



FAUNAL DIVERSITY OF
TIGER RESERVES
IN INDIA

VOLUME - I

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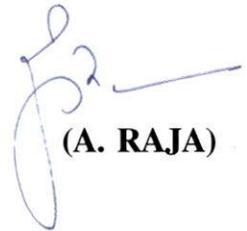
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FOREWORD

Our Tiger Reserves are repositories of precious gene pool. Several endangered as well as endemic species of animals and plants thrive in these areas. Many species have been saved from the brink of extinction due to concerted efforts under Project Tiger.

This compendium of faunistic surveys of the Zoological Survey of India presents the faunal diversity of Tiger Reserves. The report, once again, vindicates the conservation philosophy of Project Tiger, which has resulted in the conservation of other life forms while saving the flagship species - the tiger.

I am sure this publication would be of use to field managers of our Tiger Reserves.



(A. RAJA)



Faunal Diversity of **Tiger Reserves in India**

Volume-I

2006

1-462

CONTENTS

1. *Faunal Diversity in Tiger Reserves – An Overview* 1-31
2. Corbett Tiger Reserve, Uttaranchal 33-72
3. Dudhwa Tiger Reserve, Uttar Pradesh 73-102
4. Ranthambhore Tiger Reserve, Rajasthan 103-167
5. Sariska Tiger Reserve Rajasthan 169-214
6. Tiger Reserves in Madhya Pradesh and Chhattishgarh 215-328
7. Pench Tiger Reserve, Nagpur, Maharashtra 329-370
8. Tadoba-Andhari Tiger Reserve, Chandrapur, Maharashtra 371-414
9. Melghat Tiger Reserve, Maharashtra 415-462



FAUNAL DIVERSITY IN TIGER RESERVES

AN OVERVIEW

INTRODUCTION

One of the problems naturalists face in recent years is the manner in which they need to identify the most important areas for biodiversity conservation. Lands to be identified and allocated for conservation cannot be postponed for lack of data, even though additional data might facilitate the identification of more economically and biologically efficient reserve networks. Moreover, it is also not possible to save everything everywhere, so it is to be based on priority areas or targeted species, ecosystems as a measure of their contribution to an area and/or species to the overall pattern of biodiversity (May, 1990). In such situations, the conservation biologist depends solely on quantifying the biodiversity *value*. Species richness can be a reasonable surrogate for character richness, even though it is less direct. Since we lack fundamental data on species richness and abundance in most areas, scientists have resorted to using surrogate species to facilitate the establishment of reserves (Simberloff, 1998; Caro & O'Doherty, 1999), and assume that if we protect the surrogates we will also do an adequate job of protecting much of the regional biota (Andelman, and Fagan, 2000). Several such classes of surrogate species schemes are prevalent *viz.*, (i) flagship species (ii) keystone species (iii) biodiversity indicators or indicator species and (iv) umbrella species.

According to Global Conservation Programme, a flagship species is a species selected to act as an ambassador, icon or symbol for a defined habitat, issue, campaign or environmental cause. 'Flagship species' are socially appealing species (frequently large mammals) that are good candidates to evoke public sympathy and action to conserve large tracts of land (Simberloff, 1998). By focusing on, and achieving conservation of that species, the status of many other species which share its habitat or vulnerable to the same threats - may also be improved. Flagship species are usually relatively large, and considered to be '*charismatic*' (*e.g.*, Tiger, Elephant, Rhino, Red Panda, and Crocodile etc.). On a larger scale, the geographical range of a flagship species often encompasses the geographical ranges of many other species (although this has never been shown explicitly); at an intermediate scale, its presence may predict the presence of other species although this is equivocal and at a small ecological scale, flagship species are used to establish small reserves (Andelman & Fagan, 2000). However, Flagship species may or may not be keystone species and may or may not be good indicators of biological process. In comparison, according to WWF, the priority species is reflective of a key threat across that ecoregion - such that conservation of the species will contribute significantly to a broader threat mitigation outcome. It is often crucial to the economic and/or spiritual wellbeing of peoples within that ecoregion.

A keystone species is a species that plays an essential role in the structure, functioning or productivity of a habitat or ecosystem at a defined level (habitat, soil, seed dispersal, etc). Disappearance of such species may lead to significant ecosystem changes or dysfunction which may affect on a broader scale (e.g., bats and insects in pollination). By focusing on keystone species, conservation actions for that species may help to preserve the structure and function of a wide range of habitats which are linked with that species during its life cycle.

An indicator species is a species or group of species chosen as an indicator of, or proxy for, the state of an ecosystem or of a certain process within that ecosystem. Examples include cladocerans and rotifers as indicators of freshwater quality; corals as indicators of marine processes such as siltation, seawater rise and sea temperature fluctuation; peregrine falcons as an indicator of pesticide loads. Umbrella species are 'species with large area requirements, which if given sufficient protected habitat area, will bring many other species under protection' (Noss, 1990; Caro, 2003).

CONSERVATION PRIORITY

In recent years, due to high rate of extinction and species becoming vulnerable to various threats, the role of the biogeographic area occupied by the surrogate species which holds viable populations of other species has become a tool for conservation biologists who in turn are concerned with the distributional dynamics of taxa individually and collectively. The Global Biodiversity Strategy (WRI *et al.*, 1992) proposes the following actions with respect to species conservation in natural habitats (besides several actions for *ex-situ* conservation) :

- Integrate the conservation of species, populations and genetic resources into regional management and protected area reviews.
- Use flagship species to increase support for conservation.
- Improve and expand legal mechanisms to protect species.

PROJECT TIGER

Besides palaeontological evidences, tigers are known socially, and culturally associated with the humans since the beginning of the civilization. According to Thapar (1992, 1996), the oldest manmade representation of tiger was discovered on the rocks located besides Amur river in Siberia way back 4000 B.C. It is further stated that tiger skins were used by Tibetans to ward off evil spirits, and their presence in Indus Valley civilization exists in the form of a seal 5000 years old. Chinese believed that tigers are the guardian of dead and living, and hence the tiger is dedicated every 12th year in Chinese calendar. Even in the Hindu mythology, god (Shiva) and goddess (Durga or Bhawani) sit on the tiger or tiger skin. In Madhya Pradesh, the tiger is worshipped as Baghdeo, in south India the royal flag of Tippu Sultan was adorned with tiger. Hence, tigers are inseparable with humans since time immemorial. The concept of Project Tiger is not only to protect the charismatic species but to enhance the sustainability of the ecosystem. The role the tiger plays as a top predator is vital to the regulating and perpetuating of ecological processes and systems (Terborgh, 1999; Sunquist *et al.*, 1999).

At the turn of the 20th century, one estimate of the tiger population in India placed the figure at 40,000. Subsequently, the first ever all-India tiger census was conducted in 1972 which revealed the existence of only 1827 tigers. Various pressures in the later part of the 20th century led to the progressive **decline of wilderness** resulting in the disturbance of viable tiger habitats. At the International Union for Conservation of Nature and Natural Resources (IUCN) General Assembly meeting in Delhi in 1969, serious concern was voiced about the threat to several species of wildlife and the shrinkage of wilderness in India. In 1970, a national ban on **tiger hunting** was imposed and in 1972 the Wildlife (Protection) Act came into force. A task force was then set up to formulate a project for tiger conservation with an ecological approach. The project was launched in 1973, and various tiger reserves were created in the country based on a 'core-buffer' strategy. The core areas were free from all sorts of human activities and the buffer areas were subjected to 'conservation oriented land use'. Management plans were drawn up for each tiger reserve.

Initially, 9 tiger reserves were established in different States during the period 1973-74, by pooling the resources available with the Central and State Governments. These nine reserves covered an area of about 13,017 km² - viz., Manas (Assam), Palamau (Bihar), Similipal (Orissa), Corbett (U.P.), Kanha (M.P.), Melghat (Maharashtra), Bandipur (Karnataka), Ranthambhore (Rajasthan) and Sunderbans (West Bengal). The main achievements of this project were the excellent recovery of the habitat and consequent increase in the tiger population in the reserve areas, from a mere 268 in 9 reserves in 1972 to above one thousand five hundred in 28 reserves in 2002. Tigers, being at the apex of the food chain, can be considered as the indicator of the stability of the eco-system. For a viable tiger population, a habitat should possess a good prey base which in turn will depend on undisturbed forest vegetation. Thus, 'Project Tiger' is basically the conservation of the entire eco-system and apart from tigers. The full fledged support extended over the years, helped increase all other wild population in the project areas. From the Ninth Five Year Plan onwards, the main thrust was to enlarge the core and buffer zones in certain reserves, intensification of protection and eco-development in the buffer zones of existing tiger reserves, creation of additional tiger reserves and strengthening of the research activities, (*Source : Project Tiger*).

RATIONALE FOR DOCUMENTATION OF THE FAUNAL RESOURCES

India has had a relatively successful history of tiger protection and is thought to possess the largest number of wild tigers of any of the range states (IUCN, 2001). Its response to declining tiger populations has focused on establishing special protected reserves, located in different geographic zones of the country. India's Environmental policy, including International Agreements and implementation is principally made by the Ministry of Environment & Forests (MoEF), Government of India. The Convention of Biological Diversity (1992) to which the Government of India is a signatory, dwell a great deal on the need to document the biological diversity existing within the Indian territory. Being conscious of the intrinsic value of the biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values, especially Article-7 of the Convention proposes the member country for the "**Identification and Monitoring**".

However, no studies have tried to measure the viability of background populations. Documentation of faunal resource in Tiger Reserves therefore, focuses on developing 'indicators' to be used in the assessment which are reflected in a combination of ecological fundamentals, such as biodiversity, critical habitat and key ecological relationships; site-specific considerations, environmental stress and potential impacts. Assessments and documentations also provide biodiversity values that are recognized and taken into consideration in the planning and decision making process. Species diversity in itself, for example, is valuable because the presence of a variety of species helps to increase the capability of an ecosystem to be resilient in the face of a changing environment. At the same time, an individual component of that diversity, such as a particular food plant or animal species, may be valuable as a biological resource. It is for this reason the documentation of faunal resources will enhance the effective performance of planning and management and also assists in competencies or compensable factors found in evaluating the diversity of the country, has been taken up in the present instance.

OBJECTIVES AND OUTCOME

The main objectives of this book is to compile data detailing the distribution of vertebrates (mammalia, aves, reptilia, amphibia and pisces) and selected invertebrate species especially butterflies. to assess the major role of these species in community interactions which implies a high correlation between species richness and overall biodiversity (Terborgh, 1988). Murphy and Wilcox (1986) suggested that vertebrates often provide a protective umbrella for invertebrate species. Among invertebrates, butterflies, whose distribution is well documented in many regions, also have been recommended as indicators of overall biodiversity. Pyle (1982) noted several advantages of butterflies as indicators, including moderate agility, host specificity, an ability to resist the impact of human activities through a high reproductive potential, and species richness high enough to be useful quantitatively yet low enough to be handled efficiently. Butterflies tend to condense the vast amount of ecological information available in plants.

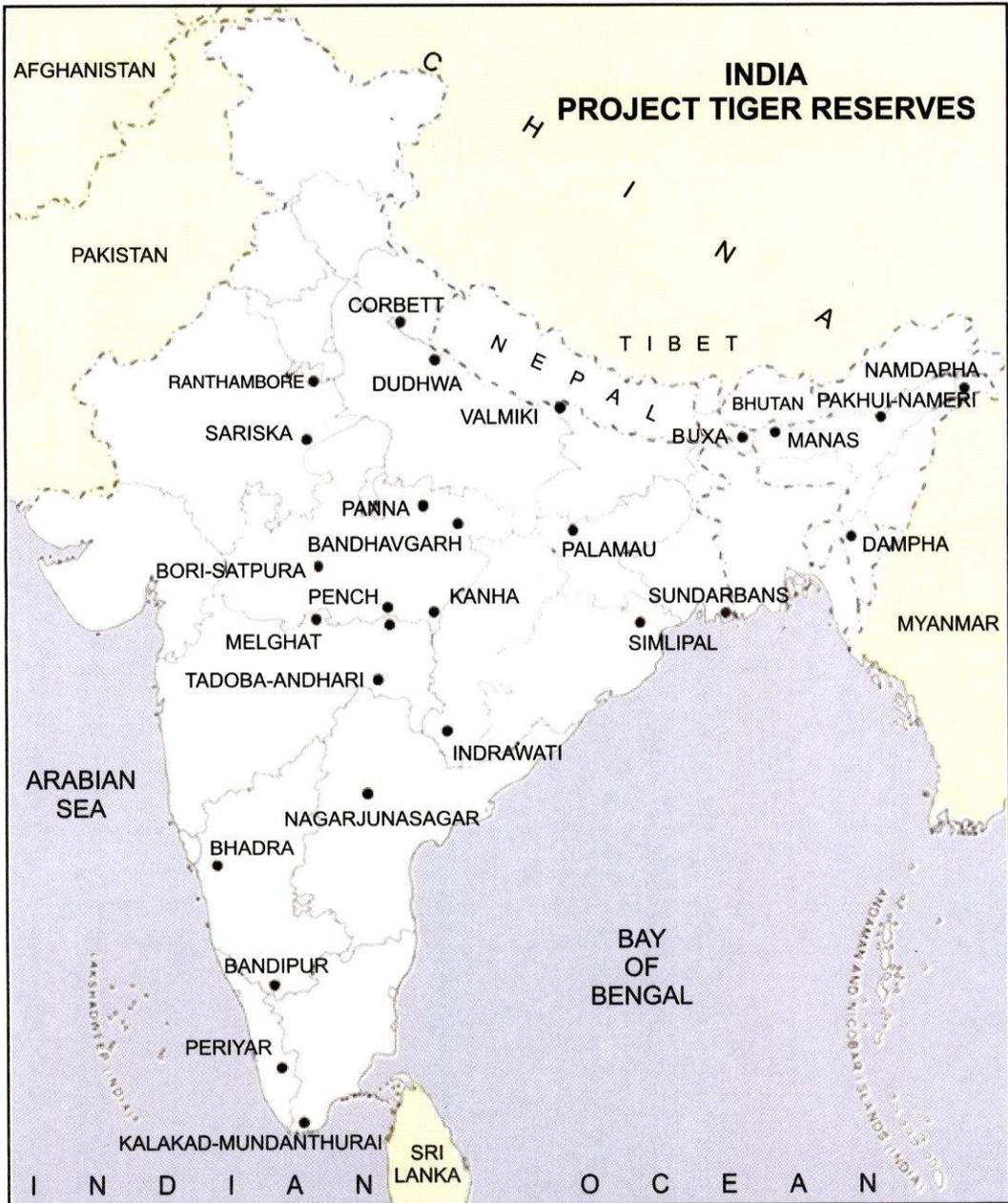
The second important objective is to gather information on the geographic distribution, from the surveys and museum information available together with literature search. Taxonomic details were checked from the recently published and accepted literature and the geographical distribution data was made on the basis of museum collections and sightings made for the purpose.

In spite of taking all precautionary principles involved in understanding the faunal diversity, there exists some information gaps particularly in the lower taxonomic groups (Invertebrates), amphibian and reptiles among vertebrates. A Complete inventorisation of faunal resources in the Tiger Reserves was not possible because of the time constraint, shortage of specialists in certain groups and the restrictions imposed in carrying out the inventorisation in the reserve. The Taxonomic Gap is mainly because of the inadequacy in sampling techniques, as many groups are cryptic and nocturnal in behaviour, besides, imposition of restriction on inventorisation in protected areas. The spatial gaps found is mainly due to the lack of usage of techniques of GPS and GIS by the field survey units.

Tiger Reserves in India : Name of the Tiger Reserves in Tiger range states with year of creation and area

S. No.	Year of Creation	Name of Tiger Reserve	State	Total area (Km ²)
1.	1973-74 1999-2000	Bandipur Nagarahole (Bandipur extension)	Karnataka Karnataka	866 642
2.	1973-74	Corbett	Uttaranchal	1316
3.	1973-74	Kanha	Madhya Pradesh	1945
4.	1973-74	Manas	Assam	2840
5.	1973-74	Melghat	Maharashtra	1677
6.	1973-74	Palamau	Jharkhand	1026
7.	1973-74	Ranthambhore	Rajasthan	1334
8.	1973-74	Similipal	Orissa	2750
9.	1973-74	Sunderbans	West Bengal	2585
10.	1978-79	Periyar	Kerala	777
11.	1978-79	Sariska	Rajasthan	866
12.	1982-83	Buxa	West Bengal	759
13.	1982-83	Indravati	Chattisgarh	2799
14.	1982-83	Nagarjunsagar	Andhra Pradesh	3568
15.	1982-83	Namdapha	Arunachal Pradesh	1985
16.	1987-88 1999-2000	Dudhwa Katerniaghat-(extension)	Uttar Pradesh Uttar Pradesh	811 551
17.	1988-89	Kalakad-Mundanthurai	Tamil Nadu	800
18.	1989-90	Valmiki	Bihar	840
19.	1992-93	Pench	Madhya Pradesh	758
20.	1993-94	Tadoba-Andhari	Maharashtra	620
21.	1993-94	Bandhavgarh	Madhya Pradesh	1162
22.	1994-95	Panna	Madhya Pradesh	542
23.	1994-95	Dampha	Mizoram	500
24.	1998-99	Bhadra	Karnataka	492
25.	1998-99	Pench	Maharashtra	257
26.	1999-2000	Pakhui	Arunachal Pradesh	862
27.	1999-2000	Nameri	Assam	344
28.	1999-2000	Bori, Satpura, Pachmari	Madhya Pradesh	1486
Total				38,060

Source : Project Tiger

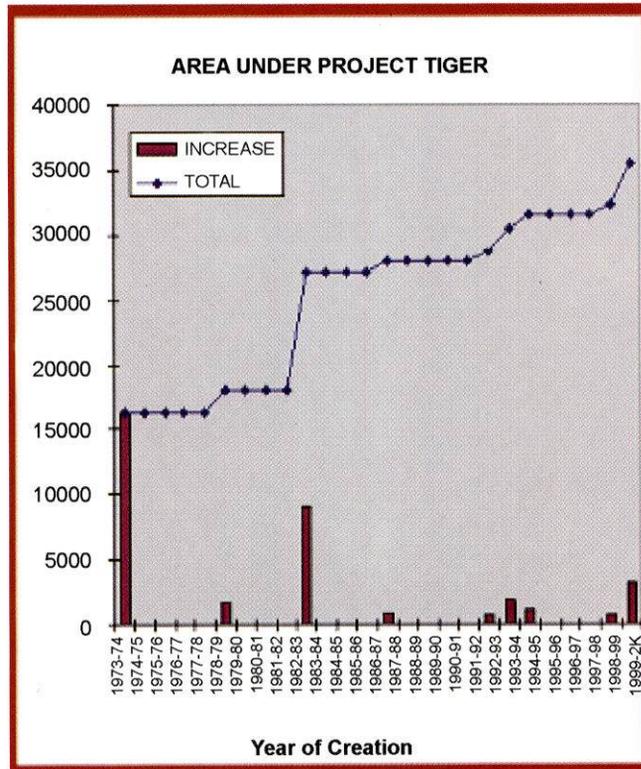


Map showing the position of Tiger Reserves in India.

Population of Tigers : States of India

S. No.	Name of the State	1972	1979	1984	1989	1993	1997	2001-02
1.	Andhra Pradesh	35	148	164	235	197	171	192
2.	Arunachal Pradesh	69	139	219	135	180	-	61
3.	Assam	147	300	376	376	325	458	354
4.	Bihar	85	110	138	157	137	103	76
5.	Chhattishgarh	-	-	-	-	-	-	227
6.	Goa Daman & Diu	-	-	-	2	3	6	5
7.	Gujarat	8	7	9	9	5	1	Nil
8.	Haryana	-	-	-	-	-	NR	-
9.	Himachal Pradesh	-	-	1	-	-	-	-
10.	Jharkhand	-	-	-	-	-	-	34
11.	Karnataka	102	156	202	257	305	350	401
12.	Kerala	60	134	89	45	57	73	71
13.	Maharashtra	160	174	301	417	276	257	238
14.	Madhya Pradesh	457	529	786	985	912	927	710
15.	Manipur	1	10	6	31	-	-	NR
16.	Meghalaya	32	35	125	34	53	-	47
17.	Mizoram	-	65	33	18	28	12	28
18.	Nagaland	80	102	104	104*	83	-	23
19.	Orissa	142	173	202	243	226	194	173
20.	Rajasthan	74	79	96	99	64	58	58
21.	Sikkim	-	-	2	4	2	-	NR
22.	Tamil Nadu	33	65	97	95	97	62	60
23.	Tripura	7	6	5	-	-	-	NR
24.	Uttaranchal	-	-	-	-	-	-	251
25.	Uttar Pradesh	262	487	698	735	465	475	284
26.	West Bengal	73	296	352	353	335	361	349
	Total	1827	3015	4005	4334	3750	3508	3642

Source : www.wii.gov.in.



