhere* : Bangla desh, Mynmer, Sri Lanka.

25 *Lamellidens corrianus* Lea.

1834. *Unio corrianus* Lea, *Trans. Amer. Phil. Soc.* 6 (2) : 5 65.Pl. 9 fig. 25, Type locality India.

1922. *Lamellidens corrianus* Prasad, *Rec. Indian. Mus.* 24 : 106.

Material examined : 2 exs., Panchdhara, date 10-08-95, Coll. S.G. Patil.

Distribution : India : Maharashtra : Pench National Park, dist. Nagpur, Tadoba Tiger Reserve, dist. Chandrapur. common throughout. *Elsewhere* : Bangladesh and Myanmar.

Family AMBLEMIDAE

Subfamily PARREYSIINAE

Genus *Parreysia* Conrad 1853

*26. *Parreysia (Parreysia) annandalei* Preston

1912. *Parreysia annandalei* Preston, *Rec.Indian Mus.*, 7 : 302. Type locality : Gowhatty

Shell oval convex, coarsely and concentrically ribbed Anterior side sharply rounded and posterior side bluntly substrate.

Distribution : India : Maharashtra : Melghat Tiger Reserve, dist. Amaravati, Assam.

*27. *Parreysia (Parreysia) corrugata* (Mueller) var. *nagpoorensis* (Lea)

1859. *Unio nagpoorensis* Lea, *Proc. Acad. Natw. Sci. Philad.* 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 : Melghat Tiger Reserve, dist. Amaravati, Nagpur, Pune, Andhra Pradesh, Tamil Nadu & West Bengal.

28. *Parreysia (Parreysia) favidens* (Benson)

1860, *Unio favidens* Benson, *Ann. Mag. nat. Hist.*, 10, 188.

Thicker larger more inequilateral, both anterior and posterior margins angulate, cardinal teeth strong and broad.

Material examined : 2 exs., Panchdhara, Tadoba Andhari Tiger Reserve, dist. Chandrapur, date 10-viii-95, Coll. S.G. Patil.

Distribution : India : Maharashtra : Tadoba Andhari Tiger Reserve, dist. Chandrapur, common throughout including Assam, Andhra Pradesh : Kurnool, Orissa, Tamil Nadu : Madras, Uttar Pradesh. *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 coromondel.

1900. *Parreysia corrugata* Simpson, *Proc. U.S. natn. Mus.* 22 : 841. Preston, 1912, *Rec. Indian Mus.*, 7 : 297.

Material examined : 2 exs., Panchdhara, Tadoba Andhari Tiger Reserve, dist. Chandrapur, date 10-viii-95, Coll. S.G.Patil. Shell green elliptic to oval scarcely inequilateral; Ventral margin convex, lunule, well marked, cardinal teeth strong, not lameller, sculpture somewhat radiating, oblique linear ridges.

Distribution : Maharashtra : Pench river dist. Nagpur, Melghat dist. Amaravati, Tadoba Andhari Tiger Reserve, dist. Chandrapur (as above), Andhra Pradesh, Bihar, Karnataka, Punjab. *Elsewhere* : China, Bangladesh.

30. *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.

Material examined : 2 exs., Vasanth Bandhara, date 11-viii-95, Coll. S.G. Patil.

Distribution : India : Maharashtra, Tadoba Andhari Tiger Dist. Chandrapur, Melghat, Pusad ; Andhra Pradesh, Assam, Bihar.

*31. *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.

Shell thick dorsal margin straight and anterior margin broadly rounded umbonal region, sculptured with corrugated ridges.

Distribution : India : Maharashtra, Melghat Tiger Project, dist. Amravati.

Remarks : Closely resembles to *P. favidens* except being, more elongated.

32. *Parreysia (Radiatula) caerulea* Lea 1900.

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) caeruleus* Preston, *Fauna British India, Mollusca* (Freshwater Gastropoda and Pelecypoda). p 136

Material examined : 2 exs., Vasanta Bandhara, date 11-viii-95, 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, Nagpur, Tadoba Andhari Tiger Reserve, dist. Chandrapur; Assam, Bihar, Orissa, Punjab Sind, Uttar Pradesh.

Order VENEROIDA
 Family CORBICULIDAE
 Genus *Corbicula* Megerle Von Muehlfeld

33. *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. Philad* : P.128, Prashad, 1921, *Rec. Indian Mus.*, 22 : 613.

Material examined : 2 exs. Kolsa lake, date 10-xii-96, Coll. R.M. Sharma. Shell thick, large, tumid, triangular ovate to ovate, dorsal margin arched, more on the anterior side than on the posterior, umbones prominent, Periostracum shining lemon yellow in young, darker and often brownish in full grown specimens, striae regular, concentric and raised into ridges, pallial line with trace of sinus; muscle scars fairly deeply developed.

Distributions : Maharashtra, Melghat, Pench National Park, dist. Nagpur, Tadoba Andhari Tiger Reserve, Chandrapur. Commonest Indian species and occurs throughout India, *Elsewhere* : Pakistan, Peshawar, Sindh and Myanmar.

LAND MOLLUSCA

Class GASTROPODA
 Order STYLOMMATOPHORA
 Family ENIDAE
 Subfamily NAPAEINAE
 Genus *Rachis* Aalbers, 1850.

34. *Rachis punctatus* (Anton).

1839. *Bulimus punctatus* Anton, *Verzeich. conch.* : 42.
1914. *Rachis punctatus*, Gude, *Fauna Brit. India. Mollusca*, 2 : 277-278

Material examined : 2 exs., Vasant Bandhara, date 11-viii-95, Coll. S.G. Patil.

Distribution : India : Maharashtra : Pench National Park, dist. Nagpur, Tadoba Andhari Tiger Reserve, dist. Chandrapur, Orissa, Tamil Nadu, Uttar Pradesh & West Bengal.

Family SUBULINIDAE

Genus *Glessula* Von Martens, 1850

35. *Glessula notigena* Benson.

1860. *Achatina notigena* Benson, *Ann. & Mag. nat. Hist.* (3) 5, 462. Type Locality : Mahabaleshwar.

1914. *Glessula notigena* Gude, *Fauna of British India, Moll.* II : 412.

Material examined : 2 exs., Panchdhara date 10-viii-95, Coll. S.G. Patil.

Distribution : Maharashtra, Assam, Bangladesh, Sikkim, West Bengal.

Family ARIOPHANTIDAE

Subfamily ARIOPHANTINAE

Genus *Ariophanta* Desmoulins. 1829

36. *Ariophanta bajadera* (Pfeiffer)

1850. *Helix bajadera* Pfeiffer, *Zeitschr. Mal.* P 69.

1963. *Ariophanta bajadera* : Tonapi and Mulherkar, *J. Bom. Nat. Hist. Soc.*, 60(1) : 116.

Material examined : 2 exs., Pandher Pawani, date 17-x-97, Coll. A.S. Mahabal.

Distribution : India : Maharashtra, Bombay, South of Narubada, ranging east to Nagpur, Western Ghat near Bombay.

Genus *Macrochlamys* Gray 1847

37.* *Macrochlamys indica*, Godwin & Austeen.

1883. *Macrochlamys indica* Godwin-Austen, *M OLL. India*, 1,76,97, pl. 18, fig. 1-8.

1991. *Macrochlamys indica* Subba Rao & Mitra, *Rec. zool. Surv. India, Occ. paper.* No. 126 : 53.

Distribution : India : Maharashtra, Pune dist., Assam, Bihar, Orissa, Tripura and West Bengal.

GENERAL REMARKS

A total of 37 species with 15 genera and 12 families are recorded from Tadoba Andhari Tiger Reserve, Chandrapur. Out of this 33 species under 11 genera, 9 families are of freshwater habitat and 4 species, 4 genera, 3 families of Land Mollusca. The total of 37 species are recorded, 26 species are actually found in the area and 11 species were taken from the earlier unpublished record. Among freshwater forms *Bellamya bengalensis* were

most common. The Molluscan fauna is quite rich, however more extensive surveys to this area may reveal the existence of some more species than what is known now.

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CRAUSTACEA : CLADOCERA

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INTRODUCTION

Nothing is known about Cladocera fauna of Tadoba Andheri National Park, Chandrapur district of Maharashtra state though which has a wide range of fresh water habitats. The planktonic material for the present study was collected by various survey parties of Western Regional Station of Zoological Survey of India, Pune during the approved project on studies of various faunal components of conservation areas of Maharashtra state. Important earlier works on Cladocera from various other Indian National parks are those of Venkataraman (1988, 1990, 1992) on Keoladeo National Park, Bharatpur, Rajasthan; Raghunathan and Rane (2001) on Bandipur National Park and Nagarhole National Park of Karnataka state; Rane (1984) on Cladocera of Kanha National Park, Madhya Pradesh; Rane (2003, in press) work out Cladocera fauna of Melghat Tiger Reserve and Pench National park of Maharashtra and Mahajan *et al.*, (1982) deals with the Cladocera of Ghana bird sanctuary of Rajasthan.

MATERIALS AND METHODS

Bolting silk nets (Mesh size 150 μ m) having a mouth 30 cms in diameter and length 90 cms were used. For deep waters an integrated vertical hauls from bottom to the surface were made to obtain the representative collections. In small shallow ponds, buckets of water could be hauled and poured through plankton net to collect limnetic species. For weed inhabiting or benthic forms, a net with a long handle and wire-meshed lid to sieve off the obstructing algae and weeds were used. 5% of formalin was used for preserving the all planktonic samples in the field itself. Subsequent sorting and identification was done under Stereo-Binocular microscope. Temporary slides were made using glycerine and important diagnostic characters of the species were studied.

SYSTEMATIC LIST

| | |
|------------|--------------|
| Phylum | ARTHROPODA |
| Class | CRUSTACEA |
| Subclass | BRANCHIOPODA |
| Superorder | DIPLOSTRACA |

- | | | |
|-----|--|----------------------------|
| | Order | CLADOCERA |
| | Suborder | EUCLADOCERA |
| | Superfamily (a) | SIDOIDEA |
| | Family (I) | SIDIDAE Sars, 1865 |
| 1. | <i>Pseudosida bidentata</i> | Herrick, 1884 |
| 2. | <i>Latonopsis australis</i> | Sars, 1888 |
| 3. | <i>Daphanosoma excisum</i> | Sars, 1885 |
| 4. | <i>D.e. var longiremis</i> | Ekman 1904 |
| 5. | <i>D. senegalensis</i> | Gauthier, 1951 |
| | Superfamily (b) | CHYDOROIDAE |
| | Family (II) | DAPHNIIDAE Straus, 1820 |
| 6. | <i>Ceriodaphnia cornuta</i> | Sars, 1885 |
| 7. | <i>C. laticaudata</i> | P.E. Muller, 1867 |
| 8. | <i>Daphnia longicephala</i> | Herbert, 1977 |
| 9. | <i>D. lumholtzi</i> | Sars, 1885 |
| 10. | <i>Simocephalus vetulus</i> | (O.F. Muller, 1776) |
| 11. | <i>S. serrulatus surekhae</i> | (Rane, 1985) Comb. nov. |
| 12. | <i>Scapholeberis kingi</i> | Sars, 1903b |
| | Family (III) | MONIDAE Goulden, 1967 |
| 13. | <i>Moina micrura</i> | Kurz, 1874 |
| 14. | <i>M. m. dubia</i> | Gurue and Richard, 1892 |
| | Family (IV) | BOSMINIDAE Sars, 1865 |
| 15. | <i>Bosmina longirostris</i> | (O.F. Muller, 1945) |
| 16. | <i>Bosminopsis deitersi</i> | Richard, 1895 |
| | Family (V) | MACROTHRICIDAE Baird, 1843 |
| 17. | <i>Macrothrix spinosa</i> | King, 1852 |
| 18. | <i>Echinsca triserialis</i> | (Brady, 1886) |
| 19. | <i>E. odiosa</i> | (Gurney, 1907) |
| 20. | <i>Ilyocryptus spinifer</i> | (Herrick, 1882) |
| | Family (VI) | CHYDORIDAE Stebbing, 1902 |
| 21. | <i>Pleuroxus aduncus bhigawanensis</i> | Rane 2002 |
| 22. | <i>P. similis</i> | Vavra, 1900 |
| 23. | <i>Alonella excisa</i> | (Fischer, 1854) |
| 24. | <i>Chydorus sphaericus</i> | (O.F. Muller, 1776) |
| 25. | <i>C. faviformis</i> | Birge, 1893 |

26. *C. ventricosus* Daday, 1898
27. *C. gibbus* Sars, 1891
28. *Dunhevedia crassa ciliocaudata* (Sovinski, 1891)
29. *D. serrata* Daday
30. *Dadaya macrops* (Daday, 1898)
31. *Pseudochydorus globosus* (Baird, 1843)
32. *Alona pulchella* King, 1853
33. *A. guttata* Sars, 1862b
34. *A. costata* Sars, 1862b
35. *A. pseudanodentata anodonta* Daday, 1905
36. *A. rectangula* Sars, 1862b
37. *Biapertura affinis* (Leydig, 1860)
38. *B. karua* King, 1853
39. *Oxyurella singalensis* (Daday, 1898)
40. *Ephemeroporus barroisi* Richard, 1894

SYSTEMATIC ACCOUNT

1. *Pseudosida bidentata* Herrick, 1884

1884. *Pseudosida bidentata* Herrick, *Geol. and Nat. Hist. Survey Minnesota, Ann. Rep.*, **12** : 1-191

Diagnostic characters : Head of moderate in size, rounded, with eye situated frontally; an ocellus and small rostrum. No fornix or cervical glands. Antennule attached to the ventral side of rostrum; with long basal part, with olfactory setae laterally and long flexible flagellum on the apex. Antenna with a thick basipodite, a three segmented branch and a two segmented branch. Two ventral most setae of three segmented branch may have hook. Postabdomen with about 10-11 clusters of spinules. Claw with two large basal spines and a very small spine proximal to them.

Material examined : 1 ex., Tamanbadi Talav, 22.1.01; 1 ex., Tadoba lake, 25.3.99 (Coll. R.M. Sharma); 2 exs., Pandharpavani tank, 15.9.98; 1 ex., Ambathira, 21.4.96 (Coll. P.P. Kulkarni).

Distribution : India : Burnihat, Nandalur, Karikal, Rajasthan; *Elsewhere* : South Africa, Sumatra, Philippines, Srilanka, Malaysia, South United States and many parts of tropics or near tropics area.

2. *Latonopsis australis* Sars, 1888

1888. *Latonopsis australis* Sars, *Forh. vid. Selek., Christiania*, No.7 : 6-15, pl.1, figs. 1-6.

1895. *Latonopsis australis* Richard, *Ann. Sci. nat. Hist. Paris*, (7), **18** : 378-380, pl.16, figs. 11, 13 and 20.

Diagnostic characters : Large head, body connected without noticeable fold. Elongated body; ventral margin of valve with numerous long setae, three setae of 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 with thick base its length about 60% of body length. Distal end of antennal basipodite with a spine on outer side from bases of rami, two rounded outgrowths on its dorsal corner. Proximal segment of biarticulated branch noticeably shorter and wider than distal one. Distally, the proximal segments bears a large, slightly incurved spine and small rounded outgrowth. Two ventral most setae of triarticulate branch especially large and with their ends hooked. Setulated setae of valve edges mounted on conical bases. The ventral posterior corner of valve has 3 especially long, naked, diverging setae, mounted on larger and deflexed bases. A few groups of spinnules on inside surface of posterior margin of valve. Postabdomen relatively small, averaging 33% body length; slightly dilated in proximal part. Anal teeth small, 7-9 in number and situated closer to distal end of postabdomen. Claw much incurved with two basal spine.

Material examined : 1 ex., Hirdi Nala, 25.1.01 (Coll. S.G. Patil); 3 ex., Panglitank, 21.4.2000 (Coll. P.P. Kulkarni); 1 ex., Tadoba lake at circular route, 27.9.94 (Coll. R.M. Sharma).

Distribution : India : Rajasthan, Tripura, Tamil Nadu, Maharashtra (Pench National Park).
Elsewhere : Australia, Oriental region.

Remarks : *Latonopsis australis* is seperable from other species of genus by its comparatively small size, by having fewer setae on the antennae, and by claw having two basal spines.

3. *Diaphanosoma excisum* Sars, 1885

1885. *Diaphanosoma excisum* Sars., *Forsch. vid. Sels; Christiania*, No.8, :3-18, pl.2, figs. 1-3.

Diagnostic charactrers : Carapace almost oblong. Head short with eye with numerous crystalline lenses situated frontally near the top. Antenna small not reaching posterior margin of valve. Postabdomen narrow with fine situles. Claw with three basal spines, decreasing in size proximally and finally ciliated terminal claw. Valve ventrally inflexed with free flat or shell duplicature joining the margin at nearly right angle. Lower part of posterior margin of valve with variable number of (3-15) of thorn-like denticles.

Material examined : 4 exs., Pandharpavani tank, 15.9.98; 4 exs., Panglitank, 22.4.2000; 7 exs., Kolsa lake, 22.4.2000 (Coll. P.P. Kulkarni); 1 ex., Basezari, 27.1.01 (Coll. S.G. Patil); 1 ex., Katezeri, 19.10.97 (A. Mahabal).

Distribution : India : Kerala, Bihar, Rajasthan, Assam, West Bengal, Andamans and Nicobar, Tripura and Maharashtra (Ujani wetland, Pench National Park and Melghat Tiger Project).
Elsewhere : common in tropics and subtropics and Australia.

4. *Diaphanosoma excisum* var *longiremis* Ekman, 1904

Diagnostic characters : This species differs from typical *Diaphanosoma excisum* by presence of hairs at side of postabdomen, less number of denticles at lower part of posterior margin of valve (5-6) and the greater length of antenna which almost superpass the posterior border of carapace.

Material examined : 5 exs., Katezari, 21.1.01; 1 ex., Tamanbadi Talav, 22.1.01 (Coll. S.G. Patil); 4 exs., Tamanbadi tank, 15.9.98; 1 ex., Pangali tank, 21.4.2000; 2 exs., Kolsa tank, 22.4.2000 (Coll. P.P. Kulkarni).

Distribution : India : Rajasthan, West Bengal. *Elsewhere* : Sumatra and Africa (Sudan, Egipt).

5. *Diaphnosoma senegalensis* Gauthier, 1951

1951. *Diaphanosoma senegalensis* Gauthier, *Alger*, : 43-45, pl. IX a-j.

1952. *Diaphanosoma hydrocephalus* Brehm, *Zool. Anz.*, 149 : 138-140, abb. 1-4.

Diagnostic characters : Head large almost half the total body with dorsum strongly developed, protruding. Eye large situated close ventrum of head with many ommatidia. Antennules shifted far backwards. Base of antennule short and thick, sensory papillae short, sensory seta short, thick proximally, distally with dense thin situles. Swimming Antenna not reaching posterior ends of valve with powerful basipodite. Valve elongated rectangular, posterior margin evenly straight along the total length. Ventral margin of valve rather widely inflected with densely packed finely feathered setae. The armature of posterior and ventroposterior margin of valves distinct with many spinules about 30-50, with upper one are larger than lower one. Postabdomen with a lateral series of 6-8 denticles. Terminal claws short and massive, with three robust basal spines and distal to them series of spinnules on the concave outer margin of claw. There are almost 5-6 developing embryos in the inflated brood pouch.

Material examined : 8 exs., Talaidama, 16.9.98; 1 ex., Vasant Bandhara, 12.9.98 (Coll. P.P. Kulkarni); 1 ex., Tadoba lake, 27.9.98 (Coll. R.M. Sharma); 2 exs., Pandharpani tank, 20.1.01; 1 ex., Pangadi talav, 25.1.01 (Coll. S.G. Patil).

Distribution : India : Maharashtra (Bombay, Indore); Madhya Pradesh (Jabalpur). *Elsewhere* : West Africa.

Remarks : This is rarest species and in South East Asia it has not been recorded at all.

6. *Ceriodaphnia cornuta* Sars, 1885

1885. *Ceriodaphnia cornuta* Sars, *Norske, Vidensk, Selsk Forhandl. Christiania*, 8 : 20-28, pl. 5, figs. 1-3.

1894a. *Ceriodaphnia rigaudi* Richard, *Revue. Boil. Nord. Frnace*, 6 : 367.

Diagnostic characters : Carapace of female broadly oval, produced posteriorly in to short projection, lying slightly above longitudinal axis. Valve distinctly reticulate with large polygonal

cells, free edges of valve smooth. Head small, depressed and separated from body by a distinct ocular depression; with rounded frontal part and produced in front of antennules into a very acute, short and deflexed rostrum. Head with short spine or horn over eye on anterior margin in some specimens. Eye large, ocellus small, Antennule small, fusiform not extending to tip of rostrum; lateral sensory seta somewhat distal to middle. Postabdomen moderately broad, with 5-6 anal spines. Claw short, stout, and finely setulate.

Material examined : 5 exs., Tadoba lake, 28.3.99 (Coll. R.M. Sharma); 3 exs., Kalezeri, 19.10.97 (Coll. A. Mahabal); 2 exs., Pandharpani tank, 15.9.98; 5 exs., Jamunbodi tank, 15.9.98; 4 exs., Talai dam, 16.9.98 (Coll. P.P. Kulkarni).

Distribution : India : West Bengal, Gujarat, Bihar, Andaman and Nicobar Islands, Tripura state, Meghalaya, Tamil Nadu, Karnataka, Rajasthan, Madhya Pradesh, Punjab, Haryana, Himachal Pradesh, Maharashtra. *Elsewhere* : South East Asia, South America, S. Africa, China, Japan, Palestine, Philippines, Egypt.

7. *Ceriodaphnia laticaudata* (P.E. Muller, 1867)

1867. *Ceriodaphnia laticaudata* P.E. Muller, *Nat. Tidskr.*, (3), 5 : 130, pl.1, fig. 19.

1959. *Ceriodaphnia laticaudata* Brooks, *freshwater Biology*, New York, : 620, fig. 27-92.

1962. *Ceriodaphnia laticulata*. Husek, *Fauna of C.S.S.R.*, Prague, 16 : 241-242, figs. 87 A-K.

Diagnostic characters : Carapace rounded quadrangular in shape with posterior protuberance. Valve reticulated, edges of valve smooth. Head comparatively small, vertex evenly rounded, eye and ocellus present. Antennules somewhat produced. Postabdomen large, dilated near the middle, obliquely truncate and with 8-10 anal spines and group of lateral setae present. Claw long, ciliated and denticulate.

Material examined : 1 ex., Pangadi Talav, 25.1.01; 4 exs., Telea dam, 22.1.01 (Coll. S.G. Patil); 1 ex., Kolsa lake, 21.9.90 (Coll. P.P. Kulkarni).

Distribution : India : Maharashtra (Poona), Himachal Pradesh (Simale Hills). *Elsewhere* : Turkastan, Europe, Africa, Madagascar and Australia.

8. *Daphnia longicephala* Herbert, 1977

1977. *Daphnia longicephala* Herbert. *Australian Journal of Zoology*, 25 : 388-391, figs. 63-75.

1983. *Daphnia longicephala*, Smirnov and Timmes, *Records of Australian Museum*, 1 : 96, fig. 115.

Diagnostic characters : Large species upto 4 mm. Carapace oval, and narrow. Tail long about half the length of carapace. Dorsal carapace margin slightly sinuate due to presence of cephalic crest. Helmet generally have large anterior bulge which is anteriorly directed. Rostrum acute, extending along the ventral carapace margin due to large elongated head. Distance from antennular mound to rostrum much greater than diameter of eye. Antennule mound small distant from rostrum. Eye small, ocellus absent. Intestine caecae thin. First abdominal process slightly smaller than second, sparsely covered with hairs. Other process

more pubescent. Dorsal surface of postabdomen straight with 10-13 spines. Three combs on postabdominal claw with 10-16-30 teeth respectively.

Material examined : 1 ex., Pandharpani tank, 15.9.98; 1 ex., Ambat hira, 21.4.96 (Coll. P.P. Kulkarni); 1 ex., Shiranzari tank, 23.1.91 (Coll. S.G. Patil).

Distribution : India : Tamil Nadu, and this is second record of this species from India.
Elsewhere : Australia.

9. *Daphnia lumholtzi* Sars, 1885

1885. *Daphnia lumholtzi* Sars, *Selsk. Forh., Christiania*, No.8, : 19-26, pl.1, figs. 1-10, pls. 3 and 4.

1950. *Daphnia lumholtzi* : Brehm, *Res. Judian Mus.*, Delhi, 48 : 19-21, figs. A-e.

Diagnostic characters : Female carapace broadly oval, narrow posteriorly and continued into a long posterior spine. Dorsal surface of valve moderately arched and armed with elongated and distinct spinules, which continued to posterior spine. This spinules extending till behind middle region of ventral surface of valve. Head produced anteriorly into helmet of variable length. Antennule well developed, situated close to rostrum. Eye large, ocellus small. Formices extremely well developed, produced into lateral spine. Postabdomen tapering distinctly with 10-13 anal spines and groups of lateral setae. Claws stout, curved with 3 groups of setae. Ephippium relatively broad and egg chamber obliquely placed.

Material examined : 1 ex., Jamunbodi tank, 15.9.98 (Coll. P.P. Kulkarni); 2 exs., Tadoba lake, 28.3.99 (Coll. R.M. Sharma).

Distribution : India : Rajasthan, Chandigarh, Punjab, N.E. India, Uttar Pradesh, Bihar, Madhya Pradesh, Kashmir, Tamil Nadu, Andhra Pradesh, Gujarat, Orissa, Bihar, Hymachal Pradesh, Maharashtra. *Elsewhere* : W. Pakistan, Sri Lanka, Syria, Egypt, Australia, and throughout Asia.

10. *Simocephalus vetulus* (O.F. Muller, 1776)

1776. *Daphne vetula* O.F. Muller, *Zool. Daniae Prodromus Seu Animal. Norvegiae*, etc. Havniae : 199, No.2399.

1858. *Simocephalus vetulus* Schoedler : 18.

Diagnostic characters : Carapace rounded trigonal in outline. No posterior spine present; posterior corner with blunt angle. Dorsal margin arched, posterior part of distal margin with distinct denticles. Head small, prominent, rounded in front. Eye moderately large; ocellus large and elongated. Postabdomen very broad, deep emarginated with about 10 anal spines, curved and ciliated, decreasing proximally. Claw long, curved and denticulate.

Material examined : 1 ex., Pandharpani, 26.3.99; 1 ex., Pangli tank, 22.4.2000 (Coll. P.P. Kulkarni); 3 exs., Shiranzari Nala, 23.1.01; 1 ex., Bolzari tank, 27.1.01 (Coll. S.G. Patil).

Distribution : India : Rajasthan, Northern U.P., Kashmir, Punjab, Mysore, Kunaon, N.

Himalaya, Bihar, W. Bengal, Maharashtra. *Elsewhere* : Tibet, England, Australia, Switzerland, Turkey, Russia, North and South America.

11. *Simocephalus serrulatus surekhae* (Rane, 1985) Comb. Nov.

1985. *Simocephalus surekhae* Rane, *J. Bombay, nat. Hist. Soc., Bombay*, **82**(1), : 159-161, figs. 1-5.

Diagnostic characters : Carapace seen laterally is broad, oval or somewhat rhomboidal in outline, with well marked protuberance posteriorly; dorsal margin evenly curved; posterior margin of valve rather oblique, joining the ventral edge at well marked angle. Posterior-half of the dorsal margin strongly denticulate; denticles continued to the terminal protuberance. Ventral posterior half with several small denticles attached submarginally. Head small, angulate with dorsal margin evenly curved and front forming below an acute angle armed with number of minute denticles; rostral projection small. Eye comparatively large, ocellus small, almost rhomboidal in form. Antennule with about 10 terminal aesthetasces and lateral sensory seta originate from knoblike expansion. 3-4 spine like setae present along the lower side of antennule. Valve with distinct pattern of polygonal cells. Postabdomen broad posteriorly, with acute supra anal angle with 11-12 anal denticles, followed by many groups of hairs. Claw nearly straight, with spines on both outer and inner margin. Outer margin with two sets of teeth, proximal with about 30 and distal set with about 50 teeth decreasing gradually towards the tip of claw. Inner margin with 40-45 teeth almost uniform in length.

Material examined : 2 exs., Hirdi Nala, 25.1.01 (Coll. S.G. Patil); 4 exs., Talaidam, 16.9.98 (Coll. P.P. Kulkarni).

Distribution : India : Madhya Pradesh (Jabalpur). This is second record of this subspecies from India. *Elsewhere* : Not recorded.

Remarks : *Simocephalus surekhae* Rane was described from Jabalpur in 1985, was characterized by large proximal pecten on claw with 28-30 teeth and 3-4 spines present on the ventral side of antennule but the denticles in front of head are not well marked or absent. When specimens of Tadoba N. Park were examined, they have the denticulate head which is main character of species *S. serrulatus*, therefore here *S. surekhae* Rane has changed his status from species to subspecies of *S. serrulatus* (Koch).

12. *Scapholeberis kingi* Sars, 1903b.

1903b. *Scapholeberis kingi* Sars, *Archiv. Math. Natur. Christiania*, **25** : 8-10, pl. 1, figs. 2a – e.

1916. *Scapholeberis kingi* Sars, *Ann. S. Afr. Mus., Capetown*, **15** : 314, 315, pl. 32, figs. 3b.

Diagnostic characters : Carapace oval quadrangular, transversely truncated at posterior margin. Body slightly compressed but with no keel. Head moderate in size with large eye and small ocellus. Rostrum well developed and trilobate, middle lobe evenly rounded with narrow hyaline membrane in front and about half wide as the head. Head never with dorsal spine. Antennules located behind the rostrum and project from beyond lateral lobe. Posteroventral corner of each valve produced into a short spine pointing backwards. 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 with setae on its concave margin. Colour always dark black and brown.

Material examined : 4 exs., Andheri River, 27.1.01 (Coll. S.G. Patil); 1 ex., Vasant Bhandhara, 2.9.98; 1 ex., Kolsa lake, 22.4.2000 (Coll. P.P. Kulkarni); 1 ex., Tadoba lake, 28.3.99 (Coll. R.M. Sharma).

Distribution : India : Kerala, Rajasthan, West Bengal, Tamil Nadu, Meghalaya, Assam, Kashmir, Maharashtra. *Elsewhere* : Africa, Australia, North America, Sri Lanka, Germany, China, Thailand, Indonesia.

13. *Moina micrura* Kurz, 1874

1820. *Monoculus rectirostris* Jurine, *Histoire des Monocles, qui se trouvent aux environs de Geneve, Paris*, : 134-135, pl. 13. figs. 3-4.

1874. *Moina micrura* Kurz, *Sitzeber, K. Acad. Wiss. Wein. Math. Nat.*, 70 : 13-15, pl.I, fig.1.

Diagnostic characters : Head large with well developed supraocular depression. Eye large. No setules either on head or valves. Ventral margin of valves with 11-15 long setae followed by groups of short setae on posterior margin. Antennules originated well behind the eye which is large thin with long basal setae. Postabdomen short, slender and with distal conical part. Dorsal margin of postabdomen with groups of short setae, distal margin with a 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 longer and forming distinct pecten.

Material examined : 4 exs., Kalezari, 19.10.97 (Coll. A.S. Mahabal); 3 exs., Pandharpani tank, 15.9.98; 2 exs., Kolsa lake, 21.9.99; 1 ex., Pangli tank, 21.4.2000; 5 exs., Talai dam, 16.9.98 (Coll. P.P. Kulkarni), 1 ex., Tamnibadi Talav, 22.1.01 (Coll. S.G. Patil).

Distribution : India : Kerala, Tamil Nadu, West Bengal, Nilgiri Hills, Bihar, Rajasthan, N.W. India, Haryana, Bijapur, Maharashtra. *Elsewhere* : Africa, Syria, USSR, France, Philippines and North America, Sri Lanka.

14. *Moina micrura dubia* Gurne and Richard, 1892

1892. *Moina dubia* Gurne et. Richard, *Mem. Soc. Zool., France*, 5, : 527-530, figs.1-2.

1968. *Moina micrura dubia* Goulden; *The systematics and Evolution of the Moinidae*, 58 (6), p.32, figs. 11-F, 10-D.

Diagnostic characters : According to Brehm (1953) the characters, viz. The proximal part of ventral margin of valves with strong spines, the distal part with groups of spinules, the reduced distal part and broad proximal part of postabdomen, absence of accessory ridge on the end claw, the head depression at an angle of 70°, are important characters to separate this species from other *Moina* species. Golden (1968) in his monograph on family Moinidae put this species as subspecies of *Moina micrura* Kurz. He mentioned the important characters

which are absent in the typical form are : two sensory setae at the base of the second antennae are quite long and the postabdomen claw have a distinct pectin of about 15 teeth.

Material examined : 5 exs., Vasant Bandhara, 12.9.98 (Coll. P.P. Kulkarni).

Distribution : India : Rajasthan, W. Bengal, South India. *Elsewhere* : Java, Australia, Africa and Europe (Sahara, Uganda, Congo, Kenya).

15. *Bosmina longirostris* (O.F. Muller, 1776)

1776. *Lynceus longirostris* O.F. Muller, *Zoologiae Danicae prodromus*, Havniae, : 76, tab. 10, figs. 7-8.

1862a. *Bosmina longirostris* Sars, *Forhandl. Vidensk. Selsk. Christiania*, p.162.

Diagnostic characters : Body oval usually transparent; valve thin and posteroventral margin of each valve with spine (Micro). Antennules of female almost parallel to each other, curving backward and fixed to head, olfactory setae lateral and usually near base of each antennule. Head large, more or less arched in front of the eye. Eye usually large. Antenna small with 3 and 4 segmented rami. Postabdomen almost quadrate. Claw with proximal pectin of 3-4 spinules and distal pectin with 7-10 spines.

Material examined : 14 exs. Tadoba lake, 28.3.99 (Coll. R.M. Sharma); 2 exs., Pangadi Talav, 25.1.01 (Coll. S.G. Patil).

Distribution : India : Kashmir, Meghalaya, West Bengal. *Elsewhere* : Cosmopolitan.

16. *Bosminopsis deitersi* Richard, 1895

1895c *Bosminopsis deitersi* Richard, *Bull. Soc. Zool. De France*, **20**, : 96-98, figs. 1-4.

Diagnostic characters : Body almost oval or oblong. The general form much like *Bosmina*. Posterodorsal corner of valves distinct, posteroventral corner with small micro like process and with 1 or 2 spinules before it. Head large, with a long rostrum. Antennules long, united with each other at the basal part and with 5-6 sensory setae on the ventral side near apex. Postabdomen broad and tapering distally; with about 7 small spines at last anal edge followed by a row of setae proximally. Claw large with one large basal spine near base.

Material examined : 3 exs., Telai dam, 18.9.98 (Coll. P.P. Kulkarni); 10 exs. Andheri River pool, 27.1.01 (Coll. S.G. Patil).

Distribution : India : Delhi, Kerala, Maharashtra (Ujani Wetland). *Elsewhere* : Asia, Africa, North and South America.

17. *Macrothrix spinosa* King, 1852.

1852. *Macrothrix spinosa* King, *Pap. Proc. Roy. Soc. Van. Diemen Land* Hover Town, **2**(2), : 25-26, pl. 6E.

1888. *Macrothrix spinosa*, Sars, *Forh. Vid. Selsk. Christiania*, **7**, : 25-32, pl.3, figs. 1-6.

Diagnostic characters : Carapace broadly rounded oval. Dorsal margin almost evenly arched. Ventral margin subangulated in middle and obliquely ascending posteriorly; posterior

end with short protuberance. Head sub- triangular and with slightly prominent rostral projection. Head shield widening abruptly at the level of compound eye. Antennules enlarged at apex, anterior margin with several fine incisions and clusters or row of setules and with setules and ventral angulation. The shell is reticulated and dorsal surface with more or less distinct squamous sculpture, giving dorsal edge a minute serrated appearance. Ventral edge of valves serrated and armed with slender spines. Eye large, ocellus small located near the tip of rostrum. Postabdomen short, bilobed and with a row of small but strong anal denticles along the dorsal edge and a row of minute lateral spines. Claw very short and with setae on the concave margin.

Material examined : 2 exs., Hirdi Nala, 25.1.01; 1 ex., Pandharpani tank, 20.1.2001 (Coll. S.G. Patil); 1 ex., Talai dam, 16.9.98 (Coll. P.P. Kulkarni); 3 exs., Tadoba lake, 27.9.99 (Coll. R.M. Sharma).

Distribution : India : Tamil Nadu, Rajasthan, Manipur, Maharashtra (Ujani Wetland, Melghat Tiger Reserve and Pench National Park). *Elsewhere* : Malaysia, Thailand, Sri Lanka, Sumatra, Java, Australia, S. America.

18. *Echinisca triserialis* (Brady, 1886)

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*, New Ser., **112**, :109-110, figs. 81-89.

