

Conservation Area Series, 42

Fauna of
Bhimashankar Wildlife Sanctuary
Maharashtra



ZOOLOGICAL SURVEY OF INDIA

Conservation Area Series, 42

**Fauna of
Bhimashankar Wildlife Sanctuary
Maharashtra**



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**Fauna of
Bhimashankar Wildlife Sanctuary (Maharashtra)
Conservation Area Series,**

42

2009

1-284

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AN OVERVIEW

ANIL MAHABAL

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PHYSICAL GEOGRAPHY

Location and General Description

Bhimashankar Wildlife Sanctuary is situated on the crest line of the Northern Western Ghats (or Sahyadri) and was declared as sanctuary by the Government of Maharashtra on 16th September, 1985. It lies between 19° 01' to 19° 13' N latitude and 73° 28' to 73° 37' E longitude at an altitude ranging between 340 m and 1208 m above mean sea level. It covers 130.78 sq km of forested area in three districts of Maharashtra State i.e. Pune, Raigad and Thane covering few villages in its boundaries (see Map-1).

The Sanctuary is one of the five wildlife sanctuaries of the Northern Western Ghats in Maharashtra. Practically unbroken high ridge of the Western Ghats pass north-south through this sanctuary. It is composed of basaltic lava flows of the Deccan trap (Pande, 2005). The sanctuary includes spurs running towards eastern plains and steep slopes and valleys towards West in the Konkan region. The important physical features of this sanctuary are ridges, hill slopes, peaks, spurs, valleys, rocks, pools, plateau, cliffs, gorges, ravines, rocky and sandy stream basins (Gole, 2000; Islam and Rahmani, 2004). The highest peak in the sanctuary is 'Nagphani' situated at 1208 m above mean sea level.

Three rivers mainly Bhima, Goneri and Ghod originate from this sanctuary (see Map-2). There are also number of streams, small ponds and lakes like Ahupe lake and Hanuman Tale. At the western edge of the sanctuary there is a famous temple of Bhimashankar or Lord Shiva, which is regarded as one of the twelve Jyotirlingas (as sacred places of Lord Shiva temples) in the country. The temple is situated at a height of 900 m from mean sea level (Palande, 1954). This Bhimashankar Wildlife Sanctuary is about 130 kms from Pune and 235 kms from Nasik.

Rainfall and Temperature

Annual rainfall ranges between 4000 mm and 6000 mm. The mean lowest and highest temperatures recorded during the year are 7° C in winter and 36° C in summer respectively. There is high velocity of wind particularly from December to February and at higher elevations, heavy fog during monsoon months.

Biogeography

The Bhimashankar Wildlife Sanctuary falls within one of the ten Biogeographic Zones of India, i.e. code 5 Western Ghats Zone and under the biogeographic province-5B Western Ghats Mountains.

FLORA

Vegetal cover

The forest subtype 2A/C2, i.e. West Coast semi-evergreen forests cover 99 % of the sanctuary area. However, based on existing physiognomy and floristics of this sanctuary vegetation is divided into evergreen, semi-evergreen and deciduous forests. Further, moist semi-evergreen forest is located near, the Deccan plateau edge; tall evergreen forests in the catchment area of Bhima, Ghod and Goneri rivers and their tributaries; whereas moist deciduous forests is found on the western slopes and in the eastern valleys. Gentle sloping areas between hill slopes and stream basin support scrub and herbaceous plants (Palande, 1954; and Pande, 2005). The forest surrounding the temple are the only representatives of the virgin evergreen type seen in the Western Ghats and differ markedly from the dwarf or elfin evergreen found along these ghats. Relics of virgin evergreen forests have managed to survive only in some pockets of this sanctuary area. These patches are highly sensitive to human interference (Pande, 2005).

Evergreen and semi-evergreen forests

Climax evergreen vegetation appears only at three localities at west and east of crest line (Guptabhima) and hill along the Forest Rest House. *Beilschmiedia* sp., *Dimorphocalyx* sp., *Aryaetus* sp., *Mallotus* sp. are some characteristic vegetation of this climax evergreen forest.

The higher elevations of the sanctuary (900 m and above) hold the secondary evergreen forests with trees like Kindal *Terminalia pariculata*; Hirda *Terminalia chebula*; Anjani *Memicylon edula*; Jambhul *Eugenia jambolana*; Pisa *Actinodaphne hookeri*; and Atlantia *racemosa*, *Xantolis tomentosa*, *Carvie callosa*, *Mangifera indica*, etc. that form complex type of vegetation. During monsoon, various species of mosses and epiphytes including bioluminescent fungi can also be seen on the trees. Semi-evergreen forests are noted between 700 m and 900 m on both the east and west crestline.

Deciduous forests

The Bhimashankar Wildlife Sanctuary at its lower elevation (below 700 msl) mostly on the western ridge holds typical deciduous forest with trees like Babhul *Acacia arabica*, Neem *Azadiracta indica*; Bor *Zizyphus nijuba*, Saundad *Prosopis spicierd*; Ain *Terminalia arjuna*; Behada *Terminalia bellerica*; Apta *Bauhinia racemosa*; Hinganbet *Balanites roxburghii*; Dhavada *Anogeissus latifolia*; Palas *Butea monosperma*, Ray-avla *Cicca disticha*; Tad *Borassus flabellifer* etc. representing those at the deccan area of



Map-1 : Location Map of Bhimashankar Wildlife Sanctuary, Pune district, Maharashtra.

the State. Some of the major shrubs like Karvi *Karvis* spp. also found in this sanctuary which is unique in the character that it blooms only once in seven years (Palande, 1954).

Botanical studies of this wildlife sanctuary have recorded 444 species (from 107 families) of which 355 species are dicotyledons, 89 monocotyledons and one species of gymnosperm. 26 rare and endangered species are found in this sanctuary, particularly 17 sp. in climax forests, 4 sp. in secondary evergreen forests, 1 sp. in semi-evergreen forests, and 4 in deciduous forests. A number of plants with medical value are also known from the area (Pande, 2005).

Sacred Groves

Sacred groves (or called as *Deorais*) is an old tradition of community forest conservation. These small biodiversity rich patches are protected through socio-religious rules and regulations; and due to this several of them retain in pristine composition. Bhimashankar Wildlife Sanctuary has 14 sacred groves within the village boundaries such as Bhimashankar Rai, Bhaka Rai, Ahupe Rai, Vandev, Valarali Ban, Dhakoha, Koteswar, Umbaryn Bhairavnath, Vaghoba, Kondhval, Thathavadidevi, Kalbhairavnath, etc. Among these Bhimashankar and Ahupe grove are the finest sacred groves in the Sahyadris. These *Deorais* are considered ecologically important areas as some of them may still contain traces of the original species composition of this specific region, and also as gene pools for certain endemic and rare species (Pande, 2005).

FAUNA

Earlier work

Though the Bhimashankar Wildlife Sanctuary was established in the year 1985, mainly to offer protection to the Giant Squirrel *Ratufa indica elphinstoni* (Sykes), but there has been no systematic survey to record faunal diversity of the area. Stray records on the bird, mammals and other interesting smaller groups have been published from time to time mainly in the newspapers rather than in scientific journals. Occurrence of the Atlas Moth *Attacus attack* has been reported from this sanctuary in the local news paper 'Indian Express' Pune on 13th October, 1999 (Editor). In some surveys conducted prior to this project, scientists have reported birds, reptiles and mammals from this sanctuary in the departmental survey tour reports (unpublished).

Ecology of Bhimashankar forest, Western Ghats has been studied in detailed by Ghate, 1991 and Jagdale 1994. Thereafter Gole (2000) while formulating management guidelines for the protection of wildlife sanctuary w.r.t. birds has studied the forest cover and land-use patterns in different zones and habitats of this Bhimashankar Wildlife Sanctuary. Further, he listed over 172 bird species from this sanctuary alongwith their diversity, density and distribution in different habitats. Pande (2005) recorded 210 bird species in the sanctuary area alongwith 23 sp. of mammals, 12 sp. of reptiles, and 14 sp. of butterflies.

Wild Animals

The sanctuary supports a variety of wild animals but is especially famous for Giant Squirrel *Ratufa indica elphinstoni* (Sykes), locally called as 'Shekru', which is a highly endangered subspecies under IUCN category is also endemic to India. This mammal is the 'State Animal' of Maharashtra State and is a very attractive, colourful rodent with a long bushy tail (see cover photo). There are many other wild animals harbouring in this sanctuary particularly : Leopard *Panthera pardus*; Jungle Cat *Felis chaus*; Jackal *Caris aureus*; Indian Fox *Caris bengalensis*; Striped Hyena *Hyaena hyaena*; Wolf *Canis lupas*; Sambar *Cervus unicolor*; Barking Deer *Muntiacus muntjak*; Mouse deer *Moschiola meminna*; Scaly Ant-eater *Manis crassicaudata*; Wild Boar *Sus scrofa*; Common Langur *Semnopithicus entellus*; Bonnet Macaque *Macaca radiata*; Small Indian Mongoose *Herpestes edwardsii* etc.

As per the census of 2001 of wild animal population estimation by Forest Department, there were about 120 Barking Deer, 61 Civet Cat, 29 Hyena, 7 Leopard, 92 Grey Mongoose, 36 Sambar, 286 Wild Boar and 438 Giant squirrel in Bhimashankar Wildlife Sanctuary. However only about 175-200 Giant Squirrel were recorded in 2002 (Pande, 2005).

Table 1 : Faunal Diversity of Bhimashankar Wildlife Sanctuary

Sl. No.		Order	Family	Genera	Species
1.	Mammalia	8	23	44	66
2.	Birds	17	60	154	236
3.	Reptilia	2	13	36	54
4.	Amphibia	1	4	8	9
5.	Pisces	4	9	16	21
6.	Mollusca	3	13	15	19
7.	Scorpion	1	3	3	6
8.	Chiloposa	1	1	6	9
9.	Cladocera	1	6	13	15
10.	Odonata	1	7	20	24
11.	Mantoidea	1	2	5	5
12.	Lepidoptera	1	5	46	65
	Total	41	155	366	529

CONSERVATION

The Bhimashankar Wildlife Sanctuary has few number of threatened, endangered reptiles, birds, mammals and plant species. There are also few endemic plant and animal species. All the wild animals are protected under Wildlife (Protection) Act, 1972 (as amended upto 2002;) whereas plant and forest is protected under Forest (Conservation) Act, 1980. For protection of birds and their habitats, Islam and Rahmani (2004) included Bhimashankar Wildlife Sanctuary as one of the 20 important Bird Areas (IBA) of Maharashtra State and has IBA site code as IN-MH-01 with IBA criteria as A1, A2, A3. Further, they also provided data on land-use pattern, Tourism, need for threat management and about conservation zones of this sanctuary.

Further, for the effective high conservation of biological diversity of this sanctuary and the precious sacred groves needs to reduce the dependancy of local people on forest products and other natural resources; controlling the entry of livestock; management of ecotourism; and their developmental activities; keeping away the pilgrims from sanctuary area; total ban on plastic bags; and the prevention of forest fires particularly on Konkan side.

FAUNISTIC SURVEYS AND RESULTS

Altogether nine faunistic surveys were undertaken by the Scientists of Zoological Survey of India, Western Regional Station, Pune, of which three surveys were undertaken earlier during April-May 1965, May 1979 and in August 1994. The remaining six surveys were carried out under the present project from 2004 to 2006. Those were conducted in different seasons to collect samples and to record observations on the higher animals included in various schedules of the Indian Wildlife (Protection) Act, 1972 (as amended upto 2002). All the faunal samples collected during these surveys were brought to laboratory of the station for identification and further studies. Result of these studies dealing with 529 species is presented in Table 1. Further, this cannot be claimed as the comprehensive account on the total faunal diversity existing in the Bhimashankar Wildlife Sanctuary. Collection of certain groups could not be worked out in want of the concerned specialists at the station at present. Such collection is well preserved and maintained at the Western Regional Station, Zoological Survey of India, Pune for future studies.

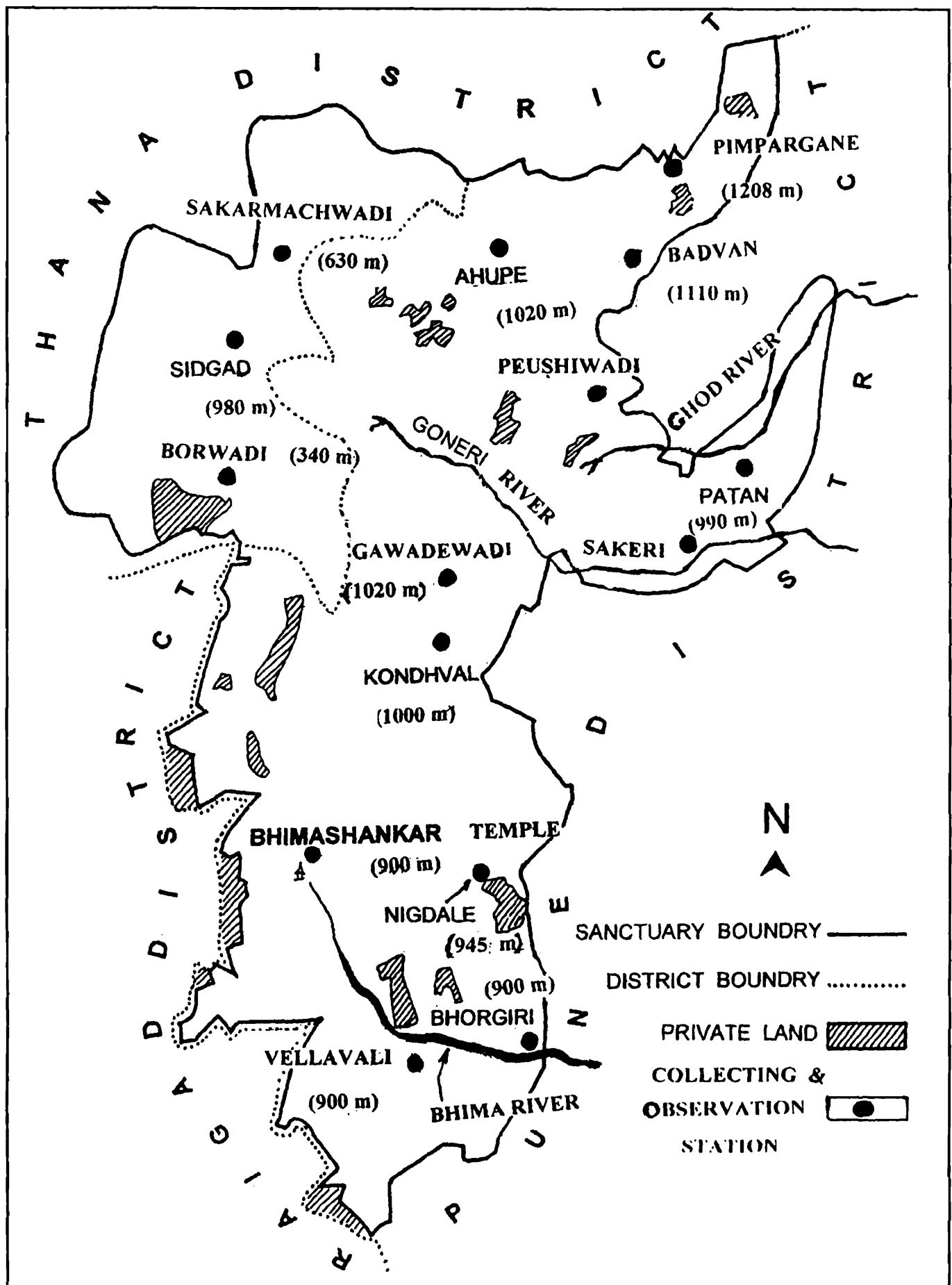
ACKNOWLEDGEMENTS

I am grateful to the Dr. Ramakrishna, Director, Zoological Survey of India, Kolkata for facilities and encouragement. My sincere thanks are due to all the scientific officers and staff of the Western Regional Station, Pune who have participated in the faunistic surveys and contributed the chapters in the present work. I am also thankful to all other administrative and technical staff of this station for their kind help in various matters. I extend my thanks to the Chief Conservator of Forests and Chief Wildlife Warden, Govt. of Maharashtra, Nagpur for providing permission to conduct the surveys and collect

the samples of fauna of small animals not included in Wildlife schedules for identification. Cooperation extended by the local staff of the Forest Department of Bhimashankar Wildlife Sanctuary is also gratefully acknowledged.

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Map-1 : Map of Bhimashankar Wildlife Sanctuary, Pune district, Maharashtra



View of Kondhval Nalla with semi-evergreen forest. (Photo by Dr. S.G. Patil, Sci.-C)



Nalla near Bhorgiri with moist deciduous forest. (Photo by Satish Kamble, A.Z.)



**Western slopes of sanctuary towards Konkan, with evergreen forest.
(Photo by Dr. Anil Mahabal, Sci.-F)**



Hilly slopes with nalla along with secondary forest. (Photo by Dr. S.G. Patil, Sci.-C)



Holes made by crab in grassy plateau of sanctuary. (Photo by Dr. S.G. Patil, Sci.-C)



Painted Grasshopper *Pocilocerucus pictus* in sanctuary area. (Photo by Dr. P.D. Rane, A.Z.)



Long Horned Beetle (Fam. Cerambicidae) in an open area of the forest.
(Photo by Dr. D.B. Bastawade, A.Z.)



A common Centipede of
Cormocephalus sp. in forested area
of Bhimashankar.



Tiger Centipede
Scolopendra hardwickei
(Female) in forest of
Bhimashankar.
(Photo by Dr. P.D. Rane, A.Z.)



Skink in an open rocky area of sanctuary. (Photo by Dr. P.D. Rane, A.Z.)



Cattle Egret resting on tree near Kondhval villeg. (Photo by Satish Kamble, A.Z.)

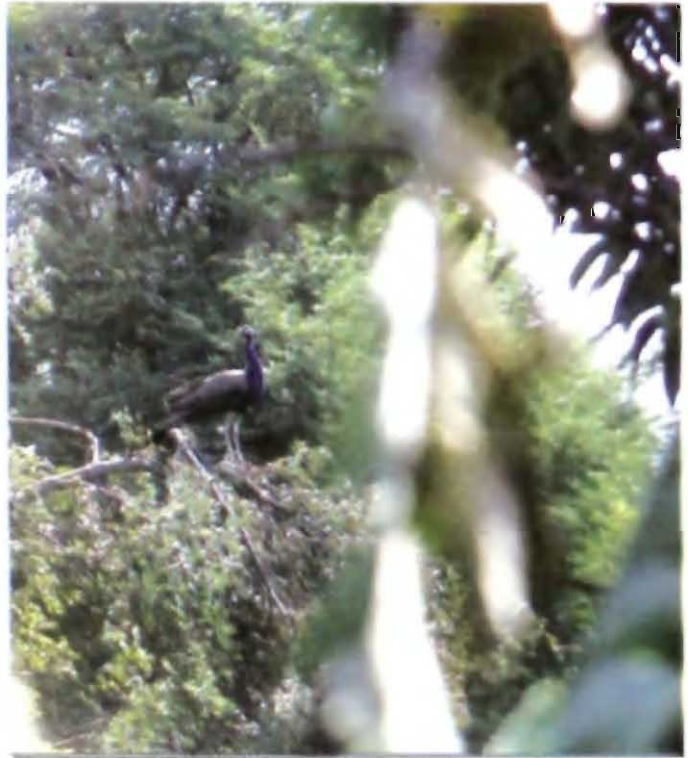


Pied crested-cuckoo (juvenile) near Bhimashankar Temple. (Photo by Dr. P.D. Rane, A.Z.)



Syke's Crested Lark in an open area along forest road side.

(Photo by Dr. P.P. Kulkarni, Sci.-D)



Indian Peafowl (male) in forested area near Kondhval sacred grove.

(Photo by Satish Kamble, A.Z.)



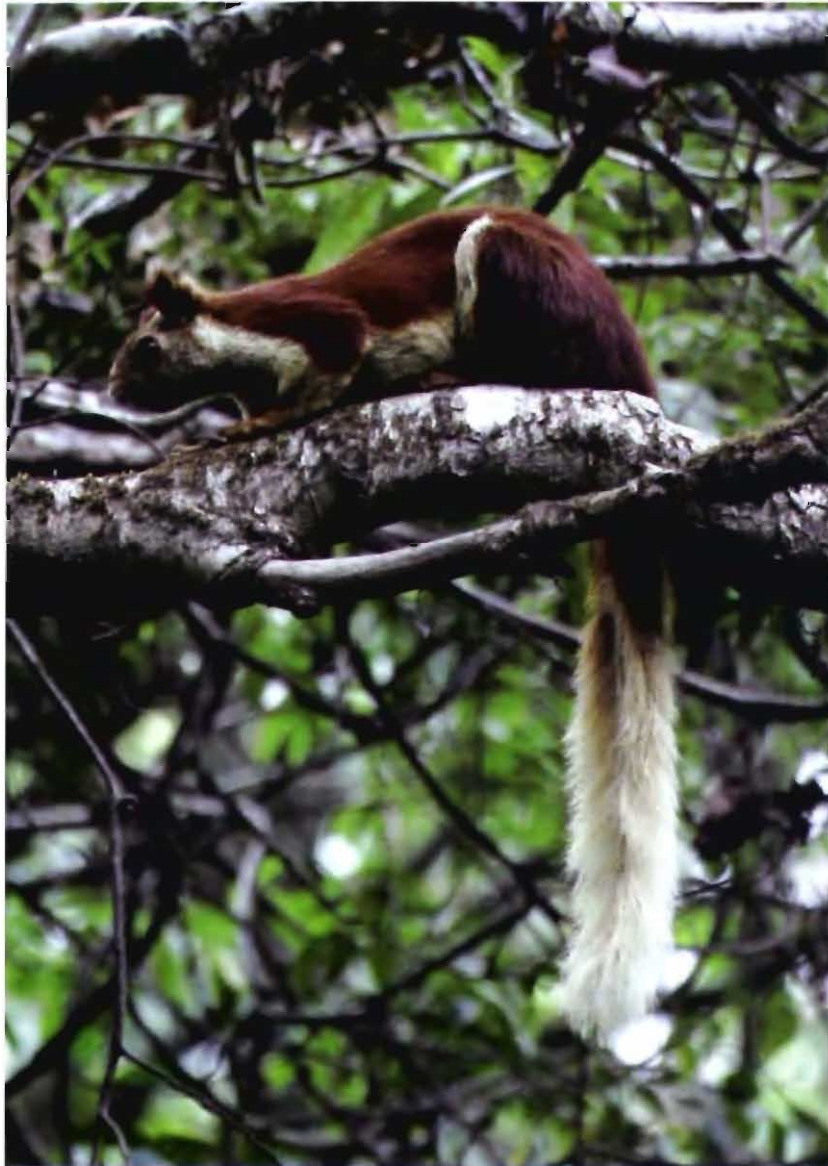
Field rat holes on an open plateau near Bhatti villege.

(Photo by Dr. S.G. Patil, Sci.-C)



Nest of Giant Squirrel *Ratufa* sp. near Kondhval Sacred grove.

(Photo by Satish Kamble, A.Z.)



Giant Squirrel (Photo by Vivek Kale, ELA Foundation, Pune)



Giant Squirrel taking leap near Kondhval Sacred groove. (Photo by Dr. P.D. Rane, A.Z.)

MAMMALIA

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INTRODUCTION

Bhimashankar Wildlife Sanctuary is located in Western part of Maharashtra State. The area falls under Northern part of Western Ghats. Bhimashankar is a famous holy place of Hindus where one of the Jyotirling temples out of twelve temples is situated. The region has its own importance and possesses evergreen type of forest at higher elevation. Bhimashankar Wildlife Sanctuary area is a suitable habitat for survival of Indian endemic Giant squirrel (*Ratufa indica elphinstoni* Sykes). This species is also called as "Shekru" in Marathi.

As per Government notification, nearly 30.78 sq. km area of Bhimashankar forest has been declared as wildlife sanctuary in the year 1985, which falls in Pune and Thane Districts of Maharashtra State. Bhima and Ghod rivers originate from the mountainous stretch of Bhimashankar. As stated above the sanctuary area falls in southern tropical evergreen forest category.

Bhimashankar Wildlife Sanctuary 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 as well as in the past and also on the bibliographic records (Ellerman and Morrison-Scott, 1951, Ellerman, 1961, Prater, 1980, Khajuria and Ghosal, 1981, Tikader, 1983, Agrawal *et al.*, 1992, Corbet and Hill, 1992, Bates *et al.*, 1997, Alfred *et al.*, 2006 and many others which have been mentioned at relevant places).

SYSTEMATIC LIST

(*Asterisks indicate species actually collected and/or sighted during project period as well as the past by ZSI survey parties)

Phylum CHORDATA

Class MAMMALIA

Order SORICOMORPHA

Family SORICIDAE

Subfamily CROCIDURINAE

1. Savi's Pigmy Shrew : *Suncus etruscus* (Savi)

*2. Common House Shrew : *Suncus murinus murinus* (Lin.)

Order SCANDENTIA

Family TUPAIIDAE

Subfamily TUPAIINAE

*3. Madras Tree Shrew : *Anathana ellioti ellioti* (Waterhouse)

Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

Subfamily PTEROPODINAE

4. Indian Fulvus Fruit Bat : *Rousettus leschenaulti leschenaulti* (Desmarest)

*5. Indian Flying Fox : *Pteropus giganteus giganteus* (Brunnich)

*6. Lesser Dog-faced Fruit Bat : *Cynopterus sphinx sphinx* (Vahl)

Family EMBALLONURIDAE

7. Black-bearded Tomb Bat : *Taphozous melanopogon melanopogon* Temminck

8. Long winged Tomb Bat : *Taphozous longimanus longimanus* Hardwicke

Family MEGADERMATIDAE

9. Lesser False Vampire Bat : *Megaderma spasma horsfieldii* Blyth

10. Greater False Vampire Bat : *Megaderma (Lyroderma) lyra lyra* Geoffroy

Family RHINOLOPHIDAE

11. Woolly Horse-shoe Bat : *Rhinolophus luctus beddomei* Andersen

12. Blyth's Horse-shoe Bat : *Rhinolophus lepidus lepidus* Blyth

13. Rufous Horse-shoe Bat : *Rhinolophus rouxii rouxii* Temminck

Family HIPPOSIDERIDAE

14. Anderson's Leaf-nosed Bat : *Hipposideros pomona gentilis* (Andersen)
15. Dusky Leaf-nosed Bat : *Hipposideros ater ater* Templeton
16. Fulvus Leaf-nosed Bat : *Hipposideros fulvus fulvus* Gray
17. Cantor's Leaf-nosed Bat : *Hipposideros galeritus brachyotus* (Dobson)
18. Schneider's Leaf-nosed Bat : *Hipposideros speoris speoris* (Schneider)

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

19. Horsfield's Bat : *Myotis horsfieldii peshwa* (Thomas)
20. Asiatic lesser yellow house bat : *Scotophilus kuhlii kuhlii* Leach
21. Asiatic greater yellow house bat : *Scotophilus heathi heathi* (Horsfield)
22. Kelaart's Pipistrelle : *Pipistrellus ceylonicus indicus* (Dobson)
23. Indian Pipistrelle : *Pipistrellus coromandra coromandra* (Gray)
24. Indian Pigmy Pipistrelle : *Pipistrellus tenuis mimus* Wroughton
25. Dormer's Bat : *Pipistrellus dormeri dormeri* (Dobson)
26. Tickell's Bat : *Hesperoptenus tickelli* (Blyth)

Subfamily KERIVOULINAE

27. Painted Bat : *Kerivoula picta picta* (Pallas)

Family MOLOSSIDAE

28. Wrinkle-lipped Free-tailed Bat : *Chaerephon plicata plicata* (Buchanan)
29. Egyptian Free-tailed bat : *Tadarida aegyptiaca thomasi* Wroughton

Order PRIMATES

Family CERCOPITHECIDAE

Subfamily CERCOPITHICINAE

- *30. Bonnet Monkey : *Macaca radiata radiata* (Geoffroy)

Subfamily COLOBINAE

- *31. Hanuman Langur : *Semnopithecus entellus* (Dufresne)

Order CARNIVORA

Family CANIDAE

- *32. Asiatic Jackal : *Canis aureus* Linn.
- *33. Indian Fox : *Vulpes bengalensis* (Shaw)

Family VIVERRIDAE

Subfamily VIVERRINAE

*34. Small Indian Civet : *Viverricula indica indica* (Desmarest)

Subfamily PARADOXURINAE

*35. Common Palm Civet/Toddy Cat : *Paradoxurus hermaphroditus hermaphroditus* (Pallas)

Family HERPESTIDAE

Subfamily HERPESTINAE

*36. Small Indian Mongoose : *Herpestes edwardsii edwardsii* (Geoffroy)

Family HYAENIDAE

Subfamily HYAENINAE

*37. Striped Hyaena : *Hyaena hyaena hyaena* (Linn.)

Family FELIDAE

Subfamily FELINAE

*38. Jungle Cat : *Felis chaus affinis* Gray

*39. Leopard Cat : *Prionailurus bengalensis bengalensis* (Kerr)

40. Rusty-spotted Cat : *Prionailurus rubiginosus rubiginosus* (I. Geoffroy)

Subfamily PANTHERINAE

*41. Leopard/Panther : *Panthera pardus fusca* (Meyer)

*42. Royal Bengal Tiger/Tiger : *Panthera tigris tigris* (Linn.)

Order ARTIODACTYLA

Family SUIDAE

Subfamily SUINAE

*43. Wild Boar : *Sus scrofa cristatus* Wagner

Family TRAGULIDAE

*44. Indian Chevrotain/Mouse Deer : *Moschiola meminna* (Erxleben)

Family CERVIDAE

Subfamily CERVINAE

*45. Spotted Deer : *Axis axis axis* (Erxleben)

*46. Sambar : *Cervus unicolor niger* Blainville

Subfamily MUNTIACINAE

*47. Indian Muntjak/Barking Deer : *Muntiacus muntjak aureus* (H. Smith)

Family BOVIDAE

Subfamily BOVINAE

*48. Four-horned Antelope : *Tetracerus quadricornis* (Blainville)

Order RODENTIA

Suborder SCIUROMORPHA

Family SCIURIDAE

Subfamily RATUFINAE

*49. Indian Giant Squirrel : *Ratufa indica elphinstoni* (Sykes)

Subfamily CALLOSCIURINAE

*50. Three-striped Jungle Squirrel : *Funambulus tristriatus tristriatus* (Waterhouse)

*51. Five-striped Northern Palm Squirrel : *Funambulus pennanti pennanti* Wroughton

Suborder MYOMORPHA

Family MURIDAE

Subfamily GERBILLINAE

*52. Indian Gerbil or Antelope Rat : *Tatera indica indica* (Hardwicke)

Subfamily MURINAE

*53. Common House Mouse : *Mus musculus castaneus* Waterhouse

54. Common House Mouse : *Mus musculus homourus* Hodgson

*55. Little Indian Field Mouse : *Mus booduga booduga* (Gray)

*56. Indian Brown Spiny Mouse : *Mus platythrix* Bennett

*57. Elliot's Spiny Mouse : *Mus saxicola saxicola* Elliot

58. Long-tailed Tree Mouse : *Vandeleuria oleracea oleracea* (Bennett)

*59. House Rat or Roof Rat : *Rattus rattus rufescens* (Gray)

60. Sahydris Forest Rat : *Rattus satarae* Hinton

61. Soft - furred Metad : *Millardia meltada meltada* (Gray)

62. Blanford Rat : *Cremnomys blanfordi* (Thomas)

*63. Lesser Bandicoot Rat : *Bandicota bengalensis bengalensis* (Gray)

64. Large Bandicoot Rat : *Bandicota indica malbarica* (Shaw)

Suborder HYSTRICOMORPHA

Family HYSTRICIDAE

*65. Indian Crested Porcupine : *Hystrix indica* Kerr

Order LAGOMORPHA

Family LEPORIDAE

*66. Indian Hare : *Lepus nigricollis nigricollis* Cuvier

SYSTEMATIC ACCOUNT

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

Phylum CHORDATA
 Class MAMMALIA
 Order SORICOMORPHA
 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 of Pune city such as Narhe vill. about 10 km. From Pune (Ranade, 1989), Saswad (Pande *et al.*, 2004), it is assumed that the species occurs in Bhimashankar Wildlife Sanctuary area also.

Material Examined/Sightings : None.

Distribution elsewhere : Throughout India.

Status : Uncommon locally.

Conservation Status : IUCN : Least Concern (National and South Asia) (CAMP Report, 2005).

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

*2. *Suncus murinus murinus* (Linnaeus)

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 : Bhimashankar and Dimbhe in the sanctuary area.

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

Distribution elsewhere : Throughout India.

Status : Common locally.

Conservation Status : IUCN : Least Concern (National and South Asia) (CAMP Report, 2005).

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

Order SCANDENTIA

Family TUPAIIDAE

Subfamily TUPAIINAE

*3. *Anathana ellioti ellioti* (Waterhouse)

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

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

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

Locality : Bhimashankar Wildlife sanctuary.

Material Examined/Sightings : Suter (1922) recorded this species from Khandala, Pune District. Specimens collected from this area in the year 1963 are also available in National Institute of Virology, Pune.

Distribution elsewhere : Endemic to Southern peninsular India south of Ganges.

Status : Not very uncommon locally.

Conservation Status : IUCN : Near Threatened (CAMP Report, 2005); *CITES* : Appendix II (Family *Tupaiaidae*).

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 (Alfred *et al.*, 2006). Attempts were even made to place tree shrew in Primates (Roonwal and Mohnot, 1977). A good example of a connecting links in evolutionary studies. Hence, detailed studies covering various aspects are strongly recommended.

Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

Subfamily PTEROPODINAE

4. *Rousettus leschenaulti leschenaulti* (Desmarest)

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

1997. *Rousettus leschenaulti 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 areas like Khandala and Pune.

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.

*5. *Pteropus giganteus giganteus* (Brunnich)

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

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

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Sighted roosts of this species in the sanctuary area by ZSI survey parties during the project period as well as in the past.

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.

*6. *Cynopterus sphinx sphinx* (Vahl)

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

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

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Sighted a few specimens in the late evening hours in the sanctuary area by ZSI survey parties during the project period as well as in past.

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 in orchards.

Suborder MICROCHIROPTERA

Family EMBALLONURIDAE

7. *Taphozous melanopogon melanopogon* Temminck

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

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

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : None.

Distribution elsewhere : Throughout India.

Status : Uncommon species locally.

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

8. *Taphozous longimanus 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 : Bates and Harison (1997) reported this species from Khandala, Pune district. Hence, it is assumed that it occurs in the current study area also.

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.

Family MEGADERMATIDAE

9. *Megaderma spasma horsfieldii* Blyth

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

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

Common Name : English : Lesser false vampire bat; Marathi : Watwaghul.

Locality : Brosset (1962b) reported occurrence of *Megaderma spasma horsfieldii* from Khandala, Pune district, hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

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.

10. *Megaderma lyra 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 : Bates and Harrison (1997) reported occurrence of *Megaderma lyra lyra* from Pune area, hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

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 the distributional range.

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

Remarks : *Megaderma lyra 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

11. *Rhinolophus luctus beddomei* Andersen

1905. *Rhinolophus beddomei* Andersen, *Ann. Mag. N. H.* 16 : 253.

2002. *Rhinolophus luctus beddomei* : Alfred, Sinha and Chakraborty, *Rec. zool. Surv. India, Occ. Paper No.* 199 : 39-40.

Common Name : English : Lesser wooly Horseshoe bat; Marathi : Watwaghul.

Locality : Brosset (1962b) reported occurrence of *Rhinolophus luctus beddomei* from Khandala, Karla, Bhaja, Bedsar (Pune district), hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

Distribution elsewhere : Andhra Pradesh, Karnataka and Kerala in south India (Bates and Harrison, 1997).

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 uncommon.

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

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

12. *Rhinolophus lepidus lepidus* Blyth

1844. *Rhinolophus lepidus* Blyth, *J. Asiat. Soc. Bengal*, 13 : 486.

2002. *Rhinolophus lepidus lepidus* : Alfred, Sinha and Chakraborty, *Rec. zool. Surv. India, Occ. Paper No.* 199 : 39.

Common Name : English : Blyth's Horseshoe Bat; Marathi : Watwaghul.

Locality : Brosset (1962b) and Tiwari *et al.*(1971) reported occurrence of *Rhinolophus lepidus lepidus* from Khandala, Lonawla and Lohogad Fort (Pune district) and Khopoli (Raigad district), hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

Distribution elsewhere : Throughout India (Alfred *et al.*, 2002).

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

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

13. *Rhinolophus rouxii rouxii* Temminck

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

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

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

Locality : Brosset (1962b) reported occurrence of *Rhinolophus r. rouxii* from Bhaje, Khandala, Lohogad Fort (Pune district), hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

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

14. *Hipposideros pomona gentilis* (Andersen)

1918. *Hipposideros gentilis* Andersen, *Ann. Mag. Nat. Hist.*, ser. 9, 2 : 380, 381.

2002. *Hippisideros pomona gentilis* : Alfred, Sinha and Chakraborty, *Rec. zool. Surv. India, Occ. Paper No. 199* : 49.

Common Name : English : Andersen's Leaf-nosed Bat; Marathi : Watwaghul.

Locality : Korad (2005) reported this species from Pune district (Maval, Mulshi, Junner) and Raigad district (Mahad). These localities being near to Bhimashankar Wildlife Sanctuary, its occurrence in present sanctuary area has been assumed here.

Material Examined/Sightings : None.

Distribution elsewhere : North-East India, Uttar Pradesh and West Bengal (Bates and Harrison, 1997; Das, 2003).

Status : Not very common species locally.

Conservation Status : IUCN : Least Concern (For *Hippisideros pomona*) CAMP Report, 2002).

15. *Hippisideros ater ater* Templeton

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

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

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

Locality : Korad (2005) reported this species from Pune district (Maval, Ambegaon, Junner) and Raigad district (Karjat, Mahad and Khopoli). These localities being near to Bhimashankar Wildlife Sanctuary, its occurrence in present sanctuary area has been assumed here.

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.

16. *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 : Karla, Lonawla, Bhaje, Maval and Mulshi in Pune District (Brosset, 1962b, Topal, 1974 and Korad, 2005).

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.

17. *Hipposideros galeritus brachyotus* (Dobson)

1874. *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 : This species reported from Bedsar caves in Pune district (Brosset, 1962b) and Shivtharghal near Mahad in Raigad district (Korad, 2005) are nearer to the present study area, hence its occurrence of *Hipposideros galeritus brachyotus* in Bhimashankar Wildlife Sanctuary area has been assumed here.

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).

18. *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 : Brosset (1962b) and Korad and Yardi (2004) have reported this species from Khandala and Pune city, hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

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

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

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

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

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

19. *Myotis horsfieldii peshwa* (Thomas, 1915)

1915. *Leuconoe peshwa* Thomas, *J. Bombay nat. Hist. Soc.*, **23** : 610.

2002. *Myotis horsfieldii peshwa* : Alfred, Sinha and Chakraborty, *Rec. zool. Surv. India, Occ. Paper No. 199* : 59.

Common Name : English : Horsfield's Bat, Peshwa Bat.

Locality : Type locality of this bat is Pune, hence its occurrence of *Myotis horsfieldii peshwa* in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

Distribution elsewhere : Goa, Karnataka, Kerala, Madhya Pradesh, Tamil Nadu in Peninsular India (Bates and Harrison, 1997).

Status : Endemic subspecies of India (Bates and Harrison, 1997).

Conservation Status : IUCN : Least Concern (For *Myotis horsfieldi*) (CAMP Report, 2002).

Remarks : Specimens from Peninsular India are provisionally referred to *Myotis horsfieldi peshwa* by Bates and Harrison (1997).

20. *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 : Bates and Harrison (1997) reported this species from Pune district, it is assumed that it occurs in the current study area also.

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 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.

21. *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 : Pune 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.

22. *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 : Number of localities within Pune 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 (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).

23. *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 : Pune (Pradhan and Kulkarni, 2003).

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.

24. *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 : Brosset (1962c) and Korad and Yardi (2004) reported this species from Pune district.

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 (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).

25. *Pipistrellus dormeri 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 : Pune (Korad and Yardi, 2004).

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.

26. *Hesperoptenus tickelli* (Blyth)

1851. *Nycticejus tickelli* Blyth, *J. Asiat. Soc. Bengal*, **20** : 157.

1997. *Hesperoptenus tickelli* : Bates and Harrison, *Bats of Indian Subcontinent* : 196-198.

Common Name : English : Tickell's Bat; Marathi : Watwaghul.

Locality : Pune (Brosset, 1962c).

Material Examined/Sightings : None.

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

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 : Flight of this bat is steady and somewhat slow, not more than 9 to 12 meters above the ground and with frequent twists and turns (Bates and Harrison, 1997).

Subfamily KERIVOULINAE

27. *Kerivoula picta picta* (Pallas)

1767. *Vespertilio pictus* Pallas, *Spicil. Zool.*, **3** : 7.

1997. *Kerivoula picta picta* : Bates and Harrison, *Bats of Indian Subcontinent* : 212-214.

Common Name : English : Painted bat; Marathi : Watwaghul.

Locality : Brosset (1962c) reported this species from Mumbai and Khandala. Since these places are close to Bhimashankar Wildlife Sanctuary, its occurrence has been assumed in the current study area also.

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 : Preferred diurnal roosts of this bat are, down-hanging dried leaves of banana plants, usually in small groove (Bates and Harrison, 1997).

Family MOLOSSIDAE

28. *Chaerephon plicata plicata* (Buchannan)

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

2002. *Chaerephon plicata plicata* : Alfred, Sinha and Chakraborty, *Rec. zool. Surv. India, Occ. Paper No. 199* : 45.

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

Locality : Karla and Pune (Bates and Harrison, 1997; Korad and Yardi, 2004) close to Bhimashankar Wildlife Sanctuary.

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.

29. *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 : Pune (Pradhan and Mahabal, 2001) and Mulshi (Korad, 2005). Hence, it is assumed that it occurs in the Bhimashankar Wildlife Sanctuary area also.

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 (For *Tadarida aegyptiaca*) (CAMP Report, 2002).

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

Order PRIMATES

Family CERCOPITHECIDAE

Subfamily CERCOPITHICINAE

*30. *Macaca radiata radiata* (Geoffroy)

1812. *Cercocebus radiatus* Geoffroy, *Ann. Mus. Hist. Nat. Paris*, **19** : 98.

1992. *Macaca radiata radiata* (Geoffroy), Corbet and Hill, *The Mammals of the Indomalayan region* : 168.

Common Name : English : Bonnet Monkey; Marathi : Makad/Lal Makad; Bhimashankar Wildlife Sanctuary.

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

Distribution elsewhere : Andhra Pradesh, Karnataka, Kerala and Tamil Nadu (Fooden *et al.*, 1981).

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

*31. *Semnopithecus entellus* (Dufresne)

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

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

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

Locality : Bhimashankar Wildlife Sanctuary.

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.

Order CARNIVORA

Family CANIDAE

*32. *Canis aureus* Linn.

1758. *Canis aureus* Linnaeus, *Systema naturae*.... Vol. 1st, 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 : Bhimashankar Wildlife Sanctuary.

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.

***33. *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 : Bhimashankar Wildlife Sanctuary.

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 : Schedule : II Part II, *CITES* : Appendix III.

Remarks : The species faces threat for its survival from illegal trade for its fur, from hunting (Pradhan, 1997), from fragmentation of populations and habitat destructions.

Family VIVERRIDAE

Subfamily VIVERRINAE

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

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

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

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Two skins of this species are available in ZSI. WRS. Collection (M/33,34) were collected from Bhimashankar Wildlife Sanctuary.

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

*35. *Paradoxurus hermaphroditus 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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Common Palm civet or Toddy cat was sighted in Bhimashankar Wildlife Sanctuary 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, currently 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.

Family HERPESTIDAE

Subfamily HERPESTINAE

* 36. *Herpestes edwardsii edwardsii* (Geoffroy)

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

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

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Indian grey mongoose was sighted at number of places at different times in Bhimashankar Wildlife Sanctuary 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.

Family HYAENIDAE

Subfamily HYAENINAE

*37. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Sighting of hyaena in Bhimashankar Wildlife Sanctuary has been recorded by the ZSI survey parties during the project period.

External Distribution : Throughout India.

Status : Not very uncommon in Bhimashankar Wildlife Sanctuary; *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

*38. *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 : Indian Jungle Cat; Marathi : Ran Manjar, Baul.

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Two skins of Jungle cat are available in ZSI.WRS. Colletion (M/15,16) which were collected from Bhimashankar Wildlife Sanctuary in the past.

External Distribution : Throughout India.

Status : Not uncommon in Bhimashankar Wildlife Sanctury; *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 chuas*. 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.

***39. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Leopard cat has been sighted in Bhimashankar Wildlife Sanctuary by ZSI survey party during the project period.

External Distribution : Throughout India.

Status : Rare at least in Bhimashankar Wildlife Sanctuary; *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 tribal 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 the monotypic genus.

40. *Prionailurus rubiginosus rubiginosus* I. Geoffroy Saint Hilaire

1831. *Felis rubiginosa* I. Geoffroy, Belanger, *Voy. Ind. Orient. Zool.*, 140.

2002. *Prionailurus rubiginosa rubiginosa* I. Geoffroy, Alfred, Sinha and Chakraborty, *Rec. zool. Surv. India, Occ. Paper No.*, 199 : 101-102.

Common Name : English : Rusty spotted Cat.

Locality : Bhimashankar Wildlife Sanctuary, Alfred *et al.* (2006) reported this species from Pune district.

Material Examined/Sightings : None.

External Distribution : Scattered pockets in Peninsular India.

Status : Rare atleast in Bhimashankar Wildlife Sanctuary; *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 I, *CITES* : Appendix : I; Red Data Book (National, 1994): Insufficiently known.

Remarks : Alfred *et al.* (2006) consider the status of rusty spotted cat as Rare, and strongly recommend to include this species in the higher category of *IUCN*.

Subfamily PANTHERINAE

***41. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Leopard has been sighted in Bhimashankar Wildlife Sanctuary by the ZSI survey parties and Forests Dept. authorities during the project period.

External Distribution : Throughout India.

Status : Common in Bhimashankar Wildlife Sanctuary; *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).

*42. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Tiger has been sighted on two occasions in Bhimashankar Wildlife Sanctuary area in recent past by a local NGO authorities (Ecological Society, Pune and Forest Department authorities).

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

Status : Rare in Bhimashankar Wildlife Sanctuary. Definitely not a resident species; *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. Forests Dept. authorities have confirmed possible occurrence of tiger on the basis of sighting of fresh droppings, Pugmarks in this area.

Order ARTIODACTYLA

Family SUIDAE

Subfamily SUINAE

*43. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Wild Boar has been sighted in Bhimashankar Wildlife Sanctuary on number of occasions by the ZSI survey parties and Forests Dept. authorities during the project period.

External Distribution : Throughout India.

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

Remarks : Wild Boar is a great destructor of the standing crops and other cultivated areas. It is a prolific breeder and breeds round the year. Since Wild Boar is believed to be a destructor of the standing crops, it is considered as agricultural pests by the agriculturists and farmers. Therefore they kill wild boars by various methods to save the crops. It is also killed for its meat and body parts for various purposes.

Family TRAGULIDAE

*44. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Mouse Deer was sighted in Bhimashankar Wildlife Sanctuary area by ZSI survey party in past.

External Distribution : Throughout India.

Status : Uncommon in Bhimashankar Wildlife Sanctuary; 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

*45. *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 : Bhimashankar Wildlife sanctuary.

Material Examined/Sightings : Herds of spotted deers have been sighted in Bhimashankar Wildlife sanctuary by the ZSI survey parties and Forests Dept. authorities during the project period.

External Distribution : Throughout India.

Status : Not very common in Bhimashankar Wildlife Sanctuary; 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.

*46. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Herds of sambar were sighted in Bhimashankar Wildlife Sanctuary by the ZSI survey parties and Forests Dept. authorities during the project period.

External Distribution : Throughout India.

Status : Fairly common in Bhimashankar Wildlife Sanctuary; 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.

Subfamily MUNTIACINAE

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

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

1003. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Two skins of Barking Deer are available in ZSI. WRS. Pune collection which were collected in past (M/). Barking Deer has been sighted in Bhimashankar Wildlife Sanctuary by the ZSI survey parties and Forests Dept. authorities during the project period also.

External Distribution : Central and Western India for the subspecies.

Status : Not very uncommon in Bhimashankar Wildlife Sanctuary; 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 : Wilson and Reeder (1993) 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.

Family BOVIDAE

Subfamily BOVINAE

*48. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : It has been sighted in Bhimashankar Wildlife Sanctuary by the ZSI survey parties and Forests Dept. authorities during the project period.

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

Status : Quite rare to sight in Bhimashankar Wildlife Sanctuary; 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.

Order RODENTIA
Suborder SCIUROMORPHA
Family SCIURIDAE
Subfamily RATUFINAE

*49. *Ratufa indica elphinstoni* (Sykes)

1831. *Sciurus elphinstoni* Sykes, *Proc. Zool. Soc.* : 103.

1993. *Ratufa indica elphinstoni* Sykes, *By Hoffman et. al., In* : Wilson & Reeder, *Mammal Species of the World* : 437.

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Sighted a few live specimens in wild in the canopies in the thick evergreen forested areas in Bhimashankar Wildlife Sanctuary by ZSI survey parties during project period as well as in past.

External Distribution : Thick forested areas in Northern part of Western Ghats.

Status : Common in Bhimashankar Wildlife Sanctuary; IUCN Criteria proposed as per the CAMP Report (2005) : Vulnerable (For *Ratufa indica* Erxleben) 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 the few individuals near sacred springs and riverine forests, human interference and domestic as well as international commercial trade.

Subfamily CALLOSCIURINAE

*50. *Funambulus tristriatus tristriatus* (Waterhouse)

1837. *Sciurus tristriatus* Waterhouse, *Mag. Nat. Hist.* [Charlesworth's], 1 : 499.

2002. *Funambulus tristriatus tristriatus* : Alfred, Sinha and Chakraborty, *Rec. zool. Surv. India, Occ. Paper No. 199* : 177.

Common Name : English : Jungle Striped Squirrel, Western Ghats Striped Squirrel, Marathi: Pateri Khar.

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Small groups were sighted near Hanuman temple in Bhimashankar Wildlife Sanctuary during project period by ZSI survey parties.

External Distribution : Kerala, Karnataka and Goa in Western Ghats.

Status : Endemic to Western Ghats of India; IUCN Criteria proposed as per the CAMP Report (2005) : Near Threatened.

Remarks : Ellerman (1961) synonymised 'numarius' (type locality Ghatmatha, Satara Dist.) and 'thomasi' (type locality : Khandala, Pune Dist.) under *Funambulus tristriatus tristriatus*. Agrawal and Chakraborty (1979b), Alfred *et al.* (2002) and Srinivasulu *et al.* (2004) accepted the same view.

***51. *Funambulus pennantii pennantii* Wroughton**

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

2004. *Funambulus pennantii pennantii* : Ghose, Mandal and Ghose, *Rec. zool. Surv. India*, **102**(3-4) : 91-92.

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Small groups were sighted in number of places in Bhimashankar Wildlife Sanctuary during the project period.

External Distribution : Peninsular India south of Himalaya (For species level).

Status : Not very uncommon in the region; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (Nationally), 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. Ghose *et al.* (2004) referred *Funambulus pennanti pennanti* for Western Maharashtra population of five striped squirrel. 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.

Suborder MYOPORPHA

Family MURIDAE

Subfamily GERBILLINAE

***52. *Tatera indica indica* (Hardwicke)**

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

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

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Collected one specimen from Bhimashankar Wildlife Sanctuary during the project period.

External Distribution : Throughout India.

Status : common; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (National) and Least Concern (South Asia) (For *Tatera indica*), Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : V (Vermis).

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.

Subfamily MURINAE

*53. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Sighted in the rest house at Bhimashankar in Bhimashankar Wildlife Sanctuary area during the project period.

External Distribution : Throughout India.

Status : Common in residential premises; IUCN Criteria proposed as per the CAMP Report (2005) : Least Concern (Nationally and in South Asia) (For *Mus musculus* Lin.), 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.

54. *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 : Singh and Pradhan (1992) reported this species from Tansa Wildlife Sanctuary (Thane Dist), Hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

External Distribution : Southern slope of the Himalaya from Jammu and Kashmir to West Bengal, South to Manipur and Nagaland.

Status : Uncommon; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (Nationally and in South Asia) (For *Mus musculus* Lin.), Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : V (Vermis).

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

*55. *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 : Shetital Undir.

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Sighted in Bhimashankar Wildlife Sanctuary area during the project period.

External Distribution : Throughout India.

Status : common in the fields; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (Nationally and in South Asia), Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule: Schedule : V (Vermis).

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

* 56. *Mus platythrix* (Bennett)

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

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

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

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Reported to occur in Khandala, Pune Dist. (Ellerman, 1961) which is close to Bhimashankar Wildlife Sanctuary area.

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 (2005) : Least concern.

*57. *Mus saxicola saxicola* (Elliot)

1839. *Mus saxicola* Elliot, *Madras J. Litt. Sci.* **10** : 215.

2000. *Mus saxicola saxicola* : Agrawal, V.C., *Rec. zool. Surv. India, Occ. Paper. No.* **180** : 135-136.

Common Name : Elliot's spiny mouse, Marathi : Undir.

Locality : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Collected two male and two female specimens from Bhimashankar Wildlife Sanctuary during project period.

External Distribution : Andhra Pradesh, Karnataka and Tanmil Nadu in Peninsular India.

Status : Endemic to India, not very uncommon in the region, Indian Wildlife (Protection) Act (1972) (as amended upto 2002) Schedule : Schedule V; IUCN Criteria proposed as per CAMP Report (2005) : Least concern.

58. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : None. Reported from Pune Dist. (Agrawal, 2000) which includes the sanctuary area.

External Distribution : Throughout peninsular India.

Status : Not very common in the region; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (Nationally), 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.

***59. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Sighted at rest house and residential areas in Bhimashankar Wildlife Sanctuary during the project period.

External Distribution : Throughout India.

Status : common; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (Nationally) (For *Rattus rattus*), 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.

60. *Rattus satarae* Hinton

1918. *Rattus rattus satarae* Hinton, *J. Bombay nat Hist. Soc.*, 26 : 87.

2008. *Rattus satarae* Hinton, Nameer, *Zoos' Print*, Vol. XXIII (8) : 4.

Common Name : English : Sahyadris Forest Rat, Marathi : Undir.

Material Examined/Sightings : None.

External Distribution : Western and Eastern Ghats. Endemic sub-species from India.

Status : Uncommon in the region; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (Nationally) (For *Rattus rattus*), Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : V (Vermins).

Remarks : The species is a prolific breeder.

61. *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 : Agrawal (2000) recorded from Pune District, hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

External Distribution : Throughout peninsular India.

Status : Uncommon in the region; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (Nationally) Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : V (Vermins).

Remarks : The species is a prolific breeder and considered to be an agricultural pest species since it causes damage to the standing crops.

62. *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 : Recorded from Pune District (Agrawal, 2000), hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

External Distribution : Throughout peninsular India.

Status : Uncommon in the region; IUCN Criteria proposed as per the CAMP Report (2005) : Least Concern (National) and Least Concern (South Asia), Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : V (Vermins).