SYSTEMATIC POSITION

Kingdom:	Animalia
Phylum:	Chordata
Subphylum:	Vertebrata
Class:	Mammalia
Order:	Carnivora
Family:	Felidae
Subfamily:	Pantherinae
Genus:	<i>Panthera</i>
Species:	<i>tigris</i>

***Panthera tigris* Linnaeus**

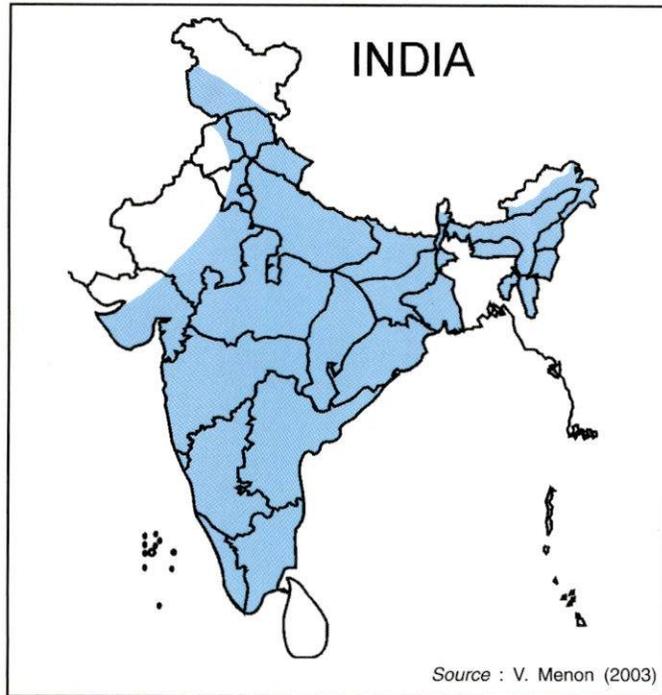
**Original Description : *Felis tigris*
Linnaeus, *Syst. Nat.* 10th ed. 1 : 41**

**Type Locality : "Asia" [Thomas
(1911) fixed as "Bengal", India]**

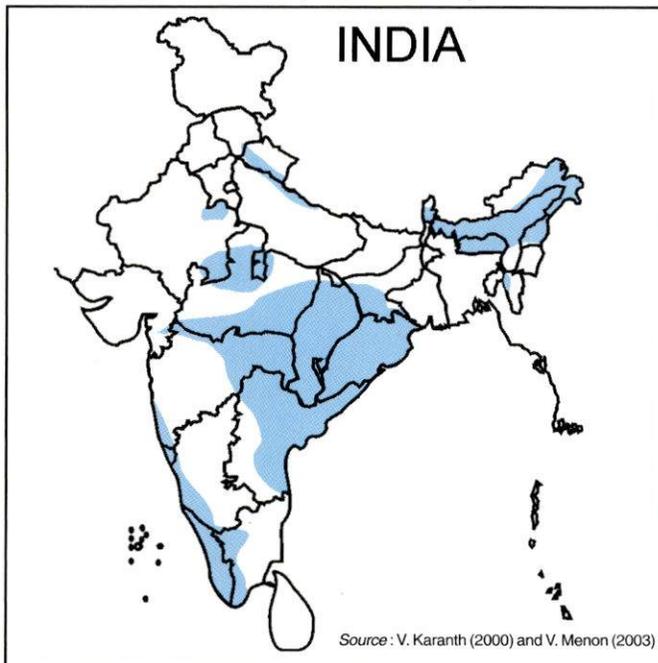
Population of Tigers in Project Tiger Reserves

Name of Reserve	1972	1977	1979	1984	1989	1991-92	1993	1995	1997	2001-02
Bandipur	10	26	39	50	50	50*	66	74	75	82
Bandhavgarh	-	-	-	-	-	-	41	46	46	56
Bhadra	-	-	-	-	-	-	-	-	-	36
Bori-Satpura-Pachmarhi	-	-	-	-	-	-	-	-	-	35
Buxa	-	-	-	15	33	29	29	31	32	31
Corbett	44	73	84	90	91	92	123	128	138	137
Dampa	-	-	-	-	-	-	7	4	5	4
Dudhwa	-	-	-	-	90	90	94	98	104	76
Indravati	-	-	-	38	20	20	18	15	15	29
Kalakad-Mundanthurai	-	-	-	-	8	15	17	16	28	27
Kanha	43	55	71	109	100	101	100	97	114	127
Manas	31	105	69	123	92	92	81	94	125	65
Melghat	27	57	63	80	80	72	72	71	73	73
Namdapha	-	-	-	43	47	49	47	52	57	61
Nagarjunasagar-Srisailem	-	-	-	65	80	97	44	34	39	67
Palamau	22	26	37	62	59	55	44	47	44	32
Panna	-	-	-	-	-	-	25	22	22	31
Pakhui-Nameri	-	-	-	-	-	-	-	-	26	-
Pench (M.P.)	-	-	-	-	-	25	39	27	29	40
Pench (Mah.)	-	-	-	-	-	-	-	-	-	14
Periyar	-	-	34	44	45	46	30	39	40	36
Ranthambhore	14	22	25	40	44	45	36	38	32	35
Simlipal	71	60	65	77	93	95	95	97	98	99
Sariska	14	-	19	26	19	22	25	24	24	22
Sunderbans	50	181	205	264	269	269	251	242	263	245
Tadoba-Andhari	-	-	-	-	-	-	34	36	42	38
Valmiki	-	-	-	-	81	81	49	N.R.	53	53
Total	326	605	711	1126	1301	1345	1366	1333	1498	1576

Source : www.wii.gov.in.



Distribution Map of *Panthera pardus*



Distribution Map of *Panthera tigris tigris*

DIAGNOSTIC CHARACTERS

Tiger is a large cat with majestic appearance and graceful built. It possesses rich reddish yellow to orange to pale yellow body colour with vertically arranged black stripes. The characteristic black stripes on the body are more pronounced towards the rump and thighs. Ventrally it is white, tail long, ringed with a black tip. The stripe pattern differs between the individual tigers and from one side of the body to the other in the same individual. Hence, no two tigers have same markings (Sunquist and Sunquist, 1989). Ears short, round and black on the backside with a prominent white spot. Forelimbs more powerful than the hind limbs, foot pads large, and sharp, curved, retractile claws present. Pupil of the eyes rounded. Females are smaller in size. Albinistic forms, though very rare, have also been reported. A white male tiger cub caught in central India in 1951, was the last record. This cub became the progenitor of most of the white tiger in captivity. According to Roychoudhury and Sankala (1979), these albinistic forms were result of a mutation that occurred about hundred years ago. Records of black tigers also exists (Pocock, 1929) from northeastern part of India.

Measurements : Head and body length : 140-300 cm; tail length: 60-110 cm; hind foot : 30-40 cm; height at shoulders : 95-110 cm. Male weighs : 180-280 kg. while the female is : 115-185 kg.

Comparison of Living Tiger subspecies for selected parameters

Living Tiger Subspecies							(Source : IUCN 2006)
Subspecies	Total Length (mm)		Weight (kg) ("between pegs")*		Greatest length of skull (mm)		
	male	female	male	female	male	female	
Bengal	2700-3100	2400-2650	180-258	100-160	329-378	275-311	
Indochinese	2550-2850	2300-2550	150-195	100-130	319-365	279-302	
Siberian	2700-3300	2400-2750	180-306	100-167	341-383	279-318	
South China	2300-2650	2200-2400	130-175	100-115	318-343	273-301	
Sumatran	2200-2550	2150-2300	100-140	75-110	295-335	263-294	
Comparison of Extinct Tiger Subspecies							
Bali	2200-2300	1900-2100	90-100	65-80	295-298	263-269	
Caspian	2700-2950	2400-2600	170-240	85-135	316-369	268-305	
Javan	2480		100-141	75-115	306-349	270-292	

Dental formula of *Panthera tigris*

$$I \frac{3}{3} \quad C \frac{1}{1} \quad P \frac{3}{2} \quad M \frac{1}{1} = \times 2 = 30$$

EVOLUTION AND TAXONOMY OF TIGER

Lions, tigers and leopards are all members of the same genus : *Panthera* of the family Felidae and all represent radiations from a common ancestor that was probably morphologically most similar to the modern leopard and lived about five million years ago (Macdonald, 1992). Even the molecular phylogenetics confirms this from the fossil record (Kitchner, 1999). Further it also confirms a close relationship among the members of the genus *Panthera* and show that the tiger diverged more than two million years ago and before the divergence of lion, leopard and jaguar (Wentzel, 1999). The oldest fossil records available from India, northeastern China and Jawa indicate that the tiger originated in Eastern Asia. According to Mazak (1996), the tiger originated in eastern Asia from where two major dispersals took place about two million years ago. To the northwest, the tigers migrated through woodlands and along the river system into south-west Asia. To the south and south-east, tigers moved through continental south Asia, some crosses the Indonesian Islands, and the others finally reaching India (Nowel and Jackson, 1996). The south China tigers may be regarded as the relict population of the 'Stem' tiger, living in the probable area of its origin. Therefore, Kitchner (1999) concludes that the tigers of arrived at a later stage in India, and this is supported by its absence in Sri Lanka.

Taxonomically, *Panthera tigris* has been divided into eight distinct subspecies, which apparently vary in body size, characteristic of the skull, colour and markings of the pelage. The first taxonomic description of tiger is from Linnaeus (1758), however, not supported by the type specimen. It is for this reason the first accepted recorded subspecies is the Caspian tiger *Panthera tigris virgata* by Illiger in 1815. This is followed by the description of *Panthera tigris altaica* and *P. t. sondaica* by Temminck (1844). The other three subspecies *amoyensis*, *balica* and *sumatrae* were described in the early 20th century. This is true in case of *Panthera tigris tigris*, though found in the original description of Linnaeus (1758) from Asia, the type locality was fixed as "Bengal" by Thomas (1911). The last subspecies described is *Panthera tigris corbeti* in the early 1960 (Mazak, 1968).

Table showing the distribution of Tiger subspecies and their status

- | | |
|----|---|
| 1. | The Caspian Tiger : <i>Panthera tigris virgata</i> EXTINCT in the past 50 years. It once ranged throughout the humid forests and grasslands of Afghanistan, Iran, Mongolia, Turkey and the central Asiatic areas of Russia |
| 2. | The Javan Tiger : <i>Panthera tigris sondaica</i> EXTINCT in the last 25 years, from the Indonesian island of Java |
| 3. | The Bali Tiger : <i>Panthera tigris balica</i> EXTINCT in the last 50 years from Indonesian island of Bali |

Extant Tiger Species

Common Name	Species	Distribution	Habitat	Location/Approx. Number	IUCN Status
Indo-Chinese Tiger	<i>Panthera tigris corbetti</i>	Cambodia, southern China, Laos, Malaysia, eastern Myanmar, Thailand, Vietnam (Ecological Region Northern Indochina Subtropical Moist Forests, Annamite Range Moist Forests, Kayah-Karen/ Tenasserim Moist Forests, Peninsular Malaysian Lowland and Montane Forests, Cardamom Mountains Moist Forests, Indochina Dry Forests, Mekong River, Salween River)	Tropical and subtropical moist broadleaf forests live in remote forests in hilly to mountainous terrain, much of which lies along the borders between countries	South-east Asia (Indo-Malayan) 1180-1790 from all locations	IUCN : Critically Endangered CITES : Appendix I
Indian tiger/ Royal Bengal Tiger	<i>Panthera tigris tigris</i>	South Western Ghats Moist Forests, Eastern Deccan Plateau Moist Forests, Naga-Manipuri-Chin Hills Moist Forests, Chhota-Nagpur Dry Forests, Eastern Himalayan Broadleaf and Conifer Forests, Terai-Duar Savannas and Grasslands, Sundarbans Mangroves, Western Ghats along rivers and streams	Dry and wet deciduous forests, grassland and sal forests and temperate forests, mangrove forests	South Asia 3060-4785 from all locations	Non-Endemic Endangered CITES APPENDIX : I; Indian Wildlife (Protection) Act (1972) (As amended up to 2002): Schedule I; Part I; Indian Red Data Book (IUCN, 1994) : Vulnerable; IUCN (1998) (Proposed): Endangered (national) and Data Deficient (Global); IUCN (2002) (Proposed): Endangered (Global) based on version 3.1 2001 (IUCN, 2003).
Siberian Tiger (Amur, Siberian, Manchurian, N-E China Tiger)	<i>Panthera tigris altaica</i>	China, North Korea, Russia (Ammur-Ussuri region of Siberia and also in northern China I.E., Manchuria and Korean Peninsula)	Uninhabited mountain forests. Live primarily in coniferous, scrub oak, and birch woodlands of eastern Russia.	Far eastern Asia 334-417 with 91-112 cubs from all the locations (WWF, Sept. 2005) 431 to 529 individuals WWF Nov.2005	IUCN: Critically Endangered (CR-D) CITES: Appendix I
South China Tiger	<i>Panthera tigris amoyensis</i>	China	Southeast China-Hainan Moist Forests	South China 30-40 WWF, Nov. 2005	IUCN: Critically Endangered (CR-D) CITES: Appendix I
Sumatran Tiger	<i>Panthera tigris sumatrae</i>	Sumatra	Low land forest to sub mountain and mountain forest including some peat moss forests.	400-500 The largest population of about 110 tigers lives in Gunung Leuser National Park. Another 100 live in unprotected areas that will soon be lost to agriculture.	IUCN: Critically Endangered CITES: Appendix I



Tigers of the world

Table showing important mammalian prey distributed in each Tiger and Reserve and its importance

Tiger Reserves in India	Important Mammalian prey species distributed (Primates and Artiodactyles)	Importance of the Reserve
Bandipur Nagarahole (Bandipur extension)	<i>Loris tardigradus</i> , <i>Macaca radiata</i> , <i>Semnopithecus entellus</i> , <i>Trachypithecus johnii</i> , <i>Sus scrofa</i> , <i>Moschiola meminna</i> , <i>Muntiacus muntjak</i> , <i>Axis axi</i> , <i>Tetracerus quadricornis</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i> ,	Forms a part of the Nilgiri Biosphere Reserve. Lacunae exists in the diversity of invertebrate groups, as at present distribution of only 70 species has been recorded. 21 species of fishes, 8 species of amphibian, 53 species of reptiles, 187 species of birds and 47 species of mammals recorded. Smuggling forest produce, grazing, forest fires, poaching are the major problem of the reserve. Also known for ecotourism.
Corbett	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Naemorhedus goral</i> , <i>Moschiola meninna</i> , <i>Muntiacus muntjak</i> , <i>Axis axis</i> , <i>Axis porcinus</i> , <i>Boselaphus tragocamelus</i> , <i>Capricornis sumatrensis</i> , <i>Cervus unicolor</i>	Corbett had the proud distinction of being chosen as the venue for the inauguration of Project Tiger in India. Known for ecotourism and Interpretive centre for the public. 883 species of faunal elements described. Birds dominate with 600 species and subspecies followed by mammals (54 species), reptiles (39 species), fishes (28 species), amphibian (7 species) rest are invertebrate groups.
Kanha	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>Tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Cervus duavacelli blanderi</i> , <i>Muntiacus muntjak</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i>	<i>Cervus duacelli blanderi</i> restricted to MP. All Tiger Reserves of Madhya Pradesh has more or less the same species composition. Endemic elements are less. 66 species mammals, avi fauna is rich with 230 species, 22 species of reptiles, 83 species of Lepidoptera 35 species of coleopteran, 20 species of orthoptera and rest are other invertebrates. Highest number of tiger population in the wild and hence shows a healthy ecosystem.
Manas	<i>Macaca mulatta</i> , <i>Macaca assamensis</i> , <i>Trachypithecus geei</i> , <i>T. pileatus</i> , <i>Sus scrofa</i> , <i>Sus salvinus</i> , <i>Muntiacus muntjak</i> , <i>Axis axis</i> , <i>Axis porcinus</i> , <i>Cervus unicolor</i> , <i>Cervus duacelli</i> , <i>Bos gaurus</i> , <i>Bubalus bubalis</i>	<i>Rhinoceros unicornis</i> , <i>Platinista gangetica</i> , <i>Caprolagus hispidus</i> distributed. Only Tiger Reserve with <i>Sus salvinus</i> and <i>Trachypithecus geei</i> . 73 species under 58 genera of mammals, 415 species of birds, 34 species of reptiles, 15 species of amphibia, 58 species of fishes. 194 species of butterflies are unique to the reserve.

Tiger Reserves in India	Important Mammalian prey species distributed (Primates and Artiodactyles)	Importance of the Reserve
Melghat	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>Tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Muntiacus muntjak</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i>	Inventorisation has revealed the presence of 80 species of mammals, 263 species of birds, 54 species of reptiles, 8 species of amphibian and 96 species of fishes. Of these, nearly 60 species are new records to Melghat. Out of 240 species of invertebrates recorded, nearly 190 species are first records to Melghat reserve.
Palamau	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>Tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Muntiacus muntjak</i> , <i>Bos gaurus</i>	Not much information available at the time of the publication of this compendium, as the inventorisation of the fauna is in progress
Ranthambhore	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>Axis axis</i> , <i>Cervus unicolor</i>	Ranthambore Fortress is a heaven for Indian Wildlife. The inventorisation includes 345 species, of which 159 species are recorded for the first time. Among vertebrates, birds dominate with 331 species and subspecies, mammals and reptiles 38 species each, fishes 11 species and amphibian 5 species, rest 113 species of invertebrates.
Similipal	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Moschiola meninna</i> , <i>Muntiacus muntjak</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i> , <i>Boselaphus tragocamelus</i> , <i>Tetracerus quadricornis</i>	217 species of invertebrates, 400 species of vertebrates, of which 258 species are birds, 55 species of mammals (45 are in Schedules) and 37 species of reptiles. An impressive in the number of tigers sighted reveals the healthy environment of the reserve.
Sunderbans	<i>Macaca mulatta</i> , <i>Axis axis</i> , <i>Sus scrofa</i> , <i>Varanus salvator</i> (Reptilia),	Largest mangrove tract of the world. <i>Muntiacus muntjak</i> , <i>Cervus duavacelli</i> , <i>Bubalus bubalis</i> , <i>Rhinoceros javanicus</i> <i>R. unicornis</i> are no more existing. Species diversity is less, but abundance of prey species is more. Besides the Tigers have adapted for consuming monkeys and birds as their food. Nearly 1586 species are recorded from the reserve. Country's largest population of tigers are found in this reserve. Equally rich in <i>Varanus salvator</i> , <i>axis axis</i> and <i>Macaca mulatta</i> .

Tiger Reserves in India	Important Mammalian prey species distributed (Primates and Artiodactyles)	Importance of the Reserve
		Only reserve without the distribution of leopards <i>Panthera pardus</i> .
Periyar	<i>Loris tardigradus</i> , <i>Macaca radiata</i> , <i>M. silenus</i> , <i>Trachypithecus johnii</i> , <i>Sus scrofa</i> , <i>Moschiola meminna</i> , <i>Muntiacus muntjak</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i> , <i>Hemitragus hyalocris</i>	Rich and varied fauna with 57 species of mammals, 279 species of birds, 45 species of reptiles, 16 species of amphibians, 39 species of fishes are found distributed in the reserve. Among invertebrates, 119 species of butterflies, 30 species of odonates are recorded. A potential site for ecotourism. 19 species of endemic fishes, 9 species of amphibians, 15 species of reptiles, 8 species of birds are endemic to Western Ghats are found in the reserve. <i>Macaca mulatta</i> , <i>Axis axis</i> not recorded in the reserve. A good number of elephants are located in the reserve. Nilgiri Thar an endemic mammal also found distributed in the reserve.
Sariska	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Tetracerus quadricornis</i> ,	Survey and inventorisation of faunal resources of the reserve revealed the presence of 34 mammalian species, 189 species of aves, 22 species of reptiles, 5 species of amphibians and 16 species of fishes. Butterfly diversity was very low.
Buxa	<i>Macaca mulatta</i> , <i>Macaca assamensis</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Muntiacus muntjak</i> , <i>Axis axis</i> , <i>Axis porcinus</i> , <i>Cervus unicolor</i> , <i>Bos frontalis</i> , <i>Bubalus bubalis</i>	Swamp deer, <i>Rhinoceros unicornis</i> , Wild buffalo absent in the area. Home for 70 mammalian species of which 21 species are threatened. More than 873 invertebrates are recorded from the reserve. 26 species of raptors are found distributed in the reserve.
Indravati	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>Tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Cervus duvacelli branderi</i> , <i>Muntiacus muntjak</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i> , <i>Bubalus bubalis</i>	Distribution of Central Indian species, 277 species recorded, aves dominating with 92 species. Further exploration is needed for a complete picture of the reserve
Nagarjunsagar – Srisaïlam	<i>Macaca mulatta</i> , <i>Macaca radiata</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> ,	Located in the Nallamala range of eastern Ghats, with southern tropical dry

Tiger Reserves in India	Important Mammalian prey species distributed (Primates and Artiodactyles)	Importance of the Reserve
	<i>Moschiola meminna</i> , <i>Muntiacus muntjak</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Antelope cervicapra</i> , <i>Boselaphus tragocemalus</i> , <i>Gazella benetti</i> , <i>Tetracerus quadricornis</i>	deciduous type of forest. A total of 516 species of various groups recorded. Aves dominate with 302 species followed by 74 species of mammals, 60 species of reptiles, 17 species of amphibians, 63 species of fishes and nearly 201 species of invertebrates are recorded. <i>Antelope cervicapra</i> and <i>Gazella benetti</i> are distributed in the reserve, also rich in other prey base.
Namdapha	<i>Macaca mulatta</i> , <i>Macaca assamensis</i> , <i>M. arctoides</i> , <i>M. nemestrina</i> , <i>Trachypithecus pileatus</i> , <i>T. geei</i> , <i>Bunopithecus hoolock</i> , <i>Nycticebus coucang</i> , <i>Sus scrofa</i> , <i>Muntiacus muntjak</i> , <i>Muntiacus putaoensis</i> , <i>Moschus fuscus</i> , <i>Moschus chrysogaster</i> , <i>Cervus unicolor</i> , <i>Axis porcinus</i> , <i>Bos gaurus</i> , <i>Bubaus bubalis</i> , <i>Naemorhedus sumatraensis</i> , <i>Naemorhedus goral</i> , <i>Budorcas taxicolor</i> ,	9 species of Primates including one from the adjacent country (China) i.e., <i>Pygathrix roxellana</i> . 8 species of Felids, 6 species of Cervids and 5 species of Bovids are unique to the reserve. Unique in having an endemic mammal. Of the 400 species of birds recorded from the reserve, globally threatened species of <i>Aceros nipalensis</i> , <i>Cairing scutallata</i> , <i>Harpactes wardi</i> are found distributed in the reserve. Faunal inventorisation of the reserve revealed the presence of 851 species of invertebrates, 670 species of Vertebrates, highest among the reserves on the mainland of the country.
Dudhwa Katerniaghat- (extension)	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Cervus duvacelli</i> , <i>Axis porcinus</i> , <i>Muntiacus muntjak</i> , <i>Boselaphus tragocamelus</i> . Besides these <i>Rhinoceros unicornis</i> and <i>Elephas maximus</i>	Survey and inventorisation of faunal resources of the reserve is in progress, however, preliminary investigation revealed the presence of 47 species of mammals, and supports five out of species of deers found in India. 418 species of birds and 64 species of fishes indicate the preponderance of wetland areas in the reserve
Kalakad-Mundanthurai	<i>Loris tardigradus</i> , <i>Macaca radiata</i> , <i>M. silenus</i> , <i>Semnopithecus entellus</i> , <i>Trachypithecus johnii</i> , <i>Sus scrofa</i> , <i>Moschiola meninna</i> , <i>Muntiacus muntjak</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i> , <i>Hemitragus hyalocris</i>	516 species of vertebrates of which 87 species are endemic to the area, a few of them are endemic to the reserve. 50% of mammals, 14 species of birds distributed in Western Ghats, 26 species of reptiles, 10 species of fishes are endemic elements of the Western Ghats found in the reserve. Presence of Nilgiri Tahr to the reserve is unique, <i>Macaca mulatta</i> absent.