Diagnostic characters : Body almost oval in outline, dorsal margin slightly arched, ventral more strongly arched and produced point posteriorly. Valve reticulate, dorsal margin with serrations, particularly in the posterior region, ventral margin with serrations and bristles and serrations on the 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.

Material examined : 2 exs., Pangadi talav, 25.1.01 (Coll. S.G. Patil); 1 ex., Tadoba lake, 15.9.98 (Coll. P.P. Kulkarni); 2 exs., Tadoba lake, 28.3.99 (Coll. R.M. Sharma).

Distribution : India : Kerala, Rajasthan, West Bengal, Andaman and Nicobar Islands, Tamil Nadu, Tripura, Maharashtra (Ujani, Melghat, Pench). *Elsewhere* : Cosmotropical.

19. *Echinisca odiosa* (Gurney, 1907)

1907. *Macrothrix tenuicornis* Gurney, *Rec. Indian Mus.*, Calcutta, **1(2)**, p.25, : I, figs. I, 2, figs. 22.

1907. *Macrothrix odiosa* Gurney, *Rec. Indian Mus.*, Calcutta, **1(2)**, : 175.

1976. *Echinisca odiosa* Smirnov, *Fauna of USSR, Rakoobrazn ye, Zool. Inst. Acad. Nauk*, **1(3)**, **112**, : 118-119, figs. 94-95.

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 large setae. Head almost evenly rounded, 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. Antennule 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.

Material examined : 1 ex., Vasant Bandhara, 12.9.98; 1 ex., Kolsa lake, 22.4.02 (Coll. P.P. Kulkarni); 1 ex., Pandharpani tank, 20.1.01; 1 ex., Kalazari, 21.1.01 (Coll. S.G. Patil).

Distribution : India : Rajasthan, Bihar, Maharashtra (Pench National Park, Ujani wetland). *Elsewhere* : Russia, Madagascar.

20. *Ilyocryptus spinifer* (Herrick, 1882)

1882. *Ilyocryptus spinifer* Herrick, 10th Annual Rep. Geol. And Nat. Hist. Survey, Minn., : 39-41, pl. 8, figs. 1-5.

Diagnostic characters : Body oval-triangular. Posterior and ventral edge of valves rounded and usually bearing long and branched setae. Head keeled, antennules long, biarticulate (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 post and spines. Claw long, slightly curved with basal spines of unequal length.

Material examined : 1 ex., Kolsa lake, 22.4.02; 1 ex., Tadoba lake, 15.9.98 (Coll. P.P. Kulkarni).

Distribution : India : Kerala, Rajasthan, West Bengal, Meghalaya, Andaman and Nicobar, Tripura, Tamil Nadu, Maharashtra (Pench National Park). *Elsewhere* : Pantropical, North America, China, Australia, Cuba, S.E. Asia.

21. *Pleuroxus aduncus bhigawanensis* Rane, 2002.

2002. *Pleuroxus aduncus bhigawanensis* Rane, Fauna of Ujani Wetland, Wetland Ecosystem, 3 : 77, figs. 1-4. Zool. Surv. India.

Diagnostic characters : Female height about two and half times longer than posterior part of valve. Posteroventral corner of valve with 1-2 denticles directed posteriorly. The anterior marginal setae arise from rounded denticles at the bases. Posterior setae large, thick, and feathered. Valves with lines. Rostrum long, pointed and directed downwards. Antennule reaching one third part of rostrum with sensory seta in the middle. Antenna small, plate of labrum convex anteriorly with slightly pointed apex. Postabdomen short, tapering distally. Preanal part projecting with 10-12 small anal denticles which decreasing in size proximally and few last ones appears in groups. Ocellus smaller than eye. Posteroventral corner of valve may have different number of denticles at right or left valve.

Material examined : 2 exs., Katezeri, 10.9.97 (Coll. A. Mahabal); 2 exs. Pangaditalav, 25.1.01 (Coll. S.G. Patil).

Distribution : India : Maharashtra (Ujani wetland and Tadoba National Park). *Elsewhere* : Not recorded.

22. *Pleuroxus similes* Vavra, 1900.

1900. *Pleuroxus similes* Vavra, *Hamburger Magalhaensische Sammelreise*, 2, Hamburg., : 23-24, fig. 6.

Diagnostic characters : Body uniformly curved dorsal margin. Posteroventral corner of valve with 1-3 denticles. Valve without pattern, ventral margin with feathery setae, rostrum long and pointed downwards, reaching level of ventral margin of valve. Antennules terminating from apex of rostrum. Plate of labrum with convex anterior margin. Postabdomen elongated, tapering slightly to distal end; dorsal distal corner of postabdomen situated slightly behind base of claw. Anal spines 10-13 and increase gradually in size distally. Claw with two basal spines.

Material examined : 1 ex., Pangadi talav, 25.1.01 (Coll. S. G. Patil), 1 ex., Hirdi Nala, 25.1.01, (Coll. S.G. Patil).

Distribution : India : Kashmir, West Bengal, Madhya Pradesh. *Elsewhere* : Australia, Sri Lanka, Chile, Northern Caucasus.

23. *Alonella excisa* (Fischer, 1854)

1854. *Lynceus excisus* Fischer, *Bull. Soc. Imp. Nat. Mosc.*, 27, : 428-429, pl. 3, figs. 11-13.

Diagnostic characters : Body oval in outline, posterior margin of valve straight. Posteroventral corner with blunt denticle. Reticulation on valve in the form of parallel lines. The lines being fused in some places to form a honeycomb pattern and fine longitudinal lines and dots inside the each polygon. Rostrum blunt and directed downwards. Antennule with sensory seta distal to middle of margin. Plate of labrum with convex anterior margin and blunt apex. Eye and ocellus present. Postabdomen short. Preanal corner blunt with 10 anal spines. Anal margin with setules. Claw with two basal spines.

Material examined : 2 exs., Hirdi Nala, 25.1.01, (Coll. S.G. Patil); 1 ex., Tadoba lake 28.3.99 (Coll. R.M. Sharma).

Distribution : India : Madhya Pradesh, Kashmir. *Elsewhere* : Cosmopolitan.

24. *Chydorus sphaericus* (O.F. Muller, 1776)

1776. *Lynceus sphaericus* O.F. Muller, *Havnae*, : 119.

1900. *Chydorus sphaericus* Lilljeborg, *Nova Acta Regiae Societatis Scientiarum Upsaliensis*, 3(19), : 567-567, pl. 77, figs. 8-25.

Diagnostic characters : Body almost spherical in outline; length slightly more than height.

Posterodorsal corner distinct. Posteroventral corner rounded without denticles. Valve usually reticulated but without dots or pits. Rostrum pointed and emarginate. Antennule with sensory setae near middle of anterior margin; all esthetascs situated on the apex of antennule. Plate of labrum with smooth, convex anterior margin and with produced, pointed apex. Ocellus near to eye than apex of rostrum. Postabdomen short with 7-10 anal denticles. Preanal corner projecting. Lateral setae in several groups. Claw with two basal spines and setae with concave margin.

Material examined : 2 exs., Talaidam, 16.9.98 (Coll. P.P. Kulkarni); 1 ex., Shranzari Nala, 23.1.01 (Coll. S.G. Patil); 2 exs., Kolsa lake, 22.4.2000 (Coll. P.P. Kulkarni); 2 exs., Talaidam, 22.1.01 (Coll. S.G. Patil).

Distribution : India : West Bengal, Bihar, Kashmir, Ladakh and Nilgiri Hills, Meghalaya. *Elsewhere* : Cosmopolitan.

25. *Chydorus faviformis* Birge, 1893.

1893. *Chydorus faviformis* Birge, *Trans. Wis. Acad. Sci. Arts., and letts.*, 9 : 307-308, pl. XIII, figs. 7-8.

Diagnostic characters : Body rounded, posterodorsal and posteroventral corner of valves not distinct. Valve and shield with deep polygonal cells. Rostrum pointed. Antennules not reaching apex of rostrum. 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. 9-10 anal spines and groups of lateral setae present. Claw with setae on its concave margin and two basal spines.

Material examined : 2 exs., Pangadi Talav, 25.1.01 (Coll. S.G. Patil); 1 ex., Pandharpani tank, 15.9.98 (Coll. P.P. Kulkarni).

Description : India : Kashmir, Assam, Tripura, Maharashtra. *Elsewhere* : Northeast of North America, Sri Lanka, China, Malaysia, Australia, S.E. Asia.

26. *Chydorus ventricosus* Daday, 1898.

1898. *Chydorus ventricosus* Daday, *Termis Furetk*, 21 : 28-29, figs. 10, a, b.

Diagnostic characters : Body oval in outline, posterodorsal 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 polygons with wavy margin. Rostrum long, pointed, fornices expanded. Antennules thick about half the length of rostrum. Labral plate long, broadly rounded and shortly indented on the anterior margin near tip. Ocellus about half diameter the size of eye, located closer to the eye than to apex of rostrum. Postabdomen elongated slightly tapering distally and preanal corner distinct, with 9-10 marginal spines and 4-7 lateral group of setules. Claw with setae on the concave margin, bearing long slender basal spine and setae attached on convex margin.

Material examined : 2 exs., Tadoba lake, 28.3.99 (Coll. R.M. Sharma), 1 ex., Pandharpani tank, 15.9.98; (Coll. P.P. Kulkarni).

Distribution : India : Tamil Nadu, Gujarat, Andaman and Nicobar, Rajasthan, Tripura, Maharashtra (Ujani Wetland, Pench National Park, Melghat Tiger Reserve). *Elsewhere* : Sri Lanka, China, Java, East Africa, South America (Paraguay).

27. *Chydorus gibbus* Sars. 1891.

1891. *Chydorus gibbus* Sars, *Forhandlenger i Videnskabs – selskabet i Christiania*, : 50.

Diagnostic charaters : Valve with humped dorsal margin. Body triangular in anterior view. Hexagonal cells reticulation on the valve. Rostrum pointed. Antennules with sensory seta in the middle of anterior margin. Antenna with 7 setae. Plate of labrum with convex anterior margin and pointed posterior end. Postabdomen short. Preanal corner projecting, pubescent. Dorsal margin with 2 rows of 8-10 anal denticles. Claw with basal spines with setae on concave margin. Ocellus near to eye than apex of rostrum.

Material examined : 2 exs., Pangli tank, 21.4.2000 (Coll. P.P. Kulkarni); 1 ex., Shiranzari Nala, 23.1.01 (Coll. S.G. Patil).

Distribution : India : First time recorded from India. *Elsewhere* : Holaretic, European USSR, Kurile Islands.

28. *Dunhevedia crassa ciliocaudata* (Sovinski, 1891)

1891. *Alona ciliocaudata* Sovinski, *Zapiski Kievskogo obschestva Estestvoispytatelei*; **11** : 159-160, pl. III, figs. 33-34.

1971. *Dunhevedia crass ciliocaudata* Smirnov, *USSR Acad. Sci. Zool. Institute. Nova Ser. No.101*, Leningrad, p.322. figs. 363.

Diagnostic characters : Female posteroventral corner of valve with a denticle, sometimes with a accessory denticles above it. Anterior margin of plate of labrum with tubercle shape convexity and blunt apex. Two sensory papillae of antennule longer than other. Postabdomen with 11-12 anal denticles and with transverse row of setae almost all the surface. Ocellus about a quarter as large of the eye, situated half way between eye and apex of rostrum.

Material examined : 1 ex., Pangli tank, 21.4.2000; 1 ex., Talai dam, 16.9.98 (Coll. P.P. Kulkarni); 1 ex., Tadoba lake, 27.9.94 (Coll. R.M. Sharma).

Distribution : India : First record. *Elsewhere* : Poland, USSR, Kiev region.

29. *Dunhevedia serrata* Daday, 1898.

1898. *Dunhevedia serrata* Daday, *Termes, Fuzetek*. **21**, : 32-33, figs. 13.

Diagnostic characters : Body almost oval in outline, maximum height just before middle. Postsodorsal corner valve not very distinct. Postsoventral corner with two denticles. Dorsal

denticle smaller than ventral. Valve with longitudinal lines and dots. Rostrum blunt. Plate of labrum with serrated anterior margin with 10-15 denticles, apical denticle directed downward. Ocellus small than eye. Postabdoman oval, with 3-15 anal denticles and numerous lateral groups of setae. Claw with basal spine and with setae on concave margin.

Material examined : 2 exs., Ambathira 2.4.96 (Coll. P.P. Kulkarni); 1 ex., Andheri River, 27.1.01 (Coll. S.G. Patil).

Distribution : India : Tamil Nadu. *Elsewhere* : Africa, Sri Lanka, New Guinea and North America.

30. *Dadaya macrops* (Daday, 1898).

1898. *Alona macrops* Daday, *Termis Fuzetek.*, **21**, : 38-39, fig. 17.

1901. *Dadaya macrops* Sars, *Arch. Math. Nat.*, **23**, : 73-74, pl. XI, figs. 5, a-b.

Diagnostic characters : Body oval, dorsal and ventral margin of valve convex. Posteroventral corner of valve rounded, with a denticle. Valve with a pattern of hexagons. Ventral margin of valve with setae on inner side in posterior half. Rostrum long. Antennuls distinctly projecting beyond apex of rostrum. Distal segments of antennae not reaching apex of rostrum. Labrum with a long beaklike projection. Ocellus and eye usually large. Postabdomen with about 15 anal spines, proximal ones are smaller. Postabdomen with a projecting preanal corner. Claw with a basal spine.

Material examined : 2 exs., Tadoba lake, 15.9.98 (Coll. P.P. Kulkarni).

Distribution : India : Southern Region. First time recorded in middle region like Maharashtra. *Elsewhere* : Ethiopian, Indo-Malaysia, Australia and Neotropical regions.

31. *Pseudochydorus globosus* (Baird, 1843)

1843. *Chydorus globosus* Baird, *Ann. Mag. Nat. Hist.*, **68**, p.90, pl.III, figs. 1-6.

1968. *Pseudochydorus globosus* Fryer, *Phil. Trans. Roy. Soc.* **254**, :324-328, figs. 92-111.

Diagnostic characters : Body almost spherical, slightly longer than high; posteroventral corner of valve without denticle. Valve with pattern of polygon. Rostrum pointed and ventrally directed. Antennules not reaching apex of rostrum. Postabdomen narrow, almost uniformly wide; anal spines about 20, decreasing in size proximally. Group of lateral setae present. Anal margin with setae. Claw with two basal spines and row of setae on concave margin.

Material examined : 2 exs., Tadoba lake, 15.9.90, (Coll. P.P. Kulkarni).

Distribution : India : Tamil Nadu, West Bengal, Meghalaya, Maharashtra (Ujani wetland and Melghat Tiger reserve). *Elsewhere* : Holartic, Indo-Malayan, Australia, USSR.

32. *Alona pulchella* King, 1853.

1853. *Alona pulchella* King, *Pap. Proc. R. soc. Van. Diemans, Land*, **2** : 260, pl. VIII B.

Diagnostic characters : Valve generally punctate or reticulation. Rostrum blunt. Antennules not reaching apex of rostrum. Plate of labrum with convex anterior margin and slightly pointed apex. Ocellus situated half way between eye and apex of rostrum. Postabdomention almost straight dorsal and ventral margin, about 16 anal denticles. Groups of lateral setae present; dorsal seta the longest in each group. Claw with one basal spine.

Material examined : 3 exs., Pangaditalav, 25.1.01, (Coll. S.G. Patil); 1 ex., Talai dam, 16.9.98 (Coll. P.P. Kulkarni); 1 ex. Hirdi Nala, 25.1.01 (Coll. S.G. Patil).

Distribution : India : Gujarat, West Bengal, Maharashtra (Melghat Tiger Reserve). *Elsewhere* : Cosmotropical.

33. *Alona guttata* Sars, 1862b.

1862b. *Alona guttata* Sars, *Forhandl. Vidensk. Selsk Christiania*, : 287-289.

Diagnostic characters : Body oval in shape with rounded posterodorsal and postsoventral corners of valve. In some cases valves with tubercles. Antennules not reaching apex of rostrum. Plate of labrum rounded. Ocellus smaller than eye situated half way between eye and apex of rostrum. Postabdomen wide, with about 9 anal spines and lateral groups of setae. Distal end of postabdomen pointed and projecting beyond the base of claw. Preanal corner projecting, anal margin or anal groove of postabdomen bordered by groups of spines or setae.

Material examined : 1 ex., Pandharpani talav, 26.3.99; (Coll. P.P. Kulkarni), 1 ex., Tadoba lake, 28.3.99 (Coll. R.M. Sharma); 2 exs., Pangaditalav, 25.1.01 (Coll. S.G. Patil).

Distribution : India : Himachal Pradesh, Rajasthan, Tamil Nadu, Ladakh, Kerala, Kashmir, Maharashtra (Ujani wetland). *Elsewhere* : Cosmopolitan.

34. *Alona costata* Sars, 1862b

1862b. *Alona costata* Sar, *Forhandl. Vidensk. Selsk. Christiania*, 286 :

Diagnostic characters : Valve with rounded posterodorsal and posteroventral corner. Valve with longitudinal lines and interconnections. Posterior margin of valves with a row of spinnules on its inner margin. Antennule not reaching apex of rostrum. Plate of labrum rounded. Ocellus much smaller than eye and situated half way between eye and apex of rostrum. Postabdomen short and tapering distally, dorsal margin almost straight and preanal corner only slightly projecting beyond the base of claws. Anal spines 11-12, decreasing in size proximally. Group of lateral setae present in row, the distal setae being longest in each groups. Anal margin almost straight. Claw with basal spine.

Material examined : 1 ex., Tadoba lake, 28.9.99, (Coll. R.M. Sharma); 2 exs., Pangadi talav, 25.1.01, (Coll. S.G. Patil).

Distribution : India : Himachal Pradesh, Manipur, Maharashtra (Melghat). *Elsewhere* : Holarctic, Ethiopian, Indo-Malayan, Neotropical and European USSR.

35. *Alona pseudanodontata anodonta* Daday, 1905

1905. *Alona pseudanodontata anodonta* Daday, *Zoologica*, **18**(44), : 175, pl. XI, figs. 5,6.

Diagnostic characters : Maximum height in the middle, posterodorsal and posteroventral corner rounded. Antennule almost reaching apex of the rostrum. Plate of labrum rounded. Postabdomen with rounded and widened distally. Valves with rows of tubercles and granules. Anal denticles up to 10 decreasing in size proximally, lateral setae in groups. Claw with short basal spine. Preanal corner distinct but not projecting. Ocellus situated half way between eye and apex of rostrum.

Material examined : 2 exs., Tadoba lake, 28.3.99. (Coll. R.M. Sharma).

Distribution : India : First record. *Elsewhere* : Paraguay, Lake Nyasa.

Remarks : The species without having tubercles on the valves was described by Brehim 1933b from Lake Nyasa and Philippines was named as *Alona pseudanodonta*.

36. *Alona rectangula* Sars., 1862a

1862a. *Alona rectangula* Sars, *Forhandl. Vidensk. Selsk, Christiania*, : 160.

Diagnostic characters : Body almost rectangular, posteroventral corner rounded without denticle. Antennule slightly smaller than rostrum. Ocellus slightly smaller than eye. Postabdomen with 6-7 anal denticles accompanied by setae. Distal end of postabdomen rounded with grouped setae projecting margin of postabdomen. Setae on the ventral side small and almost uniform in size. No longitudinal lines or dots on the valve. Plate of labrum broad and rounded with slight notch at anterior side. Vasdifferans opening near the base of claw.

Material examined : 5 exs., Pangli tank, 21.4.2000 (Coll. P.P. Kulkarni).

Distribution : India : Ladakh, Gujarat, Rajasthan, Meghalaya, Kashmir, West Bengal. *Elsewhere* : Africa, USSR.

37. *Biapertura affinis* (Leydig, 1860).

1800. *Lynceus affinis* Leydig. *Naturgeschichte de Daphniden, Tubingen*, : 223, pl. IX, figs. 68-69.

1971. *Biapertura affinis affinis* Smirnov, *USSR, Acad. Sci. Zool. Institute, Nova Ser.*, No.101 : Leningrad, : 467-462, figs. 582-587.

Diagnostic characters : Body oblong and maximum height in the middle region. Posteroventral corner of valves with a row of groups of continuing in a row of spinnules on the inner side of the posterior margin. Plate of labrum of varying forms with convex anterior margin. Ocellus smaller than eye. Postabdomen with usually uniformly widening. Dorsal distal margin rounded. Anal denticles 12-16, most anal denticles with pubescent proximal side. Lateral setae in groups. Claw and basal spine with setae on their concave margins.

Material examined : 2 exs., Tadoba lake, 28.3.99 (Coll. R.M. Sharma).

Distribution : India : Kashmir, Meghalaya, Gujarat, West Bengal, Maharashtra (Melghat Tiger Reserve). *Elsewhere* : Cosmopolitan, Philippines, USSR, and Central Asia.

38. *Biapertura karua* (King, 1853).

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.*, No. 101, : 479-480. figs. 600-603.

Diagnostic characters : Body oval, maximum height slightly before middle. Posteroventral corner of valves with 3 denticles. Valves with lines, a pattern of polygons and weak, striations. Postabdomen with broadly rounded dorsal distal margin. Antennules almost reaching apex of rostrum. Plate of labrum rounded. Ocellus smaller than eye. About 8 small anal denticles. Lateral setae in groups, distal seta being longest, projecting beyond the postabdomen and in about 8 groups. Claw with very small basal spine.

Material examined : 1 ex., Vasant Bandhara, 12.9.98 (Coll. P.P. Kulkarni); 2 exs. Jamunbodi tank, 15.9.98 (Coll. P.P. Kulkarni); 1 ex., Kolsa lake, 22.4.2000 (Coll. P.P. Kulkarni).

Distribution : India : Meghalaya, West Bengal, Tamil Nadu, Maharashtra (Ujani, Melghat, Pench), Andaman and Nicobar Islands, Tripura. *Elsewhere* : Cosmopolitan.

39. *Oxyurella singalensis* (Daday, 1898).

1898. *Alonopsis singalensis* Daday, *Termes. Fuzetek*, 21, : 43-45, figs.20, a-b.

1957. *Oxyurella singalensis* Fryer, *Arch. Hydrobiol.*, 53, : 232.

Diagnostic characters : Body oval in outline. Posteroventral corner of valves rounded, without denticles. Rostrum blunt. Valve with dots and lines parallel to ventral margin. Antennule almost reaching apex of rostrum. Plate of labrum with slightly pointed apex, anterior margin not pubescent. Postabdomen slightly narrowing distally. Distal anal denticles the longest, followed by short curved denticle. 11-13 anal spines decreasing in size proximally, lateral setae in groups. Claw large, with one large and 3 small accessory basal spines.

Material examined : 1 ex., Tadoba lake, 15.9.98, (Coll. P.P. Kulkarni).

Distribution : India : West Bengal, Madhya Pradesh. *Elsewhere* : Ethiopian and Indo-Malayan region, Philippines and North East China.

40. *Ephemeroporus barroisi* (Richard), 1894.

1894. *Pleuroxus barroisi* Richard, *Ann. Sci. nature., Zool.* 18 : 375-377, figs. 9-12.

1982. *Ephemeroporus barroizi* Richard, *nomen dubium*, Frey, *Hydrobiologia*, 86 : 233-237, pl.1.

Diagnostic characters : Body broadly elliptical in outline, maximum height in the middle, dorsal and ventral margin similarly convex, posterior margin almost straight. Posterodorsal

corner of valves rounded. Posteroventral corner of each valve with denticle. Rostrum with apical notch. Antennule short, conical and not reaching apex of rostrum. Plate of labrum with produced apex and with 3-5 denticles on anterior margin. Ocellus smaller than eye, situated halfway between eye and apex of rostrum. Postabdomen short, with 9 unequal anal spines. Preanal corner projecting. Claw with two basal spines and setae on concave margin.

Material examined : 3 exs., Kalemari, 21.1.01; 1 ex., Bolezari, 27.1.01 (Coll. S.G. Patil); 1 ex., Vasant Bandhara, 12.9.98 (Coll. P.P. Kulkarni).

Distribution : India : Tamil Nadu, Kerala, West Bengal, Gujarat, Maharashtra (Ujani, Melghat). *Elsewhere* : Cosmotropical.

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INSECTA : ODONATA

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INTRODUCTION

Odonates form the prominent insects while on flight as well as at rest. Being active, while on flight, this group attracted attention of workers since long. 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 Odonata which includes 499 species.

Prasad (1996) published an account of Odonata from Maharashtra state, based on the collections in National Zoological Collection of Zoological survey of India, Calcutta and Pune. Later, Kulkarni *et al.* 2002 and 2004 added three species to the list, making the total to 86 species known from the state of Maharashtra.

Faunistic Surveys of Tadoba Andhari Tiger Reserve, Dist. Chandrapur, were undertaken by Western Regional Station, Zoological survey of India, Pune during the years 1996-2000. A total of 700 (approx.) specimens were collected. All this collection is identified and recorded here, however, details of collection data are given for few examples, where large number of specimens were collected. The area of Tadoba Andhari Tiger Reserve was surveyed for the first time by Zoological Survey of India and there is no earlier record of Odonate species from this area, thus all the 41 species are recorded for the first time from there.

SYSTEMATIC LIST

| | |
|-------------|-------------------------------|
| Order | ODONATA |
| Suborder | ZYGOPTERA |
| Superfamily | COENAGRIONOIDEA |
| Family | COENAGRIONIDAE |
| Subfamily | PSEUDAGRIONINAE |
| Genus | <i>Ceriagrion</i> Selys, 1876 |

1. *Ceriagrion coromandelianum* (Fabr.)
2. *Ceriagrion olivaceum* Laidlaw

- Genus *Pseudagrion* Selys, 1876
3. *Pseudagrion decorum* (Rambur)
 4. *Pseudagrion rubriceps rubriceps* Selys
 5. *Pseudagrion spencei* Fraser
- Subfamily ISCHNURINAE
- Genus *Enallagma* Charp, 1840
6. *Enallagma parvum* Selys
- Genus *Ischnura* Charp, 1840
7. *Ischnura aurora aurora* (Brauer)
 8. *Ischnura senegalensis* (Rambur)
- Genus *Rhodischneura* Laidlaw, 1919
9. *Rhodischneura nursei* (Morton)
- Subfamily AGRIOCNEMIDINAE
- Genus *Agriocnemis* Selys, 1877
10. *Agriocnemis lacteola* Selys
 11. *Agriocnemis pygmaea* (Rambur)
- Family PLATYCNEMIDIDAE
- Subfamily PLATYCNEMIDINAE
- Genus *Copera* Kirby, 1890
12. *Copera marginipes* (Ramb.)
 13. *Copera vittata deccanensis* Laidlaw
- Family PROTONEURIDAE
- Subfamily DISPARONEURINAE
- Genus *Disparoneura* Selys, 1860
14. *Disparoneura quadrimaculata* (Ramb.)
- Superfamily LESTOIDEA
- Family LESTIDAE
- Subfamily LESTINAE
- Genus *Lestes* Leach, 1815
15. *Lestes viridulus* Rambur
- Suborder ANISOPTERA
- SUPER Family AESHNOIDEA
- Family GOMPHIDAE
- Subfamily ONYCHOGOMPHINAE
- Genus *Paragomphus* Cowley, 1934
16. *Paragomphus lineatus* (Selys).

- Subfamily LINDENIINAE
Genus *Ictinogomphus* Cowley, 1934
17. *Ictinogomphus rapax* (Rambur)
Family AESHNIDAE
Subfamily AESHNINAE
Genus *Gynacantha* Rambur, 1842
18. *Gynacantha bayadera* Selys
Superfamily LIBELLULOIDEA
Family LIBELLULIDAE
Subfamily BRACHYDIPLACTINAE
Genus *Brachydiplax* Brauer, 1868
19. *Brachydiplax sorbina* (Rambur)
Subfamily LIBELLULINAE
Genus *Lathrecista* Kirby, 1889
20. *Lathrecista asiatica asiatica* (Fabr.)
Genus *Orthetrum* Newman, 1833.
21. *Orthetrum luzonicum* (Brauer)
22. *Orthetrum pruinatum neglectum* (Rambur)
23. *Orthetrum sabina sabina* (Drury)
24. *Orthetrum taeniolatum* (Schn.)
Genus *Potamarcha* Karsch, 1890
25. *Potamarcha congener* (Rambur)
Subfamily SYMPETRINAE
Genus *Acisoma* Rambur, 1842
26. *Acisoma panorpoides panorpoides* Rambur
Genus *Brachythemis* Brauer, 1868
27. *Brachythemis contaminata* (Fabr.)
Genus *Bradinopyga* Kirby, 1893
28. *Bradinopyga geminata* (Rambur)
Genus *Crocothemis* Brauer, 1868
29. *Crocothemis servilia servilia* (Drury)
Genus *Diplacodes* Kirby, 1889
30. *Diplacodes nebulosa* (Fabricius)
31. *Diplacodes trivialis* (Rambur)

- Genus *Neurothemis* Brauer, 1867
32. *Neurothemis intermedia intermedia* (Rambur)
33. *Neurothemis tullia tullia* (Drury)
- Subfamily TRITHEMISTINAE
- Genus *Trithemis* Brauer, 1868
34. *Trithemis aurora* (Burmeister)
35. *Trithemis festiva* (Rambur)
36. *Trithemis pallidinervis* (Kirby)
- Subfamily TRAMEINAE
- Genus *Rhyothemis* Hagen, 1867
37. *Rhyothemis variegata variegata* (Linnaeus)
- Genus *Pantala* Hagen, 1861
38. *Pantala flavescens* (Fabr.)
- Genus *Tramea* Hagen, 1861
39. *Tramea basilaris burmeisteri* Kirby
- Genus *Tholymis* Hagen, 1867
40. *Tholymis tillarga* (Fab.)
- Genus *Zyxomma* Rambur, 1842
41. *Zyxomma petiolatum* Rambur

SYSTEMATIC ACCOUNT

- Order ODONATA
- Suborder ZYGOPTERA
- Superfamily COENAGRIONOIDEA
- Family COENAGRIONIDAE
- Subfamily PSEUDAGRIONINAE
- Genus *Ceriagrion* Selys, 1876

1. *Ceriagrion coromandelianum* (Fabr.)

1798. *Agrion coromandalianum* Fabricius, *Entr. Syst. Suppl.* : 287.

1933. *Ceriagrion coromandelianum*, Fraser. *Fauna Brit. India, Odonata*, 1 : 315–316.

Diagnostic characters : Head : Labium pale yellow; labrum, clypeus, genae, bases of mandibles and frons bright citron yellow; vertex olivaceous; occiput and postocular area ochreous; basal three joints of antennae pale yellow. Prothorax and thorax uniformly olive green. Legs citron yellow. Wings hyaline, pterostigma golden yellow. Abdomen uniformly citron yellow, segment 10 deeply emerginate on dorsum. Anal appendages citron yellow. Female more robust and dull coloured.

Material examined and locality : 7 Kms. East of Tadoba, 1 ♂; Kalabma, 3.10.1994, 1 ♂; 3 Km. South-West of Tadoba, 7.10.1994, 4 ♂♂, 1 ♀ all coll. R.M. Sharma; Tadoba Tank, 27.2.1995, 3 ♂♂, Coll. R. H. Kamble; Vasant Bandhara, 30.3.1996, 1 ♀, Coll. P.P. Kulkarni; Vasant Bandhara, 5.12.1996, 1 ♂; Karwa-Kolsa road and Kolsa reservoir, 10.12.1996, 2 ♂♂, 1 ♀, Tadoba resthouse (At light), 11.12.1996, 1 ♀, Coll. R.M. Sharma; Pandhar Pawani Talav, 17.10.1997, 1 ♂; Kala Amba, 20.10.1997, 1 ♂, Ambathira, 21.10.1997, 1 ♂; Kolsa tank, 24.10.1997, 2 ♂♂, 1 ♀; 26.10.1997, 2 ♂♂, all coll. A.S. Mahabal; Katezari-Ambathira, 23.3.1999, 2 ♀♀; Panchadhara nalla, 20.3.1999, 2 ♂♂, 2 ♀♀ Kalamba, Bhanuskhindi, 24.3.1999 Coll. R.M. Sharma, Kala amba, 13.4.2000, 1 ♂; Kasarbodi Compartment 313, Kolsa, 18.4.2000, 3 ♂♂, 1 ♀, coll. P.P. Kulkarni; Pandarpawani, 20.1.2001, 1 ♂ coll. S.G. Patil, Doni nalla, 24.1.2001, 1 ♂, coll. S.G. Patil,

Distribution : Throughout India; *Elsewhere* : Sri Lanka, Myanmar, Malaysia, Indochina and South China.

Remarks : Recorded as a very common species from Estuarine areas of Eastern India (Prasad and Ghosh, 1988).

2. *Ceriagrion olivaceum* Laidlaw

1914. *Ceriagrion olivaceum* Laidlaw *Rec. Indian Mus.*, 8 : 345-346.

1923. *Ceriagrion olivaceum*, Fraser, *J. Bombay Nat. Hist. Soc.*, 9 : 748.

1995. *Ceriagrion olivaceum*, Prasad and Varshney, *Oriental Ins.*, 29 : 389.

Diagnostic characters : Head : Labium dirty brown or pale yellow; Labrum and whole head pale olivaceous brown, lighter ochreous tint behind eyes and across occiput. Prothorax and thorax pale olivaceous. Legs yellow, with black spines. Wings hyaline, palely enfumed in adults; pterostigma pale brown. Abdomen uniform olivaceous brown and yellowish beneath. Female resembles male with nodal index slightly lower than in males.

Material examined : Tadoba Chimur Road, 25.9.1994, 2 ♂♂, Coll. R.M. Sharma.

Distribution : India : Aranuchal Pradesh, Assam, Kerala, Manipur, Maharashtra, Meghalaya, Orissa, South Andaman, Uttar Pradesh and West Bengal.

Genus *Pseudagrion* Selys

3. *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 strip. 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 : Tadoba rest house at light, 29.9.1994, 1 ♂; Crocodile breeding center, 1.10.1994, 1 ♂; Kalaamba, 3.10.1994, 1 ♂; 3 Kms. South-West of Tadoba, 7.10.1994, 1 ♂; 1 ♀; Ambathira, 11.12.1996, 1 ♀; Tadoba lake, 12.12.1996, 1 ♂; coll. R.M.Sharma; Telia dam, 25.10.1997, 1 ♂ coll. A.S. Mahabal; Botezari, 20.9.1998, 1 ♂, 1 ♀; Kolsa lake, 21.9.1998, 2 ♀, 1 ♂, Coll. P.P. Kulkarni; Telia dam-Moharli, 21.3.1999, 1 ♂, Coll. R.M. Sharma; Kasarbodi, Compartment No. 313, Kolsa, 18.4.2000, 1 ♀, coll. P.P. Kulkarni.

Distribution : Throughout continental India, *Elsewhere* : Myanmar, Nepal and Sri Lanka.

Remarks : Common species in India, found on permanent and temporary water bodies. Rare in hill streams.

4. *Pseudagrion rubriceps rubriceps* Selys

1876. *Pseudagrion rubriceps* Selys, *Bull. Acad. Belg.* (2) 42 : 510.

1933. *Pseudagrion rubriceps* Fraser, *Fauna Brit. India*, 1 : 296-299.

1988. *Pseudagrion rubriceps* Prasad and Ghosh, *Rec. zool. Surv India*, 85(2) : 201.

1995. *Pseudagrion rubriceps rubriceps*, Prasad and Varshney, *Oriental Ins.* 29 : 389.

Diagnostic characters : Head : Labium citron yellow; labrum, bases of mandibles, genae, clypeus and frons bright orange; vertex and occiput dark olivaceous but posterior occiput changing to blue. Prothorax black, marked with pale blue stripes. Thorax olivaceous green, with a golden tinge and the sides azure blue. Legs yellow, femora black on the outer and posterior surface. Abdomen marked broadly with black on dorsum. Female differs in colour and markings from male in Labium, face, vertex and the occiput uniform dark olivaceous. Prothorax and thorax similar to as in male. Abdomen with dorsal markings broad.

Material examined and locality : Kolsa tank, 24.10.1997, 2 ♀♀; Telia dam, 25.10.1997, 1 ♂ Coll. A. S. Mahabal; Kalaamba, 13.4.2000, 1m, Coll. P.P. Kulkarni.

Distribution : Throughout India; *Elsewhere* : Nepal, Malaysia, Myanmar, Formosa, Taiwan.

5. *Pseudagrion spencei* Fraser

1922. *Pseudagrion spencei* Fraser, *Mem. Dept. Agric. India (Ent.)*; 7(7) : 47-48.

1923. *Pseudagrion spencei*, Fraser, *J. Bombay nat. Hist. Society*, 29 : 755-759.