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 fessorial to arboreal. It makes untidy and large nests in a hole, crevices or in trees.

***63. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Sighted at rest house, Bhimashankar in Bhimashankar Wildlife Sanctuary by the ZSI survey party during the project period.

External Distribution : Throughout India.

Status : Common; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (Nationally) and Least Concern (South Asia), 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.

64. *Bandicota indica malabarica* (Shaw)

1801. *Mus malabarica* Shaw, *Genl. Zool.*, 2 : 54.

2003. *Bandicota indica malabarica* : Srinivasulu, C. and Pradhan, M.S., *Zoos' Print Journal*, 18(12) : 1295.

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

Locality : Pradhan *et al.* (1993) reported from Pune District and its surroundings in Western Ghats, hence its occurrence in Bhimashankar Wildlife Sanctuary area has been assumed here.

Material Examined/Sightings : None.

External Distribution : Western Ghats of India.

Status : Common; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (For *Bandicota indica*), Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : V (Vermins).

Remarks : Ellerman and Morrison-Scot (1951), Ellerman (1961), Corbet and Hill (1992), Agrawal (2000), Alfred *et al.* (2002) synonymised *malabarica* population in *B. indica indica*. However, Tiwari *et al.* (1971) retained it as a subspecies of *Bandicota indica* on the basis of additional morphological characters such as longer head and body, tail, ear and occipitonasal length. Pradhan (1979, 1982), Pradhan *et al.* (1989, 1993 and 2005) also supports to separate it as a subspecies on the basis of latest and widely accepted morpho/osteo taxonomical and biochemical studies. The species 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.

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

*65. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Indian crested porcupine was sighted in Bhimashankar Wildlife Sanctuary during the project period as well as in the past by ZSI survey parties.

External Distribution : Throughout India.

Status : Common; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (National) and Least concern (South Asia), Indian Wildlife (Protection) Act (1972, as amended upto 2002) Schedule : Schedule : IV.

Remarks : *Hystrix indica* is considered to be an agricultural 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

***66. *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 : Bhimashankar Wildlife Sanctuary.

Material Examined/Sightings : Indian blacknaped hare was sighted in Bhimashankar Wildlife Sanctuary during the project period as well as in the past by ZSI survey parties.

External Distribution : Throughout India.

Status : common; IUCN Criteria proposed as per the CAMP Report (2005) : Least concern (National) and Least Concern (South Asia) (For *Lepus nigricollis*), 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 66 mammalian species/subspecies in Bhimashankar Wildlife Sanctuary. Out of these, 34 species (52%) were actually collected and/or sighted during the project period between

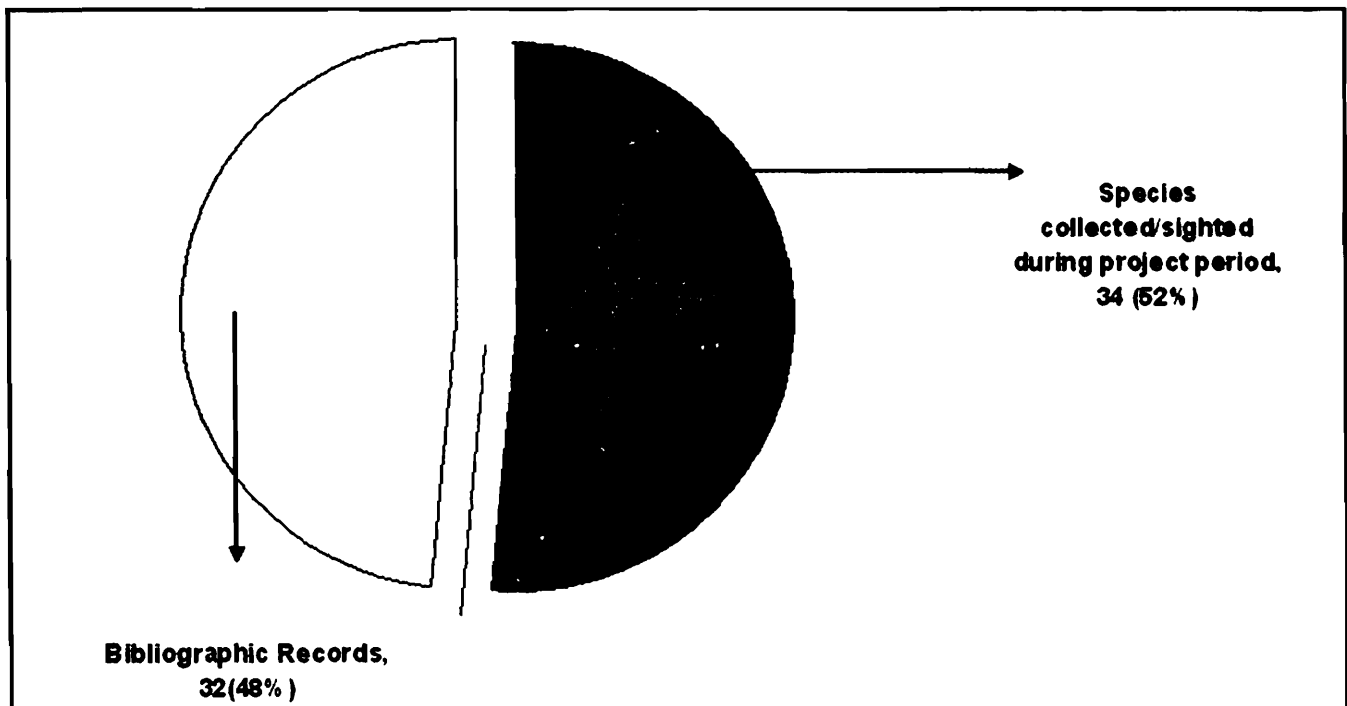


Fig. 1. Mammalian species recorded

2004-2006 as well as in the past by ZSI survey parties, while 32 species (48%) were included in the list on the basis of the literature consulted (Fig. 1). The list clearly indicates that Bhimashankar Wildlife Sanctuary area, possesses fairly good mammalian species diversity.

If the species are sorted out in various categories given in Table 1, it will be seen that 66 species/subspecies of 44 genera belonging to 21 sub-families under 23 families grouped in eight mammalian orders have been reported from this part of Northern Western Ghats whose total area is not more than 50 sq. km. However, its northern and southern boundaries are contiguous with the upper forested tracts of Western Ghats. Hence, the region depicts rich mammalian diversity. 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 Bhimashankar Wildlife Sanctuary.

Sr. No.	Orders	Families	Subfamilies	Genera	Species & Subspecies
1.	SORICOMORPHA	1	1	1	2
2.	SCANDENTIA	1	1	1	1
3.	CHIROPTERA	7	3	14	26
4.	PRIMATES	1	2	2	2
5.	CARNIVORA	5	6	9	11
6.	ARTIODACTYLA	4	4	6	6
7.	RODENTIA	3	4	10	17
8.	LAGOMORPHA	1	-	1	1
	Total (Eight Orders)	23	21	44	66

Fig. 2 shows order-wise representation of mammal species. Class *Mammalia* is represented by eight orders with predominance of *Chiroptera*, *Rodentia* and *Carnivora* followed by *Artiodactyla*. It will be seen that more than 75% mammalian species belong to the orders *Chiroptera*, *Carnivora* and *Rodentia*. Incidentally Chiropteran representation is very well in the region (Total 26 spp. i.e. 39% of total mammal species reported from the region) and leads the groupS far ahead.

Some of the most interesting species thriving in the region are: *Anathana ellioti ellioti*, *Taphozous spp.* *Hipposideros spp.* *Scotophilus spp.*, *Tadarida spp.*, *Rhinolophus spp.*,

Panthera pardus fusca, Panthera tigris tigris, Viverricula indica, Tetracerus quadricornis, Ratusa indica elphinstoni, Ratus satarae etc.

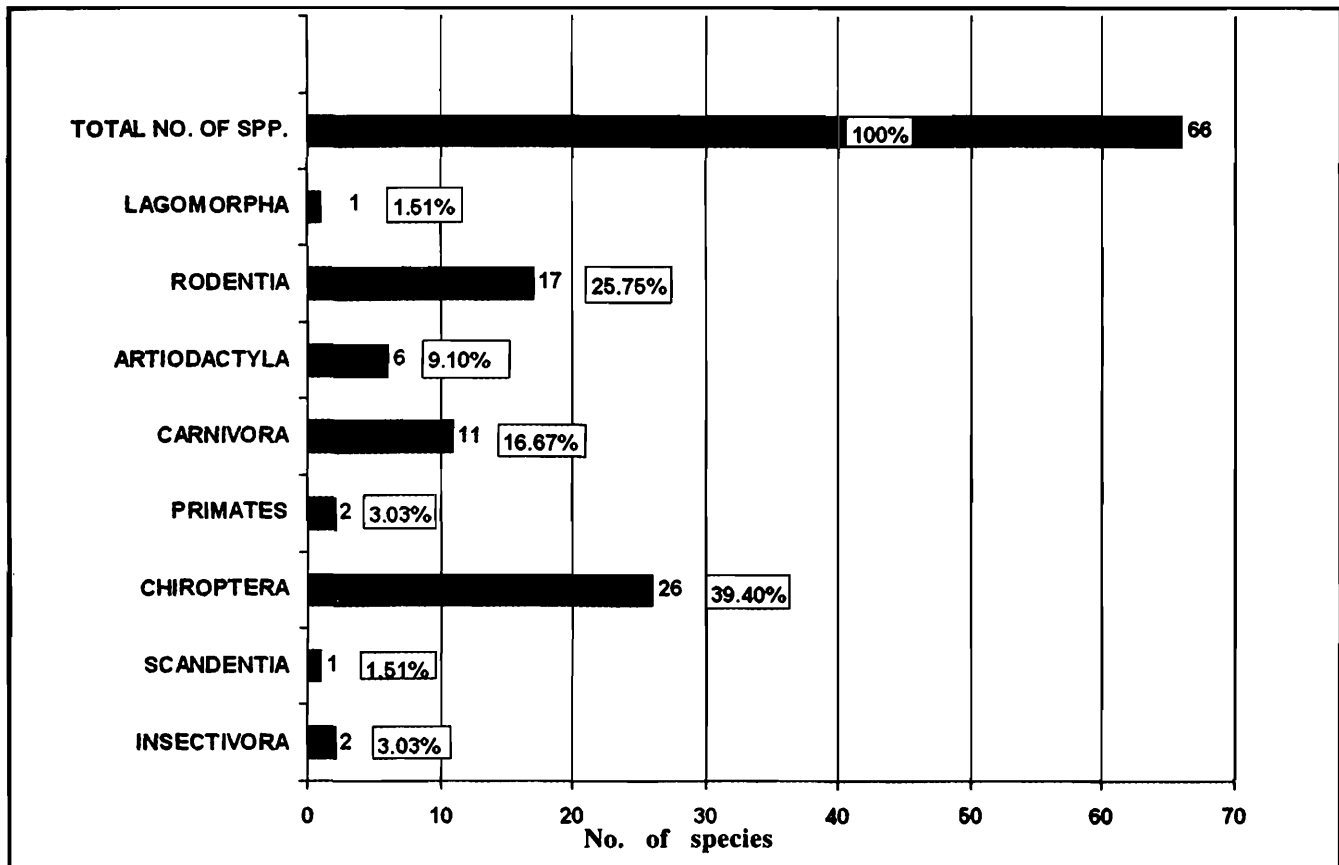


Fig. 2. Order-wise Mammalian species

When the Indian endemic status of the mammalian species/subspecies reported from Bhimashankar Wildlife Sanctuary was studied (Fig. 3), it was noticed that there were only 9 endemic species (14% of total 66 mammalian species). They belong to orders *Scandentia* (1), *Chiroptera* (1) and *Rodentia* (7). Therefore, though mammalian species diversity is rich, the endemicity in this region is not remarkable.

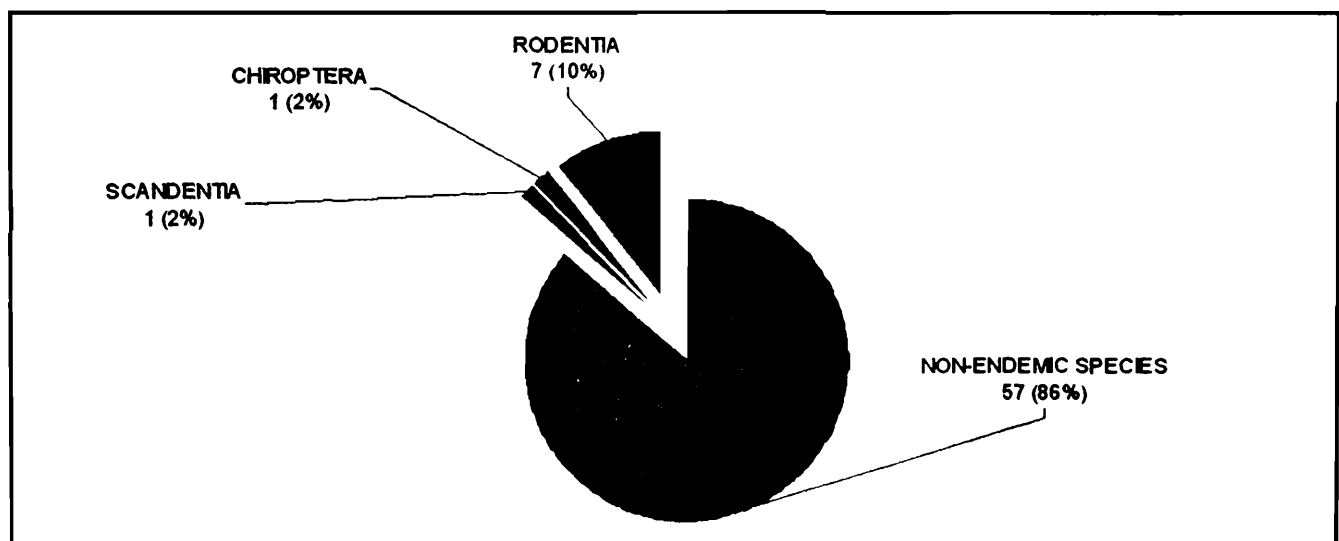


Fig. 3. Indian endemic Mammalian species inBhimashankar Wildlife Sanctuary (Total 66 Species)

The Indian endemic species are listed below :

Order SCANDENTIA

1. *Ananthana ellioti ellioti* (Waterhouse)

Order CHIROPTERA

1. *Myotis horsfieldi peshwa* (Thomas)

Order RODENTIA

1. *Ratufa indica elphinstoni* Sykes
2. *Funambulus tristriatus tristriatus* (Waterhouse)
3. *Funambulus pennanti pennanti* Wroughton
4. *Mus platythrix* Bennett
5. *Mus saxicola saxicola* Elliot
6. *Rattus satarae* Hinton
7. *Bandicota indica malabarica* (Shaw)

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

1. Bhimashankar Wildlife Sanctuary can boast of rich mammalian species diversity, quantitatively as well as qualitatively and also indicates Western Ghats faunal representation. The endemic representation of the mammalian species is fairly remarkable.
2. Some of the most interesting mammalian species other than *Panthera pardus fusca* which can attract attention are *Anathana ellioti ellioti*, *Ratufa indica elphinstoni*, *Funambulus tristriatus tristriatus* etc.

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AVES

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INTRODUCTION

Bhimashankar Wildlife Sanctuary (19° 01' to 19° 13' N.Lat and 73° 28' to 73° 37'' E Long) lies in the main ridge of Northern part of Western Ghats in Maharashtra. This ridge has undulating plateau from 340 to 1208 meters above the mean sea level, with dry deciduous and scrub forest at lower elevations and moist deciduous to tropical semi-evergreen forest at middle and higher elevations respectively. All those various eco-habitats provide a high degree of biodiversity including the birds.

There are very few specific publications in the form of inventories on the birds of Bhimashankar Wildlife Sanctuary. Butler (1881) has prepared a catalogue of the birds of the Deccan and South Mahratta country. Ali (1949) while dealing with Indian hill birds described and listed birds of Western Ghats particularly from Mahabaleshwar, Matheran and Lonavala. Ali and Ripley (1968-1974) while describing Indian birds mentioned the distribution of some species from Western Ghat and to some extent from Bhimashankar area. In the checklist of birds of Maharashtra (Abdulali, 1973) included birds from Western Ghats and Kokan. Ambedkar and Mathew (1974) did not separately mention any birds from Western Ghats or any hilly areas in their list of Birds of Maharashtra.

However, Gole (1998) has partly dealt with the birds of Bhimashankar alongwith hilly areas such as Matheran, Mahabaleshwar, Vasota, Harishchandragad and Sinhgad from Sahyadris (Northwestern Ghats) of Maharashtra. Again Gole (2000) in an unpublished report listed over 172 bird species from this Bhimashankar Wildlife Sanctuary. Further, Prasad (2003) mentioned about the birds from Bhimashankar Wildlife Sanctuary in his annotated checklist of the Birds of Western Maharashtra. Pande *et al* (2003) have dealt with the birds of Western Ghats, Kokan and Malabar including Goa but without specific mention of birds from Bhimashankar area, although Dr. Satish Pande provided list of birds of this area to the authors and Prakash Gole also provided a copy of his unpublished report of Survey of Birds of Bhiamashankar Wildlife Sanctuary in 2007 (per.com.). Pande (2005) has listed 210 species of Birds from Bhimashankar Wildlife Sanctuary.

There are few scattered publications on the sightings, distribution, feeding and display behaviour of some specific birds species from Bhimashankar area by Ali (1951), Borges (1986), Rane and Borges (1987), Purandare (1988 and 2000), and Pande and Pawashe (2001).

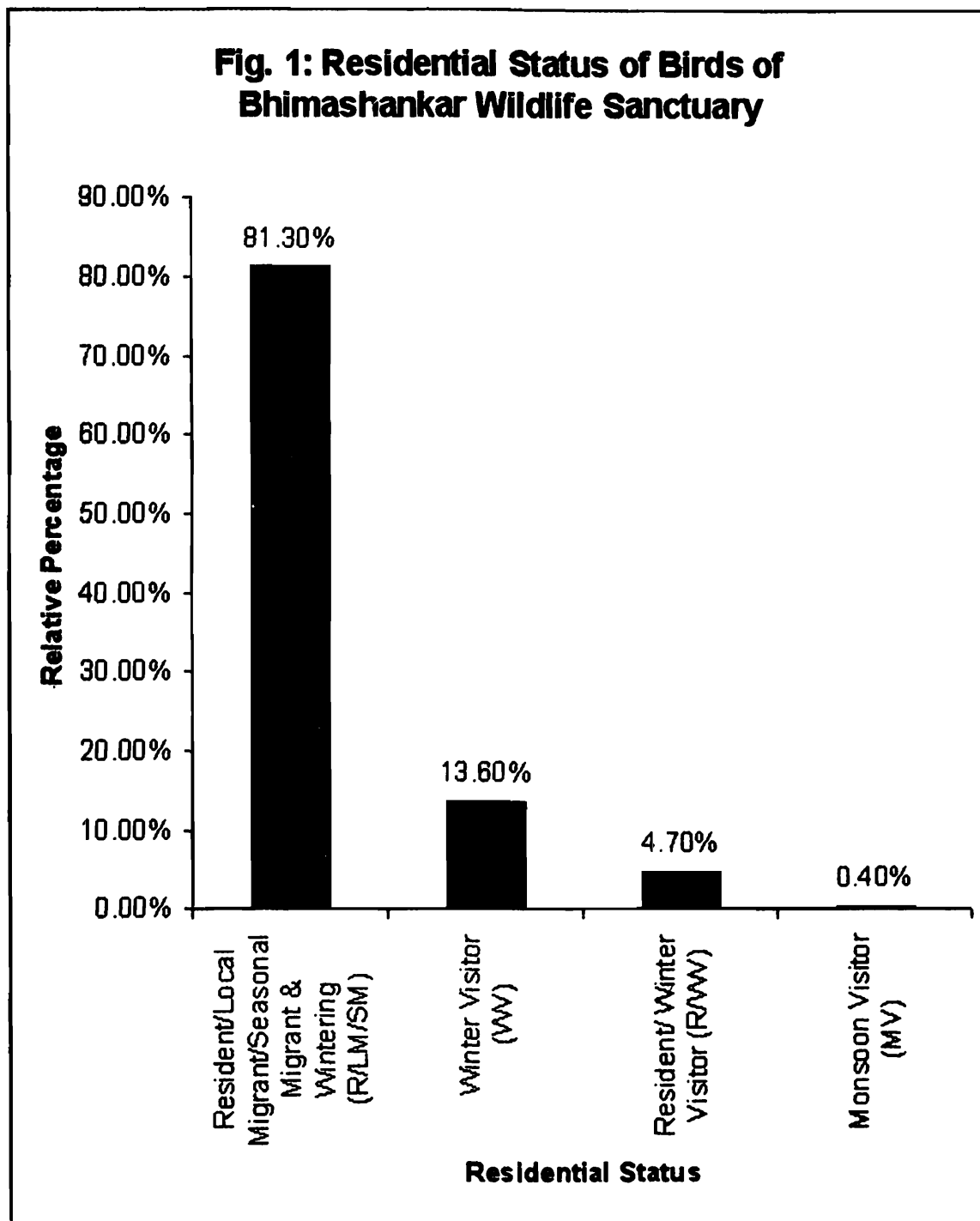
The Surveys of Bhimashankar Wildlife Sanctuary were undertaken by the first author (AM) during 29-31 May 1979 and during 17-22 Nov. 2005 and by second author (SP) during 31st July to 3rd Aug 2005. This communication is an avifaunal study carried out by the authors. The identification of birds, their annotated checklist in tabular form and a detailed systematic species account is based on Abdulali (1973), Ali and Ripley (1968-1974), and Grimmett *et al* (2000). The common names, scientific names and evolutionary sequence have been followed as per Manakadan and Pittie (2001) and Rasmussen and Anderton (2005) in preparation of systematic checklist and species account. Conservation status, endemicy and the analysis of residential status and feeding habits of birds of this sanctuary has also been discussed.

OBSERVATIONS AND RESULTS

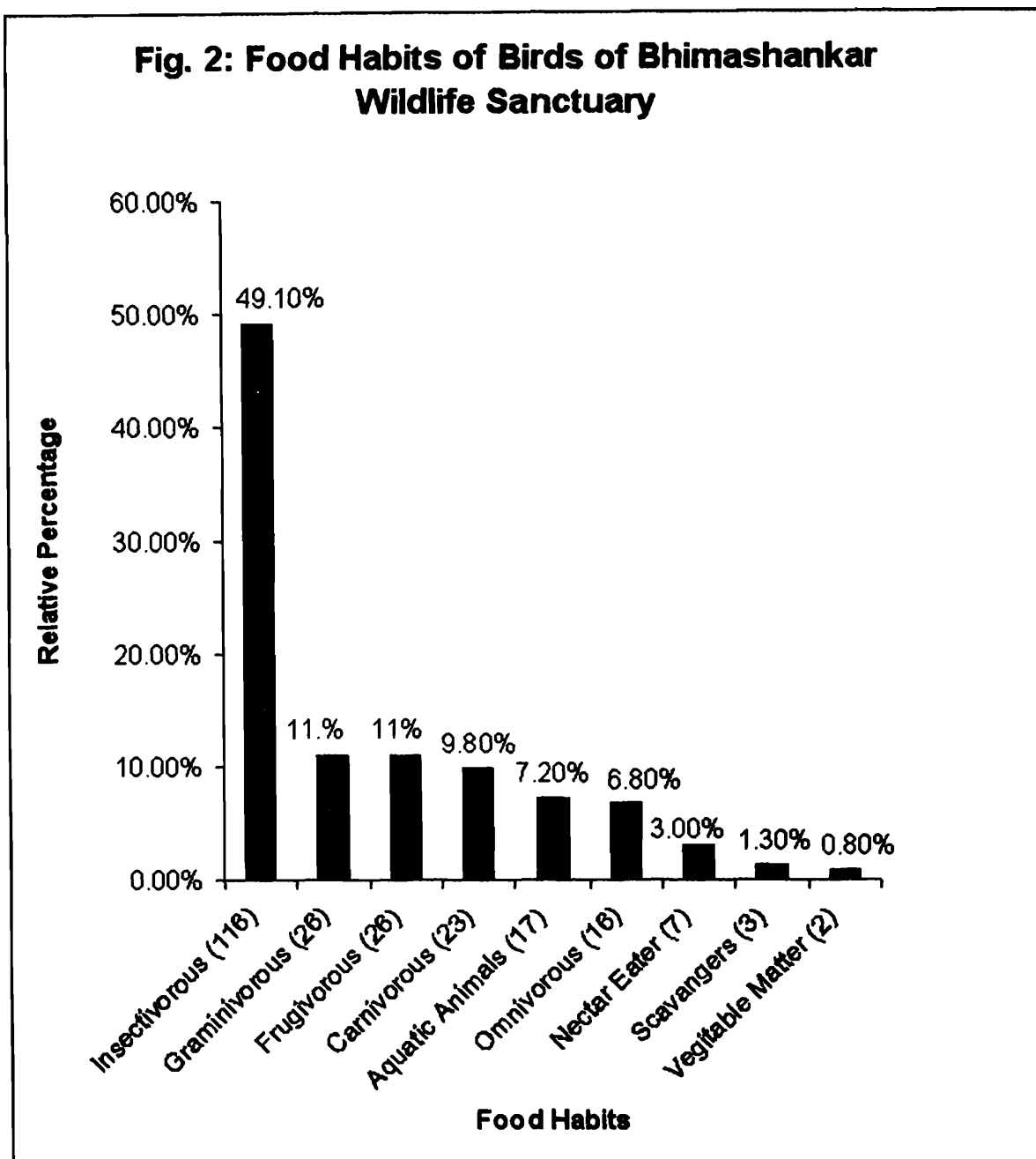
The inventory of birds of Bhimashankar Wildlife Sanctuary comprises of 236 bird species of which about 110 species have been observed by the authors, whereas the rest of the species are compiled on the basis of published literature particularly by Ali and Ripley (1968-1974), Gole (1998 and 2000), Prasad (2003) and Satish Pande (per com.). Annotated checklist of these birds is provided in the form of Table 1, which indicate their number as given by Ali and Ripley (1968-1974) in the Hand Book, taxa, common name, residential status and their food habits. This is followed by a systematic account of all the species from this sanctuary alongwith their common names, literature reference, status, distribution, habit and habitats, food, breeding etc.

The avian diversity is analysed in terms of classification and has been shown in Table-2. It shows that these 236 species belongs to 154 genera under 60 families which are grouped into 17 orders. Further it can be pointed out that at the generic and species level orders like Passeriformes and Falconiformes are well represented in the forested areas of this sanctuary.

Residential status of birds of Bhimashankar Wildlife Sanctuary is plotted in Fig. 1. It shows that 81.3 % birds species are resident, showing local, seasonal local and wintering movements possibly depending upon various factors such as availability of water, food, ripening of the fruits, suitable nesting places, breeding etc. About 13.6 % are winter visitors, migrating during September/October to March in this area. Some of the bird species are partly resident and partly winter visitors whereas a single monsoon visitor species has also been recorded in the sanctuary area. Histogram has been plotted in order of food preference for the birds of this sanctuary (Fig. 2). The figure indicates that about 49.1 % are insectivorous birds followed by graminivorous (11.00 %) and frugivorous (11.00 %). The percentage of scavengers is very less in this area. Further, the scavenger species like vultures are hardly seen in this wildlife sanctuary.



In general in this sanctuary the areas like sacred groves; forested nallas; nallas near Kondhaval, Bhatti, Bhorgiri on the lower elevations; and areas such as Ahupe Tale, Hanuman Tale; and forested patches, groves and valleys on western slopes leading to the kokan were found to be good spots for bird community, particularly passerine and birds like woodpecker, owl, hornbill and doves. Aquatic and semi-aquatic birds like various species of egrets, herons, cormorants, grebes waterhen, coots, terns, buttonquails, snipes, sandpipers, have been observed on the lower areas of this sanctuary along nallas, river beds and ponds.



CONSERVATION STATUS AND ENDEMICITY

The Bhimashankar Wildlife Sanctuary is at the crest of the Northern part of Western Ghats in Maharashtra and it covers northern most distribution of some of the restricted range avian species of the Western Ghats (Islam and Rahmani, 2004) and it also includes globally threatened and endemic bird species (Rasmussen and Anderton, 2005). Hence, the birds of this sanctuary were evaluated by considering various schedules of Wildlife (Protection) Act, 1972 (as amended upto 2002) and birds included in various categories of BirdLife International (2004) and CITES (2005) are listed in Table 3. The table indicates that the bird species like Indian White-rumped Vulture *Gyps bengalensis*, and Indian Vulture *Gyps indicus* are critically endangered and need urgent protection.

Futher, this sanctuary falls in the Western Ghats Endemic Bird Area (Stattersfield *et al* 1998, Jhunjhunwala *et al.*, 2001, Islam and Rahmani 2004). A total of 79 endemic birds species are occurring in specific areas in India (Jathar and Rahmani, 2006), of which 19 endemic birds species are found in this wildlife sancatuary which are listed in Table-4. Restricted range or endemic bird species with limited geographical ranges and small population sizes are of great conservational concern (Stattersfield *et al.*, 1998) and such species are most vulnerable to extinction, they require a complete protection not only to the species but also to that particular restricted-range area. In this context Nilgiri Wood Pigeon *Columba elphinstonii* a vulnerable species found in Western Ghats requires protection. Most of the the other endemic bird species found in this sanctuary are not globally threatened but they fall under category of LC–Least Concerned (Jathar and Rahmani 2006).

As per the Important Bird Areas Programme in India (Jhunjhunwala *et al.*, 2001) the Bhimashankar Wildlife Sanctuary falls in Western Ghats and Endemic Bird Areas under BIOME 10 : Indian Peninsula Tropical Moist Forest and also in India under BIOME 11 : Indo-Malayan Tropical Dry Zone. Altogether 15 bird species are recorded under BIOME 10 and 60 species under BIOME 11 in India (Jhunjhunwala *et al.*, 2001), of which 7 and 33 bird species have been identified from this wildlife sanctuary respectively, which are listed in Table - 5 a& b.

Further, this sanctuary has been included in Important Bird Areas in India (Islam and Rahmani 2004) and has IBA site code and IBA criteria which is given in Table 6.

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*Not referred in original

Table 1. Annotated checklist of Birds of Bhimashankar Wildlife Sanctuary :

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
		Class AVES			
		Order PODICIPEDIFORMES			
		Family PODICIPEDIDAE			
1.	5*	<i>Tachybaptus ruficollis</i> (Pallas)	Little Grebe	R/LM	Aq A, I
		Order PELECANIFORMES			
		Family PHALACROCORACIDAE			
2.	28*	<i>Phalacrocorax niger</i> (Vieillot)	Little Cormorant	R/LM	AqA (Fish)
		Order CICONIIFORMES			
		Family ARDEIDAE			
3.	49*	<i>Egretta garzetta</i> (Linnaeus)	Little Egret	R/LM	Aq A
4.	47 & 48*	<i>Egretta intermedia</i> (Wagler)	Intermediate Egret	R/LM (Nomadic)	Aq A
5.	36*	<i>Ardea cinerea</i> Linnaeus	Grey Heron	R/LM	Aq A, I
6.	44*	<i>Bubulcus coromandus</i> (Linn.)	Eastern Cattle Egret	R/LM	I
7.	42*	<i>Ardeola grayii</i> (Sykes)	Indian Pond Heron	R/LM	Aq A
8.	38	<i>Butorides striata</i> (Linnaeus)	Striated Heron	R	Aq A
		Family CICONIIDAE			
9.	62†	<i>Ciconia episcopus</i> (Boddaert)	White-necked Stork	R	Aq A, I
		Order ANSERIFORMES			
		Family ANATIDAE			
10.	97†	<i>Anas poecilorhyncha</i> J. R. Forester	Indian Spot-billed Duck	R/LM (Nomadic)	Vg M
		Order FALCONIFORMES			
		Family ACCIPITRIDAE			
11.	130	<i>Pernis ptilorhynchus</i> (Temminck)	Oriental Honey-Buzzard	R/LM	Honey
12.	124*	<i>Elanus caeruleus</i> (Desfontaines)	Black-winged Kite	R	I & CR
13.	133*	<i>Milvus migrans</i> (Boddaert)	Black Kite	R/LM	OM
14.	187†	<i>Neophron percnopterus</i> (Linnaeus)	Egyptian Vulture	R	SC

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
15.	185*	<i>Gyps bengalensis</i> (Gmelin)	Indian White-rumped Vulture	R	SC
16.	182	<i>Gyps indicus</i> (Scopoli)	Indian Vulture	R	SC
17.	195†	<i>Circaetus gallicus</i> (Gmelin)	Short-toed Snake-Eagle	R	CR
18.	197*	<i>Spilornis cheela</i> (Latham)	Crested Serpent-Eagle	R	CR
19.	190	<i>Circus macrourus</i> (Gmelin)	Pallid Harrier	WV	CR
20.	138*	<i>Accipiter badius</i> (Gmelin)	Shikra	R	CR
21.	151	<i>Accipiter virgatus</i> (Temminck)	Bersa Sparrow hawk	R	CR
22.	147	<i>Accipiter nisus</i> (Linnaeus)	Eurasian Sparrowhawk	WV	CR
23.	157*	<i>Butastur teesa</i> (Franklin)	White-eyed Buzzard	R	CR
24.	153	<i>Buteo rufinus</i> (Cretzschmar)	Long-legged Buzzard	WV	CR
25.	172	<i>Ictinaetus malayensis</i> (Temminck)	Black Eagle	R	CR, I
26.	168†	<i>Aquila rapax</i> (Temminck)	Tawny Eagle	R	CR
27.	163	<i>Hieraaetus fasciatus</i> (Vieillot)	Bonelli's Eagle	R	CR
28.	164	<i>Hieraaetus pennatus</i> (Gmelin)	Booted Eagle	WV/R (Partly)	CR
29.	161	<i>Spizaetus cirrhatus</i> (Gmelin)	Crested Hawk-Eagle	R	CR
		Family PANDIONIDAE			
30.	203†	<i>Pandion haliaetus</i> (Linnaeus)	Osprey	WV	CR(Fish)
		Family FALCONIDAE			
31.	222 & 224*	<i>Falco tinnunculus</i> Linnaeus	Common Kestrel	WV/R (Partly)	CR, I
32.	219	<i>Falco chicquera</i> Daudin	Red-headed Falcon	R	CR
33.	212-213	<i>Falco subbuteo</i> Linnaeus	Eurasian Hobby	WV/R (Partly)	I
34.	209 & 211	<i>Falco peregrinus</i> Tunstall	Peregrine Falcon	WV/R (Partly)	CR
		Order GALLIFORMES			
		Family PHASIANIDAE			
35.	246†	<i>Francolinus pondicerianus</i> (Gmelin)	Grey Francolin	R	CR

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
36.	250 [†]	<i>Coturnix coturnix</i> (Linnaeus)	Common Quail	R/WV (Partly)	GR
37.	252 [†]	<i>Coturnix coromandelica</i> (Gmelin)	Rain Quail	R (Nomadic)	GR
38.	257*	<i>Perdicula asiatica</i> (Latham)	Jungle Bush-Quail	R	GR
39.	275	<i>Galloperdix spadicea</i> (Gmelin)	Red Spurfowl	R	OM
40.	301*	<i>Gallus sonneratii</i> Temminck	Grey Junglefowl	R	OM
41.	311*	<i>Pavo cristatus</i> Linnaeus	Indian Peafowl	R	OM
		Order GRUIFORMES			
		Family TURNICIDAE			
42.	313 [†]	<i>Turnix sylvatica</i> (Desfontaines)	Small Buttonquail	R (Nomadic)	OM
43.	314	<i>Turnix tanki</i> Blyth	Yellow-legged Buttonquail	R	OM
44.	318 [†]	<i>Turnix suscitator</i> (Gmelin)	Common Buttonquail	R	OM
		Family RALLIDAE			
45.	344*	<i>Amaurornis phoenicurus</i> (Pennant)	White-breasted Waterhen	R	OM
46.	350*	<i>Fulica atra</i> Linnaeus	Common Coot	R/WV (Partly)	Vg M, Aq A
		Order CHARADRIIFORMES			
		Family CHARADRIIDAE			
47.	380 [†]	<i>Charadrius dubius</i> Scopoli	Little Ringed Plover	R/LM	Aq A, I
48.	370*	<i>Vanellus malabaricus</i> (Boddaert)	Yellow-wattled Lapwing	R/LM and Nomadic	I
49.	366*	<i>Vanellus indicus</i> (Boddaert)	Red-wattled Lapwing	R/LM	I, Aq A
		Family SCOLOPACIDAE			
50.	410 [†]	<i>Lymnocyptes minimus</i> (Brunnich)	Jack Snipe	WV	Aq A, I
51.	397	<i>Tringa ochropus</i> Linnaeus	Green Sandpiper	WV	Aq A
52.	398 [†]	<i>Tringa glareola</i> Linnaeus	Wood Sandpiper	WV	Aq A
53.	401	<i>Actitis hypoleucos</i> Linnaeus	Common Sandpiper	WV	Aq

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
54.	430 [†]	Family RECURVIROSTRIDAE <i>Himantopus himantopus</i> (Linnaeus)	Black-winged Stilt	R/WV (Partly)	Aq A, & Vg M
55.	463 [†]	Family LARIDAE <i>Sterna aurantia</i> J. E. Gray	River Tern	R	Aq A
56.	517*	Order COLUMBIFORMES Family COLUMBIDAE <i>Columba livia</i> Gmelin	Rock Pigeon	R	GR
57.	521 [†]	<i>Columba elphinstonii</i> (Sykes)	Nilgiri Wood-Pigeon	R/LM	FR
58.	531*	<i>Streptopelia orientalis</i> (Latham)	Oriental Turtle-Dove	R	GR
59.	541*	<i>Streptopelia senegalensis</i> (Linn.)	Laughing Dove	R/LM	GR
60.	537*	<i>Streptopelia chinensis</i> (Scopoli)	Spotted Dove	R/LM	GR
61.	542	<i>Chalcophaps indica</i> (Linnaeus)	Emerald Dove	R	GR
62.	496	<i>Treron affinis</i> (Jerdon)	Grey-fronted Green-Pigeon	R/LM	FR
63.	504*	<i>Treron phoenicopterus</i> (Latham)	Yellow-footed Green-Pigeon	R/LM	FR
		Order PSITTACIFORMES Family PSITTACIDA			
64.	566 & 567*	<i>Loriculus vernalis</i> (Sparman)	Hanging-Parrot	R/LM	FR, N
65.	546 [†]	<i>Psittacula eupatria</i> (Linnaeus)	Alexandrine parakeet	R/LM	FR
66.	550*	<i>Psittacula krameri</i> (Scopoli)	Rose-ringed Parakeet	R/LM	FR
67.	558*	<i>Psittacula cyanocephala</i> (Linn.)	Plum-headed Parakeet	R/LM	FR, N
68.	564	<i>Psittacula columboides</i> (Vigors)	Malabar Parakeet	R/LM (Nomadic)	FR
		Order CUCULIFORMES Family CUCULIDAE			
69.	571 [†]	<i>Clamator jacobinus</i> (Boddaert)	Jacobin Crested Cuckoo	MV	I
70.	573*	<i>Hierococcyx varius</i> (Vahl)	Common Hawk-Cuckoo	R/LM (Nomadic)	FR, I

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
71.	578*	<i>Cuculus canorus</i> Linnaeus	Common Cuckoo	R/SM/LM (Nomadic)	I
72.	582†	<i>Cacomantis sonneratii</i> (Latham)	Banded Bay Cuckoo	R/SM/LM (Nomadic)	I
73.	588†	<i>Surniculus lugubris</i> (Horsfield)	Square-tailed Drongo Cuckoo	R/LM/SM (Nomadic)	I
74.	590*	<i>Eudynamys scolopacea</i> (Linn.)	Asian Koel	R/LM	FR
75.	595	<i>Phaenicophaeus viridirostris</i> (Jerdon)	Blue-faced Malkoha	R	I
76.	598	<i>Taccocua leschenaultii</i> (Lesson)	Sirkeer Malkoha	R	I
77.	602*	<i>Centropus (sinensis) parroti</i> Stresemann	Southern Coucal	R	CR & I
		Order STRIGIFORMES			
		Family TYTONIDAE			
78.	606†	<i>Tyto alba</i> (Scopoli)	Common Barn Owl	R	CR
		Family STRIGIDAE			
79.	617†	<i>Otus sunia</i> (Hodgson)	Oriental Scops-Owl	R	I & CR
80.	623	<i>Otus bakkamoena</i> Pennant	Indian Scops-Owl	R	I & CR
81.	627	<i>Bubo bengalensis</i> (Franklin)	Indian Eagle-Owl	R	CR & I
82.	631	<i>Ketupa zeylonensis</i> (Gmelin)	Brown Fish-Owl	R	Aq A CR
83.	657*	<i>Strix ocellata</i> (Lesson)	Mottled Wood-Owl	R	CR, I
84.	659†	<i>Strix leptogrammica</i> Temminck	Brown Wood-Owl	R	CR
85.	636	<i>Glaucidium radiatum</i> (Tickell)	Jungle Owlet	R	I, CR
86.	652*	<i>Athene brama</i> (Temminck)	Spotted Owlet	R	I, CR
87.	644†	<i>Ninox scutulata</i> (Raffles)	Brown Hawk-Owl	R	I, CR
		Order CAPRIMULGIFORMES			
		Family CAPRIMULGIDAE			
88.	671*	<i>Caprimulgus indicus</i> Latham	Indian Jungle-Nightjar	R/LM	I
89.	676†	<i>Caprimulgus atripennis</i> Jerdon	Jerdon's Nightjar	R	I
90.	682†	<i>Caprimulgus affinis</i> Horsfield	Savana Nightjar	R	I

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
		Order APODIFORMES			
		Family APODIDAE			
91.	694	<i>Tachymarptis melba</i> (Linnaeus)	Alpine Swift	R/LM/SM	I
92.	703*	<i>Apus affinis</i> (J. E. Gray)	Little Swift	R/LM	I
		Family HEMIPROCNIDAE			
93.	709*	<i>Hemiprocne coronata</i> (Tickell)	Crested Tree-Swift	R/SM/LM	I
		Order CORACIIFORMES			
		Family ALCEDINIDAE			
94.	724*	<i>Alcedo atthis</i> (Linnaeus)	Common Kingfisher	R	Aq A
95.	736*	<i>Halcyon smyrnensis</i> (Linnaeus)	White-throated Kingfisher	R/LM	I, Aq A
		Family MEROPIDAE			
96.	750*	<i>Merops orientalis</i> Latham	Little Green Bee-eater	R/SM/LM	I
97.	748†	<i>Merops philippinus</i> Linnaeus	Blue-tailed Bee-eater	R/LM	I
		Family CORACIIDAE			
98.	754†	<i>Coracias garrulus</i> Linnaeus	European Roller	WV	I, CR
99.	756*	<i>Coracias benghalensis</i> (Linn.)	Indian Roller	R/LM/SM	I
		Family UPUPIDAE			
100.	765†	<i>Upupa epops</i> Linnaeus	Common Hoopoe	WV/R (Partly)	I
		Family BUCEROTIDAE			
101.	768†	<i>Ocyrceros griseus</i> (Latham)	Malabar Grey Hornbill	R	FR, CR
102.	767*	<i>Ocyrceros birostris</i> (Scopoli)	Indian Grey Hornbill	R/LM	FR, CR
		Order PICIFORMES			
		Family CAPITONIDAE			
103.	781*	<i>Megalaima zeylanica</i> (Gmelin)	Brown-headed Barbet	R	FR
104.	785	<i>Megalaima viridis</i> (Boddaert)	White-cheeked Barbet	R	FR
105.	792*	<i>Megalaima haemacephala</i> (P.L.S. Müller)	Coppersmith Barbet	R	FR
		Family PICIDAE			
106.	852	<i>Dendrocopos nanus</i> (Vigors)	Indian Pygmy Woodpecker	R	I

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
107.	847*	<i>Dendrocopos mahrattensis</i> (Latham)	Yellow-fronted Pied Woodpecker	R	I
108.	804†	<i>Micropterus brachyurus</i> (Vieillot)	Rufous Woodpecker	R	I, FR
109.	820*	<i>Dinopium benghalense</i> (Linn.)	Black-rumped Flameback	R	I, FR
110.	858	<i>Chrysocolaptes festivus</i> (Boddaert)	White-naped Woodpecker	R	I
111.	856†	<i>Hemicircus canente</i> (Lesson)	Heart-Spotted Woodpecker	R	I
		Order PASSERIFORMES			
		Family PITTIDAE			
112.	867†	<i>Pitta brachyura</i> (Linnaeus)	Indian Pitta	R/SM	I
		Family ALAUDIDAE			
113.	878*	<i>Eremopterix grisea</i> (Scopoli)	Ashy-Crowned Finch-Lark	R/LM/SM	GR
114.	882*	<i>Ammomanes phoenicura</i> (Franklin)	Rufous-tailed Lark	R/SM	GR
115.	901*	<i>Galerida malabarica</i> (Scopoli)	Malabar Crested Lark	R/SM/LM	GR
116.	902†	<i>Galerida deva</i> (Sykes)	Sykes's Lark	R/SM/LM	GR, I
117.	907	<i>Alauda gulgula</i> Franklin	Oriental Skylark	R/SM/LM	GR
		Family HIRUNDINIDAE			
118.	913	<i>Ptyonoprogne rupestris</i> Scopoli	Eurasian Crag-Martin	Wintering	I
119.	914*	<i>Ptyonoprogne concolor</i> Sykes	Dusky Crag-Martin	R/LM	I
120.	917*	<i>Hirundo rustica</i> Linnaeus	Barn Swallow	WV	I
121.	921	<i>Hirundo smithii</i> Leach	Wire-tailed Swallow	R/LM	I
122.	927*	<i>Hirundo daurica</i> Linnaeus	Red-rumped Swallow	R/SM/LM	I
123.	922	<i>Hirundo fluvicola</i> Blyth	Streak-throated Swallow	R/WV (Unclear)	I
		Family MOTACILLIDAE			
124.	1874†	<i>Dendronanthus indicus</i> (Gmelin)	Forest wagtail	WV	I
125.	1885*	<i>Motacilla alba</i> Linnaeus	White Wagtail	WV	I
126.	1891*	<i>Motacilla maderaspatensis</i> Gmelin	White-browed Wagtail	R	I

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
127.	1875 [†]	<i>Motacilla flava</i> Linnaeus	Western Yellow Wagtail	WV	I
128.	1884*	<i>Motacilla cinerea</i> Tunstall	Grey Wagtail	WV	I
129.	1859*	<i>Anthus rufulus</i> Vieillot	Paddyfield Pipit	R/LM	I
130.	1868	<i>Anthus similis</i> Jerdon	Long-billed Pipit	R	I
131.	1852	<i>Anthus hodgsoni</i> (Richmond)	Olive-backed Pipit	WV	I, GR
Family CAMPEPHAGIDAE					
132.	1072*	<i>Coracina macei</i> (Lesson)	Large Cuckoo-Shrike	R/LM	I, FR
133.	1079*	<i>Coracina melanoptera</i> (Rüppell)	Black-headed Cuckoo-Shrike	R/LM	I
134.	1093	<i>Pericrocotus cinnamomeus</i> (Linnaeus)	Small Minivet	R	I
135.	1096 [†]	<i>Pericrocotus erythropygius</i> (Jerdon)	White-bellied Minivet	R	I
136.	1081*	<i>Pericrocotus flammeus</i> (Forster)	Orange Minivet	R	I
137.	1070*	<i>Tephrodornis pondicerianus</i> (Gmelin)	Common Woodshrike	R	I
Family MONARCHIDAE					
138.	1461	<i>Terpsiphone paradisi</i> (Linnaeus)	Asian Paradise Flycatcher	R/Wintering	I
139.	1465	<i>Hypothymis azurea</i> (Boddaert)	Black-naped Monarch Flycatcher	R/LM	I
Family RHIPIDURIDAE					
140.	1458*	<i>Rhipidura albogularis</i> (Lesson)	White-spotted Fantail	R/LM	I
141.	1451	<i>Rhipidura aureola</i> Lesson	White-browed Fantail	R/LM	I
Family PYCNONOTIDAE					
142.	1120*	<i>Pycnonotus jocosus</i> (Linnaeus)	Red-whiskered Bulbul	R	FR
143.	1128*	<i>Pycnonotus cafer</i> (Linnaeus)	Red-vented Bulbul	R	FR
144.	1143*	<i>Iole indica</i> (Jerdon)	Yellow-browed Bulbul	R	FR
145.	1149	<i>Hypsipetes ganeesa</i> Sykes	Square-tailed Black Bulbul	R/LM	FR

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
146.	1100*	Family AEGITHINIDAE <i>Aegithina tiphia</i> (Linnaeus)	Common Iora	R	I
147.	1107†	Family CHLOROPSEIDAE <i>Chloropsis jerdoni</i> (Blyth)	Jerdon's Leafbird	R	I, FR
148.	1104*	<i>Chloropsis aurifrons</i> (Temminck)	Gold-fronted Leafbird	R	I, FR
149.	940	Family LANIIDAE <i>Lanius vittatus</i> Valenciennes	Bay-backed Shrike	R/SM	I, CR
150.	947*	<i>Lanius schach</i> Linnaeus	Long-tailed Shrike	R/SM/LM	I, CR
151.	933*	<i>Lanius meridionalis</i> Temminck	Southern Grey Shrike	R/LM	CR, I
152.	1734	Family TURDIDAE <i>Zoothera citrina</i> (Latham)	Orange-headed Thrush	R/LM	I
153.	1753	<i>Turdus simillimus</i> Jerdon	Indian Blackbird	R/SM	I, FR
154.	1728*	<i>Myophonus horsfieldii</i> (Vigors)	Malabar Whistling Thrush	R	OM
155.	1407†	Family MUSCICAPIDAE Subfamily MUSCICAPINAE <i>Muscicapa daurica</i> Pallas	Asian Brown Flycatcher	WV/R (Partly)	I
156.	1411	<i>Ficedula parva</i> (Bechstein)	Red-breasted Flycatcher	WV	I
157.	1421†	<i>Ficedula superciliaris</i> (Jerdon)	Ultramarine Flycatcher	Wintering	I
158.	1445	<i>Eumyias thalassina</i> (Swainson)	Verditer Flycatcher	Wintering	I
159.	1435*	<i>Cyornis pallipes</i> (Jerdon)	White-bellied Blue Flycatcher	R	I
160.	1442	<i>Cyornis tickelliae</i> Blyth	Tickell's Blue Flycatcher	R/LM	I
161.	1448	<i>Culicicapa ceylonensis</i> (Swainson)	Grey-headed Canary-Flycatcher	Wintering	I
162.	1723	<i>Monticola cinclorhynchus</i> (Vigors)	Blue-headed Rock-Thrush	Wintering	OM
163.	1726	<i>Monticola solitarius</i> (Linnaeus)	Blue Rock-Thrush	Wintering	I

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
164.	1644-1645 [†]	<i>Luscinia svecica</i> (Linnaeus)	Blue Throat	WV	I
165.	1661*	<i>Copsychus saularis</i> (Linnaeus)	Oriental Magpie-Robin	R	I
166.	1665	<i>Copsychus malabaricus</i> (Scopoli)	White-rumped Shama	R	I
167.	1719*	<i>Saxicoloides fulicatus</i> (Linn.)	Indian Black Robin	R	I
168.	1672	<i>Phoenicurus ochruros</i> (Gmelin)	Black Redstart	Wintering	I
169.	1697 [†]	<i>Saxicola torquatus</i> (Linnaeus)	Common Stonechat	Wintering	I
170.	1700 & 1701*	<i>Saxicola caprata</i> (Linnaeus)	Pied Bushchat	R/SM	I
Family TIMALIIDAE					
171.	1154	<i>Pellorneum ruficeps</i> Swainson	Puft-throated Spotted Babbler	R	I
172.	1173*	<i>Pomatorhinus horsfieldii</i> Sykes	Indian Scimitar Babbler	R	I
173.	1219, 1220	<i>Dumetia hyperythra</i> (Franklin)	Twany Babbler	R	I
174.	1231	<i>Chrysomma sinense</i> (Gmelin)	Yellow-eyed Babbler	R	I
175.	1254*	<i>Turdoides caudata</i> (Dumont)	Common Babbler	R	I
176.	1258*	<i>Turdoides malcolmi</i> (Sykes)	Large Grey Babbler	R	I
177.	1259 [†]	<i>Turdoides subrufa</i> (Jerdon)	Indian Rufous Babbler	R	I
178.	1263*	<i>Turdoides striata</i> (Dumont)	Jungle Babbler	R	I
179.	1389	<i>Alcippe poioicephala</i> (Jerdon)	Brown-cheeked Fulvetta	R	I
Family CISTICOLIDAE					
180.	1498 [†]	<i>Cisticola juncidis</i> (Rafinesque)	Zinting Cisticola	R/LM	I
181.	1503	<i>Prinia hodgsonii</i> Blyth	Grey-breasted Prinia	R	I
182.	1521	<i>Prinia sylvatica</i> Jerdon	Jungle Prinia	R	i
183.	1517*	<i>Prinia socialis</i> Sykes	Ashy Prinia	R	I
184.	1511 [†]	<i>Prinia inornata</i> Sykes	Plain Prinia	R	i
185.	1535*	<i>Orthotomus sutorius</i> (Pennant)	Common Tailorbird	R	I

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
		Family SYLVIIDAE			
186.	1557	<i>Acrocephalus agricola</i> (Jerdon)	Paddy-field Warbler	WV	I
187.	1556	<i>Acrocephalus dumetorum</i> Blyth	Blyth's Reed-Warbler	WV	I
188.	1562	<i>Hippolais caligata</i> (Lichtenstein)	Booted Warbler	WV	I
189.	1579	<i>Phylloscopus affinis</i> (Tickell)	Tickell's Warbler	WV	I
190.	1581	<i>Phylloscopus griseolus</i> Blyth	Sulfer-bellied Leaf-Warbler	WV	I
191.	1590 [†]	<i>Phylloscopus humei</i> (Brooks)	Hume's Warbler	WV	I
192.	1602*	<i>Phylloscopus trochiloides</i> (Sundevall)	Greenish Warbler	WV	I
193.	1578	<i>Phylloscopus tyleri</i> Brooks	Tytler's Leaf-Warbler	WV	I
194.	1606	<i>Phylloscopus occipitalis</i> (Blyth)	Western Crowned Warbler	WV	I
195.	1565 [†]	<i>Sylvia crassirostris</i>	Eastern Orphean Warbler	WV	I
		Family PARIDAE			
196.	1794*	<i>Parus major</i> Linnaeus	Great Tit	R/LM	I
197.	1810 & 1811 [†]	<i>Parus aplonotus</i> Blyth	Indian Yellow-Tit	R	I
		Family SITTIDAE			
198.	1830 [†]	<i>Sitta castanea</i> Lesson	Indian Nuthatch	R	I
199.	1838*	<i>Sitta frontalis</i> Swainson	Velvet-fronted Nuthatch	R	I
		Family DICAEDAE			
200.	1892	<i>Dicaeum agile</i> (Tickell)	Thick-billed Flowerpecker	R	FR
201.	1899*	<i>Dicaeum erythrorhynchos</i> (Latham)	Pale-bellied Flowerpecker	R	FR
202.	1902	<i>Dicaeum concolor</i> Jerdon	Nilgiri Flowerpecker	R	FR
		Family NECTARINIIDAE			
203.	1907*	<i>Leptocoma zeylonica</i> (Linn.)	Purple-rumped Sunbird	R	N

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
204.	1909*	<i>Leptocoma minima</i> (Sykes)	Small Sunbird	R	N
205.	1917*	<i>Cinnyris asiaticus</i> (Latham)	Purple Sunbird	R/LM	N
206.	1911	<i>Cinnyris lotenius</i> (Linnaeus)	Loten's Sunbird	R	N
207.	1929	<i>Aethopyga vigorsii</i> (Sykes)	Vigor's Sunbird	R	N, I
Family ZOSTEROPIDAE					
208.	1933*	<i>Zosterops palpebrosus</i> (Temminck)	Oriental White-eye	R/SM	I, F
Family EMBERIZIDAE					
209.	2060*	<i>Melophus lathami</i> (Gray)	Crested Bunting	R	GR
210.	2050†	<i>Emberiza buchanani</i> Blyth	Grey-necked Bunting	WV	GR
211.	2043†	<i>Emberiza melanocephala</i> Scopoli	Black-headed Bunting	WV	GR
212.	2044†	<i>Emberiza bruniceps</i> Brandt	Red-headed Bunting	WV	GR
Family FRINGILIIDAE					
213.	2013*	<i>Carpodacus erythrinus</i> (Pallas)	Common Rosefinch	WV	GR
Family ESTRILDIDAE					
214.	1964†	<i>Amandava amandava</i> (Linn.)	Red Avadavat	R	GR
215.	1966*	<i>Euodice malabarica</i> (Linnaeus)	Indian Silverbill	R	GR
216.	1968	<i>Lonchura striata</i> (Linnaeus)	White-rumped Munia	R/ LM	GR
217.	1974*	<i>Lonchura punctulata</i> (Linn.)	Scaly-breasted Munia	R	GR
Family PASSERIDAE					
218.	1938*	<i>Passer domesticus</i> (Linnaeus)	House Sparrow	R/LM	GR
219.	1949†	<i>Petronia xanthocollis</i> (Burton)	Yellow-throated Sparrow	R/LM	GR
Family PLOCEIDAE					
220.	1957*	<i>Ploceus philippinus</i> (Linnaeus)	Baya Weaver	R/SM	GR
Family STURNIDAE					
221.	987†	<i>Sturnia malabarica</i> (Gmelin)	Grey-headed Starling	R/SM/LM	FR, I
222.	994*	<i>Temenuchus pagodarum</i> (Gmelin)	Brahminy Starling	R/SM	FR, I
223.	996	<i>Sturnus roseus</i> (Linnaeus)	Rosy Starling	WV	OM

Sl. No.	HB No.	Taxa	Common Name	Residential Status	Food Habit
224.	1006*	<i>Acridotheres tristis</i> (Linnaeus)	Common Myna	R	OM
225.	1010*	<i>Acridotheres fuscus</i> (Wagler)	Jungle Myna	R/SM/LM	OM
Family ORIOLIDAE					
226.	953*	<i>Oriolus kundoo</i> Sykes	Indian Golden Oriole	R/(Wintering)	FR
227.	958,959	<i>Oriolus xanthornus</i> (Linnaeus)	Black-hooded Oriole	R/ LM	FR
Family DICRURIDAE					
228.	963*	<i>Dicrurus macrocercus</i> Vieillot	Black Drongo	R/SM	I
229.	965	<i>Dicrurus leucophaeus</i> Vieillot	Ashy Drongo	Wintering	I
230.	967*	<i>Dicrurus caerulescens</i> (Linnaeus)	White-bellied Drongo	R/SM/LM	I
231.	971	<i>Dicrurus annectans</i> (Hodgson)	Bronzed Drongo	R/ Wintering	I
232.	973	<i>Dicrurus hottentottus</i> (Linnaeus)	Hair-crested Drongo	R/SM	N, I
233.	977	<i>Dicrurus paradiseus</i> (Linnaeus)	Greater Racket-tailed Drongo	R	I
Family CORVIDAE					
234	1031*	<i>Dendrocitta vagabunda</i> (Latham)	Rufous Treepie	R	OM
235	1049*	<i>Corvus splendens</i> Vieillot	House Crow	R	OM
236	1057*	<i>Corvus macrorhynchos</i> Wagler	Jungle Crow	R	OM

Abbreviations used in the Table 1

Residential Status : R/LM/SM Resident and or Local, Seasonal Nomadic Movements (depending upon availability of food, ripening of fruits, seasonal migration in hills, water conditions, heavy rainfall, breeding season, erratic movements during winter and monsoon period, etc.) and Wintering. WV Winter Visitor, MV Monsoon Visitor.