Tiger Reserves in India	Important Mammalian prey species distributed (Primates and Artiodactyles)	Importance of the Reserve
Valmiki	<i>Macaca mulatta</i> , <i>Presbytes entellus</i> , <i>Sus scrofa</i> , <i>Muntiacus muntjak</i> , <i>Axis porcinus</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i> , <i>Boselaphus tragocemalus</i> , <i>Tetracerus quadricornis</i>	Out of 320 species studied from the reserve, 53 species are mammals, 145 birds and 121 other groups. A fragile habitat located at the trijunction of Nepal, Uttar Pradesh and Bihar.
Pench Madhya Pradesh	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>Tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Cervus duavacelli blanderi</i> , <i>Muntiacus muntjak</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i>	Similar to Pench Tiger Reserve of Maharashtra, as they are continuous stretch of land except located in two different states. Rich and diverse fauna, 222 species of birds of which 25% are aquatic, 40 species of mammals, 30 species of reptiles.
Tadoba-Andhari	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>Tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Muntiacus muntjak</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i>	51 species out of 80 species of mammals are found in Schedules of WLPA, 1972. Of the 192 species of birds, 31% are aquatic, 17% are winter visitors. 37 species of fishes and 10 species of amphibians are recorded from the reserve.
Bandhavgarh	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Cervus duavacelli blanderi</i> , <i>Muntiacus muntjak</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i>	Fauna typical of central Indian species with less endemic species. 462 species are known of which 291 vertebrates and rest invertebrates.
Panna	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Cervus duavacelli blanderi</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i>	<i>Muntiacus muntjak</i> absent, however, present in all other reserves of MP. 302 species of which 235 are vertebrates and rest are invertebrates. Several migratory species of birds are known to visit the reserve.
Dampha	<i>Macaca mulatta</i> , <i>Macaca assamensis</i> , <i>M. arctoides</i> , <i>M. nemestrina</i> , <i>Trachypithecus pileatus</i> , <i>T. phayeri</i> , <i>Bunopithecus hoolock</i> , <i>Nycticebus coucang</i> , <i>Sus scrofa</i> , <i>Muntiacus muntjak</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i> , <i>Naemorhedus sumatraensis</i>	Unique having four species of <i>Macaques</i> , a total of 8 species of Primates. Species of <i>Axis axis</i> and <i>Axis porcinus</i> absent in the reserve. 329 species of vertebrates of which 212 species of birds and 22 species of amphibians. Further explorations are needed for the invertebrates of the reserve.
Bhadra	<i>Loris tardigradus</i> , <i>Macaca radiata</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> ,	Locted in the heart of Western Ghats, known as 'Valley of Bamboos'. 99

Tiger Reserves in India	Important Mammalian prey species distributed (Primates and Artiodactyles)	Importance of the Reserve
	<i>Moschiola meninna</i> , <i>Muntiacus muntjak</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i>	species of butterflies, 250 species of birds and 37 species of mammals are known from the reserve. Recently the pollution level in the river feeding the reserve has increased due to the wide spread use of pesticides in the coffee estate.
Pench (Maharashtra)	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Muntiacus muntjak</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i>	Species diversity is very high in comparison to all other reserves. Similar to the Pench T R of Madhya Pradesh in composition. 71 species of mammals (5% endemic), 170 species of birds, 53 species and subspecies of reptiles, 55 species of fishes are found distributed in the reserve.
Pakhui	<i>Macaca mulatta</i> , <i>Macaca assamensis</i> , <i>Trachypithecus pileatus</i> , <i>Nycticebus coucang</i> , <i>Sus scrofa</i> , <i>Muntiacus muntjak</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i> , <i>Naemorhedus sumatrensis</i> ,	Species of <i>Axis axis</i> and <i>Axis porcinus</i> absent in the reserve.
Nameri	<i>Macaca mulatta</i> , <i>Macaca assamensis</i> , <i>Trachypithecus pileatus</i> , <i>Nycticebus coucang</i> , <i>Sus scrofa</i> , <i>Muntiacus muntjak</i> , <i>Axis porcinus</i> , <i>Cervus unicolor</i> , <i>Bos gaurus</i>	<i>Axis axis</i> not represented in the Tiger Reserve. 514 species of vertebrates has been recorded, birds dominate with 384 species. Of the 52 species of mammals, 34 species are in Schedules of WLP. A rich prey base of sambar, hog deer, gaur, barking deer together with major habitat for grazing elephants in the reserve.
Bori, Satpura, Pachmari	<i>Macaca mulatta</i> , <i>Semnopithecus entellus</i> , <i>Sus scrofa</i> , <i>Antelope cervicapra</i> , <i>Gazella benetti</i> , <i>Boselaphus tragocamelus</i> , <i>tetracerus quadricornis</i> , <i>Axis axis</i> , <i>Cervus unicolor</i> , <i>Cervus duvacelli blanderi</i> , <i>Muntiacus muntjak</i> , <i>Moschiola meminna</i> , <i>Bos gaurus</i>	Endemic species are limited. Species diversity and the abundance is high to sustain a good population of tigers in the reserve. 633 animal species are known, 275 species of birds, highest among the tiger reserves of Madhya Pradesh, but the mammals are just represented by = 29 species

- ✓ *Macaca mulatta* absent in Periyar, Bandipur, and Kalakkad- Mundunthorai Tiger Reserve, all part of Western Ghats of Kerala, Karnataka and Tamil Nadu.
- ✓ *Sus scrofa* present in all the reserves

- ✓ *Axis axis* (Cheetal) absent in Nameri, Phakui, Dampa, and Namdapha an important feature of Eastern Himalayan states, however in Manas *Axis axis* though present, replaced by swamp deer *Cervus duacelli*, in abundance. Surprising to see no sighting records in Periyar Tiger Reserve.
- ✓ *Muntiacus muntjak* (Barking deer) absent in Panna, Ranathambore and Sunderbans reserve
- ✓ *Boselaphus tragocamelus* (Nilgai) absent in Nameri, Phakui, Namdapha, Dampa, Manas, Bhadra, Kalakad-Mundanthurai, Periyar, Bandipur, Dudhwa, Buxa, Sunderbans indicating their absence in Western Ghats and Eastern Himalaya but only surprising absence is the Dudhwa reserve
- ✓ *Cervus unicolor* (Sambar), present in all reserves except Sunderbans reserve
- ✓ *Gazella benetti* (Gazella or Chinkara) absent in Nameri, Phakui, Manas, Dampa, Bhadra, Bandipur, Kalakad-Mundanthurai, Periyar, Corbett, Valmiki, Buxa, Sunderbans, and Simlipal reserves.
- ✓ *Bos gaurus* (Gaur/Indian Bison) absent in Corbet, Dudhwa, Ranathambore, Sariska, Simlipal, Buxa and Nagarjuna sagar – Srisailam reserves indicating their preponderance in high altitudes or Western Ghats, Peninsular India and Eastern Ghats.
- *Panthera tigris* co exists with *Panthera pardus* in all Tiger Reserves except Sunderbans
- *Neofelis nebulosa* (Clouded leopard) found distributed in Nameri, Manas, Phakui, Namdapha reserves. However, their presence has been recorded in Buxa and Simlipal reserves
- *Uncia uncia* (Snow leopard) has been recorded from Namdapha Tiger Reserve

Recorded Faunal Diversity in Tiger Reserves of India

Name of Reserve	Mammal	Aves	Reptilia	Amphibia	Pisces	Other Invertebrates	Butterflies	Total
Bandipur	47	187	53	8	21	70	-	376
Bandhavgarh	35	241	11	4	-	30	141	462
Bhadra	37	252	33	10	18	-	99	449
Bori-Satpura-Pachmarhi	29	275	17	8	68	168	68	633
Buxa	70	246	41	8	33	-	-	398
Corbett	54	539	38	7	28	127	28	821
Dampa	50	212	25	22	20	-	-	329
Dudhwa	47	418	35	8	64	-	-	572

Name of Reserve	Mammal	Aves	Reptilia	Amphibia	Pisces	Other Invertebrates	Butterflies	Total
Indravati	38	92	12	9	24	84	18	277
Kalakad-Mundanthurai	78	273	81	44	45	-	60	581
Kanha	66	231	22	6	9	107	83	494
Manas	73	415	34	15	58	27	194	846
Melghat	52	262	54	8	96	205	45	722
Namdapha	103	434	42	22	70	698	182	1551
Nagarjunasagar-Srisailem	70	302	59	17	61	117	77	703
Nemeri	52	384	35	28	16	-	23	538
Palamau	-	-	-	-	-	-	-	-
Panna	24	200	7	4	-	17	50	302
Pakhui (Pakke)	120	268	35	29	40	-	36	528
Pench (M.P.)	40	222	30	7	51	153	109	622
Pench (Mah.)	47	170	49	7	33	188	65	559
Periyar	54	277	45	16	39	30	119	580
Ranthambhore	38	331	38	5	11	106	7	536
Simlipal	55	258	37	13	37	106	42	548
Sariska	34	189	22	5	11	65	5	331
Sunderbans	40	163	58	8	212	905	-	1586
Tadoba-Andhari	53	192	54	11	79	171	79	639
Valmiki	52	143	26	7	13	106	22	369

PREDATOR – PREY DISTRIBUTION IN TIGER RESERVES

The predator and prey species normally live in balance; hence the status of the prey is an indicator of the status of the predator. Schaller (1967), Sunquist (1981), Seidensticker and McDougal (1993), Karanth *et al.*, (2004) showed a positive correlation between the tiger and the prey densities. Tiger densities in protected habitats are likely to be mediated chiefly by prey abundance rather than interspecific social dominance and competitive exclusion (Karanth *et al.*, 2004). This makes the species vulnerable to local extinctions due to changes in the habitat and depletion of prey base due to poaching (Sunquist, 1981; Karanth *et al.*, 2004). However, functional relationships between predator-prey between species (interspecific or intraspecific competition), within natural ecosystems, have coevolved over long periods of time creating a dynamic balance between their interacting populations. In fact, the degraded habitats and depleted prey base may

cause the species to depend more or solely on the domestic livestock available in the area leading to Human-tiger conflict, resulting in the death of the tiger. It is for this reason one need to understand the prey base in a reserve. A tiger on an annual average need 3,000 kg of meat (Schaller, 1967; Sunquist, 1981; Sunquist *et al.*, 1991). It is the largest obligate terrestrial carnivore in any of the mammalian assemblages in which it occurs preying on the larger ungulates living in those assemblages (Seidensticker, 1976). It is also true that the number of individuals of each prey species per unit area multiplied by their average weight provides an estimate of the biomass supported by a certain habitat, a useful index for ultimately determining the optimum carrying capacity of the range (Karanth and Sunquist, 1992; Khan, *et al.*, 1995). An interesting study made by Karanth and Sunquist (1995) at Nagarahole, an extension of Bandipur Tiger Reserve in Karnataka suggests that the ecological densities of tigers and other sympatric predators are governed primarily by the structure of the prey community, i.e, in terms of abundance of different size classes.

According to them, where tigers and leopards coexists sympatrically, if both large and medium sized prey are abundant, tigers select large prey (*Bos frontalis* or cubs of *Elephas maximus*) enabling the coexistence of leopards at high densities. In the absence of large prey or when the large prey is scarce, tigers would switch to medium sized prey and reduce leopard densities through competition. Further, if medium and large prey population is scarce, leopards will be more abundant because of their ability to survive on smaller prey. It has also been suggested that tigers cannot reproduce successfully if prey densities fall below 2-5 animals per km². It is for this reason an analysis of the distribution of selected prey species has been made.

Macaca mulatta a terrestrial and an arboreal monkey adapted for wide range of habitats from dense forests to the arid regions of the country, from sea level to the high altitude areas. A widely distributed species especially in north and northeast India, however, absent in Periyar, Bandipur; and Kalakkad-Mundanthurai Tiger Reserve, all part of Western Ghats of Kerala, Karnataka and Tamil Nadu. *Sus scrofa* found distributed throughout the country, including Andaman and Nicobar Islands, and in all the tiger reserves. The abundance and distribution of the *Sus* species is mainly because of its food habits, omnivorous, feeding on roots, tubers, fruits, insects, carrion etc. (Prater 1971), and also exhibiting both diurnal and nocturnal habitat.

Axis axis (Cheetal) widely distributed in abundant numbers, throughout India, northwards up to Kumaon (Uttaranchal), Sikkim, West Bengal and east up to Assam, however, not found in Nameri, Phakui, Dampa, and Namdapha, an important feature of Eastern Himalayan states, however in Manas (Assam), swamp deer *Cervus duacelli*, are in abundance as prey population to the tigers. The species biomass of *Axis* is low in Sunderbans in comparison to other reserves but the individual density of the spotted deer and the wild boar, the two common prey species in all the tiger reserves compared, is sufficient to hold the predator in large numbers in Sunderbans (Khan, 2005). Thus, holding a largest number of tigers in the wild.

Muntiacus muntjak (Barking deer) a small forest deer, height at shoulder 50-75 cm; glossy brown in colour, antlers small, in females horns are replaced by tufts of bristly hair, diurnal and nocturnal in habits. Distributed throughout the country, except in Jammu and Kashmir and desert region, however, found in all reserves except in Panna, Ranthambore and Sunderbans reserve. *Boselaphus tragocamelus* (Nilgai), a horse like in built, diurnal and nocturnal in habits, inhabiting

hilly terrain or undulating plains. Distribution of the species extends from south of Himalaya to Punjab, Haryana, Uttar Pradesh, Bihar, Andhra Pradesh, Madhya Pradesh, Karnataka, Maharashtra, Rajasthan and Gujarat. Though distributed widely, absent in Nameri, Phakui, Namdapha, Dampa, Manas, Bhadra, Kalakad-Mundanthurai, Periyar, Bandipur, Dudwa, Buxa, and Sunderbans tiger reserves indicating their absence in Western Ghats and Himalayan belt.

Cervus unicolor (Sambar), distributed throughout India except high mountains and deserts. Largest of all the Indian forest deer with large, elegant horns. It is both a diurnal and nocturnal and hence present in all reserves except Sunderbans reserve which is mainly a mangrove associated area.

Tetracerus quadricornis (Four horned antelope or Chowsingha) found singly or in pairs in wooded country near water. It is nocturnal in habit, shy in nature and difficult to locate since it camouflages with the grasses and scrubs while walking and running. It moves with jerky actions with its head in forward direction. It behaves more like a deer than antelope. These antelopes are water dependent and drink water regularly. The four horned antelope does not favour dense forest but prefers to inhabit scrub and open forest, thin bamboo-mixed jungles, scrub, ravines in the undulating and hilly terrains. It is mostly seen in open patches with short grasses in the forest. The distribution includes from south of the Himalaya to northern slopes of Nilgiri excluding West Bengal and northeast India.

Moschiola meminna (Mouse deer) is a shy and timid animal preferring to live in dense forests. The deer species distributed throughout southern India from Tamil Nadu to Madhya Pradesh. It takes shelter in grass-covered rocky hill sides or deep in forest. It conceals itself in rocky crevices and never comes out in open glades. It leads a solitary life or may live in small parties. It is a reclusive creature with crepuscular in habit. Comes out to feed in morning or at dusk and never ventures far out in the open. Mouse deer can easily be tamed. Mouse deer are predated upon by larger carnivores. When alarmed, the mouse deer bolts itself extremely quickly into its hiding place. Due to its small size and shy nature it easily eludes the observations of the hunters and trappers.

Gazella benetti (Gazella or Chinkara) a slender bodied antelope, distributed in north western and central India including Thar desert, extending southwards to a little south of Krishna river. Absent in Nameri, Phakui, Manas, Dampa, Bhadra, Bandipur, Kalakkad-Mundanthurai, Periyar, Corbet, Valmiki, Buxa, Sunderbans, and Simlipal reserves. Chinkara is an animal of plains and low hills preferring to live in thinly covered dry forest and rocky scrub covered areas. They also live in sand dune areas with scattered vegetation in deserts.

Bos gaurus (Gaur/Indian Bison) absent in Corbet, Dudwa, Ranthambore, Sariska, Simlipal, Buxa and Nagarjunasagar Srisailem reserves indicating their preponderance in high altitudes of Western Ghats, Peninsular India and Eastern Himalaya. In Himalayas Gaur keeps itself to foot hills but in Peninsular India it is found at an altitude of even 2000 m. Generally lives in small herds of 5-20 individuals. However, the herds may unite with other families in large open areas. It is both a grazer and browser. It also visits salt-licks regularly. Basically it is extremely shy and retiring animal. It has an acute sense of smell and hearing. Foraging activity is seen from late evening to early morning. Feeds chiefly on grass but may browse on leaves and bark of trees

also. Bulls when adult may lead solitary life till rutting season. It rejoins the herd during rut and fight for possession of the cows. Master bull with a group of females mark its foraging territory. When rut is over the bull leaves the herd and again leads solitary life. The care and upbringing of the young and leadership of the herd are then left entirely to the cow.

Bubalus bubalis (Wild buffaloes) are associated with the large rivers and their tributaries in some of the districts of Madhya Pradesh and Orissa. They are also largely seen in the Brahmaputra plains as well. Lush grasses and vegetations growing besides the river bed and lake form the major part of their favourite diet. They are very selective feeders. These animals live in herds. Sometimes solitary bulls are also found far away from the herds. The bulls again associate with the herds during rut. They feed at dusk and dawn wandering long distances in the course of grazing and retiring in to the cover or to their wallows during hot part of the day or at night. Basically they are very shy in nature; however bulls are aggressive in their attitude. Tiger is the only predator capable of killing buffaloes.

Sus salvinus (Pygmy Hog) is basically nocturnal in habit, but many times it is active at dawn and sunset times also. It lives in groups of 5-20 individuals. It feeds on roots and bulbs. The diet also includes insects and bird nests. Nest building habit for neonatal care and protection is seen in Pygmy Hog. Its other habits are same as those of Wild Boar. Pygmy Hog prefers to live in marshy places with tall grasses near riverine habitats along the Eastern Himalayan foot hills and Terai region.

Cervus duacellii (Swamp Deer) feeds mainly on freshly growing grass during day time. It rests at noon and feeds again in the evening. Swamp deer forms groups according to sex and age and moves separately in schools. At the beginning of winter they form large herds. During rut season one may see two stags in combat with their antlers for a short period. The "Peck Order" determines the strength of a stag. The winner becomes master of harem that may include 20-30 hinds. The hind gives birth to single young one. Swamp Deer is extremely alert with keen sense of smell. The main predator of swamp deer is tiger. In northern India the swamp deer is associated with water and lives in marshes but in eastern India it prefers dry thatched land near water. The Central Indian population is almost confined to dry forest and is less dependant on water. It is a deer of swamps and dry/hard grassland and avoids thick forest, found distributed in the Terai and the Duars of north and eastern India from Himachal Pradesh to Assam and Madhya Pradesh.

Antelope cervicapra (Blackbuck) was once the most numerous wild ungulate in the arid and semi-arid regions, i.e, throughout the plains of India except northeast India, West Bengal and west coast. It is a gregarious and social animal primarily using grass land habitat for grazing. Primarily, it is a grazer but do occasionally browse depending on the need and when appropriate browse is available. Blackbucks are diurnal in feeding activity being able to tolerate the hottest sunrays. Blackbucks live in the herds of 10-50 individuals composing a dominant male, females, fawns and young males. Blackbucks seem to rely largely upon eyesight in detecting danger. Their defense lies mainly on fleetness of the foot. They are certainly capable of attaining great speed through series of spectacular leaps, rising high in the air with each bound. This action is known as sponking. They cover a distance of 19-22 ft., between each stride. It has been claimed that they have achieved maximum speed of 95 km/hr, with a normal speed of 64 km/hr. The

mature buck establishes its territory by marking of fecal matter during rut. Blackbucks are preyed upon by wolves and panthers and fawns are attacked by jackals in India. Black bucks prefer open grasslands and wastelands and avoid thick cover. The habitat is characterized by low and highly variable rainfall with markedly poor seasonal forage quality.

Hemitragus hylocris (Nilgiri Tahr) is restricted currently to hilly tracts of southern parts of Western Ghats. Occasionally these mountain goats graze in the grassy uplands in herds of 5-6 or even bigger herds of 60-150 animals. Rice (1986) reported largest population of 550 in Eravikulam National Park. They are seen foraging intermittently from dawn to late evening amongst the rock precipices. In dryer low land habitats they are primarily browsers feeding on variety of grasses, herbs and shrubs. They are adapted to movements on the steep slabs and cliffs. Tahr generally avoids Shola forest but forages along their periphery. When disturbed they set off to the nearest cliff at a gallop. An alert Tahr stands in an erect posture with the neck raised above the normal posture. Leopards and wild dogs are the predator species for Nilgiri Tahr.

Naemorhedus sumatrensis (Serow) lives at an elevation of 500-4000 m in the recesses of thickly wooded gorges whose boulder strewn slopes and shallow caves provide shelter to this species. They come out to graze in the morning and evening. They lead mostly solitary life except during rut when they are seen in small groups of 4-5. When disturbed serow dashes away with hissing snort. Basically it is a hill forest dwelling species, although it may be seen in grass banks also. It prefers leaves and shoots of aromatic plant species as food. Not much information about its ecology and breeding habit is available. The Serows are found from Jammu & Kashmir to the Mishmi hills in Arunachal Pradesh covering Himachal Pradesh, Uttaranchal, and Darjeeling districts of West Bengal. The major predator population in the tiger reserve, apart from other carnivores, is the *Panthera tigris* which co exists with *Panthera pardus* in all reserves except Sunderbans. These two species has been reported from variety of habitats like open jungle, thorny, riverine, dry and moist deciduous, semi evergreen, evergreen, mangrove and swampy forests. Usually, seen using tall grasses, grassland-scrub mosaic and hilly tracts for their movements. It avoids hot and cold deserts. Similarly, leopard (Panther) lives in variety of habitats. Hence, it is most successful compared to other predator species like tiger and wild dogs. Leopard's success is attributed largely to its ability to climb, catch and carry food on trees, survive on smaller prey, hunt even in thin cover and to survive with less water. Though leopard is nocturnal in habit and hunts at night, it has been observed during day time also. It preys upon all kinds of animals including domestic animals and occasionally attack on human.