1987. *Pseudagrion spencei*, Prasad, et al. *Bull. zool. Surv. India*, 8(1-3) : 317-318.

Diagnostic characters : Head : Labium white : labrum, bases of mandibles, genae, clypeus, frons, basal joints of antennae and the vertex as far as the anterior ocellus pale greenish blue, rest of head black. Prothorax black on dorsum, with small geminate spot on the mid dorsum. Thorax pale azure blue, with the mid dorsum broadly black. Legs pale, femora rather broadly black on the exterior surface. Wings hyaline, pterostigma very narrow. Abdomen azure blue, marked with black. Female differs from male mainly in Labrum, bases of mandibles and genae pale ochreous, rest of head olivaceous, tinged with ochreous. Prothorax pale ochreous or greenish blue. Thorax pale bluish green, wings and legs similar to male. Abdomen ochreous with black markings.

Material examined and Locality : Backwater of Telia dam, Near Mohorli, 28.9.1994, 1 ♀; Kalaamba, 3.10.1994, 1 ♂ Coll. R.M. Sharma.

Distribution : India : Asam, Bihar, Chandigarh, Uttar Pradesh, West Bengal.

Remarks : Earlier records show collection of this species from Pune and Wardha from Maharashtra State (Prasad 1996). Mainly found in plains but also recorded from Ootakmund Nilgiris, 7250' and Coorg 4000' elevations.

Subfamily ISCHNURINAE

Genus *Enallagma* Charp, 1840

6. *Enallagma parvum* Selys

1876. *Enallagma parvum* Selys, *Bull. Acad. Belg.*, (2) 41 : 537.

1933. *Enallagma parvum*, Fraser, *Fauna Brit. India*, 1 : 376-378.

Diagnostic characters : Head : Labium white, labrum, bases of mandibles, genae and anteclypeus pale sky blue; vertex & occiput black. Prothorax broadly black on dorsum, the sides pale blue, Thorax black on dorsum laterally pale blue; legs white, spines short 4-5 on hind tibiae. Wings, pterostigma small, less than one cell, blackish in adults. Abdomen pale sky blue. In females ground colour of thorax greenish yellow to yellow abdomen with dorsal strips broader. Heterochrome females also recorded. (Fraser 1933). Female specimens not present in the collection.

Material examined and Locality : Tadoba lake circular route, 27.9.1994, 1 ♂, Karwa-Kolsa Road, 10.12.1996, 1 ♂, 1 ♀, coll. R.M. Sharma; Katezari, 11.4.2000, 1 ♀, Coll. P.P. Kulkarni.

Distribution : Throughout India, *Elsewhere* : Nepal, Myanmar and Sri Lanka.

Remarks : It is a small damselfly, smallest within the genus and is found on waters of weedy tanks, almost throughout the year.

Genus *Ischnura* Charp, 1840

7. *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 : 509.

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

1995. *Ischnura aurora aurora*, Prasad and Varshney, *Oriental Ins.*, 29 : 390.

Diagnostic characters : Head : Labium white; Labrum citron yellow; vertex bronzed black; eyes beautifully olive green, with semi lunar 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 : Tadoba lake circular route, 27.9.1994, 1 ♀; Backwater of Telia dam nears Mohorli, 28.9.1994, 4 ♂♂, 2 ♀♀, Karwa-Kolsa road, and Kolsa reservoir, 10.12.1996, 2 ♂♂, Coll. R. M. Sharma; Pandarpawani talav, 17.1.1997, 1 ♂, 1 ♀, coll. A.S. Mahabal; Katezari, 11.4.2000, 1 ♂; Khatoda gate to Karwa gate road, 12.4.2000, 1 ♀; Kolsa lake, 22. 4. 2000, 1 ♀, coll. P. P. Kulkarni.

Distribution : Throughout India, in Maharashtra Khed, Pune, Buldana, Aurangabad, Melghat tiger reserve, Amravati; *Elsewhere* : 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.

8. *Ischnura senegalensis* (Rambur)

1842. *Agrion senegalensis* Rambur, *Ins. Neurop.*, 276.

1933. *Ischnura senegalensis*, Fraser, *Fauna Brit. India*, 1 : 348-351.

1988 *Ischnura senegalensis*, Prasad & Ghosh, 85(2) : 202.

Diagnostic characters : Head : Labium pale yellow, labrum pale blue, narrowly black along the base. Prothorax black, the anterior collar pale blue, sides pale green; thorax bronzed black on dorsum. Legs black, exterior surfaces of tibiae and tarsi yellow. Wings hyaline, pterostigma of fore-wings very oblique, diamond shaped, black. Abdomen black, marked with yellow and blue. Anal appendages black and yellow. Female : Fraser (1933) described three forms of females with difference in colouration of head, prothorax, thorax and abdomen. All forms having similar wings and pterostigma.

Material examined and locality : Tadoba rest house (At light), 6.12.1996, 1 ♀, Vasant bandhara, 5.12.1996, 1 ♀, Coll. R.M. Sharma, Pandarpawani, 15.9.1998, 1 ♀, Coll. P.P. Kulkarni; Vasant bandhara, 20.3.1999, 1 ♂, 1 ♀; Devzari-Kolsa Road, 27.3.1999, 1 ♀, Coll. R.M. Sharma; Katezari, 21.1.2001, 1 ♂, Coll. S.G. Patil.

Distribution : India : Himachal Pradesh, Manipur, South India, Uttar Pradesh,; Australia, New Guinea, Philippines, Samoa and Sondaic Archipelago.

Genus **Rhodischnura** Laidlaw

9. *Rhodischnura nursei* (Morton)

1907. *Ischnura nursei*, Morton, *Trans. Ent. Soc. Lond.*, 306-307.

1920. *Rhodischnura nursei*, Laidlaw, *Rec. Indian Mus.*, 15 : 171, 177.

1995. *Rhodischnura nursei*, Prasad & Varshney, *Oriental Ins.*, 29 : 391.

Diagnostic characters : The only species of the genus. Head : Labium bright yellow, labrum, bases of mandibles, genae, anteclypeus and frons pale greenish yellow, post clypeus,

vertex and occiput black. Prothorax broadly black on dorsum. Thorax broadly black on dorsum, marked with narrow green antehumeral stripes. Legs pale yellow, with few black spines on the tibiae. Wings hyaline, pterostigma of fore wings diamond shaped. Abdomen segments 1-4 bright crimson, segment 5 and the basal two thirds of 6 citron yellow, segment 7 to 10 and apical third of 6 black. Anal appendages reddish. Heterochromes and isochromes forms are described (Fraser 1933).

Material examined : Tadoba lake circular road, 1 ♂, 27.9. 1994, Coll. R.M. Sharma; Telia dam, 25.10.1997, 1 ♀, Coll. A.S. Mahabal; Kolsa Lake, 21.9.1998, 1 ♀, Coll. P.P. Kulkarni.

Distribution : India : Agra, Bihar, Gujrat, Nagpur, North India, Rajasthan, West Bengal,

Subfamily AGRIOCNEMIDINAE

Genus *Agrioncemis* Selys

10. *Agriocnemis lacteola* Selys

1877. *Agriocnemis lacteola* Selys *Bull. Acad. Belg.*, 2(43) : 144.

1919. *Agriocnemis lacteola*, Laidlaw, *Rec. Indian Mus.*, 15 : 178.

1995. *Agriocnemis lacteola*, Prasad & Varshney, *Oriental Ins.*, 29 : 391.

Diagnostic characters : Head : Labium white, labrum creamy white; vertex and occiput black. Prothorax black on dorsum, palest blue or bluish white on sides; posterior lobe produced at its central part. Thorax black on dorsum as far as lateral as the anterior lateral suture, with two very narrow anterior lateral stripes. Legs white, spines black, few, on the hind tibiae. Wings hyaline, pterostigma pale blue, but with the three fourths black beneath. Abdomen pale blue, almost white on the proximal segments, marked with black. Anal appendages pale blue. Female stouter, with the markings more significant.

Material examined : Vasant Bandhara, 22.3.1999, 1 ♂, Coll. R.M. Shama; Hirdinallah, Compartment No. 313, 212.4. 2000, 2 ♂ ♂, Coll. P.P. Kulkarni.

Distribution : India : Assam, Bihar, Meghalaya, Orissa, Sikkim and West Bengal.

11. *Agriocnemis pygmaea* (Rambur)

1842. *Agrion pygmaea*, Rambur, *Ins. Neurop.*, : 278.

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

1988. *Agriocnemis pygmaea*, Prasad and Ghosh, *Rec. zool. Surv. India.*, 85(2) : 203.

Diagnostic characters : Head : Labium palest yellow, labrum metallic blue, anteclypeus, bases of mandibles, genae and frons pale apple green. Prothorax black on dorsum, anterior lobe and extreme edge of posterior lobe apple green. Thorax black on dorsum, marked with narrow antehumeral apple green stripes. Legs yellow, extensor surface of femora black. Wings hyaline, pterostigma pale yellow. Abdomen segments 1 to 6 pale greenish yellow, terminal segments brick red. Anal appendages brick red. Female more robust than male and is known to exhibit polymorphic forms.

Material examined : Vasant bandhara, 26.9.1994 2 ♂♂; Tadoba rest house (At light), 27.9.1994, 1 ♂, 1 ♀; Kalaamba, 3.10.1994, 1♂, 2 ♀♀; coll. R.M. Sharma; Tadoba tank, 27.2.1995, 4 ♀♀, Coll. R.H. Kamble; Tadoba rest house (At light), 4.12.1996, 2 ♀♀; 5.12.1996, 2 ♀♀; 6.12.1996, 1 ♂; 11.12.1996, 2 ♀♀; Karwa-Kolsa road, 10.12.1996, 1 ♀; Coll. R.M. Sharma; Pandarpawani, 17.10.1997, 1 ♂; Andhari nalla, 28.10.1997, 2 ♀♀; Tadoba rest house (At light), 20.10.1997, 1 ♀ and 22.10.1997, 1 ♀; coll. A.S. Mahabal; Vasant bandhara, 12.9.1998, 1 ♀, coll. P.P. Kulkarni; Kala amba-Bhanuskhindi, 24.3.1999, 1 ♀; Coll. R.M. Sharma; Katezari, 11.4.2000, 1 ♀, coll. P.P. Kulkarni. This species was also collected from many other localities in Tadoba Andhari Tiger reserve.

Distribution : India : Assam, Himachal Pradesh, Chennai, Maharashtra, Malabar, Manipur, Nicobar, Punjab, Rajasthan, Uttar Pradesh, West Bengal; *Elsewhere* : Australia, Myanmar, Sri Lanka, China, Formosa, Java, Malaysia, Manila, North Gunia, Philippines, Singapore and Seynchelles.

Family PLATYCNEMIDIDAE
 Subfamily PLATYCNEMIDINAE
 Genus *Copera* Kirby, 1890
 12. *Copera marginipes* (Rambur)

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

1993. *Copera marginipes*, Fraser, *Fauna Brit, India. Odon.*, 1 : 192-197.

Diagnostic characters : Head : 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 interiors. 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 : Kala-amba, 30.10.1994, 1 ♀; 9.12.1996, 1 ♂; Ambathira, 11.12.1996, 1 ♂; Panchadhara, 20.3.1999, 2 ♂♂, 1 ♀, Coll. R.M. Sharma.

Distribution : India : (Assam, Bihar, Chandigarh, Madhya Pradesh, Maharashtra (Lone, Pune, Khandala, Hingoli, Wardha, Gondhonkher, Buldhana, Melghat Tiger Reserve, Amravati), Rajasthan, South Andaman Islands, West Bengal, Western Ghats & Western Himalaya); *Elsewhere* : Indonesia; Malaysia; Myanmar; Nepal; Sri Lanka and Thailand.

13. *Copera vittata deccanensis* Laidlaw,

1914. *Copera vittata* Laidlaw, *Rec. Indian Mus.*, 8 : 342.

1923. *Copera vittata deccanensis*, Laidlaw, *Rec. Indian Mus.*, 13 : 322.

1995. *Copera vittata deccanensis*, Prasad and Varshney, *Oriental Ins.*, 29 : 393.

Diagnostic characters : Head : Upper lip, genae and anteclypeus greenish white, frons, occiput black, with a broad creamy white transverse band covering ocelli. A pair of linear post ocular lines. Prothorax black above, with lateral yellow marks, bright lemon yellow below. Thorax black dorsally; creamy white antehumeral bands present., sides yellow, mottled with black. Abdomen black, segment 2 with fine longitudinal yellow line dorsally, 9 white above 10 entirely white. Legs lemon yellow. The females resemble male, but dull in colour.

Material examined : 7 Kms. East of Tadoba, 2.10.1994, 1 ♂, Coll. R.M. Sharma.

Distribution : India : Karnataka, Kerala and Tamil Nadu.

Remarks : Prasad (2000) recorded Twelve post nodal nervures in forewings and 10 in hind wings in the specimens collected from Andhra Pradesh.

Family PROTONEURIDAE

Subfamily DISPARONEURINAE

Genus *Disparoneura* Selys 1860

14. *Disparoneura quadrimaculata* (Rambur)

1842. *Argia quadrimaculata*, Ramb. *Ins. Neurop.* : 255.

1859. *Disparoneura quadrimaculata*, Selys, *Bull. Acad. Belg.*, (2) x, 446.

1931. *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 : 494.

Diagnostic characters : Head : 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 with black. Wings hyaline, the fore pair traversed by a broad blackish brown fascia, 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 : Rest house, Tadoba, 13.9.1998, 1 ♂, 1 ♀, Coll. P.P. Kulkarni.

Distribution : India (Central India, Delhi, Uttar Pradesh and Western Ghats).

Remarks : Found in submontane areas. Mostly recorded up to 1,500 elevation.

Superfamily LESTOIDEA
 Family LESTIDAE
 Subfamily LESTINAE
 Genus *Lestes* Leach, 1815

15. *Lestes viridulus* Rambur

1842. *Lestes viridula* Rambur, *Hist. Nat. Ins. Neurop.*, 252-253.

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

Diagnostic characters : Head : 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 : Panchadhara, 5.10.1994, 1 ♀, Coll. R.M. Sharma; Vasant Bandhara, 25.2.1995, 1 ♂, 3 ♀♀; Damni-Pandarpawani road, Compartment No. 94, 9.3.1995, 1 ♂, coll. R.H. Kamble; Ambathira, 2.4.1996, 2 ♂♂, 2 ♀♀; Kala amba, 3.4.1996, 3 ♂♂, 3 ♀♀, Coll. P. P. Kulkarni; Katezari, 19.10.1997, 2 ♀♀, Coll. A.S., Mahabal, Katezaari, 13.9.1998, 1 ♀, Coll. P.P. Kulkarni; Katezari-Ambat hira, 23.3.1999, 1 ♀, Coll. R.M. Sharma; Katezari, 11.4.2000, 3 ♂♂, Coll. P. P. Kulkarni; Telia dam, 22.1.2001, 1 ♂, Coll. S.G. Patil; This species was also collected from many other localities in Tadoba Andhari Tiger reserve.

Distribution : Throughout India and Thailand.

Remarks : Common in dry season and usually among dry long grasses. Recorded from Amil Chenchni and Dist. Satara from Maharashtra state.

Suborder ANISOPTERA
 Superfamily AESHNOIDEA
 Family GOMPHIDAE
 Subfamily ONYCHOGOMPHINAE
 Genus *Paragomphus* Cowley, 1934.

16. *Paragomphus lineatus* (Selys)

1850. *Gomphus lineatus* Selys, *Rev. Odon.*, : 386.

1854. *Onychogomphus lineatus*, Selys, *Bull. Acad. Belg.* 21 (2) : 36.

1924. *Mesogomphus lineatus*, Fraser, *Rec. Indian. Mus.*, 26 : 424, 477.

1995. *Paragomphus lineatus*, Prasad & Varshney, *Oriental Ins.*, 29 : 402.

Diagnostic characters : Head : 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 : Botezari, 20.9.1998, 1 ♂, Coll. P.P. Kulkarni.

Distribution : India : West Bengal, Dehradun (Uttar Pradesh), Poona Khandala, Melghat Tiger Reserve, Amravti (Maharashtra), Madras, Palaghat, Trichinopally, Coorg and the Nilgiris.

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

17. *Ictinogomphus rapax* (Rambur)

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

1934. *Ictinus rapax*, Feaser, *Fauna Brit. India*, 2 : 373-376.

1988. *Ictinogomphus rapax*, Prasad & Ghosh, *Rec. zool.Surv.India*, 85(2) : 204.

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

Diagnostic characters : Head : Labium yellow, bordered with brownish; labrum yellow, with heavy black border, face and frons greenish-yellow, ante clypeus yellow, post clypeus black. Thorax black, marked with yellow or greenish yellow, laterally yellowish green. Wings clear, slightly enfolded in the mature specimens. Pterostigma long, covering 5-6 cells, black. Legs black, coxae and trochanter yellow and a yellow stripe on the flexar surface of anterior femora. Abdomen black, marked with bright yellow. Anal appendages black. Female very similar to male.

Material examined : Tadoba rest house, 3.10.1994, 1 ♂, 2 ♀♀; 3 Kms. South-West of Tadoba, 7.10.1994, 1 ♂, Coll. R.M. Sharma; Jamunbodi, 16.8.1995, 1 ♂, Telia dam, 20.8.1995, 1 ♂; Jamuni talav, 23.8.1995, 1 ♀, coll. S.G. Patil; Rest house No. 2, 30.3.1996, 2 ♀♀, Coll. P.P. Kulkarni; Katezari, 17.5.1997, 1 ♀, Coll. R.H. Kamble; Telia dam, 16.9.1998, 5 ♂♂, 1 ♀, Shivanzari nalla, 19.9.1998, 1 ♂, 1 ♀; Botezari, 20.9.1998, 1 ♀, Coll. P.P. Kulkarni; Katezari-Ambathira, 23.3.1999, 1 ♂; Shivanzari nalla-Kolsa, 25.3.1999, 1 ♂; Jamni tank, 28.3.1999, 1 ♀, Coll. R.M. Sharma; Kolsa lake, 2.4.2000, 1 ♀, Coll. P.P. Kulkarni.

Distribution : Throughout India. *Elsewhere* : Mynamar, Sri Lanka and Malaysia except in desert area.

Remarks : Prasad (1995) recorded this species from Pune and Prasad and Kulkarni (2000) record this species from Ujani Wetland Dist. Solapur, Maharashtra.

Family AESHNIDAE
 Subfamily AESHNINAE
 Genus *Gynacantha* Rambur, 1842

18. *Gynacantha bayadera* Selys

1851. *Gynacantha bayadera*, Selys *Ann. Mus. Civ. Stor (x) Nat. Giacomo Doria, Genova*, 30 : 47.
 1925. *Gynacantha lytoni*, Fraser, *J Darjeeling Nat. Hist. Soc.*, 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 indential to males in colouration.

Material examined and locality : Near Tadoba Rest house, 29.9.1994, 2 ♂♂, 1 ♀; Tadoba lake circular route, 27.9.1994, 1 ♀, Coll. R.M. Sharma; Pandarpawani Talav, 17.10.1997, 1 ♂, Coll. A.S. Mahabal.

Distribution : India : Karnataka, Maharashtra, Meghalaya, Orissa, Sikkim, and West Bengal; *Elsewhere* : Myanmar, Sikkim, Malaysia and Indo China.

Superfamily LIBELLULOIDEA
 Family LIBELLULIDAE
 Subfamily BRACHYDIPLACTINAE
 Genus *Brachydiplax* Brauer, 1868

19. *Brachydiplax sorbina* (Rambur)

1770. *Libellula sorbina* Rambur, *Ins. Neurop.*, : 114.
 1935. *Brachydiplax sorbina*, Fraser, *Fauna Brit. India*, 3 : 325-327.
 1988. *Brachydiplax sorbina*, Prasad & Ghosh, *Rec. zool. Surv. India*, 85(2) : 206-207.

Diagnostic characters : Head : Labium yellow to pale brown, very narrowly black at borders; labrum bright yellow, bordered with black, face and frons creamy white, occiput dark brown with a bright yellow geminate spot behind. Prothorax dark brown. Thorax olivaceous brown to greenish yellow, with black or metallic markings on dorsum. Legs black, anterior femora yellow, three stripes on inner side. Wings hyaline un coloured, pterostigma pale yellow between black nervures. Abdomen black, pruinosed blue in old adults, but marked with yellow in sub adults. Anal appendages black. Female similar to teneral male but ground colour of the thorax brighter yellow and the metallic stripes broad. Wings similar to males.

Material examined : Crocodile breeding center, 1.10.1994, 1 ♂, Coll. R.M. Sharma; Tadoba rest house (At light), 20.10.1997, 1 ♂, Coll. A.S. Mahabal; Kasarbodi, compartment No. 313, Kolsa, 18.4.2000, 1 ♂, Coll. P.P. Kulkarni.

Distribution : India : Assam, Himachal Pradesh, Maharashtra, Punjab, Uttar Pradesh, Travancore, Western coast of India, West Bengal; *Elsewhere* : Myanmar, and Sri Lanka.

Remarks : Found along the water bodies and ponds, specimens resting on twigs. This species is smaller than other species of the genus.

Subfamily LIBELLULINAE

Genus *Lathrecista* Kirby, 1889

20. *Lathrecista asiatica asiatica* (Fabr.)

1798. *Lathrecista asiatica asiatica* Fabricius, *Ent. Syst. Suppl.* : 283.

1867. *Libellula pectoralis*, Brauer, *Verh. zool., bot., Ges. Wien*, 17 : 19.

1878. *Agrionoptera pectoralis*, Selys, *Mitt. Mus. Dresden*, : 294.

1909. *Lathrecista asiatica asiatica*, Ris. *Cat. Coll. Selys, fasc*, 9 : 129-132.

1995. *Lathrecista asiatica asiatica*, Prasad & Varshney, *Oriental Ins.*, 29 : 408.

Diagnostic characters : Head : Labrum pale ochreous, with borders narrowly black, face, lower border of frons and sides broadly creamy yellow, upper surface of frons, vesicle and occiput black. Prothorax blackish brown with anterior lobe yellowish, Thorax dark coppery brown, two yellow spots on the antealar sinus. Laterally two black Y shaped markings with a narrow black stripe between, the anterior Y forming the posterior border of humeral yellow stripe, the posterior Y situated on the lateral suture and metepimeron. Legs dark reddish brown to black. Wings hyaline with apices usually more or less enfumed. Abdomen, segments 1 and 2 with a broad lateral stripe and a fine mid-dorsal one which, apical to jugal suture is bisected by the black mid dorsal carina. All sutures on segment 2 finely black. Segments 3-8 bright crimson red, with apical sutures finely black. Segments 9 and 10 black. Anal appendages black. Female resembles male except the sexual details.

Material examined : Vasant bandhara road, 11.8.1995, 1 ♂, Coll. S.G. Patil.

Distribution : South Andaman Is., Maharashtra, West Bengal, Eastern and Western India, *Elsewhere* : Indonesia, New Guinea, Malabar, Philippines, Somoa and Sondaic Archipelago.

Genus *Orthetrum* Newman, 1833

21. *Orthetrum luzonicum* (Brauer)

1868. *Libellula luzonica* BRAUER, *Verch. Zool.-bot. Ges. Wien*, 18 : 169,732.

1936. *Orthetrum chryseostigma luzonicum*, Fraser, *Fauna Brit. India.*, 3 : 298-300.

1976. *Orthetrum chryseostigma luzonicum*, Singh & Prasad, *Rec. zool. Surv. India*, 70 : 21-38.

1995. *Orthetrum luzonicum*, Prasad & Varshney, *Oriental Ins.*, 29 : 409.

Diagnostic characters : Head : Labium and labrum palest yellow, vesicle and occiput black, eyes during life bluish-green capped with violet. prothorax blackish brown, thorax pale olivaceous green on mid dorsum, with some clouding of brownish along the length of mid-dorsal carina. Legs blackish brown, anterior pair of femora bright yellow on extensor

surface. Wings hyaline, pterostigma bright ochreous bordered with black, covering about two cells. Abdomen dorsoventrally dilated at base, then narrow and tapered, pruinosed pale azure-blue except at sides of segment 1, 2 and base of 3, which are bright yellow, all sutures finely black. Anal appendages blackish brown. Female similar to males in colour and markings but usually paler and the dark markings are less extensive.

Material examined : Tadoba-Chimur road, 25.9.1994, 1 ♂, Coll. R.M. Sharma; Botezari, 20.9.1998, 1 ♀; Kolsa lake, 21.9.1998, 1 ♂, Coll. P.P. Kulkarni.

Distribution : Throughout India.

Remarks : Singh and Prasad (1976) noted some colour difference than described by Fraser (1936).

22. *Orthetrum pruinatum neglectum* (Rambur)

1842. *Libellula neglecta*, Rambur, *Ins. Neurop.*, 86.

1936. *Orthetrum pruinatum neglectum*, Fraser, *Fauna Brit. India*, 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 ochereus with sutures and borders all finely black, anal appendages dark ochereus and basal markings in wings pale and almost obsolete.

Material examined and Locality : Tadoba circular road, 25.9.1994, 1 ♂, Coll. R.M. Sharma; Vikas bandhara, 30.3.1996, 1 ♂, 2 ♀♀, Coll. P.P. Kulkarni; Panchdhara, 3.12.1996, 1 ♂; Ambathira, 11.12.1996, 1 ♂, Coll. R.M. Sharma; Katezari, 19.10.1997, 1 ♂; Ambathira, 21.10.1997, 1 ♂, Coll. A.S. Mahabal; Kalaamba-Bhanuskhindi Road, 24.3.1999, 1 ♂, 1 ♀; Jamuni tank, 28.3.1999, 1 ♂, Coll. R.M. Sharma; Kasarbodi, Compartment No. 313, Kolsa, 18.4.2000, 2 ♂♂, Coll. P. P. Kulkarni.

Distribution : India : Himachal Pradesh,, Bilaspur, Kangra, Kinnaur, Kulu, Srimaur, Solan, Uttar Pradesh Chamoli, Dehradun, Nainital, Pauri and Tehri Garhwal, Uttarkashi; Bihar & Dhanbad; *Elsewhere* : 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.

23. *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 : Head : 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 segments 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 : 3 Kms. South-West Tadoba, 7.10.1994, 1 ♂, Coll. R.M. Sharma; Rest house No. 2, Tadoba, 30.3.1996, 1 ♀; Kalaamba, 3.4.1996, 2 ♂♂, Coll. P.P. Kulkarni; Panchadhara, 3.12.1996, 2 ♂♂, 1 ♀, Coll. R.M. Sharma; Kolsa lake, 24.10.1997, 1 ♂; Telia dam, 25.10.1997, 1 ♂, Coll. A.S. Mahabal; Botezari, 20.9.1998, 2 ♀♀; Pangli gate, 18.9.1998, 1 ♀, Coll. P.P. Kulkarni; Rest house Tadoba (At light), 19.3.1999, 1 ♀; 20.3.1999, 1 ♀; 22.3.1999, 1 ♀; 23.3.1999, 1 ♀, Coll. R.M. Sharma; Chichghat, 14.4.2000, 1 ♀; Hirdinalla, 21.4.2000, 1 ♂, Coll. P.P. Kulkarni; Kolsa lake, 20.1.2001, 2 ♂♂; Katezari, 21.1.2001, 1 ♂, Coll. S.G. Patil. This species has also been collected from many other localities from Tadoba Andhari National Park.

Distribution : India : Bilaspur, Kangra, Sirmaur, Solan, Una, Dehra Dun, Nainital, Pauri Garhwal Bihar Singhbhum, Dhanbad, Melghat Tiger Reserve, Amravati, Maharashtra; *Elsewhere* : Somalia (Somali Land); Iraq; Iran; Nepal; Sri Lanka; Myanmar; 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.

24. *Orthetrum taeniolatum* (Schn.)

1842. *Libellula neglecta*, Rambur, *Ins. Neusrop.*, 86.

1936. *Orthetrum taeniolatum*, Freser, *Fauna Brit. India*, 3 : 296-298.

Diagnostic characters : Head : 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 orchrous, between thick black nervures nodal index : $\frac{9-12}{8-9}$ $\frac{12-8}{8-9}$ Abdomen pulverulent blue, anal appendages black.

Material examined and locality : Backwater of Telia dam near Moharli, 28.9.1994, 1 ♂; Streams on Palasgaon-Karwa Road, 1 ♀, 4.10.9994, Coll. R.M. Sharma; Kolsa lake, 21.9.1998, 2 ♂♂; Chichghat, 14.4.2000, 1 ♂, Coll. P.P. Kulkarni.

Distribution : Throughout India; *Elsewhere* : Nepal and countries bordering Mediterranean Sea.

Genus *Potamarcha* Karsch, 189025. *Potamarcha congener* (Rambur)

1842. *Libellula obscura* Rambur, *Ins. Neurop* : 64.
 1842. *Libellula congener*, Rambur, *Ins. Neurop* : 70.
 1890. *Potamarcha obscura*, Karsch, *Ent. Zeit.*, : 33 : 371.
 1891. *Potamarcha congener*, Selys, *Ann. 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 hindwing 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 : Pandharpawani, 12.8.1995, 1 ♂; Katezari, 12.8.1995, 3 ♂♂, Coll. S.G. Patil; Pandarpawani, 15.9.1998, 1 ♂, Coll. P.P. Kulkarni; Jamuni Tank, 28.3.1999, 1 ♂, 1 ♀, Coll. R.M. Sharma.

Distribution : India : Kangra, Dehradun, Bihar (Singhbhum, Dhanbad), Madhya Pradesh, West Bengal, Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra); *Elsewhere* : Nepal, Myanmar; Sri Lanka; Philippines, Taiwan; Malaya Archipelago, Indonesia (Java, Sumatra); Papua (New Guinea) and North Australia.

Remarks : Common Species in India.

Subfamily SYMPETRINAE

Genus *Brachythemis* Brauer, 186826. *Brachythemis contaminata* (Fabr.)

1793. *Libellula contaminata*, Fabricius, *Ent. Syst.*, 2 : 382.
 1936. *Brachythemis contaminata*, Fraser, *Fauna Brit. India*, 3 : 365-366.

Diagnostic characters : Head : 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 : Tadoba circular road, 25.9.1994, 1 ♀; 27.9.1994, 1 ♂, 2 ♀♀ Coll. R.M. Sharma; Bidota gate, 11.3.1995, 1 ♀, Coll. R.H. Kamble; Telia nalla, 13.8.1995, 2 ♂♂, 1 ♀; Khatoda, 18.8.1995, 1 ♂; Kolsa, 22.8.1995, 1 ♀, Coll. S.G. Patil; Telia dam, 25.10.1997, 1 ♀; Karwa tank, 26.10.1997, 1 ♂, 1 ♀; Coll. A.S. Mahabal; Pandharpawani, 15.9.1998, 1 ♂; Kolsa lake, 21.9.1998, 2 ♂♂, 2 ♀♀; Coll. P.P. Kulkarni; Resthouse Tadoba (At light), 19.3.1999; kalaamba-Bhanuskhindi, 24.3.1999, 2 ♂♂, Coll. R.M. Sharma; Chichghat, 14.4.2000, 1 ♀, Coll. P.P. Kulkarni. This species has also been collected from different localities from Tadoba Andhari Tiger Reserve.

Distribution : India : Himachal Pradesh : Bilaspur, Kangra, Sirmaur, Una, Uttar Pradesh : Dehradun, Nainital, Parui, Garhwal; Madhya Pradesh; Bihar : Dhanbad; West Bengal and East Himalaya, Maharashtra : Melghat Tiger Reserve, Amravati, Osmanabad and Pune. (Khandala, Khed and Lonavala); *Elsewhere* : 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.

Genus *Acisoma* Rambur, 1842

27. *Acisoma panorpoides panorpoides* (Rambur)

1842. *Acisoma panorpoides* Rambur, *Ins. Neurop.*, : 28.

1936. *Acisoma panorpoides panorpoides*, Fraser, *Fauna Brit. India.*, 3 : 330-331.

1996. *Acisoma panorpoides panorpoides*, Prasad, *Rec. zool. Surv. India*, 95 (3-4) : 316.

Diagnostic characters : Head : Labium creamy white, labrum pale yellow, face and frons palest azure blue, the later bordered with black at base, vesicle and occiput black. Prothorax black, with the anterior border of anterior lobe, and posterior lobe, mid dorsum of middle lobe of posterior lobe pale yellow. Thorax azure blue marbled with black, which colour forms an intricate pattern of hieroglyphics on dorsum and sides, sutures all narrowly black. Abdomen azure blue, marked with black, segments 6 and 7 black with large spot of the ground colour on each side, segments 8 to 10 entirely black. Anal appendages; superiors very long, acute at apex and spined beneath; inferiors very broadly triangular, white at middle, bordered with black. Female entirely similar to male.

Material examined and locality : Vasant Bandhara, 18.10.1997, 2 ♂♂, 1 ♀, Coll. A.S. Mahabal; Vasant Bandhara, 12.9.1998, 1 ♂, Coll. P.P. Kulkarni; Telia dam-Moharli, 21.3.1999, 1 ♀; Vasant Bandhara, 2.3.1999, 3 ♂♂, 1 ♀; Kala amba-Bhanuskhindi, 24.3.1999, 1 ♂, 2 ♀♀, Coll. R. M. Sharma; Hirdi nalla, compartment No. 313, 21.4.2000, 2 ♂♂, 2 ♀♀, Coll. P.P. Kulkarni.

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; *Elsewhere* : China; Indonesia; Japan; Malayan Archipelago; Myanmar; Nepal; Philippines; Singapore, Sri Lanka and Thailand.

Genus *Bradinopyga* Kirby, 1893

28. *Bradinopyga geminata* (Rambur)

1842. *Libellula geminata* Rambur, *Ins. Neurop.* : 90.

1936. *Bradinopyga geminata*, Fraser, *Fauna Brit. India*, 3 : 349-350.

Diagnostic characters : Head : 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 center, 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 : Wagh zari, 20.5.1997, 1 ♂, Coll. R.H. Kamble.

Distribution : India : Uttar Pradesh, Dehradun, Nainital, Delhi, Madhya Pradesh, Bihar, Dhanbad, West Bengal, Eastern Himalaya, Maharashtra, Melghat Tiger Reseserve, Amravati, Satara (Ambenali); Peninsular India and Sri Lanka.

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, plastered March to October.

Genus *Crocothemis* Brauer, 1868

29. *Crocothemis servilia servilia* (Drury)

1770. *Libellula servilia*, Drury, *Ill. Ex. Ins.*, 1 : 16.

1936. *Cocothemis servilia servilia*, Fraser, *Fauna Brit. India*, 3 : 345-347.

Diagnostic characters : Head : 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 nerve 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 : Chimur road, Tadoba, 25.9.1994, 1 ♂; Khatoda Palasgaon Road, 11 Kms. from Tadoba, 30.9.1994, 1 ♂, Coll. R. M. Sharma; Kala amba, 3.4.1996, 1 ♂, 1 ♀; Telia dam, 7.4.1994, 1 ♀, Coll. P.P. Kulkarni; 5.12. 1996, 1 ♀; Kala amba-Bhanuskhindi, 9.12.1996, 1 ♀, Coll. R.M. Sharma; Kala amba, 20.10.1997; 2 ♂♂, 1 ♀, Kolsa lake, 24.10.1997, 2 ♂♂, Coll. A.S. Mahabal; Vasant bandhara; Kolsa lake, 21.9.1998, 1 ♂, 1 ♀, Coll. R.M.

Sharma; Katezari-Ambathira, 23.3.1999, 2 ♂♂; Deozari-Kolsa Road, 27.3.1999, Coll. R.M. Sharma; Hirdi nalla, 13.4.2000, 3 ♂♂; Chichghat, 14.4.2000, 2 ♀♀, 1 ♂, Coll. P.P. Kulkarni. This species was also collected from other localities in the Tiger Reserve.

Distribution : India : Himachal Pradesh : Kangra, Uttar Pradesh : Chamoli, Dehradun, Nainital, Pauri Garhwal, Madhya Pradesh, Bihar : Singhbhum, Dhanbad, West Bengal; Maharashtra : Buldana (Gondhonkher), Colaba (Matheran), Osmanabad (Upla), Pune (Khed and Lone), Melghat Tiger Reserve, Amravati 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. General males and females are similar in colour, pale straw-yellow, differ from mature males, may confuse identity of the species.

Genus **DIPLACODES** KIRBY 1889

30. *Diplacodes nebulosa* (Fabr.)

1793. *Libellula nebulosa* Fabricius, *Ent. Syst.*, **2** : 379.

1933. *Diplocodes nebulosa*, Fraser, *Fauna Brit., India.*, **3** : 335-336.