Food Habits : I – Insectivorous, Aq A – Aquatic Animals, Vg M – Vegetable Matters, GR – Graminivorous, FR – Frugivorous, CR – Carnivorous, OM – Omnivorous, SC – Scavenger, N – Nectar eater.

Other : HB No. – Hand Book No. – As per Ali and Ripley (1968-1974)

(*) – Birds observed by authors. (†)—Birds communicated by Dr. Satish Pande (Per. com.). Some of these birds and the remaining birds have been mainly compiled from Gole (1998 and 2000).

SYSTEMATIC ACCOUNT

Class AVES

Order PODICIPEDIFORMES

Family PODICIPEDIDAE

1. *Tachybaptus ruficollis* (Pallas, 1764)**Little Grebe**1968. *Podiceps ruficollis* : Ali & Ripley, H. B. No. 5, Vol. 1 : 6.2001. *Tachybaptus ruficollis* : Manakadan & Pittie, *Buceros*, Vol. 6, (No. 1) : 1.

Status and Distribution : Resident but shows local and long distance movements depending upon draught and or flood. Throughout the Indian subcontinent, from plains to 1800 m altitude.

Locality : Bank of Bhima river near Bhorgiri

Habits and Habitats : Keeps in pairs or in scattered small parties. All types of inland waters with or without floating vegetation or reeds, irrigation reservoirs, tanks, ponds, flood ditches, but hardly ever rivers or the sea.

Food : Aquatic animals-fish, frogs, tadpoles, crustacean, molluscs and aquatic insects.

Breeding Season : Varies depending upon rainfall, chiefly from April to October

Order PELECANIFORMES

Family PHALACROCORACIDAE

2. *Phalacrocorax niger* (Vieillot, 1817)**Little Cormorant**1968. *Phalacrocorax niger* : Ali & Ripley, H. B. No. 28, Vol. 1 : 41.

Status and Distribution : Resident bird shows local movements depending upon water conditions. Found throughout the subcontinent.

Locality : Bank of Bhima river near Bhorgiri.

Habits and Habitat : Generally solitary or in small flocks during feeding, some time congregate in large numbers. Communal roosting during night. Nesting in small colonies. Found near jheels, rivers, irrigated reservoirs, canals, tanks and tidal estuaries.

Food : Aquatic animals-mainly fish and to small extent tadpoles, frogs and crustaceans.

Breeding Season : July to September.

Order CICONIIFORMES

Family ARDEIDAE

3. *Egretta garzetta* (Linnaeus, 1766)**Little Egret**

1968. *Egretta garzetta* : Ali & Ripley, H. B. No. 49, Vol. 1 : 72.

Status and Distribution : Resident with local movements depending upon water conditions. Throughout the subcontinent from plains to 900m in peninsular India, 1400 m in the Himalayas.

Locality : Bhima river near Bhorgiri, Bhatti nalla.

Habits and Habitats : More gregarious than Large Egrets, usually in flocks wading in shallows. Colonial and in mixed heronries during nesting. All types of inland waters, marshes, jheels and paddy fields.

Food : Aquatic animals- fish, frogs, crustaceans and water insects.

Breeding Season : July to September.

4. *Egretta intermedia* (Wagler, 1829)**Intermediate Egret**

1968. *Egretta intermedia intermedia* : Ali & Ripley, H. B. No. 47, 48, Vol. 1 : 71.

2001. *Mesophoyx intermedia* : Manakadan & Pittie, *Buceros*, Vol. 6, (No. 1) : 2.

2005. *Egretta intermedia* : Rasmussen & Anderton, Vol. 2 : 56.

Status and Distribution : Resident and nomadic with local movements depending upon water conditions. Throughout the subcontinent.

Locality : Ahupe Talav, bank of Bhima river near Bhorgiri.

Habits and Habitats : Usually solitary but occurs in small scattered flocks along with other egrets. Colonial and in mixed heronries during nesting. Low level country, affects jheels, marshes, paddy fields, coastal backwaters and mangrove swamps.

Food : Aquatic animals-fish, frogs, crustaceans and water insects.

Breeding Season : July to October.

5. *Ardea cinerea* Linnaeus, 1758**Grey Heron**

1968. *Ardea cinerea* : Ali & Ripley, H. B. No. 36, Vol. 1 : 35.

Status and Distribution : Resident with local movements and found all over India.

Locality : Ahupe Talav, Goneri river.

Habits and Habitats : Solitary but occasionally in small flocks, colonial when nesting. Largely crepuscular in habit. Seen near inland water, jheels, marshes, river banks, tidal creeks, estuaries, mangrove swamps and rocky offshore islets.

Food : Aquatic animals, insects, molluscs, crustaceans, fish, frogs, small rodents and birds.

Breeding Season : July to November.

6. *Bubulcus coromandus* (Linnaeus, 1758)

Eastern Cattle Egret

1968. *Bubulcus ibis* : Ali & Ripley, H. B. No. 44, Vol. 1 : 66.

2005. *Bubulcus coromandus* : Rasmussen & Anderton, Vol. 2 : 58.

Status and Distribution : Resident with local movements. Throughout the subcontinent.

Locality : Bank of Bhima river near Bhorgiri, Kondhval nalla.

Habits and Habitats : Generally seen alongwith grazing village cattle, wild animals. Gregarious, collect in large gatherings at ploughed fields, and form communal roost at night shared with mynas, crows, parakeets and other birds. Affects all possible habitats at low-level country.

Food : Mainly insects but also earthworms, tadpoles, small frogs and lizards to some extent.

Breeding Season : June to October.

7. *Ardeola grayii* (Sykes, 1832)

Indian Pond-Heron

1968. *Ardeola grayii* : Ali & Ripley, H. B. No. 42, Vol. 1 : 63.

Status and Distribution : Resident bird showing local movements with draught and food conditions. Throughout the subcontinent.

Locality : Ahupe Talav, Bhorgiri and Kondhval nalla.

Habits and Habitats : Usually solitary but also found in small-scattered parties. Roost communally at night and colonial during nesting season, in mixed heronries. Found near streams, jheels, marshes, paddy fields, roadside ditches, paddies and near tidal mudflats. Mostly in plains but upto 1000 m in the peninsular hills.

Food : Aquatic animals-fish, frogs, crustaceans, water beetles and other insects like grasshoppers, dragonfly larvae, crickets, ants etc.

Breeding Season : June to September.

8. *Butorides striata* (Linnaeus, 1758)

Striated Heron

1968. *Butorides striatus* : Ali & Ripley, H. B. No. 38, Vol. 1 : 59.

Status and Distribution : Resident. Throughout the subcontinent.

Locality : Bhorgiri nalla.

Habits and Habitats : Solitary; shy and retiring; silent. Crepuscular and nocturnal; very parochial. Affects streams, lakes, ponds, marshes. Also coastal backwaters, mangrove swamps and tidal creeks. Chiefly in plains but upto 1000m in the peninsular hills.

Food : Aquatic animals-fish, shrimps, frogs, crabs and water beetles.

Breeding Season : Evidently double brooded. March to September, varying locally with water conditions.

Family CICONIIDAE

9. *Ciconia episcopus* (Boddaert, 1783)

White-necked Stork

1968. *Ciconia episcopus* : Ali & Ripley, H. B. No. 62, Vol. 1 : 98.

Status and Distribution : A resident bird, distributed sparsely throughout the well-watered parts of India. Locally common.

Locality : On banks of Bhima and Goneri river.

Habits and Habitats : Generally solitary or pairs or in small parties, wading in water, feeds at dry and marshy lands. Roosts at night in tall trees. It is found in flooded grassland, fallows, ploughed fields, banks of streams and river, marshy places and rarely on tidal creeks.

Food : Aquatic animals-large insects, crabs, molluscs, fish and frogs.

Breeding Season : July to October.

Order ANSERIFORMES

Family ANATIDAE

10. *Anas poecilorhyncha* J. R. Forester, 1781

Indian Spot-billed duck

1968. *Anas poecilorhyncha* : Ali & Ripley, H. B. No. 97, Vol. 1 : 157.

Status and Distribution : Resident, nomadic and local migratory bird distributed throughout the Indian subcontinent.

Locality : Marshy areas of Bhima river.

Habits and Habitat : A non-diving duck but can dive effectively. Usually seen in pairs, family parties or in small medium-sized flocks. It walks about grubbing on marshland or in wet paddy fields. It occurs in reedy and vegetation covered jheels, shallow irrigation tanks, ponds and sometimes in rivers.

Food : Mostly vegetarian-shoots, corns, aquatic plants, seeds, grains of wild and cultivated rice. Sometime water-snails.

Breeding Season : Depending upon water conditions chiefly July to October in north and peninsular India; November/December in the south.

Order FALCONIFORMES

Family ACCIPITRIDAE

11. *Pernis ptilorhyncus* (Temminck, 1821)

Oriental Honey-Buzzard

1968. *Pernis ptilorhyncus* : Ali & Ripley, H. B. No. 130, Vol. 1 : 222.

Status and Distribution : Resident with local movements. Throughout the Indian plains, up to 1800 m in the Himalayas.

Locality : Bhimashankar valleys on Western side.

Habits and Habitat : Usually seen singly or in pairs soaring aloft and circling on motionless wings, or perched on a tree-top. Roosts in numbers at night in groves of large leafy trees, e.g. *Dalbergia*. Well-wooded country, forest glades, also groves of trees about towns, villages and cultivation.

Food : Mainly honey and larvae of bees.

Breeding Season : From February to July.

12. *Elanus caeruleus* (Desfontaines, 1789)

Black-winged Kite

1968. *Elanus caeruleus* : Ali & Ripley, H. B. No. 124, Vol. 1 : 212.

Status and Distribution : Resident. Widely distributed in India, common in plains and hills.

Locality : Kondhval village, Patan village and Borwadi.

Habits and Habitat : Keeps singly or in widely scattered pairs. Somewhat crepuscular. Roosts communally at night in leafy trees. Grassland interspersed with cultivation or with scattered trees, open dry scrub and scrub desert.

Food : Mainly large insects and reptiles.

Breeding Season : Nearly all year, varying locally.

13. *Milvus migrans* (Boddaert, 1783)

Black Kite

1968. *Milvus migrans* : Ali & Ripley, H. B. No. 133, Vol. 1 : 227.

Status and Distribution : Resident with local movements. Throughout India.

Locality : Kondhval village, Bhorgiri village, Nigdale.

Habits and Habitat : Gregarious about towns and villages. Roosts communally at night in selected trees, around human habitation, mainly in cities, also in mountains.

Food : Feeds mainly on refuse and offal, but is omnivorous.

Breeding Season : From September to May.

14. *Neophron percnopterus* (Linnaeus, 1758)

Egyptian Vulture

1968. *Neophron percnopterus* : Ali & Ripley, H. B. No. 187, Vol. 1 : 312.

Status and Distribution : Resident. All India.

Locality : Bhimashankar forest (during 1998-2000).

Habits and Habitat : A useful scavenger. Not gregarious, usually seen in twos and threes. Affects the drier peninsular hills up to 2000 m and plains around human habitations.

Food : Feeds mainly on carrion, offal and garbage, and to large extent human ordure.

Breeding Season : From February to May.

15. *Gyps bengalensis* (Gmelin, 1788)

Indian White-rumped Vulture

1968. *Gyps bengalensis* : Ali & Ripley, H. B. No. 185, Vol. 1 : 307.

Status and Distribution : Resident. Throughout India.

Locality : Seen solitary near Bhorgiri in 1979.

Habits and Habitat : Commonest scavenger. Usually seen in small groups, commonly in association with the Indian and other vultures. Affects river barrages, canal, cultivation, populous villages with livestock, and trees for nesting.

Food : Exclusively carrion.

Breeding Season : From October to March.

16. *Gyps indicus* (Scopoli, 1786)

Indian Vulture

1968. *Gyps indicus* : Ali & Ripley, H. B. No. 182, Vol. 1 : 304.

Status and Distribution : Resident. Rajasthan, Gujarat and peninsular India south of the Gangetic plain. Not in extreme SW India.

Locality : Bhimashankar Forest (during 1998-2000).

Habits and Habitat : Gatherings, sometimes of 20 to 30 birds or more. A scavenger. Affects river barrages, canal, cultivation, outskirts of villages and towns.

Food : Exclusively carrion, sometimes at tiger or panther kills in forest.

Breeding Season : From November to March.

17. *Circaetus gallicus* (Gmelin, 1788)

Short-toed Snake-Eagle

1968. *Circaetus gallicus* : Ali & Ripley, H. B. No. 195, Vol. 1 : 327.

Status and Distribution : Resident. Throughout the Indian Union.

Locality : Foot hills of Bhimashankar on Bhorgiri side.

Habits and Habitat : Usually seen singly soaring and circling high up in the sky. Affects open cultivated plains, stony deciduous scrub and foothills country and semi-desert.

Food : Largely snakes including venomous ones, and some of considerable size. Also takes lizards (including *Varanus*), frogs, field rats, disabled birds and large insects.

Breeding Season : From December to March.

18. *Spilornis cheela* (Latham, 1790)

Crested Serpent-Eagle

1968. *Spilornis cheela* : Ali & Ripley, H. B. No. 197, Vol. 1 : 331.

Status and Distribution : Resident. Peninsular India south of the Gangetic plain, south of 25°N. latitude, from Gujarat eastward to Bengal.

Locality : Bhorgiri, Kondhval nalla, Ahupe.

Habits and Habitat : Keeps singly, or more usually in pairs. Affects well-watered wooded plains and foothills country.

Food : Largely snakes, lizards, frogs, field rats, mice and sickly birds.

Breeding Season : From December to March.

19. *Circus macrourus* (S.G. Gmelin, 1770)

Pallid Harrier

1968. *Circus macrourus* : Ali & Ripley, H. B. No. 190, Vol. 1 : 319.

Status and Distribution : Winter visitor to the entire Indian Union.

Locality : Bhimashankar valleys on Bhorgiri side.

Habits and Habitat : Not gregarious. Keeps singly. Roosts at night in the open, often in sizeable congregations and in company with other harrier species. Affects plateaux and undulating foothills country-open grassy hillsides, rolling downland, cultivation, stony semi-desert and scrub. Avoids wooded tracts.

Food : Frogs, lizards, field mice, sickly or young ground-nesting birds, grasshoppers.

Breeding Season : Extralimital.

20. *Accipiter badius* (Gmelin, 1788)

Shikra

1968. *Accipiter badius* : Ali & Ripley, H. B. No. 138, Vol. 1 : 235.

Status and Distribution : Resident. Found throughout India.

Locality : Bhatti nalla, Kondhval village and Gawadewadi.

Habits and Habitat : Uses surprise tactics to hunt. Soars high in circle. Open wooded country and groves around villages and cultivation.

Food : Small mammals, birds, lizards, frogs and large insects.

Breeding Season : From January to June.

21. *Accipiter virgatus* (Temminck, 1822)

Bersa Sparrow Hawk

1968. *Accipiter virgatus* : Ali & Ripley, H. B. No. 151, Vol. 1 : 249.

Status and Distribution : Resident. The Western Ghats strip including Nilgiri and Palni Hills through Kerala north at least to Mumbai.

Locality : Bhimashankar dense forest.

Habits and Habitat : Very similar to those of Shikra and Sparrow-Hawk. Confined to evergreen and moist deciduous biotope; affects heavy forest between from 600 and at least 1200 metres elevation.

Food : Chiefly small birds. Small flying squirrels, mice and bats also takes lizards and insects.

Breeding Season : From March to May.

22. *Accipiter nisus* (Linnaeus,1758)

Eurasian Sparrowhawk

1968. *Accipiter nisus* : Ali & Ripley, H. B. No. 147, Vol. 1 : 243.

Status and Distribution : Winter visitor. All India.

Locality : Bhimashankar forest and valleys.

Habits and Habitat : Usually solitary. Surprise tactics to hunt. Soars high in circle. Affects well wooded, preferably broken and foothills country-light forest, groves and orchards.

Food : Chiefly birds: quails, partridges, doves, chickens and ducklings.

Breeding Season : Extralimital.

23. *Butastur teesa* (Franklin, 1832)

White-eyed Buzzard

1968. *Butastur teesa* : Ali & Ripley, H. B. No. 157, Vol. 1 : 257.

Status and Distribution : Resident. Throughout Indian subcontinent.

Locality : Bhorgiri village, roadside between Taleghar and Kondhval.

Habits and Habitat : Sluggish and usually tame. Single birds seen frequently in a chosen locality. Open dry forest, scrub and cultivation.

Food : Rats and mice, small snakes, lizards, frogs, crabs and large insects.

Breeding Season : From February to May.

24. *Buteo rufinus* (Cretzschmar,1827)

Long-legged Buzzard

1968. *Buteo rufinus* : Ali & Ripley, H. B. No. 153, Vol. 1 : 252.

Status and Distribution : Winter visitor. N. India east to Upper Assam south to the Deccan and possibly further.

Locality : Bhimashankar valleys on eastern side.

Habits and Habitat : Usually seen singly or in pairs. In winter range affects every type, from semi-desert and cultivation to deciduous forest.

Food : Carrion, small mammals, sick and disabled birds, reptiles, frogs, locusts and other large insects.

Breeding Season : Extralimital.

25. *Ictinaetus malayensis* (Temminck, 1822)

Black Eagle

1968. *Ictinaetus malayensis* : Ali & Ripley, H. B. No. 172, Vol. 1 : 283.

Status and Distribution : Resident. Throughout India.

Locality : Bhimashankar forest.

Habits and Habitat : Partial to hill forest. Usually seen in pairs. Widely but patchily distributed in evergreen and moist deciduous forest biotope, foothills and up to 2000 m altitude in the peninsular hills.

Food : Large insects, frogs, lizards, rodents and birds.

Breeding Season : Mainly November to March in south India.

26. *Aquila rapax* (Temminck, 1828)

Tawny Eagle

1968. *Aquila rapax* : Ali & Ripley, H. B. No. 168, Vol. 1 : 276.

Status and Distribution : Resident. The drier parts of the entire Indian Union. Absent in Kerala.

Locality : Foot hills of Bhimashankar and adjoining area.

Habits and Habitat : Usually seen singly. Affects semi-desert and dry deciduous country, chiefly plains and plateaux.

Food : Small mammals, birds and reptiles, mostly robbed from kites and other hawks; carrion and garbage.

Breeding Season : From November to March/April, varying locally.

27. *Hieraaetus fasciatus* (Vieillot, 1822)**Bonelli's Eagle**

1968. *Hieraaetus fasciatus* : Ali & Ripley, H. B. No. 163, Vol. 1 : 266.

Status and Distribution : Resident. Throughout India.

Locality : Valleys of Bhimashankar on Western side.

Habits and Habitat : A bold and active hunter. Frequently a pair will hunt in concert. Affects well wooded country, hill and plain.

Food : Mainly large birds and small mammals like hares.

Breeding Season : Principally December and January.

28. *Hieraaetus pennatus* (Gmelin, 1788)**Booted Eagle**

1968. *Hieraaetus pennatus* : Ali & Ripley, H. B. No. 164, Vol. 1 : 268.

Status and Distribution : Partly resident; chiefly winter visitor. Throughout India.

Locality : Bhimashankar valleys on western side.

Habits and Habitat : Regularly hunts in couples. Collect in numbers to roost at night in groves of large leafy trees. Affects well wooded country, hill and plain. Commonly also semi-desert with forest plantations and groves of trees around human habitations or within cultivation.

Food : Small mammals, birds and reptiles.

Breeding Season : March to June in the Himalayas.

29. *Spizaetus cirrhatus* (Gmelin, 1788)**Crested Hawk-Eagle**

1968. *Spizaetus cirrhatus* : Ali & Ripley, H. B. No. 161, Vol. 1 : 262.

Status and Distribution : Resident. Throughout the peninsular India.

Locality : Bhimashankar forest and valleys.

Habits and Habitat : Keeps singly to open forest, around forest villages and cultivation. Affects deciduous and semi-evergreen forest biotope.

Food : Hares, young peafowl, junglefowl, partridges, bush quails, squirrels, field rats, lizards, etc.

Breeding Season : In peninsular India overall November to April, chiefly January and February.

Family PANDIONIDAE

30. *Pandion haliaetus* (Linnaeus, 1758)**Osprey**

1968. *Pandion haliaetus* : Ali & Ripley, H. B. No. 203, Vol. 1 : 336.

Status and Distribution : Mainly winter visitor. Throughout the Indian subcontinent.

Locality : Kondhval, Sakeri.

Habits and Habitat : Keeps singly. Affects large water bodies-coastal lagoons, estuaries, broad rivers, jheels and up to the highest multipurpose dammed reservoirs.

Food : Exclusively fish.

Breeding Season : Extralimital.

Family FALCONIDAE

31. *Falco tinnunculus* Linnaeus, 1758**Common Kestrel**

1968. *Falco tinnunculus* : Ali & Ripley, H. B. No. 222 & 224, Vol. 1 : 365.

Status and Distribution : Winter visitor throughout the Indian subcontinent and partly resident from Khandesh to Kanyakumari including Western Ghats complex..

Locality : Kondhval nalla, Bhorgiri and Nigdale.

Habits and Habitat : Usually seen singly. Grassland, hill and plain, also cultivation and semi desert.

Food : Chiefly large insects, frogs, lizards, small rodents and rarely nestlings or small birds.

Breeding Season : From April to June in the Western Himalayas and January to March in peninsular hills.

32. *Falco chicquera* Daudin, 1800**Red-headed Falcon**

1968. *Falco chicquera* : Ali & Ripley, H. B. No. 219, Vol. 1 : 359.

Status and Distribution : Resident. Throughout the Indian subcontinent.

Locality : Bhimashankar forest on eastern slopes.

Habits and Habitat : Male and female almost invariably keep together and hunt in concert. Affects deciduous plains, plateau and low foothills country interspersed with groves of trees, cultivation and villages. Avoids forest.

Food : Mainly small birds.

Breeding Season : Chiefly January to March.

33. *Falco subbuteo* Linnaeus, 1758

Eurasian Hobby

1968. *Falco subbuteo* : Ali & Ripley, H. B. No. 212-213, Vol. 1 : 352.

Status and Distribution : Mainly winter visitor and partly resident. India south to about N. Karnataka (Belgaum).

Locality : Bhimashankar-Nigdale area.

Habits and Habitat : Distinctly crepuscular, feeds chiefly in twilight of dawn and at sunset, often well into the dusk. Affects open wooded country, cultivated areas as well as semi-desert areas.

Food : Small birds (larks, pipits, swallows, wagtails, swifts, warblers, etc), pipistrelle bats and flying insects.

Breeding Season : Extralimital and partly breeding.

34. *Falco peregrinus* Tunstall, 1771

Peregrine Falcon

1968. *Falco peregrinus* : Ali & Ripley, H. B. No. 209 & 211, Vol. 1 : 347 & 350.

Status and Distribution : Winter visitorans partly resident. Throughout the Indian Union.

Locality : Marshy areas of Bhima and Goneri river.

Habits and Habitat : Largely predatory on birds, seldom hunting in couples. Affects the neighbourhood of rivers, jheels, coastal lagoons and marshes. Affects foothills and rugged hilly country to the highest peninsular hills.

Food : Chiefly waterfowl-ducks, coots, moorhens, lapwings, etc. and waders; also pigeons, partridges, and many other small birds.

Breeding Season : Extralimital and in the peninsular and S. Indian hills January to March/April.

Order GALLIFORMES

Family PHASIANIDAE

35. *Fracolinus pondicerianus* (Gmelin, 1789)

Grey Francolin

1969. *Fracolinus pondicerianus* : Ali & Ripley, H. B. No. 246, Vol. 2 : 31.

Status and Distribution : Resident. Southern peninsular India.

Locality : Kondhval and Nigade foothill area.

Habits and Habitat : Mainly in pairs, in small family parties or in groups of 4 to 8 birds. Roosts in thorny trees or in bushes at night time. Affects dry undulating plains and eroded plateau country with xerophytic thorn scrub near villages, in cultivations of jowar, bajra, lentils and other dry-season crops.

Food : Mainly weed seeds, cereal grains, shoots of grass, berries, drupes and insects. Rarely snakes.

Breeding Season : More or less throughout the year but chiefly during April to September.

36. *Coturnix coturnix* (Linnaeus, 1758)

Common Quail

1969. *Coturnix coturnix* : Ali & Ripley, H. B. No. 250, Vol. 2 : 37.

Status and Distribution : Partly resident, partly winter visitor. From Kashmir east through Bihar and W. Bengal, south at least to Madhya Pradesh and southern Maharashtra (Satara).

Locality : Pimpergane, Nigdale and Borwadi.

Habits and Habitat : Usually keeps in pairs. Affects standing crops (e.g. cotton, young wheat, gram, millets, etc.), paddy stubbles, grassland, chiefly in flat and undulating country.

Food : Paddy, millets, and other grain, grass and weed seeds, and small insects.

Breeding Season : Overall March to July varying locally; most commonly March and April.

37. *Coturnix coromandelica* (Gmelin, 1789)

Rain Quail

1969. *Coturnix coromandelica* : Ali & Ripley, H. B. No. 252, Vol. 2 : 41.

Status and Distribution : Resident and nomadic or local movement during SW monsoon. Practically all India.

Locality : Low areas of Bhimashankar forest.

Habits and Habitat : Keeps singly or in scattered pairs-rarely 5-8 birds together. Affects grass-scrub-jungle, open moist grassland, standing crops, and paddy stubbles.

Food : Paddy, millets, and other grain, grass and weed seeds, and small insects to certain extent.

Breeding Season : Overall March to October, straggling into December, varying with locality and moisture conditions.

38. *Perdicula asiatica* (Latham, 1790)

Jungle Bush-Quail

1969. *Perdicula asiatica* : Ali & Ripley, H. B. No. 257, Vol. 2 : 45.

Status and Distribution : Resident. From Gujarat east to Orissa through Madhya Pradesh, north to Himachal Pradesh and south throughout the peninsula from plains to 1250 m.

Locality : On way between Kondhval and Bhimashankar.

Habits and Habitat : Generally in small groups of 6 to 20 birds. Affects dry grass and scrub jungle and both open and fairly dense deciduous forests, preferably on dry, stony ground and in standing crops.

Food : Grass and weed seeds, bajra, millets and small insects particularly termites.

Breeding Season : Almost all months, varying locally. August and April but not well defined.

39. *Galloperdix spadicea* (Gmelin, 1789)

Red Spurfowl

1969. *Galloperdix spadicea* : Ali & Ripley, H. B. No. 275, Vol. 2 : 67.

Status and Distribution : Resident. Uttar Pradesh and widely scattered over peninsular India south of Gangetic plain.

Locality : Forest of Bhimashankar-Gawadewadi belt.

Habits and Habitat : Keeps in pairs or small parties of 3 to 5 birds. Roosts at night in trees. Affects stony, scrubbed foothills country and bamboo jungle in dry and moist-deciduous biotope. In S. India, quite numerous in coffee estates and lantana patches, even close to villages.

Food : Seeds, tubers, berries and drupes, land molluscs and insects especially termites.

Breeding Season : From January to June varying with local conditions.

40. *Gallus sonneratii* Temminck, 1813**Grey Junglefowl**

1969. *Gallus sonneratii* : Ali & Ripley, H. B. No. 301, Vol. 2 : 106.

Status and Distribution : Resident. Chiefly Western peninsular India and south of a line Mt. Abu-Pachmarhi-mouth of the Godavari to Madhya Pradesh, Maharashtra to Kerala.

Locality : Sacred grove near Kondhval, Nigdale.

Habits and Habitat : Generally in pairs, singly or in small parties of 5 to 6 birds. Large numbers gather in areas of bamboo flowering. A shy bird. Affecting dry-deciduous to moist-evergreen biotope, broken country interspersed with cultivation patches, mixed bamboo jungle, tea, coffee and rubber plantations.

Food : Grain, shoots of grass, seeds of crops, tubers, berries, wild figs and insects.

Breeding Season : From February to May.

41. *Pavo cristatus* Linnaeus, 1758**Indian Peafowl**

1969. *Pavo cristatus* : Ali & Ripley, H. B. No. 311, Vol. 2 : 123.

Status and Distribution : Resident. Throughout the Indian subcontinent; locally up to 1800 m. elevation.

Locality : From Kondhval to Bhima river belt.

Habits and Habitat : Mostly in small flocks of a cock and 4 to 5 hens. Roosts at night in tall trees. In the wild state, in undergrowth in deciduous forest near streams, where semi-feral, lives in villages and cultivation.

Food : An omnivorous bird. Seeds, grain, groundnuts, lentils, shoots, flower buds, berries, figs, insects, arachnids, lizards and snakes.

Breeding Season : Generally between April and June.

Order GRUIFORMES

Family TURNICIDAE

42. *Turnix sylvatica* (Desfontaines, 1789)**Small Buttonquail**

1969. *Turnix sylvatica* : Ali & Ripley, H. B. No. 313, Vol. 2 : 128.

Status and Distribution : Resident, but also seasonally nomadic in parts. From up to 2400 metres elevation in the outer Himalayas southward through the peninsula (hill and plain) to Kerala.

Locality : Foothills of Bhimashankar on eastern slopes.

Habits and Habitat : Normally found singly; occasionally pairs, rarely also small parties. Affects grass and scrub jungle bordering cultivation and grassland.

Food : An omnivorous bird. Grass and weed seeds, grain, green shoots and small insects.

Breeding Season : Not well defined. Practically all year but chiefly during the rains.

43. *Turnix tanki* Blyth, 1843

Yellow-legged Buttonquail

1969. *Turnix tanki* : Ali & Ripley, H. B. No. 314, Vol. 2 : 129.

Status and Distribution : Resident. Practically throughout the Indian subcontinent from up to 1200 m in the outer Himalayas southward through the peninsula, to Kerala.

Locality : Foothills of Bhimashankar on eastern slopes.

Habits and Habitat : Normally found singly; occasionally pairs, rarely also small parties. Affects grassland, preferably damp spots, intermixed with low scrub, and growing crops of millet.

Food : An omnivorous bird. Grass and weed seeds, grain, green shoots and small insects.

Breeding Season : March to November, but chiefly after the break of the SW monsoon rains in June.

44. *Turnix suscitator* (Gmelin, 1789)

Common Buttonquail

1969. *Turnix suscitator* : Ali & Ripley, H. B. No. 318, Vol. 2 : 133.

Status and Distribution : Resident. From Punjab in the west, the whole of continental and peninsular India, roughly south of 23°N. latitude.

Locality : Bhorgiri, Nigdale and Kondhval village.

Habits and Habitat : Normally found singly; occasionally pairs, rarely also small parties. Affects grassland and scrub jungle bordering villages and cultivation, and open light deciduous forest.

Food : An omnivorous bird. Grass and weed seeds, grain, green shoots and small insects.

Breeding Season : Practically throughout the year, chiefly June to October

Family RALLIDAE

45. *Amaurornis phoenicurus* (Pennant, 1769)**White-breasted Waterhen**

1969. *Amaurornis phoenicurus* : Ali & Ripley, H. B. No. 344, Vol. 2 : 168.

Status and Distribution : Resident. Throughout the northern India south to an arbitrary boundary along 20° N latitude and to peninsular India.

Locality : Ahupe Talav, bank of Bhima and Goneri rivers.

Habits and Habitat : Singly or in pairs on the margin of jheels and ponds, marshy ground. Swims buoyantly.

Food : Insects, worms, molluscs, grain and shoots of paddy, and marsh plants.

Breeding Season : Coincide with monsoon from June to October.

46. *Fulica atra* Linnaeus, 1758**Common Coot**

1969. *Fulica atra* : Ali & Ripley, H. B. No. 350, Vol. 2 : 180.

Status and Distribution : Resident as well as partly winter visitor. Throughout much of the Indian subcontinent, practically the plains.

Locality : Bhima, Ghod, and Goneri rivers.

Habits and Habitat : Gregarious usually in small parties and flocks. Abundant in winter due to northern immigrants, congregates in thousand on the large weedy jheels, lakes, along the rivers and irrigation tanks with large areas of open water and marginal emergent vegetation. They paddle on water and are expert in diving.

Food : Mainly vegetarian, also molluscs, worms, insects and occasionally small fish.

Breeding Season : In peninsula July to August and also extralimital.

Order CHARADRIIFORMES

Family CHARADRIIDAE

47. *Charadrius dubius* Scopoli, 1786**Little Ringed Plover**

1969. *Charadrius dubius* : Ali & Ripley, H. B. No. 380, Vol. 2 : 231.

Status and Distribution : Resident with local movements depending upon water conditions. Throughout the Indian subcontinent.

Locality : Grassy patches of Bhima river.

Habits and Habitat : Keeps in pairs or in small-scattered flocks of 6 to 10 birds or more, also forms feeding parties mixed with other waders. Sand, shingle and mud margins of lakes, pools and rivers, wet grasslands and paddy fields, intertidal areas on seashore, mudflats and tidal creeks.

Food : Mainly small insects, larvae, crustaceans and worms.

Breeding Season : In peninsular India mostly between March and May.

48. *Vanellus malabaricus* (Boddaert, 1783)

Yellow-wattled Lapwing

1969. *Vanellus malabaricus* : Ali & Ripley, H. B. No. 370, Vol. 2 : 218.

Status and Distribution : Resident showing local and nomadic movements away from wetter areas in monsoon. Throughout the India.

Locality : Between Kondhval village and Kondhval nalla.

Habits and Habitat : Keeps in pairs or in small parties of 5 to 6 birds. Less dependent upon proximity of water; away from muddy shores, and jheels, keeps to a higher zone. Affects barren wasteland, stubbles and fallow fields in drier biotopes.

Food : Mainly insectivorous.

Breeding Season : From March to July.

49. *Vanellus indicus* (Boddaert, 1783)

Red-wattled Lapwing

1969. *Vanellus indicus* : Ali & Ripley, H. B. No. 366, Vol. 2 : 212.

Status and Distribution : A resident bird with local spreading out in monsoon. Throughout the India from Kashmir to Kanyakumari and up to 1800 m elevation.

Locality : A flock of 12 resting on the bank of Ahupe Talav Bhorgiri.

Habits and Habitat : Mostly in pairs or sometimes loose flocks of 6 to 10 birds. In open well watered country, grassy glades, cultivation, jheels, tanks, rivers and ditches.

Food : Mainly insects: ants, beetles, caterpillars; molluscs, crustaceans, worms and vegetable matter.

Breeding Season : From March to September.

Family SCOLOPACIDAE

50. *Lymnocyptes minimus* (Brünnich, 1764)**Jack Snipe**

1969. *Lymnocyptes minimus* : Ali & Ripley, H. B. No. 410, Vol. 2 : 290.

Status and Distribution : Winter visitor. Irregularly throughout the Indian Union.

Locality : Marshy places of Bhima river.

Habits and Habitat : Keeps singly. Affects the swampy marginal zone around jheels, seepage marshes, and waterlogged harvested paddy fields.

Food : Mainly worms, tiny molluscs, aquatic insects and their larvae. Also seeds of marsh plants.

Breeding Season : Extralimital.

51. *Tringa ochropus* Linnaeus, 1758**Green Sandpiper**

1969. *Tringa ochropus* : Ali & Ripley, H. B. No. 397, Vol. 2 : 263.

Status and Distribution : Winter visitor. Throughout the India.

Locality : Ahupe Talav.

Habits and Habitat : Less gregarious than most sandpipers. Keeps singly or in twos and threes, and seldom in voluntary association with other species. Runs and feeds at water edge, jheels, village tanks, puddles and streams.

Food : Aquatic insects, molluscs, crustaceans and other invertebrates.

Breeding Season : Extralimital.

52. *Tringa glareola* Linnaeus, 1758**Wood Sandpiper**

1969. *Tringa glareola* : Ali & Ripley, H. B. No. 398, Vol. 2 : 265.

Status and Distribution : Winter visitor. Throughout the India.

Locality : Bhatti nalla, Bhorgiri nalla.

Habits and Habitat : More gregarious than most sandpipers, seen in flocks of 20 to 30 birds. Occasionally solitary or in small parties. Runs and feeds at water edge. Affects marshes, village tanks, lakes, wet paddy fields, irrigation tanks and mudflats along tidal creeks.

Food : Aquatic insects, crustaceans and worms.

Breeding Season : Extralimital.

53. *Actitis hypoleucos* Linnaeus, 1758**Common Sandpiper**

1969. *Tringa hypoleucos* : Ali & Ripley, H. B. No. 401, Vol. 2 : 271.

2001. *Actitis hypoleucos* : Manakadan & Pittie. *Buceros*, Vol. 6, (No.1) : 7.

Status and Distribution : Winter visitor. Throughout the India.

Locality : Bhima river near Bhorgiri.

Habits and Habitat : Keeps solitary or in scattered twos and threes. Runs and feeds at water edge, village tanks, banks of streams, rivers, canals, lakes, tidal creeks and coastal wetlands.

Food : Molluscs, crustaceans and aquatic insects.

Breeding Season : Extralimital and also breeds in Kashmir, Ladakh, Garhwal Himalaya.

Family RECURVIROSTRIDAE

54. *Himantopus himantopus* (Linnaeus, 1758)**Black-winged Stilt**

1969. *Himantopus himantopus* : Ali & Ripley, H. B. No. 430, Vol. 2 : 329.

Status and Distribution : Resident as well as partly winter visitor. Throughout the Indian Union.

Locality : Bhima river near Bhorgiri.

Habits and Habitat : Gregarious in small parties or fair-sized flocks and larger congregations of a hundred or more. Freshwater and brackish marshes, pools, Village tanks, reservoirs, saltpans, lagoons, shallow margins of lakes and sometimes inundated ploughed fields.

Food : Fishes, insects and other aquatic invertebrates and small seeds of sedges and marsh plants.

Breeding Season : From April to August and also extralimital.

Family LARIDAE

55. *Sterna aurantia* J. E. Gray, 1831**River Tern**

1969. *Sterna aurantia* : Ali & Ripley, H. B. No. 463, Vol. 3 : 48.

Status and Distribution : Resident. Throughout the Indian Union.

Locality : Bhima and Ghod rivers.

Habits and Habitat : Keeps singly or in twos and threes, or small scattered parties. Roosts at night on sandbanks. Large inland waters, sandy islets in rivers and estuaries.

Food : Mostly fish, also crustaceans, tadpoles and aquatic insects.

Breeding Season : Colonial. March to May.

Order COLUMBIFORMES

Family COLUMBIDAE

56. *Columba livia* Gmelin, 1789

Rock Pigeon

1969. *Columba livia* : Ali & Ripley, H. B. No. 517, Vol. 3 : 125.

Status and Distribution : Resident and locally abundant. Throughout the Indian Union.

Locality : Kondhval village, Bhorgiri village.

Habits and Habitat : In the wild state lives in colonies, roosts on ledges, and in fissures and holes in rock scraps, hill forts, ancient ruins, or down the shafts of old wells. Keeps in small parties or large flocks of several hundred strong to feed in the mornings and afternoons. Short flights from ledge to ledge on nesting cliffs. Feral birds inhabit villages, towns and cities; wild birds frequent rocky cliffs, gorges and ruins, forts.

Food : Grains of maize, jowar and other cereals, pulses, groundnuts, weed seeds, also small tubers and green shoots of ground crops.

Breeding Season : Almost whole year.

57. *Columba elphinstonii* (Sykes, 1833)

Nilgiri Wood-Pigeon

1969. *Columba elphinstonii* : Ali & Ripley, H. B. No. 521, Vol. 3 : 132.

Status and Distribution : Resident with local movements. The Sahyadri or Western Ghats complex from Kerala northward up to 19°N. latitude (a little beyond Mumbai).

Locality : Thickly forested area between Bhimashankar and Gawadewadi.

Habits and Habitat : Frugivorous and arboreal. Keeps singly, or in pairs and small parties. Affects moist evergreen forest from the foothills up to the highest sholas at up to 2000 m. Feral birds inhabit villages, towns and cities; wild birds frequent rocky cliffs, gorges and ruins, forts.

Food : Various fruits, berries, and buds.

Breeding Season : From March to July.

58. *Streptopelia orientalis* (Latham, 1790)

Oriental Turtle-Dove

1969. *Streptopelia orientalis* : Ali & Ripley, H. B. No. 531, Vol. 3 : 146.

Status and Distribution : Resident. Breeds in peninsular India from Bihar and Orissa south to Karnataka.

Locality : Taleghar, Bavadan.

Habits and Habitat : A ground feeding bird keeps in pairs and in small parties or in flocks during migration. Open mixed deciduous forest, bamboo forest in vicinity of cultivation.

Food : Cereals, weed and bamboo seeds, green shoots.

Breeding Season : November to February (not well defined.)

59. *Streptopelia senegalensis* (Linnaeus, 1766)

Laughing Dove

1969. *Streptopelia senegalensis* : Ali & Ripley, H. B. No. 541, Vol. 3 : 155.

Status and Distribution : Resident with local movements (but not so clear.) Throughout India from western Himalaya to Kanyakumari.

Locality : Bhorgiri village.

Habits and Habitat : A ground feeding dove keeps in pairs or in small parties. Dry deciduous biotope, stony scrub and bush, country along cultivation, also village surrounding.

Food : Jowar, bajra and other cereals and lentils, grains of paddy, grass and weed seeds.

Breeding Season : Practically all year but chiefly January to October.

60. *Streptopelia chinensis* (Scopoli, 1786)

Spotted Dove

1969. *Streptopelia chinensis* : Ali & Ripley, H. B. No. 537, Vol. 3 : 152.

Status and Distribution : Resident with local and altitudinal movements in some areas. Almost all over India, from lower Himalayas to Assam, south through peninsula to Kanyakumari.

Locality : Taleghar, Bhorgiri village.

Habits and Habitat : A ground feeding bird keeps in pairs or in small parties. Moist deciduous forest, gardens, groves and cultivation; better wooded and better watered bodies than other doves.

Food : Jowar and other cereals, lentils and other pulses, grains of paddy, grass and weed seeds.

Breeding Season : Throughout the year in southern part of India.

61. *Chalcophaps indica* (Linnaeus, 1758)

Emerald Dove

1969. *Chalcophaps indica* : Ali & Ripley, H. B. No. 542, Vol. 3 : 157.

Status and Distribution : Resident (and sedentary). Patchily throughout India up to 1800 m. in the lower Himalayas.

Locality : Foothills of Bhimashankar on eastern slopes.

Habits and Habitat : A ground-feeding dove. Keeps singly or in pairs, locally abundant. Affects thick secondary and mixed bamboo jungle and outskirts of forest clearings, chiefly in foothills country.

Food : Grains, seeds, and fallen berries of lantana being a favourite. Termites on ground.

Breeding Season : Locally variable covering practically the whole year.

62. *Treron affinis* (Jerdon, 1840)

Pompadour Green-Pigeon

1969. *Treron pompadora* : Ali & Ripley, H. B. No. 496, Vol. 3 : 99.

Status and Distribution : Resident, subject to some local and altitudinal movements with ripening of fruits. Western and southwestern India-the Western Ghats complex from about 20°N latitude southward through western Karnataka and Kerala.

Locality : Bhimashankar forested area.

Habits and Habitat : Keeps in small flocks of up to a dozen or sometimes-large congregations on fruiting trees. Roost after evening. Exclusively arboreal bird descending to ground for drink or pickup the earth. Affects forest and well-wooded country in evergreen and wet deciduous biotope with fruiting trees; lowlands and up to 1200 m. altitude.

Food : Various kinds of wild figs, berries and drupes.

Breeding Season : Mainly December to March.

63. *Treron phoenicopterus* (Latham, 1790)

Yellow-footed Green-Pigeon

1969. *Treron phoenicoptera* : Ali & Ripley, H. B. No. 504, Vol. 3 : 108.

Status and Distribution : Resident. Local movements with ripening of fruits. All peninsular India.

Locality : Between Bhimashankar and Hanuman Temple.

Habits and Habitat : Keeps in flocks. Exclusively arboreal bird descending to ground for drink or pick up the earth. Dry and moist deciduous forest with fruiting trees, groves on open countryside, around villages, cultivation, gardens and roadside avenues.

Food : Various kinds of wild figs, berries and drupes.

Breeding Season : May to June.

Order PSITTACIFORMES

Family PSITTACIDAE

64. *Loriculus vernalis* (Sparrman, 1787)

Hanging-Parrot

1969. *Loriculus vernalis* : Ali & Ripley, H. B. No. 566 & 567, Vol. 3 : 188.

Status and Distribution : Resident and also subject to local migrations. North-east India, Western India-coastal strip and ghats-from north of Mumbai (up to 19° N. latitude) southward, including the Nilgiris, Palnis, and associated hills of Karnataka, Tamil Nadu, and Kerala states; thence north along the Eastern Ghats through eastern Madhya Pradesh and Orissa; plains, and foothills normally up to 1000 m; in the Nilgiris up to 1800 m.

Locality : Kondhval nalla, Gawadewadi.

Habits and Habitat : Keeps in pairs or family parties. Affects wooded country in evergreen and moist-deciduous biotopes.

Food : Soft pulp of fruits and berries, chiefly wild figs, largely supplemented by flower nectar.

Breeding Season : Overall January to April.

65. *Psittacula eupatria* (Linnaeus, 1766)**Alexandrine Parakeet**

1969. *Psittacula eupatria* : Ali & Ripley, H. B. No. 546, Vol. 3 : 164.

Status and Distribution : Resident with local movements. Common and widespread in N. India, sporadic south of latitude 18°N through Madhya Pradesh and Orissa (the arbitrarily fixed boundary with the northern race); plains up to 1600 m. in Himalayas and up to 900 m. in peninsular hills.

Locality : Forest of Bhimashankar-Kondhval.

Habits and Habitat : Keeps in small parties. Roosts communally at night. Moist and dry deciduous forest and well-wooded areas; parks, gardens and trees around human habitation.

Food : Fruits and seeds.

Breeding Season : From December to May.

66. *Psittacula krameri* (Scopoli, 1769)**Rose-ringed Parakeet**

1969. *Psittacula krameri* : Ali & Ripley, H. B. No. 550, Vol. 3 : 171.

Status and Distribution : Resident with local movements. All peninsular India south of latitude 20°N (the arbitrarily fixed boundary with the northern race.)

Locality : Bhorgiri village, Kondhval village and Patan.

Habits and Habitat : Keeps in small parties or in enormous swarms during ripening of fruits and crops. Roosts communally sharing with other birds such as myna, crow. Moist and dry deciduous forest biotope, highly wooded country around cultivation and human habitation.

Food : Fruits, cereals, all varieties of seeds, wild and cultivated, groundnuts, chilies, flower-petals and nectar.

Breeding Season : From January to May.

67. *Psittacula cyanocephala* (Linnaeus, 1766)**Plum-headed Parakeet**

1969. *Psittacula cyanocephala* : Ali & Ripley, H. B. No. 558, Vol. 3 : 179.

Status and Distribution : Resident with local movements depending upon mainly food supply. All peninsular India south of latitude 20°N (the arbitrarily fixed boundary with the northern race.)

Locality : Between Pimpargane and Ahupe, Patan, sacred grove near Kondhval.

Habits and Habitat : Keeps in small parties. Roosts communally at night. Moist and dry deciduous forest biotope, light forest, well-wooded compounds, cultivation, low lands and hills up to 1300 m.

Food : Fruits of all kinds, grains, paddy, gram, buds, flower-petals and nectar.

Breeding Season : From December to April.

68. *Psittacula columboides* (Vigors, 1830)

Malabar Parakeet

1969. *Psittacula columboides* : Ali & Ripley, H. B. No. 564, Vol. 3 : 185.

Status and Distribution : Resident, with the usual local nomadic wandering in quest of food. The Western Ghats complex from Kerala north up to 19°N. latitude (Kasa in Thana dist., north of Mumbai) including the Nilgiri, Palni, and associated hills of Tamil Nadu and Karnataka states-chiefly between 500 and 1500 m. altitude.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps in parties of 4 or 5, or small flocks, to forested hillsides in the vicinity of hillmen's settlements and cultivation. Restricted to evergreen biotope but wandering into the intermediate zone.

Food : Grain, seeds, and fruits-especially the various wild figs. Also buds, flower-petals and nectar.

Breeding Season : From January to March.

Order CUCULIFORMES

Family CUCULIDAE

69. *Clamator jacobinus* (Boddaert, 1783)

Jacobin Crested Cuckoo

1969. *Clamator jacobinus* : Ali & Ripley, H. B. No. 570, Vol. 3 : 194.

Status and Distribution : SW monsoon-breeding visitor. Throughout much of the Indian peninsula.

Locality : Eastern slopes of Bhimashankar.

Habits and Habitat : Largely arboreal and insectivorous. Usually seen in loose parties of 5 or 6. Affects lightly wooded country in dry- and moist-deciduous biotope, lowlands and hills.

Food : Mainly caterpillars, beetles, ants, flying termites, terrestrial molluscs, fruits, seeds and leaves.

Breeding Season : Brood-parasitic on babblers, mainly during June to September in the peninsular India.

70. *Hierococcyx varius* (Vahl, 1797)

Common Hawk-Cuckoo

1969. *Cuculus varius* : Ali & Ripley, H. B. No. 573, Vol. 3 : 200.

2001. *Hierococcyx varius* : Manakadan & Pittie, *Buceros*, Vol. 6(No. 1) : 9.

Status and Distribution : Resident with local and nomadic movements. Throughout much of the Indian subcontinent.

Locality : Between Bhimashankar and Hanuman Temple.

Habits and Habitat : Arboreal bird. In single or in pairs. Well wooded deciduous and semi-evergreen country, favouring groves, mangroves, orchards, gardens and cultivation.

Food : Fruits and insects.

Breeding Season : Brood-parasitic on babblers mostly jungle babblers; laying depending on local host from March to June.

71. *Cuculus canorus* Linnaeus, 1758

Common Cuckoo

1969. *Cuculus canorus* : Ali & Ripley, H. B. No. 578, Vol. 3 : 208.

Status and Distribution : Resident, nomadic and seasonal local movements. Throughout the peninsula south to Kerala.

Locality : Forested area of Bhimashankar-Kondhval area.

Habits and Habitat : Chiefly arboreal, keeping singly. Affects well wooded country.

Food : Insects and their larvae, particularly hairy caterpillars.

Breeding Season : Brood-parasitic on a wide range of hosts, pipits, shrikes, but chiefly on babblers, flycatchers, warblers and chats. Locally synchronous with hosts from March to August.

72. *Cacomantis sonneratii* (Latham, 1790)

Banded Bay Cuckoo

1969. *Cacomantis sonneratii* : Ali & Ripley, H. B. No. 582, Vol. 3 : 215.

Status and Distribution : Status unclear, believed to be resident, nomadic and seasonal local movements. Throughout the India, fairly common in the Deccan and southern India.

Locality : Dense forested area between Bhimashankar and Hanuman Temple.

Habits and Habitat : Arboreal, usually keeping singly. Affects deciduous and evergreen lightly wooded country around cultivation, as well as fairly heavy forest.

Food : Mainly caterpillars and bugs (Hemiptera).