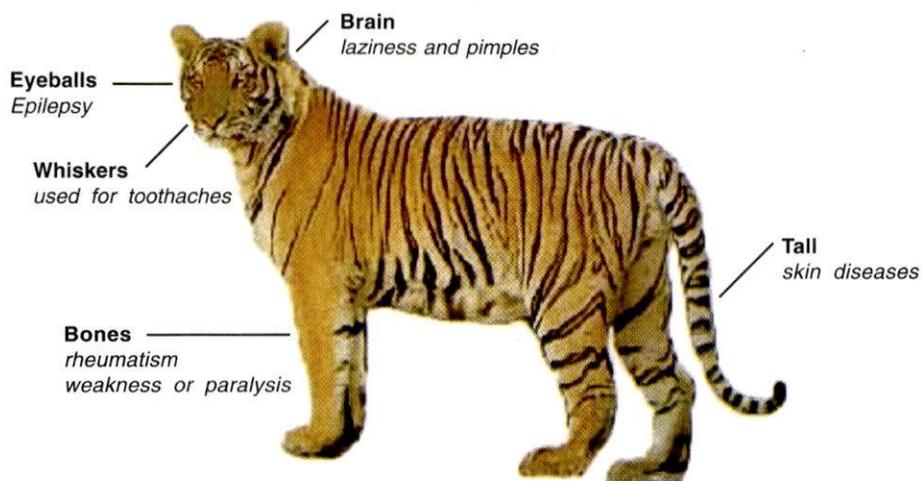
Leopards manage to co-exist with tigers by hunting smaller preys and carrying the carcasses up on the trees. It can swim but not fond of water like tigers. Leopard leads mostly a solitary life and can undertake long distance migration. Like other cats, it marks its territory. In addition to the above feline species, snow leopard is rare as it is extremely elusive and shy animal found in selected Tiger Reserves. Climate of the region within the distributional range of snow leopard is characterized by cold and arid conditions. The prey species consist of ibex, blue sheep, markhor, Himalayan tahr, deer, wild boar, picas, marmots, rodents etc. It also lifts sheep, goats, and ponies from nearby villages however blue sheep (Bharal) appear to be major prey species of snow leopard. The snow leopard likes solitary existence and it appears to travel widely to hunt over a very extensive area. Home range of snow leopard as reported in the technical report of Wildlife Institute of India (1990) is 19 sq. km. The clouded Leopard is largely arboreal. It inhabits dense forests where it hunts by night. Its powerful jaws and great canine teeth and heavy built adapt

it to the killing of deer and equally large sized animals. It also preys upon goats and pigs. Its diet includes variety of animals like primates, squirrels, birds etc. It sometimes visits villages in the hilly terrain and tea garden areas of northern Bengal to lift domestic animals of its size. *Catopuma temmincki* (Golden cat) lives in the variety of forests in the Himalayan foothills as well as throughout its distributional range of North east India,

Terai and Duars open scrub and grassland. It takes shelter among rocks, crevices and also on trees. It can ascend to temperate zone up to altitude of about 1500m, arboreal in habit and nocturnal in behaviour. It preys on rodents, birds, reptiles and small ungulates such as sheep, goat, goral and barking deer (Mukherjee, 1998). This animal is very stout and bold and can knock down much larger animal than itself. It is an expert climber and uses tree hollows for bringing up young ones.

CAUSES OF TIGER DECLINE

Tigers live across South Asia, Southeast Asia, East Asia and the Russian far-east; now occupy only seven per cent of their historic range and 40 per cent less territory than estimated 10 years ago. Recent studies estimate that wild tigers inhabit less than 5 per cent of the 1.5 million km² of forest habitat available (Karanth, 2001). At present, more tigers may exist in captivity than in the wild (IUCN, 2001). Tiger habitat encompasses evergreen forests, rainforests, temperate forests, deciduous forests, grasslands and mangrove swamps. The major threats for the declining population of tigers in India range from immediate problems, like poaching, illegal logging and mining, settlement, and uncontrolled forest fires, to long term problems such as toxic contamination and climate change; these pressures are driven by causes including problems of governance, poverty, greed and lack of alternative livelihoods (WWF, position paper, August, 2003). According to WWF Hong Kong, hunters have long pursued the Tiger for skins, trophies, decoration, and for the use of their body parts in traditional medicines. Last century and early this one tigers were regularly shot for sport - in 1911, 39 Tigers were shot in 11 days by one party in Nepal. In China, nearly 3,000 Tigers were killed between 1940-1970 because tigers were declared as a pest species and bounties paid for animals killed. The demand for tiger parts has proved to be



particularly hard to control. While the desire for skins was depressed through environmentalist pressure on the fashion industry, the growing market for bone used for medicinal purposes has defied all similar attempts to stifle demand. Tigers are hunted for use of their body parts in the Oriental medicinal market and to produce exotic souvenirs for the tourists. Usage of body parts in traditional healing remedies has been traced back to more than 1,000 years in Chinese culture. Nearly every part of the tiger has been reported to have healing properties by Chinese medical practitioners and in Chinese folklore. The practices have now spread to Korea, Japan, India and other areas where significant Asian tiger populations exist (Linden, 1994). Some of the most prevalent claims are; tiger fat to treat leprosy and rheumatism; tiger bone mixed in a saliva to alleviate rheumatism and fatigue; eyeballs as a treatment for epilepsy; tiger tail for skin diseases; tiger bile as a treatment for convulsions in children; tiger whiskers for tooth ache; the brain for fatigue and pimples; and tiger penis soup as an aphrodisiac. Tiger bone appears to be an Asian cure-all when ground into a powder, mixed with any number of herbal additives and ingested orally. The consumption of tiger parts is also seen as a status symbol among some Asian populations. In fact, many of the officials and politicians in these areas reassure the West that they are actively trying to join in the conservation effort, while showing little action at home (Hemley, 1994). This is particularly true because some of the tiger trade is domestic (within tiger range states) and therefore CITES, being an international trade convention, has no tools with which to combat its existence (Sas-Rolfes, 2000). It was estimated, that unless major changes took place immediately, the tiger was sure to be extinct within a decade (Woods, 1997). Unfortunately, it seems that we may have passed that threshold. **Furthermore, when the market for tiger parts run out of supplies, this problem is likely to start affecting felines in other areas of the world, such as the snow leopard and the golden cat (Linden, 1994).**

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'The tiger is a symbol of the natural heritage of our planet. None of us want it to end up as a bag of bones, or its home as furniture for our homes.' – Thapar (1999),

'Wild tigers are the warning lamps that indicate how healthy natural landscapes continue to remain in the face of our onslaught; their survival is as useful to us as the oil-pressure lamp on the dashboard of a car or the battery live indicator on a laptop computer.' – Karanth (2001).

At present, more tigers exist in captivity than in the wild (Nowell and Jackson 1996, Karanth 2001).

LITERATURE

- Alfred, J.R.B.; Sinha, N.K. and Chakraborty, S. 2002. Checklist of Mammals of India *Rec. zool. Surv. India. Occ. Paper No.*, **199** : 1-289.
- Andelman, J.S and William F. Fagan. 2000. Umbrellas and flagships: Efficient conservation surrogates or expensive mistakes. *Proc. Natl. Acad. Sci. U.S.A.* **23**; **97**(11) : 5954-5959.
- Anonymous. 1994. *The Red Data Book on Indian Animals, (Part-I) : Vertebrata* : 1-534. Publisher : Director, Zoological Survey of India, Kolkata.
- Gunatilake, H.M. 1994. 'An Economic Impact Assessment of the Proposed Conservation Programme on Peripheral Communities of the Knuckles National Wilderness Area of Sri Lanka,' *Journal of Sustainable Forestry*, **2** : 1-12.
- Gunatilake, H.M. 1998 'The Role of Rural Development in Protecting Tropical Rainforests : Evidence from Sri Lanka', *Journal of Environmental Management*, **53** : 273-292.
- IUCN 2000. *2000 IUCN Red List of Threatened Species*, IUCN Publications Unit, Cambridge.
- IUCN 2001. Cat Specialist Group web page <http://lynx.uio.no/catfolk/>.
- Jackson, P. 1993. 'The Status of the Tiger in 1993,' Report to the CITES Animals Committee, August 1993. Reproduced in *Cat News*, **19** : 5-11. Bougy-Villars, Switzerland
- Johnsingh, A.J.T. 1986. Diversity and Conservation of Carnivorous Mammals in India. *Proc. Indian Acad. Sci. (Anim. Sci./Plant Sci.) Suppl.*, Nov. 1986 : 73-89.
- Johnsingh, A.J.T. 1983. Large Mammalian prey-predators in Bandipur *J. Bombay nat. Hist. Soc.*, **80**(1) : 1-49.
- Karanth, K.U. 1988. *Population structure, density and biomass of large herbivores in a south Indian tropical forest*. M.S. thesis. University of Florida, Gainesville.
- Karanth, K.U. 2001. *Tigers*. Colin Baxter Photography, Scotland, UK : 1-132.
- Karanth, K.U. and M. Sunquist. 1995. 'Prey Selection by Tiger, Leopard and Dhole in Tropical Forests,' *Journal of Animal Ecology*, **64** : 439-450.
- Karanth, K.U. and Nichols, J.D. (1998). 'Estimating tiger densities in India from camera trap data using photographic captures and recaptures'. *Ecology*, **79**(8) : 2852-2862.
- Karanth, K.U. and B.M. Stith. 1999. 'Prey Depletion as a Critical Determinant of Tiger Population Viability'. in J. Seidensticker, S Christie and P. Jackson eds, *Riding the Tiger*, Cambridge: Cambridge University Press.
- Karanth, K. and J.D. Nichols. 2000. *Ecological Status and Conservation of Tigers in India*. Final Report to Division of International Conservation. Washington DC : US Fish and Wildlife Service.

- Kenney, J.J., L.D. Smith, A.M. Starfield, and C.W. McDougal. 1995. 'The Long Term Effect of Tiger Poaching on Population Viability,' *Conservation Biology*, **9** : 1127-1133.
- Kothari, A, S. Suri, N. Singh. 1995. "People and Protected Areas: Rethinking Conservation in India" *Ecologist*, **25** : 188-194.
- Menon, V. 2003. *A Field Guide to Indian Mammals* : 1-200. Publisher : Dorling Kindersley (India) Pvt. Ltd.
- Menon, V. and Kumar, A. 1999. *Wildlife Crime : An Enforcement Guide (Second edition)* : 1-110. Publisher : Wildlife Protraction Society of India, New Delhi.
- Molur, S.; Nameer, P.O. and Walker, S. 1998. *Report of the Workshop Conservation Assessment and Management Plan for Mammals of India. (BCPP- Endangered Species Project)* : 1-176. Publisher : Zoo Outreach Organisation, Conservation Breeding Specialist Group India, Coimbatore, India.
- Pradhan, M.S. 1997. Illicit trade in Wildlife species, products and derivatives in Maharashtra State. *Rec. zool. surv. India* **96**(1-4) : 195-210.
- Prater, S. H. 1980 *The Book of Indian Animals* : 1-324. Publisher : Bombay Natural History Society, Mumbai.
- Rice, C.G. 1986. Observations on predators and prey at Eravikulam National Park, Kerala. *J. Bombay nat. Hist. Soc.*, **83**(2) : 283-305.
- Schaller, G. B. 1967. *The Deer and the Tiger*, Chicago : Chicago University Press.
- Schultz, C. and A. Skonhoft. 1996. 'Wildlife Management, Land-use and Conflicts', *Environment and Development Economics*, : 265-280.
- Seidensticker, J. 1976. 'Ungulate Populations in Chitwan Valley, Nepal' *Biological Conservation*, **10** : 183-210.
- Seidensticker, J.; S. Christie and P. Jackson, eds. 1999. *Riding the Tiger*, Cambridge. Cambridge University Press.
- Sekhar, N.U. 1998. 'Crop and Livestock Depredation Caused by Wild Animals in Protected Areas: The Case of Sariska Tiger Reserve, Rajasthan, India' *Environmental Conservation*, **25** : 160-171.
- Shyamsundar, P. and Kramer, R.A. 1996. "Tropical Forest Protection : An Empirical Analysis of the Costs Borne by Local People,' *Journal of Environmental Economics and Management* **31** : 129-144.
- Simpson, D.R. 1995. *Why Integrated Conservation and Development Projects May Achieve Neither Goal*, Resources for the Future Discussion Paper : 95-20.

- Studsrod, J. E. and Wegge, P. 1995. Park People Relationships : The Case of Damages Caused by Park Animals Around the Royal Bardia National Park, Nepal. *Environmental Conservation* **22** : 133-142.
- Sunquist, M.E. 1981. The Social Organization of Tigers in Royal Chitwan National Park, *Smithsonian Contributions to Zoology*, **36** : 1-98
- Terborgh, J. 1999. *Requiem for Nature*, Washington, DC, Island Press.
- Tisdell, C.A. 1995. 'Issues in Biodiversity Conservation including the Role of Local Communities,' *Environmental Conservation*, **22** : 216-228.
- Tikader, B.K. 1983 *Threatened Animals of India* : 1-307. Publisher : Director, Zoological Survey of India, Kolkata.
- Turner, Alan. 1997. *The Big Cats and Their Fossil Relatives : An Illustrated Guide to Their Evolution and Natural History*. Columbia University Press, New York.
- Wells, M. 1992. 'Biodiversity conservation, affluence and poverty : mismatched costs and benefits, and efforts to remedy them.' *Ambio* **21** : 237-243.
- Wikramanayake, E.D. *et al.* 1998. "An Ecology Based Method for Defining Priorities for Large Mammal Conservation : The Tiger as a Case Study" *Conservation Biology*, **12** : 865-878.
- Wilson, Edward O. 1992. *The Diversity of Life*. W.W. Norton and Company, New York.
- World Bank. 1996. India Ecodevelopment Project, GEF Project Document, South Asia Department II, Agriculture and Water Division, Washington D.C. : World Bank.
- WPSI, (Wildlife Protection Society of India) 2001. *Update on the Trade in Tiger Parts* <http://www.axxel.it/tiger/Tiger7.html>.

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CORBETT TIGER RESERVE

UTTARANCHAL

INTRODUCTION

Historical Background : Once a popular hunting ground of British, originally a 201 sq. mile park, was named in honour of the late Jim Corbett, the legendary hunter-naturalist turned author and photographer, who spent most of his years in this area and contributed in setting up of the Park. Established on 8th August 1936 as Hailey National Park, Corbett National Park is first National Park in India and, also the first to come under Project Tiger as a Tiger Reserve. The Park is located in the Patli Valley at the base of Himalayas in Uttaranchal and spreads over an area of 520 km². During post independence era its name was changed to Ramganga National Park in 1954, but again in 1957 after the death of the legendary hunter, author, photographer and a naturalist- the Jim Corbett this Protected Area was rechristened as Corbett National Park.

On 1st April, 1973 Government of India launched an ambitious conservation programme the Project Tiger in Corbett National Park, led by Guy Mountfort of World Wildlife Fund for nature. Initially nine tiger wildlife reserves with an area of 16,339 km² were constituted. Over the three decades now the total number of such reserves is 28 with an area of 37,761 km². The project was aimed mainly to secure the preservation of highly endangered species of tiger, the *Panthera tigris* and to use our national animal as a symbol of precious heritage, as also to prevent man-animal conflict through payment of compensation for the loss of live stock and human lives, and properties as well, for infra-structural development, research and ecological rehabilitation of degraded area and to protect the area of biological importance through tiger reserves. The launch of the project heralded the onset of scientific wildlife management in India. The Corbett Tiger Reserve classified under IUCN Class-II of the Protected Area Category, today holds the second largest population of free-living tigers in the world.

After the amalgamation of two adjacent and confluent protected areas, the Sonanadi Wildlife Sanctuary (301.18 km²) and Corbett National Park (520.82 km²) in 1991 the entire Protected Area has been renamed as Corbett Tiger Reserve, with a total area of 1316 km², which additionally also includes 466.32 km² of Reserved Forests, The entire CTR area includes a total of 912.62 km² of the Pauri, 355.75 km² of the Nainital and 19.95 km² of Almora Districts of Uttaranchal State. The altitude of the park ranges from 400 m to the peak of Kanda at 1210 m above msl.

Physiography : Natural Forest of the Park is confined to the Bhabar tract of the Siwalik formation in the districts of Nainital, Pauri, located between 29°13' to 29°35' N Latitude and 78°33' to 79°46' E Longitude and lies in the foothills of Himalayas. This has led to an amazing diversity in the habitat types and species. Elements of the Himalayan fauna and flora can be seen here along with those of the peninsula. The Corbett Tiger Reserve (CTR) comes under the Biotic Province 07A (Gangetic plain-Upper Gangetic Plains). The main rivers flowing through the CTR are Ramganga, Sonanadi, Mandal Palain. The River Ramganga enters the Park from the north-east near Gairal Forest Rest House, runs a south-westerly course upto Sarapduli FRH, bends to flow in north-west direction till it crosses Dhikala FRH and changes its course to south west again to emerge out of park to Kalagarh. The riverbed is generally sandy, pebbly, rocky and narrow with high banks till about Khinanauli. It starts widening east of Khinanauli giving rise to "islands" where Sheesham grows in abundance also known as "Sheesham Island", which to west of Dhikala is replaced by Savannah Grasslands. There are a number of thickly forested ridges in the Park.

The forests of Corbett Tiger Reserve fringe the Ramganga and its several tributaries. These azure blue waters teem with different species of fish. Most notably *Tor putitora*, the mahaseer - a scaly freshwater species is a price catch. Both the Golden and the Black Mahaseer thrive in these waters. The mahaseer is the key indicator of a healthy and vibrant riverine ecosystem. At Lohachaur, 15 km north along the river Kosi, good anglers are in with a chance of landing the legendry mahaseer, a redoubtable battling river carp.

Climate and Soil : The climate is subtropical with annual rainfall varying from 1400 mm in outer hills to 2800 mm in upper hills, with 1500-1600 mm in Ram Ganga alone. Geologically, since its location is in Shiwalik range the soil consists of; 1. Recent deposits; 2. Shiwalik series, quartzite, sandstone; and 3. Older Himalayan rocks. The various formations are responsible for relative differences in soil composition, depth, topography and drainage in various parts of the park, thus influencing the diversity of the fauna and flora. The various foregoing formations are responsible for relative differences in soil composition, depth of soil, topography and soil drainage etc. in various parts of the park and in turn, influence the diversity and distribution of flora.

Since the area is located in the forested foothills of outer Himalaya, it remains humid throughout the year. From November to February the nights can be very cold with much frost and dew, and in low-lying localities such as Patli Dun a dense fog lingers. From March till the onset of monsoon frost and fog are absent but dew is deposited in April.

Vegetation : The terrain of the park comprises hilly and ravine areas with plateaus and temporary marshlands. Flat valleys and hilly ridge with rolling grassland give an excellent view of the park's wildlife. There are more than 110 tree species in the forest. The central portion of park is located partly along the Patli Dun between lesser Himalaya to the north and the Shiwalik ranges to the south. The park is notable for its extensive Sal (*Shorea robusta*) forests, which covers nearly 73% of its entirety. A frequent associate of Sal is Haldu (*Adina cardifolia*). On the higher ridges Balki (*Anogeissus latifolia*) is predominant, and the other associates are Khetwa (*Piliostigma malabaricum*), Gurial (*Bauhinia rausinosa*), Dhauri (*Legesteomia parviflora*), Amaltas, Bhilawa, Amla, Papri, Kumbhi, Mahua, Rohini and Jamun. The vegetation is mainly forest, grasslands and

riparian, which include Northern Moist Deciduous Forest (Moist Shiwalik Sal, Moist Bhabar Dun Sal, Western Gangetic moist mixed deciduous forest and Alluvial Savannah woodland), Northern Tropical Dry Deciduous Forest (dry Shiwalik, Northern dry mix deciduous and Khair Sissoo Forest) and Himalayan Subtropical Pine Forest (Low Shiwalik Chir Pine Forest).

Khanna (2000) and Khanna *et al.* (2001) mapped the forest area of Rajaji-Corbett Forest for the period 1967, 1986 and 1998 basing their studies on Survey of India topo sheets (1967), Satellite Imageries (1986 and 1998) using GIS and remote sensing techniques, and found dismal degradation (just 6%) of forest area between these periods, 2% of which was due to the creation of reservoir across Ramganga river.

Floral diversity of CTR is mind blowing as the total park is confined to Bhabar tract of Shiwalik formation. There are 617 species of the flora under 410 genera and 111 families of Angiosperms (Monocots 132 no., Dicots, 462 no.), Gymnosperms 1 no., Fern and fern allies, 22 no. Among the shrubs (51 spp), *Clerodendron* spp, *Helicterios isorea* are predominant, while climbers like *Milettta auriculata*, *Porana paniculata*, *Vallaris solanacea*, *Phamera vahlii* are commonly found. The river valley, high banks and islands are dominated by *Delbergia sissoo*. Invasive weeds like *Lantana camara* is profusely growing, thus inhibiting the regeneration of Sal and other herbaceous plants. The other weeds include *Cannabis sativa* in the grassland. Chir, *Pinus roxburgii*, the only conifer is confined to the areas of highest ridges around Sultan.

FAUNAL DIVERSITY

While there is plenty of information about the inventory of larger vertebrates, we have little information about the smaller vertebrates and invertebrates. The perusal of the available literature reveals the references of Lamba (1980, 1984) and Khati (2004) for the lists of mammals, birds and reptiles Husain (1976, 1979) for Pisces. The fauna consists of 54 spp. of Mammal, 580 Bird, 39 Reptilian, 7 Amphibia, 26 Fishes, 16 of Odonata, 6 Ephimeroptera, 28 of Lepidoptera, 19 Hemiptera, 10 Coleoptera, 34 Orthoptera, 10 Dermaptera, 21 Isoptera, and 11 Scolopendrid Centipedes etc. This inventory is the result of surveys conducted by the Zoological Survey of India during 1970-1980, before the impoundment of the Corbett National Park by the Ramganga reservoir at Kalagarh as a result of construction of Ramganga multipurpose hydroelectric dam stage-1.

The Zoological Survey of India has recently taken up a project again on inventorising the various faunal groups, nearly two decades after impoundment of Ramganga reservoir. Till date out of the three surveys of ten days duration each in the years 2002-2004, the senior author has conducted two surveys and collected invertebrate specimens, permitted under section 12(1) of the Wildlife (Protection) Act, 1972, belonging to invertebrate groups like Arachnida (Scorpions and Spiders), Myriapoda (Centipedes and Millipedes), Mollusca, Annelida (Earthworms and Leeches), Crustacea, Insecta (Isoptera, Dermaptera, Coleoptera, Lepidoptera, Hymenoptera, Odonata, Plecoptera, Neuroptera, Hemiptera, Ephimeroptera) and vertebrate groups like Pisces, Reptilia and Amphibia.