Diagnostic characters : Head : Labium blackish brown, labrum and face brown, marked with a yellow spot on each side of post clypeus and also on base of mandibles, frons and vesicle and upper surface of clypeus and also on base of mandibles. Prothorax, thorax, abdomen and legs entirely black. Sub adults and females with yellow markings on sides of thorax and abdomen. Wings with all apices blackish brown up to the proximal end of pterostigma.

Material examined and locality : Tadoba Tank, 27.2.1995, 1 ♂, Coll. R.H. Kamble; Karwa-Kolsa Road, 10.12.1996, 1 ♂, Coll. R.M. Sharma; Kolsa lake, 24.10.1997, 2 ♂♂, Coll. A.S. Mahabal; Kolsa lake, 21.9.1998, 2 ♂; Hirda nalla, 21.4.2000, 1 ♂, Coll. P.P. Kulkarni.

Distribution : Assam, Bihar, Himachal Pradesh, Madhya Pradesh, Punjab, Rajasthan, Uttar Pradesh, West Bengal; *Elsewhere* : Myanmar, Sri Lanka, East of China, Java, Formosa, Philippines, and Sumatra.

Remarks : Common species and occurs throughout the year.

31. *Diplacodes trivialis* (Rambur)

1842. *Libellula trivialis*, Rambur, *Ins. Neurop.*; 115.

1936 *Diplacodes trivialis*, Fraser, *Fauna Brit. India*, **3** : 336-338.

Diagnostic characters : Head : 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 : Tadoba-Chimur Road, 25.9.1994, 2 ♂♂; Pandarpaoni stream, Khatoda Road, Palasgaon, 3.9.1994, 2 ♀♀, Coll. R.M. Sharma; Jamunwadi, 16.8.1995, 1 ♀; Kolsa, 22.8.1995, 1m, Coll. S.G. Patil; Katezari, 31.3.1996, 1 ♀; Telia dam, 7.4.1996, 1 ♀, Coll. P.P. Kulkarni; Katezari, 17.5.1997,

2 ♂♂, 2 ♀♀; Telia dam, 18.5.1997, 4 ♂♂, 1 ♀, Coll. R.H. Kamble; Kolsa tank, 24.10.1997, 1 ♂; Karwa tank, 26.10.1997, 1 ♂, Coll. A.S. Mahabal; Vasant bandhara, 12.9.1998, 2 ♂♂, 1 ♀; Kolsa lake, 21.9.1998, 2 ♂♂, Coll. P.P. Kulkarni; Panchadhara nalla, 20.3.1999, 1 ♂, Katezari-Ambathira, 23.3.1999, 1 ♀, Coll. R.M. Sharma; Pangali Talav, 25.1.2001, 3 ♂♂, 3 ♀♀; Kolsa Talav, 26.1.2001, 1 ♂, 3 ♀♀, Coll. S.G. Patil. In addition to the collection mentioned here, this species has been collected from almost all the localities in Tadoba Andhari Tiger Reserve.

Distribution : Throughout India; *Elsewhere* : Nepal; Myanmar; Sri Lanka; Thailand; W. Malaysia (Malacca) and Indonesia (Sumatra).

Remarks : Common species found throughout the year near water bodies. Also found in grassy vegetation & agricultural fields.

Genus **NEUROTHEMIS BRAUER 1867**

32. *Neurothemis intermedia intermedia* (Rambur)

1842. *Libellula intermedia*, Rambur, *Ins. Neurop* : 91.

1936. *Neurothemis intermedia intermedia*, Fraser, *Fauna Brit. India*, 3 : 357-358.

Diagnostic characters : Head : 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. Abdomen bright reddish-ochreous 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 : Tadoba-Chimur Road, 25.9.1994, 1 ♂, Ramdegghi, 7.12.1996, 1 ♂, 1 ♀; Pandhar pawani, 8.12.1996, 2 ♂♂; Kala amba-Bhanuskhindi, 9.12.1996, 2 ♂♂; Karwa-Kolsa road, 10.12.1996, 1 ♂, 2 ♀♀, Coll. R.M. Sharma; Andhari river, 23.1.2001, 1 ♂, 1 ♀, Coll. S.G. Patil.

Distribution : India : Himachal Pradesh, Kangra, Uttar Pradesh : Dehra Dun; Madhya Pradesh, Bihar, West Bengal, Maharashtra : Bombay, Deccan, Melghat Tiger Reserve, Amravati; Nepal; Myanmar; Sri Lanka; W. Malaysia (Malacca) and China.

Remarks : Pattern of marking on wings differentiates this species from all others within the genus.

33. *Neurothemis tullia tullia* (Drury)

1773. *Libellula tullia* Drury, *III Exot. Ins.*, 2 : 85.

1936. *Neurothemis tullia tullia*, Fraser, *Fauna Brit. India*, 3 : 360-362.

1989. *Neurothemis tullia tullia*, Prasad & Ghosh, *Rec.zool.Surv.India*, 85(2) : 209.

1995. *Neurothemis tullia tullia*, Prasad & Varshney, *Oriental Ins.*, 29 : 411.

Diagnostic characters : Head : 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. White stripe on segments 1 to 8, broad at base of segments and tapering to apical end. Legs black, tibiae yellow on exterior surface. Wings hyaline for apical half, opaque steely blue black for basal half, this area runs in a convex curve up to one cell distal to node in fore wing and two or three cells distal to node in hind wings, this area followed by the broad white band in both the wings, broad at costal border and narrow to the posterior border. Pterostigma dull, ochreous, bordered with black. Female differs markedly from the male in both, body colouring and marking of wings.

Material examined and locality : Kolsa lake, 24.10.1997, 1 ♂, Coll. A.S. Mahabal; Kolsa lake, 21.9.1998, 1 ♀, Coll. P. P. Kulkarni; Teliya dam-Mohorli, 21.3.1999, 2 ♂♂, Kotezari-Ambathira, 23.3.1997, 1 ♂, Coll. R.M. Sharma; Kasarbodi in Compartment No. 313, 18.4.2000, 2 ♂♂, Hirdi nalla, 21.4.2000, 1 ♀, Coll. P.P. Kulkarni.

Distribution : India : Bihar, Mumbai, Himachal Pradesh, Maharashtra, Madhya Pradesh, Peninsular India, Punjab, Uttar Pradesh, West Cost of India, West Bengal. *Elsewhere* : Myanmar, Sri Lanka, Hongcong, Indo China and Malacca.

Remarks : Andromorphic females of this species are known to occur (Kulkarni *et al.*, 2000).

Subfamily TRITHEMISTINAE

Genus *Trithemis* Brauer, 1868.

34. *Trithemis aurora* (Burmeister).

1839. *Libellula aurora* Burmeister, *Handb Ent.* 2 : 859.

1936. *Trithemis aurora*, Fraser, *Fauna Brit. India*, 3 : 383-385.

Diagnostic characters : Head : Labium dark ochreous, labrum dark brown, face and front of frons ochreous, changing to reddish above; eyes crimson above, brown laterally changing to lilaceous 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 : Tadoba-Chimur Road, 25.9.1994, 1 ♂, Katezari-Wagnalla, 29.9.1994, 1 ♂; Coll. R.M. Sharma; Tadoba tank, 27.2.1995, 1 ♂; Kala amba, 1.3.1995, 1 ♀, Coll. R.H. Kamble; Katezari, 12.8.1995, 3 ♂♂, Ambawadi, 19.8.1995, 2 ♂♂, Coll. S.G. Patil; Vasant bandhara 5.12.1996, 2 ♂♂, 1 ♀, Coll. R.M. Sharma; Pandarpawoni, 17.10.1997, 1 ♀; Andhari nalla, 23.10.1997, 2 ♂♂, Coll. A.S. Mahabal; Shivanzari nalla, 19.9.1998, 1 ♀; Kolsa lake, 21.9.1998, 1 ♀, Coll. P.P. Kulkarni; Kala amba-Bhanuskhindi, 24.3.1999, 1 ♂, Coll. R.M. Sharma; Kala amba, 13.4.2000, 1 ♀, Coll. P.P. Kulkarni and also from many localities from the tiger reserve.

Distribution : Throughout India; *Elsewhere* : 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 (Buldana, Osmanabad, Satara, Melghat Tiger Reserve, Amravati and Wardha).

35. *Trithemis festiva* (Rambur)

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

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

Diagnostic characters : Head : Labium blackish brown, labrum, dark olivaceous; frons, dark brown in front; metallic 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 : Katezari-Wagnalla, 29.9.1994, 1 ♂; Pandarpawoni stream on Tadoba-Moharli road, 5.10.1994, 1 ♂, Coll. R.M. Sharma; Katezari, 12.8.1995, 1 ♂; Jamunwadi, 16.8.1995, 2 ♂♂; Coll. S.G. Patil; Kalaamba, Bhanuskhindi, 9.12.1996, 1 ♂, Coll. R.M. Sharma; Pangli gate, 18.9.1998, 1 ♂, Shivanzari nalla, 19.9.1998, 2 ♂♂, Coll. P.P. Kulkarni; Kalaamba-Bhanuskhindi, 24.3.1999, 1 ♂, Coll. R.M. Sharma; Kasarbodi in compartment No. 313, 18.4.2000, 2 ♂♂, Coll. P.P. Kulkarni. Only male specimens of this species could be collected.

Distribution : India : Himachal Pradesh : Hamirpur, Kangra, Sirmaur, Solan; Uttar Pradesh : Chamoli, Dehradun, Nainital, Pauri and Tehri Garhwal, Uttar Kashi; West Bengal; Assam; Maharashtra : Khed, Pune, Matheran, Colba, Poladpur, Lingmal falls, Mahabaleshwar, Bordharan and Wanarvira Wardha, Rajpur, Gondhonkher, Buldhana and Melghat Tiger Reserve, Amravati; 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.

36. *Triathemis pallidinervis* (Kirby)

1889. *Sympetrum pallidinervis* Kirby *Trans. zool. Soc. India.*, **12** : 327.

1937. *Trithemis pallidinervis* Fraser, *Fauna Brit. India*, **3** : 389-391.

1985. *Trithemis pallidinervis* Prasad & Ghosh, *Rec. zool. Surv. India*, **85(2)** : 209

Diagnostic characters : Head : Labium pale yellow, labrum black, with two large basal yellow spots; clypeus and front of frons yellow, upper surface of frons and vesicle metallic purple. Prothorax dull brown or black, with the anterior border yellow and a large medial and lateral spot on middle lobe. Thorax olivaceous brown on dorsum and upper parts of sides, dorsum thickly coated with grayish hairs. Legs black, anterior pair of femora bright yellow on basal half. Wings hyaline, with reddish reticulation and a bright amber yellow basal marking at extreme base in the forewing. Abdomen long slender, black, marked with bright yellow. Anal appendages yellow at base, black for apical half, superiors with a row of robust spines on ventral border. Female resembles male in most particulars.

Material examined and locality : Karwa-Kolsa road, 10.12.1996, 1 ♀, Coll. R.M. Sharma; Telia dam, 25.10.1997, 2 ♂♂, Coll. A.S. Mahabal; Kolsa lake, 21.9.1998, 1 ♂, Coll. P.P. Kulkarni; Telia dam-Moharli, 21.3.1999, 2 ♀♀; Pandarpawoni, 26.3.1999, 4 ♀♀, Coll. R.M. Sharma.

Distribution : India : Assam, Bihar, Himachal Pradesh, Punjab, Uttar Pradesh, West Bengal; *Elsewhere* : Myanmar, Sri Lanka, Formosa and Philippines.

Remarks : A Common species along stagnant water, some times observed near sea shore either on wings or resting on twigs.

Subfamily TRAMEINAE

Genus *Rhyothemis* Hagen, 1867

37. *Rhyothemis variegata variegata* (Linneus)

1763. *Libellula variegata* Linnaeus, *Amoenitates, Acad.*, **6** : 4!2.

1936. *Rhyothemis variegata variegata*, Fraser, *Fauna Brit. India*, **3** : 423-424.

Diagnostic characters : Head : Labium pale, whitish yellow, middle lobe black, labrum

black; clypeus and lower border of frons creamy yellow. Prothorax black, thorax dark metallic green, legs and abdomen entirely black. Wings with apices blackish brown, nodal spot black but narrow, often extending posteriorly to as far as $R_{iv} + v$, wings palely tinted yellow throughout, with black spots at the discoidal cell, and distal ends of cubital cell involving its base, with occasionally small spots at proximal end of subcostal space and at origin of sectors of arc. Hind wings with basal fassiae more extensive, extending beyond discoidal cell and well beyond the anal loop to the level of *Cuii*, with a large spot at the middle of *Irii*. All the markings are subject to variation. Female resembles male except in particulars of markings in the wings.

Material examined and locality : Telia dam, 16.9.1998, 1 ♀; Pangli gate, 18.9.1998, 1 ♀, Coll. P.P. Kulkarni; Panchadhara, 20.3.1999, 1 ♂; Telia dam, Moharli, 21.3.1999 3 ♂♂, 3 ♀♀; Rest House, Tadoba, 26.3.1999, 1 ♂, 1 ♀, Coll. R.M. Sharma; Hirdi Nalla, Compartment No. 313, 1 ♂, 21.4.2000, Coll. P.P. Kulkarni.

Distribution : India : Assam, Bihar, Himachal Pradesh, West Bengal; *Elsewhere* : Myanmar, Sri Lanka, Malaysia and Philippines.

Remarks : Andromorphic females of this species are recorded (Fraser 1936), which are frequently observed.

Genus *Pantala* Hagen, 1861

38. *Pantala flavescens* (Fabr.)

1798. *Libellula flavescens*, Fabricius, *Ent. Syst. Suppl.*, 285.

1861. *Pantala flavescens*, Hagen, *Syn. Neur. N. Amer.* : 142.

1936. *Pantala flavescens*, Fraser, *Fauna Brit. India*, 3 : 414–416.

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 cream yellow; wings often evenly and deputy enfumed and always without the brown spot. Abdomen more stout and robust.

Material examined and Locality : Tadoba lake, circular route, 27.9.1994, 1 ♂, Coll. R.M. Sharma; Vasant Bandhara, 25.2.1995, 1 ♂, Coll. R.H. Kamble; Kolsa, 22.8.1995, 3 ♂, 2 ♀; 27.8.1995, 1 ♂, Coll. S.G. Patil; Panchadhara, 3.12.1996, 1 ♂, 1 ♀; Katezari, 4.12.1996, Katezari, 19.9.1997, 1 ♂, 2 ♀♀, Coll. A.S. Mahabal; 1 ♂, Coll. R.M. Sharma; Ramdegghi,

14.9.1998, 2 ♂♂, 1 ♀; Pangli gate, 18.9.1998, 1 ♂, Coll. P.P. Kulkarni; Kolsa lake, 22.4.2000, 1 ♀, Coll. P. P. Kulkarni. This species was also collected from other localities from the tiger Reserve.

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.

Genus *Tramea* Hagen, 1861

39. *Tramea basilaris burmeisteri* Kirby

1889. *Tramea burmeisteri* Kirby *Trans.zool.Soc,Lond.*, 12 : 316.

1936. *Tramea basilaris burmeisteri*, Fraser, *Fauna Brit.India.* : 432-434.

Diagnostic characters : Head : Labium bright yellow, middle lobe black; labrum reddish brown, very broadly bordered black, anteflypeus and sides of post clypeus olivaceous yellow; post clypeus and frons bright vermilion red. Prothorax yellowish; thorax olivaceous, with a reddish tinge on dorsum and a bluish tinge laterally. Legs black; coxae, trochanters and anterior pair of femora on inner side and at base olivaceous. Wings hyaline, hind wing with dark reddish brown markings at the base, usually limited to the cubital space, base of discoidal cell and hyper trigone, extreme base of anal loop and anal area adjoining cubital space. Venation in this dark area bright yellow. Membrane pure white, pterostigma bright ochreous, short, even shorter in hind wings. Abdomen bright brick red, marked with black. Anal appendages very long, dark reddish to black, nearly as long as last three segments of abdomen. Female resembles males except minor details in colouration.

Material examined and locality : Streams on Palasgaon-Karwa Road, 4.10.1994, 1 ♀, Coll. R.M. Sharma; Ramdeghi, 14.9.1998, 3 ♀♀; Pangli gate, 18.9.1998, 1 ♀; Katezati, 11.4.2000, 1 ♂, Coll. P. P. Kulkarni.

Distribution : India : Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh, West Bengal; Myanmar, Sri Lanka and Malaysia.

Genus *Tholymis* Hagen, 1867

40. *Tholymis tillarga* (Fab.)

1798. *Libellula tillarga* Fabricius, *Ent. Syst. Suppl.*, : 285.

1936. *Tholymis tillarga*, Fraser *Fauna Brit. India*, 3 : 411-413.

1988. *Tholymis tillarga*, Prasad & Ghosh, *Rec. zool. Surv. India*, 85(2) : 210.

1995. *Tholymis tillarga*, Prasad & Varshney, *Oriental Ins.*, 29 : 413.

Diagnostic characters : Head : Labium, labrum and face olivaceous or pale yellowish-brown; frons and vesicle ochreous, eyes brown, capped with reddish, olivaceous below.

Prothorax and thorax golden yellow, with a bright reddish suffusion on dorsum. Legs ochraceous. Wings hyaline, with a broad smoky fan shaped golden brown fascia extending from node to base of hind wing. Deep in colour at node and somewhat longitudinally striated. This fascia bordered distally by a broad oval opalescent white spot, 4 cells deep. Pterostigma reddish brown, between dark nervures, membrane blackish brown. Abdomen bright rust red, specially on dorsum, paler at sides. Anal appendages reddish. Female, similar to male, with wings without opalescent spot and the golden brown fascia very pale and obscure.

Material examined and locality : Tadoba-Chimur road, 25.9.1994, 1 ♀; Tadoba lake circular road, 27.9.1994, 1 ♀, Coll. R.M. Sharma; Rest house Tadoba, 14.9.1998, 2 ♂♂, 1 ♀; Kolsa lake, 21.9.1998, 1 ♂, Coll. P.P. Kulkarni. Also collected from other localities (one specimen at light) from the Tiger Reserve.

Distribution : India : Himachal Pradesh, Madhya Pradesh, Punjab, Uttar Pradesh, West Bengal; *Elsewhere* : Australia, Myanmar, Sri Lanka, Madagascar and Tropical Africa.

Remarks : Dragonflies of rather large size and robust built, appearing on wing before dusk. The brown fascia and opalescent white spot of hind wings distinguish this species easily.

Genus *Zyxomma* Rambur, 1842

41. *Zyxomma petiolatum* Rambur

1842. *Zyxomma petiolatum* Rambur *Ins. Neurop.*, : 30.

1936. *Zyxomma petiolatum*, Fraser, *Fauna Brit. India*, 3 : 409-410.

1995. *Zyxomma petiolatum*, Prasad & Varshney, *Oriental Ins.*, 29 : 413.

Diagnostic characters : Head : Labium pale yellow; labrum pale ochraceous; face and frons pale oilvaceous, darkening above but variable, vesicle dark reddish brown. Prothorax and thorax chocolate-brown, paling at sides. Legs pale reddish-brown. Wings hyaline, in adult becoming enfumed with brown and apices dark brown, base of the wings variably dark reddish-brown. Abdomen reddish-brown, with variable shades, darkening to black at the apices. Anal appendages reddish-brown, superiors black at apices, long and slender, as long as segments 9 and 10 taken together. Female similar to male, anal appendages rather long and slim.

Material examined and locality : Katezari, 31.3.1996, 1 ♀, Coll. P.P. Kulkarni; Rest house, Tadoba, (At light), 19.3.1999, 1 ♂, Coll. R.M. Sharma.

Distribution : Throughout India; *Elsewhere* : Myanmar and Philippines.

Remarks : The only species of the genus occurring in India. The dragonfly is crepuscular in habits, emerging shortly before dusk and flying till darkness.

SUMMARY

During the faunistic surveys conducted by Western Regional Station of Zoological Survey of India, approximately 700 specimens of Odonata were collected from Tadoba Andhari Tiger Reserve, Dist. Chandrapur. Altogether 41 species were identified. The species were found to be distributed amongst two suborders, four superfamilies, seven families, 14 subfamilies and 26 genera.

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INSECTA : MANTODEA

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INTRODUCTION

Mantids (Mantodea : Insecta) represent an interesting group of insects well known for their predatory habits, camouflage and reproductive behavior. A comprehensive review of the taxonomy of Indian mantids is provided by Mukherjee *et al.*, 1995. Recent taxonomic studies on the mantid fauna of Maharashtra have been published by Chaturwedi & Hedge (2000), Ghate & Ranade (2002) and Sureshan *et al.* 2004, which also included species from some of the important conservation areas, like Sanjay Gandhi National Park and Pench National Park. According to the recent studies 51 species of mantids are known from Maharashtra (Sureshan *et al.* 2004). Here an attempt has been made to inventorise the mantid fauna of Tadoba-Andhari Tiger Reserve, Maharashtra based upon the study of the collections made from the area by Zoological Survey of India, Western Regional Station, Pune (ZSI, WRS, Pune) during the year 1994-1999. The specimens were identified following Mukherjee *et al.* 1995 and are deposited in the collections of ZSI, WRS, Pune. All the species are reported here for the first time from the Tiger reserve, which is the oldest conservation area in the state. 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 | ACROMANTINAE |
| Tribe | Acromantini |

1. *Ephestiasula pictipes* (Wood -Mason) (Fig.9)

1879. *Hestias pictipes* Wood-Mason. *Proc. Asiatic Soc. Bengal*, 1879 : 258.

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Diagnostic characters : Vertex with a small tubercle above ocelli, marked with black spots, lateral lobes pointed; pronotum dorso-medially black; outer margin of fore coxa with very minute spines; internal spines of fore femora black at tips, inferior internal lobes contain three pale yellow spots encased by black patches (third yellow patch very clear in nymph and less distinct in the adult), black patch is absent at upper border; tarsi internally black; in fore wings the costal area opaque, greenish yellow and irregularly reticulate.

Measurements (in mm.) : BL ♀ .17, nymph ♀ 16, nymph ♂ 14; PN ♀ 3.5, nymph ♀ & ♂ 3; FW : ♀ 16.

Material examined : 1 ♀, INDIA : Maharashtra : Tadoba-Andhari Tiger Reserve, Katezari and around, 19.x.1997, coll. A.S. Mahabal & party (Reg. No. E/3744); 1 nymph ♀, Pangali gate & environs, 18.ix.1998, coll. P.P.Kulkarni & party (Reg. No. E/4117); 1 nymph ♂, Katezari, 13.ix.1998, P.P. Kulkarni (Reg. No. E/4116).

Distribution : India : Madhya Pradesh, Orissa, Uttar Pradesh, Maharashtra.

Remarks : This species has been reported earlier by Ghate & Ranade, 2002 from Pune, Maharashtra.

Family MANTIDAE
Subfamily LITURGUSINAE

2. *Humbertiella ceylonica* Saussure (Fig. 8)

1869. *Humbertiella ceylonica* Saussure. *Mitt.Schweiz. Entomol.Ges.*, 3 : 62.

1891. *Theopompa septentrionum* Wood-Mason. *A cat. of Mantodea*. 2 : 64

Diagnostic characters : Body deep brown; frontal sclerite black, superior margin less arched, light brown; tubercles of pronotum well marked; longer internal spines of fore femora black, external spines black at tips only, five in number; fore wing longer than body.

Measurements (in mm.) : BL : ♂ 26-32; PN : 5-7, FW : 23-27.

Material examined : 1 ♂, Tadoba Rest House; 20.iii.1999, coll. R.M.Sharma (Reg. No.E/4309); 2 ♂, Kolsa, 22.viii.1995, coll. S.G. Patil, (Reg. No. E/2671).

Distribution : India : Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Utar Pradesh; *Eleswhere* : Sri Lanka.

Subfamily Schizocephalinae

3. *Schizocephala bicornis* (Linnaeus) (Fig. 5)

1758. *Gryllus (Mantis) bicornis* Linnaeus. *Syst. Nat.* 1(10) : 426.

Diagnostic characters : Body very long, slender, green; spines of fore leg black at tips only; head narrow and long; eyes anteriorly prolonged into a cone and terminating into a spine ; in fore legs femur with 3 discoidal spines of which second longest; tibia with 6

external spines; mid and hind tibiae ventrally spinous; fore wing well developed in male but shorter than abdomen, costal area opaque; supra anal plate long, triangular and carinate; cerci long, conical and sharp.

Measurements (in mm.) : BL : ♂ 86; PN : 30, FW : 31.

Material examined : 1 ♂, Pandarpodry, 22.viii.1995. coll. S.G. Patil & party, (Reg. No. E/2671).

Distribution : India : Madhya Pradesh, Uttar Pradesh, Maharashtra, West Bengal; *Eleswhere* : Sri Lanka.

Subfamily IRIDOPTERYGINAE

Tribe Tropidomantini

4. *Eomantis guttatipennis* (Stal) (Fig.7)

1877. *Tropidomantis guttatipennis* Stal. *Bih. K. Svenska Vetensk Akad Handl.*, 4(10) : 51

1915. *Eomantis guttatipennis* Giglio-Tos. *Bull. Soc. Entomol. Ital.* 46 : 47.

Diagnostic characters : Body moderately large, brown; forewing greenish; white patch on ocelli visible; frontal sclerite with upper margin slightly arched and sinuate laterally; metazona distinctly carinate; supracoxal dilation little pronounced; in fore legs femur with a shallow pit on the disc bordered by third discoidal and proximal two external spines; tibiae with 9 external spines of which the proximal one minute; fore wing sub opaque with pale whitish central opaque spots in almost all cells.

Measurements (in mm.) : BL : ♀ 25, PN : 5, FW : 21.

Material examined : 1 ♀ (collected under light), Near Tadoba Rest House, 28.x.1997, A.S. Mahabal (Reg. No. E/3745).

Distribution : India : Assam, Bihar, Gujarat, Karnataka, Tamil Nadu, West Bengal, Maharashtra; *Eleswhere* : Tibet.

Remarks : This species has been recorded earlier from Maharashtra by Ghate & Ranade (2002).

Subfamily MANTINAE

Tribe Mantini

5. *Hierodula (Hierodula) tenuidentata* Saussure (Fig. 1)

1869. *Hierodula tenuidentata* Saussure. *Mitt. Schweiz. Entomol. Ges.* 3 : 68.

Diagnostic characters : Colour green; pronotum narrower after dilation and then almost parallel except near base; prosternum with two blackish transverse bands in posterior part; in fore legs femora with discoidal and larger internal spines deep brownish and black at tips

only, external spines greenish and black at tips; both wings longer than body, stigma distinct; costal area greenish, opaque; discoidal area hyaline.

Measurements (in mm.) : BL : ♀ 65, PN : 21, FW : 54.

Material examined : 1 ♀ (collected under light), Tadoba Rest House, 4.xii.1996, coll. R.M. Sharma (Reg. No. E/3577).

Distribution : India : Andamans, Bihar, Lakshadweep, Madhya Pradesh, Orissa, Maharashtra.

6. *Mantis inornata* Werner (Fig.3).

1930. *Mantis inornata* Werner. *Proc. Zool. Soc. London.*, 689.

Diagnostic characters : Body pale green; frontal sclerite with indistinct median groove; metazona carinate; in fore legs coxae internally with callous spots, bordered by 7 minute spines and few spinules in between, internal apical lobes divergent; femora with 4 external and 4 discoidal spines which are greenish, larger internal spines black, claw groove with pale yellow patch; costal area of fore wing greenish, anterior margin reddish brown, almost up to tip.

Measurements (in mm.) : BL : ♀ 66, PN : 20, FW : 45.

Material examined : 1 ♀, Katezari and around, 19.x.1997. coll A.S. Mahabal, (Reg. No. E/3744).

Distribution : India : Uttar Pradesh, Maharashtra.

7. *Statilia maculata* (Thunberg) (Fig.4).

1784. *Mantis maculata* Thunberg, *Nov. Ins. Spec.* 3 : 61.

1897. *Statilia maculata* Bolivar, *Ann. Soc. Entomol. France*, 66 : 309.

Diagnostic characters : Vertex with a black cross band and spots on dorsal surface; prosternum with black patch near coxal joint; in fore legs coxa with 6 triangular spines and few spinules and with internal black patch; femora with shiny yellow patch bordered anteriorly by a broad black patch; basal part of internal spines marked with a continuous black line; tarsi internally black; both wings longer than abdomen; costal area of forewing opaque, discoidal area semi opaque in female and almost hyaline in male.

Measurements (in mm.) : BL : ♀ 38-46, ♂ 36-41; PN : ♀ 13-15, ♂ 11-13, FW ♀ 28-32, ♂ 25-29.

Material examined : 3 ♂ (collected under light), Tadoba Rest House, 24.iii.1999, coll. R.M. Sharma (Reg. No. E/4311), 5.xii. 1996 (Reg. No. E/3578), 21.iii.1999 (Reg. No. E/4310), 5 ♀ (collected under light), Tadoba Rest House, 4.xii.1996, coll. R.M. Sharma (Reg. No. E/3577), 5.xii. 1996 (Reg. No. E/3578), 6.xii.1996 (Reg. No. 3579).

Distribution : India : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Meghalaya, Madhya Pradesh, Sikkim, Uttar Pradesh, West Bengal, Maharashtra, Andaman and Nicobar islands.

8. *Statilia nemoralis* (Saussure) (Fig.6)

1870. *Pseudomantis nemoralis* Saussure. *Mitt. Schweiz. Entomol. Ges.* 3 : 229.

1870. *Mantis nemoralis* Saussure. *Mitt. Schweiz. Entomol. Ges.* 3 : 233.

1877. *Statilia nemoralis* Stal. *Bih. K. Svenska Vetensk Akad. Handl.* 4(10) : 55.

Diagnostic characters : Green, abdomen brownish; frontal sclerite sinuate on either side; lateral edges of prozona and metazona denticulate; prosternum without any black patch; in fore legs coxa with 5 prominent white spines, femora with 4 external and 4 discoidal spines, the third largest; claw groove yellow, situated distally with a black patch proximal to it, larger internal spines blackish at tips and marked at base by black spot; forewing longer than abdomen, stigma without black spot, costal area opaque; hind wing with smoky brown patch at outer corner of costal area.

Measurements (in mm.) : BL : ♀ 45, PN : 15, FW : 34.

Material examined : 1 ♀ (collected under light), Tadoba Rest House, 4.xii.1996, coll. R.M.Sharma (Reg. No. E/3577).

Distribution : India : Arunachal Pradesh, Tamil Nadu, West Bengal, Maharashtra; *Eleswhere* : Eastern Asia : Philippines.

9. *Tenodera* sp.

Material examined : 1 nymph ♀, Katezari, 13.ix.1998, coll. P.P. Kulkarni (Reg. No. E/4116).

Subfamily PHYLLOTHELINAE

10. *Phyllothelys westwoodi* Wood-Mason.(Fig.2)

1876. *Phyllothelys westwoodi* Wood-Mason. *Proc. Asiatic Soc. Bengal* : 176.

Diagnostic characters : Body deep brown; protuberance of vertex long in female, lateral edges lamellar with one prominent ridge along ventromedian and another one feeble along dorso-median line; frontal sclerite pentagonal, as long as broad, with two distinct and incomplete carinae; pronotum slender with denticulate margins, metazona longer than fore coxa; in fore legs coxa internally reddish violet, upper edge yellowish with 9 black spinules; femora internally black with two yellow bands one near claw groove in the distal half, other oblong near upper edge; tibiae partly black internally, with 15 inner and 14 external spines; middle and hind femora with a small ventro-basal sharp lobe and a large rounded distal lobe; middle and hind tibiae little swollen proximally. 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 ♀ 7, BL : 52, PN : 21, FW 27.

Material examined : 1 ♀, (collected under light Panchdhara, 22.x.1997, Coll. A.S. Mahabal, (Reg. No. E/3746).

Distribution : India : Assam, Uttar Pradesh, Maharashtra; *Eleswhere* : Myanmar.

SUMMARY

The present study records 10 species of mantids belonging to 9 genera and 2 families from the Tadoba-Andhari Tiger Reserve, Maharashtra. All the species are reported for the first time from the Tadoba Andhari Tiger Reserve. With the addition of *Statilia nemoralis* from the Tadoba Andhari Tiger Reserve, a total of 52 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 represent a significant level of diversity. They are over all indicators of long-term environmental conditions and Zoogeographic distribution. Previous studies on this group from the state of Maharashtra dates back to Annandale (1919) and Paiva (1919). Thereafter, Tonapi (1959) made collections from the tributaries of River Bhima. Recently, Thirumalai & Sharma (2002), Thirumalai *et al.* (2004), Thirumalai & Sharma (in press), Thirumalai et al (in press), studied this group from Ujani Wetland, Pench National Park, Melghat Tiger Reserve and Nath Sagar Wetland (all in the state of Maharashtra) respectively. In India, Maharashtra ranks 5th in the wetland area and total species of this group known is 50.

The present study, based on a small collection of aquatic and semi-aquatic hemipterans collected from Tadoba Andhari tiger reserve, Maharashtra resulted in the enumeration of 25 species (50% of the known species from the state) belonging to 14 genera accommodated under 6 families. Of which, *Enithares fusca* Brooks, *Cercotmetus asiaticus* Amyot & Serville, *C. brevipes* Montandon and *C. pilipes* (Dallas) among Nepomorpha constitute first records for Maharashtra State. A key to the families recorded is also provided.

SYSTEMATIC LIST

- | | |
|---|------------------------------|
| Infraorder | GERROMORPHA |
| Superfamily | GERROIDEA |
| Family | GERRIDAE |
| Subfamily | GERRINAE |
| Genus | <i>Aquarius</i> Schellenberg |
| 1. <i>Aquarius adelaidis</i> (Dohrn) | |
| Subfamily | GERRINAE |
| Genus | <i>Limnogonus</i> Stål |
| Subgenus | <i>Limnogonus</i> Stål |
| 2. <i>Limnogonus (Limnogonus) fossarum fossarum</i> (Fabricius) | |

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3. *Limnogonus (Limnogonus) nitidus* (Mayr)
Genus *Neogerris* Matsumura
4. *Neogerris parvula* (Stål)
Subfamily CYLINDROSTETHINAE
Genus *Cylindrostethus* Mayr
5. *Cylindrostethus productus* (Spinola)
Subfamily EOTRECHINAE
Genus *Amemboa* Esaki,
Subgenus *Amemboa* Esaki,
6. *Amemboa (Amemboa) sp*
Family HYDROMETRIDAE
Subfamily HYDROMETRINAE
Genus *Hydrometra* Latreille
7. *Hydrometra butleri* Hungerford and Evans
8. *Hydrometra greeni* Kirkaldy
Infraorder NEPOMORPHA
Family NOTONECTIDAE Latreille
Subfamily ANISOPINAE Hutchinson
Genus *Anisops* Spinola
9. *Anisops cavifrons* Brooks
10. *Anisops nigrolineatus* Lundblad
11. *Anisops nivea* (Fabricius)
Subfamily NOTONECTINAE Latreille
Tribe NOTONECTINI Latreille
Genus *Enithares* Spinola
12. *Enithares ciliata* (Fabricius)
13. *Enithares fusca* Brooks
Family NEPIDAE Latreille
Subfamily RANATRINAE Douglas & Scott
Tribe RANATRINI Douglas & Scott
Genus *Cercotmetus* Amyot & Serville
14. *Cercotmetus asiaticus* Amyot & Serville
15. *Cercotmetus brevipes* Montandon
16. *Cercotmetus pilipes* (Dallas)

- | | | |
|-----|-----------|---|
| | Genus | <i>Ranatra</i> Fabricius |
| 17. | | <i>Ranatra elongata</i> Fabricius |
| 18. | | <i>Ranatra filiformis</i> Fabricius |
| 19. | | <i>Ranatra varipes varipes</i> Stal |
| | Subfamily | NEPINAE Latreille |
| | Tribe | Nepini Latreille |
| | Genus | <i>Laccotrephes</i> Stal |
| 20. | | <i>Laccotrephes griseus</i> (Guerin-Meneville) |
| 21. | | <i>Laccotrephes ruber</i> (Linnaeus) |
| | Family | BELOSTOMATIDAE Leach |
| | Subfamily | BELOSTOMATINAE Leach |
| | Genus | <i>Diplonychus</i> Laporte |
| 22. | | <i>Diplonychus annulatus</i> (Fabricius) |
| 23. | | <i>Diplonychus rusticus</i> (Fabricius) |
| | Subfamily | LETHOCERINAE Lauck & Menke, 1961 |
| | Genus | <i>Lethocerus</i> Mayr, 1853 |
| | Subgenus | <i>Lethocerus</i> Mayr, 1853 |
| 24. | | <i>Lethocerus indicus</i> (Lepeletier & Serville) |
| | Family | CORIXIDAE Leach |
| | Subfamily | CORIXINAE Leach |
| | Genus | <i>Sigara</i> Fabricius |
| | Subgenus | <i>Tropocorixa</i> Hutchinson |
| 25. | | <i>Sigara distorta</i> (Distant) |

KEY TO THE FAMILIES OF AQUATIC AND SEMI-AQUATIC HETEROPTERA

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. Claws of atleast front tarsi inserted before its tip; hind femora long, surpassing end of abdomen GERRIDAE
 - Stick-like insect with thread-like legs, body long, head as long as entire thorax; antenna and legs thread-like, always winged form, simple ovipositor and not saw like HYDROMETRIDAE

3. Rostrum short, triangular, not distinctly segmented; front tarsi single segmented, scoop-like, ringed with setae CORIXIDAE
- Rostrum long, cylindrical, distinctly segmented; fore tarsi one or more segmented, simple with out setae 4
4. Elongate forms with long ore-like hind legs; hind tibia abdomen with a mid ventral-keel; 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 and slender siphon NEPIDAE
- Tip of the abdomen with a distinctive pair of flat retractile strap-like appendages at the apex of abdomen; BELOSTOMATIDAE

SYSTEMATIC ACCOUNT

| | |
|-------------|-------------|
| Infraorder | GERROMORPHA |
| Superfamily | GERROIDEA |
| 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 2-40mm.

| | |
|-----------|--|
| Subfamily | GERRINAE |
| Genus | <i>Aquarius</i> Schellenberg |
| | 1. <i>Aquarius adelaidis</i> (Dohrn, 1860) |

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

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

1896. *Gerris spinolae* (Leth. & Ser.) : Distant, *Fauna British India*, **2** : 180.