Breeding Season : Brood-parasitic evidently on ioras, bulbuls, and small babblers. Variable and prolonged from February to August, locally synchronous with its hosts.

73. *Surniculus lugubris* (Horsfield, 1821)

Square-tailed Drongo Cuckoo

1969. *Surniculus lugubris* : Ali & Ripley, H. B. No. 588, Vol. 3 : 224.

Status and Distribution : Status unclear, believed to be resident, nomadic and seasonal local movements. Throughout the better wooded parts of the peninsula (plains and up to at least 1500 m in the hills) south to Tamil Nadu and southern Kerala.

Locality : Kondhval village, Gawadewadi.

Habits and Habitat : Arboreal, usually keeping singly. Affects open secondary forest, plantations, orchards, etc.; sometimes dense evergreen jungle.

Food : Mainly caterpillars, soft-bodied insects, and occasionally fruits e. g. banyan and peepul figs.

Breeding Season : Brood-parasitic. From March to October, locally synchronous with its hosts.

74. *Eudynamys scolopacea* (Linnaeus, 1758)

Asian Koel

1969. *Eudynamys scolopacea* : Ali & Ripley, H. B. No. 590, Vol. 3 : 227.

Status and Distribution : Resident with local movements. Throughout the India.

Locality : Bhorgiri, sacred grooves near Kondhval.

Habits and Habitat : Arboreal bird. In single or in pairs, normally silent except in breeding. Open woodland groves, orchards, gardens around cultivation and villages, parks and areas with scattered trees in towns and cities.

Food : Mainly fruits and berries, also invertebrates and bird eggs.

Breeding Season : Brood-parasitic exclusively on house and jungle crows. Synchronous with hosts from March to August.

75. *Phaenicophaeus viridirostris* (Jerdon, 1840)**Blue-faced Malkoha**

1969. *Phaenicophaeus viridirostris* : Ali & Ripley, H. B. No. 595, Vol. 3 : 233.

Status and Distribution : Resident; locally common. Peninsular India roughly north to lat. 20°N latitude.

Locality : Bhimashankar-Nigdale belt.

Habits and Habitat : Keeps singly or in pairs. Affects deciduous and semi-evergreen scrub-and-bush terrain with euphorbia and lantana brakes, and open secondary jungle-plains and broken foothills country up to 1000 m. altitude.

Food : Caterpillars and large insects such as grasshoppers and mantises. Also lizards and other small animals, and probably berries.

Breeding Season : Non-parasitic. Season ill defined; breeds practically all the year, perhaps more specially between March and May.

76. *Taccocua leschenaultii* (Lesson, 1830)**Sirkeer Malkoha**

1969. *Taccocua leschenaultii* : Ali & Ripley, H. B. No. 598, Vol. 3 : 237

Status and Distribution : Resident. Peninsular India (Kerala, Tamil Nadu, Andhra, Maharashtra) north approximately to between 18° and 20°N. latitude.

Locality : Foothills of Bhimashankar on Kondhval area.

Habits and Habitat : Largely terrestrial; usually keeps singly or in pairs. Affects dry deciduous secondary forest and scrub-and-bush jungle, stony *Euphorbia*-covered hillsides, etc. Plains and foothills, locally up to 1000 m. altitude.

Food : Caterpillars, locusts, grasshoppers, termites and other insects; fallen fruits and berries; lizards.

Breeding Season : Chiefly March to June in peninsular India.

77. *Centropus (sinensis) parroti* (Stresemann, 1913)**Southern Coucal**

1969. *Centropus sinensis* : Ali & Ripley, H. B. No. 602, Vol. 3 : 243.

2005. *Centropus (s.) parroti* : Rasmussen & Anderton, Vol. 2 : 222.

Status and Distribution : Resident. Throughout peninsular India including Madhya Pradesh, Andhra Pradesh and Orissa. Plains and hills up to 2200 m. altitude.

Locality : Sacred groves near Kondhval, Bhorgiri village.

Habits and Habitat : Largely terrestrial bird; keeps in singles or in pairs. Tall grasslands, bamboo or scrub jungle, in cultivation and gardens, orchards, groves and thick cover adjacent to wetlands.

Food : Wide variety of small animal prey, also eggs and nestlings. Insects and spiders.

Breeding Season : Practically all year but chiefly November to May.

Order STRIGIFORMES

Family TYTONIDAE

78. *Tyto alba* (Scopoli, 1769)

Common Barn Owl

1969. *Tyto alba* : Ali & Ripley, H. B. No. 606, Vol. 3 : 250.

Status and Distribution : Resident. Throughout the India.

Locality : Vellavali, Borwadi.

Habits and Habitat : Largely crepuscular and nocturnal. Usually in single or in pairs. Plains and peninsular hills to c. 1000 m ruins of ancient forts, crumbling archaeological structures, caves, disused wells, and buildings both deserted and occupied in towns and city suburbs and neighborhood of cultivations.

Food : Small birds, rats and mice.

Breeding Season : Covering practically the entire year.

Family STRIGIDAE

79. *Otus sunia* (Hodgson, 1836)

Oriental Scops-Owl

1969. *Otus sunia* : Ali & Ripley, H. B. No. 617, Vol. 3 : 263.

Status and Distribution : Resident. Peninsular India from northern Maharashtra (Khandesh from 21°N latitude), southeast at least to Tamil Nadu, including Karnataka and Kerala.

Locality : Bhimashankar-Kondhval village belt.

Habits and Habitat : Entirely nocturnal. Affects forest (deciduous and evergreen), and groves of trees around hill cultivation and settlements etc.

Food : Beetles, grasshoppers, and other insects; also mice, small birds, lizards, etc.

Breeding Season : Not recorded.

80. *Otus bakkamoena* Pennant, 1769**Indian Scops-Owl**

1969. *Otus bakkamoena* : Ali & Ripley, H. B. No. 623, Vol. 3 : 269.

Status and Distribution : Resident. Peninsular India (from 20°N latitude) Maharashtra, Madhya Pradesh, Andhra, Tamil Nadu, Karnataka and Kerala.

Locality : Bhimashankar forest.

Habits and Habitat : Nocturnal. Affects deciduous and semi-evergreen forest, and well-wooded country; partial to groves and orchards around villages and cultivation.

Food : Beetles, grasshoppers, and other insects; also mice, small birds and lizards.

Breeding Season : In peninsular India principally January and February.

81. *Bubo bengalensis* (Franklin, 1831)**Indian Eagle-Owl**

1969. *Bubo bengalensis* : Ali & Ripley, H. B. No. 627, Vol. 3 : 273.

Status and Distribution : Resident. Throughout the subcontinent.

Locality : Bhimashankar towards western slopes.

Habits and Habitat : Largely nocturnal. Bush-covered rocky hills, well-wooded country with out scoured steep-sided ravines, groves of ancient trees in the neighbourhood of cultivation and villages.

Food : Predominantly field rats and mice also small birds, lizards, frogs, crabs, and large insects.

Breeding Season : From November to May.

82. *Ketupa zeylonensis* (Gmelin, 1788)**Brown Fish-Owl**

1969. *Ketupa zeylonensis* : Ali & Ripley, H. B. No. 631, Vol. 3 : 280.

Status and Distribution : Resident. The entire Indian Union; south throughout the peninsula-chiefly plains, but locally up to 1400 m.

Locality : Bhimashankar valleys, Kondhval.

Habits and Habitat : Semi-diurnal habits; keeps in pairs, usually roosting in a leafy tree. Affects well-wooded well-watered country; partial to old mango tops, roadside and canal

avenues and densely foliated trees along forest streams and tanks; commonly near human habitations. Overgrown eroded ravines and steep riverbanks are favourite haunts.

Food : Mainly fish, frogs, and crabs; also rodents, birds and reptiles.

Breeding Season : Overall November to March; chiefly January-February in N. India, December to March in the peninsula.

83. *Strix ocellata* (Lesson, 1839)

Mottled Wood-Owl

1969. *Strix ocellata* : Ali & Ripley, H. B. No. 657, Vol. 3 : 305.

Status and Distribution : Resident. Widely distributed throughout peninsular India from southern Kerala and Tamil Nadu northward through Karnataka, Andhra, Maharashtra, Gujarat, Madhya Pradesh, Orissa.

Locality : Forest near Bhimashankar and Hanuman Temples.

Habits and Habitat : Largely nocturnal; keeps in pairs. Affects lightly wooded plains country; partial to mango tops, groves of ancient tamarind, banyan, and densely foliated trees on the outskirts of villages and cultivation.

Food : Rats, mice and other rodents; birds up to size of blue rock pigeon; lizards, crabs, beetles and other large insects.

Breeding Season : November to April.

84. *Strix leptogrammica* Temminck, 1831

Brown Wood-Owl

1969. *Strix leptogrammica* : Ali & Ripley, H. B. No. 659, Vol. 3 : 308.

Status and Distribution : Resident in the Western and Eastern Ghats and their associated hill ranges in peninsular India, up to 1800 m. altitude (Nilgiri and Palni Hills).

Locality : Forest near Hanuman Temple.

Habits and Habitat : Nocturnal; keeps in pairs. Affects heavy evergreen and moist-deciduous forests.

Food : Rodents, birds, reptiles and reportedly fish.

Breeding Season : January to March.

85. *Glaucidium radiatum* (Tickell, 1833)**Jungle Owlet**

1969. *Glaucidium radiatum* : Ali & Ripley, H. B. No. 636, Vol. 3 : 286.

Status and Distribution : Resident. The submontane Himalayas and south throughout the Peninsula, roughly east and south of a line from Almora (Kumaon) to Baroda (Gujarat), with western extension to the Aravalli range (Mt Abu area).

Locality : Forest near Hanuman Temple and Bhimashankar.

Habits and Habitat : Largely crepuscular; keeps singly or in pairs. Affects mixed moist-deciduous forests and secondary jungle; in the Peninsula, especially partial to the teak-and-bamboo facies in foothills country.

Food : Locusts, grasshoppers, cicadas and other large insects; also molluscs, lizards, small birds and mice.

Breeding Season : March to May.

86. *Athene brama* (Temminck, 1821)**Spotted Owlet**

1969. *Athene brama* : Ali & Ripley, H. B. No. 652, Vol. 3 : 302.

Status and Distribution : Resident. Peninsular India, south of 20°N latitude the boundary fixed to convenience between northern and southern populations.

Locality : Bhimashankar Rest House.

Habits and Habitat : The crepuscular and nocturnal habit. Keeps in party or in small family parties. Neighborhood of cultivations and human habitation; mango tops, groves and ruins. Semi-desert areas, avoids heavy forest.

Food : Mostly beetles, locusts and other insects, also earthworms, small birds, lizards, rats and mice.

Breeding Season : From November to March.

87. *Ninox scutulata* (Raffles, 1822)**Brown Hawk-Owl**

1969. *Ninox scutulata* : Ali & Ripley, H. B. No. 644, Vol. 3 : 295.

Status and Distribution : Resident. Southern India from about the latitude of Mumbai (19°N.) through Maharashtra, Goa, Karnataka, western Tamil Nadu and Kerala.

Locality : Forest near Bhimashankar Temple.

Habits and Habitat : Crepuscular and nocturnal. Keeps singly or in pairs. Affects forest well-wooded country.

Food : Large insects such as beetles and grasshoppers; frogs, lizards, small birds, mice and occasionally small bats.

Breeding Season : From January to May.

Order CAPRIMULGIFORMES

Family CAPRIMULGIDAE

88. *Caprimulgus indicus* Latham, 1790

Indian Jungle-Nightjar

1969. *Caprimulgus indicus* : Ali & Ripley, H. B. No. 671, Vol. 4 : 10.

Status and Distribution : Resident and partial local movements. Practically all India south of the Himalayas including Kerala. Absent in W. Rajasthan, Kutch.

Locality : Near Bhimashankar Rest House.

Habits and Habitat : Crepuscular and nocturnal. Roosts in some shady spot during daytime. Affects open scrub, and dry- moist-deciduous jungle; from plains level up to 2300 m in the peninsular and S. Indian hills. Teak plantations and mixed bamboo forest are favourite haunts.

Food : Moths, bugs, beetles, and other winged insects captured in the air.

Breeding Season : February to May, chiefly March and April.

89. *Caprimulgus atripennis* Jerdon, 1845

Jerdon's Nightjar

1969. *Caprimulgus atripennis* : Ali & Ripley, H. B. No. 676, Vol. 4 : 18.

Status and Distribution : Resident. Peninsular India (S. Maharashtra, Andhra, Karnataka, Tamil Nadu, Kerala) roughly south of latitude 18°N.

Locality : Bhimashankar Rest House, Nigdale.

Habits and Habitat : Crepuscular and nocturnal. Normally keeps singly or in pairs. Affects evergreen and moist-deciduous biotope-partial to shady nallahs in mixed bamboo forest and secondary scrub jungle; chiefly foothills and up to 2000 m.

Food : Moths, beetles, and other dusk- and night-flying insects.

Breeding Season : Overall March to July; mainly March and April.

90. *Caprimulgus affinis* Horsfield, 1821**Savana Nightjar**

1970. *Caprimulgus affinis* : Ali & Ripley, H. B. No. 682, Vol. 4 : 23.

Status and Distribution : Mainly resident. The submontane Himalayas, North-east India, south through Rajasthan, Kutch, Saurashtra and Gujarat and southward throughout the peninsula and Kerala.

Locality : Foothill area of Bhimashankar sanctuary.

Habits and Habitat : Crepuscular and nocturnal. Generally in pairs or in loose flocks. Affects bare, sparsely scrubbed hillsides cut up by nallahs. Also light deciduous forest and grassland with outcrops of sheet rock here and there, and thin jungle in the neighbourhood of cultivation.

Food : Insects, water-beetles, crickets.

Breeding Season : Overall March to August, varying locally.

Order APODIFORMES

Family APODIDAE

91. *Tachymarptis melba* (Linnaeus, 1758)**Alpine Swift**

1970. *Tachymarptis melba* : Ali & Ripley, H. B. No. 694, Vol. 4 : 40.

Status and Distribution : Resident, but subject to seasonal local movements (during the monsoon) in addition to very extensive and wide-ranging daily foraging peregrinations. From 2200 m up in the Himalayas west to east, southward through the peninsula to Rameswaram and Kanyakumari.

Locality : Bhorgiri-Bhimashankar Temple belt.

Habits and Habitat : Keeps in loose flocks or rabbles on the wing all day. Chiefly based on hilly country with crags and precipices and old forts.

Food : Largely flies (Diptera), ants (Hymenoptera), beetles (Coleoptera) and bugs (Hemiptera)-all taken on the wing.

Breeding Season : In the Himalayas evidently May-June; in South December to February.

92. *Apus affinis* (J.E. Gray, 1830)**Little Swift**

1970. *Apus affinis* : Ali & Ripley, H. B. No. 703, Vol. 4 : 51.

Status and Distribution : Resident and quite common and shows local movements in some areas. Practically all over India from Punjab to West Bengal, south through the entire peninsula except Kerala. Plains and hills up to 2000 m in Himalayas and peninsular hills.

Locality : Adivare, Kondhval.

Habits and Habitat : Predominantly aerial, parochial and gregarious in habit. Generally in neighborhood of urban habitations, old forts, buildings, ruins and cliffs.

Food : Insects like bugs, beetles, winged ants, air-borne spiders, etc.

Breeding Season : Practically all year except coldest month.

Family HEMIPROCNIDAE

93. *Hemiprocne coronata* (Tickell, 1833)**Crested Tree-Swift**

1970. *Hemiprocne coronata* : Ali & Ripley, H. B. No. 709, Vol. 4 : 58.

Status and Distribution : Resident and subject to some seasonal local movements. All along the base of the Outer Himalayas (up to 1000 m) and throughout the Indian Union except the more treeless parts of Punjab, Rajasthan, and Gujarat (Kutch).

Locality : Adivare, on way to Ahupe.

Habits and Habitat : Keeps in loose parties of 6 to 8, occasionally larger flocks. Predominantly aerial, parochial and gregarious in habit. Affects well-wooded areas of deciduous forest- preferably in broken foothills country.

Food : Flying insects – Hemiptera, Coleoptera, etc.

Breeding Season : December to July, varying locally. Chiefly January to March/April in the peninsula.

Order CORACIIFORMES

Family ALCEDINIDAE

94. *Alcedo atthis* (Linnaeus, 1758)**Common Kingfisher**

1970. *Alcedo atthis* : Ali & Ripley, H. B. No. 724, Vol. 4 : 76.

Status and Distribution : Resident, common. Throughout the India.

Locality : Bhatti nalla, Kondhval nalla and Bhima river near Bhorgiri.

Habits and Habitat : Usually seen singly or in pairs. Streams, rivers, canals, ditches, ponds and lakes in open country; also mangrove swamps and the seashore in winter.

Food : Mainly small fish, tadpoles and invertebrates.

Breeding Season : From March to June.

95. *Halcyon smyrnensis* (Linnaeus, 1758)

White-throated Kingfisher

1970. *Halcyon smyrnensis* : Ali & Ripley, H. B. No. 736, Vol. 4 : 90.

Status and Distribution : Resident with local movements. Throughout India.

Locality : Bhorgiri nalla, Bhatti nalla.

Habits and Habitat : Keeps singly or in separated pairs. Wide-ranging-cultivation, wet paddy fields, forest-edge, gardens, dry deciduous forest, streams, rivers, pools, canals, village tanks, and coast.

Food : Largely insects-grasshoppers and other insects, fish, tadpoles, and lizards.

Breeding Season : From January to August.

Family MEROPIDAE

96. *Merops orientalis* Latham, 1801

Little Green Bee-eater

1970. *Merops orientalis* : Ali & Ripley, H. B. No. 750, Vol. 4 : 109.

Status and Distribution : Resident with marked seasonal local movements. Throughout India.

Locality : Between Pimpargane and Ahupe, Bhorgiri and Kondhval.

Habits and Habitat : Keeps in loose parties and flocks of 15 to 20 or more. Communal roosts in leafy trees or bamboo clumps. Open country with scattered trees, cultivation; on coasts, favours sandy areas above high-water mark; also semi-desert and grazing land.

Food : Mainly Hymenoptera-ants, bees and wasps; also moths, butterflies, small beetles, dragonflies, termites.

Breeding Season : Overall February to June, varying locally.

97. *Merops philippinus* Linnaeus, 1766**Blue-tailed Bee-eater**

1970. *Merops philippinus* : Ali & Ripley, H. B. No. 748, Vol. 4 : 106.

Status and Distribution : Resident and locally migratory. Northern India through Uttar Pradesh, Bihar, Bengal and Assam; patchily throughout the peninsula south to Karnataka.

Locality : Rivers of Bhimashankar valleys.

Habits and Habitat : Keeps in pairs or in loose small flocks. Affects more wooded, less arid country and keeps to the neighbourhood of water-jheels, tanks, streams, coastal backwaters, etc.

Food : Winged insects, mainly dragonflies, wasps and bees.

Breeding Season : March to June, principally April and May.

Family CORACIIDAE

98. *Coracias garrulus* Linnaeus, 1758**European Roller**

1970. *Coracias garrulus* : Ali & Ripley, H. B. No. 754, Vol. 4 : 114.

Status and Distribution : Straggler winter visitor. Rajasthan, northern Gujarat. Occasionally straggling as far east as Seoni dist. in Madhya Pradesh and south through Maharashtra (Dhulia, Khandala, Mumbai) to Karnataka (Karwar, 14°50'N.).

Locality : Kondhval.

Habits and Habitat : Met with singly or in pairs. Affects lightly wooded and cultivated areas.

Food : Beetles, mole crickets, grasshoppers and other large insects taken on the ground; occasionally in the air. Also lizards and frogs.

Breeding Season : Chiefly May to July.

99. *Coracias benghalensis* (Linnaeus, 1758)**Indian Roller**

1970. *Coracias benghalensis* : Ali & Ripley, H. B. No. 756, Vol. 4 : 118.

Status and Distribution : Resident with seasonal local movements. Indian peninsula south of 20°N latitude.

Locality : Kondhval, Nigdale village and Bhorgiri.

Habits and Habitat : Keeps singly or in pairs. Has a very noisy and spectacular display during breeding season. Open cultivation, gardens, groves of mango and other trees near villages; also light deciduous forest.

Food : Mainly insects.

Breeding Season : In south India January to March/April.

Family UPUPIDAE

100. *Upupa epops* Linnaeus, 1758

Common Hoopoe

1970. *Upupa epops* : Ali & Ripley, H. B. No. 765, Vol. 4 : 128.

Status and Distribution : Winter visitor and partly resident. Throughout India.

Locality : Eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Keeps singly or in pairs; in loose parties of 8 to 25 or more during migration. Open country, light forest in deciduous biotope, cultivation and villages: plains and hills to 1700 m.

Food : Insects.

Breeding Season : Extralimital and from April to June in Himalayas January to March in the south.

Family BUCEROTIDAE

101. *Ocyrceros griseus* (Latham, 1790)

Malabar Grey-Hornbill

1970. *Ocyrceros griseus* : Ali & Ripley, H. B. No. 768, Vol. 4 : 132.

Status and Distribution : Resident. Confined to the heavy rainfall Western Ghats or Sahyadri strip from about Mumbai and Khandala south through the southern Maharashtra, Goa, western Karnataka, western Tamil Nadu and Kerala.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps in pairs or small flocks of 6 to 20 or more birds. Affects rather open evergreen and moist-deciduous forest especially where abounding in *Ficus* trees.

Food : *Ficus* figs, drupes and berries; also insects, lizards and other small animals.

Breeding Season : January to early April, chiefly February-March.

102. *Ocyrceros birostris* (Scopoli, 1786)**Indian Grey-Hornbill**

1970. *Tockus birostris* : Ali & Ripley, H. B. No. 767, Vol. 4 : 130.

2001. *Ocyrceros birostris* : Manakadan & Pittie, *Buceros*, Vol. 6, (No.1) : 11.

Status and Distribution : Resident with local movements. Widespread in India and locally common up to 1000 m.

Locality : Kondhval-Nigdale belt.

Habits and Habitat : Largely arboreal. Keeps in pairs or small parties of 5 or 6 birds. Open deciduous forest, groves, cultivation, gardens, roadside avenues and orchards.

Food : Largely fruits-wild figs, berries, flower petals, insects, lizards and young mice.

Breeding Season : From March to June.

Order PICIFORMES

Family CAPITONIDAE

103. *Megalaima zeylanica* (Gmelin, 1788)**Brown-headed Barbet**

1970. *Megalaima zeylanica* : Ali & Ripley, H. B. No. 781, Vol. 4 : 152.

Status and Distribution : Resident. Western India from about Godavari river in Maharashtra south through Goa to Karnataka.

Locality : Bhimashankar Temple area, Hanuman Tale and Ahupe.

Habits and Habitat : Arboreal and eminently frugivorous. Keeps singly or in small loose feeding parties. Well-wooded moist and dry deciduous trees, especially fig; open forest, groves near habitation and gardens.

Food : Fruits-figs, drupes and berries, flower petals and nectar, also flying insects.

Breeding Season : From March to May.

104. *Megalaima viridis* (Boddaert, 1783)**White-cheeked Barbet**

1970. *Megalaima viridis* : Ali & Ripley, H. B. No. 785, Vol. 4 : 155.

Status and Distribution : Resident. The Sahyadri or Western Ghats complex from Kerala northward to about the Narmada river (Northern Maharashtra); extends east in southern peninsular India.

Locality : Bhimashankar forest.

Habits and Habitat : Arboreal and eminently frugivorous. Keeps singly or in pairs and parties of a dozen. Well-wooded evergreen and moist deciduous biotope; also gardens and groves in the neighbourhood of towns, villages and cultivation.

Food : Fruits-figs, drupes and berries; also flower nectar and flying insects.

Breeding Season : Overall December to June; principally between December and March in the southern part of its range.

105. *Megalaima haemacephala* (P.L.S. Muller, 1776)

Coppersmith Barbet

1970. *Megalaima haemacephala* : Ali & Ripley, H. B. No. 792, Vol. 4 : 163.

Status and Distribution : Resident. Throughout the Indian Union.

Locality : Kondhval, Bhorgiri, Nigdale and Sidgad.

Habits and Habitat : Arboreal and eminently frugivorous. Keeps singly or in pairs and parties of a dozen. Lightly wooded countryside, roadside avenues and groves of *ficus* trees near villages and cultivation, and in urban gardens and compounds.

Food : Fruits-figs, drupes and berries, also flying insects.

Breeding Season : Overall November to June, mainly February to April.

Family PICIDAE

106. *Dendrocopos nanus* (Vigors, 1832)

Indian Pygmy Woodpecker

1970. *Dendrocopos nanus* : Ali & Ripley, H. B. No. 852, Vol. 4 : 231.

Status and Distribution : Resident. All over peninsular India.

Locality : Eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Usually keeps in pairs. Affects light deciduous and bamboo forest, secondary jungle, and groves of trees in and around cultivation; plains and foothills up to 1200 m.

Food : Chiefly insects and grubs.

Breeding Season : From February to July, chiefly March and April, varying locally.

107. *Dendrocopos mahrattensis* (Latham, 1801)**Yellow-fronted Pied Woodpecker**

1970. *Picoides mahrattensis* : Ali & Ripley, H. B. No. 847, Vol. 4 : 226.

2001. *Dendrocopos mahrattensis* : Manakadan & Pittie, *Buceros*, Vol. 6, (No. 1) : 12.

Status and Distribution : Resident. Throughout India along Himalayas and southward through the peninsula.

Locality : Bhimashankar Temple, Ahupe.

Habits and Habitat : Keeps in pairs, family parties of 3 or 4 birds. Affects all types of lightly wooded country from arid semi-desert to moist-deciduous biotope; plains, foothills, and up to 1300 m.

Food : Insects and grubs.

Breeding Season : From February to May.

108. *Micropterus brachyurus* (Vieillot, 1818)**Rufous Woodpecker**

1970. *Celeus brachyurus* : Ali & Ripley, H. B. No. 804, Vol. 4 : 179.

2005. *Micropterus brachyurus* : Rasmussen & Anderton, Vol. 2 : 285.

Status and Distribution : Resident. From about the Tapti river in Gujarat south through western Maharashtra, Karnataka, western Tamil Nadu and Kerala.

Locality : Bhimashankar-Kondhval belt.

Habits and Habitat : Keeps in pairs. Affects secondary jungle mixed with bamboo, in moist-deciduous biotope.

Food : Mainly ants and their pupae; also fruits, especially wild figs, and flower nectar.

Breeding Season : Principally February to end April.

109. *Dinopium benghalense* (Linnaeus, 1758)**Black-rumped Flameback**

1970. *Dinopium benghalense* : Ali & Ripley, H. B. No. 820, Vol. 4 : 199.

Status and Distribution : Resident. Peninsular India south of Tapti river (excluding Kerala).

Locality : Sakarmachiwadi, Bhimashankar and Borwadi.

Habits and Habitat : Keeps in pairs or family parties. Affects dry- and moist-deciduous biotope, plains and hills up to 1200 m. Light forest, roadside avenues, plantations and groves of mango topes around villages and cultivation, wooded urban gardens and compounds, coconut, date and palm groves, etc.

Food : Insects and larvae, mainly ants; also fruits, berries and flower nectar.

Breeding Season : Chiefly March-April.

110. *Chrysocolaptes festivus* (Boddaert, 1783)

White-naped Woodpecker

1970. *Chrysocolaptes festivus* : Ali & Ripley, H. B. No. 858, Vol. 4 : 239.

Status and Distribution : Resident. Practically all the peninsular India with the exception of western Rajasthan, Kutch and most of Saurashtra in the west, and Assam in the east.

Locality : Foothills of Bhimashankar valleys on eastern slopes.

Habits and Habitat : Keeps singly or in pairs-sometimes trios. Affects deciduous forest-low country and foothills with scrub and scattered trees.

Food : Chiefly ants and grubs of wood-boring beetles.

Breeding Season : Overall November to March, varying locally.

111. *Hemicircus canente* (Lesson, 1830)

Heart-Spotted Woodpecker

1970. *Hemicircus canente* : Ali & Ripley, H. B. No. 856, Vol. 4 : 236.

Status and Distribution : Resident. The Western Ghats complex from Kerala northward through Karnataka, Goa and Maharashtra to the Tapti river. Then eastward to Madhya Pradesh, Orissa, W. Bengal, Assam south of Brahmaputra river, and Manipur; plains, foothills and up to 1300 m.

Locality : Kondhval-Nigdale forest belt.

Habits and Habitat : Keeps singly or in pairs. Affects moist-deciduous and secondary evergreen forest biotope. Partial to teak and bamboo jungle, and to shady trees. In South Indian coffee plantations.

Food : Ants, termites, grubs, and other insects.

Breeding Season : Chiefly November to April.

Order PASSERIFORMES

Family PITTIDAE

112. *Pitta brachyura* (Linnaeus, 1766)**Indian Pitta**

1970. *Pitta brachyura* : Ali & Ripley, H. B. No. 867, Vol. 4 : 252.

Status and Distribution : Resident, with far-ranging seasonal migratory and dispersal movements. Practically the entire subcontinent including Assam, Manipur, from the sub-Himalayas to Kanyakumari (excluding more arid parts of Rajasthan).

Locality : Valleys on eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Mainly terrestrial, but roosts in low trees. Affects scrub jungle, semi-cultivation and patches of light deciduous and evergreen forest.

Food : Insects, grubs and worms.

Breeding Season : From May to August.

Family ALAUDIDAE

113. *Eremopterix grisea* (Scopoli, 1786)**Ashy-Crowned Finch-Lark**

1972. *Eremopterix grisea* : Ali & Ripley, H. B. No. 878, Vol. 5 : 9.

Status and Distribution : Resident with local seasonal movements in monsoon. Widespread throughout India but apparently absent from Himalayas.

Locality : Kondhval-Bhorgiri belt.

Habits and Habitat : Keeps in pairs or small parties, in winter sometimes in large scattered flocks. Uncultivated tracts with scattered thorn bushes and grass clumps, cultivation, fallow and ploughed fields around villages, stony scrub and dry tidal mudflats.

Food : Grass and weed seeds, and insects.

Breeding Season : Almost whole year, chiefly February to September in the peninsula.

114. *Ammomanes phoenicura* (Franklin, 1831)**Rufous-tailed Lark**

1972. *Ammomanes phoenicurus* : Ali & Ripley, H. B. No. 882, Vol. 5 : 14.

Status and Distribution : Resident with local seasonal movements in monsoon. The greater part of peninsular and continental India, north to the Ganga river and south to a line from Hugli through Bellary (parallel to 15°N latitude).

Locality : Between Pimpargane and Ahupe.

Habits and Habitat : Keeps in pairs (very often trios) or small loose parties- sometimes in larger flocks of up to 50 or more. Open, stony scrub and bush country, fallow land, ploughed fields and the neighbourhood of cultivation.

Food : Seeds, grains and insects.

Breeding Season : From February to May.

115. *Galerida malabarica* (Scopoli, 1786)

Malabar Crested Lark

1972. *Galerida malabarica* : Ali & Ripley, H. B. No. 901, Vol. 5 : 39.

Status and Distribution : Resident apparently with some seasonal local movements. Western peninsular India from 23°N. in Gujarat, southward through western Maharashtra, western Karnataka, western Tamil Nadu, and Kerala; plains and hills up to 2000 m.

Locality : Ahupe Talav, Kondhval village road.

Habits and Habitat : Keeps in pairs or small scattered flocks. Affects open sparse scrub jungle, forest clearings, cultivation environs, grass-covered stony hill slopes with sheet-rock outcrops, etc. in dry and moist-deciduous biotope.

Food : Weed seeds, paddy grains and insects.

Breeding Season : Varying with locality, practically all the year.

116. *Galerida deva* (Sykes, 1832)

Sykes's Lark

1972. *Galerida deva* : Ali & Ripley, H. B. No. 902, Vol. 5 : 40.

Status and Distribution : Resident with some seasonal local movements. Eastern Rajasthan, northern Gujarat and Kutch, east through the Gangetic plain to 82°E. longitude and south through the peninsula, chiefly the central plateau to southern Karnataka; plains and hills to 1000 m.

Locality : Bhorgiri-Vellvali belt.

Habits and Habitat : Keeps in pairs or small-scattered flocks. Affects stony, sparsely scrubbed ghat and plateau country, dry cultivation, etc. usually dark coloured soils.

Food : Weed seeds and insects.

Breeding Season : Overall March to September.

117. *Alauda gulgula* Franklin, 1831**Oriental Skylark**

1972. *Alauda gulgula* : Ali & Ripley, H. B. No. 907, Vol. 5 : 46.

Status and Distribution : Resident with local seasonal movements. Peninsular India from northern Maharashtra (20°N.), east through Orissa, Bihar, W. Bengal to Assam.

Locality : Kondhval, Bhorgiri-Vellvali belt.

Habits and Habitat : Keeps in twos and threes or small scattered parties. Grassland on the edge of jheels and tanks, wheat cultivation and ground crops, stretches of grass bordering salt pans and tidal mudflats, even playing fields in urban localities.

Food : Weed seeds, tiny root bulbs and insects.

Breeding Season : From March to August.

Family HIRUNDINIDAE

118. *Ptyonoprogne rupestris* Scopoli, 1796**Eurasian Crag-Martin**

1972. *Hirundo rupestris* : Ali & Ripley, H. B. No. 913, Vol. 5 : 53.

2005. *Ptyonoprogne rupestris* : Rasmussen & Anderton, Vol. 2 : 311.

Status and Distribution : Wintering. Breeding in the Himalayas and winters throughout the hilly portions of the Indian subregion (Western Ghats, Satpuras, Nilgiris, Palnis and other peninsular hills) south to Karnataka and Tamil Nadu.

Locality : Eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Keeps in loose parties. Affects grassy hills with crags and precipices; ancient hill-forts.

Food : Dipterous insects, small flying beetles, etc.

Breeding Season : April to June; at the highest elevations.

119. *Ptyonoprogne concolor* Sykes, 1833**Dusky Crag-Martin**

1972. *Hirundo concolor* : Ali & Ripley, H. B. No. 914, Vol. 5 : 55.

2005. *Ptyonoprogne concolor* : Rasmussen & Anderton, Vol. 2 : 311.

Status and Distribution : Resident with local movements. Along the base of Himalayas and southward through the entire peninsula; plains and hills up to 1800 m.

Locality : Ahupe, Peushiwadi-Badvan area.

Habits and Habitat : Usually seen in pairs or small parties. Affects neighbourhood of rocky hills with crags and ancient fortifications; old buildings of stone, even in the midst of noisy populous cities.

Food : Dipterous insects, small flying beetles, etc.

Breeding Season : More or less the entire year.

120. *Hirundo rustica* Linnaeus, 1758

Barn Swallow

1972. *Hirundo rustica* : Ali & Ripley, H. B. No. 917, Vol. 5 : 57.

Status and Distribution : Winter visitor. Winters, throughout Indian union.

Locality : Banks of Bhima and Ghod rivers.

Habits and Habitat : Highly gregarious in winter. Cultivation, towns, villages, lakes and rivers in open country; usually near water in winter.

Food : Chiefly midges, gnats and other dipterous insects.

Breeding Season : Extralimital and also, chiefly mid April to end May in Kashmir, Himachal Pradesh and Garhwal Himalayas.

121. *Hirundo smithii* Leach, 1818

Wire-tailed Swallow

1972. *Hirundo smithii* : Ali & Ripley, H. B. No. 921, Vol. 5 : 63.

Status and Distribution : Resident with local movements. Widespread in peninsular India.

Locality : Bhorgiri-Nigdale belt.

Habits and Habitat : Highly gregarious in winter. Open country, cultivation and habitations near lakes, rivers and canals; also wet paddy fields in summer.

Food : Mainly flying insects including Diptera.

Breeding Season : From March to September.

122. *Hirundo daurica* Linnaeus, 1771

Red-rumped Swallow

1972. *Hirundo daurica* : Ali & Ripley, H. B. No. 927, Vol. 5 : 70.

Status and Distribution : Resident with seasonal local movements. Throughout much of the Indian subcontinent. Also wintering population.

Locality : Eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Much less gregarious. Keeps in pairs, family parties or small flocks. Summer in upland cultivation and grassy hills, winters in open country and clearings in light deciduous forest, near archaeological ruins and rocky hills.

Food : Mainly flying insects.

Breeding Season : From April to August.

123. *Hirundo fluvicola* Blyth, 1855

Streak-throated Swallow

1972. *Hirundo fluvicola* : Ali & Ripley, H. B. No. 922, Vol. 5 : 64.

Status and Distribution : Status unclear; winter visitor in NW India. Elsewhere resident common in the Gangetic plain, Rajasthan, Saurashtra (breeding in Jamnagar) and Kutch. Eastward along the lower Himalayas up to 700 m. to Uttar Pradesh; and southward through the peninsula to 11°N (Coimbatore).

Locality : Eastern foothills of Bhimashankar sanctuary.

Habits and Habitat : Highly gregarious. Keeps in large rabbles, hawking midges etc. close to water. Affects open country and cultivation in the vicinity of water- rivers, canals, moats, reservoirs, etc.

Food : Midges, gnats and other dipterous insects.

Breeding Season : Practically all year.

Family MOTACILLIDAE

124. *Dendronanthus indicus* (Gmelin, 1789)

Forest Wagtail

1973. *Dendronanthus indicus* : Ali & Ripley, H. B. No. 1874, Vol. 9 : 273.

Status and Distribution : Winter visitor. Southwestern India from Mahabaleshwar south through Goa, western Karnataka, Kerala and western Tamil Nadu.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps singly, in loose pairs or small parties. Affects evergreen and deciduous forest.

Food : Ants and other insects; spiders.

Breeding Season : Extralimital.

125. *Motacilla alba* Linnaeus, 1758

White Wagtail

1973. *Motacilla alba* : Ali & Ripley, H. B. No. 1885, Vol. 9 : 288.

Status and Distribution : Winter visitor. Throughout peninsular India.

Locality : Ahupe Talav, banks of Bhima and Ghod rivers.

Habits and Habitat : Keeps singly, in pairs or in small loose flocks. Large numbers gather in the evenings to roost in red-beds, sugarcane or leafy trees. Summers by streams and rivers; winters near marshes, canals, lakes and rivers.

Food : Mainly insects.

Breeding Season : Extralimital.

126. *Motacilla maderaspatensis* Gmelin, 1789

White-browed Wagtail

1973. *Motacilla maderaspatensis* : Ali & Ripley, H. B. No. 1891, Vol. 9 : 296.

Status and Distribution : Resident. Throughout peninsular India, from Himalayan foothills south through Kutch to Kanyakumari.

Locality : Banks of Bhima, Ghod and Goneri rivers.

Habits and Habitat : Usually in pairs. Gather in flocks to roost in reeds or trees. Banks of rivers, pools, lakes, canals and around irrigation barrages.

Food : Mainly insects.

Breeding Season : From December to June in the peninsula.

127. *Motacilla flava* Linnaeus, 1758

Western Yellow Wagtail

1973. *Motacilla flava* : Ali & Ripley, H. B. No. 1875, Vol. 9 : 276.

Status and Distribution : Winter visitor. India from the Gangetic plains south through Kutch to Kanyakumari.

Locality : Grassy patches of Bhima river, Ahupe Talav.

Habits and Habitat : Keeps in small loose flocks. Affects pastures and moist grassy ground along riversides and on jheel margins.

Food : Mainly insects.

Breeding Season : Extralimital.

128. *Motacilla cinerea* Tunstall, 1771

Grey Wagtail

1973. *Motacilla cinerea* : Ali & Ripley, H. B. No. 1884, Vol. 9 : 285.

Status and Distribution : Winter visitor. Winters from Himalayan foothills to south throughout the Indian peninsula.

Locality : Ahupe Talav, bank of Bhima river.

Habits and Habitat : Keeps singly at all seasons, but in winter gather to roost in trees. Affects placid rocky streams and trickles in the plains and foothills. Rock pools in dry stony river beds.

Food : Chiefly insects.

Breeding Season : Extralimital.

129. *Anthus rufulus* Vieillot, 1818

Paddyfield Pipit

1973. *Anthus rufulus* : Ali & Ripley, H. B. No. 1859, Vol. 9 : 253.

Status and Distribution : Resident with local movements. Eastern and peninsular India.

Locality : Kondhval-Nigdale belt.

Habits and Habitat : Keeps in pairs or small loose flocks. Affects open grass and stony country, fallow fields, low dry crops, edges of cultivation, roadsides, village grazing grounds.

Food : Beetles and other insects and larvae.

Breeding Season : From November to June.

130. *Anthus similis* Jerdon, 1840

Long-billed Pipit

1973. *Anthus similis* : Ali & Ripley, H. B. No. 1868, Vol. 9 : 266.

Status and Distribution : Uncommon Resident. The Western Ghats in the SW Karnataka; also known to breed near Pune and possibly Jalna in Maharashtra.

Locality : Eastern hillslopes of Bhimashankar.

Habits and Habitat : Keeps singly or in pairs. Affects grassy hillsides with boulder and sheet rock outcrops and stubble fields etc. from 1000 m. up to the highest plateaux.

Food : Insects and berries.

Breeding Season : April to August.

131. *Anthus hodgsoni* Richmond, 1907

Olive-backed Pipit

1973. *Anthus hodgsoni* : Ali & Ripley, H. B. No. 1852, Vol. 9 : 243.

Status and Distribution : Winter visitor. The entire peninsular India from Himalayan foothills.

Locality : Eastern hillslopes of Bhimashankar sanctuary.

Habits and Habitat : Keeps singly, in pairs or in loose flocks in winter. Affects grass and bracken-covered slopes, rocky ground and glades in open forest. Abandoned cultivation and scrub with isolated trees. In winter common in coffee and cardamom plantations, evergreen woodland or in the lowlands.

Food : Insects and their larvae, grass- and weed seeds and other vegetable matter.

Breeding Season : Extralimital.

Family CAMPEPHAGIDAE

132. *Coracina macei* (Lesson, 1830)

Large Cuckoo-Shrike

1971. *Coracina novaehollandiae macei* : Ali & Ripley, H. B. No. 1072, Vol. 6 : 14.

2001. *Coracina macei* : Manakadan & Pittie, *Buceros*, Vol. 6, (No.1) : 14.

Status and Distribution : Resident with local movements in breeding season. Throughout peninsular India except northwest of a line from Kutch to Kumaon.

Locality : Kondhval-Nigdale-Vellavali belt.

Habits and Habitat : Keeps in pairs or loose parties. Woodland, secondary forest, scrub, gardens, and groves.

Food : Insects, berries, and wild figs.

Breeding Season : From January to October.

133. *Coracina melanoptera* (Rüppell, 1839)**Black-headed Cuckoo-Shrike**

1971. *Coracina melanoptera* : Ali & Ripley, H. B. No. 1079, Vol. 6 : 22.

Status and Distribution : Resident with local movements in breeding season. Entire Indian peninsula. NE India south of Brahmaputra.

Locality : Kondhval, Nigdale areas.

Habits and Habitat : Keeps singly, in pairs or small parties. Woodland, affects secondary jungle, open light deciduous or mixed forest, thick hedges, fruit gardens, mango groves, young date scrub, mangroves.

Food : Chiefly insects; also berries.

Breeding Season : April-May in the southern peninsula, June to August in the Deccan, and June to September in the north.

134. *Pericrocotus cinnamomeus* (Linnaeus, 1766)**Small Minivet**

1971. *Pericrocotus cinnamomeus* : Ali & Ripley, H. B. No. 1093, Vol. 6 : 42.

Status and Distribution : Resident. From Saurashtra (Gujarat), southern Rajasthan, Madhya Pradesh and southern Orissa south through the peninsula to Tamil Nadu.

Locality : Eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Purely arboreal, keeps in small flocks of 8 to 10. Affects deciduous forest, open scrub, groves of trees in cultivation, etc.

Food : Moths, caterpillars and other insects.

Breeding Season : In the peninsula overall February-March to August-September locally variable.

135. *Pericrocotus erythropygius* (Jerdon, 1840)**White-bellied Minivet**

1971. *Pericrocotus erythropygius* : Ali & Ripley, H. B. No. 1096, Vol. 6 : 45.

Status and Distribution : Resident. In peninsular India southeast of a line from Ambala, Jodhpur and Kutch, south and east to Belgaum, Hyderabad, the Chota Nagpur plateau, west Zharkhand and southeast Uttar Pradesh.

Locality : Eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Less arboreal than other minivets. Keeps in small parties of 6 to 8 birds. Affects babool, *Prosopis* and *Butea* jungle in broken stony country; also semi-desert facies and open grassy forest in the drier regions.

Food : Insects and spiders.

Breeding Season : June to October, chiefly between July and September.

136. *Pericrocotus flammeus* (Forster, 1781)

Orange Minivet

1971. *Pericrocotus flammeus* : Ali & Ripley, H. B. No. 1081, Vol. 6 : 27.

Status and Distribution : Resident. From about the Tapti river in Gujarat south through Maharashtra, Karnataka and western Tamil Nadu to Kerala.

Locality : Forest of Bhimashankar Temple-Hanuman Tale, Ahupe.

Habits and Habitat : Arboreal. In flocks of up to 20 or more birds, usually in mixed hunting parties. Affects deciduous, mixed and evergreen forest.

Food : Caterpillars, green crickets, cicadas and other insects.

Breeding Season : In Maharashtra July-August, in Karnataka from June to September.

137. *Tephrodornis pondicerianus* (Gmelin, 1789)

Common Woodshrike

1971. *Tephrodornis pondicerianus* : Ali & Ripley, H. B. No. 1070, Vol. 6 : 11.

Status and Distribution : Resident. Throughout India except parts of the northwest.

Locality : Kondhval, Bhatti nallas and Sidgad.

Habits and Habitat : Keeps in pairs or small parties of 5 or 6 birds. Lightly wooded country, secondary growth, avenues along side canals and roads, gardens and forest plantations.

Food : Insects and caterpillars.

Breeding Season : From March to July.

Family MONARCHIDAE

138. *Terpsiphone paradisi* (Linnaeus, 1758)

Asian Paradise Flycatcher

1972. *Terpsiphone paradisi* : Ali & Ripley, H. B. No. 1461, Vol. 7 : 218.

Status and Distribution : Resident/Wintering in northern part. Indian peninsula from Kathiawar, western Rajasthan, Madhya Pradesh to southern peninsula to Kerala.

Locality : Ahupe and Kondhval, sacred groves of Bhimashankar sanctuary.

Habits and Habitat : Usually seen in pairs or mixed hunting parties. Affects well-watered and shady forest, bamboo clad nallahs, plantations and village groves, gardens and scrub.

Food : Winged insects.

Breeding Season : From March to August, chiefly May and June.

139. *Hypothymis azurea* (Boddaert, 1783)

Black-naped Monarch Flycatcher

1972. *Hypothymis azurea* : Ali & Ripley, H. B. No. 1465, Vol. 7 : 223.

Status and Distribution : Resident subject to local movements. India south and east of a line from the Gulf of Kutch to Gorakhpur (eastern Uttar Pradesh), south to Kerala and Tamil Nadu.

Locality : Bhimashankar Forest.

Habits and Habitat : Found singly or in pairs. Affects well-wooded country, evergreen or mixed deciduous forest, secondary jungle, cultivation, coffee, cardamom and teak plantations; partial to bamboo facies.

Food : Winged insects.

Breeding Season : From March to August.

Family RHIPIDURIDAE

140. *Rhipidura albogularis* (Lesson, 1832)

White-spotted Fantail

1972. *Rhipidura albogularis* : Ali & Ripley, H. B. No. 1458, Vol. 7 : 214.

Status and Distribution : Resident with local movements. The Indian peninsula from Mt. Abu and the Vindhya Range southward to Kerala-coastal plain, central plateau, Western and eastern Ghats and their associated hills.

Locality : Kondhval-Nigdale belt, Borwadi and Ahupe.

Habits and Habitat : Keeps singly or in pairs. Affects well-wooded areas-secondary jungle, groves and gardens, even in cities.

Food : Insects (gnats, flies, etc.).

Breeding Season : From March to July.

141. *Rhipidura aureola* Lesson, 1830

White-browed Fantail

1972. *Rhipidura aureola* : Ali & Ripley, H. B. No. 1451, Vol. 7 : 207.

Status and Distribution : Resident, subject to local movements in winter. India from the Indus river east along the Himalayan foothills to northern W. Bengal and south through Gujarat, Madhya Pradesh, southwestern and central Maharashtra and eastward to Orissa.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps singly or in pairs or family parties. Affects forest, groves of mango, babool, etc., tamarisks along canals, fallow land.

Food : Insects, chiefly diptera and hemiptera.

Breeding Season : From February to August, chiefly March to June.

Family PYCNONOTIDAE

142. *Pycnonotus jocosus* (Linnaeus, 1758)

Red-whiskered Bulbul

1971. *Pycnonotus jocosus* : Ali & Ripley, H. B. No. 1120, Vol. 6 : 77.

Status and Distribution : Resident. Western India from the Tapti river and Madhya Pradesh, south to Kanyakumari, including Maharashtra, Karnataka, Kerala, western Tamil Nadu and western Andhra Pradesh.

Locality : Between Pimpargane and Ahupe, Bhimashankar Temple, Bhorgiri nalla, etc.

Habits and Habitat : Keeps in pairs or often in loose feeding flocks of 30 or more. Affects open scrub jungle, cultivation and urban gardens, prefers a more humid habitat.

Food : Fruits, berries, figs, flower-buds, nectar, insects and spiders.

Breeding Season : Poorly defined: December to June in the south.

143. *Pycnonotus cafer* (Linnaeus, 1766)

Red-vented Bulbul

1971. *Pycnonotus cafer* : Ali & Ripley, H. B. No. 1128, Vol. 6 : 87.

Status and Distribution : Resident. The southern Indian peninsula north to the Godavari river in the east and to 18°N. latitude in Maharashtra in the west.

Locality : Ahupe, Bhorgiri, Kondhval, Nigdale, Sidgad, Bhimashankar Temple etc.

Habits and Habitat : Keeps in pairs or small parties. Deciduous forest, secondary growth, gardens, roadside avenues and light scrub, human settlements and cultivation.

Food : Fruits, berries, flower nectar and insects.

Breeding Season : Overall February to November; chiefly during the monsoon.

144. *Iole indica* (Jerdon, 1839)

Yellow-browed Bulbul

1971. *Iole indica* : Ali & Ripley, H. B. No. 1143, Vol. 6 : 104.

Status and Distribution : Resident. Western Ghats from the Pune and Satara districts (Khandala, Mahabaleshwar, etc.) south to Belgaum and Goa.

Locality : Bhimashankar-Nigdale belt.

Habits and Habitat : Keeps in pairs or small parties of 6 to 7 birds. Affects secondary jungle, undergrowth of evergreen, edges of thicker jungle, and occasionally gardens.

Food : Almost entirely frugivorous-berries and drupes; also flower nectar, spiders and insects.

Breeding Season : February to May.

145. *Hypsipetes ganeesa* Sykes, 1832

Square-tailed Black Bulbul

1971. *Hypsipetes ganeesa* : Ali & Ripley, H. B. No. 1149, Vol. 6 : 112.

Status and Distribution : Resident but local movements in the non-breeding season. Western Ghats from Matheran in Maharashtra, south through western Karnataka, hills of Kerala and Western Tamil Nadu.

Locality : Bhimashankar forest on western side.

Habits and Habitat : Arboreal, keeps in parties of 6 to 10 birds or in mixed hunting parties. Affects evergreen forest, especially shoals, and eucalyptus or other shade-trees in tea, coffee and cardamom estates.

Food : Chiefly fruits and berries; also flower nectar and insects.

Breeding Season : March to June.

Family AEGITHINIDAE

146. *Aegithina tiphia* (Linnaeus, 1758)**Common Iora**

1971. *Aegithina tiphia* : Ali & Ripley, H. B. No. 1100, Vol. 6 : 52.

Status and Distribution : Resident. The Indian peninsula south of 20°N latitude, excluding southern Kerala.

Locality : Ahupe, Kondhval sacred groves.

Habits and Habitat : Keeps in pairs often in the mixed hunting parties. Affects light deciduous forest and semi-cultivation.

Food : Insects and their larvae; spiders.

Breeding Season : From January to August, chiefly April and May.

Family CHLOROPSEIDAE

147. *Chloropsis jerdoni* (Blyth, 1844)**Jerdon's Leafbird**

1971. *Chloropsis jerdoni* : Ali & Ripley, H. B. No. 1107, Vol. 6 : 60.

Status and Distribution : Resident. From the Gulf of Cambay to central Uttar Pradesh, east to West Bengal, south throughout the peninsula.

Locality : Nigdale-Bhorgiri belt, Sidgad.

Habits and Habitat : Arboreal, Keeps singly or in pairs; family parties. Affects secondary scrub jungle, forest edges, groves, and large leafy trees on village outskirts or standing amidst cultivation and grazing land.

Food : Insects-green tree-crickets, red ants, mantises, caterpillars; berries and wild figs; flower nectar.

Breeding Season : Poorly defined; nests have been found every month, mainly between November and May in the south.

148. *Chloropsis aurifrons* (Temminck, 1829)**Gold-fronted Leafbird**

1971. *Chloropsis aurifrons* : Ali & Ripley, H. B. No. 1104, Vol. 6 : 57.

Status and Distribution : Resident. S. Gujarat and Maharashtra from the Tapti river south through Goa, western Karnataka, western Tamil Nadu and the Eastern Ghats in Tamil Nadu and Andhra Pradesh.

Locality : Bhatti nalla, Ahupe and Kondhval sacred groves.

Habits and Habitat : Arboreal, Keeps in pairs or small parties. Affects deciduous and evergreen forest in lightly wooded open country and secondary scrub.

Food : Insects, spiders, berries and flower nectar.

Breeding Season : Overall February to August, chiefly June-July.

Family LANIIDAE

149. *Lanius vittatus* Valenciennes, 1826

Bay-backed Shrike

1972. *Lanius vittatus* : Ali & Ripley, H. B. No. 940, Vol. 5 : 85.

Status and Distribution : Resident with seasonal movements. Mainly from NW India east to W. Bengal and south throughout most of the peninsula.

Locality : Ahupe, Bhorgiri, Taleghar and Kondhval.

Habits and Habitat : Usually seen solitary or in separated pairs. Dry country, open scrub and bushes at the edge of cultivation and *Acacia* groves.

Food : Insects, caterpillars, small reptiles, mammals and birds.

Breeding Season : From February to September.

150. *Lanius schach* Linnaeus, 1758

Long-tailed Shrike

1972. *Lanius schach* : Ali & Ripley, H. B. No. 947, Vol. 5 : 96.

Status and Distribution : Resident with seasonal local movements and also in winters. Throughout much of the peninsular India, extreme south to Saurashtra, Madhya Pradesh and Andhra Pradesh.

Locality : Ahupe, Kondhval.

Habits and Habitat : Pugnacious, bold and rapacious. Keeps singly or in widely separated pairs. Bushes in cultivation, gardens, canal side and roadside tree plantations, orchards, open forest and tall grassland with scattered trees.

Food : Insects, small reptiles, mammals and birds.

Breeding Season : From May-July in Himalayas, March to June in plains.

151. *Lanius meridionalis* Temminck, 1820
Southern Grey Shrike

1972. *Lanius meridionalis* : Ali & Ripley, H. B. No. 933, Vol. 5 : 79.

Status and Distribution : Resident with local movements with winter dispersal. More or less entire peninsular India.

Locality : Bhorgiri village, Nigdale and Taleghar.