**Table-1 : Population of Tigers in the Tiger Reserve
(as reported by States)**

Sl. No.	Name of Reserve	1972	1979	1984	1989	1993	1995	1997	2001 -02
1.	BANDIPUR (KARNATAKA)	10	39	53	50	66	74	75	82
2.	CORBETT (UTTARANCHAL)	44	84	90	91	123	128	138	137
3.	KANHA (MADHYA PRADESH)	43	71	109	97	100	97	114	127
4.	MANAS (ASSAM)	31	69	123	92	81	94	125	65
5.	MELGHAT (MAHARASHTRA)	27	63	80	77	72	71	73	73
6.	PALAMAU (JHARKHAND)	22	37	62	55	44	47	44	32
7.	RANTHAMBORE (RAJASTHAN)	14	25	38	44	36	38	32	35
8.	SIMLIPAL (ORISSA)	17	65	71	93	95	97	98	99
9.	SUNDERBANS (WEST BENGAL)	60	205	264	269	251	242	263	245
10.	PERIYAR (KERALA)	-	34	44	45	30	39	40	36
11.	SARISKA (RAJASTHAN)	-	19	26	19	24	25	24	22
12.	BUXA (WEST BENGAL)	-	-	15	33	29	31	32	31
13.	INDRAVATI (MADHYA PRADESH)	-	-	38	28	18	15	15	29
14.	NAGARJUNA (ANDHRA PRADESH)	-	-	65	94	44	34	39	67
15.	NAMDHAPA (ARUNACHAL PRADESH)	-	-	43	47	47	52	57	61
16.	DUDHWA (UTTAR PRADESH)	-	-	-	90	94	98	104	76
17.	KALAKAD (TAMIL NADU)	-	-	-	22	17	16	28	27
18.	VALMIKI (BIHAR)	-	-	-	81	49	NR	53	53
19.	PENCH (MADHYA PRADESH)	-	-	-	-	39	27	29	40
20.	TADOBA (MAHARASHTRA)	-	-	-	-	34	36	42	38
21.	BANDHAVGARH (MADHYA PRADESH)	-	-	-	-	41	46	46	-
22.	PANNA (MADHYA PRADESH)	-	-	-	-	25	22	22	31
23.	DAMPHA (MIZORAM)	-	-	-	-	7	4	5	4
24.	PENCH (MAHARASHTRA)	-	-	-	-	-	10 (1994)	-	14
25.	BHADRA (KARNATAKA)	-	-	-	-	-	-	-	35
26.	PAKHUI-NAMERI (ARUNACHAL PRADESH-ASSAM)	-	-	-	-	-	-	-	26
27.	BORI-SATPURA-PACHMARI (MADHYA PRADEH)	-	-	-	-	30	-	-	35
TOTAL		268	711	1121	1327	1366	1333	1498	1578

Source : Project Tiger, MoEF and Wildlife Institute of India, Dehra Dun.

The available statistics indicate that there is an increase in the tiger population (Table-1). The estimated population of large mammals in the year 2003 included 143 tiger, 103 leopard, 627 elephant, 31,304 chital, 4,239 sambar, 497 hog deer, 1,557 muntjac, 75 sloth bear, 6,151 wild boar and 377 Goral. Apart from tigers, the wildlife includes leopard, elephant, sloth bear, jungle cat, fishing cat, sambar, chital, mongoose, Himalayan black bear, Himalayan palm civet, common otter, black napped-hare, porcupine, gharial, crocodiles and mugger crocodiles, langurs and rhesus monkeys.

Leopards are found mostly in the hilly areas of the park. Some nocturnal cats found here are leopard cat, jungle cat and fishing cat. Sloth bear is found in the lower regions of the park while the Himalayan black bear is seen in higher hills only. The dhole (or dhole) – the wild dog, can be seen in the southern areas of CTR along with Jackal. Also seen on the rocky hillsides is goral or goat antelopes. Monkeys are well distributed throughout the park and warning the whole jungle with alarming calls when they see either tiger or leopard from tree top perches.

The area is a home to nearly 600 species of resident and migratory birds. Amazingly rich avian diversity represents 6% of the world's avifaunal inventory. 49 species of the diurnal raptors found here are characteristic elements of avifauna. The avifaunal diversity is rich during winters.

Kumar and Khanna (2003) provided a list of 366 species of the Indian threatened fauna, according to which the CTR has 11 spp. of mammals, 14 spp. of birds and 6 spp. of reptiles, listed as threatened under various categories classified by IUCN for their conservation status (Table-2).

Table-2 : Conservation Status of Threatened Fauna of CTR

Sl. No.	Name of the Species	IUCN (2002)
MAMMALIA		
1.	<i>Elephas maximus</i>	EN, A1, cd
2.	<i>Naemorhaedus goral</i>	LR/nt
3.	<i>Boselaphus tragocamellus</i>	LR/cd
4.	<i>Capricornis sumatrensis</i>	VU, A2, cd
5.	<i>Manis crassicaudata</i>	LR/nt
6.	<i>Murina grisea</i>	EN, B1+2c
7.	<i>Macaca mulata</i>	LR/nt
8.	<i>Cuon alpinus</i>	VU, C2a
9.	<i>Melursus ursinus</i>	LR/nt
10.	<i>Lutra lutra</i>	VU A2cde
11.	<i>Panthera tigris</i>	EN C2a (1)

Sl. No.	Name of the Species	IUCN (2002)
AVES		
1.	<i>Indicator xanthonotus</i> Yellowrumped Honey Guide	LR/nt
2.	<i>Grus antigone</i> Sarus Crane	VU a1cde+2cde
3.	<i>Gallinago nemoricola</i> Wood Snipe	VU C1
4.	<i>Vanellus gregarius</i> Sociable Lapwing	VU A1ac+2bc, C1
5.	<i>Gyps bengalensis</i> Asian White Rumped Vulture	CR A1ce+ 2ce
6.	<i>Gyps indicus</i> Indian Vulture	CR A4ce
7.	<i>Sarcogyps calvus</i> Indian Black Vulture	LR/nt
8.	<i>Aquila clanga</i> Greater Spotted Eagle	VU C1
9.	<i>Aquila heliaca</i> Imperial Eagle	VU C1
10.	<i>Circus macrourus</i> Pale Harrier	LR/nt
11.	<i>Anhinga melanogaster</i> Oriental Darter	LR/nt
12.	<i>Pelecanus philippensis</i> Spot billed Pelican	VU A1cde, C1
13.	<i>Ephippiorhynchus asiaticus</i> Black necked Stork	LR/nt
14.	<i>Leptoptilos javanicus</i> Lesser Adjutant	VU C1

Sl. No.	Name of the Species	IUCN (2002)
REPTILIA		
1.	<i>Python molurus</i>	LR/nt
2.	<i>Elachistodon wastermanni</i>	DD
3.	<i>Gavialis gangeticus</i>	EN C2a, E
4.	<i>Crocodylus palustris</i>	VU A1a, C2a
5.	<i>Melanochelys trijuga</i>	LR/nt
6.	<i>Melanochelys tricarinata</i>	VU B1+2c

A CHECKLIST OF THE FAUNAL ELEMENTS OF CORBETT TIGER RESERVE

VERTEBRATES

MAMMALIA

- | | |
|-----------------------------------|--|
| 1. Long eared Hedgehog | <i>Hemiechinus auritus collaris</i> Gray |
| 2. House Shrew | <i>Suncus murinus tytleri</i> Blyth |
| 3. Savi Pygmy Shrew | <i>Suncus etruscus micronyx</i> Blyth |
| 4. Asian Elephant | <i>Elephas maximus</i> Linn. |
| 5. Rufous tailed Hare | <i>Lepus nigricollis ruficaudatus</i> Geoffroy |
| 6. Barking Deer | <i>Muntiacus muntjack vaginalis</i> Boddaert |
| 7. Chital | <i>Axis axis axis</i> Erxleben |
| 8. Hog deer | <i>Axis porcinus</i> Zimmerman |
| 9. Sambar | <i>Cervus unicolor</i> Kerr |
| 10. Indian Wild Pig | <i>Sus scrofa cristatus</i> Linn. |
| 11. Goral | <i>Naemorhaedus goral</i> Hardwicke |
| 12. Neelgai | <i>Boselaphus tragocamellus</i> Pallas |
| 13. Serow | <i>Capricornis sumatrensis</i> Gray |
| 14. Indian Pangolin | <i>Manis crassicaudata</i> Gray |
| 15. The Large Red Flying Squirrel | <i>Petaurista petaurista albiventer</i> Gray |
| 16. The northern Palm Squirrel | <i>Funambulus pennanti</i> Wroughton |
| 17. Indian crested Porcupine | <i>Hysterix indica</i> Kerr |
| 18. Indian gerbil | <i>Tatera indica indica</i> Hardwicke |
| 19. Common Indian Rat | <i>Rattus rattus rufescens</i> Gray |
| 20. Common Indian Rat | <i>Rattus rattus gangutrianus</i> Linn. |

- | | |
|------------------------------------|--|
| 21. The House Mouse | <i>Mus musculus tyleri</i> Blyth |
| 22. Mouse | <i>Mus musculus homeurus</i> Hodgson |
| 23. Common Indian Field Mouse | <i>Mus baduga</i> Gray |
| 24. India Bush Rat | <i>Golunda ellioti myothrix</i> Hodgson |
| 25. Bandicoot Rat | <i>Nasokia indica indica</i> Bechstein |
| 26. Large Bandicoot Rat | <i>Bandicota indica indica</i> Bechstein |
| 27. Indian Flying Fox | <i>Pteropus giganteus giganteus</i> Bruinich |
| 28. Short nosed Fruit Bat | <i>Cynopterus sphinx sphinx</i> Vabl. |
| 29. Little Japanese Horse Shoe Bat | <i>Rhinolophus cornutus blythi</i> Anderson |
| 30. Leaf nosed Bat | <i>Hipposideros cinereus micropus</i> Peters |
| 31. Great Himalayan Leaf nose Bat | <i>Armiger armiger</i> Hodgson |
| 32. Hodgson's Bat | <i>Myotis formosus</i> (Hodgson) |
| 33. Indian Pygmy Pipestrelle | <i>Pipestrellus mimus mimus</i> Barret-Hodgson |
| 34. Greater Yellow Bat | <i>Scotophilus heathi heathi</i> Hodgson |
| 35. Long Eared Bat | <i>Plecotus auritus homochronus</i> Hodgson |
| 36. Peters Tube Nose Bat | <i>Murina grisea</i> Peters |
| 37. Rhesus Macaque | <i>Macaca mulata</i> Zimmermann |
| 38. Langur | <i>Semnopithecus entellus</i> Dufresner |
| 39. Common Red Fox | <i>Vulpes vulpes montana</i> Pearson |
| 40. Asiatic Jackal | <i>Canis aureus</i> Linn. |
| 41. Indian Wild Dog | <i>Cuon alpinus</i> Hodgson |
| 42. Sloth Bear | <i>Melursus ursinus</i> Shaw |
| 43. Himalayan Black Bear | <i>Selenarctos thibettanus</i> G. Cuvier |
| 44. Common Otter | <i>Lutra lutra monticola</i> Hodgson |
| 45. Yellow Throated Marten | <i>Martes flavigula</i> (Boddaert) |
| 46. Small Indian Civet | <i>Viverricula indica wellsi</i> Pocock |
| 47. Common Palm Civet | <i>Paradoxurus hermaphroditus</i> Pallas |
| 48. Himalayan Palm Civet | <i>Paguma larvata</i> Hamilton-Smith |
| 49. Indian Grey Mongoose | <i>Herpestes edwardsinula</i> Gray |
| 50. Jungle Cat | <i>Felis chaus</i> Gray |
| 51. Leopard Cat | <i>Felis bengalensis horsefieldi</i> Grey |
| 52. Fishing Cat | <i>Felis viverrina</i> Bennet |
| 53. Leopard | <i>Panthera pardus</i> Linn |
| 54. Tiger | <i>Panthera tigris tigris</i> Linn. |

AVES

PARTRIDGE, FRANCOLINS AND SPURFOWLS

- | | |
|--------------------|----------------------------------|
| 1. Black Francolin | <i>Francolinus francolinus</i> |
| 2. Grey Francolin | <i>Francolinus pondicerianus</i> |
| 3. Red Spurfowl | <i>Galloperdix spadicea</i> |

QUAILS AND BUTTON QUAILS

- | | |
|-------------------------|-------------------------------|
| 4. Grey or Common Quail | <i>Coturnix coturnix</i> |
| 5. Rain Quail | <i>Coturnix coromandelica</i> |
| 6. Jungle Bush-quail | <i>Perdicula asiatica</i> |
| 7. Rock Bush-quail | <i>Perdicula argoondah</i> |
| 8. Small Button Quail | <i>Turnix sylvatica</i> |
| 9. Barred Button Quail | <i>Turnix suscitator</i> |

PHEASANTS

- | | |
|---------------------------|--|
| 10. Red Jungle fowl | <i>Gallus gallus</i> |
| 11. Kalij Pheasant | <i>Lophura leucomelanos leucomelanos</i> |
| 12. Indian Peafowl | <i>Pavo cristatus</i> |
| 13. Hill Partridge | <i>Arborophila torqueola</i> |
| 14. Lesser Whistling-Duck | <i>Dendrocygna javanica</i> |

GEESE, WHISTLING-DUCKS & SHELDUCKS

- | | |
|----------------------|---------------------------|
| 15. Greylag Goose | <i>Anser anser</i> |
| 16. Bar-headed Goose | <i>Anser indicus</i> |
| 17. Ruddy Shelduck | <i>Tadorna ferruginea</i> |
| 18. Common Shelduck | <i>Tadorna tadorna</i> |

MISCELLANEOUS WATERFOWL

- | | |
|------------------------|---------------------------------|
| 19. Comb Duck | <i>Sarkidiornis melanotos</i> |
| 20. Cotton Pygmy-goose | <i>Nettapus coromandelianus</i> |

DABBING DUCKS

- | | |
|----------------------|----------------------------|
| 21. Gadwall | <i>Anas strepera</i> |
| 22. Eurasian Wigeon | <i>Anas penelope</i> |
| 23. Mallard | <i>Anas platyrhynchos</i> |
| 24. Spot-billed Duck | <i>Anas poecilorhyncha</i> |
| 25. Common Teal | <i>Anas crecca</i> |
| 26. Garganey | <i>Anas querquedula</i> |
| 27. Northern Pintail | <i>Anas acuta</i> |

28. Northern Shoveller

Anas clypeata

DIVING DUCKS

29. Red-crested Pochard

Rhodonessa rufina

30. Common Pochard

Aythya ferina

31. Ferruginous Pochard

Aythya nyroca

32. Tufted Duck

Aythya fuligula

SAWBILLS

33. Common Merganser

Mergus merganser

HONEYGUIDES & WOODPECKERS

34. Yellow-rumped Honeyguide

Indicator xanthonotus

35. Eurasian Wryneck

Jynx torquilla

36. Speckled Piculet

Picumnus innominatus

37. Rufous Woodpecker

Celeus brachyurus

38. Great Slaty Woodpecker

Mulleripicus pulverulentus

39. Brown-capped Pygmy Woodpecker

Dendrocopus nanus

40. Grey-capped Pygmy Woodpecker

Dendrocopus canicapillus

41. Brown-fronted Woodpecker

Dendrocopus auriceps

42. Fulvous-breasted Woodpecker

Dendrocopus macei

43. Yellow-crowned woodpecker

Dendrocopus mahrattensis

44. Lesser Yellownap

Picus chlorolophus

45. Streak-throated Woodpecker

Picus xanthopygacus

46. Greater Yellownap

Picus flavinucha

47. Scaly-bellied Woodpecker

Picus canus

48. Himalayan Flameback

Dinopium shorii

49. Black-rumped Flameback

Dinopium benghalense

50. Greater Flameback

Chrysocolaptes lucidus

BARBETS

51. Great Barbet

Megalaima virens

52. Brown-headed Barbet

Megalaima zeylanica

53. Lineated Barbet

Megalaima lineata

54. Blue-throated Barbet

Megalaima asiatica

55. Coppersmith Barbet

Megalaima haemacephala

HORNBILLS

56. Indian Grey Hornbill

Ocyroceros birostris

57. Oriental Pied Hornbill

Anthracoceros albirostris

58. Great Pied Hornbill *Buceros bicornis*
- HOOPOE, TROGONS & ROLLERS**
59. Common Hoopoe *Upupa epops*
60. Indian Roller *Coracias benghalensis*
61. Dollar bird *Eurystomus orientalis*
- KINGFISHER**
62. Small Blue Kingfisher *Alcedo atthis*
- LARGE KINGFISHERS**
63. Stork-billed Kingfisher *Halcyon capensis*
64. White-throated Kingfisher *Halcyon smyrnensis*
- PIED KINGFISHERS**
65. Great Pied Kingfisher *Megaceryle lugubris*
66. Pied Kingfisher *Ceryle rudis*
- BEE-EATERS**
67. Blue-bearded Bee-eater *Nyctornis athertoni*
68. Green Bee-eater *Merops orientalis*
69. Blue-tailed Bee-eater *Merops philippinus*
70. Chestnut-headed Bee-eater *Merops leschenaulti*
- CUCKOOS & COUCALS**
71. Pied Crested Cuckoo *Clamator jacobinus*
72. Chestnut-winged Cuckoo *Clamator coromandus*
73. Large Hawk-Cuckoo *Hierococcyx sparverioides*
74. Common Hawk-Cuckoo *Hierococcyx varius*
75. Indian Cuckoo *Cuculus micropterus*
76. Common Cuckoo *Cuculus canorus*
77. Oriental Cuckoo *Cuculus saturatus*
78. Banded Bay Cuckoo *Cacomantis sonneratii*
79. Grey-Bellied Cuckoo *Cacomantis passerinus*
80. Drongo-Cuckoo *Surniculus lugubris*
81. Asian Koel *Eudynamys scolopacea*
82. Green-billed Malkoha *Phaenicophaeus tristis*
83. Sirkeer Malkoha *Phaenicophaeus leschenaultii*
84. Greater Coucal *Centropus sinensis*
85. Lesser Coucal *Centropus bengalensis*

PARAKEETS

- | | |
|---------------------------|--------------------------------|
| 86. Alexandrine Parakeet | <i>Psittacula eupatria</i> |
| 87. Rose-ringed Parakeet | <i>Psittacula krameri</i> |
| 88. Slaty-headed Parakeet | <i>Psittacula himalayana</i> |
| 89. Plum-headed Parakeet | <i>Psittacula cyanocephala</i> |
| 90. Red-breasted Parakeet | <i>Psittacula alexandri</i> |

SWIFTLETS & NEEDLETAILS

- | | |
|-----------------------------|--------------------------------|
| 91. Himalayan Swiftlet | <i>Collocalia brevirostris</i> |
| 92. White-rumped Needletail | <i>Zoonavena sylvatica</i> |

SWIFTS

- | | |
|------------------------------|-----------------------------------|
| 93. Asian Palm Swift | <i>Cypsiurus balasiensis</i> |
| 94. House Swift | <i>Apus affinis</i> |
| 95. Fork-tailed Swift | <i>Apus pacificus</i> |
| 96. Common Swift | <i>Apus apus</i> |
| 97. Silver-backed Needletail | <i>Hirundapus cochinchinensis</i> |
| 98. Alpine Swift | <i>Tachymarptis melba</i> |
| 99. Crested Tree Swift | <i>Hemiprocne coronata</i> |

OWLS

- | | |
|-----------------------------|------------------------------|
| 100. Barn Owl | <i>Tyto alba</i> |
| 101. Grass Owl | <i>Tyto capensis</i> |
| 102. Mountain Scops Owl | <i>Otus spilocephalus</i> |
| 103. Oriental Scops Owl | <i>Otus sunia</i> |
| 104. Collared Scops Owl | <i>Otus bakkamoena</i> |
| 105. Collared Owlet | <i>Glaucidium brodiei</i> |
| 106. Asian Barred Owlet | <i>Glaucidium cuculoides</i> |
| 107. Jungle Owlet | <i>Glaucidium radiatum</i> |
| 108. Spotted Owlet | <i>Athene brama</i> |
| 109. Brown Hawk Owl | <i>Ninox scutulata</i> |
| 110. Long-eared Owl | <i>Asio otus</i> |
| 111. Short-eared Owl | <i>Asio flammeus</i> |
| 112. Eurasian Eagle Owl | <i>Bubo bubo</i> |
| 113. Spot-bellied Eagle Owl | <i>Bubo nipalensis</i> |
| 114. Dusky Eagle Owl | <i>Bubo coromandus</i> |
| 115. Brown Fish Owl | <i>Bubo zeylonensis</i> |
| 116. Tawny Fish Owl | <i>Bubo flavipes</i> |
| 117. Brown Wood Owl | <i>Strix leptogrammica</i> |

NIGHTJARS

- | | |
|-----------------------------|------------------------------|
| 118. Indian Grey Nightjar | <i>Caprimulgus indicus</i> |
| 119. Large-tailed Nightjar | <i>Caprimulgus macrurus</i> |
| 120. Common Indian Nightjar | <i>Caprimulgus asiaticus</i> |
| 121. Savanna Nightjar | <i>Caprimulgus affinis</i> |

PIGEONS

- | | |
|-----------------------|--------------------------|
| 122. Blue Rock Pigeon | <i>Columba livia</i> |
| 123. Hill Pigeon | <i>Columba rupestris</i> |

DOVES

- | | |
|-----------------------------|-----------------------------------|
| 124. Oriental Turtle Dove | <i>Streptopelia orientalis</i> |
| 125. Laughing Dove | <i>Streptopelia senegalensis</i> |
| 126. Spotted Dove | <i>Streptopelia chinensis</i> |
| 127. Red-Collared Dove | <i>Streptopelia tranquebarica</i> |
| 128. Eurasian Collared Dove | <i>Streptopelia decaocto</i> |
| 129. Emerald Dove | <i>Chalcophaps indica</i> |

GREEN PIGEONS

- | | |
|-----------------------------------|-----------------------------|
| 130. Orange-breasted Green Pigeon | <i>Treron bicincta</i> |
| 131. Yellow-footed Green Pigeon | <i>Treron phoenicoptera</i> |
| 132. Pin-tailed Green Pigeon | <i>Treron apicauda</i> |
| 133. Wedge-tailed Green Pigeon | <i>Treron sphenura</i> |

CRANES

- | | |
|-----------------------|----------------------|
| 134. Sarus Crane | <i>Grus antigone</i> |
| 135. Demoiselle Crane | <i>Grus virgo</i> |
| 136. Common Crane | <i>Grus grus</i> |