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

2002. *Aquarius adelaidis* (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 water bodies 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 : 1♂ (Br), 4♀ (Br), 2♂ (Macro), 2♀ (Macro) and 8 immature from Crocodile centre and along, Tadoba lake down stream, 1-I-1994, Coll. R.M. Sharma.

Distribution : India : Andhra Pradesh, Bihar, Karnataka, Kerala, Maharashtra, Orissa, Punjab, Rajasthan, Tamilnadu, Tripura, Uttar Pradesh, West Bengal.

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

Genus *Limnogonus* Stål

Subgenus *Limnogonus* Stål

2. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius, 1775)

1775. *Cimex fossarum* Fabricius, *Syst.Ent.*, 727.

1794. *Gerris fossarum* Fabricius, *Ent. Syst. emen. aucta*, IV : 188.

1868. *Limnogonus fossarum* Stål, *K. Svenska Vetensk. Akad.*, 7 : 133.

1959. *L.(Limnogonus) fossarum* (Fab.) : Hungerford & Matsuda, *J. Kans. Ent. Soc.*, 32(1) : 40.

1975. *L. (L.) fossarum* (Fab.) : Andersen, *Ent. Scand. Suppl.*, 7 : 30.

2002. *L. (L.) fossarum* (Fab.) : 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 : 1♂ wingless and 1 immature from Tadoba lake circular route, 27-IX-1994; 1♂ and 1♀ (winged) from Kala Amba, 3-X-1994, Coll. R.M. Sharma.

Distribution : India : Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Goa, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondichery, Punjab, Rajasthan, Tamilnadu, West Bengal;

Elsewhere : China; Hong Kong; Indonesia; Japan; Malaysia; Myanmar; Philippines; Singapore; Taiwan; Thailand; Vietnam.

3. *Limnogonus (Limnogonus) nitidus* (Mayr, 1865)

1865. *Hydrometra nitida* Mayr., *Verh. zool.-bot. Ges. Wien*, 15 : 443.

1903. *Gerris nitida* (Mayr) : Distant, *Fauna Brit. India*, 2 : 178.

1908. *Limnogonus nitidus* (Mayr.) : Kirkaldy, *Wissenschaftl. Ergebn. der Schwed. zool. Exped. nach dem Kilimandjaro*, 12 : 21.

1960. *L. (Limnogonus) nitidus* (Mayr) : Matsuda, *Kans. Univ. Sci. Bull.*, **41** : 198.
 1975. *L. (Limnogonus) nitidus* (Mayr) : Andersen, *Ent. Scand. Suppl.*, **7** : 62.
 2002. *L. (Limnogonus) nitidus* (Mayr) : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 62.

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

Material Examined : 3♀ (Winged) from Tadoba lake circular route, 27-IX-1994; 2♀ from Kalamba, 3-X-1994; 3♂, 15♀ all winged from Streams on Palasgaon-Karva Road, 4-X-1994; 14♀ (Winged) and 1♂ (Winged) from Roadside pools in Jamni village, 6-X-1994; 2♀ (Winged) from Kala Amba-Bhanaskhindi, 9-XII-1996, all Coll. R.M.Sharma; 2♀ (Winged) from Pandharpauli Talav and around, 17-X-1997; 1♀ (Winged) and 1 immature from Katezari and around, 19-X-1997; Coll. A.S. Mahabal.

Distribution : India : Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Orissa, Rajasthan, Tamilnadu, Tripura, Uttar Pradesh, West Bengal;

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

Genus *Neogerris* Matsumura

4. *Neogerris parvula* (Stål, 1859)

1859. *Gerris parvula* Stål, *Zoology*, **4** : 265.
 1899. *Gerris tristan* Kirkaldy, *Revue. Ent.*, **18** : 88.
 1934. *Limnogonus parvulus* (Stål) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 384.
 1959. *L. (Limnogonellus) parvulus* (Stål) : Hungerford & Matsuda, *J. Kans. Ent. Soc.*, **32** : 41.
 1961. *L. (Neogerris) parvulus* (Stål) : Hungerford & Matsuda, *Insecta matsum.*, **24** : 114.
 1975. *Neogerris parvula* (Stål) : Andersen, *Ent. Scand. Suppl.*, **7** : 86.
 2002. *Neogerris parvula* (Stål) : Thirumalai, *Rec. zool. Surv. India*, **100**(1-2) : 61.

Diagnosis : *N. parvula* is easily separated from all the known species of this genus by the presence of a large round or quadrangular yellow spot on the pronotum. A very common species found, in slow running streams, reservoirs, ponds and rain-fed pools, throughout Indian subcontinent.

Material Examined : 1♂ and 1♀ winged from Kala Amba, 3-X-1994; 2♀ winged and 1 immature from Roadside pools near Jamni village, 6-X-1994; 1♀ winged from Roadside pools near Jamni village, 6-X-1994; all Coll. R.M. Sharma.

Distribution : India : Arunachal Pradesh, Assam, Kerala, Orissa, Pondicherry, Tamilnadu, Uttar Pradesh, West Bengal.

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

Subfamily CYLINDROSTETHINAE

Genus *Cylindrostethus* Mayr

5. *Cylindrostethus productus* (Spinola, 1840)

1840. *Gerris productus* Spinola, *Essai Sur less insectes hemipteres rhynchotes on heteropteres*, 64.

1903. *Cylindrostethus productus* (Spinola) : Distant, *Fauna Brit. India*, 2 : 184.

1910. *Janias elegantulus* Distant, *Ann. Mag. Nat. Hist.*, 5(8) : 145.

1994. *Cylindrostethus productus* (Spinola) : Polhemus, *Bishop Mus. Occ. Paper*, 38 : 10.

2002. *Cylindrostethus productus* (Spinola) : Thirumalai, *Rec. zool. Surv. India*, 100(1-2) : 58.

Diagnosis : This species is very large (more than 25 mm), elongate, dark, which can be recognised by its large connexival spines. *C. productus* is the only member of the genus so far known from India. This species has been found inhabiting smooth flowing mountain streams.

Material Examined : 8♂ winged, 3♂ wingless, 3♀ winged, 2♀ wingless and 11 immature from Katezari- Wagh Nala 8 Kms west of Tadoba, 29-IX-1994; 1♂ winged from Kalamba, 3-X-1994; 1♀ winged from Pandharpauni stream on Tadoba Mahurli Road, 5-X-1994, all Coll. R.M. Sharma; 1 immature from Katezari, 12 VIII-1995, Coll. S.G. Patil; 1♀ (Winged) from Panchdhara Nallah and around, 29-III-1996; 2♂ 1 winged and 1 apterous from Vasant Bandhara and around, 30-III-1996, all Coll. P.P. Kulkarni; 3♂ winged from Pandharpauni and around, 8-XII-1996; 1♀ winged from Kala Amba-Bhanaskhindi, 9-XII-1996, Coll. R.M.Sharma; 1♂ from Shivanzari nalla and environs, 19-IX-1998; ♂ winged and 3 immature from Kolsa lake, 21-IX-1998; Coll. P.P.Kulkarni; 4♂, 6♀ winged from Kala Amba Bhanaskhindi, 24-III-1999; 7♂, 11♀ from Shivanzari nalla-Kolsa, 25-III-1999; all Coll. R.M.Sharma; 1♂, 1♀ (Macropterous) (Winged) from Kala Amba, 13-IV-2001; 13♂, 17♀ winged and 1♀ wingless from Ramdegi, 14.IV.2001; all Coll. P.P. Kulkarni.

Distribution : India : Karnataka, Kerala, Goa, Himachal Pradesh, Madhya Pradesh, Maharashtra, Orissa, Tamilnadu, Uttaranchal, West Bengal;

Elsewhere : Srilanka.

Subfamily EOTRECHINAE

Genus *Amemboa* Esaki

Subgenus *Amemboa* Esaki

6. *Amemboa (Amemboa)* sp.

Material Examined : 2 immature from Ambat hira and around, 21-1-1997, Coll. A.S. Mahabal.

Remarks : Adults are required to determine the species.

Family HYDROMETRIDAE
 Subfamily HYDROMETRINAE
 Genus *Hydrometra* Latreille

7. *Hydrometra butleri* Hungerford and Evans, 1934

1934. *Hydrometra butleri* Hungerford and Evans, *Ann. Mag. nat. Hist.*, **28** : 71.

1994. *Hydrometra butleri* Hungerford and Evans : Thirumalai, 1994. *Rec. zool. Surv. India, Occ. Pap.* **165** : 29.

2002. *Hydrometra butleri* Hungerford and Evans : Thirumalai, *Rec. zool. Surv. India*, **100(1-2)** : 79.

Diagnosis : The swollen ventral sixth abdominal segment can easily distinguish it; a brush or stiff hair extends to the posterior margin in males. The male parameres are symmetrical. The terminal dorsal process is sharp, long and about one half as long as the 6th abdominal segment in both the sexes.

Material Examined : 1♂ from Janala Talav 2Km from Mool Road off Janala, 17-IV-2000, Coll.P.P. Kulkarni.

Distribution : India : Karnataka, Kerala, Maharashtra, Orissa, Tamilnadu.

8. *Hydrometra greeni* Kirkaldy, 1898.

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

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

1994. *Hydrometra greeni* Kirkaldy : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.*, **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 1500 meters elevation. Its habitats include ponds, swampy areas, rocky up and low land streams, lakes, flooded paddy fields.

Material Examined : 1♂ and 4♀ from Janala Talav 2 Km from Mool Road off Janala, 17-IV-2000, Coll. P.P. Kulkarni.

Distribution : India : Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondichery, Punjab, Rajasthan, Tamilnadu, West Bengal, Uttar Pradesh;

Distribution : Bangladesh; China; Nepal; Sri Lanka; Indonesia; Thailand; Vietnam.

Infraorder NEPOMORPHA
 Family NOTONECTIDAE
 Subfamily ANISOPINAE
 Genus *Anisops* Spinola

9. *Anisops cavifrons* Brooks, 1951

1951. *Anisops cavifrons* Brooks, *Kans. Univ. Sci. Bull.*, **34** : 418.

1994. *Anisops cavifrons* Brooks : Thirumalai, *Rec. Zool. Surv. India, Occ. Pap.*, **165** : 16.

2004. *Anisops cavifrons* Brooks : Thirumalai, *Rec. zool. Surv. India*, **102**(1-2) : 65.

Diagnosis : This species is identical to *A. batillifrons* Lundblad in almost every superficial details (Brooks, 1951) but can be distinguished from it by the presence of a procumbent spine on the fore tibia. 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 : 10♂, 23♀, 6 immature from Tadoba lake circular route, 27-IX-1994; 3♀ from Streams on Palasgaon- Karwa Road, 4-X-1994; 6♂, 15♀ and 7 immature from Roadside pools near Jamni village, 6-X-1994, all Coll.R.M. Sharma; 2♂, 4♀ and 8 immature from Tadoba tank and around, 2 -III-1995, Coll. R.H. Kamble; 2♀ from Pandharpauni, 15-IX-1998, Coll. P.P. Kulkarni.

Distribution : India : Bihar, Chandigarh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Pondicherry, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal.

Elsewhere : Pakistan.

10. *Anisops nigrolineatus* Lundblad, 1933

1934. *Anisops nigrolineata* Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 160.

1951. *Anisops nigrolineatus* Lundblad : Brooks, *Kans. Univ. Sci. Bull.*, **34** : 409.

1995. *Anisops nigrolineatus* Lundblad : Polhemus, *Cat. Het. Palaerctic region*, **1** : 65.

2002. *Anisops nigrolineatus* Lundblad : Thirumalai, *Vistas Entomological Research New Millennium*, **24**.

2004. *Anisops nigrolineatus* Lundblad : Thirumalai, *Rec. zool. Surv. India*, **102** (1-2) : 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 parts of India.

Material Examined : 2♀ from Roadside pools near Jamni Village, 6-X-1994; 2♂ from Roadside pools near Jamni village, 6-X-1994, Coll.R.M. Sharma; 3♀ from Tadoba tank and around, 2-III-1995, 1♂ from Kala Amba, 1-III-1995, Coll. R.H. Kamble.

Distribution : India : Arunachal Pradesh, Chandigarh, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Tamilnadu, Uttar Pradesh;

Elsewhere : Afghanistan; Bangladesh; China; Indonesia; Myanmar.

11. *Anisops nivea* (Fabricius, 1775)

1775. *Notonecta nivea* Fabricius, *Systema Entomologiae, Flensburgi et Lipsiae*, 690
 1851. *Anisops niveus* (Fabricius) : Fiaber, *Abhandl. Konigl. bohm. Ges. Wiss.*, 7 : 484.
 1927. *Anisops niveus* (Fabricius) : Dover, *J. Bombay Nat. Hist. Soc.*, 32 : 615.
 1934. *Anisops nivea* (Fabricius) : Lundblad, *Arch. Hydrobiol. Suppl.*, 12 : 163.
 1947. *Anisops (Anisops) nivea* (Fabricius) : Hafiz & Pradhan, *Rec. Indian Mus.*, 45 : 353.
 1951. *Anisops nivea* (Fabricius) : Brooks, *Kans. Univ. Sci. Bull.*, 34 : 373.
 1995. *Anisops niveus* (Fabricius) : Varshney, *Zool. Surv. India, Fauna of Western Himalaya*, 1 : 53
 2001. *Anisops nivea* (Fabricius) : Thirumalai, *Fauna of conservation area*, 11 : 117.

Diagnosis : Size not more than 6.00mm; facial tubercle with a triangular excavation bordered on each side by a raised carina in males.

Material Examined : 1♂ from Tadoba Lake, circular Route, 27-IX-1994; 1♂, 1♀ from Roadside pools near Jamni village, 6-X-1994, Coll. R.M. Sharma.

Distribution : Indian : Andaman & Nicobar Islands, Assam, Bihar, Kerala, Maharashtra, Orissa, Tamilnadu, Uttar Pradesh, West Bengal

Elsewhere : Indonesia.

Subfamily NOTONECTINAE

Tribe Notonectini

Genus *Enithares* Spinola

12. *Enithares ciliata* (Fabricius, 1798)

1798. *Notonecta ciliata* Fabricius, *Suppl. Ent. Syst.*, 524.
 1891. *Notonecta abbreviata* Kirby, *J. Linn. Soc. London*, 24 : 126.
 1906. *Enithares indica* Spinola : Distant, *Fauna British India*, 3 : 42.
 1910. *Enithares paviana* Distant, *Fauna British India*, 5 : 329.
 1919. *Enithares laceta* Paiva, *Rec. Indian Mus.*, 19 : 155.
 1938. *Enithares abbreviata* (Kirby) : Hafiz and Mathai, *Rec. Indian Mus.*, 40 : 210.
 1968. *Enithares ciliata* (Fabricius) : Lansbury, *Pacific Insects*, 10 : 413.
 1995. *Enithares ciliata* (Fabricius) : Polhemus, *Cat. Het. Palaerctic region*, 1 : 67.
 2001. *Enithares ciliata* (Fabricius) : Thirumalai, *Fauna conservation area*, 11 : 115.
 2004. *Enithares ciliata* (Fabricius) : Thirumalai, *Rec. zool. Surv. India*, 102(1-2) : 65

Diagnosis : The mesotrochanter is rounded with a patch of black spicules along the ventral margin, covering a much larger area. This species, like the other known species of

the genus, is found on water surface and usually feeds on prey caught in the surface film or floating at the surface of deep water or clinging to submerged objects.

Material Examined : 1♂ and 1 immature from Roadside pools near Jamni village, 6-X-1994, Coll. R.M. Sharma. 1♂ and one immature from Kala Amba, 1-III-1995, Coll. R.H. Kamble; 1♂ from Panchdhara nalla and around, 20-III-1999, Coll. R.M. Sharma.

Distribution : India : Andaman & Nicobar Islands, Andhra Pradesh, Bihar, Goa, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Tamilnadu, West Bengal;

Elsewhere : Bhutan and much of South-East Asia.

13. *Enithares fusca* Brooks, 1948

1948. *Enithares fusca* Brooks, *J. Kans. Ent. Soc.*, **21** : 46.

1968. *Enithares fusca* Brooks : Lansbury, *Pacif. Insects*, **10** : 412.

2001. *Enithares fusca* Brooks : Thirumalai, *ZSI. Fauna Conservation area*, **11** : 115.

2004. *Enithares fusca* Brooks : Thirumalai, *Rec. zool. Surv. India*, **102** (1-2) : 65

Diagnosis : This species is very closely resembles *Enithares ciliata* but differs by the absence of black spicules on mesotrochanter in males and by the presence of a large nodule on the inner surface of middle tibia.

Material Examined : 1♀ from Kolsa, 45 km South of Tadoba, 28-II-1995, Coll. R.H. Kamble.

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

| | |
|-----------|-------------------------------------|
| Family | NEPIDAE |
| Subfamily | RANATRINAE |
| Tribe | Ranatrini |
| Genus | <i>Cercotmetus</i> Amyot & Serville |

14. *Cercotmetus asiaticus* Amyot & Serville, 1843

1843. *Cercotmetus asiaticus* Amyot & Serville, *Histoire naturelle des insectes, Hemipteres, Paris*. 441.

1903. *Cercotmetus asiaticus* Amyot & Serville : Montandon, *Bull. Soc. Sti. Buck.*, **12** : 107

1933. *Cercotmetus asiaticus* Amyot & Serville : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 45.

1973. *Cercotmetus asiaticus* Amyot & Serville : Lansbury, *Tijdschrift Voor Entomol.*, **116** : 89.

Diagnosis : Length between 46-50mm; Mesosternum with a prominent keel; long middle femora; female characterised by very long operculum.

Material Examined : 1 immature from Kala Amba, 3-X-1994, Coll. R.M. Sharma. 1♂ from Kolsa and around, 24-X-1997, Coll. A.S. Mahabal.

Distribution : India : Kerala, Maharashtra (present record).

Elsewhere : Malaysia; Indonesia; Thailand.

15. *Cercotmetus brevipes* Montandon, 1909

1909. *Cercotmetus brevipes* Montandon. *Annl. Hist. Nat. Mus. natn. Hung.*, **7** : 65.
 1933. *Cercotmetus brevipes* Montandon : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 48.
 1973. *Cercotmetus brevipes* Montandon : *Tijdschrift Voor Entomol.*, **116** : 92.
 1995. *Cercotmetus brevipes* Montandon : Polhemus *et al.* *Cat. Het. Palaearctic region*, **1** : 17.

Diagnosis : Length between 32-41 mm; legs are very short than the known Indian species, middle femora distinctly shorter than prothorax length.

Material Examined : 1♀ from Vasant Bandhara about 7Kms from Tadoba, 20-IX-1994; Coll. R.M. Sharma; 1♂ from Kala Amba Bhanaskhindi, 24-III-1999; Coll. R.M. Sharma.

Distribution : India : Assam, Kerala, Maharashtra (present record), Meghalaya;

Elsewhere : Bangladesh; China; Indonesia; Thailand; Vietnam; Philippines; Sarawak.

16. *Cercotmetus pilipes* (Dallas) 1850

1850. *Ranatra (Cercotmetus) pilipes* Dallas, *Trans. R. ent. Soc. Lond.*, **1** : 9.
 1903. *Cercotmetus pilipes* (Dallas) : Montandon, *Bull. Soc. Sti. Buck.*, **12** : 110.
 1906. *Cercotmetus pilipes* (Dallas) : Distant, *Fauna Brit. India*, **3** : 23.
 1918. *Cercotmetus pilipes* (Dallas) : Paiva, *Rec. Indian Mus.*, **14** : 26.
 1973. *Cercotmetus pilipes* (Dallas) : Lansbury, *Tijdschrift Voor Entomol.*, **116** : 99.
 1997. *Cercotmetus 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♀ from Telia dam, 20-VII-1995, Coll. S.G. Patil.

Distribution : India : Delhi, Karnataka, Kerala, Maharashtra (present record).

Elsewhere : Bhutan.

Genus *Ranatra* Fabricius

17. *Ranatra elongata* Fabricius, 1790

1790. *Ranatra elongata* Fabricius, *Skrif. Nat. Selesk.*, **1** : 228.
 1972. *Ranatra elongata* Fabricius : Lansbury, *Trans. R. ent. Soc. Lond.*, **124** : 306.
 1994. *Ranatra elongata* Fabricius : Thirumalai, *Rec. zool. Surv. India, Occ. Pap.*, **165** : 22.

Diagnosis : 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. 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. Large body size (40-60 mm) and the length of the respiratory siphon that is equal or longer than the body can also distinguish this species.

Material Examined : 1 ♀ and 1 immature from Vasant Bandhara about 7Kms from Tadoba, 20-IX-1994; 1 ♀ from Roadside pools in Jamni village, 6-X-1994, Coll. R.M. Sharma; 1 ♀ from Tadoba tank and around, 27-II-1995; 45 km South of Tadoba, 28-II-1995; 1 ♂ from Kala Amba Tadoba, 1-III-1995; 1 ♂ Wagh Nallah and around, 3-III-1995, all Coll. R.H. Kamble; 2 ♀ from Pandharpauni, 14-VIII-1995; 1 ♂ from Tadoba National Park, 23- VIII-1995, Coll. S.G. Patil; 4 ♂ 2 ♀ from Kalamba, 3-IV-1996; 1 ♂ from Ramdegi nalla, 9-IV-1996; Coll. P.P. Kulkarni; 1 ♀ from Pandharpauni and around, 8-XII-1996; 1 ♀ from Katezari; 1 ♂, 1 ♀ from Kala Amba-Bhanaskhindi, 9-XII-1996, Coll. R.M. Sharma; 1 immature from Shivanzari Nallah and environs, 19-IX-1998, Coll. P.P. Kulkarni; 1 ♂ from Panchdhara nalla and around, 20-III-1999; 1 ♂ from Kala Amba Bhanaskhindi, 24-III-1999; 1 ♂, 1 ♀ from Devzari-Kolara Road, 27-III-1999; 1 ♂, 1 ♀ from Kolsa, 1 ♂ from Jamni tank and around, 28-X-1999, all Coll. R.M.Sharma; 2 ♀ from Kasartody compartment, 313, Kolsa, 18-IV-2000, Coll. P.P. Kulkarni; 1 ♀ from Botezari, 27-I-2001; Coll. S.G. Patil.

Distribution : India : Andhra Pradesh, Bihar, Chandigarh, Delhi, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal;

Elsewhere : Australia; Nepal; Sri Lanka.

18. *Ranatra filiformis* Fabricius, 1790

1790. *Ranatra filiformis* Fabricius, *Skrit. Nat. Selsk.*, 1 : 228;

1994. *Ranatra elongata* Fabricius, : Thirumalai, *Rec zool. Surv. India, Occ. Pap.*, 165 : 22.

1997. *Ranatra elongata* Fabricius, : Bal & Basu, *Zool. surv. State Fauna*, 6 : 266.

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 (20-30 mm) 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 ♂ and 1 immature from Vasant Bandhara about 7Kms from Tadoba, 20-IX-1994; 2 ♂ from Tadoba lake, Circular route, 27-IX-1994; 1 ♂ from Crocodile centre and along, Tadoba lake down stream, 1-X-1994, all Coll. R.M. Sharma; 1 ♀ from Tadoba tank

and around, 27-II-1995; 1♀ from Kala Amba Tadoba, 1-III-1995, Coll. R.H. Kamble; 1♀ from Pandharpauni, 14-VIII-1995; 1♀ and 1 immature from Telia dam, 20-VIII-1995; Coll. S.G. Patil; 1♂, 1♀ from Ambat hira, 2-IV-1996; 2♂, 3♀ from Ramdegi nalla, 9-IV-1996, Coll. P.P. Kulkarni; 1♂, 1♀ and 1 immature from Pandharpauni Talav and around, 17-X-1997; 1♂ from Vasant Bandhara and around, 18-X-1997; 2♂, 3♀ and 2 immature from Kolsa land and around, 24-X-1997; 10♂, 12♀ and 2 immature from Telia dam and around, 25-X-1997; 6♀ from Karva tank and around, 26-X-1997; all Coll. A.S. Mahabal; 2♂, 7♀ and 2 immature from Telia dam- Mahurli and around, 21-III-1999; 2♂, 1♀ from Pandharpauni, 26-III-1999, Coll. R.M. Sharma; 1♀ from Hirdi Nallah compartment No : 313, 4-IV-2000; 2♂, 1♀ from Ramdegi, Tadoba, 15-IV-2000; 1♂ from Fulzari compartment No : 306, 20-iv-2000, all Coll. P.P. Kulkarni.

Distribution : India : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Manipur, Meghalaya, Orissa, Pondicherry, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal;

Elsewhere : China; Nepal; Pakistan; Philippines; Sri Lanka.

19. *Ranatra varipes varipes* Stal, 1861

1861 *Ranatra varipes* Stal., *Ofer. K. Vetensk. Akad. Forh.*, **18** : 203

1972. *Ranatra varipes* Stal., : Lansbury, *Trans. R.ent. Soc. Lond.*, **124** : 316.

1998. *Ranatra varipes varipes* Stal : Nieser & Polhemus, *Amemboa*, **2** : 22.

Diagnosis : Small body size 20-33 mm; respiratory siphon shorter than body; fore femora are broad with irregular brown markings. However, the most reliable diagnostic characters are the parameres, which is hatchet shaped distally.

Material Examined : 3♀ and 1 immature from Streams on Palasgaon-Karva Road, 4-X-1994, Coll. R.M.Sharma; 1♂, 1♀ from Telia dam and around, 25-X-1997, Coll. A.S. Mahabal.

Distribution : India : Assam, Manipur, Orissa, Pondicherry, Tamilnadu, West Bengal.

Elsewhere : Australia; Indonesia; Malaysia; Myanmar; Sri Lanka; Taiwan; Thailand.

Subfamily NEPINAE

Tribe **Nepini**

Genus *Laccotrephes* Stal

20. *Laccotrephes griseus* (Guerin-Meneville, 1835)

1844. *Nepa griseus* Guerin, *Iconogr. Regne. Anim.*, 352.

1910. *Laccotrephus griseus* (Guerin) : Distant, *Fauna British India*, **5** : 314;

1994. *Laccotrephus griseus* (Guerin) : Thirumalai, *Rec. Zool. Surv. India, Occ. Pap.*, **16** : 21.

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 : 1 ♀ from Vasant Bandhara about 7 Kms from Tadoba, 20-IX-1994; 1 ♂, 2 ♀ from Crocodile centre and along, Tadoba lake down stream, 1-X-1994, 2 ♂, 1 ♀ from 7 Kms East of Tadoba, 2-X-1994; 1 ♀ from Streams on Palasgaon- Karva Road, 4-X-1994; all Coll.R.M Sharma; 1 ♀ and 1 immature from Telia dam, 20-VIII-1995; Coll. S.G. Patil; 1 ♂ from Kolsa lake, 5-IV-1996; 1 ♂, 1 ♀ from Telia Dam, 7-IV-1996; Coll. P.P. Kulkarni; 1 ♂, 4 ♀ and 2 immature from Telia Dam, 16-IX-1998; 1 immature from Shivanzari Nallah and environs, 19-IX-1998; Coll. P.P. Kulkarni; 1 ♂, 1 ♀ from Telia Dam- Mahurli and around, 21-III-1999; 1 ♂ from Katezari–Ambat hira, 23-III-1999, Coll. R.M. Sharma.

Distribution : India : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Orissa, Pondicherry, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal;

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

21. *Laccotrephes ruber* (Linnaeus, 1764)

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

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

1994. *Laccotrephes ruber* (Linn.) : Thirumalai, *Rec. Zool. Surv. India, Occ. Pap.*, 165 : 22.

2001. *Laccotrephes ruber* (Linn.) : Thirumalai, *Fauna conservation area*, 11 : 118

Diagnosis : This is a common species with wide distribution in the Indo – Australian region and is largely found in habitats like rivers, streams, tanks, etc. 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.

Material Examined : 1 ♀ from Panchdhara Stream on Tadoba, Chimur Road, 25-IX-1994; 1 ♂, 8 ♀ and one immature from Tadoba lake, Circular route, 27-IX-1994; 1 ♂ from Katezari -Wagh nalla 8Kms west of Tadoba, 29-IX-1994; 1 ♂, 3 ♀ from 7 Kms East of Tadoba, 2-X-1994; 1 ♀ from Streams on Palasgaon, Karva Road, 4-X-1994; 2 ♂, 2 ♀ from Pandharpauni stream on Tadoba- Mahurli Road, 5-X-1994; 2 ♀ from Road side pools in Jamni village, 6-X-1994; all Coll. R.M. Sharma; 1 ♀ from Tadoba tank and around, 27-II-1995; 7 ♂, 3 ♀ from Kolsa, 45 km South of Tadoba, 28-II-1995; 1 ♂, 1 ♀ from Kala Amba, 1-III-1995; 4 ♂ 6 ♀ from Wagh Nallah and around, 3-III-1995; 1 ♀ from Devzari near Kolara gate, 8-III-1995, 1 ♀, from Biloda gate, Tadoba, 11-III-1995; all Coll.R.H. Kamble; 2 ♂, 4 immature from Pandharpauni, 14-VIII-1995; 2 immature from Jamunawadi, 16-VIII-1995; 3 ♂, 1 ♀ and one immature from Navegaon gate, 17-VIII-1995; 2 ♀ and 1 immature from Ambawadi, 19-VIII-1995; 1 immature from Telia dam, 20-VIII-1995; 2 ♂, 5 ♀ and 2 immature from Kolsa, 21-VIII-1995; 1 ♀ and 2 immature from Jamni Talav, 23-VIII-1995; all Coll.S.G. Patil; 1 ♀ from

Panchdhara Nallah and around, 29-III-1996; 6♂, 9♀ from Vasant Bandhara and around, 30-III-1996; 1♂ from Katezari, 31-III-1996; 23♀, Vasant Bandhara, 1.IV-1996; 1♂, 4♀ from Ambat hira, 2-IV-1996; 5♂, 6♀ from Kala Amba, 3-IV-1996; 1♀ from Kolsa lake, 5-IV-1996; 1♂ from Telia dam, 7-IV-1996; 4♂, 4♀ from Ramdegi nalla, 9-IV-1996; all Coll. P.P. Kulkarni; 1♀ from Panchdhara and around, 3-XII-1996; 1♀ from Katezari and environs, 4-XII-1996; 1♀ from Vasant Bandhara, 5-XII-1996; 1♂, 1♀ from Pandharpauni and around, 8-XII-1996; 4♂, 4♀ from Kala Amba-Bhanaskhindi, 9-XII-1996, all Coll. R.M. Sharma; 4♂, 2♀ from Pandharpauni Talav and around, 17-X-1997; 1♀, from Katezari and around, 19-X-1997; 2♂, 1♀ from Kala Amba and around, 20-X-1997; 3♂, 2♀ from Kolsa land and around, 24-X-1997; 1♂, 1♀ from Karva tank and around, 26-X-1997; all Coll. A.S. Mahabal; 1♂ from Panchdhara nalla and around, 20-III-1999; 4♂, 6♀ Telia dam- Mahurli and around, 21-III-1999; 3♂, 4♀ from Vasant Bandhara and around, 22-III-1999; 4♂, 7♀ from Shivanzari nalla-Kolsa, 25-III-1999; 4♂, 10♀ from Andhari Nallah and around, Tadoba, 6♂, 4♀ from Pandharpauni, 26-III-1999; 4♀ from Devzari- Kolara Road, 27-III-1999; 5♂, 7♀ from Jamni tank and around, 28-III-1999; all Coll. R.M. Sharma; 1♀ from Hirdi nalla compartment N0.313, 4-IV-2000; 2♂, 5♀ from Katezari, 11-IV-2000, 11♀ from Khatoda Gate to Karva Gate Road and around, 12-IV-2000, 5♂, 2♀ from Kola Amba, 13-IV-2000; all Coll. P.P. Kulkarni; 1♀ from Pandharpauni, 20-I-2001; 1♂ from Katezari, 21-I-2001; 2♀ from Doni nalla and around, 24-I-2001; 1♂, 3♀ from Kolsa Talav and around, 26-I-2001; 1♂, 3♀ from Andhari river, 23-I-2001; 1♂, 3♀ from Botezari, 27-I-2001, all Coll. S.G.Patil.

Distribution : India : Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Gujarat, Himachal Pradesh, Jammu and Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Orissa, Tamilnadu, Uttar Pradesh, West Bengal.

Elsewhere : China; Japan; Nepal; Pakistan; Taiwan.

Family BELOSTOMATIDAE
 Subfamily BELOSTOMATINAE
 Genus *Diplonychus* Laporte

22. *Diplonychus annulatus* (Fabricius, 1781)

1781. *Nepa annulata* Fabricius, *Carol. Ernest. Bokhnii. Hamburgi et Kiloni* : 333.

1833. *Sphaerodema rotundata* Laporte, *Systematique Hemipteres, zoologie, Paris* : 18.

1906. *Sphaerodema annulatum* Fabricius : Distant, *Fauna British India*, 3 : 35.

1906. *Sphaerodema annulatum* Fabricius : Hafiz and Pradhan, 1947. *Rec. Indian Mus.*, 45 : 375.

1995. *Diplonychus annulatus* (Fab.) : Polhemus, *Proc. Entomol. Soc. Washington*, 97 : 651.

2002. *Diplonychus annulatus* (Fab.) : Thirumalai *et al. Res. Bull. Panjab Univ.*, 52 : 157

Diagnosis : This is the largest of Indian species of the genus (more than 20 mm) with greatest expense of hemelytra which together size up the total body length. The anterior tarsus is two segmented.

Material Examined : 1 immature from Kalamba, 3-X-1994, Coll. R.M. Sharma; 1♀ from

Pandharpauni, 26-II-1995, Coll. R.H.Kamble; 1♂, 2♀ and 1 immature from Telia dam-Mahurli and around, 21-III-1999; Coll. R.M. Sharma.

Distribution : India : Andhra Pradesh, Assam, Bihar, Chandigarh, Delhi, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamilnadu, West Bengal

Elsewhere : Pakistan; Taiwan.

23. *Diplonychus rusticus* (Fabricius, 1781)

1781. *Nepa rustica* Fabricius, *Ent. Sept.*, **4** : 62

1906. *Sphaerodema rusticum* (Fab.) : Distant, *Fauna British India*, **3** : 36.

1961. *Diplonychus rusticus* (Fab.) : Lauck & Menke, *Ann. Entomol. Soc. Amer.*, **54** : 649.

1961. *Diplonychus rusticus* (Fab.) : Thirumalai, 1994. *Rec. zool. Surv. India, Occ. Pap.*, **165** : 25.

2001. *Diplonychus rusticus* (Fab.) : Thirumalai, *Fauna of Conservation Area*, **11** : 119.

1980. *Diplonychus indicus* Venkatesan & Rao, *J. Bombay nat. Hist. Soc.* **88** : 299.

Diagnosis : *D. rusticus* can easily be identified by the smaller size (Less than 20 mm), pale lateral basal margins of pronotum, head length is shorter than the width between the eyes, single segmented fore tarsus and a smaller claw. This species commonly found in fishponds and is a voracious feeder on fish larvae. It is also known to feed on a wide variety of aquatic organisms including mosquito larvae.

Material Examined : 1 immature from Crocodile centre and along, Tadoba lake down stream, 1-I-1994; Coll. R.M.Sharma; 1♀ from Kolsa lake and around, 24-X-1997, Coll. A.S. Mahabal; 1♂ from Telia Dam, 16-IX-1998; Coll. P.P. Kulkarni.