Habits and Habitat : Keeps singly or in widely separated pairs. Affects open semi-desert country, sparse scrub jungle, edges of desert cultivation, and thorn and dry-deciduous forest.

Food : Entirely carnivorous – insects : black ants and other Hymenoptera, caterpillars, also lizards, young rodents, and young or sickly birds.

Breeding Season : Overall January to October.

Family TURDIDAE

152. *Zoothera citrina* (Latham, 1790)
Orange-headed Thrush

1973. *Zoothera citrina* : Ali & Ripley, H. B. No. 1734, Vol. 9 : 89.

Status and Distribution : Resident and local movements. Peninsular India from southeastern Gujarat, Madhya Pradesh (Satpura Range), Bihar, Zharkhand and Orissa, south through Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka, Kerala.

Locality : Western slopes of Bhimashankar sanctuary, Borwadi.

Habits and Habitat : Crepuscular, found solitary or in pairs. Affects forest, shady ravines and nallahs, cardamom, coffee plantations, mixed secondary and bamboo jungle, and gardens.

Food : Insects, worms, berries and fruits; rarely leeches.

Breeding Season : May to September, chiefly monsoon.

153. *Turdus simillimus* Jerdon, 1839
Indian Blackbird

1973. *Turdus merula* : Ali & Ripley, H. B. No. 1753, Vol. 9 : 117.

2005. *Turdus simillimus* : Rasmussen & Anderton, Vol. 2 : 364.

Status and Distribution : Resident subject to seasonal altitudinal movements. Southern Rajasthan and eastern Gujarat east in the western Vindhya Range and along Satpuras, and south along the Western Ghats at least to Belgaum.

Locality : Bhimashankar forest, Sidgad.

Habits and Habitat : Found solitary and in pairs. Affects moist-deciduous and evergreen forest, shoals, wooded ravines, broken country, plantations and gardens.

Food : Insects, snails, slugs, earthworms, berries, fruits and flower nectar.

Breeding Season : June to August mainly monsoon.

154. *Myophonus horsfieldii* (Vigors, 1831)

Malabar Whistling-Thrush

1973. *Myophonus horsfieldii* : Ali & Ripley, H. B. No. 1728, Vol. 9 : 77.

Status and Distribution : Resident. Mount Abu, eastern Gujarat, the Surat Dangs, the Satpura Range, east to Chhota Nagpur and extreme northwestern Orissa. The Western Ghats complex from Khandesh south through western Karnataka and Kerala.

Locality : Western slopes of Bhimashankar valley.

Habits and Habitat : Found solitary or in pairs. Affects rocky hill streams in shady evergreen jungle, cardamom ravines, etc.

Food : Insects, snails, slugs, worms, berries, crabs, small frogs, drupes, figs and berries.

Breeding Season : May to September mainly monsoon.

Family MUSCICAPIDAE

Subfamily MUSCICAPINAE

155. *Muscicapa daurica* Pallas, 1811

Asian Brown Flycatcher

1972. *Muscicapa latirostris* : Ali & Ripley, H. B. No. 1407, Vol. 7 : 145.

2001. *Muscicapa daurica* : Manakadan & Pittie. *Buceros*, Vol. 6, (No.1) : 21.

Status and Distribution : Winter visitor and resident (partly). Most of the peninsular India.

Locality : Eastern valleys of Nigdale-Bhimashankar belt.

Habits and Habitat : More crepuscular than other flycatchers. Usually solitary, quite and very unobtrusive. Open, mixed deciduous forest, teak plantations, bamboo jungles, near streams.

Food : Chiefly dipterous insects.

Breeding Season : Extralimital. Also from May to July along Himalayan foothills, Vindhya Range and April to June in the southern Western Ghats.

156. *Ficedula parva* (Bechstein, 1794)
Red-breasted Flycatcher

1972. *Ficedula parva* : Ali & Ripley, H. B. No. 1411, Vol. 7 : 154.

Status and Distribution : Winter visitor and passage migrant. Winters from the western Himalayan foothills south from Kathiawar, Kutch and more common in Maharashtra and Karnataka.

Locality : Ahupe and Kondhval sacred groves.

Habits and Habitat : Usually found solitary. Affects groves, forest plantations, orchards, urban gardens with large trees, etc.

Food : Insects, mainly mosquitoes and midges.

Breeding Season : Extralimital.

157. *Ficedula superciliaris* (Jerdon, 1840)
Ultramarine Flycatcher

1972. *Ficedula superciliaris* : Ali & Ripley, H. B. No. 1421, Vol. 7 : 168.

Status and Distribution : Wintering. Winters in central India from Delhi south to northern Maharashtra, southeastern Karnataka, northwestern Andhra Pradesh, Orissa, West Bengal and Bihar.

Locality : Sacred groves of Bhimashankar valley.

Habits and Habitat : Usually found solitary, in winter often in the mixed hunting parties. In winter affects various types of open deciduous forest, village groves, gardens and orchards.

Food : Insects.

Breeding Season : Middle of April to early July.

158. *Eumyias thalassina* (Swainson, 1838)
Verditer Flycatcher

1972. *Eumyias thalassina* : Ali & Ripley, H. B. No. 1445, Vol. 7 : 198.

Status and Distribution : Wintering. Winters in the whole Indian peninsula and Assam.

Locality : Forest and nallas of Bhinmashankar-Kondhaval belt.

Habits and Habitat : Keeps singly or in pairs. Affects light forest and bushes along streams; also evergreen and coniferous forests.

Food : Mainly tiny winged insects.

Breeding Season : April to August.

159. *Cyornis pallipes* (Jerdon, 1840)

White-bellied Blue flycatcher

1972. *Muscicapa pallipes* : Ali & Ripley, H. B. No. 1435, Vol. 7 : 184.

2001. *Cyornis pallipes* : Manakadan & Pittie, Buceros, Vol. 6(1) : 21.

Status and Distribution : Resident. The Sahyadris (Western Ghats) and associated hills of southwestern India from 19°N (Bhimashankar) to southern Kerala.

Locality : Sacred groves of Bhimashankar sanctuary.

Habits and Habitat : Keeps singly or in pairs. Affects undergrowth of seedlings in evergreen forest, shoals, hillsides and cardamom ravines.

Food : Mainly Insects; also berries.

Breeding Season : February to September, mainly monsoon.

160. *Cyornis tickelliae* Blyth, 1843

Tickell's Blue flycatcher

1972. *Muscicapa tickelliae* : Ali & Ripley, H. B. No. 1442, Vol. 7 : 193.

2001. *Cyornis tickelliae* : Manakadan & Pittie, Buceros, Vol. 6(1) : 21.

Status and Distribution : Resident showing local movements. The Indian peninsula from Uttar Pradesh, Zharkhand, southwestern W. Bengal and Assam, south to the Cardamom Hills of Kerala.

Locality : Eastern slopes of Nigdale-Bhimashankar.

Habits and Habitat : Keeps singly, usually in mixed hunting parties. Affects thick bushes in or near forest and streams, deciduous scrub and bamboo jungle, village groves, wooded gardens, and orchards.

Food : Insects, mainly Diptera.

Breeding Season : April to August, chiefly May and June.

161. *Culicicapa ceylonensis* (Swainson, 1820)

Grey-headed Canary-Flycatcher

1972. *Culicicapa ceylonensis* : Ali & Ripley, H. B. No. 1448, Vol. 7 : 202.

Status and Distribution : Wintering. The Himalayas from the Indus Valley, Kashmir to Nagaland, Manipur, Assam and central India from W. Bengal to Gujarat, south through Maharashtra and Andhra Pradesh.

Locality : Kondhval, Ahupe and Borwadi.

Habits and Habitat : Keeps in pairs in breeding season, otherwise in family parties. Affects open wooded country.

Food : Tiny winged insects.

Breeding Season : April to June.

162. *Monticola cinclorhynchus* (Vigors, 1832)

Blue-headed Rock-Thrush

1973. *Monticola cinclorhynchus* : Ali & Ripley, H. B. No. 1723, Vol. 9 : 67.

Status and Distribution : Wintering. Winters mostly in the Western Ghats from about the Tapti river (Dangs dist., Gujarat) south through Maharashtra, Karnataka, Kerala and western Tamil Nadu.

Locality : Sidgad, Bhimashankar forest.

Habits and Habitat : Found solitary or in pairs. Affects moist-deciduous and secondary evergreen jungle.

Food : Chiefly insects, frogs and lizards. Occasionally seeds, berries and flower-nectar.

Breeding Season : May to July.

163. *Monticola solitarius* (Linnaeus, 1758)

Blue Rock-Thrush

1973. *Monticola solitarius* : Ali & Ripley, H. B. No. 1726, Vol. 9 : 73.

Status and Distribution : Wintering. Winters from the Himalayan foothills to south throughout India.

Locality : Eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Solitary in winter, pairs in summer. Affects barren rocky hills, precipitous hillsides, boulder hillocks, cliffs and rocks along sea shore, quarries, brick kilns, precincts of villages, old forts, ruined or inhabited buildings.

Food : Chiefly insects, spiders and centipedes, lizards and small frogs.

Breeding Season : April to July.

164. *Luscinia svecica* (Linnaeus, 1758)**Blue Throat**

1973. *Luscinia svecica* : Ali & Ripley, H. B. No. 1644 and 1645, Vol. 8 : 217.

Status and Distribution : Winter visitor. India south at least to Mumbai and Nagpur east to Jalpaiguri duars.

Locality : Bhatti nalla, Ahupe, Kondhval sacred grove.

Habits and Habitat : Keep singly. Affects reeds, grass near water, bushes near well-watered cultivation, and fields of maize, corn, sugarcane, etc.

Food : Insects : beetles, ants, caterpillars, worms, etc.

Breeding Season : Extralimital.

165. *Copsychus saularis* (Linnaeus, 1758)**Oriental Magpie-Robin**

1973. *Copsychus saularis* : Ali & Ripley, H. B. No. 1661, Vol. 8 : 239.

Status and Distribution : Resident. Most of the India.

Locality : Kondhval, Bhorgiri and Ahupe sacred grove.

Habits and Habitat : Keep singly or in pairs. Mainly in gardens and groves, open dry forest and secondary growth.

Food : Insects and worms.

Breeding Season : From February to August.

166. *Copsychus malabaricus* (Scopoli, 1786)**White-rumped Shama**

1973. *Copsychus malabaricus* : Ali & Ripley, H. B. No. 1665, Vol. 8 : 244.

Status and Distribution : Resident. The western Indian peninsula from Gujarat (Surat Dangs) south through the Western Ghats complex to southern Kerala and Tamil Nadu.

Locality : Eastern slopes of Bhimashankar valley.

Habits and Habitat : Crepuscular, shy and more retiring. Affects dense secondary undergrowth and bamboo facies in deciduous foot hills forest.

Food : Grasshoppers, grubs, caterpillars and other insects.

Breeding Season : From April to June.

167. *Saxicoloides fulicatus* (Linnaeus, 1776)**Indian Black Robin**

1973. *Saxicoloides fulicata* : Ali & Ripley, H. B. No. 1719, Vol. 9 : 62.

Status and Distribution : Resident. Central India from the Tapti river, southern Madhya Pradesh and Orissa south to the Krishna river; plains and hills up to 900 m.

Locality : Ahupe, Kondhval and Bhatti nalla and Bhorgiri.

Habits and Habitat : Keeps singly or in pairs. Affects gardens, groves, village precincts, boulder and cactus country, cultivation and open scrub jungle, and stony deciduous forest.

Food : Chiefly insects and their larvae.

Breeding Season : From end of February to July.

168. *Phoenicurus ochruros* (Gmelin, 1774)**Black Redstart**

1973. *Phoenicurus ochruros* : Ali & Ripley, H. B. No. 1672, Vol. 8 : 255.

Status and Distribution : Wintering. Winters from Kumaon foothills south through the peninsula.

Locality : Bhorgiri, Kondhval and Ahupe plateau.

Habits and Habitat : Solitary outside the breeding season. Affects stony, sparsely scrubbed, broken country, dry water-courses and the neighbourhood of villages and cultivation.

Food : Insects, largely small beetles.

Breeding Season : From May to August.

169. *Saxicola torquatus* (Linnaeus, 1766)**Common Stonechat**

1973. *Saxicola torquatus* : Ali & Ripley, H. B. No. 1697 Vol. 9 : 28.

Status and Distribution : Wintering. Winters south through the peninsula to southern Karnataka, east to Jalpaiguri duars and Assam.

Locality : Bhorgiri, Patan and Badvan.

Habits and Habitat : Keeps singly or in pairs. Affects reed-beds along tanks, scrub on stony wasteland and around fallow fields.

Food : Mainly ants and small beetles, also locusts and other insects and larvae.

Breeding Season : March to July.

170. *Saxicola caprata* (Linnaeus, 1766)

Pied Bushchat

1973. *Saxicola caprata* : Ali & Ripley, H. B. No. 1700 & 1701, Vol. 9 : 34.

Status and Distribution : Resident with seasonal movements. From Gujarat south to Karnataka and Tamil Nadu to the Cauvery river, east through Madhya Pradesh and NE India.

Locality : Between Pimpargane and Ahupe, Kondhval and Bhorgiri villages roadsides.

Habits and Habitat : Usually seen singly but invariably with its mate. Affects open fields, scrubland, cultivation; partial to hedges of *Agave*.

Food : Ants, beetles, larvae, and some vegetable matter.

Breeding Season : Overall March to August.

Family TIMALIIDAE

171. *Pellorneum ruficeps* Swainson, 1832

Puft-throated Spotted Babbler

1971. *Pellorneum ruficeps* : Ali & Ripley, H. B. No. 1154, Vol. 6 : 117.

Status and Distribution : Resident. The hills of the Indian peninsula (Satpuras, hill tracts of Bihar, Zharkhand and Orissa, Western and Eastern Ghats and their associated ranges).

Locality : Valleys of Bhimashankar on west side.

Habits and Habitat : Keeps in pairs or small parties. Affects scrub, bamboo groves, thickets in ravines and along watercourses.

Food : Insects.

Breeding Season : Monsoon : February to April in the south, April to June in Madhya Pradesh extending to September in the Western Ghats.

172. *Pomatorhinus horsfieldii* Sykes, 1832

Indian Scimitar-Babbler

1971. *Pomatorhinus schisticeps horsfieldii* : Ali & Ripley, H. B. No. 1173, Vol. 6 : 134.

2001. *Pomatorhinus horsfieldii* : Manakadan & Pittie, *Buceros*, Vol. 6, (No. 1) : 17.

Status and Distribution : Resident. Southern Gujarat from the Tapti river south through Maharashtra in the Western Ghats complex to Goa and northern Karnataka; eastern Orissa hills from about 21°N latitude South through the Eastern Ghats complex.

Locality : Nigdale, Ahupe.

Habits and Habitat : Very elusive. Found in pairs during the breeding season or in small parties of 4 to 10 birds. Affects bamboo patches, thorn scrub, dense bush jungle, deciduous and evergreen forest.

Food : Mainly insects, also berries and flower-nectar.

Breeding Season : From February to May.

173. *Dumetia hyperythra* (Franklin, 1831)

Twany Babbler

1971. *Dumetia hyperythra* : Ali & Ripley, H. B. No. 1219, 1220, Vol. 6 : 178.

Status and Distribution : Resident. Southern Rajasthan (Sambhar and Mt Abu), Saurashtra peninsula, eastern Gujarat, westernmost Satpuras, and the Western Ghats south to Pune and east to about Kannad in Marathwada.

Locality : Eastern side of Bhimashankar sanctuary.

Habits and Habitat : Keeps in loose flocks of 5 to 12 individuals. Affects well-wooded country and scrub.

Food : Mainly insects, also flower-nectar.

Breeding Season : From onset of good rains in June to September.

174. *Chrysomma sinense* (Gmelin, 1789)

Yellow-eyed Babbler

1971. *Chrysomma sinense* : Ali & Ripley, H. B. No. 1231, Vol. 6 : 190.

Status and Distribution : Resident. India south and east of a line Nasik-Indore-Sagar-Gorakhpur.

Locality : Badvan, Patan and Sukeri forest.

Habits and Habitat : Very elusive. Keeps in small parties of 5 to 15 birds. Affects scrub, bush-clad grassy hillsides, secondary growth, tall grass and bushes, sugarcane fields, hedges and bamboo.

Food : Mainly insects, also berries and flower-nectar.

Breeding Season : From June to November, chiefly July and August.

175. *Turdoides caudata* (Dumont, 1823)**Common Babbler**

1971. *Turdoides caudata* : Ali & Ripley, H. B. No. 1254, Vol. 6 : 215.

Status and Distribution : Resident. India from foothills of Dehra Dun and eastern Madhya Pradesh and the whole peninsula.

Locality : Bhorgiri-Dimbhe road.

Habits and Habitat : Keeps in flocks of 6 to 20 birds. Roosts at night. In semi-desert and dry plains and stony lower hills. Affects xerophytic thorn scrub jungle, sandy flood plains and ber bushes.

Food : Mainly insects-and spiders, grains and berries, also nectar.

Breeding Season : Almost the entire year mostly March to July, extending into October.

176. *Turdoides malcolmi* (Sykes, 1832)**Large Grey Babbler**

1971. *Turdoides malcolmi* : Ali & Ripley, H. B. No. 1258, Vol. 6 : 220.

Status and Distribution : Resident. From Punjab, Rajasthan to Kutch and Saurashtra, and south through the peninsula.

Locality : Bhorgiri-Dimbhe road.

Habits and Habitat : Very Gregarious, keeps in parties usually of five to twelve birds. Affects dry, open, sparsely scrubbed country, cultivation, city gardens and village environs.

Food : Mostly insects, also grains, seeds and berries. Sometimes ripening jowar.

Breeding Season : From March to September.

177. *Turdoides subrufa* (Jerdon, 1839)**Indian Rufous Babbler**

1971. *Turdoides subrufa* : Ali & Ripley, H. B. No. 1259, Vol. 6 : 222.

Status and Distribution : Resident. Maharashtra in the Western Ghats from Mahabaleshwar south through Karnataka to the northern slopes of the Nilgiri Hills and east in northern Tamil Nadu.

Locality : Bhorgiri-Bhimashankar belt.

Habits and Habitat : Keeps in parties of 6 to 8 birds. Affects dense scrub undergrowth, with tall coarse grass and bamboo brakes, edges of forest and abandoned coffee clearings.

Food : Mostly insects, also berries and flower nectar.

Breeding Season : Poorly defined: overall February to November.

178. *Turdoides striata* (Dumont, 1823)

Jungle Babbler

1971. *Turdoides striata* : Ali & Ripley, H. B. No. 1263, Vol. 6 : 226.

Status and Distribution : Resident. Gujarat and western half of Madhya Pradesh south through the peninsula. In the plains and hills up to 1500 m.

Locality : Forest near Ahupe, Kondhaval and Borwadi.

Habits and Habitat : Very gregarious, keeps in parties usually of six to twelve birds. Affects deciduous forest, bamboo and cultivation.

Food : Mostly insects, also grains, seeds and berries, nectar.

Breeding Season : From March to September.

179. *Alcippe poiocephala* (Jerdon, 1844)

Brown-cheeked Fulvetta

1972. *Alcippe poiocephala* : Ali & Ripley, H. B. No. 1389, Vol. 7 : 122.

Status and Distribution : Resident. The hills of the Indian peninsula, south of a line from Kathiawar and Mt Abu across southern Madhya Pradesh to Parasnath (Zharkhand).

Locality : Bhimashankar forest.

Habits and Habitat : Seen in parties of 6 to 10 birds. Affects wet forest of teak, mixed deciduous or evergreen as well as bamboo jungle and frequently open scrub, gardens.

Food : Ants and other insects, also nectar.

Breeding Season : January to April.

Family CISTICOLIDAE

180. *Cisticola juncidis* (Rafinesque, 1810)

Zitting Cisticola

1973. *Cisticola juncidis* : Ali & Ripley, H. B. No. 1498, Vol. 8 : 33.

Status and Distribution : Resident with local movements. Himalayan foothills and south throughout much of the subcontinent, except parts of the northwest.

Locality : Marshy areas of Bhima and Goneri rivers.

Habits and Habitat : Keeps singly or in loose 'colonies' of 10 to 15 birds. Wet paddy fields, dry and marshy grassland, crops of cereals, sugarcane.

Food : Insects, also spiders and rarely green tender seeds.

Breeding Season : From March to October.

181. *Prinia hodgsonii* Blyth, 1844

Grey-breasted Prinia

1973. *Prinia hodgsonii* : Ali & Ripley, H. B. No. 1503, Vol. 8 : 42.

Status and Distribution : Resident. The Indian peninsula, Himalayan foothills and southwestern India.

Locality : Kondhval and Ahupe sacred groves.

Habits and Habitat : Keeps singly or in pairs or in parties of 5 to 10 birds. Affects scrub jungle, with grass and bushes, mango groves and deciduous forest, gardens and in cultivation.

Food : Insects : ants, beetles, caterpillars, etc and flower nectar.

Breeding Season : Mid June to October, mostly July and August.

182. *Prinia sylvatica* Jerdon, 1840

Jungle Prinia

1973. *Prinia sylvatica* : Ali & Ripley, H. B. No. 1521, Vol. 8 : 64.

Status and Distribution : Resident. Entire Indian peninsula from Maharashtra and northern Madhya Pradesh south to Kanyakumari.

Locality : Kondhval, Bhatti.

Habits and Habitat : Keeps in pairs or small parties of 3 to 5 birds. Affects scrubbed, stony, country, hillsides with grass and bushes.

Food : Insects : green grasshoppers, small beetles, caterpillars, ants, etc. and spiders.

Breeding Season : From April to September, in the south April-May.

183. *Prinia socialis* Sykes, 1832**Ashy Prinia**

1973. *Prinia socialis* : Ali & Ripley, H. B. No. 1517, Vol. 8 : 59.

Status and Distribution : Resident and unevenly distributed. Entire Indian peninsula south of Narmada river, southern Madhya Pradesh and Bihar to Tamil Nadu and Kerala.

Locality : Kondhval-Dimbhe belt.

Habits and Habitat : Keeps singly or in pairs. Tall grass, forest, scrub, reed beds, gardens, outskirts of cultivation and mangroves.

Food : Insects, larvae, spiders and flower nectar.

Breeding Season : From March to November.

184. *Prinia inornata* Sykes, 1832**Plain Prinia**

1973. *Prinia subflava* : Ali & Ripley, H. B. No. 1511, Vol. 8 : 53.

2001. *Prinia inornata* : Manakadan & Pittie. *Buceros*, Vol. 6, (No.1) : 19.

Status and Distribution : Resident. Central India from Gangetic plain to W. Bengal and south to Tamil Nadu through Madhya Pradesh and Andhra Pradesh.

Locality : Bhimashankar-Bhorgiri belt.

Habits and Habitat : Found in pairs or small parties. Paddy fields, marshes, canals, rivers, grassland, mixed bamboo and scrub jungle, mangrove and salt marshes.

Food : Insects, also flower nectar.

Breeding Season : From June to October.

185. *Orthotomus sutorius* (Pennant, 1769)**Common Tailorbird**

1973. *Orthotomus sutorius* : Ali & Ripley, H. B. No. 1535, Vol. 8 : 81.

Status and Distribution : Resident. India from the Himalayan foothills south to Kanyakumari.

Locality : Bhimashankar Rest House, Bhorgiri, Kondhval and Ahupe.

Habits and Habitat : Found singly or in pairs. Affects herbaceous gardens, scrub country near cultivation, deciduous jungle and villages, wooded patches in arid areas.

Food : Small insects and larvae, butterflies, moths and flower nectar.

Breeding Season : From March to October, peak period from June to August in monsoon.

Family SYLVIIDAE

186. *Acrocephalus agricola* (Jerdon, 1845)

Paddy-field Warbler

1973. *Acrocephalus agricola* : Ali & Ripley, H. B. No. 1557, Vol. 8 : 112.

Status and Distribution : Winter visitor. The entire Indian peninsula.

Locality : Bank of Bhima river, Kondhval nalla.

Habits and Habitat : Keeps singly. Affects standing rice, reed-beds, sugarcane and elephant grass.

Food : Insects.

Breeding Season : Extralimital.

187. *Acrocephalus dumetorum* Blyth, 1849

Blyth's Reed-Warbler

1973. *Acrocephalus dumetorum* : Ali & Ripley, H. B. No. 1556, Vol. 8 : 109.

Status and Distribution : Winter visitor. Throughout India.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps singly. Affects, bushes, hedges, orchards, gardens, bamboo clumps and grain fields near and away from water; in winter mostly found in deciduous biotope.

Food : Insects.

Breeding Season : Extralimital.

188. *Hippolais caligata* (Lichtenstein, 1823)

Booted Warbler

1973. *Hippolais caligata* : Ali & Ripley, H. B. No. 1562, Vol. 8 : 117.

Status and Distribution : Winter visitor. The Indian peninsula from Madhya Pradesh and Ganges south to Kanyakumari.

Locality : Eastern slopes of Bhimashankar.

Habits and Habitat : Keeps singly, sometimes loose flocks of up to 10 individuals. Affects deciduous scrub jungle, isolated shrubs in dry cultivated land, clumps of grass, and reeds.

Food : Insects.

Breeding Season : Extralimital.

189. *Phylloscopus affinis* (Tickell, 1833)

Tickell's Warbler

1973. *Phylloscopus affinis* : Ali & Ripley, H. B. No. 1579, Vol. 8 : 142.

Status and Distribution : Winter visitor. Winters from Himalayan foothills south throughout the peninsular India.

Locality : Kondhval-Nigdale forest belt.

Habits and Habitat : Keeps singly or in pairs. Affects scrub, secondary jungle, well-wooded country, edges of forest and bushes among upland cultivation.

Food : Insects.

Breeding Season : Extralimital.

190. *Phylloscopus griseolus* Blyth, 1847

Sulfer-bellied Leaf-Warbler

1973. *Phylloscopus griseolus* : Ali & Ripley, H. B. No. 1581, Vol. 8 : 145.

Status and Distribution : Winter visitor. Winters in Gujarat through Madhya Pradesh, south to Maharashtra (Mahabaleshwar) and Andhra Pradesh.

Locality : Kondhval-Bhorgiri belt.

Habits and Habitat : Keeps singly or in pairs. Affects rocky country and deciduous forest.

Food : Insects.

Breeding Season : Extralimital.

191. *Phylloscopus humei* (Brooks, 1878)

Hume's Warbler

1973. *Phylloscopus humei* : Ali & Ripley, H. B. No. 1590, Vol. 8 : 153.

Status and Distribution : Winter visitor. Winters in the peninsular India south to Belgaum and Hyderabad.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps singly. Affects gardens, orchards and dry- deciduous forest.

Food : Insects.

Breeding Season : Extralimital.

192. *Phylloscopus trochiloides* (Sundevall, 1837)

Greenish Warbler

1973. *Phylloscopus trochiloides* : Ali & Ripley, H. B. No. 1602, Vol. 8 : 166.

Status and Distribution : Winter visitor. Winters from Himalayan foothills south throughout the peninsular India.

Locality : Bhimashankar forest groves.

Habits and Habitat : Keeps singly or among mixed foraging parties. Affects gardens, orchards, wooded compounds, lowland acacia groves, open deciduous and evergreen jungle.

Food : Insects.

Breeding Season : Extralimital.

193. *Phylloscopus tytleri* Brooks, 1872

Tytler's Leaf-Warbler

1973. *Phylloscopus tytleri* : Ali & Ripley, H. B. No. 1578, Vol. 8 : 141.

Status and Distribution : Winter visitor. Winters in western Maharashtra in Khandala, records from Khandesh, Madhya Pradesh and Uttar Pradesh as passage migrants.

Locality : Ahupe, Bhimashankar Temple forest.

Habits and Habitat : Keeps singly or in pairs. Affects moist-deciduous and evergreen biotope.

Food : Insects and spiders.

Breeding Season : Extralimital.

194. *Phylloscopus occipitalis* (Blyth, 1845)
Western Crowned Warbler

1973. *Phylloscopus occipitalis* : Ali & Ripley, H. B. No. 1606, Vol. 8 : 172.

Status and Distribution : Winter visitor. Winters in the peninsular India from southern Gujarat and northwestern Maharashtra, Madhya Pradesh and Eastern Ghats.

Locality : Ahupe, Bhimashankar Temple forest.

Habits and Habitat : Keeps singly or in pairs, in parties up to 30 birds in winter. Affects moist-deciduous and evergreen biotope.

Food : Insects and spiders.

Breeding Season : Extralimital.

195. *Sylvia crassirostris*
Eastern Orphean Warbler

1973. *Sylvia hortensis* : Ali & Ripley, H. B. No. 1565, Vol. 8 : 122.

2005. *Sylvia crassirostris* : Rasmussen & Anderton, Vol. 2 : 518.

Status and Distribution : Winter visitor. Winters in Uttar Pradesh and Zharkhand, south through the Deccan to Karnataka and Tamil Nadu.

Locality : Eastern slopes of Bhimashankar sanctuary.

Habits and Habitat : Keeps singly or in pairs. Affects semi-desert, stony country and ravines with sparse vegetation.

Food : Insects; also flower nectar and berries.

Breeding Season : Extralimital.

Family PARIDAE

196. *Parus major* Linnaeus, 1758
Great Tit

1973. *Parus major* : Ali & Ripley, H. B. No. 1794, Vol. 9 : 169.

Status and Distribution : Resident with local movements in winter. Peninsular India from central Rajasthan, Gujarat, Madhya Pradesh, to Orissa and south to Tamil Nadu.

Locality : Ahupe and Kondhval sacred groves, Sakarmachiwadi.

Habits and Habitat : Keeps in pairs or in small-scattered parties. Deciduous forest, groves, trees, around cultivation and gardens.

Food : Insects, seeds, flower buds and berries.

Breeding Season : From February to November.

197. *Parus aplonotus* Blyth, 1847

Indian Yellow-Tit

1973. *Parus xanthogenys* : Ali & Ripley, H. B. No. 1810 & 1811, Vol. 9 : 188 & 189.

2005. *Parus aplonotus* : Rasmussen & Anderton, Vol. 2 : 529.

Status and Distribution : Resident. Most of the hills of peninsular India south of the Gangetic plain.

Locality : Forest of Bhimashankar-Kondhval belt.

Habits and Habitat : Keeps in pairs or in small-scattered parties. Affects well-wooded country and evergreen biotope.

Food : Insects, spiders, fruits and berries.

Breeding Season : From April to October.

Family SITTIDAE

198. *Sitta castanea* Lason, 1830

Indian Nuthatch

1973. *Sitta castanea* : Ali & Ripley, H. B. No.1830, Vol. 9 : 215.

Status and Distribution : Resident. Practically all over the India.

Locality : Eastern hill slopes of Bhimashankar Wildlife Sanctuary.

Habits and Habitat : Keeps in pairs or in scattered family parties. Affects light forest, mango tops and groves near villages, deciduous plateau and foothills country.

Food : Insects, seeds and nuts.

Breeding Season : From February to May in north; April to September in Andhra Pradesh.

199. *Sitta frontalis* Swainson, 1820

Velvet-fronted Nuthatch

1973. *Sitta frontalis* : Ali & Ripley, H. B. No. 1838, Vol. 9 : 224.

Status and Distribution : Resident. Eastward along lower Himalayas through N E India southward through the peninsula to Kerala and Tamil Nadu; from plains level to 1500 m. Common in Eastern and Western Ghats complexes.

Locality : Bhimashankar Temple forest and Ahupe sacred grove.

Habits and Habitat : Keeps in pairs or in small parties. Affects open broad-leaved forest, well-wooded country and evergreen biotope.

Food : Insects and their larvae.

Breeding Season : From April to June in north, January to May in the south.

Family DICAETIDAE

200. *Dicaeum agile* (Tickell, 1833)

Thick-billed Flowerpecker

1974. *Dicaeum agile* : Ali & Ripley, H. B. No. 1892, Vol. 10 : 2.

Status and Distribution : Resident. Throughout Indian subcontinent.

Locality : Ahupe and Kondhval sacred groves.

Habits and Habitat : Keeps singly or in pairs. Affects large flowering or fruiting trees and shrubs in a variety of biotopes-dry to moist-deciduous or semi-evergreen forest and cultivated country-orchards, village groves and suburban gardens.

Food : Chiefly figs of peepul, banyan, berries of lantana, also insects, spiders and flower, fruit nectar.

Breeding Season : Overall January to June.

201. *Dicaeum erythrorhynchos* (Latham, 1790)

Pale-bellied Flowerpecker

1974. *Dicaeum erythrorhynchos* : Ali & Ripley, H. B. No. 1899, Vol. 10 : 10.

Status and Distribution : Resident. Himalayan foothills and adjacent plains of Uttar Pradesh to the Jalpaiguri duars and Assam and south to the Indian peninsula.

Locality : Ahupe, Kondhval and Bhimashankar sacred groves.

Habits and Habitat : Keeps singly or in pairs. Affects deciduous forest, forest plantations, groves of mango and other orchards, and fig trees in open country or cultivation.

Food : Chiefly figs and berries, also insects, spiders and flower, fruit nectar.

Breeding Season : In north February to June, in the south February to May and again in August-September.

202. *Dicaeum concolor* Jerdon, 1840**Nilgiri Flowerpecker**

1974. *Dicaeum concolor* : Ali & Ripley, H. B. No. 1902, Vol. 10 : 14.

Status and Distribution : Resident. Southwestern India from Mahabaleshwar south through western and southern Karnataka, Kerala and western Tamil Nadu.

Locality : Bhorgiri sacred grove.

Habits and Habitat : Keeps in pairs. Affects deciduous and mixed deciduous and evergreen forest and village groves.

Food : Chiefly berries, also insects, spiders and flower, fruit nectar.

Breeding Season : Overall January to June.

Family NECTARINIIDAE

203. *Leptocoma zeylonica* (Linnaeus, 1766)**Purple-rumped Sunbird**

1974. *Nectarinia zeylonica* : Ali & Ripley, H. B. No. 1907, Vol. 10 : 22.

2005. *Leptocoma zeylonica* : Rasmussen & Anderton, Vol. 2 : 547.

Status and Distribution : Resident. Peninsular India south of a line from Nasik (NW Maharashtra), Jabalpur (Madhya Pradesh) and Lohardaga (Bihar) to southern Bengal.

Locality : Bhorgiri Temple; Bhorgiri, Ahupe and Nigdale sacred groves.

Habits and Habitat : Usually keeps in pairs the year round. Territorial and very pugnacious, especially on its feeding tree. Affects scrub, light secondary jungle and dry cultivated country in the vicinity of villages with tamarind and babool trees, cactus hedges and gardens; prefers deciduous biotope.

Food : Nectar of large-petalled flowers like loranthus, fleshy blossoms of mhowa.

Breeding Season : Entire year, from February to April in southern India.

204. *Leptocoma minima* (Sykes, 1832)**Small Sunbird**

1974. *Nectarinia minima* : Ali & Ripley, H. B. No. 1909, Vol. 10 : 25.

2005. *Leptocoma minima* : Rasmussen & Anderton, Vol. 2 : 547.

Status and Distribution : Resident. The Sahyadri or Western Ghats complex from north of Mumbai to the southernmost hills of Kerala.

Locality : Foothills of Bhimashankar sanctuary.

Habits and Habitat : Usually keeps in pairs the year round. Affects evergreen biotope chiefly in foothills country, forest, gardens and shade trees.

Food : Nectar, insects and spiders.

Breeding Season : Chiefly December to April with a second peak at least in southern India in September and October.

205. *Cinnyris asiaticus* (Latham, 1790)

Purple Sunbird

1974. *Nectarinia asiatica* : Ali & Ripley, H. B. No. 1917, Vol. 10 : 35.

2005. *Cinnyris asiaticus* : Rasmussen & Anderton, Vol. 2 : 548.

Status and Distribution : Resident with local movements. Throughout the Indian Union.

Locality : Kondhval, Bhatti nalla and Bhimashankar Temple.

Habits and Habitat : Usually keeps singly or in pairs the year round. Pugnacious on its feeding tree. Affects light deciduous forest, semi-cultivation, gardens and compounds.

Food : Nectar of large-petalled flowers like loranthus, fleshy blossoms of mhowa.

Breeding Season : Entire year, from February to June in most parts of the peninsula.

206. *Cinnyris lotenius* (Linnaeus, 1766)

Loten's Sunbird

1974. *Nectarinia lotenia* : Ali & Ripley, H. B. No. 1911, Vol. 10 : 27.

2005. *Cinnyris lotenius* : Rasmussen & Anderton, Vol. 2 : 548.

Status and Distribution : Resident. In the Southern Indian Peninsula from Mumbai to Kerala.

Locality : Bhimashankar-Hanuman Tale area.

Habits and Habitat : Usually keeps singly or in pairs. Affects moist-deciduous biotope in well-wooded open country with flowering trees and shrubs, gardens and cultivation.

Food : Nectar of large-petalled flowers like loranthus, spiders and insects.

Breeding Season : Not well defined, mainly March to May.

207. *Aethopyga vigorsii* (Sykes, 1832)

Vigor's Sunbird

1974. *Aethopyga siparaja* : Ali & Ripley, H. B. No. 1929, Vol. 10 : 49.

2005. *Aethopyga vigorsii* : Rasmussen & Anderton, Vol. 2 : 550.

Status and Distribution : Resident. The Western Ghats complex from the Narbada river south to north Kanara.

Locality : Bhimashankar and Ahupe groves.

Habits and Habitat : Usually keeps singly or in pairs the year round. Affects wooded foothills country in evergreen and moist-deciduous biotope.

Food : Nectar, also insects and spiders.

Breeding Season : Monsoon (June to September).

Family ZOSTEROPIDAE

208. *Zosterops palpebrosus* (Temminck, 1824)

Oriental White-eye

1974. *Zosterops palpebrosus* : Ali & Ripley, H. B. No. 1933, Vol. 10 : 57.

Status and Distribution : Resident subject to seasonal movements. Throughout the Indian subcontinent.

Locality : Forest near Ahupe, Bhimashankar and Kondhval sacred groves.

Habits and Habitat : Keeps in pairs or in parties comprising up to 50 birds or more. Entirely arboreal. Forest, groves, gardens, orchards and mangrove.

Food : Insects, caterpillars, berries, buds, seeds and nectar.

Breeding Season : From April to September, mainly June-July.

Family EMBERIZIDAE

209. *Melophus lathami* (Gray, 1831)

Crested Bunting

1974. *Melophus lathami* : Ali & Ripley, H. B. No. 2060, Vol. 10 : 232.

Status and Distribution : Resident. The Himalayan foothills and south India through eastern Rajasthan to Gujarat, southwestern Maharashtra (Satara) and northern Andhra Pradesh.

Locality : Open hills on eastern side of sanctuary, Bhatti nalla.

Habits and Habitat : Keeps in small loose flocks. Affects dry stony hillsides, rice stubbles and open stony country in dry-deciduous jungle.

Food : Mainly grass seeds.

Breeding Season : From April to August.

210. *Emberiza buchanani* Blyth, 1845**Grey-necked Bunting**

1974. *Emberiza buchanani* : Ali & Ripley, H. B. No. 2050, Vol. 10 : 219.

Status and Distribution : Winter visitor. The western and central India from Gujarat, Maharashtra and central Karnataka.

Locality : Eastern slopes and foothills of Bhimashankar sanctuary.

Habits and Habitat : Keeps in small loose flocks of 8 to 20 birds. Affects stony, scrub country.

Food : Mainly seeds.

Breeding Season : May and June.

211. *Emberiza melanocephala* Scopoli, 1769**Black-headed Bunting**

1974. *Emberiza melanocephala* : Ali & Ripley, H. B. No. 2043, Vol. 10 : 207.

Status and Distribution : Winter visitor. The western and central India from Gujarat, Maharashtra and central Karnataka.

Locality : Bhorgiri.

Habits and Habitat : Keeps in small loose flocks. Affects cereal cultivation.

Food : Mainly grass seeds and cereal grains.

Breeding Season : Extralimital.

212. *Emberiza bruniceps* Brandt, 1841**Red-headed Bunting**

1974. *Emberiza bruniceps* : Ali & Ripley, H. B. No. 2044, Vol. 10 : 209.

Status and Distribution : Winter visitor. The Indian peninsula from Gujarat, Maharashtra, western Andhra Pradesh and central Karnataka.

Locality : Bhorgiri surroundings.

Habits and Habitat : Keeps in small loose flocks. Affects cultivation, mainly grain fields.

Food : Mainly grass seeds and cereal grains.

Breeding Season : May and June.

Family FRINGILIIDAE

213. *Carpodacus erythrinus* (Pallas, 1770)**Common Rosefinch**

1974. *Carpodacus erythrinus* : Ali & Ripley, H. B. No. 2013, Vol. 10 : 166.

Status and Distribution : Winter visitor. The Indian peninsula and western Himalayan foothills.

Locality : Bhorgiri-Vellavali belt.

Habits and Habitat : Keeps in pairs or in small flocks. Affects cultivation, scrub jungle and open forest.

Food : Mainly seeds, flower buds, fruits and berries.

Breeding Season : Extralimital.

Family ESTRILDIDAE

214. *Amandava amandava* (Linnaeus, 1758)**Red Avadavat**

1974. *Estrilda amandava* : Ali & Ripley, H. B. No. 1964, Vol. 10 : 101.

2001. *Amandava amandava* : Manakadan & Pittie, *Buceros*, Vol. 6 (1) : 24.

Status and Distribution : Resident. Throughout India.

Locality : Marshy and grassy patches of Bhima and Goneri rivers, Badvan.

Habits and Habitat : Keeps in pairs or small flocks up to 30 birds. Roosts communally in reed-beds and sugarcane fields. Affects reeds and tall grass near marshes, jheels and canals, mixed grass and scrub near cultivation.

Food : Grass seeds.

Breeding Season : From July to October.

215. *Euodice malabarica* (Linnaeus, 1758)**Indian Silverbill**

1974. *Lonchura malabarica* : Ali & Ripley, H. B. No. 1966, Vol. 10 : 105.

2005. *Euodice malabarica* : Rasmussen & Anderton, Vol. 2 : 572.

Status and Distribution : Resident. Throughout India.

Locality : Eastern hill slopes of Bhimashankar sanctuary.

Habits and Habitat : Usually in flocks, up to 60 birds. Roosts in family parties of 5 or 6 huddled together in old nests. Cultivation, dry grassland, open thorn scrub and scrub desert.

Food : Seeds of grasses, also ants, beetles and other small insects.

Breeding Season : From January to March in Central India.

216. *Lonchura striata* (Linnaeus, 1766)

White-rumped Munia

1974. *Lonchura striata* : Ali & Ripley, H. B. No. 1968, Vol. 10 : 108.

Status and Distribution : Resident subject to local movements. The Indian peninsula from Zarkhand, southern Madhya Pradesh and Gujarat, south through Kerala and Tamil Nadu.

Locality : Bhorgiri-Vellavali-Nigdale belt.

Habits and Habitat : Usually in flocks of 8 to 15 birds. Roosts communally. Affects scrub and lightly wooded country near cultivation, deciduous jungle and gardens.

Food : Seeds of grass, bamboo and also insects.

Breeding Season : During rains, in Maharashtra March to November.

217. *Lonchura punctulata* (Linnaeus, 1758)

Scaly-breasted Munia

1974. *Lonchura punctulata* : Ali & Ripley, H. B. No. 1974, Vol. 10 : 113.

Status and Distribution : Resident. Most of India except parts of northeast and northwest.

Locality : Bhorgiri-Kondhval area, Bhima river basin.

Habits and Habitat : Usually in flocks, up to 100 birds or more. Large congregations roost in lantana thickets, sugarcane fields. Affects open country with scrub and trees, bush-clad hill-sides, secondary jungle with patches of grassland, gardens and cultivation.

Food : Grass seeds, rice, lantana berries, etc.

Breeding Season : From May to September (chiefly during the monsoon).

Family PASSERIDAE

218. *Passer domesticus* (Linnaeus, 1758)

House Sparrow

1974. *Passer domesticus* : Ali & Ripley, H. B. No. 1938, Vol. 10 : 63.

Status and Distribution : Resident with local movements. Throughout India.

Locality : Bhorgiri, Vellavali villages and Patan.

Habits and Habitat : Keeps in pairs when breeding, otherwise in noisy flocks. Human habitation, cultivation and edge of forest.

Food : Mostly grass- and weed-seeds and cereal grains. Also fruit and flower-buds, tender shoots, kitchen scraps and insects.

Breeding Season : Throughout the year.

219. *Petronia xanthocollis* (Burton, 1838)

Yellow-throated Sparrow

1974. *Petronia xanthocollis* : Ali & Ripley, H. B. No. 1949, Vol. 10 : 80.

Status and Distribution : Resident with marked local movements. Throughout India.

Locality : Sacred groves of Kondhval and Bhorgiri surroundings.

Habits and Habitat : Collects in flocks after breeding up to 100 birds. Open dry-deciduous forest, thorn scrub, groves, hedges and trees at the edge of cultivation and riverain forest.

Food : Rice and other cereal grains, grass-and weed-seeds, vegetable matter, lantana berries, ants, beetles and other insects.

Breeding Season : From February to May.

Family PLOCEIDAE

220. *Ploceus philippinus* (Linnaeus, 1766)

Baya Weaver

1974. *Ploceus philippinus* : Ali & Ripley, H. B. No. 1957, Vol. 10 : 88.

Status and Distribution : Resident subject to seasonal movements. Most of India and Himalayas up to 1200 m.

Locality : Bhatti and Kondhaval nallas, Sakeri.

Habits and Habitat : Highly gregarious, keeps in flocks the year round and breeding in colonies. Roosts in swarms in swampy reed-beds and sugarcane fields. Cultivation, paddy fields, grassland and secondary scrub with scattered trees and mangroves.

Food : Chiefly grass-and weed-seeds, cereal grains (rice, aowar, bajra, etc), insects, spiders and flower nectar.

Breeding Season : Overall April to October.

Family STURNIDAE

221. *Sturnia malabarica* (Gmelin, 1789)**Grey-headed Starling**

1972. *Sturnus malabaricus* : Ali & Ripley, H. B. No. 987, Vol. 5 : 152.

2005. *Sturnia malabarica* : Rasmussen & Anderton, Vol. 2 : 581.

Status and Distribution : Resident with marked seasonal local movements in monsoon. All over India, roughly east and south of a line from Mt Abu to Dehradun.

Locality : Kondhval and Bhorgiri village surroundings.

Habits and Habitat : Gregarious and arboreal; keeps in small flocks of 5 to 20 individuals. Affects thinly wooded country near human settlements and in outlying parts, and open secondary jungle.

Food : Fruits and berries, flower nectar, and also insects.

Breeding Season : Overall April to July, varying locally.

222. *Temenuchus pagodarum* (Gmelin, 1789)**Brahminy Starling**

1972. *Sturnus pagodarum* : Ali & Ripley, H. B. No. 994, Vol. 5 : 160.

2005. *Temenuchus pagodarum* : Rasmussen & Anderton, Vol. 2 : 582.

Status and Distribution : Resident with marked seasonal movements in monsoon. All over India.

Locality : Bhorgiri, Kondhval and Patan village surroundings.

Habits and Habitat : Sociable; less arboreal. Keeps in family parties of 4 to 7 banding into larger flocks where food is plenty and at the communal roosts. Roosts in large congregations in leafy trees and shrubs such as mango and palas or in reed-beds. Affects open deciduous forest and scrub jungle, and the neighbourhood of cultivation and human habitations, wooded urban gardens and compounds.

Food : Fruits and berries, fleshy flower petals of mhowa (*Madhuca indica*), flower nectar, and also insects.

Breeding Season : Overall February to September.

223. *Sturnus roseus* (Linnaeus, 1758)**Rosy Starling**

1972. *Sturnus roseus* : Ali & Ripley, H. B. No. 996, Vol. 5 : 163.

Status and Distribution : Winter visitor. Throughout India, abundant in Gujarat and the Deccan.

Locality : Bhorgiri-Kondhval belt.

Habits and Habitat : Keeps in small parties or large flocks, sometimes of swarm proportions. Affects open cultivation, grassland, and low thorn jungle in semi-desert. Avoids forest.

Food : Fruits and berries, flower nectar, cereal grains and insects, also centipedes, molluscs and spiders.

Breeding Season : Extralimital.

224. *Acridotheres tristis* (Linnaeus, 1766)

Common Myna

1972. *Acridotheres tristis* : Ali & Ripley, H. B. No. 1006, Vol. 5 : 177.

Status and Distribution : Resident. Throughout the Indian subcontinent.

Locality : Kondhval, Bhorgiri village surroundings.

Habits and Habitat : Along with the crow and sparrow a confirmed commensal of man. Sociable disposition, omnivorous and successful colonist. Except in breeding season keeps in family parties of 5 or 6 birds. Roosts communally in large leafy trees, coconut groves, reed-beds and sugarcane fields, near human settlements and cultivation.

Food : Chiefly fruits, grains, insects and grubs, also small animals.

Breeding Season : Overall March to September.

225. *Acridotheres fuscus* (Wagler, 1827)

Jungle Myna

1972. *Acridotheres fuscus* : Ali & Ripley, H. B. No. 1010, Vol. 5 : 185.

Status and Distribution : Resident with seasonal local movements. Western side of the peninsula along the coastal and Sahyadri tract to Kerala.

Locality : Bhimashankar Temple area, Kondhaval- Dimbhe road.

Habits and Habitat : Keeps in family parties and flocks of 10 to 30 or so, commonly with grazing cattle. Roosts communally in reed-beds and sugarcane fields. Affects well-wooded deciduous country near cultivation, forest villages.

Food : Chiefly fruits, berries, grains, flower nectar and insects.

Breeding Season : Overall February to May.

Family ORIOLIDAE

226. *Oriolus kundoo* Sykes, 1832**Indian Golden Oriole**

1972. *Oriolus oriolus* : Ali & Ripley, H. B. No. 953, Vol. 5 : 103.

2005. *Oriolus kundoo* : Rasmussen & Anderton, Vol. 2 : 586.

Status and Distribution : Status difficult to define. Resident, wintering, local or seasonal. Patchily breeding in North India and W. Bengal; migrating south into the peninsula in winter.

Locality : Sacred groves of Ahupe, Kondhaval and Bhimashankar.

Habits and Habitat : Keeps singly or in pairs. Chiefly arboreal. Affects well-wooded country, secondary deciduous and semi-evergreen forest, urban gardens, groves and orchards in cultivation and around villages.

Food : Wild figs, lantana and other berries, flower nectar, insects and caterpillars.

Breeding Season : Overall April to August.

227. *Oriolus xanthornus* Linnaeus, 1758**Black-hooded Oriole**

1972. *Oriolus xanthornus* : Ali & Ripley, H. B. No. 959 Vol. 5 : 110.

Status and Distribution : Resident with local movements. Peninsular India south of the Gangetic plain, from Gujarat and Madhya Pradesh and Andhra Pradesh.

Locality : Sacred groves of Ahupe, Kondhaval and Bhimashankar, Temple surroundings.

Habits and Habitat : Keeps singly or in pairs. Chiefly arboreal. Affects well-wooded country, in moist-deciduous and semi-evergreen biotope-open forest, village groves, mango orchards, gardens and compounds in towns and cities.

Food : Figs of Banyan, Peepul and other Wild trees, lantana and other berries, flower nectar, insects and caterpillars.

Breeding Season : Overall March to July.

Family DICRURIDAE

228. *Dicrurus macrocercus* Vieillot, 1817**Black Drongo**

1972. *Dicrurus adsimilis macrocercus* : Ali & Ripley, H. B. No. 963, Vol. 5 : 117.

2001. *Dicrurus macrocercus* : Manakadan & Pittie, *Buceros*, Vol. 6, (No. 1) : 25.

Status and Distribution : Resident with some seasonal movements. Throughout peninsular India south of a line from Kutch eastward through Madhya Pradesh, Orissa to southwest Bengal.

Locality : Between Pimpargane and Ahupe, Bhorgiri and Kondhval, Bhatti nalla.

Habits and Habitat : Arboreal, usually seen singly. Open cultivation, around villages, towns and cities.

Food : Insects, flower nectar and occasionally small birds.

Breeding Season : From March to June.

229. *Dicrurus leucophaeus* Vieillot, 1817

Ashy Drongo

1972. *Dicrurus leucophaeus* : Ali & Ripley, H. B. No. 965, Vol. 5 : 119.

Status and Distribution : Winters in northern plains and peninsula east to west Bengal and south to Kerala.

Locality : Bhimashankar-Gawadewadi belt.

Habits and Habitat : Keeps singly, in pairs or small noisy parties. Moist deciduous, semi-evergreen and pine forest, plantations, etc.

Food : Mainly insects, occasionally reptiles and small birds.

Breeding Season : Chiefly April to June. Breeds in Himalayas.

230. *Dicrurus caerulescens* (Linnaeus, 1758)

White-bellied Drongo

1972. *Dicrurus caerulescens* : Ali & Ripley, H. B. No. 967, Vol. 5 : 122.

Status and Distribution : Resident with some seasonal local movements. Throughout subcontinent.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps in noisy twos or threes. Clearings and edges of light forest, well wooded country, gardens and tea and rubber plantations.

Food : Insects and flower nectar.

Breeding Season : From March to June.

231. *Dicrurus annectans* (Hodgson, 1836)**Bronzed Drongo**

1972. *Dicrurus annectans* : Ali & Ripley, H. B. No. 971, Vol. 5 : 126.

Status and Distribution : Resident and wintering. Uttar Pradesh, N E India, W. Bengal southward along the Eastern Ghats complex to Kerala; northward along the Sahyadri or Western Ghats strip.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps singly or in pairs. Affects moist-deciduous and evergreen forest biotope.

Food : Winged insects and flower nectar.

Breeding Season : From March to June.

232. *Dicrurus hottentottus* (Linnaeus, 1766)**Hair-crested Drongo**

1972. *Dicrurus hottentottus* : Ali & Ripley, H. B. No. 973, Vol. 5 : 131.

Status and Distribution : Resident with some seasonal movements. Uttar Pradesh, N E India, W Bengal southward along the Eastern Ghats complex to Kerala; northward along the Sahyadri or Western Ghats strip.

Locality : Bhimashankar, Ahupe forest.

Habits and Habitat : Keeps singly or in parties. Affects moist-deciduous and evergreen forest biotope.

Food : Mainly flower nectar and insects.

Breeding Season : From April to June in N. India; March-April in the south.

233. *Dicrurus paradiseus* (Linnaeus, 1766)**Greater Racket-tailed Drongo**

1972. *Dicrurus paradiseus* : Ali & Ripley, H. B. No. 977, Vol. 5 : 137.

Status and Distribution : Resident. Peninsular India south of the Godavari river up to Kerala and Tamil Nadu.

Locality : Bhimashankar forest.

Habits and Habitat : Keeps singly or in pairs. Affects deciduous and evergreen forest biotope and secondary evergreen jungle.

Food : Mainly winged insects and flower nectar.

Breeding Season : From February to May in the south, June-July in the northern parts of its range.

Family CORVIDAE

234. *Dendrocitta vagabunda* (Latham, 1790)

Rufous Treepie

1972. *Dendrocitta vagabunda* : Ali & Ripley, H. B. No. 1031, Vol. 5 : 217.

Status and Distribution : Resident. The Himalayan submontane tract eastward to Assam, W. Bengal, NEFA, Rajasthan east and southward through Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Maharashtra south to 17°N latitude.

Locality : Kondhval and Ahupe sacred groves, Sakeri-Patan belt.