RAILS & CRAKES

- | | |
|------------------------------|-------------------------------|
| 137. Brown Crake | <i>Amaurornis akool</i> |
| 138. White-breasted Waterhen | <i>Amaurornis phoenicurus</i> |
| 139. Ruddy-breasted Crake | <i>Prozana fusca</i> |
| 140. Purple Swamphen | <i>Porphyrio porphyrio</i> |
| 141. Common Moorhen | <i>Gallinula chloropus</i> |
| 142. Common Coot | <i>Fulica atra</i> |
| 143. Water Rail | <i>Rallus aquaticus</i> |

WOODCOCK & SNIPES

- | | |
|------------------------|-----------------------------|
| 144. Eurasian Woodcock | <i>Scolopax rusticola</i> |
| 145. Wood Snipe | <i>Gallinago nemoricola</i> |

- | | |
|----------------------------------|---------------------------------|
| 146. Pintail Snipe | <i>Gallinago stenura</i> |
| 147. Common Snipe | <i>Gallinago gallinago</i> |
| 148. Jack Snipe | <i>Gallinago minimus</i> |
| GODWITS & CURLEWS | |
| 149. Black-tailed Godwit | <i>Limosa limosa</i> |
| 150. Eurasian Curlew | <i>Numenius arquata</i> |
| SANDPIPERS | |
| 151. Spotted Redshank | <i>Tringa erythropus</i> |
| 152. Common Redshank | <i>Tringa totanus</i> |
| 153. Marsh Sandpiper | <i>Tringa stagnatilis</i> |
| 154. Common Greenshank | <i>Tringa nebularia</i> |
| 155. Green Sandpiper | <i>Tringa ochropus</i> |
| 156. Wood Sandpiper | <i>Tringa glareola</i> |
| 157. Common Sandpiper | <i>Actitis hypoleucos</i> |
| MISCELLANEOUS WADERS | |
| 158. Ruff | <i>Philomachus pugnax</i> |
| 159. Greater Painted-snipe | <i>Rostratula benghalensis</i> |
| 160. Black-winged Stilt | <i>Himantopus himantopus</i> |
| 161. Ibisbill | <i>Ibidorhyncha struthersii</i> |
| THICK-KNEES | |
| 162. Eurasian Thick-knee | <i>Burhinus oedicephalus</i> |
| 163. Great Thick-knee | <i>Esacus recurvirostris</i> |
| STINTS | |
| 164. Little Stint | <i>Calidris minuta</i> |
| 165. Temminck's Stint | <i>Calidris temminckii</i> |
| 166. Dunlin | <i>Calidris alpina</i> |
| JACANAS | |
| 167. Pheasant-tailed Jacana | <i>Hydrophasianus chirurgus</i> |
| 168. Bronze-winged Jacana | <i>Metopidius indicus</i> |
| PRATINCOLES & PLOVERS | |
| 169. Long-billed Plover | <i>Charadrius placidus</i> |
| 170. Little Ringed Plover | <i>Charadrius dubius</i> |
| 171. Kentish Plover | <i>Charadrius alexandrinus</i> |
| 172. Lesser Sand Plover | <i>Charadrius mongolus</i> |
| 173. Greater Sand Plover | <i>Charadrius leschenaultii</i> |
| 174. Ibisbill | <i>Ibidorhyncha struthersii</i> |

175. Black-winged stilt	<i>Himantopus himantopus</i>
176. Pied Avocet	<i>Recurvirosta avosetta</i>
LAPWINGS	
177. Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>
178. River Lapwing	<i>Vanellus duvaucelii</i>
179. Red-wattled Lapwing	<i>Vanellus indicus</i>
180. Sociable Lapwing	<i>Vanellus gregarius</i>
181. Northern Lapwing	<i>Vanellus vanellus</i>
182. White-tailed Lapwing	<i>Vanellus leucurus</i>
183. Small Pratincole	<i>Glareola lactea</i>
GULLS	
184. Caspion Gull	<i>Larus cachinnans</i>
185. Pallas's Gull	<i>Larus ichthyætus</i>
186. Brown-headed Gull	<i>Larus brunnicephalus</i>
187. Black-headed Gull	<i>Larus ridibundus</i>
TERNs	
188. Gull-billed Tern	<i>Gelochelidon nilotica</i>
189. River Tern	<i>Sterna aurantia</i>
190. Common Tern	<i>Sterna hirundo</i>
191. Black-bellied Tern	<i>Sterna acuticauda</i>
192. Whiskered Tern	<i>Chlidonias hybridus</i>
WEAVERS	
193. Black-breasted Weaver	<i>Ploceus benghalensis</i>
194. Streaked Weaver	<i>Ploceus manyar</i>
195. Baya Weaver	<i>Ploceus philipinus</i>
KITES & ALLIES	
196. Osprey	<i>Pandion haliaetus</i>
197. Black Baza	<i>Aviceda leuphotes</i>
198. Oriental Honey-buzzard	<i>Pernis ptilorhyncus</i>
199. Black-shouldered Kite	<i>Elanus caeruleus</i>
200. Black Kite	<i>Milvus migrans</i>
201. Brahminy Kite	<i>Haliastur indus</i>
FISH EAGLES	
202. Pallas's Fish Eagle	<i>Haliaeetus leucoryphus</i>
203. White-tailed Eagle	<i>Haliaeetus albicilla</i>
204. Grey-headed Fish Eagle	<i>Ichthyophaga ichthyætus</i>

205. Lesser Grey-headed Fish Eagle

Ichthyophaga humilis

VULTURES

206. Lammergeier

Gypaetus barbatus

207. Egyptian Vulture

Neophron percnopterus

208. White-rumped Vulture

Gyps bengalensis

209. Indian Vulture

Gyps indicus

210. Himalayan Griffon

Gyps himalayensis

211. Eurasian Griffon

Gyps fulvus

212. Cinereous Vulture

Aegypius monachus

213. Red-headed Vulture

Sarcogyps calvus

SMALL EAGLES

214. Short-toed Snake Eagle

Circaetus gallicus

215. Crested Serpent Eagle

Spilornis cheela

216. Black Eagle

Ictinaetus malayensis

217. Bonelli's Eagle

Hieraaetus fasciatus

218. Booted Eagle

Hieraaetus pennatus

219. Rufous-bellied Eagle

Hieraaetus kienerii

220. Changeable Hawk-Eagle

Spizaetus cirrhatus

221. Mountain Hawk-Eagle

Spizaetus nipalensis

AQUILA EAGLES

222. Lesser Spotted Eagle

Aquila pomarina

223. Greater Spotted Eagle

Aquila clanga

224. Golden Eagle

Aquila chrysaetos

225. Tawny Eagle

Aquila rapax

226. Indian Spotted Eagle

Aquila hastate

227. Steppe Eagle

Aquila nipalensis

228. Imperial Eagle

Aquila heliaca

HARRIERS

229. Eurasian Marsh Harrier

Circus aeruginosus

230. Pallid Harrier

Circus macrourus

231. Montagu's Harrier

Circus pygargus

232. Pied Harrier

Circus melanoleucos

233. Hen Harrier

Circus cyaneus

ACCIPITERS

234. Crested Goshawk

Accipiter trivirgatus

235. Shikra
236. Besra
237. Eurasian Sparrowhawk
238. Northern Goshawk

Accipiter badius
Accipiter virgatus
Accipiter nisus
Accipiter gentilis

BUZZARDS

239. White-eyed Buzzard
240. Long-legged Buzzard
241. Common Buzzard

Butastur teesa
Buteo rufinus
Buteo buteo

FALCONETS & FALCONS

242. Collared Falconet
243. Common Kestrel
244. Red-necked Falcon
245. Amur Falcon
246. Eurasian Hobby
247. Oriental Hobby
248. Laggar Falcon
249. Peregrine Falcon
250. Shaheen Falcon

Microhierax caerulescens
Falco tinnunculus
Falco chicquera
Falco amurensis
Falco subbuteo
Falco severus
Falco jugger
Falco peregrinus japonensis
Falco peregrinus peregrinus

GREBES

251. Little Grebe
252. Great Crested Grebe
253. Horned Grebe

Tachybaptus ruficollis
Podiceps cristatus
Podiceps auritus

CORMORANTS

254. Darter
255. Little Cormorant
256. Indian Cormorant
257. Great Cormorant

Anhinga melanogaster
Phalacrocorax niger
Phalacrocorax fuscicollis
Phalacrocorax carbo

EGRETS

258. Little Egret
259. Great Egret
260. Median Egret
261. Cattle Egret

Egretta garzetta
Casmerodius albus
Mesophoyx intermedia
Bubulcus ibis

HERONS

262. Indian Pond Heron
263. Grey Heron

Ardeola grayii
Ardea cinerea

264. Purple Heron
 265. Little Heron
 266. Black-crowned Night Heron
 267. Little Bittern
 268. Yellow Bittern

Ardea purpurea
Butorides striatus
Nycticorax nycticorax
Ixobrychus minutus
Ixobrychus sinensis

IBISES & SPOONBILL

269. Glossy Ibis
 270. White Ibis
 271. Black Ibis
 272. Eurasian Spoonbill

Plegadis falcinellus
Threskiornis melanocephalus
Pseudibis papillosa
Platalea leucorodia

PELICANS

273. Great White Pelican
 274. Spot-billed Pelican

Pelecanus onocrotalus
Pelecanus philippensis

STORKS

275. Painted Stork
 276. Woolly-necked Stork
 277. White Stork
 278. Black Stork
 279. Black-necked Stork
 280. Lesser Adjutant

Anastomus oscitans
Ciconia episcopus
Ciconia ciconia
Ciconia nigra
Ephippiorhynchus asiaticus
Leptoptilos javanicus

PITTAS, BROADBILLS & LEAFBIRDS

281. Indian Pitta
 282. Long-tailed Broadbill
 283. Golden-fronted Leafbird
 284. Orange-bellied Leafbird

Pitta brachyura
Psarisomus dalhousiae
Chloropsis aurifrons
Chloropsis hardwickii

SHRIKES

285. Brown Shrike
 286. Bay-backed Shrike
 287. Long-tailed Shrike
 288. Grey-backed Shrike
 289. Southern Grey Shrike

Lanius cristatus
Lanius vittatus
Lanius schach
Lanius tephronotus
Lanius meridionalis

JAYS, MAGPIES & TREEPIES

290. Eurasian Jay
 291. Black-headed Jay

Garrulus glandarius
Garrulus lanceolatus

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|-----------------------------|--------------------------------|
| 292. Red-billed Blue Magpie | <i>Urocissa erythrorhyncha</i> |
| 293. Common Green Magpie | <i>Cissa chinensis</i> |
| 294. Rufous Treepie | <i>Dendrocitta vagabunda</i> |
| 295. Grey Treepie | <i>Dendrocitta formosae</i> |

CROWS

- | | |
|------------------------|-----------------------------|
| 296. House Crow | <i>Corvus splendens</i> |
| 297. Large-billed Crow | <i>Corvus macrorhynchos</i> |

WOOD SWALLOWS, ORIOLES & CUCKOOSHRIKES

- | | |
|---------------------------------|------------------------------|
| 298. Ashy Wood Swallow | <i>Artamus fuscus</i> |
| 299. Eurasian Golden Oriole | <i>Oriolus oriolus</i> |
| 300. Black-headed Oriole | <i>Oriolus xanthornus</i> |
| 301. Maroon Oriole | <i>Oriolus traillii</i> |
| 302. Large Cuckoo Shrike | <i>Coracina macei</i> |
| 303. Black-winged Cuckoo Shrike | <i>Coracina melaschistos</i> |
| 304. Black-headed Cuckoo Shrike | <i>Coracina melanoptera</i> |

MINIVETS & FANTAILS

- | | |
|--|----------------------------------|
| 305. Rosy Minivet | <i>Pericrocotus roseus</i> |
| 306. Small Minivet | <i>Pericrocotus cinnamomeus</i> |
| 307. Long-tailed Minivet | <i>Pericrocotus ethologus</i> |
| 308. Short-billed Minivet | <i>Pericrocotus brevirostris</i> |
| 309. Scarlet Minivet | <i>Pericrocotus flammeus</i> |
| 310. Bar-winged Flycatcher-Shrike | <i>Hemipus picatus</i> |
| 311. Yellow-bellied Fantail - Flycatcher | <i>Rhipidura hypoxantha</i> |
| 312. White-throated Fantail - Flycatcher | <i>Rhipidura albicollis</i> |
| 313. White-browed Fantail - Flycatcher | <i>Rhipidura aureola</i> |

DRONGOS

- | | |
|-----------------------------------|------------------------------|
| 314. Black Drongo | <i>Dicrurus macrocercus</i> |
| 315. Ashy Drongo | <i>Dicrurus leucophaeus</i> |
| 316. White-bellied Drongo | <i>Dicrurus caerulescens</i> |
| 317. Bronzed Drongo | <i>Dicrurus aeneus</i> |
| 318. Lesser Racket-tailed Drongo | <i>Dicrurus remifer</i> |
| 319. Spangled Drongo | <i>Dicrurus hottentottus</i> |
| 320. Greater Racket-tailed Drongo | <i>Dicrurus paradiseus</i> |

MONARCHS, IORAS, WOODSHRIKES & DIPPERS

- | | |
|--------------------------|--------------------------|
| 321. Black-naped Monarch | <i>Hypothymis azurea</i> |
|--------------------------|--------------------------|

322. Asian Paradise Flycatcher
 323. Common Iora
 324. Large Woodshrike
 325. Common Woodshrike
 326. Brown Dipper

Terpsiphone paradisi
Aegithina tiphia
Tephrodornis gularis
Tephrodornis pondicerianus
Cinclus pallasii

ROCK & WHISTLING THRUSHES

327. Blue-capped Rock Thrush
 328. Chestnut-bellied Rock Thrush
 329. Blue Rock Thrush
 330. Blue Whistling Thrush

Monticola cinclorhynchus
Monticola rufiventris
Monticola solitarius
Myophonus caeruleus

ZOOTHERA THRUSHES

331. Orange-headed Thrush
 332. Scaly Thrush
 333. Long-billed Thrush
 334. Dark-sided Thrush

Zoothera citrina
Zoothera dauma
Zoothera monticola
Zoothera marginata

TURDUS THRUSHES

335. Tickell's Thrush
 336. Grey-winged Blackbird
 337. Eurasian Blackbird
 338. Dark-throated Thrush

Turdus unicolor
Turdus boulboul
Turdus merula
Turdus ruficollis

FLYCATCHERS

339. Dark-sided Flycatcher
 340. Asian Brown Flycatcher
 341. Rusty-tailed Flycatcher
 342. Rufous-gorgeted Flycatcher
 343. Red-throated Flycatcher
 344. Snowy-browed Flycatcher
 345. Little Pied Flycatcher
 346. Ultramarine Flycatcher
 347. Slaty-blue Flycatcher
 348. Verditer Flycatcher
 349. Large Niltava
 350. Small Niltava
 351. Rufous-bellied Niltava
 352. Pale-chinned Flycatcher
 353. Pale-blue Flycatcher

Muscicapa sibirica
Muscicapa dauurica
Muscicapa ruficauda
Ficedula strophiiata
Ficedula parva
Ficedula hyperythra
Ficedula westermanni
Ficedula superciliaris
Ficedula tricolor
Eumyias thalassina
Niltava grandis
Niltava macgrigoriae
Niltava sundara
Cyornis poliogenys
Cyornis unicolor

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|------------------------------------|-------------------------------|
| 354. Blue-throated Flycatcher | <i>Cyornis rubeculoides</i> |
| 355. Tickells' Blue Flycatcher | <i>Cyornis tickelliae</i> |
| 356. Grey-headed Canary Flycatcher | <i>Culicicapa ceylonensis</i> |

CHATS

- | | |
|--------------------------------|------------------------------|
| 357. Siberian Rubythroat | <i>Luscinia calliope</i> |
| 358. White-tailed Rubythroat | <i>Luscinia pectoralis</i> |
| 359. Bluethroat | <i>Luscinia svecica</i> |
| 360. Indian Blue Robin | <i>Luscinia brunnea</i> |
| 361. Orange-flanked Bush Robin | <i>Tarsiger cyanurus</i> |
| 362. Golden Bush Robin | <i>Tarsiger chrysaeus</i> |
| 363. White-browed Bush Robin | <i>Tarsiger indicus</i> |
| 364. Oriental Magpie Robin | <i>Copsychus saularis</i> |
| 365. White-rumped Shama | <i>Copsychus malabaricus</i> |
| 366. Indian Robin | <i>Saxicoloides fulicata</i> |

REDSTARTS

- | | |
|----------------------------------|-------------------------------------|
| 367. Rufous-backed Redstart | <i>Phoenicurus erythronota</i> |
| 368. Blue-capped Redstart | <i>Phoenicurus caeruleocephalus</i> |
| 369. Black Redstart | <i>Phoenicurus ochruros</i> |
| 370. Hodgson's Redstart | <i>Phoenicurus hodgsoni</i> |
| 371. Blue-fronted Redstart | <i>Phoenicurus frontalis</i> |
| 372. White-capped Water Redstart | <i>Chaimarrornis leucocephalus</i> |
| 373. Plumbeous Water Redstart | <i>Rhyacornis fuliginosus</i> |
| 374. White-bellied Redstart | <i>Hodgsonius phaenicuroides</i> |

FORKTAILS

- | | |
|----------------------------|-----------------------------|
| 375. Little Forktail | <i>Enicurus scouleri</i> |
| 376. Black-backed Forktail | <i>Enicurus immaculatus</i> |
| 377. Slaty-backed Forktail | <i>Enicurus schistaceus</i> |
| 378. Spotted Forktail | <i>Enicurus maculatus</i> |

COCHOAS & BUSHCHATS

- | | |
|-----------------------|--------------------------|
| 379. Purple Cochoa | <i>Cochoa purpurea</i> |
| 380. Common Stonechat | <i>Saxicola torquata</i> |
| 381. Pied Bushchat | <i>Saxicola caprata</i> |
| 382. Grey Bushchat | <i>Saxicola ferrea</i> |
| 383. Brown Rockchat | <i>Cercomela fusca</i> |

WHEATEARS

- | | |
|--------------------|----------------------------|
| 384. Pied Wheatear | <i>Oenanthe pleschanka</i> |
|--------------------|----------------------------|

385. Desert Wheatear
386. Isabelline Wheatear

Oenanthe deserti
Oenanthe isabellina

STARLINGS

387. Spot-winged Starling
388. Chestnut-tailed Starling
389. Brahminy Starling
390. Rosy Starling
391. Common Starling
392. Asian Pied Starling

Saroglossa spiloptera
Sturnus malabaricus
Sturnus pagodarum
Sturnus roseus
Sturnus vulgaris
Sturnus contra

MYNAS

393. Common Myna
394. Bank Myna
395. Jungle Myna
396. Hill Myna

Acridotheres tristis
Acridotheres ginginianus
Acridotheres fuscus
Gracula religiosa

NUTHATCHES & TREECREEPERS

397. Chestnut-bellied Nuthatch
398. White-tailed Nuthatch
399. Velvet-fronted Nuthatch
400. Wallcreeper
401. Bar-tailed Tree Creeper

Sitta castanea
Sitta himalayensis
Sitta frontalis
Tichodroma muraria
Crethia himalayana

TITS & WREN

402. Fire-capped Tit
403. Rufous-naped Tit
404. Great Tit
405. Green-backed Tit
406. Black-lored Tit
407. Black-throated Tit
408. Winter Wren

Cephalopyrus flammiceps
Parus rufonuchalis
Parus major
Parus monticolus
Parus xanthogenys
Aegithalos concinnus
Troglodytes troglodytes

MARTINS & SWALLOWS

409. Sand Martin
410. Plain Martin
411. Eurasian Crag Martin
412. Dusky Crag Martin
413. Barn Swallow
414. Wire-tailed Swallow

Riparia riparia
Riparia paludicola
Hirundo rupestris
Hirundo concolor
Hirundo rustica
Hirundo smithii

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|------------------------------|----------------------------|
| 415. Red-rumped Swallow | <i>Hirundo daurica</i> |
| 416. Streak-throated Swallow | <i>Hirundo fluvicola</i> |
| 417. Asian House Martin | <i>Delichon dasypus</i> |
| 418. Nepal House Martin | <i>Delichon nipalensis</i> |

BULBULS

- | | |
|----------------------------|---------------------------------|
| 419. Black-crested Bulbul | <i>Pycnonotus melanicterus</i> |
| 420. Red-whiskered Bulbul | <i>Pycnonotus jocosus</i> |
| 421. White-eared Bulbul | <i>Pycnonotus leucotis</i> |
| 422. Himalayan Bulbul | <i>Pycnonotus leucogenys</i> |
| 423. Red-vented Bulbul | <i>Pycnonotus cafer</i> |
| 424. Brown-eared Bulbul | <i>Hemixos flavala</i> |
| 425. Rufous-billied Bulbul | <i>Hypsipetes mccllellandii</i> |
| 426. Black Bulbul | <i>Hypsipetes leucocephalus</i> |

PRINIAS & ALLIES

- | | |
|------------------------------|-------------------------------|
| 427. Brown Prinia | <i>Prinia crinigera</i> |
| 428. Grey-crowned Prinia | <i>Prinia cinereocapilla</i> |
| 429. Rufous-fronted Prinia | <i>Prinia buchanani</i> |
| 430. Grey-breasted Prinia | <i>Prinia hodgsonii</i> |
| 431. Jungle Prinia | <i>Prinia sylvatica</i> |
| 432. Yellow-bellied Prinia | <i>Prinia flaviventris</i> |
| 433. Graceful Prinia | <i>Prinia gracilis</i> |
| 434. Plain Prinia | <i>Prinia inornata</i> |
| 435. Ashy Prinia | <i>Prinia socialis</i> |
| 436. Zitting Cisticola | <i>Cisticola juncidis</i> |
| 437. Bright-headed Cisticola | <i>Cisticola exilis</i> |
| 438. Oriental White Eye | <i>Zosterops palpebrosa</i> |
| 439. Chestnut-headed Tesia | <i>Tesia castaneocoronata</i> |
| 440. Grey-bellied Tesia | <i>Tesia cyaniventer</i> |

BUSH-WARBLERS & ALLIES

- | | |
|------------------------------------|---------------------------------|
| 441. Pale-footed Bush Warbler | <i>Cettia pallidipes</i> |
| 442. Chestnut-crowned Bush Warbler | <i>Cettia major</i> |
| 443. Aberrant Bush Warbler | <i>Cettia flavolivacea</i> |
| 444. Grey-sided Bush Warbler | <i>Cettia brunnifrons</i> |
| 445. Moustached Warbler | <i>Acrocephalus melanopogon</i> |
| 446. Blyth's Reed Warbler | <i>Acrocephalus dumetorum</i> |