Distribution : India : Andaman & Nicobar Island, Andhra Pradesh, Arunachal Pradesh, Bihar, Chandigarh, Delhi, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharashtra, Orissa, Pondicherry, Rajasthan, Tamilnadu, West Bengal.

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

Subfamily LETHOCERINAE

Genus *Lethocerus* Mayr

Subgenus *Lethocerus* Mayr

24. *Lethocerus indicus* (Lepeletier & Serville, 1825)

1775. *Belostoma indica* Lepeletier & Serville, *Encycl. Meth.*, **X** : 272

1871. *Belostoma indicum* Lepeletier & Serville, *Mayr Verh. zool.- bot. Ges. Wien*, **12** : 426.

1906. *B. indicum* (Lepeletier & Serville) : Distant, *Fauna British India*, **3** : 38.

1927. *Lethocerus indicus* (Lep. & Serv.) : Buneo, *Bull. Brooklyn Entomol. Soc.*, **12** : 30

1933. *Lethocerus indicus* (Lep. & Serv.) : Lundblad, *Arch. Hydrobiol. Suppl.*, **12** : 52.

1995. *Lethocerus indicus* (Lep. & Serv.) : Polhemus, *Cat. Het. Palaerctic region*, **1** : 23.

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

Material Examined : 1♂ from Telia Dam, 20-VIII-1995, Coll.S.G. Patil; 2♂, 1♀ from Vikas Bandhara and around Tadoba, 30-III-1996; 1♂ from Andhari Nallah and around Tadoba, 4-IV-1996; 1♀ from Ramdegi nalla, 9-IV-1996, all Coll : P.P. Kulkarni; 1♂ from Telia dam-Mahurli and around, 21-III-1999; 1♂ from Vasant Bandhara and around, 22-III-1999; 1♀ from Kala Amba-Bhanaskhindi, 24-III-1999; 1♂ from Shivanzari nalla- Kolsa, 25-III-1999; all Coll. R.M. Sharma; 1♂ and 2♀ from Pangdi Talav and around, 25-I-2001, 1♂ from Kolsa Talav and around, 26-I-2001; 1♀ from Panchdhara stream on Tadoba Chimur Road, 25-IX-2004; all Coll. S.G. Patil.

Distribution : India : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Karnataka, Kerala, Meghalaya, Madhya Pradesh, Maharashtra, Mizoram, Orissa, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal

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

| | |
|-----------|-------------------------------|
| FAMILY | CORIXIDAE |
| Subfamily | CORIXINAE |
| Genus | <i>Sigara</i> Fabricius |
| Subgenus | <i>Tropocorixa</i> Hutchinson |

25. *Sigara (Tropocorixa) distorta* (Distant, 1910)

1910. *Corixa distorta* Distant, *Fauna Brit. India*, **5** : 343
 1910. *Corixa affinis* Distant, *Fauna Brit. India*, **5** : 341.
 1910. *Corixa verecunda* Distant, *Fauna Brit. India*, **5** : 344.
 1933. *Sigara (S) distorta* (Distant) : Hutchinson, *Rec. Indian Mus.*, **35** : 403.
 1940. *Corixa (Tropocorixa) distorta* Distant : Hutchinson, *Trans. Conn. Acad. Art. Sci.*, **33** : 440.
 1947. *Sigara (T) distorta* (Distant) : Hafiz & Pradhan, *Rec. Indian Mus.*, **45** : 356.
 1995. *Sigara (T) distorta* (Distant) : Jansson, *Catal. Heter. Palearctic region*, **1** : 54.
 1997. *Sigara (T) distorta* (Distant) : Bal & Basu, *Zool. Surv. India, State Fauna*, **6** : 265.
 2002. *Sigara (T) distorta* (Distant) : Thirumalai & Sharma, *Zool. Surv. India, Wetland Ecosystem Series*, **3** : 108.
 2004. *Sigara (T) distorta* (Distant) : Bal & Basu, *Zool. Surv. India, State Fauna*, **10** : 297.

Diagnosis : Size upto 5.7mm; male characterised by 7th abdominal tergite with a very small median setiferous lobe, the margin of the segment slightly lobed on its right side, right paramere very broad in basal half, narrowed beyond the middle; left paramere elongate triangular, ventral margin with a long thin tube separates from the body of the paramere by a cleft. *S. distorta* is a wide spread species in Northern India and Central India; a sub Himalayan type of far Eastern origin. Commonly found in stagnant water bodies with aquatic macrophytes.

Material Examined : 3♂ and 3♀ from Roadside pools near Jamni village, 6-X-1994, Coll.R.M. Sharma.

Distribution : India : Bihar, Himachal Pradesh, MadhyaPradesh, Maharashtra, Manipur, Punjab, West Bengal.

Elsewhere : China; Nepal; Pakistan.

SUMMARY

The present study, based on a small collection of aquatic and semi-aquatic hemipterans collected from Tadoba Andhari Tiger Reserve, Maharashtra resulted in the enumeration of 25 species belonging to 14 genera accommodated under 6 families. Of which, *Enithares fusca* Brooks, *Cercotmetus asiaticus* Amyot & Serville, *C. brevipes* Montandon and *C. pilipes* (Dallas) among Nepomorpha constitute first records for Maharashtra State. A key to the families recorded is also provided.

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INSECTA : LEPIDOPTERA : RHOPALOCERA AND GRYPYCERA

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INTRODUCTION

Butterflies are an integral part of the forest ecosystem and show distinct patterns of habitat utilization. They are very much habitat sensitive and turn away from the deteriorating habitats. Fortunately conservation areas provide much needed protection and desired environment for butterflies to thrive. Although enough work has been done on the butterflies of different regions, studies based on the Protected Areas (PAs) in India are scanty. There is no comprehensive published account of the butterflies and skippers occurring in the Tadoba –Andhari Tiger Reserve. 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 Tadoba –Andhari Tiger Reserve is based on a collection of more than 600 examples collected during September 1994 to January 2001 by the scientists of Western Regional Station; Pune referable to 68 species in 50 genera spread over seven families. Descriptions depicting the diagnostic features of the species dealt here are excluded from this account as access to such details can be had from the works of Evans (1932), Talbot (1939, 1947) and Wynter-Blyth (1957). The nomenclature followed here is after Wynter-Blyth (1957) for HesperIIDae and for other families 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.

SYSTEMATIC ACCOUNT

| | |
|-------------|---------------|
| Order | LEPIDOPTERA |
| Suborder | RHOPALOCERA |
| Superfamily | PAPILIONOIDEA |
| I Family | PAPILIONIDAE |

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| | Subfamily | PAPILIONINAE |
| | Tribe | Leptocircini |
| 1 | <i>Pathysa nomius</i> (Esper.) | |
| | Tribe | Papilionini |
| 2. | <i>Papilio demoleus</i> Linn. | |
| 3. | <i>Papilio polytes</i> Linn. | |
| | Tribe | Troidini |
| 4. | <i>Pachliopta aristolochiae</i> (Fab.) | |
| 5. | <i>Pachliopta hector</i> (Linn.) | |
| | II Family | PIERIDAE |
| | Subfamily | PIERINAE |
| | Tribe | Pierini |
| 6. | <i>Belenois aurota</i> (Fab). | |
| 7. | <i>Cepora nerissa</i> (Fab). | |
| 8. | <i>Delias eucharis</i> (Drury) | |
| | Tribe | Colotini |
| 9. | <i>Ixias marianne</i> (Cramer) | |
| 10. | <i>Ixias pyrene</i> Linn. | |
| | Subfamily | COLIADINAE |
| 11. | <i>Catopsilia pomona</i> (Fab.) | |
| 12. | <i>Catopsilia pyranthe</i> (Linn.) | |
| 13. | <i>Terias brigitta</i> (Stoll) | |
| 14. | <i>Terias hecabe</i> (Linn.) | |
| 15. | <i>Terias laeta</i> Boisduval | |
| 16. | <i>Terias blanda</i> (Boisduval) | |
| | III Family | DANAIDAE |
| | Subfamily | DANAINAE |
| 17. | <i>Danaus chrysippus</i> (Linn.) | |
| 18. | <i>Danaus genutia</i> (Cramer) | |
| 19. | <i>Tirumala limniace</i> (Cramer) | |
| | Subfamily | EUPLOEINAE |
| 20. | <i>Euploea core</i> (Cramer) | |
| | IV Family | SATYRIDAE |
| | Subfamily | SATYRINAE |
| | Tribe | Melanitini |
| 21. | <i>Melanitis leda</i> (Linn.) | |

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| | Tribe | Mycalesini |
| 22. | <i>Mycalesis mineus</i> (Linn.) | |
| 23. | <i>Mycalesis perseus</i> Fab. | |
| | Tribe | Ypthimini |
| 24. | <i>Ypthima asterope</i> Klug. | |
| 25. | <i>Ypthima huebneri</i> Kirby | |
| 26. | <i>Ypthima baldus</i> Fab. | |
| | V Family | NYMPHALIDAE |
| | Subfamily | BIBLIDINAE |
| 27. | <i>Ariadne ariadne</i> (Linn.) | |
| 28. | <i>Byblia ilithyia</i> Drury | |
| | Tribe | Argynnini |
| 29. | <i>Phalanta phalantha</i> (Drury) | |
| | Subfamily | NYMPHALINAE |
| | Tribe | Vanessidi |
| 30. | <i>Precis iphita</i> (Cramer) | |
| 31. | <i>Junonia almana</i> (Linn.) | |
| 32. | <i>Junonia hierta</i> (Fab.) | |
| 33. | <i>Junonia lemonias</i> (Linn.) | |
| 34. | <i>Junonia orithya</i> (Linn.) | |
| 35. | <i>Junonia atlites</i> (Linn.) | |
| | Tribe | Hypolimini |
| 36. | <i>Hypolimnas bolina</i> (Linn.) | |
| 37. | <i>Hypolimnas misippus</i> (Linn.) | |
| | Subfamily | LIMENITIDINAE |
| | Tribe | Neptini |
| 38. | <i>Neptis hylas</i> (Linn.) | |
| | Tribe | Limenitidini |
| 39. | <i>Moduza procris</i> (Cramer) | |
| | Tribe | Euthaliini |
| 40. | <i>Symphaedra nais</i> (Forster) | |
| | Subfamily | CHARAXINAE |
| | Tribe | Charaxini |
| 41. | <i>Polyura athamas</i> Drury | |
| 42. | <i>Charaxes solon</i> (Fab.) | |

43. *Charaxes bernardus* Fabricius
Subfamily ACRAEINAE
44. *Acraea terpsicore* (Linn.)
VI Family LYCAENIDAE
Subfamily POLYOMMATINAE
Tribe **Polyommagini**
45. *Jamides bochus* Stoll
46. *Jamides celeno* (Cramer)
47. *Catochrysops strabo* (Fab.)
48. *Lampides boeticus* (Linn.)
49. *Leptotes plinius* (Fab.)
50. *Castalius rosimon* (Fab.)
51. *Zizina otis* Fab.
52. *Pseudozizeeria maha* (Kollar)
53. *Zizula hylax* (Fab.)
54. *Celastrina lavendularis* Moore
55. *Euchrysops cnejus* (Fab.)
56. *Chilades laius* Stoll
57. *Freyeria trochylus* (Freyer)
Subfamily APHNAEINAE
58. *Spindasis vulcanus* (Fab.)
Subfamily THECLINAE
Tribe **Arhopalini**
59. *Narathura amantes* Hewitson
60. *Surendra vivarna* Horsefield
Suborder GRYPOCERA
VII Family HESPERIIDAE
Subfamily COELIADINAE
61. *Hasora chromus* (Fab.)
62. *Badamia exclamationis* (Fab.)
Subfamily PYRGINAE
63. *Spialia galba* (Fab.)
Subfamily HESPERIINAE
64. *Udaspes folus* Cramer
65. *Oriens goloides* Moore

66. *Telicota ancilla* Mabille

67. *Caltoris kumara* Moore

Subfamily ERIONOTINAE

68. *Matapa aria* (Moore)

SYSTEMATIC ACCOUNT

Family PAPILIONIDAE

1. *Pathysa nomius* (Esper.)
The Spot Swordtail

1801. *Papilio nomius* Esper, Die Ausländische 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 : 3 exs. Kala-Amba, 13.iv.2000, P.P. Kulkarni & Party.

2. *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 : 1 ex. Tadoba-Chimur Rd., 25.ix.1994; 2 exs. Vasant Bandhara, 26.ix.1994; 23 exs. Tadoba Lake Circular route; 27.ix.1994, 1 ex. Backwaters of Telia Dam nr. Mahurli, 28.ix.1994; 2 exs. Katezari-Waghnala, 29.ix.1994; 1 ex. Crocodile Centre, 1.x.1994; 1 ex. 3 km South of Tadoba, 7.x.1994, all R.M. Sharma & Party; 1 ex. Katezari, 31.iii.1996, 1 ex. Ambat hira, 2.iv.1996, all P.P. Kulkarni & party; 1 ex. Vasant Bandhara, 5.xii.1996, 1 ex. Pandhar Paoni, 8.xii.1996, R.M. Sharma & Party; 1 ex. Ramdegi, 22.x.1997, 1 ex. Andhari Nallah, 23.x.1997, 1 ex. Karwa Tank, 26.x.1997, all A.S. Mahabal & Party; 1 ex. Vasant Bandhara, 12.ix.1998, 1 ex. Rest House Tadoba, 13.ix.1998, 6 exs. Pandhar Pavni, 15.ix.1998, 1 ex. Shivanzari Nallah, 19.ix.1998 all P.P. Kulkarni & Party; 1 ex. Doni Nallah, 24.i.2001, S.G. Patil & Party.

3. *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 : 1 ex Tadoba-Chimur Rd., 25.ix.1994, 1 ex. Katezari-Waghnala, 29.ix.1994; all R.M. Sharma & Party; 1 ex 29.iii.1996. P.P. Kulkarni & party; 1 ex Vasant Bandhara, 5.xii.1996, 1 ex Ambat Heera, 11.xii.1996, R.M. Sharma & Party; 1 ex Andhari Nallah, 23.x.1997, 1 ex Telia Dam, 25.x.1997, all A.S. Mahabal & Party; 1 ex Botezari, 20.ix.1998, P.P. Kulkarni & Party; 1 ex Katezari-Ambat Heera, 23.iii.1999; 1 ex Kala-Amba-Bhanaskhindi, 24.iii.1999; 2 exs. Devzari-Kolsa Rd., 27.iii.1999, all R.M. Sharma & Party; 1 ex Katezari, 11.iv.2000, P.P. Kulkarni & Party.

4. *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. Tadoba-Chimur Rd., 25.ix.1994, 2 exs. Vasant Bandhara, 26.ix.1994; 1 ex. Crocodile Centre, 1.x.1994; 1 ex Ramdegi, 7.xii.1996, 1 ex Ambat Heera, 11.xii.1996, all R.M. Sharma & Party; 1 ex Andhari Nallah, 23.x.1997, A.S. Mahabal & party; 1 ex Botezari, 20.ix.1998, P.P. Kulkarni & Party; 1 ex Katezari-Ambat Heera, 23.iii.1999; R.M. Sharma & Party; 1 ex Kala-Amba, 13.iv.2000, P.P. Kulkarni & Party.

5. *Pachliopta hector* (Linn.)

Crimson Rose

1758. *Papilio hector* Linnaeus, *Syst. Nat. ed.* **10** : 459.

1939. *Polydorus hector* : Talbot, *Fauna Brit. India Butterflies*, **1** : 83.

1987. *Pachliopta hector* : Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 40.

1993. *Pachliopta hector* : Varshney, *Oriental Insects*, **27** : 354

Material examined : 1 ex. Tadoba-Chimur Rd. 25.ix.1994, 3 exs. Vasant Bandhara, 26.ix.1994, 1 ex Ramdegi, 7.xii.1996, all R.M. Sharma & Party.

Family PIERIDAE

6. *Belenois aurota* (Fab.)

The Pioneer or Caper White

1793. *Papilio aurota* Fabricius, *Syst. Ent* : 197

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 : 1 ex. Katezari-Waghnala, 29.ix.1994; 1 ex. Khatoda-Palasaon Rd. 30.ix.1994; 1 ex. Crocodile Centre, 1.x.1994; R.M. Sharma & Party.

7. *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 : 1 ex. Tadoba-Chimur Rd. 25.ix.1994, 1 ex. Palasaon-Karwa Rd. 4.x.1994, 1 ex Katezari, 4.xii.1996, 1 ex Pandhar Paoni, 8.xii.1996, 1 ex Kala-Amba-Bhanaskhindi, 24.iii.1999, all R. M. Sharma & party.

8. *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.

1987. *Delias eucharis* : Larsen, *J. Bombay Nat. Hist. Soc.*, **84** : 46

1993. *Delias eucharis* : Varshney, *Oriental Insects*, **27** : 359

Material examined : 1 ex. Tadoba Lake Circular route, 27.ix.1994; 1 ex. Crocodile Centre, 1.x.1994; 1 ex Katezari, 4.xii.1996, 1 ex Ramdegi, 7.xii.1996, 1 ex Shivanzari Nallah-Kolsa, 25.iii.1999; 3 exs. Devzari-Kolara Rd. 27.iii.1999, all R.M. Sharma & Party; 1 ex Kolsa Tank, 26.i.2001, S.G. Patil & Party.

9. *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 : 4 exs. Katezari-Waghnala, 29.ix.1994; 3 exs. Katezari-Ambat Heera, 23.iii.1999, R.M. Sharma & Party; 1 ex Telia Dam, 22.i.2001, S.G. Patil & Party.

10. *Ixias pyrene* Linn.

The Yellow Orange Tip

1939. *Ixias pyrene* : Talbot, *Fauna Brit. India Butterflies*, **1** : 443.

1987. *Ixias pyrene* : Larsen, *J. Bombay Nat. Hist. Soc.*, **84** : 51.

1993. *Ixias pyrene* : Varshney, *Oriental Insects*, **27** : 361.

Material examined : 2 exs. Katezari, 4.xii.1996, R.M. Sharma & Party; 1 ex Katezari, 11.iv.2000, P.P. Kulkarni & Party; 1 ex Telia Dam, 22.i.2001, S.G. Patil & Party.

11. *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. Tadoba-Chimur Rd. 25.ix.1994, 1 ex. Vasant Bandhara, 26.ix.1994, 3 exs. Tadoba Lake Circular route 27.ix.1994, 2 exs. Khatoda-Palasaon Rd. 30.ix. 1994; 1 ex. Crocodile Centre, 1.x.1994; 1 ex. Kala-Amba, 3.x.1994, all R.M. Sharma & Party; 1 ex. Panchdhara, 10.viii.1995, 2 exs. Katezari, 12.viii.1995, all S.G. Patil & Party; 1 ex Devzari-Kolara Rd., 27.iii.1999, R.M. Sharma & Party.

12. *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 : 1 ex Kala-Amba, 3.x.1994, 1 ex Palasaon-Karwa Rd. 4.x.1994, R.M. Sharma & Party; 1 ex Panchdhara, 10.viii.1995, 1 ex Telia Nallah, 13.viii.1995, S.G. Patil & Party; 1 ex Katezari, 4.xii.1996, R.M. Sharma & Party; 1 ex Ramdegi, 22.x.1997, A.S. Mahabal & Party.

13. *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 : 5 exs. Vasant Bandhara Rd. 11.viii.1995, S.G. Patil & Party.

14. *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 : 1 ex. Tadoba-Chimur Rd. 25.ix.1994; 1 ex. Tadoba Lake Circular route, 27.ix.1994; 1 ex. Khatoda-Palasaon Rd.30.ix.1994; all R.M. Sharma & Party; 1 ex Panchdhara, 29.iii.1996, 3 exs. Katezari, 31.iii.1996, 2 exs. Rest House Tadoba, 13.ix.1998 all P.P. Kulkarni & Party; 1 ex Telia Dam, 21.iii.1999, 1 ex Katezari-Ambat Heera, 23.iii.1999, R.M. Sharma & Party; 1 ex Botezari, 27.i.2001 S.G. Patil & Party.

15. *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 : 7 exs. Tadoba Lake Circular route, 27.ix.1994; 1 ex. Khatoda-Palasaon Rd. 30.ix.1994, all R.M. Sharma & Party; 2 exs Katezari, 12.viii.1995, 2 exs. Telia Nallah, 13.viii.1995, all S.G. Patil & Party; 2 exs. Vikas Bandhara, 30.iii.1996, 1 ex Katezari, 31.iii.1996, all P.P. Kulkarni & Party; 2 exs. Panchdhara, 3.xii.1996, R.M. Sharma & Party; 1 ex Telia Dam, 25.x.1997, A.S. Mahabal & Party; 1 ex Pangli Gate, 18.ix.1998, P.P. Kulkarni & Party; 1 ex Katezari, 11.iv.2000, 2 exs. Kolsa Lake, 22.iv.2000 all P.P. Kulkarni & Party.

16. *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 : 3 exs. Vasant Bandhara Rd. 11.viii.1995; S.G. Patil & Party; 1 ex Ramdegi, 22.x.1997, A.S. Mahabal & Party; 1 ex Telia Dam, 21.iii.1999, R.M. Sharma & Party.

Family DANAIDAE

17. *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 : 1 ex Vasant Bandhara, 26.ix.1994, 1 ex. Tadoba Circular route, 27.ix.1994; 3 exs. Backwaters of Telia Dam nr. Mahurli; 28.ix.1994; all R.M. Sharma & Party; 1 ex Panchdhara, 29.iii.1996, 1 ex Kala–Amba, 3.iv.1996 all P.P. Kulkarni & Party; 2 exs. Kolaragate, 6.xii.1996, 2 exs. Telia Dam, 21.iii.1999; 2 exs. Katezari- Ambat Heera, 23.iii.1999, all R.M. Sharma & Party; 1 ex Katezari, 11.iv.2000, 1 ex Kala-Amba, 13.iv.2000, 4 exs. Chichghat, 14.iv.2000 all P.P. Kulkarni & Party.

18. *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. Backwaters of Telia Dam nr. Mahurli, 28.ix.1994, R.M. Sharma & Party; 1 ex Kala-Amba, 3.iv.19996, 1 ex Telia Dam 7.iv.1996, all P.P. Kulkarni & Party; 1 ex Ambat Heera, 11.xii.1996; 1 ex 20.v.1997, 1 ex Ambat hira 24.v.1997, all R.H.Kamble & Party; 1 ex Shivanzari Nallah, 19.ix.1998, P.P. Kulkarni & Party; 2 exs. Kolsa Lake, 22.iv.2000, P.P. Kulkarni & Party.

19. *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. 1 ex. Katezari, 31.iii.1996, P.P. Kulkarni & Party; 3 exs. Panchdhara, 20.iii.1999; 1 ex Vasant Bandhara, 22.iii.1999; 4 exs. Katezari-Ambat Heera, 23.iii.1999, all R.M. Sharma & Party; 1 ex. Katezari, 11.iv.2000, 1 ex. Chichghat, 14.iv.2000, P.P. Kulkarni & Party.

20. *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 : 13 exs. Tadoba-Chimur Rd. 25.ix.1994, 1 ex. Vasant Bandhara, 26.ix.1994; 1 ex. Crocodile Centre, 1.x.1994; 2 exs. Pandharpani on Tadoba-Mahurli Rd. 5.x.1994, 3 exs. 3 km South of Tadoba 7.x.1994, all R.M. Sharma & Party; 5 exs. Panchdhara, 10.viii.1995, S.G. Patil & Party; 1 ex. Devzari, Kollar gate, 8.iii.1995, R.H.Kamble & Party; 1 ex Telia Nallah, 13.viii.1995, 1 ex Panchdhara, 14.viii.1995, 1 ex Ambazari, 19.viii.1995, all S.G. Patil & Party; 2 exs. Panchdhara, 29.iii.1996, 1 ex. Katezari, 31.iii.1996, all P.P. Kulkarni & Party; 2 exs. Panchdhara, 3.xii.1996, R.M. Sharma & Party; 1 ex Andhari Nallah, 23.x.1997, 1 ex Kolsa Tank, 24.x.1997, 1 ex Telia Dam, 25.x.1997 all A.S. Mahabal & Party; 1 ex Katezari, 13.ix.1998, 1 ex Ramdegi, 14.ix.1998, P.P. Kulkarni & Party; 1 ex Panchdhara, 20.iii.1999; 1 ex Katezari-Ambat Heera, 23.iii.1999, R.M. Sharma & Party; 3 exs. Katezari, 11.iv.2000, 3 exs. Kala- Amba, 13.iv.2000, P.P. Kulkarni & Party; 1 ex Katezari, 21.i.2001; 1 ex Doni Nallah, 24.i.2001; 2 exs. Botezari, 27.i.2001, all S.G. Patil & Party.

Family SATYRIDAE

21. *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. Khatoda- Palasgaon Rd. 30.ix.1994; 3 exs. Rest House II, at light, 3.X.1994, 1 ex Kala-Amba, 3.x.1994, all R.M. Sharma & Party; 2 exs. Rest House no.2, Tadoba, 30.iii.1996. P.P. Kulkarni & Party; 2 exs. Panchdhara, 3.xii.1996, 1 ex At light, Tadoba Rest House, 5.xii.1996, R.M. Sharma & Party; 1 ex Kala- Amba, 20.x.1997, A.S. Mahabal & Party; 1 ex Rest House Tadoba, 13.ix.1998, P.P. Kulkarni & Party.

22. *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 : 4 exs. Crocodile Centre, 1.x.1994, 1 ex Rest House II, at light, 5.x.1994, 1 ex Katezari, 4.xii.1996, 1 ex Kolaragate, 6.xii.1996, all R.M. Sharma & Party.

23. *Mycalesis perseus* Fabricius

The Common Bush Brown

1775. *Papilio perseus* Fabricius, *Syst. Ent.*, p. 488.

1883. *Mycalesis perseus* : de Niceville, Butterflies of India Burma & Ceylon, 1 : 120.

1947. *Mycalesis mineus* : Talbot, *Fauna Brit. India Butterflies*, 2 : 130.

1994. *Mycalesis perseus* : Varshney, *Oriental Insects*, 28 : 157.

Material examined : 4 exs. Crocodile Centre, 1.x.1994, 1 ex Palasgaon-Karwa Rd. 4.x.1994, 1 ex At light, Tadoba Rest House II, 5.xii.1996, 2 exs. Panchdhara, 20.iii.1999; 1 ex Katezari-Ambat Heera, 23.iii.1999, 1 ex Shivanzari Nallah, 25 iii.1999, all R.M. Sharma & Party.

24. *Ypthima asterope* Klug.

The Common Three ring

1832. *Hipparchia asterope* Klug. *Symb. Phys. Pl.* xxix

1883. *Ypthima asterope* : de Niceville, Butterflies of India Burma & Ceylon, 1 : 224.

1947. *Ypthima asterope* : Talbot, *Fauna Brit. India Butterflies*, 2 : 324

1994. *Ypthima asterope* : Varshney, *Oriental Insects*, 28 : 159

Material examined : 1 ex Katezari, 21.i.2001; 1 ex Pangdi Talao, 25.i.2001 S.G. Patil & Party.

25. *Ypthima huebneri* Kirby

The 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 Pangdi Talao, 25.i.2001, S.G. Patil & Party.

26. *Ypthima baldus* Fabricius

The Common Fivering

1987. *Ypthima baldus* : Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 566.

1994. *Ypthima baldus* : Varshney, *Oriental Insects*, 28 : 159

Material examined : 1 ex. Vasant Bandhara Rd. 11.viii.1995, S.G. Patil & Party.

Family Nymphalidae

27. *Ariadne ariadne* (Linn.)

The Angled Castor

1767. *Papilio ariadne* Linnaeus, *Syst Nat.* 1 : 778

1886. *Ergolis ariadne* : de Niceville, *The Butterflies of India Burma & Ceylon*, 2 : 10.

1987. *Ariadne ariadne* : Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 567.

1994. *Ariadne ariadne* : Varshney, *Oriental Insects*, 28 : 167

Material examined : 2 exs. Kolaragate, 6.xii.1996; 2 exs. Kala-Amba-Bhanus Khindi, 9.xii.1996, R.M. Sharma & Party; 1 ex Ramdegi, 14.ix.1998, P.P. Kulkarni & Party.

28. *Byblia ilithyia* Drury
The Joker

1773. *Papilio ilithyia* : Drury, *Ill. Ex. Ins*, 2 : 29.

1886. *Byblia ilithyia* : de Niceville, *Butterflies of India Burma & Ceylon*, 2 : 14.

1987. *Byblia ilithyia* : Larsen, *J. Bombay Nat. Hist. Soc.*, 84 : 567.

1994. *Byblia ilithyia* : Varshney, *Oriental Insects*, 28 : 168

Material examined : 1 ex Ramdegi, 7.xii.1996, R.M. Sharma & Party.

29. *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 : 2 exs. Khatoda- Palasgaon Rd. 30.ix.1994; Palasgaon-Karwa Rd. 4.x.1994, 2 exs. Pandharpani on Tadoba-Mahurli Rd. 5.x.1994, 1 ex Ramdegi, 7.xii.1996, all R.M. Sharma & Party; 1 ex Andhari Nallah, 23.x.1997, 1 ex Kolsa Tank, 24.x.1997, 1 ex Karwa Tank, 26.x.1997, all A.S. Mahabal & Party.

30. *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 : 2 exs. Katezari, 4.xii.1996, 1 ex Kala-Amba-Bhanus Khindi, R.M. Sharma & Party.

31. *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 : 1ex. Palasgaon-Karwa Rd. 4.x.1994, 1 ex Ambat Heera, 11.xii.1996, R.M. Sharma & party; 1 ex Katezari, 12.viii.1995, S.G. Patil & Party; 1 ex Devzari-Kolsa Rd. 27.iii.1999, R.M. Sharma & Party.

32. *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 Ambat Heera, 11.xii.1996, R.M. Sharma & Party; 1 ex Andhari Nallah, 23.x.1997, A.S. Mahabal & Party.

33. *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 : 1 ex. Tadoba-Chimur Rd. 25.ix.1994, 1 ex. Crocodile Centre, 1.x.1994, R.M. Sharma & Party; 2 exs. Vasant Bandhara, 25.ii.1995, R.H.Kamble & Party; 1 ex Ambazari, 19.viii.1995, S.G. Patil & Party; 1 ex Katezari, 4.xii.1996, 1 ex Kolaragate, 6.xii.1996; 1 ex Ambat Heera, 11.xii.1996, all R.M. Sharma & Party; 1 ex Katezari, 19.x.1997, 1 ex Andhari Nallah, 23.x.1997, all A.S. Mahabal & Party; 1 ex Ramdegi, 14.ix.1998, P.P. Kulkarni & Party; 1 ex Panchdhara, 20.iii.1999; 1 ex Shivanzari Nallah- Kolsa, 25.iii.1999; 1 ex Devzari-Kolsa Rd., 27.iii.1999, all R.M. Sharma & Party.

34. *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 : 1 ex. Palasgaon-Karwa Rd., 4.x.1994, 1 ex Katezari, 4.xii.1996, 2 exs. Kala-Amba-Bhanus Khindi, 9.xii.1996; 1 ex Ambat Heera, 11.xii.1996, all R.M. Sharma & Party; 1 ex Andhari Nallah, 23.x.1997, A.S. Mahabal & Party; 1 ex Vasant Bandhara, 22.iii.1999, 1 ex Pandhar Paoni, 26.iii.1999; R.M. Sharma & Party.

35. *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 : 2 exs. Katezari, 31.iii.1996, P.P. Kulkarni & Party; 3 exs. Panchdhara, 3.xii.1996; 2 exs. Katezari, 4.xii.1996, 1 ex Ambat Heera, 11.xii.1996, all R.M. Sharma & Party; 1 ex Kala-Amba, 20.x.1997, 2 exs. Ambat hira, 21.x.1997, all A.S. Mahabal & Party;

1 ex Rest House Tadoba, 13.ix.1998, 2 exs. Telia Dam, 16.ix.1998, all P.P. Kulkarni & Party; 2 exs. Vasant Badhara, 22.iii.1999; 1 ex Katezari-Ambat Heera, 23.iii.1999, R.M. Sharma & Party; 2 exs. Hirdi Nallah, 21.iv.2000, P.P. Kulkarni & Party.

36. *Hypolimnas bolina* (Linn.)
The Great Eggfly

1758. *Papilio bolina* Linnaeus, *Syst. Nat. ed.* 10 : 479

1905. *Hypolimnas bolina* : Bingham, *Fauna Brit. India Butterflies*, 1 : 386

1994. *Hypolimnas bolina* : Varshney, *Oriental Insects*, 28 : 177

Material examined : 1 ex. Tadoba-Chimur Rd. 25.ix.1994, 1 ex Vasant Bandhara, 26.ix.1994; 1 ex. Tadoba lake Circular route, 27.ix.1994, all R.M. Sharma & Party; 5 exs. Panchdhara, 10.viii.1995, 1 ex Tadoba Lake, 15.viii.1995, 1 ex Ambazari, 19.viii.1995 all S.G. Patil & Party; 1 ex Panchdhara, 3.xii.1996; 1 ex Katezari, 4.xii.1996, R.M. Sharma & Party.

37. *Hypolimnas misippus* (Linn.)
The Danaid Eggfly

1764. *Papilio misippus* Linnaeus, *Mus. Ulr.*, : 264

1905. *Hypolimnas misippus* : Bingham, *Fauna Brit. India Butterflies*, 1 : 388

1987. *Hypolimnas misippus* : Larsen, *J. Bombay Nat. Hist. Soc.*, 84 : 571

1994. *Hypolimnas misippus* : Varshney, *Oriental Insects*, 28 : 177

Material examined : 1 ex. Katezari, 12.viii.1995, S.G. Patil & Party; 2 exs. Katezari, 4.xii.1996, 2 exs. Kolaragate, 6.xii.1996, R.M. Sharma & Party; 1 ex Andhari Nallah, 23.x.1997, 1 ex Kolsa Tank, 24.x.1997, 1 ex Karwa Tank, 26.x.1997 all A.S. Mahabal & Party; 1 ex Devzari-Kolsa Rd. 27.iii.1999, R.M. Sharma & Party.

38. *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 : 2 exs. Panchdhara, 3.xii.1996; 2 exs. Katezari, 4.xii.1996, 1 ex Pandhar Paoni, 8.xii.1996, all R.M. Sharma & Party; 1 ex Botezari, 20.ix.1998, P.P. Kulkarni & Party.

39. *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. Vasant Bandhara, 26.ix.1994; 1 ex Katezari, 4.xii.1996, 1 ex Pandhar Paoni, 8.xii.1996, all R.M. Sharma & Party.

40. *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. Khatoda-Palasaon Rd. 30.ix.1994; 3 exs. Panchdhara, 3.xii.1996, R.M. Sharma & Party; 1 ex Andhari Nallah, 23.x.1997, 1 ex Karwa Tank, 26.x.1997, all A.S. Mahabal & Party; 1 ex Telia Dam, 16.ix.1998, P.P. Kulkarni & Party; 1 ex Katezari-Ambat Heera, 23.iii.1999, R.M. Sharma & Party.

41. *Polyura athamas* Drury The Common Nawab

1720. *Papilio athamas* Drury, *Ill. Ex. Ent.* **1** : 5.

1886. *Charaxes athamas* : de Niceville, *Butterflies of India Burma & Ceylon* **2** : 275.

1982. *Polyura athamas* : Smiles, *Bull. Br. Mus., Hist., Ent.*, **44** : 115-237.

1987. *Polyura athamas* : Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 578.

1994. *Polyura athamas* : Varshney, *Oriental Insects*, **28** : 190.

Material examined : 1 ex Vasant Bandhara, 5.xii.1996, Yogesh Dubey.

42. *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

1957. *Charaxes fabius* : Wynter-Blyth, *Butterflies of the Indian Region* : 146

1987. *Charaxes solon* : Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 580

1994. *Charaxes solon* : Varshney, *Oriental Insects*, **28** : 190.

Material examined : 1 ex. At light, Rest House II, Tadoba, 6.xii.1996 and one specimen was sighted during daytime in Kolara gate area on the same day, R.M. Sharma & Party.

43. *Charaxes bernardus* Fabricius The Tawny Rajah

1932. *Charaxes polyxena* : Evans, *Identification of Indian Butterflies* : 141

1957. *Charaxes polyxena* : Wynter-Blyth, *Butterflies of the Indian Region.* : 144

1987. *Charaxes bernardus* : Larsen, *J. Bombay Nat. Hist. Soc.*, **84** : 579.

1994. *Charaxes bernardus* : Varshney, *Oriental Insects*, **28** : 190.

Material examined : One individual was sighted at Kolara gate area sitting on human faces by the first author on 6.xii.1996. Further one example was studied from the collections of Forest department at Tadoba.