Habits and Habitat : Social, arboreal and omnivorous. Keeps in noisy pairs or family parties of 4 or 5 birds. Open wooded country, moist deciduous biotope, gardens, groves and roadside avenues.

Food : Fruits, nectar, invertebrates, small animals, bird eggs and nestlings.

Breeding Season : From March to July.

235. *Corvus splendens* Vieillot, 1817

House Crow

1972. *Corvus splendens* : Ali & Ripley, H. B. No. 1049, Vol. 5 : 244.

Status and Distribution : Resident. Throughout India except parts of Himalayas.

Locality : Kondhval village and Bhorgiri village.

Habits and Habitat : Commensal of man. A municipal scavenger. Roosts communally near human habitation in villages, towns and cities.

Food : Grains, fruits, invertebrates, nestlings, lizard and small rodents; practically everything.

Breeding Season : From March-April and July to August.

236. *Corvus macrorhynchos* Wagler, 1827

Jungle Crow

1972. *Corvus macrorhynchos* : Ali & Ripley, H. B. No. 1057, Vol. 5 : 256.

Status and Distribution : Resident. Most of India, south to Kanyakumari.

Locality : Ahupe, Kondhval village and communal roost at Ghodegaon village.

Habits and Habitat : Less gregarious and sociable than House Crow, keeps singly or in pairs and small scattered parties. Roosts communally around human habitation, in well-wooded country and at forest edges.

Food : Grain, invertebrates, carrion and practically everything.

Breeding Season : From February to June.

Table 2. Avian Diversity in Bhimashankar Wildlife Sanctuary.

S. No.	Orders	Families	Subfamilies	Genera	Species
1.	PODICIPEDIFORMES	1		1	1
2.	PELECANIFORMES	1		1	1
3.	CICONIIFORMES	2		6	7
4.	ANSERIFORMES	1		1	1
5.	FALCONIFORMES	3		17	24
6.	GALLIFORMES	1		6	7
7.	GRUIFORMES	2		3	5
8.	CHARDRIIFORMES	4		7	9
9.	COLUMBIFORMES	1		4	8
10.	PSITTACIFORMES	1		2	5
11.	CUCULIFORMES	1	-	9	9
12.	STRIGIFORMES	2		8	10
13.	CAPRIMULGIFORMES	1		1	3
14.	APODIFORMES	2		3	3
15.	CORACIIFORMES	5		6	9
16.	PICIFORMES	2		6	9
17.	PASSERIFORMES	30	1	73	125
	Total 17 Orders (21)	60 (101)	1 (1)	154 (447)	236 (1396)

*Bird diversity in Indian Subcontinent is given in parenthesis

Table 3. Birds of Bhimashankar Wildlife Sanctuary under different conservation status.

Sl. No.	Species Name	Common Name	WL (P) Act, 1972 (as amended up to 2002)	BirdLife International (2004)	CITES (2005)
1.	Family Accipitridae <i>Gyps bengalensis</i> (Gmelin)	Indian White-rumped Vulture	Schedule-I, Part-III (Birds)	CR	—
2.	<i>Gyps indicus</i> (Scopoli)	Indian Vulture	—do—	CR	—
3.	Family Pandionidae <i>Circus macrourus</i> (S.G Gmelin)	Pallied Harrier	—	NT	Appendix-I
4.	<i>Pandion haliaetus</i> (Linnaeus)	Osprey	Schedule-I, Part-III (Birds)	—	—
5.	Family Falconidae <i>Falco chicquera</i> Daudin	Red-headed Falcon	—do—	—	—
6.	<i>Falco peregrinus</i> Tunstall	Peregrine Falcon	—do—	—	Appendix-I
7.	Family Phasianidae <i>Gallus sonneratii</i> Temminck	Grey Jungle fowl	Schedule-II, Part-II (Birds)	LC	—
8.	<i>Pavo cristatus</i> Linnaeus	Indian Peafowl	Schedule-I, Part-III (Birds)	—	—
9.	Family Columbidae <i>Columba elphinstonii</i> (Sykes)	Nilgiri Wood-Pigeon	—	VU	—
10.	Family Coraciidae <i>Coracias garrulus</i> Linnaeus	European Roller	—	NT	—
11.	Family Bucerotidae <i>Ocyrceros griseus</i> (Latham)	Malabar Grey Hornbill	—	LC	—
12.	Family Capitonidae <i>Megaliama viridis</i> (Boddaert)	White-cheeked Barbet	—	LC	—
13.	Family Sylviidae <i>Phylloscopus tytleri</i> Brooks	Tytler's Leaf-Warbler	—	NT	—

Abbreviations

CR : Critically Endangered; VU : Vulnerable; NT : Near Threatened; LC : Least Concerned; WL (P) Act, 1972 : Wildlife (Protection) Act, 1972 (as amended up to 2002). BirdLife International (2004) : Threatened Birds of the World, 2004. CD-ROM, Cambridge, U.K. CITES (2005) : Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Table 4: Endemic Bird Species of Bhimashankar Wildlife Sanctuary*.

Sl. No.	Species Name	Common name
	Order GALLIFORMES	
	Family PHASIANIDAE	
1.	<i>Galloperdix spadicea</i> (Gmelin)	Red Spurfowl
2.	<i>Gallus sonneratii</i> Temminck	Grey Junglefowl
	Order COLUMBIFORMES	
	Family COLUMBIDAE	
3.	<i>Columba elphinstonii</i> (Sykes)	Nilgiri Wood-Pigeon
4.	<i>Treron affinis</i> (Jerdon)	Grey-fronted Green-Pigeon
	Order PSITTACIFORMES	
	Family PSITTACIDAE	
5.	<i>Psittacula columboides</i> (Vigors)	Malabar Parakeet
	Order STRIGIFORMES	
	Family STRIGIDAE	
6.	<i>Strix ocellata</i> (Lesson)	Mottled Wood-Owl
	Order CORACIIFORMES	
	Family BUCEROTIDAE	
7.	<i>Ocyrceros griseus</i> (Latham)	Malabar Grey Hornbill
	Order PICIFORMES	
	Family CAPITONIDAE	
8.	<i>Megalaima viridis</i> (Boddaert)	White-cheeked Barbet
	Order PASSERIFORMES	
	Family ALAUDIDAE	
9.	<i>Galerida malabarica</i> (Scopoli)	Malabar Crested Lark
10.	<i>Galerida deva</i> (Sykes)	Sykes's Lark
	Family RHIPIDURIDAE	
11.	<i>Rhipidura albogularis</i> (Lesson)	White-spotted Fantail
	Family TURDIDAE	
12.	<i>Myophonus horsfieldii</i> (Vigors)	Malabar Whistling-Thrush

Sl. No.	Species Name	Common name
	Family MUSCICAPIDAE	
	Subfamily MUSCICAPINAE	
13.	<i>Cyornis pallipes</i> (Jerdon)	White-bellied Blue Flycatcher
	Family TIMALIIDAE	
14.	<i>Pomatorhinus horsfieldii</i> Sykes	Indian Scimitar-Babbler
15.	<i>Turdoides subrufa</i> (Jerdon)	Indian Rufous Babbler
	Family PARIDAE	
16.	<i>Parus aplonotus</i> Blyth	Indian Yellow-Tit
	Family DICAIEIDAE	
17.	<i>Dicaeum concolor</i> Jerdon	Nilgiri Flowerpecker
	Family NECTARINIIDAE	
18.	<i>Leptocoma minima</i> (Sykes)	Small Sunbird
19.	<i>Aethopyga vigorsii</i> (Sykes)	Vigor's Sunbird

*Compiled on the basis of Jathar and Rahmani (2006)

Table 5-a. : The Birds of Bhimashankar Wildlife Sanctuary falling under BIOME 10 : Indian Peninsula Tropical Moist Forest[†].

Sl. No.	Scientific Name	Common Name
1.	<i>Phaenicophaeus viridirostris</i> (Jerdon)	Blue-faced Malkoha
2.	<i>Caprimugus atripennis</i> Jerdon	Jerdon's Nightjar
3.	<i>Megalaima viridis</i> (Boddaert)	White-cheeked Barbet
4.	<i>Iole indica</i> (Jerdon)	Yellow-browed Bulbul
5.	<i>Myiophonus horsfieldii</i> (Vigors)	Malabar Whistling-thrush
6.	<i>Pomatorhinus horsfieldii</i> Sykes	Indian Scimitar-babbler
7.	<i>Cinnyris lotenia</i> (Linnaeus)	Loten's Sunbird

Table 5-b. : The Birds of Bhimashankar Wildlife Sanctuary falling under BIOME 11: Indo-Malayan Tropical Dry Zone†.

Sl. No.	Scientific Name	Common Name
1.	<i>Gyps bengalensis</i> (Gmelin)	Indian White-rumped Vulture
2.	<i>Gyps indicus</i> (Scopoli)	Indian Vulture
3.	<i>Butastur teesa</i> (Franklin)	White-eyed Buzzard
4.	<i>Falco chicquera</i> Daudin	Red-headed Falcon
5.	<i>Coturnix coromandelica</i> (Gmelin)	Rain Quail
6.	<i>Perdica asiatica</i> (Latham)	Jungle Bush-Quail
7.	<i>Pavo cristatus</i> Linnaeus	Indian Peafowl
8.	<i>Vanellus malabaricus</i> (Boddaert)	Yellow-wattled Lapwing
9.	<i>Treron phoenicopterus</i> (Latham)	Yellow-footed Green-Pigeon
10.	<i>Psittacula cyanocephala</i> (Linnaeus)	Plum-headed Parakeet
11.	<i>Strix ocellata</i> (Lesson)	Mottled Wood-Owl
12.	<i>Ocyrceros birostris</i> (Scopoli)	Indian Grey Hornbill
13.	<i>Megalaima zeylanica</i> (Gmelin)	Brown-headed Barbet
14.	<i>Dendrocopos mahrattensis</i> (Latham)	Yellow-fronted Pied Woodpecker
15.	<i>Dinopium benghalense</i> (Linnaeus)	Black-rumped Flameback
16.	<i>Chrysocolaptes festivus</i> (Boddaert)	White-naped Woodpecker
17.	<i>Eremopterix grisea</i> (Scopoli)	Ashy-Crowned Finch-Lark
18.	<i>Galerida malabarica</i> (Scopoli)	Malabar Crested Lark
19.	<i>Galerida deva</i> (Sykes)	Sykes's Lark
20.	<i>Coracina melanoptera</i> (Rüppell)	Black-headed Cuckoo-Shrike
21.	<i>Pericrocotus cinnamomeus</i> (Linnaeus)	Small Minivet
22.	<i>Pericrocotus erythropygius</i> (Jerdon)	White-bellied Minivet
23.	<i>Tephrodornis pondicerianus</i> (Gmelin)	Common Woodshrike
24.	<i>Rhipidura aureola</i> Lesson	White-browed Fantail
25.	<i>Saxicoloides fulicata</i> (Linnaeus)	Indian Black Robin
26.	<i>Dumetia hyperythra</i> (Franklin)	Twany Babbler

Sl. No.	Scientific Name	Common Name
27.	<i>Turdoides malcolmi</i> (Sykes)	Large Grey Babbler
28	<i>Turdoides striatus</i> (Dumont)	Jungle Babbler
29	<i>Prinia sylvatica</i> Jerdon	Jungle Prinia
30	<i>Prinia socialis</i> Sykes	Ashy Prinia
31	<i>Sturnia malabarica</i> (Gmelin)	Grey-headed Starling
32	<i>Temenuchus pagodarum</i> (Gmelin)	Brahminy Starling
33	<i>Dicrurus caerulescens</i> (Linnaeus)	White-bellied Drongo

†Compiled from the Important Bird Areas (IBA) Programme in India (Jhunjhunwala *et al.*, 2001).

Table 6. The Important Bird Areas (IBA) Criteria of Bhimashankar Wildlife Sanctuary*

IBA Site Code :	IN-MH-01
IBA Criteria :	A1 (Threatened Species), A2 (Endemic Bird Area 123 : Western Ghats), A3 (Biome-10: Indian Peninsula Tropical Moist Forest).

*Compiled on the basis of Islam and Rahmani (2004).

REPTILIA

M.S. PRADHAN¹ AND SANJAY THAKUR²

1. *Flat B-2, Kalpanamati H.S., Aundh Gaon, Pune-411007*

2. *18, Silver-Moon Appt., 1/2A/2 Bavdhan Kh, Pune-411021*

INTRODUCTION

The Bhimashankar Wildlife Sanctuary in Pune district is a part of Northern Western Ghats, one of the Hot Spots in India, and is located in the northwestern part of Pune district. Though small in area, it possesses a rich biodiversity which is well represented by a number of faunal and floral components. Fresh attempts were made during the project period to gather up-to-date information on various faunal groups including the reptilian component from this region. The updated systematic inventory of reptiles from Bhimashankar Wildlife Sanctuary has been presented in the following table. Bhimashankar is more famous, nationally as well as internationally, as a religious place surrounded by a sacred grove rather than for its rich faunal components surviving in the thickly forested mountainous tracts. However, scientists, naturalists and amateurs were keen in studying the reptilian fauna of this region since long time.

Our knowledge of reptiles of this region is based on the work by earlier naturalists and specialists namely Smith (1935, 1943), Daniel (1983), Murthy (1985), Tikader and Sharma (1985, 1992), Sharma (1976, 1998, 2002, 2003), Das (1995, 2003), Ahmed and Dasgupta (1992), Gayen (1999), Pradhan (1997), Nalawade (1998), Thakur (1998) and Whitaker and Captain (2004). Sharma published taxonomic accounts on lizards (2002) and snakes (2003) of India which includes his studies on the reptilian material collected from this region by the scientists and specialists attached to WRS, ZSI, Pune, and added to the registered collections of the station. Present paper is mainly based on the valuable studies contributed by these devoted scientists.

Abbreviations Used

BWLS : Bhimashankar Wildlife Sanctuary, IUCN : International Union for Conservation of Nature, IWL(P)A : Indian Wildlife (Protection) Act, ZSI : Zoological Survey of India, WRS : Western Regional Station.

Table 1. List of Reptilian species reported from Bhimashankar Wildlife Sanctuary and its adjoining areas

Sl. No.	Common name	Scientific name	Remarks	Locality	IWL (P)A Schedule	IUCN Category
Order TESTUDINES (Chelonia)						
Suborder CRYPTODIRA						
Family TRIONYCHIDAE (Freshwater Turtle)						
1.	South Indian Flap shell Turtle	<i>Lissemys punctata</i> (Bonnaterre)	Uncommon	In ponds and water bodies in BWLS	Schedule I Part : II	Lower risk-Near Threatened
Order SQUAMATA						
Suborder SAURIA (Lacertilia)						
Family GEKKONIDAE						
2.	Deccan Ground Gecko/North Malabar Rock Gecko	<i>Geckoella dekkanensis</i> (Gunther) (= <i>Cyrtodactylus deccanensis</i> (Gunther)	Common	Bhakadevi, Bailghat, Guptbhima	-	Vulnerable
3.	Spotted Indian House Gecko	<i>Hemidactylus brookii</i> (Gray)	Common	Found throughout the BWLS	-	Lower risk-Least Concern
4.	Yellow Bellied House Gecko	<i>Hemidactylus flaviviridis</i> Ruppell	Common	In the houses	-	Lower risk-Least Concern
5.	Bark Gecko	<i>Hemidactylus leschenaultii</i> Dum. & Bibr.	Common	Found throughout the BWLS	-	Lower risk-Least Concern
6.	Northern Spotted Gecko/Dark Spotted Giant Gecko	<i>Hemidactylus maculates</i> Dum. & Bibr. (= <i>Hemidactylus maculatus</i> Dum. & Bibr.)	Common	In the houses and rest house	-	Lower risk-Least Concern
7.	-	<i>Hemidactylus aaronbaueri</i> Giri	Rare	Recently described from Ghatghar, Tehsil Junnar, district Pune, (Giri, 2008) Possible occurrence in BWLS.	-	-

Sl. No.	Common name	Scientific name	Remarks	Locality	IWL (P)A Schedule	IUCN Category
Family AGAMIDAE						
8.	Indian Fan-Throated Lizard	<i>Sitana ponticeriana</i> Cuvier	Uncommon	Bhakadevi road, Bhatticha ran	-	Lower Risk-Least Concern
9.	Indian garden Lizard	<i>Calotes versicolor</i> (Daudin)	Common	Found throughout the BWLS		Lower Risk-Near Threatened
10.	Roux's Forest Lizard	<i>Calotes rouxi</i> Dum. & Bibr.	Common	Found throughout the BWLS	-	Lower Risk-Near Threatened
Family CHAMAELEONIDAE						
11.	Indian Chamaeleon	<i>Chameleo zeylanicus</i> Laurenti	Uncommon	Found throughout the BWLS	Schedule II Part : 1	Vulnerable
Family SCINCIDAE						
12.	Eastern Bronze Skink	<i>Mabuya macularia</i> (Blyth)	Common	Found throughout the BWLS	-	Lower risk-Least Concern
13.	Common Indian Skink	<i>Mabuya carinata</i> (Schneider)	Common	Found throughout the BWLS	-	Lower risk-Near Threatened
14.	Allapalli Grass Skink	<i>Mabuya allapallensis</i> Schmidt	Uncommon	In leaf litter in Guptbhima	-	Endangered
15.	Spotted Supple Skink	<i>Lygosoma punctatus</i> (Gmelin) (= <i>Riopa punctata</i> (Gmelin))	Uncommon	Found throughout the BWLS	-	Lower risk-Near Threatened
16.	Gunther's Supple Skink	<i>Lygosoma guntheri</i> (Peters) (= <i>Riopa guentheri</i> (Peters))	Rare	Bhakadevi	-	Lower risk-Near Threatened
17.	Lined Supple Skink	<i>Lygosoma lineata</i> (Gray) (= <i>Riopa lineata</i> (Gray))	Rare	Kondhwal	-	Lower risk-Near Threatened
Family LACERTIDAE						
18.	Snake eyed lacerta	<i>Ophisops jerdoni</i> Blyth	Rare	In rocky areas	-	Data Deficient

Sl. No.	Common name	Scientific name	Remarks	Locality	IWL (P)A Schedule	IUCN Category
Family VARANIDAE						
19.	Indian Monitor	<i>Varanus bengalensis</i> Daudin	Uncommon	Konkan-Khandas area	Schedule II Part : II	Vulnerable
Suborder SERPENTES (Ophidia) (Snakes)						
Family TYPHLOPIDAE						
20.	Common Blind/Worm/ Brahminy Worm Snake	<i>Ramphotyphlops braminus</i> (Daudin)	Common	Found throughout the BWLS	Schedule IV	Lower Risk-Near Threatened
21.	Beaked Blind/Worm Snake	<i>Typhlops acutus</i> (Dum. & Bibr.) (= <i>Grypotyphlops acutus</i> (Dum & Bibr))	Common	Found throughout the BWLS	Schedule IV	–
Family UROPELTIDAE						
22.	Large-scaled Shieldtail	<i>Uropeltis macrolepis</i> (Peter)	Seasonal	Found throughout the BWLS	Schedule IV	Vulnerable
23.	Red-lined Shieldtail	<i>Uropeltis rubrolineatus</i> (Gunther)	Seasonal	Close to Bhimashankar Temple	Schedule IV	Lower Risk-Near Threatened
24.	Phipson's Shieldtail	<i>Uropeltis phipsonii</i> (Mason)	Seasonal	Vandre and Bhorgiri areas	Schedule IV	Lower Risk-Near Threatened
Family BOIDAE						
25.	Indian Rock Python	<i>Python molurus molurus</i> (Linnaeus)	Rare	Konkan-Khandas area	Schedule I Part : II	Lower Risk-Near Threatened
26.	Common Sand Boa	<i>Eryx conicus</i> (Schneider) (= <i>Gongylophis conicus</i> (Schneider))	Rare	Close to Mhatarbachi wadi and Sakeri	Schedule IV	Lower Risk-Near Threatened

Sl. No.	Common name	Scientific name	Remarks	Locality	IWL (P)A Schedule	IUCN Category
Family COLUBRIDAE						
Subfamily COLUBRINAE						
27.	Montane Trinket Snake	<i>Coelognathus helena monticollaris</i> Schulz (= <i>Elaphe helena monticollaris</i> Schulz)	Uncommon	Found throughout the BWLS	Schedule IV	Vulnerable
28.	Indian Rat Snake	<i>Ptyas mucosus mucosus</i> (Linnaeus)	Common	Found throughout the BWLS	Schedule II Part : II	Lower Risk-Near Threatened
29.	Banded racer	<i>Argyrogena fasciolata/fasciolatus</i> (Shaw)	Uncommon	Ahupe and Bhakadevi road	Schedule IV	Lower Risk-Near Threatened
30.	Gunther's or Slender racer	<i>Coluber gracilis</i> (Gunther)	Rare	Inamacha jungle next to Nigdale	Schedule IV	Lower Risk-Near Threatened
31.	Lesser stripe-necked snake	<i>Liopeltis calamaria calamarius</i> (Gunther)	Roadkill seen once	On Kondhwal road	Schedule IV	Lower Risk-Near Threatened
32.	Common Kukri or Banded Kukri Snake	<i>Oligodon arnensis</i> (Shaw)	Uncommon	Mhatarbachi wadi, Kondhwal	Schedule IV	Lower Risk-Least Concern
33.	Russell's Kukri	<i>Oligodon taeniolatus fasciatus</i> (Gunther)	Rare	Devrai (sacred grove) Guptbhima area	Schedule IV	Lower Risk-Near Threatened
34.	Common Bronze-back Tree Snake	<i>Dendrelaphis tristis</i> (Daudin)	Common	Found throughout the BWLS	Schedule IV	Lower Risk-Least Concern
35.	Travancore Wolf Snake	<i>Lycodon travancoricus</i> (Beddome)	Seasonal	Dhangarwadi above Bhorgiri	Schedule IV	Lower Risk-Near Threatened
36.	Barred Wolf Snake	<i>Lycodon striatus</i> (Shaw)	Rare	Seen under rocks in grassy areas and rocky plateau, outcrops	Schedule IV	Lower Risk-Near Threatened
37.	Common Wolf Snake	<i>Lycodon aulicus</i> (Linnaeus)	Common	Found throughout the BWLS	Schedule IV	Lower Risk-Least Concern

Sl. No.	Common name	Scientific name	Remarks	Locality	IWL (P)A Schedule	IUCN Category
38.	Dumeril's Black Headed Snake	<i>Sibynophis subpunctatus</i> (Dum. Bibr. & Dum.)	Rare	Seen in grassy areas and deep soil	Schedule IV	Lower Risk-Near Threatened
39.	Striped keelback	<i>Amphiesma stolatum/stolata</i> (Linnaeus)	Common	Found throughout the BWLS	Schedule IV	Lower Risk-Near Threatened
40.	Checkered Keelback	<i>Xenochrophis piscator</i> (Schneider)	Common	Found throughout the BWLS	Schedule IV	Lower Risk-Least Concern
41.	Green Keelback	<i>Macropisthodon plumbicolor</i> (Cantor)	Uncommon	Found throughout the BWLS	Schedule IV	Lower Risk-Near Threatened
42.	Common Cat Snake	<i>Boiga trigonata</i> (Schneider)	Rare	Konkan-Khandas area	Schedule IV	Lower Risk-Least Concern
43.	Forsten's Cat Snake	<i>Boiga forsteni</i> (Dum. Bibr. & Dum.)	Rare	Vanaspati point and Shidicha ghat	Schedule IV	Lower Risk-Near Threatened
44.	Beddom's Cat Snake	<i>Boiga beddomei</i> (Wall)	Uncommon	Found throughout the BWLS	Schedule IV	Data Deficient
45.	Leith's sand snake	<i>Psammophis leithii</i> Gunther	Rare	Bhatticha ran close to water	Schedule IV	Lower Risk-Near Threatened
46.	Green vine snake/ Common Vine Snake	<i>Ahaetulla nasuta</i> (Anderson)	Common	Found throughout the BWLS	Schedule IV	Lower Risk-Near Threatened
47.	Brown Vine Snake	<i>Ahaetulla pulverulenta</i> (Dum. Bib. & Dum.)	Katraj	Pune (Khaire & Khaire, 1993) (Molur & Walker, 1998)	Schedule IV	Lower Risk-Near Threatened
Family ELAPIDAE						
48.	Common Indian Krait	<i>Bungarus caeruleus</i> (Schneider)	Common	Found throughout the BWLS	Schedule IV	Lower Risk-Near Threatened
49.	Common Slender coral snake	<i>Calliophis melanurus</i> (Shaw)	Rare	Terungan	Schedule IV	Lower Risk-Near Threatened

Sl. No.	Common name	Scientific name	Remarks	Locality	IWL (P)A Schedule	IUCN Category
50.	Striped Coral Snake	<i>Calliophis nigrescens</i> Gunther	Rare	Bhatticharan, Bhakadevi road, Forest Rest house	Schedule IV	Lower Risk-Near Threatened
51.	Spectacled Cobra	<i>Naja naja</i> (Linnaeus)	Common	Found throughout the BWLS	Schedule II Part : II	Lower Risk-Near Threatened
Family VIPERIDAE						
Subfamily VIPERINAE						
52.	Russell's Viper	<i>Daboia russelii</i> (Shaw and Nodder)	Rare	Nigdale, more in Bhorgiri	Schedule II Part : II	Lower Risk-Near Threatened
53.	Saw Scaled Viper	<i>Echis carinatus</i> (Schneider)	Rare	Bhatticharan	Schedule II Part : II	Lower Risk-Near Threatened
Subfamily CROTALINAE						
54.	Bamboo Pit Viper	<i>Trimeresurus gramineus</i> (Shaw)	Common	Found throughout the BWLS	Schedule IV	Lower Risk-Near Threatened

SUMMARY

The systematic list of reptilian species given above records occurrence of 54 reptilian species/subspecies belonging to thirteen families of three suborders under two reptilian orders in the entire region of Bhimashankar Wildlife Sanctuary and its surrounding regions. Specific mention of the localities have been indicated in the table for those species which have been collected and/or sighted in the study area, while the remaining have been included in the list on the basis of the literature consulted.

The list includes one turtle family (Total 1 species), six lizard families (Total 18 species) and six snake families (Total 35 snake species) reported from Bhimashankar Wildlife Sanctuary. The list clearly indicates moderate herpetofaunal diversity in such a small but well preserved ecosystem which forms a part of the northern Western Ghats. Additional intensive surveys are strongly recommended for updating the systematic list as well as for updating our knowledge on the abundance status of every species. This is need of the hour considering the strategic location of the sanctuary. The snake fauna of the three reptilian assemblages is evidently rich.

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AMPHIBIA

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INTRODUCTION

The present study was undertaken to study the amphibian fauna of Bhimashankar Sanctuary, Tal Ambegaondistrict Pune. The sanctuary is located in Sahyadri hill section in the north-west area of the district Pune.

The amphibians of Pune were first studied by Yazdani and Mahabal in 1976 who have recorded 11 species of amphibians from Pune District. Paranjape and Mulherkar (1979) recorded 8 species of amphibians occurring in and around Pune City. 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. Ravichandran and Pillai (1990) recorded the occurrence of 16 species of amphibians from Maharashtra including 1 new species. Sekar (1999) has enlisted 34 species from Maharashtra. Padhye and Ghate (2002) have listed 43 species of amphibia from Maharashtra. Boulenger (1890) and Chanda (1994) have given detailed accounts of amphibia from the Indian subcontinent.

SYSTEMATIC LIST

Phylum CHORDATA

Class AMPHIBIA

Order ANURA

Family BUFONIDAE

1. *Duttaphrynus melanostictus* (Schn.)

Family MICROHYLIDAE

2. *Microhyla ornata* (Dum. & Bibr.)

Family RANIDAE

3. *Euphlyctis cyanophlyctis* (Schn.)

4. *Fejervarya limnocharis* (Gravenhorst)
5. *Hoplobatrachus tigerinus* Daudin
6. *Hoplobatrachus crassus* (Jerdon)
7. *Sphaerotheca breviceps* (Schn.)
8. *Rana leithi* Boulenger

Family RHACOPHORIDAE

9. *Polypedates maculatus* (Gray)

SYSTEMATIC ACCOUNT

Family BUFONIDAE

1. *Duttaphrynus melanostictus* Schn.

Common Indian Toad

Material examined : Nigdale, Bhimashankar 2 exs, 11.ix.04, 2exs, 5.ii.2006.; Sambarshingi, 1 ex. 7.ii.06.

Diagnostic Characters : Snout to vent length between 60 to 75mm. Head, upper lip, tips of fingers, toes and metatarsal tubercles with prominent bony ridges. Tympanum 2/3 diameter of the eye. 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.

Family MICROHYLIDAE

2. *Microhyla ornata* Dumeril & Bibr.

Ornate Microhylid

Material examined : Bhakadevi, 2 exs, 12.ix.04; Nigdale, 1 ex. 5.ii.2006.

Diagnostic Characters : Size small, snout to vent length about 25-28 mm. Dorsal surface reddish brown with a characteristic marking on the back giving it an ornate look. Throat and chest whitish. 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.

Family RANIDAE

3. *Euphlyctis cyanophlyctis* (Schn.)**Skipper Frog**

Materials examined : Bhakadevi, 3 exs. 12.ix.04; Nigdale, 3 exs, 11.ix.04, 4 exs, 5.ii.2006.; Sambarshingi, 3 ex. 7.ii.06.

Diagnostic Characters : Medium sized frogs of 40 to 50 mm snout to vent length. 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 green above with darker marblings, ventrally white.

Distribution : Throughout the Indian Union.

4. *Fejervarya limnocharis* (Gravenhorst.)**Indian Cricket Frog**

Material examined : Nagphani point, 2 exs. 13.ix.04.; Forest Rest house Bhimashankar, 3 exs., 14.ix.04.

Diagnostic Characters : Small to medium sized frogs. Toes are half webbed. Tympanum 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.

Distribution : Throughout the Indian Union.

5. *Hoplobatrachus tigerinus* (Daudin)**Indian bull frog**

Material examined : Hanuman Talao, 2 exs. 13.ix.04; Gupta Bhimashankar, 2 exs., 12.ix.04, 2 exs., 8.ii.06.

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 the Indian union except Meghalaya; Nepal, Pakistan and Bangladesh.

6. *Hoplobatrachus crassus* (Jerdon)

Jerdon's Bull Frog

Materials examined : Gupta Bhimashankar, 1 ex., 12.ix.04.

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.

7. *Sphaerotheca breviceps* (Schnieder.)

Indian Burrowing Frog

Materials examined : Bhakadevi, 1 ex. 12.ix.04; Nigdale, 2 exs, 11.ix.04; Sambarshingi, 1 ex. 7.ii.06.; Hanuman Talao, 2 exs. 13.ix.06.

Diagnostic Characters : Medium sized Frogs. Snout short and rounded. Tympanum is $\frac{3}{5}$ the diameter of the eye. First finger is longer than the second finger. Tibiotarsal articulation reaching the shoulder when the leg is held by the side of the body. Toes are $\frac{3}{4}$ webbed. Inner metatarsal tubercle strong, large, crescent shaped and equal in length to the inner toe. Skin smooth or finely granular on the back, coarsely granular on the belly and thighs. Colour grayish above with white marblings. Thighs marbled with yellow ventrally, throat sometimes brownish, rest of the venter white.

Distribution : Throughout the Indian Peninsula, Nepal, Myanmar, Shri Lanka.

8. *Indirana leithi* Boulenger

Boulenger's brown frog

Materials examined : Nagphani point, Bhimashankar, 4 exs.10.viii.94, 2 exs. 13.ix.04; Gupta Bhimashankar, 1 ex., 12.ix.04; Bhatti, 4 exs. 5.ix.06.

Diagnostic Characters : Small sized frogs. Snout rounded. Tympanum is $\frac{2}{3}$ the size of the eye. Fingers with prominent disks which show a circum-marginal groove. First finger shorter than the second. Tibio-tarsal articulation reaching between the eye and the tip of the snout. Toes are $\frac{2}{3}$ webbed with a small inner metatarsal tubercle.

Distribution : Maharashtra, Kerala and Madhya Pradesh.

Family RHACHOPHORIDAE.

9. *Polypedates maculatus* (Gray.)

Common Tree Frog

Material examined : Gupta Bhimashankar, 1 ex., 12.ix.04.

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

SUMMARY

The sanctuary is an ideal habitat for many species of amphibians. There are many minor freshwater hill streams in the sanctuary that form during the rainy season and almost 25 percent of the sanctuary gets inundated with water making a good breeding site for the amphibians. 9 species of amphibians belonging to 8 genera and 4 families are recorded from the sanctuary in the present study.

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PISCES : FRESHWATER FISHES

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INTRODUCTION

Bhimashankar Wildlife Sanctuary forms a small but beautiful conservation area consisting of moist deciduous forest and good niches of hillstreams, smaller nallas, rivulets and ponds for smaller to medium sized fishes, especially torrential hillstream dwellers. It is situated at 19° 04' North and 73°32' East about 120 km NW of Pune, having an altitude of 900 m above sea level. The annual rainfall here is more than 150". An area of sanctuary of 130.70 sq. meter is an ideal example of sacred grove. Its protected habitats form fascinating home sites to larvivorous, aquarium and hillstream fishes like *Parapsilorhynchus* spp. *Noemacheilus* spp. etc. from Bhorgiri Ghod river which arises and flows to meet Bhima and Krishna rivers, forming the Krishna river system of Western Ghats, Maharashtra.

The scientists of Zoological Survey of India, W.R.S., Pune have conducted 8 periodic surveys of this unexplored area during 1965, 1977, 1986, 1991, 1994 and 2004-2005. The paper presents the piscine inventory of 21 species, belonging to 16 genera of 8 families under 5 orders. The fish species actually collected are 19 while one example was sighted and the other taken from the literature Singh (1994). Books by Day (1889), Jayaram (1981, 1999, 2006), Menon (1987) and Talwar and Jhingran (1991) were referred for fish identification.

SYSTEMATIC LIST

(Asterices indicate species actually collected)

Phylum CHORDATA

Class PISCES

Sub class TELEOSTOMI

Super Order OSTARIOPHYSI

Order CYPRINIFORMES

Family CYPRINIDAE

Sub family DANIONINAE

Tribe **Oxygasterini**1. **Salmostoma boopis* (Day)2. **Barilius bendelisis* (Ham-Buch.)

Tribe DANIONINI

3. **Danio aequipinnatus* McClelland4. **Rasbora daniconius* (Ham-Buch.)

Subfamily CYPRININAE

Tribe **Systomini**Subtribe **Osteobramae**5. **Osteobrama cotio* (Ham-Buch.)

Subfamily GARRINAE

6. **Crossocheilus l. latius* (Ham-Buch.)7. **Garra mullya* (Sykes)

Family PARAPSIORHYNCHIDAE

8. *Parapsilorhynchus elongatus* Singh9. **Parapsilorhynchus tentaculatus* (Anandale)

Family BALITORIDAE

Subfamily NEMACHEILINAE

10. **Schistura d. denisoni* (Day)11. **Oreonectes (Oreonectes) evezardi* (Day)

12. **Nemachilichthys d. pambaensis* Menon
13. **Nemachilichthys rupelli* (Sykes)
 - Family COBITIDAE
 - Subfamily COBITINAE
14. **Lepidocephalus thermalis* (Valenciennes)
 - Order SILURIFORMES
 - Family BAGRIDAE
 - Subfamily BAGRINAE
15. **Mystus malabaricus* (Jerdon)
 - Family SILURIDAE
16. **Ompok malabaricus* (Valenciennes)
 - Family SCHILBEIDAE
 - Subfamily SCHILBEINAE
17. **Neotropius atherinoides* (Bloch)
 - Order PERCIFORMES
 - Suborder CHANNOIDEI
 - Family CHANNIDAE
18. **Channa orientalis* Bloch & Schneider
19. **Channa punctatus* (Bloch)
 - Suborder PERCOIDEI
 - Family NANDIDAE
 - Subfamily PRISTOLEPIDINAE
20. **Pristolepis marginata* Jerdon
 - Order SYNBRANCHIFORMES
 - Suborder MASTACEMBELOIDEI
 - Family MASTACEMBELINAE
21. *Mastacembelus a. armatus* (Lacepede)

SYSTEMATIC ACCOUNT

Class PISCES

SubClass TELEOSTOMI

Super Order OSTARIOPHYSI

Order CYPRINIFORMES

Family CYPRINIDAE

Subfamily DANIONINAE

Tribe **Oxygasterini**

1. ***Salmostoma boopis** (Day)

1873. *Chela boopis* Day, *Proc. Zool. Soc., London* 708 (Type locality : South Canara).

1999. *Salmostoma boopis*, Menon, *Freshwater Fishes of India Rec. zool. Surv. India, Occ. Paper No., 175* : 1-366.

Common Name : Boopis razor belly minnow, Marathi name : Alkut.

Diagnostic characters : Lower lip extended, mouth oblique, large eyes. Thick black or silvery lateral band on body, dorsal fin rays iii 7, A. iii 12-14, Pi – 14, Vi 8, scales in lateral line 40.

Material examined : 1 ex., Ghod river, Shirval, G.M. Yazdani, 2.7.1977; 5 exs., Hanuman tank, Bhimashankar, P.D. Rane, 10.10.2005.

Distribution : Peninsular India.

Status : Rarely occurring.

Habitat : It inhabits upper reaches of rivers.

2. *Barilius bendelisis (Ham-Buch.)

1807. *Cyprinus bendelisis* Hamilton, *Journey Mysore*, 3 : 345, pl. 32 (Type locality : Vedawti Stream, head waters of Krishna, Mysore).

1999. *Barilius bendelisis*, Menon, *Rec. zool. Surv. India, Occ. Paper, 175* : 1-366.

Common Name : Hamilton's barila Marathi name : Jhorya.

Diagnostic characters : Two pairs of barbels present, lateral line scales 40-44, anal fin with 9-11 rays, no vertical bars, each scale with black spot.

Material examined : 8 exs., Ghod river, Dimbhe dam, Bhimashankar, G.M. Yazdani, 11.8.1994.

Distribution : Throughout India.

Elsewhere : Pakistan, Nepal and Bangladesh.

Status : Common.

Habitat : It occurs in hill streams and rivers.

Tribe DANIONINI

3. **Danio aequipinnatus* (McClelland)

1839. *Perilampus aequipinnatus* McClelland, *Asiat. Res.*, 19(2) : 393, pl. 60 fig. 1 (Type locality : Assam).

1999. *Danio aequipinnatus*, Menon, *Rec. zool. Surv. India, Occa. Paper*, 175 : 1-366.

Common Name : Giant danio. Marathi name : Balooki.

Diagnostic characters : Body elongate, compressed, abdomen rounded. Head blunt, snout obtuse, mouth directed upwards. Eyes large, lower jaw with symphyial knob. Body with longitudinal band. Barbels well developed, lateral line scales 34-36.

Material examined : 1 ex., on the way to Bhorgiri, P.P. Kulkarni, 24.2.2005.

Distribution : Throughout India.

Elsewhere : Nepal, Bangladesh, Mynmar and Thailand.

Status : Common.

Habitat : It inhabits clear streams and foothills. It is a good larvivorous and aquarium fish.

4. **Rasbora daniconius* (Ham-Buch.)

1822. *Cyprinus daniconius* Hamilton, *Fish Ganges*, p. 327, pl. 15, Fig. 89 (Type locality : Southern Bengal).

1999. *Plarluciosoma daniconius*, Menon, *Rec. zool. Surv. India, Occa. Paper*, 175 : 1-366.

Common Name : Black line rasbora. Marathi name : Danda.

Diagnostic characters : A symphyial knob on lower jaw present. Mouth oblique, directed upwards. Barbels absent, curved lateral line with 32-34 scales, anal fin with 7-8 rays. Thick black median band present from eye to caudal fin.

Material examined : 14 exs., Ghod river near Dimbhe dam, Bhimashankar, G.M. Yazdani, 11.8.1994.

Distribution : Throughout India.

Elsewhere : Pakistan, Srilanka, Bangladesh, Myanmar and Thailand.

Status : Common.

Habitat : It inhabits clear but slow stream pools and ditches in the plains, having sandy bottom.

Sub family CYPRININAE

Tribe SYSTOMINI

Subtribe OSTEORAMAE

5. **Osteobrama cotio* (Ham-Buch.)

1822. *Cyprinus cotio* Hamilton, *Fish Ganges*, pl. 39, Fig. 93. (Type locality : Bengal).

1999. *Osteobrama cotio cotio*, Menon, *Rec. Zool. Surv. India, Occ. Paper*, 175 : 1-366.

Common Name : Cotio.

Diagnostic characters : Short, deep compressed body. Mouth small, directed upwards. Eyes large, lips thin, barbels absent, anal fin with more than 20 branched rays. Abdominal edge keeled between pelvic and anal fin, PDS 24-28, lateral line scales 57-70.

Material examined : 30 exs., Ghod river, Shirval, G.M. Yazdani, 2.7.1977.

Distribution : India : Maharashtra, Assam, West Bengal, Bihar, Madhya Pradesh, Uttar Pradesh, Punjab.

Elsewhere : Pakistan, Bangladesh.

Status : Rarely occurring.

Remarks : It inhabits rivers, ponds, lakes and ditches.

Sub family GARRINAE

6. **Crossocheilus l. latius* (Ham-Buch.)

1822. *Cyprinus latius* Hamilton, *Fish Ganges*, pp. 345, 393. (Type locality : River Tista).

1999. *Crossocheilus latius latius*, Menon, *Rec. Zool. Surv. India, Occa. Paper*, 175 : 1-366.

Common Name : Gangetic latia.

Diagnostic characters : Elongate body, eyes large, behind middle of head. Upper and lower lips not continuous, a pair of rostral barbels present. Dorsal fin with 10-11 rays without spine. Anal fin short with 7 rays. Lateral line with 37-42 scales. Head length more than 5 times in SL.

Material examined : 1 ex., on the way to Bhorgiri, P.P. Kulkarni, 24.2.2005.

Distribution : India : Ganga, Brahmaputra, Mahanadi, Western Ghats, South of Krishna, Wardha river.

Status : Uncommon.

Habitat : It inhabits mountain streams and lakes.

7. **Garra mullya* (Sykes)

1841. *Chondrostoma mullya* Sykes, *Trans. Zool. Soc. Lond.*, **2** : 359, pl. 62, fig. 3.

1999. *Garra mullya*, Menon, *Rec. Zool. Surv. India, Occ. Paper*, **175** : 1-366.

Common Name : Mullya garra. Marathi name : Mallya,

Diagnostic characters : Mouth inferior, transverse, semicircular, eyes small in the posterior half of head. A suctorial disc present on the chin. Paired fins horizontal, non plaited. Anal fin short with 6-8 rays. Lateral line with 34 scales.

Material examined : 3 exs., Hanuman tank, Bhimashankar, P.D. Rane, 10.10.2005.
Distribution: Through out India, except Assam and Himalaya.

Status : Common.

Habitat : These are hillstream and bottom dweller fishes. A dark lateral band present on body.

Family PARAPSIORHYNCHIDAE

8. *Parapsilorhynchus elongatus* Singh

1994. *Parapsilorhynchus elongatus* Singh, *J. Bombay nat. Hist. Soc.*, **91** : 282-285 (Type locality : Ghod river, Khondwal vill. Ambegaon Taluka, Pune Dist., M.S.).

Common Name : Top minnow.

Diagnostic characters : Pectoral fin with 3 simple rays, posterior part of lower lip thickened, lateral line scales 35-36, eyes visible from underside of head, pectoral fin length 1.33 and 4.5 times in head length; body depth 5.8 times in SL.

Distribution : Bhimashankar, Pune.

Status : Uncommon.

Habitat : It is an endemic hillstream fish of the Western Ghats.

9. **Parapsilorhynchus tentaculatus* (Annandale)

1919. *Psilorhynchus tentaculatus* Annandale, *Rec. Indian Mus.* **16** : 125 (Type locality : Pophli, Vashishti Valley, Ratnagiri Dist., Maharashtra).

1981. *Parapsilorhynchus tentaculatus*, Jayaram, *HBFW, Fish, India*, 1-475.

1999. *Parapsilorhynchus tentaculatus*, Menon, *Rec. zool. Surv. India, Occa. Paper*, 175 : 1-366.

Common Name : Top minnow.

Diagnostic characters : Lateral line with 34 scales. Body depth 4.1 in standard length. Scales with well defined nucleus.

Material examined : 5 exs., Ghod river, near Khandwal village, M.S. Pradhan, 3.6.1986, 2 exs., Naghani point, Bhimashankar, G.M. Yazdani, 10.8.1994; 20 exs., Nigdale, Bhimashankar, S.G. Patil, 23.11.2004; 3 exs., Kondhwal, P.P. Kulkarni, 18.1.2007.

Distribution : India : Maharashtra : Pune, Ratnagiri, Satara Districts; Madhya Pradesh, Andhra Pradesh.

Status : Common in Western Ghats.

Habitat : These are 3-4 cm. long hillstream fishes.

Family BALITORIDAE

Sub family NEMACHEILINAE

10. **Schistura d. denisoni* Day

1867. *Noemacheilus denisoni* Day, *Proc. Zool. Soc. Lond.*, 287. (Type locality : Bhavani river, base of Nilgiris).

1987. *Noemacheilus d. denisoni*, Menon, *Fauna of India, Pisces*, 4(1) : 101, pl. 10 fig. 7.

Common Name : Stone loach.

Diagnostic characters : Body depth 4.5 to 7 in SL. Thread like barbels. Dorsal fin inserted midway. Caudal deeply emarginated with rounded lobes. Scales small, lateral line incomplete ending in front of dorsal fin.

Material examined : 10 exs., Bhimashankar Ghat, Ambegaon tal., Pune, B.S. Lamba, 5.5.1994.

Distribution : Peninsular India, Chhota Nagpur plateau, Bihar, Bastar, Madhya Pradesh.

Status : Common.

Habitat : These are hillstream fishes.

11. **Oreonectes (Oreonectes) evezardi* (Day)

1878. *Noemacheilus evezardi* Day, *Fish India*, 613, pl. 153, fig. 11 (Type locality : Poona).

1987. *Noemacheilus evezardi*, Menon, *Fauna of India, Pisces*, 4(1) : 191, pl. 4. fig. 1& 2.

Common Name : Stone loach.

Diagnostic characters: Eyes minute, anterior nostril barbell like. Mouth semicircular, lips fleshy, both interrupted in middle. Dorsal fin inserted nearer to caudal fin base than snout, caudal fin rounded. Lateral line incomplete ending middle of pectoral fin.

Material examined : 17 exs., Bhimashankar Ghat, 6 km East of forest bungalow, B.S. Lamba, 4.5.1965; 8 exs., Bhaka devi, Bhimashankar, G.M. Yazdani, 12.8.1994; 4 exs., Khondwal, Bhimashankar, S.G. Patil, 19.11.2004; 30 exs., Vir point, Nigdale, S.G. Patil, 20.11.2004.

Distribution : Maharashtra: Western Ghats, Madhya Pradesh, Satpuraranges.

Status : Common.

Remarks : Body with 14-15 brown V or Y shaped vertical oblique stripes. Big round spots present on head. Small black spot present at the base of dorsal, caudal and dorsal fin with 3 rows of dark spots.

12. **Schistura d. pambaensis* Menon

1987. *Noemacheilus d. pambaensis* Menon, *Fauna of India, Pisces*, 4(1): 103, figs. 5 & 6 pl. 10. (Type locality: Saberigiri, SE of Pamba, Kerala).

1999. *Noemacheilus d. pambaensis*, Menon, *Rec. zool. Surv. India Occa. Paper No.*, 175 : 1-366.

Common Name : Stone loach.

Diagnostic characters : A sub species of *Schistura* with 8 branched dorsal fin rays, lateral line incomplete, body marked with broad bands.

Material examined : 22 exs., Ghod river, Dimbhe dam G.M. Yazdani, 11.8.1994.

Distribution : Pamba river, Kerala, Bhimashankar, Pune, Maharashtra.

Status : Uncommon.

Remarks : It is a broad sized hillstream fish.

13. **Nemachilichthys rupelli* (Sykes)

1841. *Cobitius ruppelli* Sykes, *Trans. Zool. Soc. Lond.*, 2 : 366, pl. 64 fig. (Type locality : Dakkan).

1887. *Noemacheilus ruppelli*, Menon. *Fauna of India, Pisces* 4(1) : 158, fig. 1, pl. 12.

1999. *Noemacheilus rupelli*, Menon, *Rec. zool. Surv. India, Occ. Paper* 175 : 1-366.

Common Name : Stone loach.

Diagnostic characters : A large sized loach, snout long, prominent eyes, long barbels, 10 branched rays in dorsal fin, caudal fin forked. 18-19 brownish vertical bands present on body.

Material examined : 5 exs., Ghod river, Dimbhe dam, G.M. Yazdani, 11.8.1994; 1 ex. Ghod river, Shinovali, Bhimashankar, A.S. Mahabal, 26.6.1991.

Distribution : Western Ghats : Maharashtra and Karnataka.

Status : Rare.

Remarks : These fishes inhabit streams, rivers and lakes, below Ghat.

Family COBITIDAE

Sub family COBITINAE

14. **Lepidocephalus thermalis* (Valenciennes)

1845. *Cobitis thermalis Valenciennes* (in C.&V.) *Hist. Nat. Poiss.*, **18** : 78 (Type locality : Hot springs of Kaniyas, E.P. Sri Lanka).

1992. *Lepidocephalus thermalis*, Menon, *Fauna of India, Pisces*, **4(2)** : 60 pl. V, figs. 1-8, pl. VIII, figs. 3-5.

Common Name : Loach. Marathi name : Chikhali.

Diagnostic characters : Elongate specimens. Dorsal fin originate before ventrals and nearer to caudal base than the tip of snout. 10-12 spots present along the side of body. Caudal with 4 V shaped bands and black spot on caudal base.

Material examined : 6 exs., Bhorgiri, S.G. Patil, 20.11.2004.

Distribution : India : Kerala, Karnataka, Maharashtra.

Elsewhere : Sri Lanka.

Status : Common.

Habitat : These fishes occur in clear streams with sandy bottom.

Order SILURIFORMES

Family BAGRIDAE

Subfamily BAGRINAE

15. **Mystus malabaricus* (Jerdon)

1849. *Bagrus malabaricus* Jerdon, *Madras J. Lit. Sci.* **15** : 338 (Type locality : Mountain streams in Malbar).

1981. *Mystus malabaricus*, Jayaram, *HBFW fish. India*, p. 203.

1999. *Mystus malabaricus*, Menon, *Rec. zool. Surv. India, Occa. Paper*, **175** : 1-366.

Common Name : Jerdon's mystus. Marathi name : Shingeti.

Diagnostic characters : Median longitudinal groove on head not reaching base of occipital process. Occipital process short, 1-2 times longer than wide at base. Body depth

4.5 to 6 times in SL. A dark band along lateral line ending with a dark blotch at the base of caudal fin.

Material examined : 2 exs., Ghod river, Dimbhe dam, M.S. Pradhan, 3.6.1986; 10 exs., Ghod river, Dimbhe dam, G.M. Yazdani, 11.8.1994.

Distribution : Western Ghats : Maharashtra, Karnataka, Kerala.

Status : Common.

Habitat : Inhabits freshwater and estuaries.

Family SILURIDAE

16. **Ompok malabaricus* (Valenciennes)

1839. *Silurus malabaricus* Valenciennes, (in C.& V.) *Hist. Nat. Poiss.*, **14** : 353 (Type locality : Malabar).

1981. *Silurus goae*, Jayaram, *HBFW Fish, India*, p. 211.

1999. *Ompok malabaricus*, Menon, *Rec. zool. Surv. India, Occa. Paper*, **175** : 1-366.

Common Name : Goan catfish.

Diagnostic characters : Maxillary barbels longer, posteriorly beyond head, penvic fin with 7 to 9 rays. Anal fin with 63 to 69 branched rays.

Material examined : 1 ex., Ghod river Dimbhe dam, M.S. Pradhan, 3.6.1986.

Distribution : Goa to Kerala.

Status : Uncommon.

Habitat : It inhabits rivers in plain and submontaine regions.

Family SCHILBEIDAE

Sub family SCHILBEINAE

17. **Neotropius atherionoides* (Bloch)

1794. *Silurus atherionoides* Bloch, *Natuges Ausland Fische*, **8** : 48, pl. 371, fig. 1. (Type locality : Tranquebar, Tamil Nadu).

1991. *Pseudeotropius atherionoides*, Talwar & Jhingran, *Inland Fish*, **2** : 606, fig. 200.

Common Name : Indian potasi. Marathi name : Sura.

Diagnostic characters : Head 4.1 to 4.8 in SL Maxillary barbels extend upto anal fin. Anal fin inserted behind dorsal fin. Eye diameter 2.5 to 3 in head length.

Material examined : 1 ex., Ghod river, Shinoval, G.M. Yazdani, 2.7.1977.

Distribution : India : Eastern Himalaya, Peninsular India, except Kerala.

Elsewhere : Pakistan, Bangladesh, Nepal, Myanmar.

Status : Common.

Habitat : It inhabits rivers and estuaries.

Order PERCIFORMES
Suborder CHANNOIDEI
Family CHANNIDAE

18. **Channa orientalis* Bloch & Schneider

1801. *Channa orientalis* Bloch and Schneider, *Syst. Ichtt.*, P. 496, pl. 90, fig. 2 (Type locality : India).

1999. *Channa orientalis*, Menon, *Rec. zool. Surv. India, Occ. Paper*, 175 : 1-366.

Common Name : Asiatic snakehead.

Diagnostic characters : Pelvic fin less than 50% of pectoral fin length. Caudal fin rounded, pre dorsal scales 12, scales in L.I. 40-50 chin marbled A= 21-23 rays, D+ 32-37 rays.

Material examined : 7 exs., Bhimashankar, P.D. Rane, 9.10.2005.

Distribution : Throughout India.

Elsewhere : Iran, Afghanistan, Pakistan, Nepal, Sri Lanka, Bangladesh, Myanmar, Thailand, Yunan, Malaya-Archipelago, Hainan and Taiwan.

Status : Common.

Habitat : Found in the streams of high altitude places. Also survives in poor oxygenated waters.

19. **Channa punctatus* (Bloch)

1794. *Ophiocephalus punctatus* Bloch, *Natur. Aus. Fische.* 7 : 139, pl. 358 (Type locality : Coromandala coast).

1999. *Channa punctatus*, Menon, *Rec. zool. Surv. India, Occ. Paper*, 175 : 1-366.

Common Name : Snakehead. Marathi name : Maral.

Diagnostic characters : Pelvic fin about 75% of pectoral fin length. Scales in L.I. 37-40.

Colour : Black green dorsally and on flanks. Ventral side pale yellow to reddish. Dark blotches present on flanks. Black spots present on body, dorsal and caudal fin.

Material examined : 2 exs., Ghod river, Dimbhe dam, G.M. Yazdani, 11.8.1994.

Distribution : Throughout India.

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

Status : Common.

Habitat : It is a medium sized fish, a prolific breeder, forms nest under water. It occurs in muddy water. It is also available at high altitude waterbodies.

Suborder PERCOIDEI

Family NANDIDAE

Subfamily PRISTOLEPINAE

20. **Pristolepis marginata* Jerdon

1848. *Pristolepis marginata* Jerdon, *J. Lit. Sci.* **15** : 141. (Type-locality : Manan Toddy river, north Malabar).

1996. *Pristolepis marginata*, Yadav, *Geobios new Reports*, **15**(1) : 55-56.