447. Striated Grassbird *Megalurus palustris*
- SYLVIA WARBLERS**
448. Greater Whitethroat *Sylvia communis*
449. Lesser Whitethroat *Sylvia curruca*
450. Orphean Warbler *Sylvia hortensis*
- MALL WARBLERS**
451. Common Tailorbird *Orthotomus sutorius*
452. Common Chiffchaff *Phylloscopus collybita*
453. Dusky Warbler *Phylloscopus fuscatus*
454. Smoky Warbler *Phylloscopus fulgiventor*
455. Tickell's Leaf Warbler *Phylloscopus affinis*
456. Buff-barred Warbler *Phylloscopus pulcher*
457. Yellow-browed Warbler *Phylloscopus inornatus*
458. Greenish Warbler *Phylloscopus trochiloides*
459. Western Crowned Warbler *Phylloscopus occipitalis*
460. Blyth's Leaf Warbler *Phylloscopus reguloides*
461. Golden-spectacled Warbler *Seicercus burkii*
462. Grey-hooded Warbler *Seicercus xanthoschistos*
463. Goldcrest *Regulus regulus*
- LAUGHINGTHRUSHES**
464. White-throated Laughingthrush *Garrulax albogularis*
465. White-crested Laughingthrush *Garrulax leucolophus*
466. Rufous-chinned Laughingthrush *Garrulax rufogularis*
467. Streaked Laughingthrush *Garrulax lineatus*
- SCIMITAR BABBLERS & ALLIES**
468. Puff-throated Babbler *Pellorneum ruficeps*
469. Indian Scimitar Babbler *Pomatorhinus horsfieldii*
470. Rusty-cheeked Scimitar Babbler *Pomatorhinus erythrogyens*
- WREN BABBLERS**
471. Scaly-breasted Wren Babbler *Pnoepyga albiventer*
472. Nepal Wren Babbler *Pnoepyga immaculata*
- BABBLERS**
473. Black-chinned Babbler *Stachyris pyrrhops*
474. Tawny-bellied Babbler *Dumetia hyperythra*

475. Chestnut-capped Babbler

Timalia pileata

476. Yellow-eyed Babbler

Chrysomma sinense

477. Common Babbler

Turdoides caudatus

478. Large Grey Babbler

Turdoides malcolmi

479. Jungle Babbler

Turdoides striatus

MESIAS & ALLIES

480. Silver-eared Mesia

Leiothrix argenteauris

481. Red-billed Leiothrix

Leiothrix lutea

482. Blue-winged Minla

Minla cyanoptera

YUHINAS

483. Whiskered Yuhina

Yuhina flavicollis

484. Black-chinned Yuhina

Yuhina nigrimenta

485. White-bellied Yuhina

Yuhina zantholeuca

SIBIA

486. Rufous Sibia

Heterophasia capistrata

LARKS

487. Rufous-winged Bush Lark

Mirafra assamica

488. Ashy-crowned Sparrow Lark

Eremopterix grisea

489. Greater Short-toed Lark

Calandrella brachdactyla

490. Sand Lark

Calandrella raytal

491. Crested Lark

Galerida cristata

492. Eurasian Skylark

Alauda arvensis

493. Oriental Skylark

Alauda gulgula

FLOWERPECKERS & SUNBIRDS

494. Thick-billed Flowerpecker

Dicaeum agile

495. Pale-billed Flowerpecker

Dicaeum erythrohynchos

496. Purple Sunbird

Nectarinia asiatica

497. Green-tailed Sunbird

Aethopyga nipalensis

498. Crimson Sunbird

Aethopyga siparaja

499. Black-throated Sunbird

Aethopyga saturata

500. Fire-tailed Sunbird

Aethopygea ignicauda

SPARROWS

501. House Sparrow

Passer domesticus

502. Russet Sparrow

Passer rutilans

503. Chestnut-shouldered Petronia

Petronia xanthocollis

WAGTAILS

504. White Wagtail	<i>Motacilla alba</i>
505. Large Pied Wagtail	<i>Motacilla maderaspatensis</i>
506. Citrine Wagtail	<i>Motacilla citreola</i>
507. Yellow Wagtail	<i>Motacilla flava</i>
508. Grey Wagtail	<i>Motacilla cinerea</i>

PIPITS

509. Paddyfield Pipit	<i>Anthus rufulus</i>
510. Tawny Pipit	<i>Anthus campestris</i>
511. Blyth's Pipit	<i>Anthus godlewskii</i>
512. Long-billed Pipit	<i>Anthus similes</i>
513. Oriental Tree Pipit	<i>Anthus hodgsoni</i>
514. Tree Pipit	<i>Anthus trivialis</i>
515. Rosy Pipit	<i>Anthus roseatus</i>
516. Water Pipit	<i>Anthus spinoletta</i>

ACCENTORS

517. Rufous-breasted Accentor	<i>Prunella strophiatea</i>
518. Black-throated Accentor	<i>Prunella atrogularis</i>

MUNIAS

519. Red Avadavat	<i>Amandava amandava</i>
520. Indian Silverbill	<i>Lonchura malabarica</i>
521. White-rumped Munia	<i>Lonchura striata</i>
522. Scaly-breasted Munia	<i>Lonchura punctulata</i>
523. Black-headed Munia	<i>Lonchura malacca</i>

FINCHES

524. Chaffinch	<i>Fringilla coelebs</i>
525. Fire-fronted Serin	<i>Serinus pusillus</i>
526. Yellow-breasted Greenfinch	<i>Carduelis spinoides</i>
527. European Goldfinch	<i>Carduelis caraduelis</i>
528. Common Rosefinch	<i>Carpodacus erythrinus</i>

BUNTINGS

529. Crested Bunting	<i>Melophus lathami</i>
530. Pine Bunting	<i>Emberiza leucocephalus</i>
531. White-capped Bunting	<i>Emberiza stewarti</i>
532. House Bunting	<i>Emberiza striolata</i>

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| 533. Chestnut-eared Bunting | <i>Emberiza fucata</i> |
| 534. Little Bunting | <i>Emberiza pusilla</i> |
| 535. Chestnut Bunting | <i>Emberiza rutila</i> |
| 536. Black-faced Bunting | <i>Emberiza spodocephala</i> |

REPTILIA

- | | |
|----------------------------|--|
| 1. Blind Snake | <i>Typhlops porrectus</i> (Stoliczka) |
| 2. Indian Python | <i>Python molurus</i> (Linn.) |
| 3. Sand Boa | <i>Eryx conicus</i> (Schneider) |
| 4. Jhon's Sand Boa | <i>Eryx johni johni</i> (Russell) |
| 5. Oliver Brown Racer | <i>Elaphe hodgsoni</i> (Gunther) |
| 6. Trinket Snake | <i>Elaphe helena</i> (Daudin) |
| 7. Rat Snake | <i>Ptyas mucosus</i> (Linn.) |
| 8. Wolf Snake | <i>Lycodon mackinnoni</i> (Wall) |
| 9. - | <i>Coluber ventromaculatus</i> Gray & Hardw. |
| 10. - | <i>Coluber rhodorhachis</i> (Boulenger) |
| 11. - | <i>Natrix piscator</i> (Linn.) |
| 12. - | <i>Trachisophium leave</i> Peaeracea |
| 13. Indian Gamma | <i>Boiga trigonata</i> (Schneider) |
| 14. Himalayan Cat Snake | <i>Boiga multifasciata</i> (Blyth) |
| 15. Banded Krait | <i>Bungarus fasciatus</i> (Schneider) |
| 16. The Common Krait | <i>Bungarus caeruleus</i> (Schneider) |
| 17. Indian Cobra | <i>Naja naja</i> (Linn.) |
| 18. King Cobra | <i>Ophiophagus hannah</i> (Cantor) |
| 19. Russell's viper | <i>Vipera russeli</i> (Shaw) |
| 20. Phoorsa | <i>Echis carinatus</i> (Schneider) |
| 21. - | <i>Enhydris sieboldi</i> (Schlegel) |
| 22. - | <i>Elachistodon westermanni</i> Reinhardt |
| 23. - | <i>Argyrogena ventromaculatus</i> Gray |
| 24. The Indian Horse Gecko | <i>Gymnodactylus lawdarnus</i> (Stoliczka) |
| 25. - | <i>Gymnodactylus fasciolatus</i> (Blyth) |

26. The blood sucker	<i>Calotes versicolor</i> (Daudin)
27. —	<i>Agama tuberculata</i> (Grey)
28. —	<i>Leiopisma himalayanum</i> (Gunther)
29. —	<i>Riopa punctata</i> (Gmelin)
30. —	<i>Hemidactylus brooki</i> Gray
31. —	<i>Hemidactylus flaviviridis</i> Ruppel
32. —	<i>Japalura kumaonensis</i> (Annandale)
33. The Common Indian Monitor	<i>Varanus bengalensis</i> (Linn.)
34. Gharial	<i>Gavialis gangeticus</i> (Gmelin)
35. Crocodile	<i>Crocodylus palustris</i> (Lesson)
36. —	<i>Melanochelys trijuga</i> (Schweigger)
37. —	<i>Melanochelys tricarinata</i> (Blyth)
38. —	<i>Lissemys punctata</i> (Bonnaterre)

AMPHIBIA

1. —	<i>Rana cyanophlyctes</i> Schneider (= <i>Euphylyctus cyanophlyctes</i>)
2. —	<i>Rana limnocharis</i> Weigman
3. —	<i>Rana breviceps</i> Schneider
4. —	<i>Rana crassa</i> Jerdon (= <i>Haplobatrachus crassus</i> Jerdon)
5. —	<i>Microhyla ornate</i> (Dum. & Bibron)
6. —	<i>Bufo andersonii</i> Boulenger
7. —	<i>Bufo melanostictus</i> Schneider

PISCES

1. Dhaur	<i>Barilius barna</i> (Hamilton)
2. —	<i>Barilius bendelisis</i> (Hamilton)
3. Trout	<i>Raimas bola</i> (Hamilton)
4. Dhaur	<i>Brachydanio rario</i> (Ham.Buch.)
5. —	<i>Chagunius chagunio</i> (Ham. Buch.)
6. Saknera	<i>Crossocheilus latius</i> (Ham.)
7. —	<i>Danio devario</i> (Hamilton)

8. -	<i>Esomus danricus</i> (Ham.)
9. Unera	<i>Labeo dero</i> (Ham.)
10. Dumrua	<i>Puntius conchoni</i> (Ham.-Buch.)
11. -	<i>Puntius sophore</i> (Hamilton)
12. -	<i>Puntius ticto</i> (Ham.-Buch.)
13. -	<i>Rasbora daniconius daniconius</i> (Ham.)
14. Karanchula	<i>Tor chilinoide</i> (McClelland)
15. Mahaseer	<i>Tor putitora</i> (Hamilton)
16. -	<i>Tor tor</i> (Ham.)
17. -	<i>Lepidocephalus guntea</i> (Ham.)
18. Gadera	<i>Nemacheilus noemacheilus</i>
19. -	<i>Nemacheilus botia</i> (Hamilton)
20. -	<i>Nemacheilus corica</i> (Ham.)
21. -	<i>Nemacheilus rupicola</i> (McClelland)
22. Nain	<i>Amblyocephalus mangois</i> (Ham.)
23. Gonch	<i>Mystus vittatus</i> (Bloch)
24. -	<i>Bagarius bagarius</i> (Ham.)
25. -	<i>Channa orientalis</i> (Bloch & Schneider)
26. -	<i>Mestacembellus armatus</i> (Lacepede)
27. Bhagnera	<i>Garra gotyla gotyla</i> (Gray)
28. -	<i>Garra lamta</i> (Hamilton)

INVERTEBRATA

Phylum ARTHROPODA

Subphylum MYRIAPODA

Class CHILOPODA

1. -	<i>Cormocephalus dentipes</i> Pocock
2. -	<i>Scolopendra morsitans</i> Linn
3. -	<i>Otostigmus amballae</i> Chamberlin
4. -	<i>Otostigmus nudus</i> Pocock
5. -	<i>Rhysida afra cuprea</i> Kraepelin

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| 6. - | <i>Rhysida corbetti</i> Khanna |
| 7. - | <i>Rhysida monalii</i> Khanna and Kumar |
| 8. - | <i>Rhysida lithobioides kumaonensis</i> Khanna |
| 9. - | <i>Rhysida nuda nuda</i> (Newport) |
| 10. - | <i>Rhysida nuda immarginata</i> (Porath) |
| 11. - | <i>Rhysida stuhlmanni himalayanus</i> Khanna |

Class **INSECTA**Order **LEPIDOPTERA**

- | | |
|------------------------|---|
| 1. Lime Butterfly | <i>Papilio demoleus</i> (Linn.) |
| 2. Common Mormon | <i>Papilio polytes romulus</i> (Cramer) |
| 3. Common Mime | <i>Chilasa clytia</i> (Linn.) |
| 4. Spot Swordtail | <i>Graphium nomius</i> (Esper) |
| 5. Common Grass Yellow | <i>Terias hecabe</i> (Linn.) |
| 6. Common Emigrant | <i>Catopsilla pomona</i> (Fab.) |
| 7. Mottled Emigrant | <i>Catopsilla pyranthe</i> (Linn.) |
| 8. Bath White | <i>Pontia dapidice</i> (Linn.) |
| 9. Indian Cabbage | <i>Pieris canidia indica</i> (Moore) |
| 10. White Pioneer | <i>Anapheis aurota</i> (Fab.) |
| 11. Common Gull | <i>Cepora nerissa</i> (Fab.) |
| 12. Common Lasker | <i>Pantoporia hordonia</i> (Stoll) |
| 13. Common Jester | <i>Sybererentia hippocolus</i> Den. |
| 14. Peacock Pansy | <i>Precis almana</i> Linn. |
| 15. Lemon Pansy | <i>Precis lemonias</i> (Linn.) |
| 16. Yellow Pansy | <i>Precis hierta</i> (Fab.) |
| 17. Chocolate Pansy | <i>Precis ephita</i> (Cramer) |
| 18. Common Sailor | <i>Neptis hylas</i> (Moore) |
| 19. Common Three-Ring | <i>Ypthima asterope</i> (Moore) |
| 20. Common Four-Ring | <i>Ypthima hubeuri</i> (Kirby) |
| 21. Common Crow | <i>Euploea core</i> (Cramer) |
| 22. Common Tiger | <i>Danaus genutia</i> (Cramer) |
| 23. Plain tiger | <i>Danaus chrysippus</i> (Cramer) |
| 24. Blue Tiger | <i>Tirumala limniace</i> (Butler) |
| 25. Common Pierrot | <i>Castelium rosimon</i> (Fab.) |
| 26. Sorrel Sapphire | <i>Heliophorus sena</i> (Koller) |
| 27. Toothed Sunbeam | <i>Curetes dentate</i> (Moore) |

28. Sylhet Oak Blue

Narathura silhetensis (Hawitson)

Order ODONATA

1. *Caconeura autumnalis* Fraser
2. *Copera marginipes* (Rambur)
3. *Pseudagrion rubriceps* Selys
4. *Ischnura forcipata* Selys
5. *Ischnura delicata* (Hagen)
6. *Agriocnemis pygmaea* (Rambur)
7. *Rhinocypha quadrimaculata* Selys
8. *Neurobasis chinensis chinensis* (Linn.)
9. *Orthtrum taeneolatum* (Schneider)
10. *Orthetrum glaucum* (Brauer)
11. *Orthetrum pruinsum neglectum* (Rambur)
12. *Palpopleura s. sexmaculata* (Fabr.)
13. *Crocothemis s. servillia* (Drury)
14. *Trithemis aurora* (Burm.)
15. *Trithemis festiva* (Rambur)
16. *Pantala flavescens* (Fabr.)

Order ISOPTERA

1. *Neotermes bosei* (Snyder)
2. *Heterotermes indicoola* (Wasmann)
3. *Coptotermes heimi* (Wasmann)
4. *Speculitermes cyclops cyclops* Wasmann
5. *Speculitermes triangularis* Roonwal and Sen-Sarma
6. *Microcerotermes championi* Snyder
7. *Microcerotermes beesoni* Snyder
8. *Angulitermes akhoriensis* Chatterjee and Thakur
9. *Odontotermes bhagwati* Chatterjee and Thakur
10. *Odontotermes distans* Holm. & Holm.
11. *Odontotermes girisiensis* Roonwal & Chhottani
12. *Odontotermes gurdaspurensis* Holm. & Holm.
13. *Odontotermes horai* Roonwal and Chhottani
14. *Odontotermes lokanandi* Chatterji and Thakur
15. *Odontotermes microdentatus* Roonwal and Sen-Sarma
16. *Odontotermes obessus* (Rambur)
17. *Odontotermes parvidens* (Holm.&Holm.)
18. *Odontotermes redimanni* (Wasman)
19. *Microtermes mycophagus* (Desnaux)

20. *Microtermes obesis* Holm.
21. *Microtermes unicolor* Snyder

Order HEMIPTERA

1. *Ptilomera laticaudata* Hardw.
2. *Ranatra filiformes* (Fabr.)
3. *Ranatra elongata* (Fabr.)
4. *Laccotrepe ruber* (Linn.)
5. *Heleocoris ovatus* Montadon
6. *Anoplocnemis phasiana* Fabr.
7. *Serinetha augus* Fabr.
8. *Acanthaphis flavipes* Stal.
9. *Ectrychotes dispar* Reuter
10. *Macroscytus brunneus* Fabr.
11. *Garpocoris pallidus* Dallas
12. *Dalapada affinis* Dallas
13. *Dolycori indicus* Stal.
14. *Plautia fimbriata* Fabr.
15. *Cydnus indicus* Stal.
16. *Melanites leda* (Linn.)
17. *Elymnias hypermnestra* (Linn.)
18. *Melanites zitendis* (Herbst)
19. *Elymnias hypermnestra* (Linn.)

Order EPHIMEROPTERA

1. *Polymitarcys indicus* Pictet
2. *Baetis longistylis* Kaul and Dubey
3. *Baetis solitarius* Gillies
4. *Baetis himalayana* Kapur and Kriplani
5. *Epeorus lahaulensis* Kapur and Kriplani
6. *Palingenia orientalis*

Order ORTHOPTERA

1. *Chrotogonus trachypterus trachypterus* (Blanchard)
2. *Aularches milliaris* (Linn.)
3. *Attractomotrpha crenulata* (Fabr.)
4. *Oedaleus senegalensis* (Kraus)
5. *Oedaleus abrustus* (Thunberg)
6. *Acrotylus humberianus* Saussure

7. *Trilophidia annulata* (Thunberg)
8. *Aiolopus affinis* (Bolivar)
9. *Phloebe infumata* Brunner
10. *Acrida exaltata* (Walker)
11. *Ashwathamus cylindricus* Kirby
12. *Pusana rugulosa* (Uvarao)
13. *Sphingonotus longipennis* Saussure
14. *Sikkimiana darjeelingensis* (Bolivar)
15. *Paraconoyma scabra* (Walker)
16. *Oxya hyla* Serville
17. *Oxya velox* (Fab.)
18. *Pacyacris vinosa* (Walker)
19. *Patanga japonica* (Bolivar)
20. *Catantops innotabilis* (Walker)
21. *Stenocatantops splendens* (Thunberg)
22. *Chondracris rosea* (De Geer)
23. *Eyprepocnemis alacris* (Serville)
24. *Trylotropidius varicornis* (Walker)
25. *Oxyrrheps obtuse* De Hann
26. *Hieroglyphus concolor* (Walker)
27. *Choroedocus capensis* Thunberg
28. *Spathosternum prasiniferum* (Walker)
29. *Grylotalpa fossor* Scudder
30. *Gryllus domesticus* Linn.
31. *Gymogryllus erythrocephalus* (Serville)
32. *Homoeogryllus taicoun* Saussure
33. *Pteronemobius fascipes* Walker
34. *Madasumma ventralis* Walker

Order DERMAPTERA

1. *Euborella annulipes* (Lucas)
2. *Euborella femoralis* (Dohrn)
3. *Homotagus feae* (Bormans)
4. *Nala laevidipes* (Dafour)
5. *Nala nipalensis* (Burr)
6. *Labidura bengalensis* (Dohrn)

7. *Labidura riparia* (Pallas)
8. *Forcipula trispinosa* (Dohrn)
9. *Forcipula quadrispinosa* (Dohrn)
10. *Forcipula indica* Brindle

Order COLEOPTERA

1. *Megarthus septumpunctatus* Champ.
2. *Phyllodrea (Dropephylla) almorensis* Champ.
3. *Phlonemos (Phlosostiba) pincola* Champ.
4. *Phyllorhinum florivagnum* Champ.
5. *Tregophloeus (Boopinus) indicus* Kr.
6. *Sternus kratzi* Bernh.
7. *Dianous distigma* Champ.
8. *Philonthus aeneipennis* Boh.
9. *Creophilus maxillosus* L.
10. *Bolitobius spinipes* Champ.

SUMMARY

Of the 28 existing Tiger Reserves in India created under the Ministry of Environment & Forests, the Corbett Tiger Reserve, the first to come up in the year 1973, aimed at mainly to secure the preservation of the highly endangered species. All through the three decades of the Project the population of tiger has drastically increased from 44 in the year 1972 to 137 in 2001-02 in the Corbett Tiger Reserve.

Earlier known as Corbett National Park, the protected area while always has had the privilege of protection cover from the times of Britishers, it has also felt the impact of onslaught on its biodiversity by the disturbances caused by the construction of Ramganga multi-purpose hydel project-stage-I in mid-70s to early 80s and as also of the poaching and illegal felling of trees.

The Northern Regional Station of Zoological Survey of India in its first spell undertook the extensive pre-impoundment faunistic survey of the area. The 883 species of the faunal elements listed here includes 54 species of mammals, over 600 species of birds, 39 species of reptiles, 7 spp. of frogs and toads and 28 species of Pisces amongst vertebrates, while the invertebrate fauna comprise 11 species of Scolopendrid centipedes, 28 species of butterflies, 16 species of dragonflies, 21 species of termites, 19 species of bugs, 6 species of mayflies, 34 species of crickets and gryllids, 10 species of beetles and 10 species of earwigs. The total faunal diversity should be much more than that of documented in the present paper.

With the greater conservation and protection being provided to the Park and with little disturbances to its ecosystem and wildlife, the faunal diversity is now expected to increase by many folds.

The present paper also deals with the history of formation of the Corbett Tiger Reserve through Hailey's National Park to Ramganga National Park to Corbett National Park, its river system, topography, Physiography, climate and soil, vegetation and faunal diversity including the population status of tiger, elephants, leopard, chital, sambar, hog deer, barking deer, sloth bear, wild boar, goral etc, and the conservation status of the species of Mammals, Birds and Reptiles, categorized as threatened by IUCN 2002) and CAMP (1997).