44. *Acraea terpsicore* (Linn.)
The Tawny Coaster

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 : 1 ex. Tadoba, 21.xii.1994. R.M. Sharma; 1 ex. Panchdhara, 29.iii.1996, 2exs. Vasant Bandhara, 30.iii.1996, 6 exs. Katezari, 31.iii.1996, 1 ex. Ambat hira, 2.iv.1996, 1 ex. Kalamba, 3.iv.1996, 2 exs. Telia Dam, 7.iv.1996, all P.P. Kulkarni & Party; 1 ex Katezari, 4.xii.1996, R.M. Sharma & Party; 1 ex Katezari, 17.v.1997, R.H.Kamble & Party; 1 ex Andhari Nallah, 23.x.1997, A.S. Mahabal & Party; 1 ex Panchdhara, 20.iii.1999; 1 ex Vasant Bandhara, 22.iii.1999, R.M. Sharma & Party; 4 exs. Katezari, 11.iv.2000, 1 ex Hirdi Nallah, 21.iv.2000, 1 ex Kasarbodi, 18.vii.2000, all P.P. Kulkarni & Party; 2 exs. Telia Dam, 22.i.2001, S.G. Patil & Party.

Family LYCAENIDAE

45. *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.

1997. *Jamides bochus* : Varshney, *Oriental Insects*, **31** : 93

Material examined : 5 exs. Shivanzari Nallah-Kolsa, 25.iii.1999, R.M. Sharma & Party;

46. *Jamides celeno* (Cramer)
The Common Cerulean

1932. *Jamides celeno* : Evans, *Identification of Indian Butterflies* : 237

1987. *Jamides celeno* : Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 298

1997. *Jamides celeno* : Varshney, *Oriental Insects*, **31** : 93

Material examined : 1 ex Vasant Bandhara, 5.xii.1996; 2 exs. Karwa-Kolsa Rd.10.xii.1996, R.M. Sharma & Party.

47. *Catochrysops strabo* (Fab.)
The Forget-Me-not

1793. *Hesperia strabo* Fabricius, *Ent. Syst.*, **3** : 287

1890. *Catochrysops strabo* : deNiceville, *Butterflies of India Burma & Ceylon*, 3 : 177
 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. Tadoba Lake- Circular route, 27.ix.1994; 1 ex Kolaragate, 6.xii.1996; 1 ex Ramdegi, 7.xii.1996; 1 ex Kala-Amba- Bhanaskhindi, 9.xii.1996; all R.M. Sharma & Party; 1 ex Katezari, 19.x.1997, 1 ex Ramdegi, 22.x.1997; A.S. Mahabal & Party; 1 ex Vasant Bandhara, 12.ix.1998, P.P. Kulkarni & Party; 1 ex Panchdhara, 20.iii.1999; 1 ex Katezari-Ambat Heera, 23.iii.1999; 1 ex Shivanzari Nallah-Kolsa, 25.iii.1999, all R.M. Sharma & Party.

48. *Lampides boeticus* (Linn.)

The Pea Blue

1767. *Papilio boeticus* Linnaeus, *Syst. Nat. ed.* 12 : 789.
 1907. *Polyommatus boeticus* : Bingham, *Fauna Brit. India Butterflies*, 2 : 432
 1932. *Lampides boeticus* : Evans, *The Identification of Indian Butterflies* : 69
 1987. *Lampides boeticus* : Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 297
 1997. *Lampides boeticus* : Varshney, *Oriental Insects*, 31 : 94

Material examined : 1 ex. Panchdhara, 3.xii.1996, 1 ex Devzari – Kolara Rd., R. M. Sharma & Party; 1 ex Ramdegi, 22.x.1997, A.S. Mahabal & Party; 3 exs. Katezari-Ambat Heera, 23.iii.1999; 3 exs. Kala- Amba-Bhanaskhindi, 24.iii.1999, 1 ex Shivanzari Nallah-Kolsa, 25.iii.1999; R.M. Sharma & Party; 4 exs. Katezari, 21.i.2001, 1 ex Telia Dam, 22.i.2001, 1 ex Kolsa Talav, 26.i.2001, all S.G. Patil & Party;

49. *Leptotes plinius* (Fab.)

The Zebra Blue

1793. *Hesperia plinius* Fabricius, *Ent. Syst.*, 3 : 284
 1932. *Syntarucus plinius* : Evans, *The Identification of Indian Butterflies* : 217
 1957. *Syntarucus plinius* : Wynter-Blyth, *Butterflies of the Indian Region* : 266
 1997. *Leptotes plinius* : Varshney, *Oriental Insects*, 31 : 94

Material examined : 1 ex 7 kms east of Tadoba, 2.x.1994; 1 ex Karwa-Kolsa Rd., 10.xii.1996; 1 ex Katezari-Ambat Heera, 23.iii.1999; 6 exs. Shivanzari Nallah-Kolsa, 25.iii.1999; 1 ex Devzari-Kolara Rd. 27.iii.1999; all R.M. Sharma & Party.

50. *Castalius rosimon* (Fab.)

The Common Pierrot

1775. *Papilio rosimon* Fabricius, *Syst. Ent.* : 523
 1890. *Castalius rosimon* : deNiceville, *Butterflies of India Burma & Ceylon*, 3 : 197
 1987. *Castalius rosimon* : Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 291
 1997. *Castalius rosimon* : Varshney, *Oriental Insects*, 31 : 94

Material examined : 1 ex Karwa-Kolsa Rd. 10.xii.1996, R.M. Sharma & Party; 1 ex Shivanzari Nallah, 19.ix.1998, P.P. Kulkarni & Party; 3 exs. Katezari-Ambat Heera, 23.iii.1999, R.M. Sharma & Party; 1 ex Telia Dam, 22.i.2001; 1 ex Andhari River, 23.i.2001; 1 ex Kolsa Tank, 26.i.2001, all S.G. Patil & Party.

51. *Zizina otis* Fab.
The Lesser Grass Blue

1787. *Papilio otis* Fabricius, *Mant. Ins.*, 2 : 73

1890. *Zizeeria otis* : de Niceville, *Butterflies of India Burma & Ceylon*, 3 : 199

1957. *Zizeeria otis* : Wynter-Blyth, *Butterflies of the Indian Region* : 285

1997. *Zizina otis* : Varshney, *Oriental Insects*, 31 : 95

Material examined : 1 ex Kolaragate, 6.xii.1996; 1 ex Ambat Heera-Katezari, 11.xii.1996, R.M. Sharma & Party.

52. *Pseudozizeeria maha* (Kollar)
The Pale Grass Blue

1848. *Lycaena maha* Kollar, in Huegel's *Kaschmir und das Reich der Siek*, 4(2) : 422

1907. *Zizeeria maha* : Bingham, *Fauna Brit. India Butterflies*, 2 : 355

1957. *Zizeeria maha* : Wynter-Blyth, *Butterflies of the Indian Region* : 284

1997. *Pseudozizeeria maha* : Varshney, *Oriental Insects*, 31 : 96

Material examined : 1 ex Karwa-Kolsa Rd., 10.xii.1996; 1 ex Panchdhara, 20.iii.1999; 2 exs. Katezari Ambat Heera, 23.iii.1999, 1 ex Shivanzari Nallah-Kolsa, 25.iii.1999; all R.M. Sharma & Party; 1 ex Katezari, 11.iv.2000, P.P. Kulkarni & Party; 2 exs. Katezari, 21.i.2001; 1 ex Telia Dam, 22.i.2001; 2 exs. Pangdi Talav, 25.i.2001; 1 ex. Botezari, 27.i.2001, all S.G. Patil & Party;

53. *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 Shivanzari Nallah-Kolsa, 25.iii.1999; R.M. Sharma & Party; 1 ex Katezari, 21.i.2001; 1 exs Botezari, 27.i.2001, S.G. Patil & Party.

54. *Celastrina lavendularis* (Moore)
The Plain Hedge Blue

1877. *Polyommatus lavendularis* Moore, *Ann. Mag. Nat. Hist.*, series 4 : 341

1957. *Lycaenopsis lavendularis* : Wynter-Blyth, *Butterflies of the Indian Region* : 278

1987. *Celastrina lavendularis* : Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 295

1997. *Celastrina lavendularis* : Varshney, *Oriental Insects*, **31** : 99

Material examined : 1 ex. Ambat Heera-Katezari, 11.xii.1996, R.M. Sharma & Party.

55. *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

1987. *Euchrysops cnejus* : Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 297

1997. *Euchrysops cnejus* : Varshney, *Oriental Insects*, **31** : 104

Material examined : 3 exs. Vasant Bandhara, 26.ix.1994; 9 exs. Katezari-Waghna, 29.ix.1994; 8 exs. 7 kms east of Tadoba, 2.x.1994; 8 exs. Kala- Amba, 3.x.1994; 3 exs. Karwa-Kolsa Rd. 10.xii.1996, all R.M. Sharma & Party, 1 ex Andhari Nallah, 23.x.1997, A.S. Mahabal & Party.

56. *Chilades laius* Stoll

The Lime Blue

1780. *Papilio laius* Stoll, *Pap. Ex.*, **4** : 62

1957. *Chilades laius* : Wynter-Blyth, Butterflies of the Indian Region : 284

1987. *Chilades laius* : Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 296

1997. *Chilades laius* : Varshney, *Oriental Insects*, **31** : 107

Material examined : 1 ex Kala Amba-Bhanaskhindi, 9.xii.1996; 1 ex Vasant Bandhara, 22.iii.1999; 2 exs. Katezari Ambat Heera, 23.iii.1999; 3 exs. Kala Amba –Bhanaskhindi, 24.iii.1999, all R.M. Sharma & Party; 1 ex Botezari, 27.i.2001, S.G. Patil & Party.

57. *Freyeria trochylus* (Freyer)

The Grass Jewel

1844. *Lycaena trochylus* (Freyer), *Neuere Beeitrage Schmett.*, **5** : 98

1957. *Zizeeria trochylus* : Wynter-Blyth, Butterflies of the Indian Region : 284

1987. *Freyeria trochylus* : Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 297

1997. *Freyeria trochylus* : Varshney, *Oriental Insects*, **31** : 107

Material examined : 1ex.Ramdegi, 7.xii.1996; 1ex. Kala-Amba-Bhanaskhindi, 24.iii.1999, R.M. Sharma & Party; 1 ex Pangdi Talav, 25.i.2001; S.G. Patil & Party;

58. *Spindasis vulcanus* (Fab.)

The Common Silverline

1775. *Papilio vulcanus* Fabricius, *Syst. Ent.* : 519

1890. *Aphnaeus vulcanus* : deNiceville, *Butterflies of India Burma & Ceylon*, **3** : 349

1987. *Spindasis vulcanus* : Larsen, *J. Bombay nat. Hist. Soc.*, **84** : 305

1997. *Spindasis vulcanus* : Varshney, *Oriental Insects*, 31 : 110

Material examined : 1 ex Karwa-Kolsa Rd.10.xii.1996, R.M. Sharma & Party; 1 ex Kolsa Tank, 24.x.1997, A.S. Mahabal & Party; 1 ex Vasant Bandhara, 22.iii.1999, 1 ex Devzari-Kolara Rd. 27.iii.1999; R.M. Sharma & Party; 1 ex Telia Dam, 22.i.2001, S.G. Patil & Party.

59. *Narathura amantes* Hewitson
The Large Oak Blue

1862. *Amblypodia amantes* Hewitson, *Cat. Lycaenidae B. M.* no. 17 : 4

1890. *Arhopala amantes* : deNiceville, *Butterflies of India Burma & Ceylon*, 3 : 239

1987. *Arhopala amantes* : Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 303

1997. *Narathura amantes* : Varshney, *Oriental Insects*, 31 : 112.

Material examined : 5 exs. Kala-Amba- Bhanaskhindi, 24.iii.1999, R.M. Sharma & Party.

60. *Surendra vivarna* Horsefield
The Common Acacia Blue

1829. *Amblypodia vivarna* Horsefield, *Cat. Lep. E. I. Co.* 31 : 99

1890. *Surendra vivarna* : deNiceville, *Butterflies of India Burma & Ceylon*, 3 : 221.

1997. *Surendra vivarna* : Varshney, *Oriental Insects*, 31 : 116

Material examined : 2 exs. Panchdhara, 20.iii.1999, R.M. Sharma & Party.

Family HESPERIIDAE

61. *Hasora chromus* (Fab.)
The Common Banded Awl

1932. *Hasora chromus* : Evans, *The Identification of Indian Butterflies* : 316

1957. *Hasora chromus* : Wynter-Blyth, *Butterflies of the Indian Region* : 467

1987. *Hasora chromus* : Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 581

Material examined : 1 ex. Karwa-Kolsa Rd. 10.xii.1996, R.M. Sharma & Party.

62. *Badamia exclamationis* (Fab.)
The Brown Awl

1775. *Papilio exclamationis* : Fabricius. *Syst. Ent.*, 530

1932. *Badamia exclamationis* : Evans, *The Identification of Indian Butterflies* : 321

1957. *Badamia exclamationis* : Wynter-Blyth, *Butterflies of the Indian Region* : 470

1987. *Badamia exclamationis* : Larsen, *J. Bombay nat. Hist. Soc.*, 84 : 582

Material examined : 1 ex. Karwa-Kolsa Rd. 10.xii.1996, R.M. Sharma & Party.

63. *Spialia galba* (Fab.)
The Indian Skipper

1793. *Hesperia galba* Fabricius, *Ent. Syst.*, 3 : 352.

1957. *Spialia galba* : Wynter-Blyth, Butterflies of the Indian Region : 466

1988. *Spialia galba* : Larsen, *J. Bombay nat. Hist. Soc.*, **85** : 28

Material examined : 1 ex. Kala-Amba, 3.x.1994, 1 ex. Pandharpani on Tadoba-Mahurli Rd. 5.x.1994, 3 exs. 3 km South of Tadoba, 7.x.1994, 2 exs. Ramdegi, 7.xii.1996; 2 exs. Karwa-Kolsa Rd. 10.xii.1996, all R.M. Sharma & Party; 1 ex Kolsa Tank, 24.x.1997, A.S. Mahabal & Party.

64. *Udaspes folus* Cramer
The Grass Demon

1779. *Papilio folus* Cramer, *Pap. Exot.*, **1** : pl 74.

1957. *Udaspes folus* : Wynter-Blyth, Butterflies of the Indian Region : 490

1988. *Udaspes folus* : Larsen, *J. Bombay nat. Hist. Soc.*, **85** : 34

Material examined : 1 ex Kolsa Tank, 24.x.1997, A.S. Mahabal & Party;

65. *Oriens goloides* Moore
The Common Dartlet

1957. *Oriens gola* : Wynter-Blyth, Butterflies of the Indian Region : 479

1988. *Oriens goloides* : Larsen, *J. Bombay nat. Hist. Soc.*, **85** : 34

Material examined : 1 ex Chital Rd. 9.xii.1996, Yogesh Dubey.

66. *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 : 3 exs. Karwa-Kolsa Rd. 10.xii.1996, R.M. Sharma & Party.

67. *Caltoris kumara* Moore
The Blank Swift

1957. *Caltoris kumara* : Wynter-Blyth, Butterflies of the Indian Region : 484

1988. *Caltoris kumara* : Larsen, *J. Bombay nat. Hist. Soc.*, **85** : 38

Material examined : 4 exs. Karwa-Kolsa Rd. 10.xii.1996, R.M. Sharma & Party;

68. *Matapa aria* (Moore)
The Common Red eye

1957. *Matapa aria* : Wynter-Blyth, Butterflies of the Indian Region : 473

Material examined : 1 ex Panchdhara, 3.xii.1996; 1 ex Tadoba Lake and around, 12.xii.1996, 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 Tadoba-Andhari Tiger Reserve, Maharashtra State.

The study resulted in the enumeration of 68 species belonging to 50 genera spread over seven families viz. Papilionidae 5 spp., Pieridae 11 spp., Danaidae 4 spp., Satyridae 6 spp., Nymphalidae 18 spp., Lycaenidae 16 spp. and Hesperidae 8 spp. The analysis of the species richness shows that the Nymphalids outnumber the rest of the families followed by Lycaenids and Pieridae.

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SCOLOPENDRIDAE (CHILOPODA)

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INTRODUCTION

Tadoba National park is situated 50 km N. of Chandrapur District (20°25'50" N and 79°33'34" E long). It represents southern tropical dry deciduous forest with herbs, shrubs, trees and grasses. The soil is black with the patches of red laterite harbours good number of terrestrial fauna. Due to presence of Thermal power station and coal mines, the annual temperature is 9°C to 47°C with average rainfall 1175 mm in the altitudes 200 m to 355 m. The terrain is undulating with hills, valleys and plateaus.

Although 3 species of centipedes have been collected from Tadoba national park, literature reveals (Jangi 1955, Jangi & Dass 1984 and Khanna 2001) about 11 species from Nagpur and Pench area. Thus terrestrial chilopod fauna is enriched by 12 species, 6 genera, 3 tribes, 2 subfamilies and 2 families viz. Scolopendridae and Cryptopidae.

Information on name of species, common name, status, distribution, localities, remarks and diagnostic characters are given for species occurring in Tadoba only and for remaining species it can be seen elsewhere (Yadav, 2004)"Centipedes of Pench National Park).

SYSTEMATIC LIST

(*Asterick indicate species actually collected)

| | |
|-------------|----------------------|
| Superphylum | ARTHROPODA |
| Phylum | UNIRAMIA |
| Subphylum | MYRIAPODA |
| Class | CHILOPODA |
| Subclass | EPIMORPHA |
| Order | SCOLOPENDROMORPHA |
| Family | SCOLOPENDRIDAE |
| Subfamily | SCOLOPENDRINAE |
| Tribe | Scolopendrini |

*1. *Scolopendra amazomca* (Bucherl)

*2. *Scolopendra morsitans* Linnaeus

3. *Scolopendra hardwickei* Newport
4. *Cormocephalus nigrificatus* Verhoeff.
5. *Cormocephalus westwoodi* (Newport)
6. *Cormocephalus dendipes* Pocock

| | |
|-------|------------------|
| Tribe | Asanadini |
|-------|------------------|
7. *Asanada indica* Jangi & Dass
8. *Asanada sokotrana* Pocock

| | |
|-----------|---------------------|
| Subfamily | OTOSTIGMINAE |
| Tribe | Otostigmini |
9. *Rhysida nuda subnuda* Jangi
10. *Rhysida longipes longipes* (Newport)
- *11. *Otostigmus splendens* Pocock

| | |
|--------|--------------------|
| Family | CRYPTOPIDAE |
|--------|--------------------|
12. *Cryptops orientalis* Jangi

***1. *Scolopendra amazonica* Bucherl**

1946. *Scolopendra morstans 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*, Rathinasabapathy & 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 the first tergite. 20th pair of legs without tarsal spur, prefemur of anal legs ventrally with 3 rows of 3 spines in each.

Material examined : 1 ex., Kala Amba, 21.8.1995, S.G. Patil.

Distribution of species elsewhere : Cosmopolitan. Throughout India : Nagpur (Jangi, 1955), (Khanna 2001) Melghat, Pench.

Remarks : Centipedes are nocturnal, carnivorous, cryptic creatures. This species is found concealed beneath stones, available in the rainy season, Yadav (1993).

***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.

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 : 2 exs., Tadoba lake, 15.8.1995, S.G. Patil; 2 ex., Ram deghi, 17.12.1996, R.M. Sharma; 2 exs., Panchdhara nalla, 20.3.1999, R.M. Sharma.

Distribution of species elsewhere : Cosmopolitan.

Throughout India : Nagpur (Jangi, 1955), Khanna (2001), Melghat, Pench.

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).

Subfamily OTOSTIGMINAE

Tribe **Otostigmini**

*3. *Otostigmus splendens* Pocock.

1890. *Otostigmus splendens* Pocock, *Ann. Nat. Hist., Ser. 6, 5* : 245.

1984. *Otostigmus splendens*, Jangi & Das, *J. Scient. Indl. Res.*, 43(2) : 47.

2001. *Otostigmus splendens*, Khanna, *Ann. For.* 9(2) : 206.

Diagnostic Characters : Nine pairs of oval spiracles present, claw of 2nd maxilla with spur. Coxopleural process with dorsal spines, anal legs with prefemoral process.

Material examined : 1 ex., Kalazari and around, 13-9-1998, P.P. Kulkarni.

Distribution : India : Maharashtra, Tamil Nadu; Australia.

Status : Common.

Remarks : It is a species occurring in Indo-Malayan belt.

SUMMARY

Out of about 102 species of centipedes found in India (Khanna, 2001), 35 occur in Maharashtra. The present study indicates the Tadoba National park constitutes 12 species of centipedes, comprising 6 genera, 3 tribes, 3 subfamilies under two families.

The family Scolopendridae comprising 8 species forms predominant group, while centipedes of subfamily Otostigminae has lesser number of species (only 3). Under the subfamily Scolopendrinae tribe Asanadini represents second larger tribe.

It may be due to soil pollution and enormous heat, specimens could be collected scanty in number. It indicates centipedes are under severe threat. Certain conservation measures should be applied to prevent the soil pollution and protect the valuable terrestrial fauna.

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SCORPIONIDA, ARANEAE AND SOLIFUGI

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INTRODUCTION

Pocock (1900) compiled the then known Arachnid fauna of India in his famous monographic work as "Fauna of British India : Arachnida". His work consolidates most of the Arachnid orders except Chelonethi (Pseudoscorpions) and Opiliones (Phalangida). His monumental work was then followed by European naturalists like Gravely (1910-1925), Roewer (1905-1945), sheriff and then Indian taxonomists like Dyal (1935), Sinha (1951), Tikader (1960-1988), Patel (1970-2003), Sadana (1970-2002), Malhotra (1975-82), Gajbe (1973-2003), Biswas (1976-2003), Bastawade (1975-2003), Mujumdar (1989-2003), Reddy (1980-2003), Ryochohdhari (2002-03) and Saliwal (2002-03) who tried to complete the revisionary works either at order, family or generic taxa. Recently, Zoological Survey of India, a premier Government organization, mainly dealing with faunal studies of India, under its purview of Biodiversity studies, has under taken the faunal assessments and report preparations of various conservation areas. Tadoba and Andhari Tiger Reserve, Dist. Chandrapur, Maharashtra is one of such area chosen to study the enmass Biodiversity pertaining to that area. The efforts of about 11 field surveys could yield samples of Scorpions 50, Araneae (Spiders) 400, Solifugi 4, Opiliones (Phalangida) 50 and Chelonethi (Pseudoscorpions) 10 specimens. The studies of these specimens have been summarized as follows, except the Chelonethi and Opiliones owing not to have an expertise workers.

SYSTEMITIC LIST

- | | | |
|-----------|--|--------------|
| Order | SCORPIONIDA | |
| Family | BUTHIDAE | |
| Subfamily | BUTHINAE | |
| 1. | <i>Mesobuthus tamulus tamulus</i> (Fabr.) | 18♀♀, 15♂♂ |
| 2. | <i>Lychas (Endotrichus) laevifrons</i> Pocock | 9♀♀, 2♂♂. |
| | Family | SCORPIONIDAE |
| | Subfamily | SCORPIONINAE |
| 3. | <i>Heterometrus (Chersonesometrus) granulomanus</i> Coujz. | 4 ♀♀. |
| 4. | <i>Heterometrus (Chersonesometrus) barberi</i> (Pocock) | 1♀ subadult. |

| | | | |
|-----|---|----------------|------------------------------|
| | Order | ARANEAE | |
| | Family | ARANEIDAE | |
| 5. | <i>Nephila maculata</i> (Fabr.) | | 20 ♀♀, 4 ♂♂. |
| 6. | <i>Gea corbetti</i> Tikader | | 4 ♀♀. |
| 7. | <i>Argiope aemula</i> (Walckenaer) | | 4 ♀♀. |
| 8. | <i>Argiope pradhani</i> Sinha | | 1 ♀. |
| 9. | <i>Leucauge decorata</i> (Blackwall) | | 2 ♀♀. |
| 10. | <i>Zygeilla melanocrania</i> (Thorell) | | 4 ♀♀, 2 ♀♀ subadult, 4 ♂♂. |
| 11. | <i>Zygeilla indica</i> Tikader and Bal | | 1 ♀. |
| 12. | <i>Neoscona theis</i> (Walckenaer) | | 2 ♀♀. |
| 13. | <i>Neoscona mukerjei</i> Tikader | | 1 ♀, 4 ♀♀ Immature. |
| 14. | <i>Neoscona nautica</i> (L. Koch) | | 1 ♀. |
| 15. | <i>Cyclosa hexatuberculata</i> Tikader | | 1 ♀. |
| 16. | <i>Cyrtophora cicatrosa</i> (Stoliczka) | | 1 ♀ Imm. |
| | Family | OXYOPIDAE | |
| 17. | <i>Oxyopes shwetae</i> Tikader | | 6 ♀♀, 15 ♀♀ Imm. |
| 18. | <i>Oxyopes pavani</i> Gajbe | | 6 ♀♀, 18 ♀♀ Imm. and 4 ♂♂. |
| 19. | <i>Oxyopes ratnae</i> Tikader, | | 1 ♀, 2 ♀♀ Imm. |
| | Family | THOMISIDAE | |
| 20. | <i>Tibellus poonaensis</i> Tikader | | 1 ♀ Imm. |
| 21. | <i>Xysticus jayanticus</i> Tikader | | 2 ♀♀ Imm. |
| 22. | <i>Thanatus stripatus</i> Tikader | | 1 ♀. |
| 23. | <i>Monaeses mukundi</i> Tikader | | 3 ♀♀ Imm. |
| 24. | <i>Tmarus kotigeharus</i> Tikader | | 3 ♀♀ Imm. |
| 25. | <i>Camaricus bipunctatus</i> Bastawade | | 2 ♀♀ |
| | Family | LYCOSIDAE | |
| 26. | <i>Lycosa mackenziei</i> Gravely | | 2 ♀♀, 1 ♀ Imm. |
| 27. | <i>Lycosa prolifica</i> Pocock | | 1 ♀, 1 ♀ Imm. |
| 28. | <i>Lycosa nigrotibialis</i> Simon | | 2 ♀♀. |
| 29. | <i>Pardosa birmanica</i> Simon | | 3 ♀♀, 1 ♀ Imm. |
| 30. | <i>Pardosa sangosa</i> Tikader & Malhotra | | 1 ♀. |
| 31. | <i>Hippasa pisaurina</i> Pocock | | 1 ♀. |
| | Family | TETRAGNATHIDAE | |
| 32. | <i>Tetragnatha mandibulata</i> Walckenaer | | 36 ♀♀, 25 ♂♂ and 18 ♀♀ Imm.. |
| | Family | SALTICIDAE | |
| 33. | <i>Myrmarachne orientalis</i> Tikader | | 2 ♀♀, 5 ♂♂. |

| | | | |
|-----|--------------------------------|------------|------|
| | Order | SOLIFUGAE | |
| | Family | GALEODIDAE | |
| 34. | <i>Galeodes indicus</i> Pocock | | 4♀♀. |

SPIDERS IDENTIFIED UP TO FAMILY AND GENERIC TAXA

| | | | |
|-----|---------------------------|----------------|--------------------------------|
| | Family | ARANEIDAE | |
| 1. | <i>Araneus sp.</i> | | 1♂. |
| 2. | <i>Neoscona sp.</i> | | 3♀♀, 3♂♂, 10♀♀ Imm.. |
| 3. | <i>Larinia sp.</i> | | 2♀♀, 3♂♂. |
| 4. | <i>Cyclosa sp.</i> | | 3♀♀. |
| | Family | OXYOPIDAE | |
| 5. | <i>Oxyopes sp.</i> | | 9♀♀, 45♀♀ Imm., 1♂ Imm.. |
| | Family | THOMISIDAE | |
| 6. | <i>Thomisus sp.</i> | | 1♀ Imm.. |
| 7. | <i>Xysticus sp.</i> | | 1♂ Imm.. |
| 8. | <i>Misumenops sp.</i> | | 1♀. |
| | Family | LYCOSIDAE | |
| 9. | <i>Lycosa sp.</i> | | 2♀♀, 12♀♀ Imm., 6♂♂. 2♂♂ Imm. |
| | Family | TETRAGNATHIDAE | |
| 10. | <i>Tetragnatha sp.</i> | | 2♂♂, 1♂ Imm.. |
| 11. | <i>Eucta sp.</i> | | 3♀♀, 1♀ Imm., 1♂ Imm.. |
| | Family | SALTICIDAE | |
| 12. | ♀ g. & sp. | | 4♀♀, 19♀♀ Imm., 2♂♂, 2♂♂ Imm.. |
| 13. | <i>Zygoballus sp.</i> | | 1♀, 1♀ Imm.. |
| 14. | <i>Rhene sp.</i> | | 2♀♀ Imm., 1♂ Imm.. |
| | Family | PISAURIDAE | |
| 15. | <i>Pisaurus sp.</i> | | 6♀♀, 5♀♀ Imm., 3♂♂, 1♂ Imm.. |
| | Family | SPARASSIDAE | |
| 16. | <i>Sparassus sp.</i> | | 1♀, 1♂ |
| | Family | HERSILIDAE | |
| 17. | <i>Hersilia sp.</i> | | 1♂ |
| | Family | THERIDIIDAE | |
| 18. | <i>Theridion sp.</i> | | 2♀♀. |
| | Family | CLUBIONIDAE | |
| 19. | <i>Clubiona sp.</i> | | 1♀ Imm.. |
| 20. | <i>Cheiracanthium sp.</i> | | 1♀. |

SYSTEMATIC ACCOUNT OF SPECIES REPORTED

| | |
|-----------|--------------------------|
| Class | ARACHNIDA |
| Order | SCORPIONIDA |
| Family | BUTHIDAE |
| Subfamily | BUTHINAE |
| Genus | <i>Mesobuthus</i> Vachon |

1. *Mesobuthus tamulus tamulus* (Fabr.)

1798. *Buthus tamulus* Fabricius, *Syst. Suppt.*, : 294.

1900. *Buthus tamulus tamulus* : Pocock, *Fauna of Brit. India, Arachnida*, : 25.

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 : 216-222.

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 Tadoba Andhari Tiger Reserve.

Material examined : 18♀♀, 15♂♂.

Sightings : Actually sighted and collected from 20 different places through out National Park.

Distribution elsewhere : 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. Female give birth to 40-70 young ones at one time. Breeding season March to May and August to October.

Genus *Lychas* C. Koch

2. *Lychas (Endotrichus) laevifrons* Pocock

1897. *Lychas laevifrons* Pocock, *J. Bombay nat. Hist. Soc.*, **11** : 113.

1899. *Archisometrus shoplanti* : Kraepelin, *Tierr. Scorp. etc.*, : 50.

1900. *Lychas laevifrons* : Pocock, *Fauna of Brit. India, Arachnida*, : 41.

1983. *Lychas (Endotrichus) laevifrons* : Tikader & Bastawade, *Fauna of India, Scorpions*, **3** : 79 –85.

Common Name : Brown Scorpion

Local Name : Rakhi Vinchu (Marathi), Bichhu (Hindi), Chol (Kannada)

Diagnostic Characters : Medium body size, ranging 30-40 mm in length, colour blackish brown, variegated with many yellow patches, tergites I-VI with pair of lateral >> i << yellow marks, carapace, mesosoma entirely coarsely granular, tergites II-VI weakly tricarinated, sternites smooth except last with two pairs of granular carinae, metasoma comparatively long, equally wide on all segments, all segments carinated and carinae evenly granular, telson with elongated thin vesicle and provided ventrally with a subaculear spine, aculeus long, sharp, not much curved; pedipalp comparatively short, stout, carinated on femur and patella, manus smooth, elongated and fingers short with non-imbricated dentition, outer row on movable finger comprises of five to six minute teeth; legs granular and carinated on femur and patella; pectines well developed with 22/22 teeth on each side.

Locality : Pangali gate, Katezari, Botezari, Ambawadi, Telia Dam and Ramdhigi in Tadoba Andhari Tiger Reserve.

Material examined : 9 ♀♀, 2♂♂.

Distribution elsewhere : India : Gujrat, Madhya Pradesh, Maharashtra, Chhatisgarh, Zarkhand Orissa and West Bengal.

Status : Commonly occurring species in central India.

Habits and habitats : Normally seen to inhabit under loose barks of various trees in forested area, during rainy season they move up to 7-8 feet from the ground level where as in summer they prefer to stay near the base of the tree. In adverse conditions they are found to take shelter under boulders, stones and even bricks. Feed on smaller insects on trees. Female usually parturates 10-14 young ones.

Family SCORPIONIDAE

Subfamily SCORPIONINAE

Genus *Heterometrus* Hemp. & Ehrenb.

3. *Heterometrus (Chersonesometrus) granulomanus* Couzijn

1981. *Heterometrus (Chersonesometrus) granulomanus* Couzijn, *Zool. Verin.*, **184** : 142.

1983. *Heterometrus (Chersonesometrus) granulomanus* : Tikader & Bastawade, *Fauna of India, Scorpions*, **3** : 577-582.

Common Name : Black Scorpion.

Local Name : Ingali (Marathi), Bichhava (Hindi), Kakada Bichhi (Bangla).

Diagnostic Characters : Large Scorpion, body measuring up to 100-115 mm in length, color dark black except pale yellowish 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 : Shivanzari, Jamni Vill., Kalamba and Ramdhigi in Tadoba Andhari Tiger Reserve.

Material examined : 4 ♀♀.

Distribution elsewhere : India : Podicherry; Tamil Nadu (Type-locality); Palni Hills and Kodai Canal, Kerala; Maharashtra and 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 in forested areas. Active burrow making during pre and post monsoon seasons. Female gives birth about 15-25 young ones and youngs of more than one generations stay in same burrow with mother, shows development of social behaviour to some extent.

4. *Heterometrus (Chersonesometru) barberi* (Pocock)

1900. *Palamnaeus barberi* Pocock, *Fauna of British India, Arachnida*, : 95.

1981. *Heterometrus (Chersonesometrus) phipsoni phipsoni* : Couzijn, *Zool. Verln.* **184** : 149.

1983. *Heterometrus (Chersonesometrus) barberi* : Tikader & Bastawade, *Fauna of India, Scorpions*, **3** : 614-619.

Common Name : Black Scorpion

Local Name : Ingali (Marathi), Bichhava (Hindi), Kakada Bichhi (Bangla).

Diagnostic Characters : Body about 105-120 mm long, dark blackish brown with reddish tinge, except yellowish brown manus pedipalp blackish, legs entirely blackish, except brownish telson, metasoma blackish; carapace weakly granular on lateral portion; pedipalp strong and stout carinated, enlarged on manus, legs granular on femur and patella; pectines well developed with 12/12 teeth; mesomal tergites entirely smooth except VII, all sternites smooth; metasoma powerful, almost 4.5 times as long as carapace, with globular vesicle.

Locality : Tadoba Andhari Tiger Reserve.

Material examined : 1 ♀.

Distribution elsewhere : India : Tinney velly, Tamil Nadu.

Status : Not very common, first report from Tiger reserve and Maharashtra state.

Habits and habitats : Burrowing scorpion, prepares burrows up to 10-12" deep in soft soils of forest, feeds around burrow on small insects, occasionally encounters with smaller reptiles and rodents. Female accommodates young ones of more than one generation showing some degree of social behaviour.

Order ARANEAE
 Family ARANEIDAE
 Genus *Nephila* Leach

5. *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 (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 in the center of the web, normally head positioned towards ground, body size range from 35 to 45 mm. Males comparatively much 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 : Through out Tadoba Andhari Tiger Reserve.

Material examined : 20♀♀, 4♂♂.

Sightings : Actually collected and reported from 10 different places in Park.

Distribution elsewhere : 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 wets 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 nets. Many males are always noticed on the periphery of the web, are very small and comparatively light brown in colour.

Genus *Gea* C. L. Coch

6. *Gea corbatti* Tikader

1982. *Gea corbatti* Tikader, *Fauna of India, Spiders Araneidae* 2(1) : 109-111.

Common Name : Orb weaving spiders.

Local Name : Koli(Marathi), Makadi (Hindi)

Diagnostic Characters : Body 4-7 mm in length, light brown on carapace, legs yellowish brown while grayish black with chalk white spots on abdomen, cephalothorax longer than wide, narrowing in front, cephalic region light in colour and raised high up at posterior median area, thoracic area blackish and with a longitudinal groove, ocular quad longer than wide and wider behind, anterior lateral eyes much smaller than posterior laterals, anterior row slightly procurved where as posterior row strongly procurved; chelicera with small boss, abdomen roughly pentagonal with a pair of small anterior lateral humps, broadest behind the middle portion, epigynum with a median septum continuing anteriorly and turning laterally around the median portion, internal genitalia with a pair of roughly bean shaped spermathecae, each opening with a short curved duct along with the inner portion of median septum.

Locality : Katezari, Tadob Andhari Tiger Reserve.

Material Examined : 4 ♀♀.