1999. *Pristolepis marginata*, Menon, *Rec. zool. Surv. India, Occa. Paper*, **175** : 1-366.

Common Name : Malabar catopra.

Diagnostic characters : D15, 11, A 4, 9, 1, 1, 28.

Colour : Faint grey in the middle, dark on dorsal and ventral portions, fins darker.

Material examined : 1 ex., Ghod river, Bhimashankar, G.M. Yazdani, 11.8.1994.

Distribution : India : Western Ghats, Maharashtra, Kerala.

Status : Uncommon.

Habitat : It occurs in clear, rapid streams. It is a new record from northern part of Western Ghats (Yadav, 1996).

Order SYNBRANCHIFORMES

Suborder MASTACEMBELOIDEI

Family MASTACEMBELIDAE

Subfamily MASTACEMBELINAE

21. *Mastacembelus a. armatus* (Lacepede)

1799. *Macrogathus armatus* Lacepede, *Hist. Nat. Poissons*, II, 286 (Type-locality : Not known).

1990. *Mastacembelus a. armatus*, Yazdani, *Rec. zool. Surv. India, Occ. Paper No.*, **124** : 1-36 (*Fauna India, Fish*).

Common Name : Spiny eel.

Diagnostic characters : Body eel-like, elongated, compressed, long ventral surface. Pre orbital spine present. Dorsal spines and soft rays more than 100, gape of mouth 14 to 22% of total length, Gape of mouth extending to below posterior nostrils or beyond.

Material examined : Specimen sighted but could not collected. 1 ex., Bhimashankar, S.S. Kamble, 10.2.2005.

Distribution : Throughout India.

Elsewhere : Pakistan, Nepal, Bangladesh, Sri Lanka, Myanmar, Thailand, Vietnam, China, Malaya, Sumatra, Java.

Status : Common.

Habitat : These are carnivorous, nocturnal bottom feeders living in the mud.

RESULTS AND DISCUSSION

Systematic study and the status of Indian Ichthyofauna has been well studied during the last five decades by Jayaram (1981), Talwar and Jhingran (1991) Yazdani (1990) and Menon (1999, 2004) comprising about 650 species of freshwater fishes including detailed account of the species. However, in Maharashtra many ichthyologists concentrated their studies on the Western Ghats (Hora & Misra, 1937, 1939, 1942; Silas, 1953, Sykes 1841, Yazdani 1991). Recently Yadav (2003, 2004, 2005 a, 2005b, 2006) studied ichthyofauna of northern part of Western Ghats and conservation area study of Vidarbha region.

However, Bhimashankar Wildlife Sanctuary a small but high altitude ecosystem of Western Ghats is less explored. Parties of the Zoological Survey of India, W.R.S., Pune conducted a detailed survey of this area from 1986 to date so as to cover study of entire water bodies of sanctuary. The collection was made from mainly Ghod river, Dimbhe dam, Kondhwal, Bhimashankar Ghat, Hanuman tank, Bhorgiri and various small nallas, rivulets and streams in hills of Bhimashankar. Interestingly as expected, hillstream fishes of small to medium size dominate the fauna which also include foothill inhabitants and riverine fishes are few in number.

The ichthyofauna herein represents 21 species under 16 genera, 8 families and 5 orders. Order Cypriniformes forms a predominant group of 14 species which all are siluriformes/hillriformes (catfishes) and Perciformes (perches) are less in number. From Bhimashankar species of the genera *Puntius*, *Labeo* and *Cirrhinus* could not be collected. It was observed that the study of ichthyofauna of Nathsagar Wetland, Jaikwadi, (Yadav, 2005b) and Ujani Wetland (Yazdani & Singh, 2002), surface feeders and column dwellers as well as medium to large sized fishes were more. Probably it is because of the huge area of both water bodies. Bhimashankar has unique ecological importance due to the origin of Bhima river which ultimately forms the Krishna drainage system in the Western Ghats.

The piscine fauna of Bhimashankar includes one recently described endemic species i.e. *Parapsilorhynchus elongatus* Singh (1994), one rare species *Nemachilichthys rupelli* Sykes as per Menon (1999). Yadav (1996) recorded the percoid fish *Pristolepis marginata* Jerdon from Ghod river, Bhimashankar, Katraj tank and Wagholi, Pune. The said fish is known to inhabit clear water and mid streams (Talwar and Jhingran, 1991). 12 species are commonly occurring ones, 5 species are uncommon and 4 species are rare in occurrence. Thus, Bhimashankar Wildlife Sanctuary is observed to be a well protected conservation area and sacred grove.

SUMMARY

The ichthyofauna of Bhimashankar Wildlife Sanctuary represents hillstream and riverine fishes comprising 21 species under 16 genera, 8 families and 5 orders, of which one is a new record, two species are endemic, and one species is rare.

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ARACHNIDA : SCORPIONES

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INTRODUCTION

The scorpion fauna of Bhimashankar conservation area is being studied for the first time. The present study deals with 3 families, 3 genera and 6 species from the sanctuary, the details of which are presented below.

SYSTEMATIC LIST

Class ARACHNIDA

Order SCORPIONES

Family BUTHIDAE

Genus *Mesobuthus* Vachon

1. *Mesobuthus tamulus tamulus* (Fabr.)

2. *Mesobuthus rugiscutis* (Pocock)

3. *Mesobuthus pachyurus* (Pocock)

Family EUSCORPIIDAE

Genus *Neoscorpiops* Vachon

4. *Neoscorpiops tenuicauda* (Pocock)

Family SCORPIONIDAE

Genus *Heterometrus* Hemp. & Ehb. & Ehreb.

5. *Heterometrus (Chersonesometrus) phipsoni* (Pocock)

6. *Heterometrus (Heterometrus) keralensis* Tikader & Basdtawade

SYSTEMATIC ACCOUNT

Order SCORPIONES

Family BUTHIDAE

Subfamily BUTHINAE

Genus *Mesobuthus* Vachon

1. *Mesobuthus tamulus tamulus* (Fabr.)

1798. *Buthus tamulus* : Frabricius, *Syst. Suppt.*, : 294.

1900. *Buthus tamulus tamulus* : Pocock, *Fauna of Brit. India, Arachnida*, : 24-25.

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, males smaller, slender and more active than females. Prosoma carinated and posterior median forming Lyre-form configuration with central median carinae. Granular on prosoma and mesosomal tergites, tergites I-VI tri-carinated. Pectinal teeth count 25-35, may reach up to 40 in case of male. Pedipalps slender, narrow on manus in female but more robust and globular in male, with 'A' type Trichobothria of β pattern on femora. Meatsomal segment I always longer than wide, all metasomal segments carinated and telson with robust vesicle and strongly curved, acutely pointed aculeus.

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 preferably give birth to baby scorpions during May and October months.

Material examined : 2 Female, Loc. : Bhimashankar, Coll. : M.S. Pradhan, 21.v.1985, Reg. No. I/708; 1 Female, 47ys. Loc. Rajapur vill. On Dimbe-Bhmashankar Road, Coll : P.P. Kulkarni, 08.xi.1993, Reg. No. I/2085.

Distribution : India : Maharashtra, except coastal Konkan area, Andhra Pradesh and Karnataka.

2. *Mesobuthus rugiscutis* (Pocock)

1897. *Buthus rugiscutis* Pocock, *J. Bombay nat. Hist. Soc.*, **11** : 106.

1983. *Mesobuthus rugiscutis* : Tikader and Bastawade, *Fauna of India, Scorpions*, 3 : 229-235.

Common Name : Brown Scorpion.

Local name : Tambada Vinchu (Marathi), Chol (Karnataka), Bichhi (Bangala).

Diagnostic characters : Body color yellowish brown with reddish tinge, size medium, males smaller and slender than females, all carinae granular, prosoma almost as long as wide, granular and posterior median carinae form broader Lyre-form configuration with median central carinae; mesosomal tergites granular, each I-VI tergites with a median granular carina; metasoma almost four times as long as prosoma with segment I wider than long, carinae on each segments well developed and granular, telson vesicle as long as IV segment and slightly less than as wide or deep as segment V, globular with granular ventral surface, aculeus more curved, sharply pointed; male with robust manus of pedipalp and movable finger with 13 minute teeth on outer row, trichobothria of β configuration; pectines well developed and with 20-22 teeth.

Habits and Habitat : Normally found under stones and rocks on high altitude plateaus of Western Ghats, rarely encountered through laterite rocks. Prefers to feed on smaller insects, arachnids, millipedes and centipedes. Females parturate during pre-monsoon and post-monsoon months of the year and about 20-25 baby scorpions are born at time, all remain on back of the mother at least for first two molts. No definite reports are available for other biological particulars.

Material examined : 1 Female, 1 Male, Loc. Bhakadevi & around, Bhimashankar, Coll D.B. Bastawade, Dt. 05.viii.2005, Reg. No. I/3431.

Distribution : Kolhapur, Sindhudurg, Ratnagiri, Satara, Pune, and Raigad Dists., Maharashtra.

3. *Mesobuthus pachyurus* (Pocock)

1897. *Buthus pachyurus* Pocock, *J. Bombay nat. Hist. Soc.*, 11 : 107.

1899. *Buthus pachyurus* : Kraepelin, *Tierr. Scorp. Etc.*, : 20.

1900. *Buthus pachyurus* : Pocock, *Fauna Brit. India, Arachn.*, : 27.

1983. *Mesobuthus pachyurus* : Tikader & Bastawade, *Fauna of India, Scorpionida*, 3 : 236-242.

Common Name : Brown Scorpion.

Local names : Rakhat Vinchu (Marathi).

Diagnostic characters : Body size 42-48 mm long, entire body surface coarsely granular and rough, carapaceal posterior median and median carinae forming broad Lyre-form configuration, lateral carinae developed only on middle portions. Anterior carinae never form granular ring in inter-ocular region, a pair of median eyes situated anteriorly

roughly in the ratio 1 : 1.75, lateral ocular tubercles with five contiguous eyes. Chelicera with normal dentition of family Buthidae. Pedipalp with femur and patella shorter than carapace, manus more robust in male than in female, dentitions on finger non-imbricated and outer row on movable finger bear 11-12 teeth, Trichobothrial pattern A type with b angle on femur, no trichobothries on ventral surface of patella. Pectines well developed $4\frac{1}{2}$ times longer than wide, with 22-24 teeth. Cephalothoracic sternum triangular. Mesosomal tergites coarsely granular, tri-carinated on I-VI tergite, tergite VII with 4 carinae, all carinae granular, sternites III-VI smooth each with a pair of elliptical book lungs, sternite VII weakly granular on lateral portions and with 2 pairs of carinae. Metasoma 4 times as long as carapace, robust, segment I always wider the long, entire surface of each segment granular, segments I-IV with all ten carinae, segment V shorter than carapace or patella, granular with inferior lateral. Inferior and inferior median carinae, all granular, telson as long as segment V, vesicle as long as segment IV, granular on entire surface, aculeus long but shorter than vesicular length, curved, sharp, reddish brown on distal portion.

Material examined : 1 Female, Loc. Bhimashankar Forest Rest House.

Distribution : Kolhapur, Sangli, Satara, Pune, Ahmednagar, Solapur, Latur, Aurangabad Districts, Maharashtra, INDIA.

Family EUSCORPIIDAE
Genus *Neoscorpiops* Vachon

4. *Neoscorpiops tenuicauda* (Pocock)

1894. *Scorpiops montanus tenuicauda* Pocock, *Ann. Mag. Nat. Hist.*, 16(6) : 77.

1899. *Scorpiops montanus tenuicauda* : Kraepelin, *Tierr. Scorp. Etc.*, : 181.

1900. *Scorpiops montanus tenuicauda* : Pocock, *Fauna Brit. India, Arachn.*, : 72

1980. *Scorpiops (Neoscorpiops) tenuicauda* : Vachon, *Bull. Mus. natn. Hist. Nat., Paris*, 4e ser., 2 Sect., A(1) : 143.

1983. *Scorpiops (Neoscorpiops) tenuicauda* : Tikader & Bastawade, *Fauna of India, Scorpions*, 3 : 396-403.

1998. *Neoscorpiops tenuicauda* : Bastawade, *J. Bombay nat. Hist. Soc.*, 94(1) : 104-114.

Common Name : Scorpions.

Local name : Vinchu (Marathi), Bichhu (Hindi).

Diagnostic characters : Body 42-52 mm in length, brownish black but more darker on metasoma and pedipalps, legs paler than body colour, telson clear yellow but darker on aculeus, ventral side of body yellowish, carapace finely and irregularly granular, a pair of median eyes situated in the ratio 1 : 2.25-2.50, three contiguously placed lateral eyes,

anterior margin deeply incised medially. Cheliceral movable finger armed with 5-6 minute teeth on inner margin. Pedipalp digits dorso-ventrally flat, carinated, inner surface of patella with a pair of tuberculate spines at the base, dentition on fingers double dentate and scalloped at the base, more prominent in males; trichobothrial pattern typical as in the genus *Neoscorpions*, with more than 5 *est* and 13-14 *V* on patella. Legs normal with spine formula 5/5, 5/5, 6/6, 6/6 in male and 5/5, 5/5, 4/6, 5/6 in female. Cephalothoracic sternum pentagonal and pectinal teeth 7/7 in numbers. Mesosomal tergites III-VI each with a median smooth carina and weakly granular on lateral portion, all sternites smooth. Metasomal segments carinated and dorsal carinae elevated on posterior end and spiniform on III & IV segments, telson longer than V segment, and aculeus 1/3rd of vesicular length.

Habits and Habitats : This rupicolous scorpion prefers to inhabit thinner crevices of hard to soft rocks and the outcrops of road cuttings; rarely seen in the root clusters of Bamboo plants and in rainy season often seen under barks of larger trees in the Park area. This scorpion needs more humid habitats compared to scorpions. Very rarely the specimen be found under stones, bricks and logs, unless the habitat remains fully covered under dense forest. They feed on smaller to medium sized insects, scolopendra and some times scutigera and ground dwelling spiders. They normally breed and parturate about 15-20 young ones.

Material examined : 2 Female, Loc. Bhimashankar, Coll. : M.S. Pradhan, 21.v.1985, Reg. No. I/708; 1 Female, Loc. Bhimashankar, vill. Khandar, Coll. M.S. Pradhan, 30.i.1994, Reg. No. I/2150. 1 Male 1 Female, Loc. Bhakadevi, B'shankar, Coll. G.M. Yazdani, 12.viii.1994, Reg. No. I/2169. 1 Female, 1 Male, Loc. : On the way to Sambasinghi, 24.v.2005, Reg. No. I/3407. 4 Female, 2 Male, Loc. Bhorgiri and around, 09.xii.1994, Coll. : P.P. Kulkarni, Reg. No. I/2083 and Beyond Vanaspati point, Bhimashankar, Coll. P.P. Kulkarni, 11.xi.1994. Reg. No. I/2084.

Distribution : Matheran, Raigad; Sanjay Gandhi National Park, Borivali, Mumbai and Thane; Bhimashankar, Pune Maharashtra, INDIA; endemic to these areas in Western Ghats.

Family SCORPIONIDAE

Genus *Haterometrus* Hemprich & Ehrenberg

5. *Heterometrus (Chersonesometrus) phipsoni* (Pocock)

1893. *Scorpio phipsoni* Pocock, *J. Bombay nat. Hist. Soc.*, 7 : 370.

1900. *Palamnaeus phipsoni* : Pocock, *Fauna Brit. India, Arachn.*, : 94.

1983. *Heterometrus (Chersonesometrus) phipsoni* : Tikader & Bastawade, *Fauna of India, Scorpions*, 3 : 646-651.

Common Name : Black Scorpion.

Local Name : Ingali (Marathi), Kakada Bichhi (Bengali).

Diagnostic characters : Body large ranging from 95.00 to 110 mm in length, entirely black except for dark brown on chelicerae, legs and telson; carapace weakly granular on lateral portions, median ocular tubercles smooth with a median suture, provided with a pair of median eyes situated anteriorly in the ratio 1 : 1.1; pedipalps stout, elongated, expanded on manus but manus narrowed distally, femora and patellae longer than carapace and carinated, manus shorter than femora but slightly longer than carapace, trichobothrial pattern C type with 3 ventrals on femora, legs smooth, spine formulae on legs I-IV : 5/7 5/7, 5/7 5/7, 5/75/7 & 5/7 5/7.; pectines well developed and with 15/15 teeth; Mesosomal tergited I-VI smooth, with out carina; cauda slightly more than three and a half times as long as carapace, segment V more than twice longer than wide, segments I-IV with crenulated dorsal, dorsolateral carinae, inferior carinae smooth, inferior lateral and inferior median carinae serrated, telson longer than segment V but shorter than carapace, vesicle longer than segment IV but less as wide and deep as segment V, aculeus less bent and slightly more than half the length of vesicle.

Habits and Habitats : A common species found on hill sides of Western Ghats of Maharashtra. Inhabits in the self-made tunnels/burrows, mostly in support of firmly fixed stones or boulders. The tunnels are generally prepared on the slopes and at an angle of 3-45 ° to avoid inflow of rainwater in to the tunnel. Tunnels 10-12 “ deep from the ground level and the support of stone keeps it cooler by 4-5 °C below the atmospheric temperature. End of the tunnel seems to be expanded to form a ‘living chamber’ and lined with a finely granular loamy soil. Many a times it is observed that individuals of more than one generation stay in a same tunnel with mother, indicating parental care and social behavior. They feed around the tunnel up to 10 mts. diameter, mostly feeding on smaller invertebrates and occasionally on smaller mammals. At two of the excavated burrows of the species, a specimen each of a tiny frog belonging to the genus *Ramanella*, were seen seated beneath the mesosoma of this scorpion.

Material examined : 1 Male, Loc. Hanuman Tank and around, Bhimashankar, Coll. : D.B. Bastawade, 03.viii.2005, Reg. No. I/3429.

Distribution elsewhere : Kolhapur, Sangli, Satara, Pune, Ahmednagar, Raigad, Thane, Nasik and Dhule Dists., Maharashtra.

6. *Heterometrus (Heterometrus) keralensis* Tikader & Bastawade

1983. *Heterometrus (Heterometrus) keralensis* Tikader & Bastawade, *Fauna of India, Scorpions*, 3 : 528-533.

Common Name : Black Scorpion.

Local Name : Ingali (Marathi), Kakada Bichi (Bangali).

Diagnostic characters : Large body, ranging 105-115 mm in length, almost entirely black in colour, except for the reddish brown on manus and yellowish brown on telson; weakly granular on lateral portions of carapace and tergites, ocular tubercles smooth, median eyes situated anteriorly in the ratio 1 : 1.25; chelicerae normal with normal dentition; Pedipalps exceptionally long, slender and narrow on manus and carinated only on femur, femur longer than carapace, strongly carinated, carinae with denticulate granules, patellae shorter than femur but longer than carapace, anterior or inner surface weakly elevated and armed with few denticulate granules on proximal portion, Manus exceptionally elongated, narrow and length of underhand shorter than femur or patellae but longer than carapace, carinated but only exterior carinae distinct and smooth, fingers also slender and long, movable fingers as long as femur, trichobothrial pattern of C type with 3 ventrals; legs I-IV granular on femur and patella spine formula 4/5 4/5, 4/64/5, 4/64/6 and 4/64/6; pectines well developed, 2nd and ½ times longer than wide, pectinal teeth 13/13 in number; mesomal tergites I-VI weakly granular on lateral portions and without carinae, sternite VII entirely smooth; cauda slightly longer than 3 and ½ times as long as carapace, segments I-III carinated, dorsal, dorso-lateral carinae granular but inferior-lateral and inferiors smooth, segment IV dorsal carinae distinct and serrated, dorso-laterals granular, inferior laterals and inferiors weakly granular and obsolete, segment V shorter than carapace, inferior laterals and a inferior median sparsely serrated; telson shorter than carapace but longer than patella, vesicle longer than segment IV, aculeus more than half the vesicular length and sharply pointed.

Habits and Habitats : Almost same to *Heteromerus (Chersonesometrus) phipsoni* (Pocock). It appears that these two species share the same habitat.

Material examined : 1 Female, Loc. : Forest area near Nigdale and around, Coll. D.B. Bastawade, 01.viii.2005, Reg. No. I/3430.

Distribution elsewhere : Kerala (Meenamutty, New Amaranbalan Reserve Forest (Type Locality), Maharashtra (Ratnagiri).

SUMMARY

This communication deals with the report of 6 species of Scorpion fauna belonging to 3 families and 3 genera. The species *Mesobuthus rugiscutis* (Pocock), *M. pachyurus* (Pocock) (Family Buthidae) and *Neoscorpiops teucauda* (Pocock) (Family Euscorpiidae) have been authentically reported for the first time from this area of Western Ghats, Pune District.

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CHILOPODA : SCOLOPENDROMORPHA : SCOLOPENDRIDAE

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INTRODUCTION

The fauna of Scolopendrid centipedes is well studied by Khanna (2001, 2003, 2004, 2005a, 2005b, 2005c) which includes checklist, Centipedes of Himalaya, Arunachal Pradesh, Central India and their distributional study. Khanna (2008) first re-updated the names of Indian species. Jangi and Dass (1984) worked out the Scolopendridae of the Deccan. Yadav (1993a, 2004, 2005, 2006) inventoried centipedes of Western Ghats and Vidarbha Region of Maharashtra State, Comprising 42 species and Yadav and Sureshan (2006) which includes studies of conservation areas. Further, Sureshan *et al.* (2003) recorded 13 species from Kerala State. The present studies are based on the collection of centipedes from Bhimashankar Wild life Sanctuary, which is situated at 19° 04' North and 73° 32' East about 120 km NW of Pune, having an altitude 900 meters above sea level and forming a beautiful patch of evergreen, moist deciduous forest in the Western Ghats, is less studied except Jangi and Dass (1984) and & Yadav (1993b).

The scientists of Zoological Survey of India, W.R.S., Pune conducted surveys in this unique conservation area in 1986, 1993 and 2005. Only 9 species of centipedes comprising 6 genera of 2 tribes 2 subfamilies under the family Scolopendridae have been reported here.

SYSTEMATIC LIST

1. *Scolopendra hardwickei* Newport 1844
2. *Cormocephalus dentipes* Pocock 1891
3. *Digitipes barnabasi* Jangi and Dass 1984
4. *Digitipes coonoorensis* Jangi and Dass 1984
5. *Otostigmus orientalis*, Porat, 1876
6. *Ethmostigmus rubripes platycephalus* (Newport 1845)

7. *Ethmostigmus coonooranus* Chamberlin 1920
8. *Rhysida immarginata subnuda* (Jangi 1955)
9. *Rhysida immarginata immarginata* (Porat, 1876)

SYSTEMATIC ACCOUNT

Phylum ARTHROPODA

Class CHILOPODA

Order SCOLOPENDROMORPHA

Family SCOLOPENDRIDAE

Subfamily SCOLOPENDRINAE

1. *Scolopendra hardwickei* Newport

1844. *Scolopendra hardwickei* Newport, *Ann. Nat. Hist.*, 13 : 96.
1984. *Scolopendra hardwickei*, Jangi and Dass, *J. Scient. Indl. Res.*, 43(2) : 29.
2001. *Scolopendra hardwickei*, Khanna, *Ann. For.*, 9(2) : 201.

Diagnostic characters : Body banded with alternate yellow, black dark green bands. Anal legs ventrally without spines.

Material examined : 1ex., Bhimashankar, M.S. Pradhan, 3-6-1986, (Reg. No. MYR 1/386); 1 Female, Bhimashankar, P.D. Rane, 8-10-2005 (Reg. No. MYR1/665).

Distribution : India : Andaman and Nicobar Islands, Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, West Bengal.

Elsewhere : SriLanka, Sumatra (Indo-Malayan).

Remarks : This is a large robust species, comparatively of rare occurrence. Rane collected a specimen of 15cm. length having distinct orange red bands alternating with black bands, while Rao *et. al.* (2005) collected 18 cm. long male specimen having yellowish bands. Banded pattern persisted, in both specimens (Bhimashankar and Andhra Pradesh), but having some variations. Colour shade from yellow, orange, red were observed in Coimbatore specimen also (Rathinasabapathy and Daniel, 1997).

2. *Cormocephalus dentipes* Pocock

1891. *Cormocephalus dentipes* pocock, *Ann. Nat. Hist; Ser.*, 6, 7 : 66.
1984. *Coirmocephalus pseudonudipes*, Jangi and Dass *J. Scient. Indl. Res.* 43(2) : 37.
2001. *Cormocephalus dentipes*, Khanna, *Ann. For.*, 9(2) : 203.

Diagnostic characters : All legs without tarsal spur 21st tergite without a longitudinal median sulcus, lateral margination present on tergites anterior to 21st, Maxillipeds with prefermoral process.

Material examined : 1 ex., Bhimashankar, D.B. Bastawade, 3-8-2005, (Reg. No. MYR1/673); 3 exs., Bhorgiri, 7km. SE of Bhimashankar, P.P. Kulkarni, 9-11-1993 (Reg. No. MYR1/669); 3 exs., Beyond Vanaspati point, P.P. Kulkarni, 10-11-1993, (Reg. No. MYR1/478); 1 ex., Rajapur, Bhimashankar, D.B. Bastawade, 3-8-2005 (Reg. No. MYR1/675) 2exs., Rajapur, vill. On Dimbhe-Bhimashankar rd., P.P. Kulkarni, 8-11-1993 (Reg. No. MYR1/668).

Distribution : India : Madhya Pradesh, Orrissa, Kerala, West Bengal, Uttar Pradesh, Andaman and Nicobar Island, Bihar, Delhi, Himachal Pradesh, Meghalaya, Mizoram, Maharashtra, Uttarakhand.

Status : Common.

Remarks : These are small sized specimens of brownish grey color. Khanna (1994) synonymised a species *C. pseudonudipes* described by Jangi and Dass (1984) from Nasik. Only 3 examples were collected by W.R.S. party in the month of May from Bhimashankar WLS, Yadav (1993b). This species is endemic to India.

Subfamily OTOSTIGMINAE

Tribe OTOSTIGMINI

3. *Digitipes barnabasi* Jangi And Dass

1984. *Digitipes barnabasi*, Jangi And Dass, *J. Scient. Indl. Res.*, **43**(2) : 44.

2001. *Digitipes barnabasi*, Khanna, *Ann. For.* **9**(2) : 210.

Diagnostic characters : Nine pairs of oval spiracles present femur of anal legs in male with a posteromedial process, claw of 2nd maxilla without spur, 20th pair of walking legs with tarsal spur, porous area of coxopleura almost touching dorsal margin.

Material examined : 2 exs., Hanuman tank, Bhimashankar, D.B. Bastawade, 3-8-2005, (Reg. No. MYR1/674); 1 ex., Bhakadevi, Bhimashankar, D.B. Bastawade, 5-8-2005, (Reg. No. MYR1/666); 11 exs., Rajapur vill. Dimbhe dam, P.P. Kulkarni, 8-11-1993, (Reg. No. MYR1/479); 13 exs., Bhimashankar, P.D. Rane, 8-10-2005, (Reg. No. MYR1/676).

Status : Common.

Distribution : India : Maharashtra, Kerala and Tamil Nadu.

Remarks : Brown to bluish green colored medium sized specimens.

4. *Digitipes coonoorensis* Jangi and Dass

1984. *Digitipes coonoorensis*, Jangi and Dass, *J. Scient. Indl. Res.* **43**(2) : 43.

2001. *Digitipes coonoorensis*, Khanna, *Ann. For.*, **9**(2) : 210.

Diagnostic characters : 20th pair of legs without tarsal spur, 21st tergite little broader than long and having its lateral margins slightly convex; coxopleural process tipped with two spines and bearing a single lateral spine.

Material examined : 1 ex., Bhimashankar, P.D. Rane, 8-10-2005, (Reg. No. MYR1/677).

Status : Uncommon.

Distribution : India : Kerala, Tamil Nadu, Maharashtra.

Remarks : Medium sized specimen Yadav (1993c) recorded from high altitude Station, Sindhudurg District, Maharashtra.

5. *Otostigmus orientalis* Porat

1890. *Otostigmus splendens* Pocock, *Ann. Nat. Hist. Ser.*, **6**, **5** : 245.

1930. *Otostigmus* (o.) *Splendens*, Attems, *Das Tierr. Scolopendromorpha*, **54**(2) : 145.

2008. *Otostigmus orientalis*, Khanna, *Biosystematica*, **1**(2) : 35.

Diagnostic characters : Femur of anal legs of male without posternomedial process, claw of 2nd maxilla with a spur, coxopleural process with dorsal spine, and legs with prefemoral process.

Material examined : 1 ex., Bhakadevi, Bhimashankar, D.B. Bastawade, 5-8-2005, (Reg. No. MYR1/677).

Distribution : India : Kerala, Maharashtra, Tamil Nadu.

Status : Uncommon.

Remarks : Larg sized robust specimen.

6. *Ehtomostigmus rubripes platycephalus* (Newport)

1845. *Heterostoma platycephalus platycephalus* Newport *Trans. Linn. Soc.*, **19** : 415.

2008. *Ehtomostigmus rubripes platycephalus*, Khanna, *Biosystematica*, **1**(2) : 36.

Diagnostic characters : 10 pairs of oval spiracles 1st pair of spiracles large, sieve like, prefemur of maxillipedes without medial dental process. Four basal antennal segments

glabrous, anal leg prefemur mostly with three ventrolateral spines, coxopleural process tipped with 2-4 spines and bearing dorsally 0-1 spines.

Material examined : 1ex., Beyond Vanaspti point, Bhimashankar, P.P. Kulkarni, 10-11-1993, (Reg. No. MYR1/474).

Distribution : India : Keral, Maharashtra.

Remarks : Robust brown medium sized specimen. Common in Oriental, Palaeartic and Ethiopian region. Yadav (1993c) recorded this species from Kolhapur District, Western Ghats.

7. *Ethmostigmus coonooranus* Chamberlin

1920. *Ethmostigmus coonooranus* Chamberlin. *Univ. Calif. Pub.*, **19** : 392.

1930. *Ethmostigmus coonooranus*, Attems, *Das. Tierr Scolopendromorpha* **54**(2) : 178.

2001. *Ethmostigmus coonooranus*, Khanna, *Ann. For.* **9**(2) : 209.

Diagnostic characters : Three basal antennal segments glabrous.

Material examined : 1ex., Hanuman tank, Bhimashankar, D.B. Bastawade, 3-8-2005 (Reg. No. MYR1/670).

Distribution : India : Kerala, Tamil Nadu.

Status : Uncommon.

Remark : Brown coloured specimen, curved spines on anal legs are conspicuous. It is a new record from Maharashtra State.

8. *Rhysida immarginata subnuda* (Jangi)

1955. *Rhysida nuda subnuda* Jangi, *Annal. Mags. Nat. Hist.*, Sr. **12**(8) : 75.

2008. *Rhysida immarginata subnuda*, Khanna, *Biosystematica*, **1**(2) : 36.

Diagnostic characters : 10 pairs of spiracles present, Prefemur of maxillipede with a median dental process, tergites except anterior ones with complete paramedian sutures, tergites preceding 21st leg bearing segments ordinarily not marginate, coxopleural process tipped with 3 spines, femorral spur present on the 1st walking leg, 20th pair of legs with tarsal spur.

Material examined : 1 ex., Bhimashankar, D.B. Bastawade, 3-8-2005, (Reg. No. MYR1/671).

Distribution : Cosmopolitan.

Status : Common.

Remarks : Brownish grey colored specimen.

9. *Rhysida immarginata immarginata* (Porath)

1876. *Branchiostoma immarginatum* Porath, *Bih. Svenska Ak.* 4(7) : 24.

2008. *Rhysida immarginata immarginata*, Khanna, *Biosystematica*, 1(2) : 36.

Diagnostic characters : 20th pair of walking legs without tarsal spur.

Material examined : 1ex., Hanuman tank, Bhimashankar, D.B. Bastawade, 3-8-2005, (Reg. No. MYR1/672).

Distribution : India : Assam, Andaman and Nicobar Islands, Delhi, Gujarat, Madhy Pradesh, Maharashtra Rajasthan, Uttarkhand, Uttar Pradesh and West Bengal.

Status : Common.

Remarks : Bluish green colored specimen.

DISCUSSION

Bhimashankar Wildlife Sanctuary lies in hill ranges of Sahnyadri, the Western Ghats, having moist deciduous forest and red laterite soil harbour good number of terrestrial fauna in general and centipedes, in particular. Centipedes collected and studied from this area belong to 9 species under 6 genera of 2 tribes, 2 subfamilies under a single largest family Scolopendridae.

It is interesting to note only 2 species namely *Scolopendra hardwickei* Newport and *Cormocephalus dentipes* Pocock represent the subfamily Scolopendrinae and the rest 7 belong to the subfamily Otostigminae. *Scolopendra morsitans* Linn. having cosmopolitan distribution and members of the tribe Asanadini of comparatively rare occurrence could not be collected, from Bhimashankar.

Further, large robust banded specimen *S hardwickei* shows a geographic colour variations (Andhra Pradesh, Coimbatore and Bhimashankar). *Ethmostigmus coonooranus* Chamberlin, is a new record from Maharashtra State.

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INSECTA : ODONATA

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INTRODUCTION

Dragon and Damsel flies as they are commonly called, Odonata form a prominent Order of Insects. They are noticed easily hovering over water bodies, in the agricultural fields and also at comparatively dry places much away from water. Probably they are the most easily sighted insects next to butterflies and moths. The first record of Indian Odonate dates back to more than 250 years. Fraser (1933-36) published 3 volumes on Fauna of British India : Odonata which are still regarded as most authentic consolidated taxonomic work. Recently (Prasad & Varshney, 1995) published checklist of Indian Odonates which includes 499 species.

Prasad (1996) published an account of Odonata from Maharashtra state, based on the collections present in National Zoological Collection of Zoological Survey of India, Kolkata and Pune. 46 species and subspecies recorded in his work raised contains 83 species known from the state. Later Prasad *et al.*, (2000; 2004) and Kulkarni *et al.*, (2006) added four species to the list of species known from the state of Maharashtra, making a total of 87 species. In the recent years Odonata have been documented from various places in Maharashtra like, Ujani Wetland Dists. Pune and Solapur, Kulkarni and Prasad (2002); Pench National Park, Dist. Nagpur, Kulkarni *et al.*, (2004); Melghat Tiger Reserve, Dist. Amravati, Kulkarni and Prasad (2005); Tadoba Andhari Tiger Teserve, Dist. Chandrapur, Kulkarni *et al.*, (2006); Nathsagar Wetland, Dist. Aurangabad and Ahmednagar, Kulkarni and Talmale (2005); Sanjay Gandhi National Park, Borivali, Mumbai, Kulkarni *et al.*, (2006); Five Conservation Areas and Two Wetlands in Maharashtra State , Kulkarni and Talmale (2006), Pravaranagar, Dist. Ahmednagar, Talmale and Kulkarni (2006); and Lonar Wildlife Sanctuary, Dist. Buldhana, Kulkarni and Talmale (2008). Information on some interesting aspects of study on Odonata is also available from Maharashtra state like; Predation of dragonflies by the giant wood spider, *Nephila maculata* (fabr.), Kulkarni, *et.al.*, (1999); Andromorphic female of *Neurothemis* dragonflies, Prasad, *et al.*, (1998, 2000); Odonata attracted to light, Sharma, *et al.*, (2001); Odonata of paddy fields in Bhandara District, Talmale and Kulkarni (2003).

Faunistic Surveys of Bhimashankar Wildlife Sanctuary, Dist. Pune, were undertaken by Western Regional Station, Zoological Survey of India, Pune during the years 2002-2005. Collection of Odonata was made from this area, which was identified. The area of Bhimashankar Wildlife Sanctuary 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 10 species are recorded for the first time from there. This paper also contains the Odonata species recorded in the literature published earlier from the area of Western Ghats adjacent to the Bhimashankar Wildlife Sanctuary.

SYSTEMATIC LIST

Order ODONATA

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

Family COENAGRIONIDAE

Subfamily PSEUDAGRIONINAE

Genus *Pseudagrion* Selys 1876

1. *Pseudagrion decorum* (Rambur)

Subfamily ISCHNEURINAE

Genus *Ischnura* Charp, 1840

2. *Ischnura aurora aurora* (Brauer)

Subfamily AGRIOCNEMIDINAE

Genus *Agriocnemis* Selys, 1877

3. *Agriocnemis pygmaea* (Rambur)

Family PLATYCNEMIDIDAE

Subfamily PLATYCNEMIDINAE

Genus *Copera* Kirby, 1890

4. *Copera marginipes* (Rambur)

5. *Copera vittata deccanensis* Laidlaw

Family PROTONEURIDAE

Subfamily DISPARONEURINAE

Genus *Disparoneura* Selys, 1860

6. *Disparoneura quadrimaculata* (Ramb.)

Superfamily LESTOIDEA

Family LESTIDAE

Subfamily LESTINAE

Genus *Lestes* Leach, 1815

7. *Lestes viridulus* Rambur

Suborder ANISOPTERA

Superfamily AESHNOIDEA

Family GOMPHIDAE

Subfamily LINDENIINAE

Genus *Ictinogomphus* Cowley, 1934

8. *Ictinogomphus rapax* (Rambur)

Family AESHNIDAE

Subfamily AESHNINAE

Genus *Anax* Leach, 1815

9. *Anax immaculifrons* (Rambur)

Superfamily LIBELLULOIDEA

Family LIBELLULIDAE

Subfamily LIBELLULINAE

Genus *Cratilla* Kirby 1900

10. *Cratilla lineata calverti* Forster

Genus *Orthetrum* Newman, 1833

11. *Orthetrum pruinosum neglectum* (Rambur)

12. *Orthetrum sabina sabina* (Drury)

13. *Orthetrum taeniolatum* (Schn.)

14. *Orthetrum glaucum* (Brauer)

Genus *Potamarcha* Karsch, 1890

15. *Potamarcha congener* (Rambur)

Subfamily SYMPETRINAE

Genus *Brachythemis* Brauer, 1868

16. *Brachythemis contaminata* (Fabr.)

Genus *Bradinopyga* Kirby, 1893

17. *Bradinopyga geminata* (Rambur)

Genus *Crocothemis* Brauer, 1868

18. *Crocothemis servilia servilia* (Drury)

Genus *Diplacodes* Kirby, 1889

19. *Diplacodes trivialis* (Rambur)

Genus *Neurothemis* Brauer 1867

20. *Neurothemis intermedia intermedia* (Rambur)

Subfamily TRITHEMISTINAE

Genus *Trithemis* Brauer, 1868

21. *Trithemis aurora* (Burmeister)

22. *Trithemis festiva* (Rambur)

Subfamily TRAMEINAE

Genus *Pantala* Hagen, 1861

23. *Pantala flavescens* (Fabr.)

Genus *Tholymis* Hagen, 1867

24. *Tholymis tillarga* (Fab.)

SYSTEMATIC ACCOUNT

Order ODONATA

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

Family COENAGRIONIDAE

Subfamily PSEUDAGRIONINAE

Genus *Pseudagrion* Selys 1876

1. *Pseudagrion decorum* (Rambur)

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

1933. *Pseudagrion decorum*, Fraser, *Fauna Brit India, Odon.*, 1 : 286-289.

Diagnostic Characters : Labrum white 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/Source : Fraser (1933).

Distribution : Throughout continental India, Myanmar, Nepal and Sri Lanka

Remarks : Common species in India, found on permanent and temporary water bodies. Rare in hill streams.

Subfamily ISCHNEURINE

Genus *Ischnura* Charp, 1840

2. *Ischnura aurora aurora* (Brauer)

1858. *Agrion delicatum*, Hagen, *Verh. Zool-bot. Ges. Wien.*, **8** : 479.

1865. *Ischnura aurora*, Brauer, *Verh. Zool. bot. Ges. Wien.*, **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/Source : Fraser (1933).

Distribution : Throughout India.

Remarks : Widely distributed, found in grasses & marshy places around water bodies, sometimes far away from the water bodies in dry or green grasses.

Subfamily AGRIOCNEMIDINAE

Genus *Agriocnemis* Selys, 1877

3. *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/Source : Fraser (1933).

Distribution : India (Assam, Himachal Pradesh, Malabar, Manipur, Maharashtra, Nicobar, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal), Australia, Myanmar, Sri Lanka, China, Formosa, Java, Malaysia, Manila, North Gunia, Philippines, Singapore and Seychelles.

Remarks : It is most common species of India and found almost throughout the year.

Family PLATYCNEMIDIDAE
Subfamily PLATYCNEMIDINAE
Genus *Copera* Kirby, 1890
4. *Copera marginipes* (Rambur)

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

1933. *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/Source : Fraser (1933).

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); Indonesia; Malaysia; Myanmar; Nepal; Sri Lanka and Thailand.

5. *Copera vittata deccanensis* Laidlaw

1863. *Psilocnemis vittata* Selys, *Bull. Acad. Belg.*, 16(2) : 170.

1917. *Copera vittata deccanensis* Laidlaw, *Rec. Indian Mus.*, 13 : 342.

2000. *Copera vittata deccanensis* Prasad, *Bionotes*, 2(3) : 50.

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 color.

Material Examined/Source : Kulkarni, *et. al.*, 2004, 2006.

Distribution : India : Karnataka, Kerala, Maharashtra (Pench National Park and Tadoba-Andhari Tiger Reserve) and Tamil Nadu.

Remarks : Specimens examined were observed that head markings are more closer to Bengal and Myanmar forms.

Family PROTONEURIDAE

Subfamily DISPARONEURINAE

Genus *Disparoneura* Selys, 1860

6. *Disparoneura quadrimaculata* (Ramb.)

1842. *Argia quadrimaculata* Ramb., *Ins. Neurop.* : 255.

1859. *Disparoneura quadrimaculata* Selys, *Bull. Acad. Belg.*, (2) : 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 word 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).

Material Examined/Source : Fraser (1933), Kulkarni and Talmale (In Press).

Distribution : India (Central India, Delhi, Maharashtra (Western Ghats, Tadoba-Andhari Tiger Reserve, Chandrapur) and Uttar Pradesh).

Remarks : Found in submontane areas. Mostly recorded up to 1,500 elevations.

Superfamily LESTOIDEA

Family LESTIDAE

SUBFAMILY LESTINAE

Genus *Lestes* Leach, 18157. *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/Source : Kondhwan, 22.II.2005, 1 Male, 1 Female, Coll. P.P. Kulkarni.

Distribution : Throughout India and Thailand.

Remarks : Common in dry season and usually among dry long grasses.

Suborder ANISOPTERA

Superfamily AESHNOIDEA

Family GOMPHIDAE

Subfamily LINDENIINAE

Genus *Ictinogomphus* Cowley, 19348. *Ictinogomphus rapax* (Rambur)

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

1933. *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/Source : Fraser (1934).

Distribution : Throughout India; Mynamar, Sri Lanka and Malaysia except in desert area.

Remarks : Prasad (1996) recorded this species from Pune and Prasad and Kulkarni (2002) recorded this species from Ujani Wetland Dist. Solapur, Maharashtra. Predation of this species by a roberfly (Diptera) was also recorded (Sharma and Talmale, 2003).

Family AESHNIDAE

Subfamily AESHNINAE

Genus *Anax* Leach, 1815

9. *Anax immaculifrons* (Rambur)

1842. *Anax immaculifrons* Rambur, *Ins.Neurop.* : 189.

1936. *Anax immaculifrons*, Fraser, *Fauna Brit. India, Odon.*, 3 : 145-146.

1995. *Anax immaculifrons*, Prasad & Varshney, *Oriental Ins.*, 29 : 403.

Diagnostic Characters : Labium dirty or pale ochareous; labrum greenish yellow heavily bordered with blackish brown. Face and frons uniform pale brownish-green, with a very narrow black border at the base of frons above. Occiput palest blue. Prothorax dark reddish brown, paler laterally, posterior lobe with heavy fringe of long hairs. Thorax pale bluish-green on dorsum, turquoise-blue on sides broadly barred with jet black. Legs black. Wings hyaline, tinted with amber yellow from apex to base of discoidal cell, paler at apex, rather deeply towards the base of wing. Pterostigma orcheous to reddish brown, covering about 3 cells. Discoidal cell of forewing with 5-6 cells, 4-5 in the hind; 5-6 cubital nervures in fore wings, 4 in the hind; 12 cells in the anal loop. Abdomen : First segment entirely jet black, second segment turquoise-blue with black sutures.

Material Examined/Source : Fraser (1936).

Distribution : India (Maharashtra : Mumbai, Nagpur, Pune); Bihar, Chandigarh, Eastern Ghats, Sikkim, West Bengal and Western Himalaya) and Sri Lanka.

Superfamily LIBELLULOIDEA

Family LIBELLULIDAE

Subfamily LIBELLULINAE

Genus *Cratilla* Kirby, 1903

10. *Cratilla lineata calverti* Forster

1903. *Cratilla calverti*, Forster, *Ann. Mus. Hungar* : 537.

1924. *Cratilla calverti*, Fraser, *Rec. Indian Mus.*, 25 : 426, 431, 432.

1995. *Cratilla lineata calverti*, Prasad & Varshney, *Oriental Ins.*, **29** : 403.

1996. *Cratilla lineata calverti*, Prasad, *Rec. zool. Surv. India*, **95**(3-4): 313.

Diagnostic Characters : Head : Labium yellow, with the middle of mid-lobe black; labrum, face and sides of frons creamy yellow; vesicle rounded, steely black; occiput black. Prothorax black, anterior collar and posterior border of posterior lobe yellow. Thorax steely black, marked with yellow, beneath yellow. Legs black on flexor surface, bright yellow on extensor, tarsi black. Wings hyaline, apices tipped with brown; pterostigma yellow. Abdomen black, marked with bright ochreous, segments 3 to 8 with fine stripes bordering the ventral borders of segments and mid-dorsal carina. Anal appendages black, of nearly similar length.

Material Examined : Ahupe, 21.xi.2004, 1 Female, Coll. S.G. Patil; On way to Sambarshingi, 23.ii.2005, 1 Male, Coll. P.P. Kulkarni.

Distribution : India (Maharashtra (Nasik), Orissa, Uttar Pradesh, Western Ghats); Indonesia; Malaysia; Myanmar; New Guinea, Philippines; Sri Lanka and Sundaic Archipelago.

Genus *Orthetrum* Newman, 1833

11. *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. Antenodal nervures always more than 12 in forewings. Abdomen bright vermilion red in sub adults, purplish red in adults. Anal appendages red. Females differ from males in frons similar to rest of face in colour, eyes yellowish capped with brown. Thorax reddish brown, abdomen dull ochreous with sutures and borders all finely black, anal appendages dark ochreous and basal markings in wings pale and almost obsolete.

Material Examined : Bhalti, 19.xi.2004, 1 Male ; Bhorgiri, 20.xi.2004, 1 Male; Ahupe, 21.xi..2004, 1 Male, all coll. S.G. Patil.

Distribution : India (Bihar, Himachal Pradesh, Maharashtra, Uttar Pradesh, Uttaranchal); 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.

12. *Ortherum 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.*, 29 : 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 : Bahadori, 22.xi. 2004, 1 Female, coll. S.G. Patil.

Distribution : India (Bihar, Himachal Pradesh, Maharashtra (Melghat Tiger Reserve, Amravati, Tadoba-Andhari Tiger Reserve, Chandrapur), Uttaranchal); Australia; Egypt; Iran; Iraq; Myanmar; Nepal; Sri Lanka; Thailand.

Remarks : Found in all parts of India, up to 7000 (Nilgiri's), most predaceous; cannibalism is also recorded and preys on other dragonflies also.

13. *Orthetrum taeniolatum* (Schn)

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

1936. *Orthetrum taeniolatum*, Fraser, *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 ochrous, between thick black nervures nodal index. Abdomen pulverulent blue, anal appendages black.

Material Examined/Source : Fraser (1936).

Distribution : Throughout India; Nepal and countries bordering Mediterranean Sea.

14. *Orthetrum glaucum* (Brunner)

1865. *Libellula glauca*, Brauer, *Varh, zool. bot. Ges. Wien*, 15 : 1012.

1890. *Orthetrum glaucum*, Kirby, *Cat. Odon.*, : 39.

1936. *Orthetrum glaucum*, Fraser, *Fauna Brit. India* : 3 : 307-309.

Diagnostic Characters : Medium sized dragonfly with face black, eyes, dark green during life. Prothorax bright yellow to dark brown, marked with yellow; thorax in old adults pruinosed dark dull blue or black. Legs black, wings hyaline, with extreme base tinted with dark amber-yellow upto the cubital nervure and up to anal triangle in hind wing; discoidal cell of hind wing entire. In female abdomen reddish brown with a broad greenish yellow stripe on mid dorsum extending up to segment 7 as against in males, pale dirty blue up to apical end of segment 8 & black for the remainder.

Material Examined/Source : Fraser (1936).

Distribution : Throughout India; Nepal, Philippines, Java; Indonesia, Malaya Archipelago, Papua, South China and Sri Lanka.

Genus *Potamarcha* Karsch 1890

15. *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.

1890. *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 hind wing rather broad with cells arranged in straight rows. Wings hyaline, with extreme apices tipped with brown. They are dragonflies of moderate size, coloured black brown, marked with yellow but never of metallic colour. Anal appendages black.

Material Examined and Locality : Kondhwan, 22.ii.2005, 1 Female, Coll. P.P. Kulkarni.

Distribution : India (Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Maharashtra (Melghat Tiger Reserve, Dist. Amravati; Lakhani, Dist. Bhandara; Tadoba-Andhari Tiger Reserve, Dist. Chandrapur; Pench National Park, Dist. Nagpur; Ujani Wetland, Dist. Pune; Sanjay Gandhi National Park, Borivali, Mumbai); Tamil Nadu, Uttaranchal, West Bengal); Myanmar; Nepal, Philippines, Sri Lanka; Taiwan and North Australia.

Remarks : Common Species in India.

Subfamily SYMPETRINAE

Genus *Brachythemis* Brauer, 1868

16. *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/Source : Fraser (1936).

Distribution : India (Bihar; Himachal Pradesh, Madhya Pradesh; Maharashtra (Melghat Tiger Reserve, Amravati, Tadoba Tiger Reserve, Chandrapur, Osmanabad, Pune (Khandala, Khed and Lonavala), Tadoba Tiger Reserve, Chandrapur), Uttar Pradesh, Uttaranchal; West Bengal); 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.

Genus *Bradinopyga* Kirby, 1893

17. *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/Source : Fraser (1936).

Distribution : India (Bihar, Delhi, Madhya Pradesh, Maharashtra (Melghat Tiger Reserve, Amravati, Satara (Ambenali), Tadoba Tiger reserve, Chandrapur), Peninsular India, Uttar Pradesh, Uttaranchal, West Bengal) and Sri Lanka.

Remarks : This species is found near small and cemented walls, and exhibits protective, cryptic colours. It is common in tanks.

Genus *Crocothemis* Brauer, 186818. *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/Source : Fraser (1936).

Distribution : India : (Bihar, Himachal Pradesh, Madhya Pradesh, West Bengal; Maharashtra (Buldana (Gondhonker), Colaba (Matheran), Osmanabad (Upla), Pune (Khed and Lone), Melghat Tiger Reserve, Amravati, Tadoba Tiger Reserve, Chandrapur, Satara (Lingmal Falls), Sanjay Gandhi National Park, Borivali, Mumbai), Uttar Pradesh, Uttaranchal); Australia, Indonesia (Sumba); Iraq; Japan, Myanmar, Nepal; Philippines; Sri Lanka and Sundaic Archipelago.

Genus *Diplacodes* Kirby 188919. *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. Eyes contiguous over a short space. 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, discoidal cell in hind wings entire. Abdomen with segments 1 to 3 greenish yellow; remaining segments black with sub dorsal yellow stripes on segments 4-7. Females : Similar to sub adult males, abdominal markings broader on segments 8 to 10.

Material Examined/Source : Ahupe, 21.xi.2004, 1 Female, Coll. S.G. Patil.

Distribution : Throughout India; Indonesia (Sumatra), Myanmar; Nepal; Sri Lanka; Thailand and W. Malaysia (Malacca).

Remarks : Common species found throughout the year near water bodies. Also found in grassy vegetation & agricultural fields.

Genus *Neurothemis* Brauer 1867

20. *Neurothemis intermedia intermedia* (Rambur)

1842. *Libellula intermedia*, Rambur, *Ins. Neurop.*, : 91.

1936. *Neurothemis intermedia intermedia*, Fraser, *Fauna Brit. India*, 3 : 357-358.

2006. *Neurothemis intermedia intermedia*, Kulkarni, *et.al. Conservation Area Series, Zool. Surv. India*, 25 : 217-218.

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/Source : Bhalti, 19.xi.2004, 1 Female, Coll. S.G. Patil.

Distribution : India (Bihar, Himachal Pradesh, Madhya Pradesh, Maharashtra, Uttaranchal, West Bengal); China, Myanmar; Nepal; Sri Lanka and W. Malaysia (Malacca).

Remarks : Pattern of marking on wings differentiates this species from all others within the genus.

Subfamily TRITHEMISTINAE

Genus *Trithemis* Brauer 1868

21. *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 : Bhalli, 19.xi.2004, 1 Male, 1 Female; Bhorgiri, 20.xi.2004, 1 Female; Ahupe, 21.xi.2004, 1 Male; Bhadori, 22.xi.2004, 1 Male all coll. S.G. Patil; Ahupe, 26.ii. 2006, 1 Male, coll. P.P. Kulkarni.

Distribution : Throughout India; Indonesia, Myanmar; Nepal; Pakistan; Philippines, Sri Lanka and West.Malaysia.

Remarks : It is common species near hill streams, also recorded from plains in Maharashtra (Buldana, Osmanabad, Satara, Melghat Tiger reserve, Amravati, Tadoba Tiger Reserve, Chandrapur and Wardha.).

22. *Trithemis festiva* (Rambur)

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

1936. *Triathemis 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 : Bhalti, 19.xi.2004, 2 Male; Bhorgiri, 20.xi.2004, 1 Male and Bhandori, 22.xi.2004, 1 Male, all coll. S.G. Patil.

Distribution : India (Assam; Himachal Pradesh; Maharashtra; Uttar Pradesh; West Bengal; Zarkhand); Indonesia; Myanmar; Nepal; Philippines, Singapore; Sri Lanka; West Malaysia.

Remarks : It is a common species near hill streams. Adults breed in still waters or streams with sluggish current.

Subfamily TRAMEINAE

Genus *Pantala* Hagen 1861

23. *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 a 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 : Bahadori, 22.xi.2004, 1 Male; Nigdule, 23.xi.2004, 1 Male; 2 Female all coll. S.G.Patil.

Distribution : Circumtropical and subtropical in distribution; Throughout India, China, Indonesia, Malaysia, Micronesia, Morocco, Myanmar, Sri Lanka and Thailand).

Remarks : Common species, breeds in marshes and weedy tanks, especially in submontane areas and among the foothills. Large number of specimens emerge out and take to swarming from September to November/December.

Genus *Tholymis* Hagen, 1867

24. *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 oilvaceous 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 ochareous. Wings hyaline, with a broad smoky fan shaped golden brown fascia extending from node to base of hind wing. Dep 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/Source : Fraser (1936).

Distribution : India (Himachal Pradesh, Madhya Pradesh, Maharashtra, Punjab, Uttar Pradesh, West Bengal); 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.