Distribution Elsewhere : India : Corbet National Park, Dhikala, Dist. Pauri, Uttar Pradesh.

Status : Not commonly encountered species.

Habits and habitats : Not properly known but spins delicate webs amongst foliages and thin branches of shrubs and trees.

Genus *Argiope* Audouin

7. *Argiope aemula* (Walckenaer)

1841. *Epeira aemula* Walckenaer, *Hist. Nat. Ins. Apt.*, 2 : 118.

1871. *Argiope magnifica* : L. Koch, *Arachn. Austral.*, 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*, 3(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 : Tadoba Andhari Tiger Reserve.

Material examined : 5 ♀♀.

Distribution elsewhere : 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 which are known as "Signature Spiders", keeps facing towards ground, feeds on smaller to medium sized insects get in to the nest.

8. *Argiope pradhani* Sinha

1951. *Argiope pradhani* Sinha, *Rec. Indian Mus.*, **49** : 76.

1982. *Argiope pradhani* : Tikader, *Fauna of India, Araneae : Araneidae*, **1(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 : Tadoba Andhari Tiger Reserve.

Material examined : 1 ♀, 1 ♂.

Distribution elsewhere : India : West Bengal, Assam, Sikkim.

Habits and habitats : No information available but may be of same nature as to the other *Argiope* sp. known.

Genus *Leucauge* White

9. *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.
 1980. *Leucauge decorata* : Tikader, *Fauna of India, Spiders, Araneidae*, **12**(1) : 79-80.

Common Name : Orb weaving Spiders.

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 : Most of the places in Tadoba Andhari Tiger Reserve.

Material examined : 2 ♀♀.

Distribution elsewhere : India : Ootacamund, Tamil Nadu, Sri Lanka : Perandeniya, Trincomali; Burma : Tounghnoo. Tharrawaddy, Rangoon, Tenasser; Java and Indo-Austro-Malaysia.

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 remains 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.

Genus *Zygeilla* F.O.P. Cambridge

10. *Zygeilla melanocrania* (Thorell)

1887. *Epeira melanocranis* Thorell, *Annali Mus. civ. Genova*, **25** : 209.
 1935. *Araneius melanocranis* : Dyal, *Bull. Dep. Zool. Punjab Univ.*, **1** : 183.
 1982. *Zygeilla melanocrania* : Tikader, *Fauna of India, Spiders, Araneidae*, **2**(1) : 215-217.

Common Name : Orb weaving Spiders

Local Name : Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 5-6 mm in length, typically black on cephalic region but yellowish on thoracic part, abdomen with dorsal black marking forming folium, otherwise whitish, cephalothorax longer than wide narrowing in front, ocular quad more wider anteriorly, anterior medians larger and situated on a prominent tubercle and both rows recurved, chelicerae with distinct boss, abdomen oval with out humps, epigynum with out scape with an semicircular opening, internal genitalia with a pair of spherical spermathecae, each connected with convoluted ducts separately to the opening.

Locality : Pangali gate, Tadoba Tank, Tadoba Andhari Tiger Reserve.

Material Examined : 4 ♀♀, 4 ♂♂ and 2♀♀ Imm.

Distribution elsewhere : India : Barkud Island (Chilka Lake), Orissa, Pakistan : Model Town, Lahore; Myanmar.

Habits and habitats : Prefers to prepare smaller webs between thin twigs, remains hidden in rolled up dried piece of leaf, possibly prone to catch by a Sphecid wasp as a prey for developing larvae, more information needed for confirmation.

11. *Zygeilla indica* Tikader & Bal

1980. *Zygeilla indica* Tikader & Bal, *Proc. India Acad. Sci.* 89(3) : 243-246.

1982. *Zygeilla indica* : Tikader & Bal, *Fauna of India, Spiders, Araneidae*, 2(1) : 217-218.

Common Name : Orb-weaving Spiders.

Local Name : Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 6-8 mm in length, almost same as *Zygeilla melanocrania* Thorell, except cephalic region much narrowed and prominently black, thoracic portion with an inverted black marked arrow on anterior part, abdominal folium not clearly marked on middle portion, epigynum with single opening of an inverted 'C' shape, a pair of spermathecae connected with convoluted short ducts, opening in to a common opening in the middle.

Locality : Pangali gate, Tadoba Andhari Tiger Reserve.

Material examined : 1♀.

Distribution elsewhere : India : Pune city (Type Locality), Dist. Pune, Maharashtra.

Habits and habitats : Inhabiting through foliages of shrubs and bushes, prepares small webs between twigs, hides in a piece of rolled dried leaf, drops when disturbed, might be prone to sphecid attacks as a prey for developing larvae, needs more studies.

Genus *Neoscona* Simon

12. *Neoscona theis* (Walckenaer)

1841. *Epeira theis* Walckenaer, *Hist. nat. Ins. Apt.*, 2 : 53.

1904. *Neoscona theis* : F. O. P. Cambridge, *Biologia. Oent. am. Aran.*, 2 : 470.

1981. *Neoscona theis* : Tikader, *Fauna of India, Spiders, Araneidae*, 2(1) : 269-271.

Common Name : Orb weaving Spiders.

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 : Telia dam and Pasalgaon Karawa Road, Tadoba Andhari Tiger Reserve.

Material examined : 2♀♀.

Distribution elsewhere : This species known to found from Maharashtra, Gujarat, Orissa and West Bengal; and South New Guinea.

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.

13. *Neoscona mukerjei* Tikader

1980. *Neoscona mukerjei* Tikader, *Proc. Indian Acad. Sci.*, **89**(3) : 247.

1981. *Neoscona mukerjei* : 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 tine scape with deep constriction and a pair of lateral lobes, internal genitalia with a pair of 3 pouched spermathecae.

Locality : Mostly in all places in Tadoba Andhari Tiger Reserve.

Material examined : 1♀, 4♀♀ Imm.

Distribution elsewhere : India : Pune (Type-locality) and Pench National Park, Maharashtra and West Bengal.

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 attracts wrong identification.

14. *Neoscona nautica* (L. Koch)

1875. *Epeira nautica* L. Koch, *Aegypt. Abyssin, Arachn, Jickeli*, : 17.

1904. *Neoscona volucris* : F. O. P. Cambridge, *Biologia cent.am.*, **2** : 473.

1930. *Neoscona nautica* : Petrunkevitch, *Trans. Conn. Acad. Arts. Sci.*, **30** : 320.

1971. *Neoscona nautica* : Levi, *Bull. Mus. Comp. Zool. Hard.*, **141**(8) : 429.

1982. *Neoscona nautica* : Tikader, *Fauna of India, Spiders, Araneidae*, **2**(1) : 242-244.

Common Name : Orb weaving spiders.

Local Name : Koli (Marathi), Makadi (Hindi).

Diagnostic Characters : Body 10-12 mm in length, yellowish brown on cephalothorax and legs, grayish brown on abdomen, cephalothorax longer than wide, narrowing in front, thoracic region with a distinct longitudinal groove, ocular quad longer than wide and wider anteriorly, anterior medians larger than posteriors, posterior medians encircled with black rings, laterals on tubercles and placed close to each others, chelicerae with moderate boss, abdomen nearly triangular, narrowed posteriorly, dorsum greenish brown with many scattered black spots, ventrum with longitudinal greenish brown patch guarded laterally by a pair of dumbbell shaped conspicuous chalk white bars, epigynum with a short, broad, triangular scape, with inconspicuous lateral lobes, with out constrictions, internal genitalia with a pair of elongated spermathecae, each connected with a short and thick duct.

Locality : Shivanzari nalla, Tadoba Andhari Tiger Reserve.

Material Examined : 1♀.

Distribution elsewhere : India : Pune, East Khandesh, Maharashtra, Darjeeling, West Bangal, Shillong, Meghalaya; Myanmar : Rangoon, Tharawad, Bhamo; Pakistan : Karachi and North America.

Habits and habitats : No information available.

Genus *Cyclosa* Menga

15. *Cyclosa hexatuberculata* Tikader & Bal

1981. *Cyclosa hexatuberculata* Tikader & Bal, *Fauna of India, Spiders, 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, epigynum with a prominent cone shaped scape with basal bulged portion, internal genitalia with a pair of rounded sperm thecae.

Locality : Tadoba Andhari Tiger Reserve.

Material Examined : 1♀

Distribution elsewhere : India : BSI garden, Pune, Pench National Park, Nagpur, Maharashtra.

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.

Genus *Cyrtophora* Simon

16. *Cyrtophora cicatrosa* (Stoliczka)

1869. *Epeira (Nephila) cirtophora* Stoliczka, *J. Asiatic Soc, Bengal*, **33** : 242.

1900. *Araneus cirtophora* : Pocock, *Fauna of Brit. India, Arachn.*, : 226.

1921. *Cyrtophora cicatrosa* : Gravely, *Rec. Indian Mus.*, **22(4)** : 413.

1962. *Cyrtophora cicatrosa* : Tikader, *J. Linn. Soc.*, **44(300)** : 563.

1982. *Cyrtophora cicatrosa* : Tikader, *Fauna of India, Spiders, Araneidae*, **2(1)** : 178-180.

Common Name : Orb weaving spider.

Local Name : Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 6-9 mm long, cephalothorax and legs pale yellow with blackish patches and stripes, abdomen grayish white with black patches; cephalothorax longer than wide, narrowing in front, much broad and rounded posteriorly, a median and a pair of lateral black patches, thoracic region with deep trifid fovea, ocular quad longer than wide, slightly narrow in front, anterior row strongly recurved but posterior slightly recurved; femora I & II with longitudinal black stripes and numerous black spots on remaining segments; abdomen raised high up anteriorly, dorsum provided with two pairs of small black conical tubercles anteriorly and blunt caudal posterior tubercle with black and white patches; ventrum with a pair of longitudinal white lines and three pairs of white spots between epigastric groove and spinnerets and a pair of white stripe on caudal hump ventrally, epigynum with a single plate, wider than long, narrowed laterally, covering below two pairs of flattened plates opening in the genital orifice, internal genitalia with two pairs of circular to elliptically pouched spermathecae narrowed posteriorly, each forming short duct and opening posteriorly.

Locality : Damni Tank, Tadoba Andhari Tiger Reserve.

Material examined : 1 ♀ Imm.

Distribution elsewhere : India : Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, West Bengal, Uttar Pradesh, Punjab and Andman and Nicobar Islands; Myanmar : Thavaddy, Molmen; New Guinea; Pakistan; Austro-Malaysia.

Habits and habitats : Prepare smaller snares of dual structure, upper portion remains irregular mesh of threads and amongst which an inverted dome shape structure is prepared, spider normally remains in the centre of the dome in an inverted position. Female lays eggs in a grayish, 5-6 globular sacs put one above the other, on one side of the web. Normally such webs are prepared at about 3-5' above the ground level. Many such webs are seen on single bush. These spiders feed on smaller insects entangled in such nests.

Family OXYOPIDAE

Genus *Oxyopes* Latreille

17. *Oxyopes shwetae* Tikader

1970. *Oxyopes shwetae* Tikader, *Rec. zool. Surv., India*, 64(1-4) : 78.

1999. *Oxyopes shwetae* : Gajbe, *Rec. zool. Surv., India*, 97(3) : 46-47.

Common Name : Lynx spiders

Local Name : Koli (Marathi), Makadi (Hindi)

Diagnostic Characters : Body 10-13 mm long, robustly spiny on all legs, light brownish green on cephalothorax and legs while chalk white on abdomen; cephalothorax longer than wide, narrowed anteriorly, strongly convex cephalic region, eyes situated in two rows, all eyes encircled with black at the base, anterior row strongly recurved, medians being pulled forwards where as laterals placed in one group with posterior forming a circle; clypeus high with two black stripes extend from anterior median eyes to base of chelicerae; femora of all legs with longitudinal black line; abdomen much more longer than wide, narrowed behind, with lance shaped brown patch mid-dorsally and blackish line extending from anterior to posterior end of abdomen, dorsum mosaiced with chalk white, ventral portion with broad brown stripe; epigynum simple with a broad butterfly wing shaped dark patch, supplemented with a pair of interior black spots; male palp with much more extended cymbium, paracymbium short with anterior short spine while short tegulum ending in to sharp point.

Locality : Vasant bandhara, Palasgoan, Ambathira, Devzadi; Tadoba Andhari Tiger Reserve.

Material examined : 6♀♀, 15♀♀ Imm..

Distribution elsewhere : India : Sikkim, Karanataka, Kerala, Tamil Nadu (unpublished data)

Habits and habitats : Non orb weavers, prefer to move around the branches of shrubs and trees, common during rainy season, prefer to hunt through direct attack, feed on smaller insects sheltering on plants.

18. *Oxyopes pavani* Gajbe

1992. *Oxyopes pavani* Gajbe, *Rec. zool. Surv., India*, 91(3-4) : 389.

1999. *Oxyopes pavani* : Gajbe, *Rec. zool. Surv., India*, 97(3) : 57-58.

Common Name : Lynx spiders

Local Name : Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 8-11 mm in length, cephalothorax and legs brownish green, dark brown on abdomen, carapace longer than wide, convex dorsally, cephalic region narrowed and high, anterior row of eyes strongly recurved where as posteriors procurved, posterior row along with anterior laterals form ring of eyes and the anterior medians smaller and

removed from the group; clypeus high with chalk white patch from anterior median eyes to base of the chelicerae; all legs conspicuously spined; abdomen longer than wide much narrowing behind (but muscular corrugation not seen as described in Type), ventral with a median black patch and a pair of lateral white stripes from epigastric furrow to the base of the spinnerets, epigynum with dumbbell shaped structure fixed in to a horse shoe band, internal genitalia simple with a continuous tubular form but enlarged distally in to a globular end portions.

Locality : Ramdighi, Kalamba, Kolsa Lake, Tadoba Andhari Tiger Reserve.

Material examined : 6 ♀♀, 18 ♀♀ Imm., 4 ♂♂

Distribution elsewhere : India : Lucknow, Uttar Pradesh.

Habits and habitats : Not known but inhabits through forested areas, prefer to stay on branches and under leaves for feeding through direct attacks on smaller insects.

19. *Oxyopes ratnae* Tikader

1970. *Oxyopes ratnae* Tikader, *Rec. zool. Surv., India*, **64**(1-4) : 70.

1999. *Oxyopes ratnae* : Gajbe, *Rec. zool. Surv., India*, **97**(3) : 53-54.

Common Name : Lynx spiders

Local Name : Koli (Marathi), Makadi (Hindi)

Diagnostic Characters : Body 9-12 mm in length, cephalothorax and legs brownish green, dirty white on abdomen, cephalothorax longer than wide, narrowed anteriorly, raised and convex on cephalic part, thoracic portion with thin fovea, eighth eyes in two rows, anterior row strongly recurved, posterior row slightly procurved and equally placed, anterior medians very small; clypeus with a pair of black stripes on full height; all legs strongly spined and femora of all legs with a longitudinal deep brown line; abdomen longer than wide, narrowing behind, lateral deep brown patch present, posterior half with dirty white mosaic structure, ventral uniformly dirty white and median black lines, epigynum with a pair of obliquely paced arc chitinized supported with roughly triangular black patch anteriorly; male palp with elongated cymbium and short soft paracymbium and blunt basal apophysis and a pair of elongated spines.

Locality : Katezari, Tadoba Andhari Tiger Reserve.

Material examined : 1♀, 2♀♀ Imm.

Distribution elsewhere : India : Sikkim.

Habits and habitats : No information available.

Family THOMISIDAE

Genus *Tibellus* Simon

20. *Tibellus poonaensis* Tikader

1962. *Tibellus poonaensis* Tikader, *J. Univ. Poona Sci. & Tech.*, **22** : 135.

1980. *Tibellus poonaensis* : Tikader, *Fauna of India, Spiders, Thomisidae* **1**(1) : 215-217.

Common Name : Crab Spiders

Local Name : Karka Koli (Marathi), Makadi (Hindi)

Diagnostic Characters : Body length 7-8 mm, cephalothorax and abdomen pale yellow, eyes black, light green on legs, carapace longer than wide, narrowed in front, two lateral and a median brown bands extending from ocular region to base of carapace, both rows of eyes recurved, anterior median hexagon formed between anterior four and posterior pair of median eyes, lateral eyes largest and removed away from the group, tibiae I and II with three pairs and metatarsi with 2 pairs of ventral spines. Abdomen long, cylindrical, narrowed behind, anteriorly overlapping the base of the carapace, a lens shaped light brown band present mid-dorsally. Epigynum appearing like a human face with black chicks and long thin nose, peculiar to the species.

Locality : Vasant Bandhara, Tadoba Andhari Tiger Reserve.

Material examined : 1 ♀.

Distribution elsewhere : India : Pune city, Dist. Pune, Maharashtra.

Habits and habitats : Roams through foliage and fluorescence and feeds on smaller insects attracted to flowers.

Genus *Xysticus* Koch.

21. *Xysticus jayanticus* Tikader

1980. *Xysticus jayanticus* Tikader, *J. Asiatic Soc. Bengal*, **8**(4) : 250.

1980. *Xysticus jayanticus* Tikader, *Fauna of India, Spiders, Thomisidae* **1**(1) : 124-126.

Common Name : Crab Spiders.

Local Name : Karka Koli (Marathi), Makadi (Hindi).

Diagnostic Characters : Body size 3-5 mm long, cephalothorax light brownish green with two conspicuous lateral bands extending from lateral eyes to the base of carapace, clypeus high with five spines, ocular quad slightly longer than wide, tibiae and metatarsi I & II provided each with two pairs of ventral spines. Abdomen nearly ovate, wider in the middle, dorsally with symmetrically longitudinal deep brown patches, epigynum with a pair of balloon shaped sperm thecae covered with a horizontally placed 'C' shaped structure. Male palp simple with a pair of basal apophysis.

Locality : Kalamba, Tadoba Tiger Reserve.

Material examined : 2 ♀♀ Imm

Distribution elsewhere : India : Jaintia Hills, Meghalaya.

Habits and habitats : No information available.

Genus *Thanatus* Koch

22. *Thanatus stripatus* Tikader

1980. *Thanatus stripatus* Tikader, *Fauna of India, Spiders, Thomisidae* 1(1) : 229-231.

Common Name : Crab spiders.

Local Name : Karka Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body size 7-8 mm, cephalothorax and legs greenish yellow while yellowish brown on abdomen with conspicuous longitudinal bands, eyes black, both rows recurved, ocular quad wider behind, metatarsi, tarsi and tibiae of I and II legs with two pairs of ventral spines, epigynum simple with a pair of anteriorly pointed narrow obliquely situated sperm thecae.

Locality : Kolsa tank and around, Tadoba Andhari Tiger Reserve.

Material examined : 1♀.

Distribution elsewhere : India : Pune (Type Locality), Maharashtra.

Habits and habitats : Virtually no information available.

Genus *Monaeses* Thorell

23. *Monaeses mukundi* Tikader

1980. *Monaeses mukundi* Tikader, *Fauna of India, Spiders, Thomisidae* 1(1) : 145-146.

Common Name : Crab Spiders

Local Name : Karka Koli (Marathi), Makadi (Hindi)

Diagnostic Characters : Body 5-7 mm in length, yellowish brown on carapace and legs, chalk white on abdomen, carapace longer than wide, more wider in front and abruptly narrowed on ocular area, clypeus almost rectangular, both rows of eyes recurved, ocular quad narrowed in front, abdomen almost three times longer than wide, anteriorly overlapping the base of carapace, lateral portion with eight white parallel ridges, posterior portion provided with fine rows of small muscular tubercles, epigynum with an inverted horse shoe shaped sperm thecae.

Locality : Kalamba and Ramdighi, Tadoba-Andhari Tiger Reserve.

Material examined : 3 ♀♀ Imm.

Distribution elsewhere : India : Pune City (Type Locality), Dist. Pune, Maharashtra.

Habits and habitats : No information available.

Genus *Tmarus* Simon

24. *Tmarus kotigeharus* Tikader

1963. *Tmarus kotigeharus* Tikader, *Proc. Indian Acad. Sci. Bangalore*, **58**(5) : 250.

1980. *Tmarus kotigeharus* : Tikader, *Fauna of India, Spiders, Thomisidae* **1**(1) : 147-149.

Common Name : Crab Spider

Local Name : Karka Koli (Marathi), Makadi (Hindi)

Diagnostic Characters : Body 4-7 mm in length, carapace yellowish brown, abdomen brownish and pale green on legs, cephalothorax longer than wide, cephalic region high with truncated anterior margin, both rows of eyes recurved, median ocular area narrowed in front, tibiae I & II with three pairs of ventral spines, abdomen medially raised and pointed posteriorly and appears pentagonal dorsally, broadest behind middle portion, posterior half transversally banded with two dark incomplete bands, epigynum simple, roughly of an inverted horse shoe shape, outer margins slightly angulated on posterior lateral portions.

Locality : Khaloda, Tadoba-Andhari Tiger Reserve.

Material Examined : 3 ♀♀ Imm.

Distribution Elsewhere : India : Chikmanglur, Karnataka, Pune, Maharashtra, Pynursala, Khasi & Jayatia Hills, Meghalaya.

Habits and habitats : No information available.

Genus *Camaricus* Thorell

25. *Camaricus bipunctatus* Bastawade

2002. *Camaricus bipunctatus* Bastawade, *J. Bombay nat. Hist. Soc.*, **99**(2) : 274-281. (*Camaricus*, lapsus calami).

Common Name : Crab Spider

Local Name : Karka Koli (Marathi), Makadi (Hindi)

Diagnostic Characters : Body 6-7 mm(♀) and 5-6 mm(♂) in length, a typical crab like appearance, dark brown blackish in colour, lighter on abdomen with a pair of conspicuous light yellowish spots on mid dorsal portion, cephalothorax wider than long, lateral eyes placed on conspicuous yellow stalks, ocular quad narrowed anteriorly, both rows of eyes recurved, chelicerae smaller and dorsoventrally compressed on basal segments, promargins out stretched

and armed with 6 minute denticles, boss small, fangs short and much curved, abdomen almost elliptical, longer than wide, epigynum with a pair of small circular marks, internal genitalia with a pair of small circular spermathecae, each opening posteriorly with short duct. Male palp small and short, with thin cymbium and delicate, transparent paracymbium.

Locality : Katerzari, Tadoba Andhari Tiger Reserve.

Material Examined : 2 ♀♀.

Distribution Elsewhere : Thane, Nashik and Dhulia Dists., Maharashtra; West Kameng Dist. Arunachal Pradesh.

Habits and habitats : Unlike to other Thomisids these are always been found under barks of rotten wood logs of various plants in humid and wet climate, very slow moving spiders prefer to stay with other minute spiders like Oonopids and Pseudoscorpions.

Family LYCOSIDAE

Genus *Lycosa* Latrelle

26. *Lycosa mackenziei* Gravely

1924. *Lycosa mackenziei* Gravely, *Rec. Indian Mus.*, 26 : 606.

1980. *Lycosa mackenziei* : Tikader & Malhotra, *Fauna of India, Spiders, Lycosidae* 1(2) : 419-421.

Common Name : Wolf spiders.

Local Name : Landaga Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 8-10 mm long, cephalothorax and legs yellowish brown, abdomen pale with brown patches; cephalothorax longer than wide, convex cephalic region slightly high, narrowing in front, middle area with conspicuous fovea, median brown band present between posterior eyes to base, anterior row of eyes slightly recurved, medians larger than the laterals, posterior row strongly recurved and all eyes very large and with black patches, ocular quad wider than long; chelicerae moderately strong inner margin armed with three teeth; all legs spined; abdomen longer than wide, roughly oval, broadest behind middle, dorsum ornamented with beautiful pattern of dark brown patches; epigynum with a central tongue like structure between a pair of lobes, internal genitalia much complicated structure of ducts ending medially in to an orifice.

Locality : Telia Dam, Tadoba Andhari Tiger Reserve.

Material examined : 2 ♀♀, 1 ♀ Imm.

Distribution elsewhere : India : Karnataka, Bihar, West Bengal, Punjab; Pakistan : Lahore.

Habits and habitats : Not exactly known but species normally seen near to water bodies and streams, prefer to catch prey in direct attacks. Prone to wasp predation as larval food.

27. *Lycosa prolifica* Pocock

1901. *Lycosa prolifica* Pocock, *J Bombay nat. Hist. Soc.*, **13**(3) : 485.

1951. *Lycosa prolifica* : Sinha, *Rec. Indian Mus.*, **48**(2) : 23.

1980. *Lycosa prolifica* : Tikader & Malhotra, *Fauna of India, Spiders, Lycosidae* **1**(2) : 409-411.

Common Name : Wolf spider

Local Name : Landaga Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 12-16 mm in length, carapace and legs brown, abdomen light brown; cephalothorax longer than wide, convex, with conspicuous chocolate brown longitudinal broad patch on each side of distinct median fovea, extending from posterior lateral eyes to base of carapace, anterior row of eyes shorter, slightly procurved, medians larger than laterals, posterior row of larger eyes, ocular quad wider than long; legs strong, clothed with spines; abdomen longer than wide, broadest behind the middle and pointed on posterior end, anterior mid-dorsal provided with lens shaped brown patch, ventrum with mid-longitudinal broad dark brown band; epigynum with an inverted T shaped plate, internal genitalia with a pair of elliptical small spermathecae, opening with short coiled duct on inner side of the median plate.

Locality : Tadoba tank, Tadoba Andhari Tiger Reserve.

Material examined : 1 ♀, 1 ♀ Immature.

Distribution elsewhere : India : Maharashtra, Uttar Pradesh and Punjab.

Habits and habitat : Not properly known.

28. *Lycosa nigrotibialis* Simon

1884. *Lycosa nigrotibialis* Simon, *Ann. Mus. Stor. Nat. Genova*, **20** : 330.

1895. *Tarentula nigrotibialis* : Thorell, *Spiders of Burma*, : 236.

1951. *Lycosa nigrotibialis* : Sinha, *Rec. Indian Mus.*, **40**(2) : 23.

1980. *Lycosa nigrotibialis* : Tikader & Malhotra, *Fauna of India, Spiders, Lycosidae* **1**(2) : 405-407.

Common Name : Wolf spider

Local Name : Landaga Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 15-20 mm in length, cephalothorax and legs brown, abdomen pale brown; cephalothorax longer than wide, convex, some dark patches extending laterally, distinct median fovea, anterior row of eyes larger, with black patches at the base, space enclosed narrow in front; chelicerae strong and stout, fang furrow with three teeth; legs stout and long, coxae brown ventrally, tibiae III & IV with dark brown band ventral extremities; abdomen longer than wide, oval and broadest behind middle, dorsum with a dorsal anterior longitudinal dark patch, venter black, epigynum longer than wide, with an

inverted median T shaped soft plate, narrowed anteriorly, appearing pentagonal, guarded by a pair of chitinized plates, darker at base; internal genitalia with a pair of spherical spermathecae continued posteriorly in broader convoluted short ducts and opening in the basal portion of median plate.

Locality : Ramdhigi and Kalamba in Tadoba Andhari Tiger Reserve.

Material examined : 2♀♀.

Distribution elsewhere : India : Maharashtra, Gujarat, Bihar, West Bengal, Sikkim, Himachal Pradesh, Assam, Meghalaya; Myanmar; Pakistan : Rawalpindi; Afghanistan : Baluchistan.

Habits and habitats : Not properly known.

29. *Pardosa birmanica* Simon

1884. *Pardosa birmanica* Simon, *Ann. Mus. civ. stor. nat. Genova*, **20** : 333.

1924. *Lycosa birmanica* : Gravely, *Rec. Indian Mus.*, **26** : 607.

1970. *Pardosa bhatnagari* : Sadana, *Ent. Monthly Mag.*, **107** : 226.

1980. *Pardosa birmanica* : Tikader & Malhotra, *Fauna of India, Spiders, 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, cephalothorax longer than wide, convex, cephalic region narrowing in front and slightly high, median area light brown with a sharp fovea, legs thin, long, spined and all with transverse greenish dark brown patches, abdomen longer than wide, oval, pointed behind, broadest behind the middle, epigyne 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 spermathecae continued in to compact "S" shaped duct laterally turning in side posterior and opening in middle and supported medially with 'M' shaped plate.

Locality : Tadoba Andhari Tiger Reserve.

Material examined : 3♀♀, 1♀Imm..

Distribution elsewhere : India : Tamil Nadu, Andhra Pradesh, Maharashtra, Orissa, West Bengal, Meghalaya, Bihar, Madhya Pradesh, Gujarat, Uttar Pradesh, Rajasthan, Punjab, Himachal Pradesh. Pakistan; Myanmar.

Habits and habitats : Very commonly seen moving near the streams and water bodies, females are seen carrying egg cocoons between the last pair of legs, young ones mount on mothers back and eventually eat away the mother in case food scarcity, feed on smaller insects visiting the streams and water bodies.

30. *Pardosa sangosa* Tikader & Malhotra

1976. *Pardosa sangosa* Tikader & Malhotra, *Proc. Indian Acad. Sci.*, **83**(3) : 128-130.

1980. *Pardosa sangosa* : Tikader & Malhotra, *Fauna of India, Spiders, Lycosidae*, **1**(2) : 340-342.

Common Name : Wolf spider

Local Name : Landaga koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 7-12 mm long, cephalothorax and abdomen brown, legs brownish green, cephalothorax longer than wide, convex, cephalic region high and narrow, clypeus vertical, fovea fine surrounded with pale markings, lateral portion brownish with a light middle patch, anterior row of eyes slightly procurved and shorter, medians larger, posterior row with larger eyes, ocular quadrangle as long as wide; chelicerae moderately strong, retromargin with three teeth; legs thin, long, banded with transverse brown patches, metatarsi I with 3 pairs of ventral spines, IV almost as long as tibiae; male palp with short cymbium; abdomen longer than wide, narrowing behind, posterior half of dorsum with pale chevron pattern of patches, epigynum with a central plate continuing posteriorly and bifurcating on lateral sides and then turning anteriorly, appearing as an anchor, lateral notches and median head darker, internal genitalia showing a pair of laterally coiled and pouched spermathecae, continued posteriorly in to short ducts and opening separately, median plate supported internally with a thin plate on each side.

Locality : Kolasa Tank, Tadoba Tiger Reserve.

Material examined : 1♀.

Distribution elsewhere : India : Kansro, Dist. Dehra Dun, and Saharanpur, Uttataranchal

Habits and habitats : No information available.

Genus *Hippasa* Simon

31. *Hippasa pisaurina* Pocock

1900. *Hippasa pisaurina* Pocock, *Fauna Brit. India, Arachn.*, : 250.

1935. *Hippasa pisaurina* : Dyal, *Bull. Dept. Zool. Punjab Univ.*, **1** : 143.

1980. *Hippasa pisaurina* : Tikader & Malhotra, *Rec. Indian Mus.*, **48**(2) : 16.

1982. *Hippasa pisaurina* : Tikader & Malhotra, *Fauna of India, Spiders, Lycosidae*, **1**(2) : 300-302

Common Name : Wolf spider

Local Name : Landaga Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 8-12 mm long; cephalothorax and legs light brown, abdomen greenish with black and pale patches and spots, cephalothorax longer than wide, convex, cephalic region slightly raised, narrowing in front, sharp median fovea, thin brown bands radiating laterally, grayish black on margin, anterior eyes slightly procurved, wider than

second row, bases of anterior laterals black, all posterior eyes equal, ocular quad slightly wider posteriorly, ocular area black; chelicera reddish brown, fang furrow three unequal teeth; legs moderately strong and long, all segments with irregular greenish brown patches; male palp with elongated cymbium and compact basal paracymbium; abdomen longer than wide, pointed posteriorly, dorsum provided with reddish brown longitudinal lens shaped markings continued posteriorly in to light brown to black patches, ventrum with three longitudinal greenish brown streaks between epigastric furrow and spinnerets, epigynum simple with a median short small tongue like projection with a pair of lateral notches, internal genitalia with a pair of small spherical spermathecae, each continued posteriorly in a duct diverticulating at the end and opening in to epigastric furrow at the base of tongue like projection.

Locality : Katezari, Tadoba Andhari Tiger Reserve.

Material examined : 1 ♀.

Distribution elsewhere : India : Maharashtra, Karnataka, Gujarat and Bihar; Elsewhere : Pakistan : Lahore; Iraq : Baghdad.

Habits and habitats : Not understood.

Family TETRAGNATHIDAE

Genus *Tetragnatha* Latreille.

32. *Tetragnatha mandibulata* Walckenaer.

1837. *Tetragnatha mandibulata* Walckenaer, *Ins. Apt.*, 2 : 211.

1897. *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 through out Tadoba Andhari Tiger Reserve.

Material examined : 36 ♀♀, 25 ♂♂ and 18 ♀♀ Imm..

Distribution elsewhere : Almost throughout Indian sub-continent.

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 SALTICIDAE

Genus *Myrmarachne* Mac Lay

33. *Myrmarachne orientalis* Tikader.

1973. *Myrmarachne orientalis* Tikader, *Proc. Indian Acad. Sci.*, 78(2) : 59-67.

Common Name : Ant spider

Local Name : Mungi Koli (Marathi), Makadi (Hindi)

Diagnostic characters : Body 10-12 mm long, appears ant like, cephalothorax and legs reddish, abdomen brown, cephalothorax fairly longer than wide, cephalic region raised and flattened on median portion, thoracic region slopping behind, deep constriction exist between cephalic and thoracic region, anterior row of eyes slightly recurved, ocular trapezium wider than long; chelicera conspicuous in male, almost as long as cephalothorax, fang slender, pointed, slightly curved distally, armed with outer row of larger and inner row of minute teeth; sternum long, thin and narrow; legs long and thin; abdomen long, narrow and provided with constriction just behind anterior end, pedicel long and prominent; epigynum simple with a pair of dark patches in X shape, under basal round cover; male palp with short cymbium, coiled pointed conductor placed in transparent haematodocha and paracymbium.

Locality : Jalana Talao, Tadoba Andhari Tiger Reserve.

Material examined : 2♀♀, 5♂♂.

Distributiopn elsewhere : India : Dhakuria (Kolkata), West Bengal.

Habits and habitats : Normally observed as associate of blackish ant's colony, moving along the path of these ants, mimics ant walk, occasionally preys on non-workers and non-soldier ants, such associations seem to be common sights near tree trunks and ant nests. Easy to observe during early morning and late evening hours.

Order SOLIFUGAE

Family GALEODIDAE

Genus *Geleodes* Olivier

34. *Galeodes indicus* Pocock

1895. *Galeodes fatalis* Pocock, *J. Bombay nat. Hist. Soc.*, 9 : 441.

1900. *Galeodes indicus* : Pocock, *Fauna of Brit. India, Arachnida*, : 142

Common Name : Sun/Wind Spiders.

Local Name : Not available.

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 spinulate on ventral portions. Carapace (Prosoma) truncated on anterior margin, 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 : Forest rest house, near Tadoba Tank, Tadoba Andhari Tiger Reserve.

Material examined : 4 ♀♀.

Distribution elsewhere : India : Gwalior and Bilaspur (Type-locality), Madhya Pradesh; Gaya, Uttar Pradesh and Melghat Tiger Project, Amrevati Dist., Thane Dist. and Pench National Park, Dist. Nagpur, Maharashtra.

Habits and habitats : Truly nocturnal in habits, vigorous and voracious feeders; normally inhabit in drier and remote areas, feeds variety of ground insects, few occasions on Scorpions and smaller lizards. Normally fed up on by different species of Owls and Owlets.

SUMMARY

The area of Tadoba Andhari Tiger Reserve, Dist. Chandrapur, Maharashtra is a dry deciduous forestland remains green foliated during monsoon and post monsoon seasons of the year. The fauna inhabiting seems to be more actively prevailed during these seasons. The Arachnid fauna mainly the Scorpions, Spiders, Opiliones and Chelonethi could easily be encountered, though limited, during the monsoon period. The present studies summarize Scorpion fauna belonged to only two common and widely distributed families known to occur throughout India but show minimum diversity to record only two species under each of the families reported. Whereas the Araneae fauna, which remains most common and widely spread, reported with 6 families and 33 species. The spiders belonging to the genera *Araneus*, *Neoscona*, *Larinia*, *Cyclosa* (Araneidae); *Oxyopes* (Oxyopidae); *Thomisus*, *Xysticus*, *Misumenops* (Thomisidae); *Lycosa* (Lycosidae); *Tetragnatha*, *Eucta* (Tetragnathidae); ♀, *Zygoballus*, *Rhene* (Salticidae); *Pisaurus* (Pisauridae); *Sparassus* (Sparassidae); *Hersilia* (Hersillidae); *Theridion* (Theridiidae) and *Clubiona*, *Cheiracanthium* (Clubionidae) could not be identified up to specific taxa owing lack of mature specimens and in few cases non availability of concerned specific literature, for the reason of which these specimens have been determined only up to family or mostly generic taxa and have been included here separately. The Solifugids have been known by only one species.

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