SUMMARY

Faunistic Survey of Bhimashankar Wildlife Sanctuary, Dist. Pune was undertaken by the Zoological Survey of India, Western Regional Station Pune. Altogether 24 species of Odonata are reported, which represent 2 Suborders, 4 Super families and 7 Families. 10 species were actually collected and others are reported from literature.

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INSECTA : MANTODEA

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INTRODUCTION

Bhimashankar wildlife sanctuary occupies an area of 130.70 sq. km, situated at 19° 04', North and 73° 32' East about 120 Km NW of Pune, having an altitude of 900 m above sea level. The rainfall in the sanctuary is more than 150 mm. It exhibits rich floral and faunal diversity. However, no consolidated account is available on its faunal diversity.

Mantids (Insecta ; Mantodea) are predatory insects and occur in all types of habitats. They remain motionless for hours, and only the head rotates about 180 degrees to watch any disturbances caused by flying insects. According to Mukherjee *et al.* (1995), 162 species under 68 genera and 6 families known from India. With the present record, 51 species of mantids are known to occur in Maharashtra (Chaturvedi *et al.*, 2005).

Here an attempt has been made to inventories the mantid fauna of Bhimashankar Wildlife Sanctuary, Maharashtra based upon the study of the collections made from the area by Zoological Survey of India, Western Regional Centre, Pune, during the year 1965, 1977, 1986, 1991, 1994 and 2004-2005.

The specimens were identified following Mukherjee *et al.* (1995) and are deposited in the collections of Zoological Survey of India, Western Regional Centre, Pune. All measurements are in mm, which are given for Body length (BL), Pronotum (PN) and Forewing (FW). Distribution is shown for Indian States and also new distributional status added from Vyjayanti (2007) and Jadhav (2008). Earlier mantid studies from Maharashtra were by Chaturvedi *et al.* (2000), Ghate, *et al.* (2001, 2002), Nadkerni (1965, 1974) and Sureshan, *et al.* (2004a, b, 2006).

SYSTEMATIC LIST

Order MANTODEA

Family HYMENOPODIDAE

Subfamily ACROMANTINAE

1. *Ephestiasula pictipes* (Wood-Mason)2. *Euantisa pulchra* (Fabricius)

Family MANTIDAE

Subfamily LITURGUSINAE

3. *Humbertiella ceylonica* Saussure

Subfamily MANTINAE

4. *Hierodula (Hierodula) tenuidentata* Saussure5. *Statilia maculata* (Thunberg)**SYSTEMATIC ACCOUNT**

Family HYMENOPODIDAE

Subfamily ACROMANTINAE

1. *Ephestiasula pictipes* (Wood-Mason)1879. *Hestias pictipes* Wood-Mason, *Proc. Asiatic Soc. Bengal*, **1879** : 258.1897. *Pachymantis amoena* Bolivar, *Ann. Soc. Entomol. France*, **66** : 314.1904. *Hestiasula pictipes* Kirby, *Cat. Orth. Brit. Mus.*, **1** : 288.1914. *Ephestiasula pictipes* Giglio-Tos, *Bull. Soc. Entomol. Ital.*, **46** : 101.1927. *Ephestiasula pictipes* Giglio-Tos, *Das Tierreich*, **50** : 547.

Material Examined : 1 Male., Nagphani point, Bhimashankar, G.M.Yazdani, 10-8-1994, Reg. No. E/2595.

Measurements : M, BL : 6.9, PN : 3.0, FW : 12.8

Diagnosis : Vertex marked with scattered black spots. Pronotum dorso-medially black. In fore legs, internal spines of femora black, inferior lobes contain three pale yellow spots encased by black spots. Tarsi internally black.

Distribution : India : Madhya Pradesh, Orissa, Uttar Pradesh, Maharashtra, Goa.

2. *Euantissa pulchra* (Fabricius)

1787. *Mantis pulchra* Fabricius, *Mant. Ins.*, 1 : 229.

1927. *Euantissa pulchra* Giglio-Tos, *Das Tierreich*, 50 : 541.

1951. *Euantissa pulchra* Roonwal & Bhasin, *Indian Forester*, 77(5) : 313-318.

Material Examined : 1 Male., choll nalla 4 km N of rest house Bhimashankar, G.M.Yazdani, 9-8-1994, Reg. No. E/2557.

Measurements : M, BL : 15.2, PN: 4.1, FW : 11.0.

Diagnosis : Frontal sclerite with two lateral grooves below the widely arched superior border. Metazona of pronotum with almost parallel margin. Costal area of forewings yellow, rest green. Posterior border of hind wings deep brownish.

Distribution : India : Eastern, North-Eastern and Southern India, Kerala, Maharashtra.

Family MANTIDAE

Subfamily Liturgusinae

3. *Humbertiella ceylonica* Saussure

1869. *Humbertiella ceylonica* Saussure, *Mitt. Schweiz. Entomol. Ges.*, 3 : 62.

1891. *Theopompa septentrionum* Wood-Mason, *A Catalogue of the Mantodea*, 2 : 64.

1927. *Humbertiella ceylonica* Giglio-Tos, *Das Tierreich*, 50 : 64.

Material Examined : 1 Female, Ahupe, Bhimashankar, P.P.Kulkarni, 26-2-2005, Reg. No. E/5131.

Measurements : F, BL : 3.5, PN : 6.9, FW : 21.2.

Diagnosis : Body deep brownish. Frontal sclerite blackish. Superior margin less arched and middle. Tubercles of pronotum well marked. Longer internal spines of fore femur black. Fore wing reaching to 5-6 abdominal segments.

Distribution : India : Assam, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, West Bengal, Kerala, Goa.

Subfamily Mantinae

4. *Hierodula (Hierodula) tenuidentata* Saussure

1869. *Hierodula tenuidentata* Saussure, *Mitt. Schweiz. Entomol. Ges.*, 3 : 68.

1927. *Hierodula (Hierodula) tenuidentata* Giglio-Tos, *Das Tierreich*, 50 : 444.

Material Examined : 1 Male, beyond Vanaspati point, Bhimashankar, P.P. Kulkarni, 10-11-1993, Reg. No. E/2519.

Measurements : M, BL : 50.0, PN : 18.1, FW : 14.3

Diagnosis : Frontal sclerite a little wider than high. Pronotum narrower after dilation. Prosternum with 2 blackish transverse bands in posterior part. In fore legs, coxae with 5 short spines and few spinules among them. Discoidal and larger internal spines of emora blackish or deep brownish and black at tips. Both wings longer than body.

5. *Statilia maculata* (Thunberg)

1784. *Mantis maculata* Thunberg. *Nov. Ins. Spec.* 3 : 61.

1897. *Statilia Maculata* Boliver. *Ann. Soc. Entomo. France*, 66 : 309.

Material Examined : 1 Female, beyond Vanaspati point, Bhimashankar, P.P. Kulkarni, 10-11-1993, Reg. No. E/2519.

Measurements : F : BL : 43.5, PN : 14.8, FW : 32.5

Diagnosis : Vertex almost black; forecoxa with seven triangular spines (First and last smaller) with few spinules and with internal black patch; femora with shiny yellow patch bordered anteriorly by a black line and a broad black patch below claw groove; costal area of forewing opaque, discoidal area almost hyaline with some opaque markings just below costal area.

Distribution : India : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Madhya Pradesh, Meghalaya, Sikkim, Uttar Pradesh, West Bengal, Maharashtra, Kerala.

SUMMARY

The paper present mantid inventory of 5 species belonging to 5 genera and 2 families. All the species reported for the first time from Bhimashankar Wildlife Sanctuary, Maharashtra State.

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INSECTA : LEPIDOPTERA : RHOPALOCERA AND GRYPOCERA

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INTRODUCTION

The butterflies being phytophagous insects with fair degree of food and host plant specificity, their species diversity and richness is indicative of floral diversity of the habitat in which they occur and decline in the diversity of these fascinating insects suggests the habitat degradation. It is estimated that the Indian region harbours 1641 species of butterflies representing roughly 9.50% of the total world occurrence (Varshney, 2006).

Out of 330 species recorded by Goankar (1996) from Western Ghats covering Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala, enumerated 213 species of 125 genera from Maharashtra. Of which, 150 species are common, 63 rare and 3 species endemic to Western Ghats found in Maharashtra. Ten species fall under different schedules of Indian Wildlife Act. In other words the butterfly fauna of Maharashtra constitutes approximately 64.5% of the entire Western Ghats butterfly richness.

Earlier, various workers *viz.*, Andheria, (2001); Kurhade & Kadlag, (1995); Sharma & Radhakrishnan, (2004-2006a); Sharma & Chaturvedi, (2006b) and Sharma, (2008) have studied butterfly diversity from various conservation areas of the State. The present account enumerates 65 species belonging to 46 genera of five families occurring in the Bhimashankar Wildlife Sanctuary based on the author's own observations during surveys conducted in the past and collections made by the scientists of Western Regional Station, Zoological Survey of India, Pune during various faunistic surveys conducted in the Sanctuary from time to time. The classification and nomenclature followed here is after Goankar (1996), except for family Hesperidae (Smetacek, 2006 & 2007).

SYSTEMATIC ACCOUNT

Sl. No.	Scientific Name	Common Name	Status
Family PAPILIONIDAE			
Subfamily PAPILIONINAE			
Tribe Troidini			
1.	<i>Pachliopta aristolochiae</i> (Fabricius)	Common Rose	Common
2.	<i>Pachliopta hector</i> (Linn.)	Crimson Rose	Schedule I Common
Tribe Leptocircini			
3.	<i>Graphium sarpedon</i> (Linn.)	Common Bluebottle	Common
4.	<i>Graphium agamemnon</i> (Linn.)	Tailed Jay	Common
Tribe Papilionini			
5.	<i>Papilio demoleus</i> Linn.	Lime Butterfly	Common
6.	<i>Papilio helenus</i> Linn.	Red Helen	Common
7.	<i>Papilio polytes</i> Linn.	Common Mormon	Common
8.	<i>Papilio polymnestor</i> Cramer	Blue Mormon	Common
Family PIERIDAE			
Subfamily COLIADINAE			
Tribe Coliadini			
9.	<i>Catopsilia pomona</i> (Fab.)	Common Emigrant	Common
10.	<i>Catopsilia pyranthe</i> (Linn.)	Mottled Emigrant	Common
11.	<i>Eurema laeta</i> Boisduval	Spotless Grass Yellow	Common
12.	<i>Eurema hecabe</i> (Linn.)	Common Grass Yellow	Common
Subfamily PIERINAE			
Tribe Pierini			
13.	<i>Delias eucharis</i> (Drury)	Common Jezebel	Common
14.	<i>Leptosia nina</i> (Fabricius)	Psyche	Common
15.	<i>Cepora nerissa</i> (Fab.)	Common Gull	Common
16.	<i>Anaphaeis aurota</i> (Fab.)	Pioneer or Caper White	Common

17. <i>Ixias marianne</i> (Cramer)	White Orange Tip	Common
18. <i>Ixias pyrene</i> Linn.	Yellow Orange Tip	Common
Tribe Euchloeini		
19. <i>Pareronia valeria</i> Cramer	Common Wanderer	Common
20. <i>Hebomoia glaucippe</i> Linn.	Great Orange Tip	Common
Family Nymphalidae		
Subfamily Satyrinae		
Tribe Melanitini		
21. <i>Melanitis leda</i> (Linn.)	Common Evening Brown	Common
Tribe Elymniini		
22. <i>Lethe rohria</i> (Fabricius)	Common Tree Brown	Common
23. <i>Mycalesis pereus</i> Fabricius	Common Bush Brown	Common
24. <i>Mycalesis mineus</i> (Linn.)	Dark Branded Bush Brown	Common
Tribe Satyrini		
25. <i>Ypthima huebneri</i> Kirby	Common Furring	Common
26. <i>Ypthima baldus</i> Fabricius	Common Fivering	Common
Subfamily HELICONIINAE		
Tribe Acraeini		
27. <i>Acraea violae</i> (Fab.)	Tawny Coster	Common
Tribe Argynnini		
28. <i>Phalanta phalantha</i> (Drury)	Common Leopard	Common
Subfamily LIMENITINAE		
Tribe Neptini		
29. <i>Neptis hylas</i> (Linn.)	Common Sailer	Common
Tribe Limenitini		
30. <i>Limenitis procris</i> (Cramer)	Commander	Common
Tribe Euthaliini		
31. <i>Euthalia aconthea</i> (Moore)	Common Baron	Schedule II Common
32. <i>Euthalia nais</i> (Forster)	Baronet or Red Baron	Common

Tribe **Biblini**

33. *Ariadne merione* (Cramer) Common Castor Common

Subfamily NYMPHALINAE

Tribe **Nymphalini**

34. *Junonia hierta* (Fab.) Yellow Pansy Common
 35. *Junonia orithya* (Linn.) Blue Pansy Common
 36. *Junonia lemonias* (Linn.) Lemon Pansy Common
 37. *Junonia almana* (Linn.) Peacock Pansy Common
 38. *Junonia atlites* (Linn.) Grey Pansy Common
 39. *Junonia iphita* (Cramer) Chocolate Pansy Common
 40. *Cynthia cardui* (Linn.) Painted Lady Common
 41. *Hypolimnas bolina* (Linn.) Great Eggfly Common
 42. *Hypolimnas misippus* (Linn.) Danaid Eggfly Schedule I
 Common

Subfamily DANAINAE

Tribe **Danaini**

43. *Parantica aglea* (Stoll) Glassy Tiger Common
 44. *Tirumala limniace* (Cramer) Blue Tiger Common
 45. *Danaus chrysippus* (Linn) Plain Tiger Common
 46. *Danaus genutia* (Cramer) Striped or Common Tiger Common

Tribe **Euploeini**

47. *Euploea core* (Cramer) Common Indian Crow Common

Family LYCAENIDAE

Subfamily RIODININAE

Tribe **Riodiniini**

48. *Abisara echerius* Stall Plum Judy Common

Subfamily POLYOMMATINAE

Tribe **Polyommatini**

49. *Castalius rosimon* (Fab.) Common Pierrot Schedule I
 Common

50.	<i>Pseudozizeeria maha</i> (Kollar)	Pale Grass Blue	Common
51.	<i>Chilades laius</i> Stoll	Lime Blue	Common
52.	<i>Euchrysops cnejus</i> (Fabricius)	Gram Blue	Schedule II Common
53.	<i>Catochrysops strabo</i> (Fabricius)	Forget-Me-Not	Common
54.	<i>Lampides boeticus</i> (Linn.)	Pea Blue	Schedule II Common
55.	<i>Jamides celeno</i> (Cramer)	Common Cerulean	Common
56.	<i>Talica nyses</i> Guerin-Meneville	Red Pierrot	Common
	Tribe Aphnaeini		
57.	<i>Spindasis vulcanus</i> (Fabricius)	Common Silverline	Common
	Tribe Horagini		
58.	<i>Rathinda amor</i> Fabricius	Monkey Puzzle	Common
	Tribe Deudorigini		
59.	<i>Rapala iarbus</i> Fabricius	Indian Red Flash	Common
	Family HESPERIIDAE		
	Subfamily COELIADINAE		
60.	<i>Hasora chromus</i> Cramer	Common Banded Awl	Common
61.	<i>Hasora badra</i> Moore	Common Awl	Common
62.	<i>Badamia exclamationis</i> (Fab.)	Brown Awl	Common
	Subfamily PYRGINAE		
63.	<i>Spialia galba</i> (Fabricius)	Indian Skipper	Common
	Subfamily HESPERIINAE		
64.	<i>Udaspes folus</i> (Cramer)	Grass Demon	Common
65.	<i>Telicota ancilla</i> Herrich-Schiiffer	Dark Palm Dart	Common

SUMMARY

The enumeration of 65 species belonging to 46 genera of five families occurring in the Bhimashankar Wildlife Sanctuary, Maharashtra is provided.

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CLADOCERA : CRUSTACEA

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INTRODUCTION

Among freshwater zooplankton cladocerans also called as 'Waterfleas' are minute crustaceans and is an interesting group of animals not only for taxonomic and distributional studies but also in view of the ecological and reproductive strategies employed in their life cycle, with alternating parthenogenetic and gamogenetic phases and rare occurrence of distinct dormorphic males. Cladocera also forms a major food source for many aquatic animals such as fishes, copepods, insect larvae etc. This is due to their importance in food chain. Cladocera fauna studies were initiated from Bhimashankar Wildlife Sanctuary for which no information is available till date. Present study based on the collections made by various Zoological Survey of India, Pune, survey parties which resulted in enumeration of 15 species comprising 13 genera and 6 families.

Studies of Cladocera fauna from conservation area of Maharashtra state was not well known before it was started by Rane 2004,2005,2006 : for Pench National park, Melghat Tiger Reserve and Tadoba-Andhari Tiger Reserve. Study of Cladocera fauna from other conservation area of other states were Rane 1984, for Kanha National Park, M.P.; Raghunathan and Rane 2001, for Nilgiri Biosphere reserve, Karnataka and Venkatraman 1988, 1990, 1992 for Keoladev National Park, Bharatpur, Rajasthan. Study of Cladocera fauna of Bhimashankar Wildlife Sanctuary was started because of its importance of being a conservation area and home of endemic species of giant squirrel *Ratufa indica elphinstoni* and only Jyotilinga temple of Lord Shiva inside the wildlife sanctuary.

MATERIALS AND METHODS

This study deals with taxonomic and distributional studies of Cladocera fauna of Bhimashankar Wildlife Sanctuary. The Cladocera represented by six families : Sididae, Daphniidae, Moinidae, Bosminidae, Macrothricidae and Chydoridae. During the study plankton samples were obtained from various freshwater habitats. Samples were collected by using plankton nets made from bolting silk. The fauna usually collected in shallow

water, among vegetation and from open waters. The nets were dragged among the vegetation, close to the bottom of shallow water oblique hauls were taken in open water from near the bottom to water near surface to collect both bottom dwelling and floating planktonic forms. Concentrated samples were preserved in 5% formalin in the field itself and these stored bottles were brought in laboratory for further studies. Temporary slides were made in glycerine and identification of species were carried out under stereo-binocular microscope.

SYSTEMATIC LIST

All species from undermentioned list are collected actually from Bhimashankar Wildlife Sanctuary freshwater water bodies and no species of Cladocera was recorded before from this area and all are new records.

Phylum ARTHROPODA

Class CRUSTACEA

Subclass BRANCHIOPODA

Superorder DIPLOSTRACA

Order CLADOCERA

Suborder EUCLADOCERA

Superfamily (a) SIDOIDEA

Family SIDIDAE

1. *Pseudosida bidentata* var. *szalayi* Daday

2. *Diaphanosoma excisum* Sars

Superfamily (b) CHYDOROIDEA

Family (II) DAPHNIIDAE

3. *Ceriodaphnia cornuta* Sars

Subfamily (i) SCAPHOLEBERINAE

4. *Scapholeberis kingi* Sars

Family (III) MOINIDAE

5. *Moina micrura* Kurz

Family (IV) BOSMINIDAE

6. *Bosmina longirostris* (O.F.Muller)

7. *Bosminopsis deitersi* Richard

Family (V) MACROTHRICIDAE

8. *Echinisca triserialis* (Brady)

Family (VI) CHYDORIDAE

Subfamily (ii) CHYDORINAE

9. *Chydorus sphaericus* (O.F.Muller)10. *Chydorus faviformis* Birge11. *Dunhevedia crassa* King

Subfamily (iii) ALONINAE

12. *Alona rectangula* Sars13. *Alona pulchella* King14. *Biapertura karua* (King)15. *Indialona ganapati* Petkovski

SYSTEMATIC ACCOUNT

1. *Pseudosida bidentata* var. *szalayi* Daday

1884. *Pseudosida bidentata* Herrick, *Goel. and Nat. Hist. Survey Minnosota, Ann. Rep.*, 12 : 1-191, p. 20, pl. k., fig. 9.

1898. *Pseudosida szalayi* Daday, *Termes Fuzetek., Budapest*, 21 : 64-66, figs. 33 a-d.

1988. *Pseudosida bidentata* var. *szalayi* Michael and Sharma, *Fauna of India, Cladocera* : 38-39, figs. 6, a-b, Zoological Survey of India.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary, 1 ex., Ahupe tank, 21-11-2004, (Coll. P.P. Kulkarni); 1 ex., Bhorgiri river, 24-2-2005, (Coll. P.D. Rane).
Registration No. C264.

Diagnostic Characters : Body elongated-oval; eyes relatively small and situated near to the anteroventral corner. Antennules unsegmented, long and attached to the posteroventral part of the head with long flexible flagellum. Ventral margin with a series of long setae followed by spinules on the posteroventral corner. Postabdomen with 10-11 clusters of spinnules. Claw with large basal spine and large median projection at base of claw. Length-1.17 mm.

Distribution : India : Rajasthan, Kerala, Andaman and Nicobar islands, Tripura, Tamil Nadu, Maharashtra.

Elsewhere : South East Asia, South Africa, Sri Lanka, Malaysia, South America, Thailand, Sumatra, Australia.

2. *Diaphanosoma excisum* Sars

1885. *Diaphanosoma excisum* Sars, *Forb. Vid. Selsk., Christiania*, No. 8 : 13-18, pl. 2, figs. 1-3.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 5 exs., Ahupe tank, 21-11-2004, (Coll. P.P. Kulkarni); 4 exs., Nigdale tank, 9-10-2005, (Coll. P.D. Rane). Registration No. C275.

Diagnostic Characters : Carapace oblong and abruptly truncate. Posteroventral corner with variable number of denticles followed by delicate cilia. Head large oblong-quadrate. Eyes large with many crystalline lenses located in the frontal portion of head. Antennae not reaching posterior margin of valves. Postabdomen narrow with fine setules. Claw with three basal spines, decreasing in size proximally. Length-0.8 mm.

Distribution : India : Rajasthan, Kerala, Assam, West Bengal, Bihar, Maharashtra.

Elsewhere : Common in tropics and subtropics.

3. *Ceriodaphnia cornuta* Sars

1885. *Ceriodaphnia cornuta* Sars, *Norske, Vidensk. Selsk. Forhandl. Christiania*, 8 : 26- 28, pl.5, figs. 1-3.

1894 a. *Ceriodaphnia rigardi* Richard, *Revue Biol. Nord. France*, 6 : 367.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 3 exs., Bhorgiri, 4-10-2005, (Coll. P.D. Rane); 2 exs., Nigdale tank, 22-11-2004, (Coll. S.G. Patil). Registration No. C265.

Diagnostic Characters : Female carapace broadly oval, produced posteriorly into short projection. Valve reticulated. Head small, separated from body by distinct ocular depression, produced into a very acute, short and deflexed rostrum. Head with short horn or spine over eye. Eye large, ocellus small. Antennules small, fusiform not extending to the tip of rostrum; lateral sensory seta somewhat distal in middle. Postabdomen slightly broad with 5-6 anal spines. Claw short, stout and finely setulated. Length-0.6 mm.

Distribution : India : West Bengal, Gujarat, Bihar, Quilan, Rajasthan, Meghalaya, Tamil Nadu, Karnataka, Madhya Pradesh, Punjab, Haryana, Himachal Pradesh, Maharashtra.

Elsewhere : South East asia, North and South America, South Africa, China, Japan, Palestine, Egypt, Sri Lanka, Phillipines.

4. *Scapholeberis kingi* Sars

1903. *Scapholeberis kingi* Sars, *Archiv. Math. Natur. Christiania*, 25 : 8-10, pl. 1, figs. 2 a-c.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 2 exs., Ahupe tank, 7-10-2005, (Coll. P.D. Rane). Registration No. C266.

Diagnostic Characters : Carapace oval-quadrangular, transversely truncated at posterior margin. Head with large eye and small ocellus. Rostrum well developed, trilobate with narrow hyaline membrane in front. Antennules short located behind the rostrum. Posteroventral corner of valve with small backwardly pointing spine. Ventral margin of valve almost straight and densely ciliated. Valve with striated reticulation. Postabdomen short, broad with 4-5 anal spines. Claw moderately long, stout and setae at concave margin.

Distribution : India : Rajasthan, West Bengal, Meghalaya, Assam, Kashmir, Tripura, Tamilnadu, Maharashtra and Garo hills.

Elsewhere : North and South America, Africa, Java, Europe, Australia, North and South Asia, China, Sri Lanka, Germany, Thailand, Indonesia.

5. *Moina micrura* (Kurz)

1874. *Moina micrura* Kurz, *Sitzber. K. Acad. Wiss. Wein. Math. Nat.*, **70** : 13-15, pl. I., fig. 1.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 10 exs., Ahupe tank, 7-10-2005, (Coll. P.D. Rane). Registration No. C267.

Diagnostic Characters : Female large, head with well developed supraocular depression. Eye large and no setules or cilia present on the head and valves. Valve with about 25 long setae at ventral side, followed by groups of short setae at posterior margin. Antennules large thin with long basal setae; originated well behind the eye. Postabdomen with distal conical part. Dorsal margin with groups of short setae, distal margin with bident tooth and 5-9 feathered lateral setae. Concave margin of claw with 5 setae, proximal setae comparatively larger to form a pecten. Length- upto 1 mm.

Distribution : India : Tamil Nadu, Kerala, West Bengal, Nilgiri Hills, Bihar, Rajasthan, Maharashtra, North-East India, Haryana, Bijapur-Karnataka, Punjab, Tripura and Andaman and Nicobar Islands.

Elsewhere : Africa, Syria, USSR, France, Phillipines, North America, South East Asia, Europe, Sri Lanka.

6. *Bosmina longirostris* (O.F. Muller)

1776. *Lyncus longirostris* (O.F.Muller) *Zoologiae Dinicae Prodrumus, Havniae*, Pl. 76, tab.10, figs. 7-8.

1862a. *Bosmina longirostris* Sars, *Forhandl. Vidensk Selesk, Christiania*, pp. 144-167.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 10 exs., Uirpt Nigdale tank, 22-11-2004, (Coll. P.P. Kulkarni); 5 exs., Hanuman talav, 8-10-2005, (Coll. P.D. Rane). Registration No. C268.

Diagnostic Characters : Female body oval, with highest width in the middle. Posterior part markedly small with hump at upper posterolateral margin. Body transparent, colour whitish-yellow. Venteroposterior margin with two mucrons of varying length and tips. Few setae on anteroventral margin. Two antennules bent at tips with olfactory setae, situated one third portion away from base. Rostrum with thin setae on the upper margin. Postabdomen quadrate with 2 pectinate claw. The claw with proximal 5-7 teeth and distal with 3-4 teeth. Length-0.35-0.39 mm.

Distribution : India : Kashmir, Meghalaya, Tripura, Maharashtra, Tamil Nadu, Kerala, Bihar, Rajasthan, North West India, Haryana, Bijapur-Karnataka.

Elsewhere : Africa, Syria, USSR, France, Phillipines, North America, Sri Lanka.

7. *Bosminopsis deitersi* Richard

1895. *Bosminopsis deitersi* Richard, *Bull. Soc. Zool. De France*, **20** : 96-98, figs. 1-4.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 12 exs., Bhorgiri ditch, 24-2-2005, (Coll. P.P. Kulkarni); 4 exs., Bhakadi, 22-11-2004, (Coll. S.G. Patil); 7 exs., Nigdale, 9-10-2005, (Coll. P.D. Rane). Registration No. C269.

Diagnostic Characters : Body almost oval or oblong. The general form much like *Bosmina*. Posterior corner of valves distinct, Posteroventral corner with small macro like process and 1 or 2 spinnules before it. Head large with 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 7 small spines at last anal edge followed by row of setae proximally. Claw large with one large basal spine near the base.

Distribution : India : Delhi, Kerala, Maharashtra.

Elsewhere : Asia, Africa, North and South America, Phillipines, Sri Lanka.

8. *Echinisca triserialis* Brady

1886. *Macrothrix triserialis* Brady, *J. Linn. Soc. Lond. (Zool.)*, London, **19** : 295, pl. 47, figs. 16-20.

1976. *Echinisca triserialis* : Smironov, *Zool. Acad. Nauk. USSR, Newser.*, **112** : 109-110, figs. 81-89.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 4 exs., Hanuman talav, 8-10-2005, (Coll. P.D. Rane); 2 exs., Ahupe tank, 21-11-2004, (Coll. P.P. Kulkarni). Registration No. C270.

Diagnostic Characters : Body almost oval, dorsal margin slightly arched; Ventral margin strongly arched and produced point posteriorly. Valve reticulated, dorsal margin with serrations while ventral margin with serrations and bristles; Serrations at posteroventral margin arranged in groups of 3. Head large, moderately arched with ridge over its edges.

Small rostrum. Eye large, ocellus small located near the tip of rostrum. Antennules slender, cylindrical and olfactory setae unequal in length. Antennules with notches on anterior margin and sensory setae of unequal length situated at base. Postabdomen large, broad, bilobed with anal spines on both lobes. Claw short and curved. Length-0.5 mm.

Distribution : India : Kerala, Rajasthan, West Bengal, Andaman and Nicobar Islands, Tamil Nadu, Tripura, Maharashtra.

Elsewhere : Cosmotropical.

9. *Chydorus sphaericus* (O.F. Muller)

1776. *Lynceus sphaericus* O.F. Muller, *Havnae* : 119.

1900. *Chydorus sphaericus* Lilljeborg, *Nova Acta Regiae Societatis Scientiarum Upsaliensis*, 3(19) : 561-567, pl. 77, figs. 8-25.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 3 exs., Bhakedi reservoir, 22-2-2005, (Coll. S.G. Patil); 8 exs., Nigdale, 9-10-2005, (Coll. P.D. Rane). Registration No. C271.

Diagnostic Characters : Female body almost spherical in outline. Length is slightly more than height. Posterodorsal corner distinct. Posteroventral corner rounded without denticle. Antennules with sensory setae near middle of anterior margin. Plate of labrum with smooth, convex anterior margin, with produced pointed apex. Postabdomen short with 7-10 anal denticles. Preanal corner projecting. Lateral setae in several groups. Claw with two basal spines and setae at concave margins. Length-0.32 mm.

Distribution : India : West Bengal, Bihar, Kashmir, Ladakh, Nilgiri Hills and Meghalaya.

Elsewhere : Cosmopolitan.

10. *Chydorus faviformis* Birge

1893. *Chydorus faviformis* Birge, *Trans. Wis. Acad. Sci. Arts and letts.*, 9 : 307-308, pl. xiii, figs. 7-8.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 1 exs., Bhorgiri, 4-10-2005, (Coll. P.D. Rane); 3 exs., Bhakadi stream ditch, 22-11-2004, (Coll. S.G. Patil). Registration No. C272.

Diagnostic Characters : Body rounded, Posterodorsal and posteroventral corner of valves not distinct. Valves with deep polygonal cells. Rostrum pointed. Antennules not reaching apex of rostrum. Plate of labrum with convex anterior margin and with slightly pointed apex. Postabdomen wide with rounded apex, preanal corner distinctly projecting with 9-10 anal spines and groups of lateral setae. Claw with setae on its concave margin and two basal spines.

Distribution : India : Kashmir, Assam, Tripura, Madhya Pradesh, Maharashtra.

Elsewhere : Northeast of North America, Sri Lanka, China, Malaysia, Australia, South East Asia.

11. *Dunhevedia crassa* King

1852. *Dunhevedia crassa* King, *Pap. and Proc. Roy Soc. Van Diemens Lond. Hovert Town*, 2 : 261, pl. vii F.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 4 exs., Ahupe tank, 21-1-2004, (Coll. P.P. Kulkarni); 1 exs., Nigdale tank, 9-10-2005, (Coll. P.D. Rane). Registration No. C273.

Diagnostic Characters : Body curved dorsally, oval in outline and maximum height slightly before middle. Posteroventral corner of valve with one denticle. Ventral margin of valve with feathered setae which are longest in the middle. Rostrum blunt. Labrum rounded with pointed apex. Antennules ending slightly before apex of rostrum; Sensory seta situated laterally on a tubercle and sensory papillae almost half as long as antennules. Postabdomen oval with 15-18 anal spines and numerous lateral groups of setae. Length-0.5 mm.

Distribution : India : West Bengal, Gujarat, Rajasthan, Tamil Nadu, Kerala, Maharashtra.

Elsewhere : Holarctic region, Ethiopian, Indo-Malayan, Australia and also Southern part of European USSR.

12. *Alona rectangula* Sars

1862. *Alona rectangula* Sars, *Forh. Ved. Selsk., Christiania*, p.160.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 1 exs., Hanuman talav, 8-10-2005, (Coll. P.D. Rane); 1 exs., Bhorgiri river water ditch, 24-2-2005, (Coll. P.P. Kulkarni); 2 exs., Nigdale tank, 22-11-2004, (Coll. S.G. Patil). Registration No. C274.

Diagnostic Characters : Female-Posterodorsal and posteroventral corners of valve rounded; Valves with longitudinal lines. Ocellus smaller than eye. Postabdomen with 7 anal spines accompanied by setae. Distal group of lateral setae projecting beyond the margin of postabdomen. Claw with basal spine and with row of setae in proximal of $\frac{3}{4}$ of concave margin. Plate of labrum with convex ventral margin and ocellus is slightly smaller than eye. Length-0.5 mm.

Distribution : India : Ladhak, Gujarat, Rajasthan, Meghalaya, Kashmir, West Bengal, Maharashtra.

Elsewhere : Africa, USSR.

13. *Alona pulchella* King

1853. *Alona pulchella* King, *Pap. Proc. R. Soc. Van Diemens Lond.*, 2 : 260, pl. viii B.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 2 exs., Bhorgiri river, 24-2-2005, (Coll. P.P. Kulkarni); 1 exs., Hanuman talav, 8-10-2005, (Coll. P.D. Rane); 1 exs., Bhakadi water talav, 22-11-2004, (Coll. S.G. Patil). Registration No. C276.

Diagnostic Characters : Body almost oval and valve with generally punctate or with reticulation. Rostrum blunt. Antennules not reaching apex of rostrum. Plate of labrum with convex anterior margin and slightly pointed apex. Ocellus present. Postabdomen with almost straight at dorsal and ventral margin; lateral setae in groups, distal setae longest in each groups. Preanal corner distinct but not projecting. Claw with one basal spine. Length-0.5 mm.

Distribution : India : Gujarat, West Bengal, Maharashtra.

Elsewhere : Cosmotropical.

14. *Biapertura karua* (King)

1853. *Alona karua* King, *Pap. Proc. R. Soc. Van Diemens Lond.*, 2 : 260, pl. viii.

1971. *Biapertura karua* Smirnov, *USSR. Acad. Sci. Zool. Institute, Nova ser.* No. 101 : 479-480, figs. 600-603.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 5 exs., Ahupe tank, 26-2-2005, (Coll. S.G. Patil); 3 exs., Bhorgiri tank, 4-10-2005, (Coll. P.D. Rane). Registration No. C277.

Diagnostic Characters : Body oval, maximum height slightly before middle. Posteroventral corner of valve with 3 denticles. Valve with lines and pattern of polygons and striations. Antennules almost reaching apex of rostrum. Postabdomen broadly rounded at distal margin about 8 small anal denticles. Lateral groups of setae with distal seta being longest. Claw with very small basal spine.

Distribution : India : Meghalaya, West Bengal, Tamil Nadu, Maharashtra, Tripura, Andaman and Nicobar islands.

Elsewhere : Cosmopolitan.

15. *Indialona ganapati* Petkovski

1966. *Indialona ganapati* Petkovski, *Fragmenta Balcanica musei Macedonici Scientiarum naturalium V.*, 22(132) : 157-165, pl. 1-9.

Material Examined and Locality : Bhimashankar Wildlife Sanctuary : 2 exs., Uirpt Nigdale tank, 22-11-2004, (Coll. P.P. Kulkarni); 5 exs., Ahupe tank, 7-10-2005, (Coll. P.D. Rane). Registration No. C278.

Diagnostic Characters : This genus has typical head shield with only one head pore. Body almost oval, posteroventral corner of valve distinct and posteroventral corner has without any spines. Valve with pattern of small polygons. Antennules almost reaching the apex of rostrum. Ocellus is smaller than eye. Post abdomen tapering towards the base of claw with 4-5 groups of setae on the lateral surface. Pre and post anal parts of postabdomen of almost equal size. Claw with one basal spine and setules. Length-0.25 mm.

Distribution : India : (This is endemic species found only Indian freshwater and recorded only 3rd time.), Ahmedabad (Gujarat), Bhopal and Maharashtra.

SUMMARY

The paper deals with systematic account of 15 species of Cladocera : Cruatacea belonging to 6 families and 13 genera from conservation area of Bhimashankar Wildlife Sanctuary, Maharashtra state. Each species is actually collected from the Wildlife Sanctuary and provided with diagnostic characters and distribution in India and abroad. The fresh water bodies of this area mostly harbour oriental, Indo-Malayan and tropical elements.

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MOLLUSCA

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INTRODUCTION

Mollusca occur in various habitats and are divided into fresh water, marine and land Mollusca. Our knowledge on Indian non marine Mollusca is based on the contributions made by several earlier workers. Perusal of literature shows that a few workers by Blanford & Godwin Austin, (1908), Gude, (1914 & 1921) and Preston, (1915) and recently on freshwater Mollusca by Subba Rao (1989) have made important contributions. 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 (2007) studied freshwater Mollusca of Pench National Park. The present area of Bhimashankar Wild Life Sanctuary, dist. Pune was not surveyed earlier hence it was thought to survey this conservation area. In all 19 species belonging to 15 genera, 13 families, 3 Orders have been studied.

GENERAL ACCOUNT

The place Bhimashankar is famous holy place of Hindus where one of the Jyotirling out of twelve Jyotirlinga temple is situated. The temple is surrounded by thick forest. In this forest, among the trees, a famous Maharashtra's "Manchinha" rare Giant Squirrel will be seen. This squirrel is also called as "Shekhru" in marathi. This place is suitable habitat for many species of mammal. Being the holy place, nearly two lakhs people visit this place during "Mahashivratri" pilgrimage.

As per Govt. notification No. WLP/1085/CR-588 3F-5 Dt. 16.9.85 nearly 30.78 sq. km area of Bhimashankar Forest has been declared as wildlife sanctuary which falls in Pune and Thane districts. The main aim was to give protection to rare Giant Squirrel and to conserve it. Similarly to conserve the biodiversity of this area and to adopt protective measures for the same. The main two rivers viz. Bhima and Ghod originate from this place and forms a huge water spread area. The tribal population in the area also help to maintain the forest biota. Government is keen for their development by extending the help for their livelihood.

Three types of forest are seen in this area-evergreen, semi-evergreen and south tropical. As per list of Dr. Jagdale, Director, Science and Technology Park, Pune University depicts 444 types of plants in the vicinity of Bhimashankar Wildlife Sanctuary, of which 24 species are endangered. Whereas 28 species are rare Western Ghat species. Nearly 117 species of birds are found in this sanctuary. As per census of 2000 by forest department the major animals and their numbers are given bellow.

The Bhimashankar sanctuary falls in Sahyadri hill range and altitude is 900 meters. Nagphani is the highest place in the area where the height is 1140 meters. The average rainfall is about 4000 mm. The temperature in winter is 7° C, where as in summer the maximum temperature reaches to 38° C. The places like Ahupe, Bombay point, Nagphani Vanaspati point are the places where one can notice natures wonder for the tourist.

The forest department has one Rest House unit with two suites besides Maharashtra tourist Development corporation cottages are there for the stay of nearly 50 people besides temple trust's Dharamshalas.

MATERIAL AND METHODS

During the entire tour six localities were visited. Molluscs were collected from soil, sand, river banks with the help of forcep and water net.

SYSTEMATIC LIST

Phylum MOLLUSCA

Class GASTROPODA

Subclass PROSOBRANCHIA

Order MESOGASTROPODA

Family CYCLOPHORIDAE

1. *Cyclophorus (G) indicus* Deshayes
2. *Cyclophoruu (A) auranitacus* (Schumacher)

Family POTAMIASIDAE

3. *Cyclotopsis semistriata* (Sowerby)

Family VIVIPARIDAE

Subfamily BELLAMYINAE

4. *Bellamyia bengalensis f. typica* (Lamarck)
5. *B. bengalensis f. annandalei*, (Kobelt)

6. *B. dissimilis* (Mueller)

Family AMPULLARIDAE

7. *Turbinicola saxea* (Reeve)

Family BYTHYNIIDAE

8. *Bthynia (Digoniostoma) pulchella* (Benson)

Family THIARIDAE

Subfamily THIARINAE

9. *Tarebia lineata* (Gray)

10. *Melanoides tuberculata* (Mueller)

Order BASOMMATOPHORA

Family LYMNAEDAE

11. *Lymnaea (P) luteola typica* Lamarck

Family PLANORBIDAE

12. *Indoplanorbis exustus* (Deshayes)

13. *Gyraulus convexiusculus* (Hutton)

Class BIVALVIA

Order UNIONOIDA

Family UNIONIDAE

Subfamily AMBLEMIDAE

14. *Lamellidens consobrinus* Lea

15. *Parreysia (P) favidens* (Benson)

Order VENEROIDA

Family CORBICULIDAE

16. *Corbicula striatella* Deshayes

LAND MOLLUSCA

Class GASTROPODA

Order STYLOMMATOPHORA

Family ARIOPHANTIDAE

17. *Ariophanta bajadera* (Pfeiffer)

18. *Crytozona semireguata* (Beck)

Family GLESSULINIDAE

19. *Glessula notigena* Benson

SYSTEMATICS ACCOUNT

Class GASTROPODA

Order MESOGASTROPODA

Family CYCLOPHORIDAE

Genus CYCLOPHORUS

1. *Cyclophorus (G) indicus* Deshayes

1825. *Helix involvus* Mueller, *Hist. Verm.* Part 2 P. 84 Wood index Text Pl. 25, fig. 8.

1899. *Cyclophorus (Litostylus) involvus* Kobelt, *Mollenderff Nachr. Deuts. Malal.*, XXIX P. 105 id cat. *Paneum* P. 17 : 7, Kobelt.

Material Examined : 2 exs., Bhorgiri, Bhimashankar wild life sanctuary, 20-11-04, Coll. S. G. Patil.

Distribution : Maharashtra: Bhimashankar wild life sanctuary, Sanjay Gandhi National Park, Borivili, Mumbai, Western Ghats and Pune Dist.

2. *Cyclophorus (A.) aurantiacus* Schumacher

1786. *Turbo volvulus* Chemn *Choncab. Ix, sect. 2, 6, p 57, pl., 123, figs. 1064, 1065.*

1885. *Cyclophorus lowi*. *De morghan, Naturaliste*, vii, p. 69.

Material Examined : 4 exs, Bhorti nala, Bhimashankar wild life sanctuary, 19-11-04, Coll. S. G. Patil.

Distribution : Pune dist. & around.

Family POMATIASIDAE

Genus *Cyclotopsis* Blanford

3. *Cyclotopsis semistriata* Sowerby

1843. *Cyclostoma semistriatum* Sowerby, *Fres. Conch* 1 : 91, p 123, fig. 6.

1914. *Cyclotopsis semistriatum* : *Gude Fauna Bitish India, Mollusca*, III : 353

Material Examined : 2 exs, Borti Nala, Bhimashankar Wild Life Sactuary, 19-11-04, Coll. S.G. Patil.

Distribution : Bhimashankar Wildlife Sanctuary, Pune Maharastra, It is restricted to hills in an around Pune.

Family AMPULLARIDAE

Genus *Turbinicola* Annandale & Prashad4. *Turbinicola saxea* (Reeve)

1856. *Ampullaria saxea* Reeve, *Conch. Icon.*, 10, *Ampullaria*, pl. XXII, fig. 108, Type Locality : Stream near Khandala (Prashad, 1925)

1925. *Turbinicola saxea* Prashad, *Mem, Indian Mus.*, 8 : 87, pl. XIV, figs. 10-12. Type B.M. (NH).

Material Examined : 3 exs., Borti nala Bhimashankar wild life Sanctuary, 19-11-06, Coll. S.G. Patil.

Distribution : Maharashtra: Bhimashankar wild life Sanctuary, Sanjay Gandhi National Park, Borivili, Bombay-Pune highway road at altitude between 2500 to 3000 feet Khandala, Igatpuri, Western Ghats.

Family VIVIPARIDAE

Genus *Bellamyia* Jousseau 18865. *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 : 10 exs. Bhorgiri, Bhimashankar Wildlife Sanctuary, 20-11-04, Coll. S. G. Patil.

Distribution : India : Maharashtra, Bhimashankar Wildlife Sanctuary, Lonar Crater Wildlife Sanctuary Buldana dist., Melghat Tiger Reserve, Amaravati dist., Pench National Park, Nagpur dist., Tadoba Andhari Tiger Reserve, Chandrapur dist, 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.

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

1908. *Vivipara anandalai* Kobelt, *Nachar. Malak, Geseu.*, Frankfurt, 60 : 161-162.

1989. *Bellamyia bengalensis* form *annandalei* : Subba Rao, Handbook : *Freshwater mollusks of India* : 46.

2006. *Bellamyia bengalensis* form *annandalei* : Ramakrishna and Dey, *Handbook on Indian Freshwater mollusks* : 80-81. Publ. : Director, *Zool. Surv. India*, Kolkata.

Material Examined : 4exs., Bhorgiri, Bhimashankar Wildlife Sanctuary Sanctuary, 20-11-04, Coll. S. G. Patil

Distribution : Maharastra, : Bhimashankar Wildlife Sanctuary, Lonar Crater Wild Life Sanctuary, Tadoba Andhari Tiger Reserve, Dist. Chandrapur, Pench National Park, Nagpur dist, Orissa, Rajasthan, Bihar, West Bengal, Andhra Pradesh and Tamil Nadu.

7. *Bellamyia dissimilis* (Mueller)

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

1960. *Viviparus dissimilis*, Satyamurti, 1 *Bull. Madras Govt. Mus.*, 6(4) : 33-34.

Material Examined : 8 exs, Kondwal, Bhimashankar Wild Life Sanctuary, 2-8-05, Coll. D.B. Bastawade.

Distribution : Maharastra, Bhimashankar Wildlife Sanctuary, Lonar Crater Wildlife Sanctuary Buldana Dist., Tadoba Andhari Tiger Reserve, Chandrapur, Pench National Park.

Family BITHINIDAE

8. *Bithynia (Digoniostoma) pulchella* (Benson)

1836. *Paludina pulchella* Benson 1, *J. Asiat. Soc. Beng.*, 5 : 746. Type locality : Mirzapur U.P. Hanley and Theobald, 1876, *Conch*, India pl. 38, fig. 5, 6.

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

Material Examined : 2exs, Kondwal, Bhimashankar Wildlife Sanctuary, 2-8-2005, Coll. D.B. Bastawade.

Distribution : Maharashtra, Bhimashankar Wildlife Sanctuary, Lonar Crater wildlife Sanctuary dist. Buldana, Pench National Park Nagpur, common throughout.

Family THIARIDAE

Subfamily THIARINAE

Genus *Thiara* Roeding, 1798

9. *Tarebia lineata* (Gray)

1828. *Helix lineata* Gray, 1 in wood's Index Test supp., p. 24, fig. 68. Type locality : Ganges.

1921. *Tiara (Tarebia) lineata* : Preston, 1915, *Fauna British India. Mollusca* (Freshwater Gastropoda and Pelecypoda), p. 34.

Material Examined : 2 exs, Bhakadevi, Bhimashankar Wildlife Sanctuary, 22-11-04, Coll. S.G. Patil.

Distribution : Maharashtra, Bhimashankar Wild life Sanctuary, Lonar Crater Wildlife Sanctuary, Buldana Dist., Tadoba Andhari Tiger Reserve, dist. Chandrapur, West Bengal, Bihar, Madhya Pradesh, Uttar Pradesh, Assam.

Elsewhere : Myanmar, Bhutan, Sri Lanka.

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

10. *Melanoides tuberculata* (Mueller)

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

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

1989. Subba Rao, N.V. *Handbook freshwater Molluscs of India*, Zoological survey of India, XXXII + 289 pp. p. 103, figs. 183, 184.

Material Examined : 2 exs. Bhorgiri, Bhimashankar Wildlife Sanctuary, 20-11-04, Coll. S.G. Patil.

Distribution : Maharashtra Bhimashankar Wildlife Sanctuary, Lonar Crater Wildlife Sanctuary, Melghat Tiger Reserve, Tadoba Andhari Tiger Reserve, Pench National Park, Ujani Wetland, 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 are typically narrowly elongate and distinctly sculptured with rounded whorls vertical ribs and spiral striae and also with dark brown dots or streaks here and there. These shells collected from stagnant water ponds slightly differ from those collected from sandy beds.

Order BASOMMATOPHORA

Family LYMNAEDAE

Genus *Lymnaea* Lamarck, 1799

11. *Lymnaea (Pseudosuccinica) luteola f. typica* Lamarck

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

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

Material Examined : 4 exs., Bhorgiri, Bhimashankar Wildlife Sanctuary, 20-11-04, Coll. S.G. Patil.

Distribution : Maharashtra: Bhimashankar Wildlife Sanctuary, Lonar Crater Lake Wildlife Sanctuary Buldana Dist, Melghat Tiger Reserve Amaravati dist. Pench National Park Nagpur dist, Tadoba Andhari Tiger Reserve, Dist. Chandrapur (as above), common throughout.

Family PLANORBIDAE

Subfamily BULININAE

Genus *Indoplanorbis* Annandale & Prashad, 192112. *Indoplanorbis exustus* (Deshayes, 1834)

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., Bhorgiri, Bhimashankar Wildlife Sanctuary, 20-11-04, Coll. S.G. Patil.

Distribution : Maharashtra : Bhimashankar Wildlife Sanctuary, Lonar Crater Wildlife Sanctuary, Melghat Tiger Reserve, Tadoba Andhari Tiger Reserve, Pench National Park. Throughout the plains of India, Jammu and Kashmir.

Elsewhere : Pakistan, Persia, Sri Lanka, Myanmar, Malaya, Indo China, Thailand, Sumatra, Java, Celebes.

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

Subfamily PLANORBINAE

Genus *Gyraulus* Agassiz in Charpentier, 183713. *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., Borti nala, Bhimashankar Wildlife Sanctuary, 19-11-04, Coll. S.G. Patil.

Distribution : India : Bhimashankar Wildlife Sanctuary, Lonar Crater wild life Sanctuary Buldana Dist. Common throughout, including Tadoba Andhari Tiger Reserve, Chandrapur.

Elsewhere : Extends from Iran to Philippines.

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

Class BIVALVIA
Order UNIONIDA
Family UNIONOIDAE
Subfamily UNIONINAE
Genus *Lamellidens* Simpson, 1900
14. *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.

Material Examined : 3 exs., Bhakadevi, Bhimashankar Wildlife Sanctuary, 22-11-04, Coll. S. G. Patil.

Distribution : Maharashtra : Bhimashankar Wild life Sanctuary, Lonar Crater Wildlife Sanctuary, Pench National Park, dist. Nagpur, Melghat Tiger Project, dist. Amravati, Maharashtra, India and Sri Lanka.

Remarks : Shell rhomboidal, thick, umbones more inflated than in *L. marginalis*, dorsal margin curved and obliquely truncate, posterior side obtusely angled, anterior side rounded, left valves with two ragged cardinal.

Family AMBLEMIDAE
Subfamily PARREYSIINAE
Genus *Parreysia* Conrad 1858
15. *Parreysia (Parreysia) favidens* (Benson)

1860. *Unio favidens* Benson, 1 *Ann. Mag. nat. Hist.*, 10 : 188.

Diagnostic Character : Thicker larger more inequilateral, both anterior and posterior margins angulate, cardinal teeth strong and broad.

Material Examined : 2 exs., Bhorgiri, Bhimashankar Wild life Sanctuary, Date 20-11-04, Coll. S.G. Patil.

Distribution : Common through out India.

Elsewhere : Bangladesh, Myanmar and Pakistan.

Order VENEROIDA
Family CORBICULIDAE
Genus *Corbicula* Megerle von Muehlfeld
16. *Corbicula striatella* Deshayes

1854. *Corbicula striatella* Deshayes, *Proc. Zool. Soc. Lond.*, 22 : 344. type locality : Pondicherry.

1928. *Corbicula striatella*, Prashad, *Mem. Indian Mus.*, 9 : 18, Pl. iii, fig. 9-11.

Diagnostic Characters : 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.

Material Examined : 2 exs. Borti nala, Bhimashankar Wildlife Sanctuary, 19-11-04, Coll. S.G. Patil.

Distributions : Bhimashankar Wildlife Sanctuary, Lonar Crater Lake wildlife Sanctuary Buldana dist., Commonest Indian species and occurs throughout India, Maharashtra, Melghat, Pench National Park, dist. Nagpur, Tadoba Andhari Tiger Reserve, Chandrapur.

Elsewhere : Pakistan, Peshawar, Sindh and Myanmar.

LAND MOLLUSCA

Class GASTROPODA

Order STYLOMMATOPHORA

Family ARIOPHANTIDAE

Subfamily ARIOPHANTINAE

Genus *Ariophanta* Desmoulins 1829

17. *Ariophanta bajadera* (pffeifer)

1908. *Ariophanta bajadera* : Blanford and Godwin-Austen, *Fauna of British India, Mollusca*, 1909. *Helix bajadera* Pfeiffer, *Zeitschr. Mal.*, 1850 : 69. Testacellidae & Zonitidae : 31.

2004. *Ariophanta bajadera* : Mitra, Dey and Ramakrishna, *Pictorial Handbook Indian Land Snails* : 226-227 (Publ. : Director, *Zool. Surv. India*, Kolkata).

Material Examined : 2 exs., Kondwal, Bhimashankar Wildlife Sanctuary, Date 2-8-05, Coll. D.B. Bastawade.

Distribution : Maharashtra : Bhimashankar Wildlife Sanctuary, Lonar Crater Lake Wildlife Sanctuary Buldana dist., Mumbai, South of Narbada, ranging east to Nagpur, Western Ghat near Bombay.

18. *Cryptozona (Nilgiria) semirugata* (Beck)

1837. *Galaxis semirugata* Beck, *Ind.* 1837. : 42.

1908. *Ariophanta semirugata* : Blanford and Godwin-Austen, *Fauna of British India, Mollusca*, Testacellidae & Zonitidae : 35.

2004. *Cryptozona semirugata* : Mitra, Dey and Ramakrishna, *Pictorial Handbook Indian Land Snails* : 236-237 (Publ. : Director, *Zool. Surv. India*, Kolkata).

Material Examined : 2xs., Kondwal, Bhimashankar Wildlife Sanctuary, 2-8-05, Coll. D.B. Bastawade.

Distribution : Bhimashankar Wildlife Sanctuary, Lonar Crater Lake Wildlife Sanctuary, Endemic in Peninsular India Its range extends from Gujarat to West Bengal in north and Sri Lanka in South.

Family GLESSULIDAE
Genus *Glessula* von Mariens, 1950

19. *Glessula notigena* Benson.

1860. *Achatina notigena* Benson, *Ann. & Mag. nat. Hist.* 5(3) : 462.

1914. *Glessula notigena* : Gude, *Fauna of British India, Mollusca*, 2 : 412.

Material Examined : 2 exs., Bhongiri, Bhimashankar Wildlife Sanctuary, 20-11-04, Coll. S.G. Patil.

Distribution : Maharashtra : Bhimashankar Wildlife Sanctuary, Assam, West Bengal, Sikkim, Bangladesh.

SUMMARY

A total of 19 species with 15 genera and 13 families are recorded from Bhimashankar Wildlife Sanctuary. As such the Mollusca fauna of this area is quite poor however, more extensive surveys to this area may reveal the existence of some more species than what is known now.

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