The efforts have also been made to include a complete bibliography on the faunal elements available from Corbett Tiger Reserve.

ACKNOWLEDGEMENTS

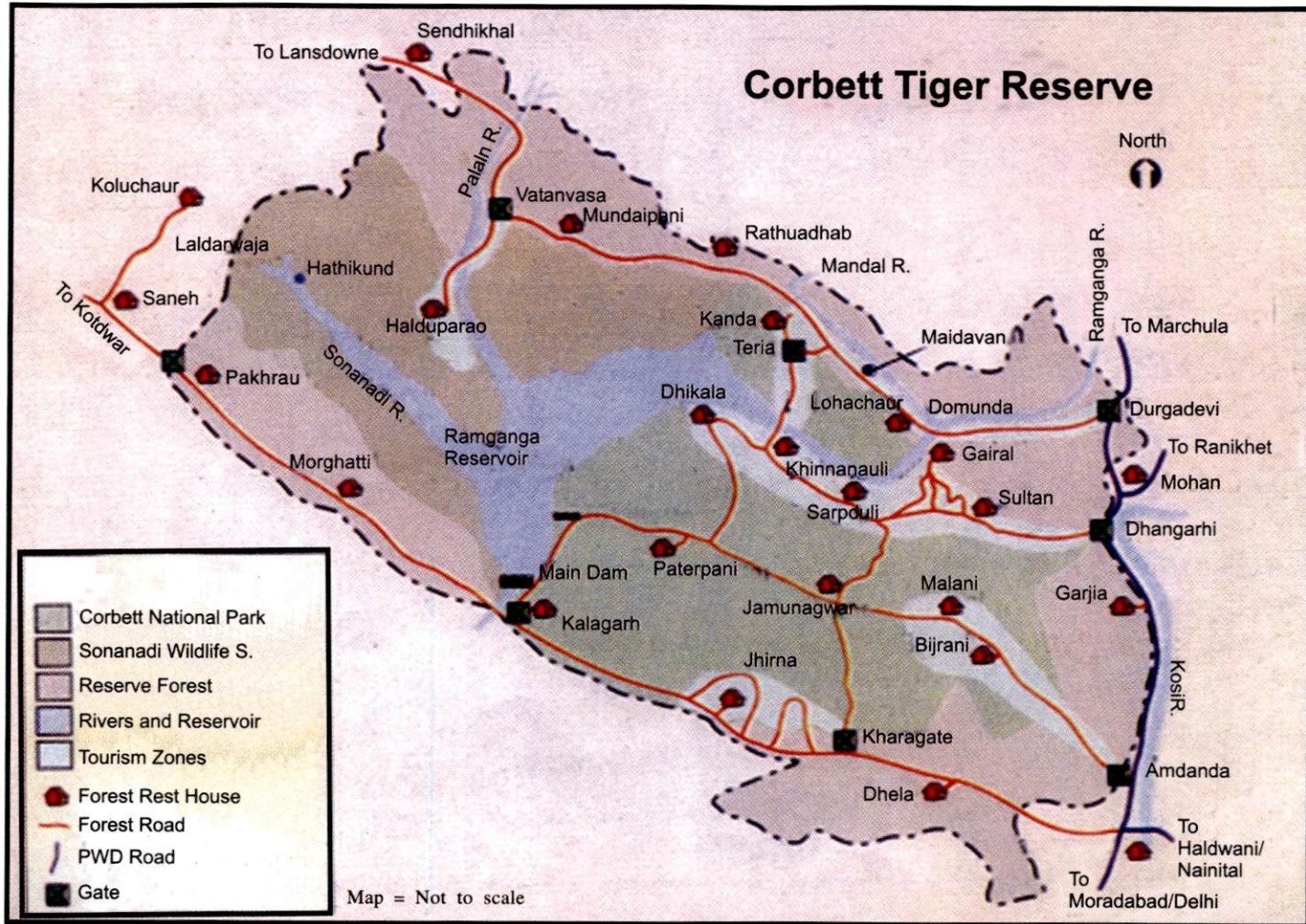
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REFERENCES

- Husain, A. 1976. Fish fauna of Corbett National Park, Uttar Pradesh, *Cheetal*, **17**(2) : 39-42.
- Husain, A. 1979. Fauna of Corbett National Park. Fish. *Cheetal*, **21**(1) : 31-32.
- Husain, A. 1980. Fauna of Corbett National Park. Fish. *Cheetal*, **21**(2-3) : 43.
- Khanna, V. 2000. Fragmentation of Elephant Corridors at Rajaji-Corbett Elephant Reserve - a cause of concern. *Cheetal*, **40**(1& 2) : 20-23.
- Khanna, V., Ravichandran, M.S. and Kushwaha, S.P.S. 2001, Corridor Analysis In Rajaji-Corbett Elephant Reserve. *J. Ind. Soc. Remote Sensing*, **29**(1&2) : 41-46.
- Khati, A.S. 2004. Corbett National Park & Tiger Reserve. Pelecan Creations International : 1-243.
- Kumar, A. and Khanna, V. 2003. Threatened Indian Fauna. *Envis Newsletter, Zoological Survey of India*, **10**(1& 2) : 2-12.
- Kumar, G. and Lamba, B.S. 1980. Studies on the bird migration in Corbett National Park. *Proc. Wksp. Wildlife Ecol.*, ZSI, Dehra Dun : 39-48.
- Lamba, B.S. 1980. *Impact assessment of bioecological changes in the faunal patterns (Selected Groups) brought about by the partial submersion of Corbett National Park, as a result of Ramganga Multipurpose Hydrel Project Dam. Ist Stage.* Department of Environment, Government of India.

- Lamba, B.S. 1987. *Fauna of Corbett National Park, Conservation Area, 2* : 1-86. *Zool. Surv. India, Calcutta*.
- Lamba, B.S. 1980. Ecology of Cheetal (Chital) population at Corbett National Park. *Proc. Wksp. Wildlife Ecol., ZSI, Dehra Dun* : 26-28 (1978).
- Sharma, R. and Tyagi, N. 2004. Inventorisation of Faunal resources of Protected Areas and National Parks of Uttaranchal and Uttar Pradesh. Project Report. Zoological Survey of India, : 1-165.
- Singh, A. and Prasad, M. 1977. Odonata (Insecta) of Corbett National Park (Uttar Pradesh, India). *J. Bombay nat. Hist. Soc., 73* : 419-421.
- Verma, S.C. 1983. Fauna of Corbett National Park. Termite (Insecta : Isoptera). *Cheetal, 21*(2-3) : 45-46.

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Map of Corbett Tiger Reserve, Uttaranchal



Tiger



Elephant



Goral



Sambar



Barking Deer



Spotted Deer



Neelgai



Wild Boar



King and Griffon Vultures on a tiger kill



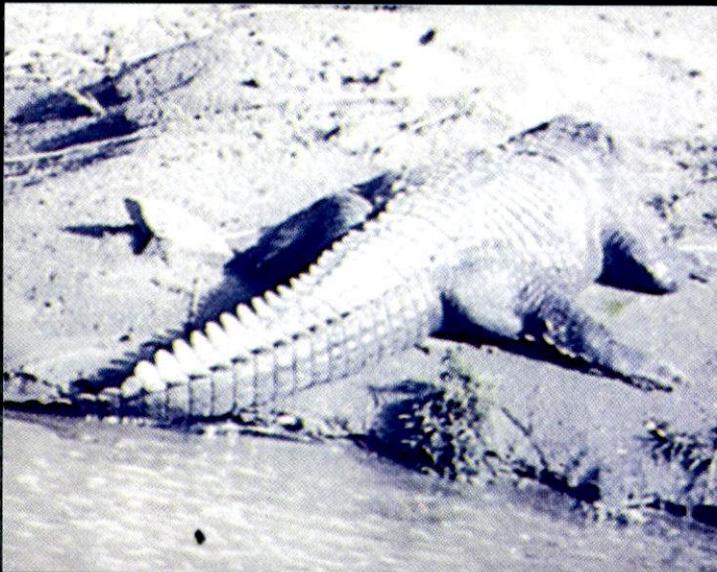
Shrike



Varanus and Banded Krait



Yellow Tortoise



Crocodile



Python molurus



Soil Tortoise



DUDHWA TIGER RESERVE UTTAR PRADESH

INTRODUCTION

Dudhwa Tiger Reserve created in 1987-88 with Dudhwa National Park and Kishanpur Wildlife sanctuary as its core area and covering an area of 884 km² lies in Lakimpur-Kheri and Shahjahanpur district of Uttar Pradesh. Dudhwa National Park is situated on the Indo-Nepal border in Nighasan tehsil of Lakimpur-Kheri district of Uttar Pradesh, within the Terai-Bhabar biogeographic subdivision of the Upper Gangetic plan (7a). It lies between 28°18' and 28°42'N latitude and 80°28' and 80°57'E longitude and covers an area of 680.3 km² (490.3 km² core and 190 km² buffer). River *Suheli* and Mohana forms the natural boundaries of the park with the Himalayan foothills about 30 kms north of the park. A local tribe called "tharus" inhabit the northern part of the park. Kishanpur Wildlife Sanctuary lies in Lakimpur-Kheri and Shahjahanpur district of Uttar Pradesh and covers an area of 230 km² and is situated about 15 kms to the south of Dudhwa National Park.

Dudhwa National park lying in the terai region is a flat and alluvial stretch of land lying between the Himalayan foothill and the gangetic plain and interspersed with numerous rivulets, lakes and pools (Taals) and river Mohana and Suheli. It supports a luxuriant growth of forest and diverse fauna. The high water table (only 3-4 m below the ground) and annual precipitation of 1300-1800 mm greatly influences the characteristic vegetation of the whole region. The most important lakes of the park includes Bankeytaal and Bhaditaal.

The forest type of the area can broadly be characterised as of North Indian Moist Deciduous covering 799.4 km² (90.45%), Northern Tropical Semi-evergreen Forests covering 8.7 km² (0.98%), Tropical Seasonal Swamp Forests covering 4.6 km² (0.52%) and Northern Tropical Dry Deciduous Forests, 71.2 km² (8.05%). About 66% of the reserve is composed of woodland. The natural forest of Dudhwa Tiger Reserve is composed of tropical moist deciduous type, chiefly exhibit the remnants of the great Sub-himalayan "Sal" belt and interspersed with grassland (Pant, 1998). Grassland covers 22% of the total reserve (19% of National Park and 21% of the Sanctuary). Terai grassland are dominated by tall and highly productive grasses with height rising to almost seven mts. In the NP, the grasslands are categorized into two prominent types:(a) Upland areas of Phantasm : Narenga Savannah type and (b) Low lying Phantasm : Wet Savannah. The Sal

(*Shorea robusta*) which dominates the forest here are the finest in the country. The tall wet grasslands interspersed with swamps are the characteristics of the terai. The dominant tree species in the semi-evergreen forests are *Syzygium cuminii*, *Terminalia arjuna*, *Trewia nudifolia*; in the moist deciduous forest, alluvial plains and western light alluvial sal forests, the dominant tree species include *Shorea robusta* with associates like *Mallotus philippinensis*, *Terminalia alata*, *Syzygium cuminii*; and in drier areas *Bombax ceiba*, *Adina cordifolia*, *Acacia catechu* are dominant; *Dalbergia sisso* and *Acacia catechu* are mainly found in the grassland (Maheswaran, 2005).

The underwood comprises of low trees, shrubs and climbers. Among these, *Clerodendrum viscosum* is seen in close association with 'Sal' in the entire tract. Others include *Holarrhena antidysenterica*, *Xeromphis spinosa*, *Moghania macrophylla*, *Ziziphus mauritana*, *Helicteres isora*, etc.

Some of the important grass species growing with the herbaceous growth includes *Eragrostis tenella*, *Eragrostis japonica*, *Imperata cylindrical*, *Hackelochloa granularis*, *Dicanthium annulatum*, *Cynodon dactylon*, *Oplismenus compositus*, *O. burmanis*, *Eulalia leschenaultiana*, *Panicum paludosum*, *Ischemum rugosum*, *Chienanchna koenigii* and *Desmostachya bipinnata* (Pant, 1998).

FAUNAL DIVERSITY

The diverse vegetation and wetland of Dudhwa Tiger Reserve supports diverse fauna and is home to large number of endangered species. The faunal diversity is represented by 47 species of mammals, 418 species of birds, 35 species of reptiles, 6 species of amphibians and 66 species of fishes (Inger and Dutta, 1987; Ray, 1992; De, 2000 and Maheswaran, 2005).

Mammalian diversity

Published information on the mammalian fauna of Dudhwa TR is very rare. A total of 47 species under 39 genera is reported from the reserve (De, 2000 and Maheswaran, 2005). The reserve is home to a potentially viable population of Swamp deer (*Cervus duvaucelii duvaucelii*) and apart from Manas TR in Assam, this is the only place to support five species of deers (out of the seven available in the country)- spotted deer, swamp deer, hog deer, sambar and barking deer. Other major animals of the reserve include tiger (76 Nos as per 2001-02 census), elephants, one horned rhinoceros, nilgai, etc.

The conservation status of the species as per categories is given in figure 1. Classification followed here is of Wilson and Reeder, 1993.

MAMMALS

S. No.	Scientific Name	Common Name	IUCN Conservation status			
			2003	IWPA	RDB	CITES
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Order	INSECTIVORA				
	Family	SORICIDAE				
	Sub Family	CROCIDURINAE				
1.	<i>Suncus murinus</i> (Linnaeus)	House shrew/Musk shrew				
	Order	CHIROPTERA				
	Suborder	MEGACHIROPTERA				
	Family	PTEROPODIDAE				
	Subfamily	PTEROPODINAE				
2.	<i>Cynopterus sphinx</i> (Vahl)	Short-nosed fruit bat				
3.	<i>Pteropus giganteus</i> (Brunnich)	Indian flying fox				
	Suborder	MICROCHIROPTERA				
	Family	VESPERTILIONIDAE				
	Subfamily	KERIVOULINAE				
4.	<i>Kerivoula picta</i> (Pallas)	Painted butterfly bat				
	Subfamily	VESPERTILIONINAE				
5.	<i>Hesperoptenus tickelli</i> (Blyth)	Tickell's bat				
6.	<i>Scotophilus heathi</i> (Horsfield)	Common yellow-bellied bat				
	Subfamily	MURININAE				
7.	<i>Harpiocephalus harpia</i> (Temminck)	Hairy-winged bat				
	Order	PRIMATE				
	Family	CERCOPITHECIDAE				
	Subfamily	CERCOPITHECINAE				
8.	<i>Macaca mulatta</i> (Zimmermann)	Rhesus macaque	LRnt	Sch-II, Part-I	-	II
	Subfamily	COLOBINAE				
9.	<i>Semnopithecus entellus</i> (Dufresne)	Common langur	LRnt	Sch-II, Part-I	-	I
	Order	PHOLIDOTA				
	Family	MANIDAE				
10.	<i>Manis crassicaudata</i> Gray	Indian pangolin	LRnt	Sch-II, VU Part-I		II

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Order	CARNIVORA				
	Family	CANIDAE				
11.	<i>Canis aureus</i> Linnaeus	Asiatic jackal	-	Sch-II, Part-II	-	III
12.	<i>Vulpes bengalensis</i> (Shaw)	Indian fox	DD	Sch-II, Part-II	-	III
	Family	FELIDAE				
	Subfamily	FELINAE				
13.	<i>Felis chaus</i> Schreber	Jungle cat	-	Sch-II, Part-II	-	II
14.	<i>Prionailurus viverrina</i> (Bennett)	Fishing cat	VU	Sch-I, Part-I	VU	-
15.	<i>Prionailurus bengalensis</i> (Kerr)	Leopard cat	-	Sch-I, Part-I	VU	II
	Subfamily	PANTHERINAE				
16.	<i>Panthera pardus</i> (Linnaeus)	Leopard	-	Sch-I, Part-I	EN	I
17.	<i>Panthera tigris</i> (Linnaeus)	Tiger	EN	Sch-I, Part-I	VU	I
	Family	HERPESTIDAE				
	Subfamily	HERPESTINAE				
18.	<i>Herpestes edwardsii</i> (E. Geoffrey Saint-Hilaire)	Indian gray mongoose	-	Sch-II, Part-II	-	III
19.	<i>Herpestes javanicus</i> (E. Geoffrey Saint-Hilaire)	Small Indian mongoose	-	Sch-II, Part-II	-	III
	Family	HYAENIDAE				
20.	<i>Hyaena hyaena</i> (Linnaeus)	Striped hyaena	LRnt	Sch-III	-	-
	Family	MUSTELIDAE				
	Subfamily	LUTRINAE				
21.	<i>Lutrogale perspicillata</i> (I. Geoffroy Saint-Hilaire)	Smooth-coated otter	VU	Sch-II, Part-II	-	II

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Subfamily	MELLIVORINAE				
22.	<i>Mellivora capensis</i> (Schreber)	Ratel, Honey badger	–	Sch-I, IK Part-I	–	–
	Family	URSIDAE				
	Subfamily	URSINAE				
23.	<i>Melursus ursinus</i> (Shaw)	Sloth bear	VU	Sch-I, – Part-I	–	I
	Family	VIVERRIDAE				
	Subfamily	PARADOXURINAE				
24.	<i>Paradoxurus hermaphroditus</i> (Pallas)	Common palm civet, Toddy cat	–	Sch-II, –	–	–
	Subfamily	VIVERRINAE				
25.	<i>Viverricula indica</i> (Desmarest)	Small Indian civet	–	Sch-II, – Part-II	–	III
	Order	PROBOSCIDEA				
	Family	ELEPHANTIDAE				
26.	<i>Elephas maximus indicus</i> G. Cuvier	Asian elephant	EN	Sch-I, VU Part-I	–	I
	Order	PERISSODACTYLA				
	Family	RHINOCEROTIDAE				
27.	<i>Rhinoceros unicornis</i> Linnaeus	Indian one horned Rhinoceros	EN	Sch-I, EN Part-I	–	App-I
	Order	ARTIODACTYLA				
	Family	BOVIDAE				
	Subfamily	ANTILOPINAE				
28.	<i>Antelope cervicapra</i> (Linnaeus)	Blackbuck	VU	Sch-I, VU Part-I	–	–
	Subfamily	BOVINAE				
29.	<i>Boselaphus tragocamelus</i> (Pallas)	Nilgai, Blue bull	LRcd.	Sch-III	–	–
	Family	CERVIDAE				
30.	<i>Axis axis</i> (Erxleben)	Cheetal/Spotted deer				
31.	<i>Axis porcinus</i> (Zimmermann)	Hog deer	–	Sch-III	–	–
32.	<i>Cervus duvaucelii</i> Cuvier	Swamp deer	VU	Sch-I, VU Part-I	–	App-I3
33.	<i>Cervus unicolor</i> Kerr	Sambar	–	Sch-III	–	–

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Subfamily	MUNTIACINAE				
34.	<i>Muntiacus muntjak</i> Pocock	Barking Deer/Munjtac	-	Sch-III	IK	-
	Family	SUIDAE				
	Subfamily	SUINAE				
35.	<i>Sus scrofa</i> Linnaeus	Indian wild boar	-	Sch-III	IK	-
	Order	RODENTIA				
	Suborder	SCIUROGNATHI				
	Family	SCIURIDAE				
	Subfamily	SCIURINAE				
36.	<i>Funambulus palmarum</i> Wroughton	Three-striped palm squirrel				
37.	<i>Funambulus pennantii</i> Wroughton	Five-striped palm squirrel	-	Sch-IV	-	-
	Family	PETAURISTINAE				
38.	<i>Petaurista petaurista</i>	Giant red flying squirrel				
	Family	MURIDAE				
	Subfamily	MURINAE				
39.	<i>Bandicota bengalensis</i> (Gray)	Indian mole rat	-	Sch- V	-	-
40.	<i>Bandicota indica</i> (Hodgson)	Bandicoot rat	-	Sch- V	-	-
41.	<i>Golunda ellioti</i> Gray	Indian bush rat	-	Sch- V	-	-
42.	<i>Mus musculus</i> (Hodgson)	House mouse	-	Sch- V	-	-
43.	<i>Rattus rattus</i> Linnaeus	Common house rat	-	Sch- V	-	-
44.	<i>Vandeleuria oleracea</i> (Bennett)	Long-tailed tree mouse	-	Sch- V	-	-
	Suborder	HYSTRICOGNATHI				
	Family	HYSTRICIDAE				
45.	<i>Hystrix indica</i> Kerr.	Indian Crested porcupine	-	Sch-IV	-	-
	Order	LAGOMORPHA				
	Family	Leporidae				
46.	<i>Lepus nigricollis</i> Cuvier	Indian hare/ Blacknaped hare	-	Sch-IV	-	-
47.	<i>Lepus hispidus</i> (Pearson)	Hispid hare	EN	Sch-I, Part-I	CR	App-I

AVES

Order GALLIFORMES

Family PHASIANIDAE

- | | |
|--|---------------------|
| 1. <i>Coturnix chinensis</i> (Linnaeus) | Blue-breasted Quail |
| 2. <i>Coturnix coromandelica</i> (Gmelin) | Rain Quail |
| 3. <i>Coturnix coturnix</i> (Linnaeus) | Common Quail |
| 4. <i>Francolinus francolinus</i> (Linnaeus) | Black Francolin |
| 5. <i>Francolinus gularis</i> (Temminck) | Swamp Francolin |
| 6. <i>Francolinus pondicerianus</i> (Gmelin) | Grey Francolin |
| 7. <i>Gallus gallus</i> (Linnaeus) | Red Junglefowl |
| 8. <i>Pavo cristatus</i> Linnaeus | Indian Peafowl |

Order ANSERIFORMES

Family Anatidae

- | | |
|--|--|
| 9. <i>Anas acuta</i> Linnaeus | Northern Pintail |
| 10. <i>Anas clypeata</i> Linnaeus | Northern Shoveler |
| 11. <i>Anas crecca</i> Linnaeus | Common Teal |
| 12. <i>Anas falcata</i> Georgi | Falcated Teal |
| 13. <i>Anas penelope</i> Linnaeus | Eurasian Wigeon |
| 14. <i>Anas platyrhynchos</i> Linnaeus | Mallard |
| 15. <i>Anas poecilorhyncha</i> J.R.Forster | Spot-billed Duck |
| 16. <i>Anas querquedula</i> Linnaeus | Garganey/Blue winged Teal |
| 17. <i>Anas strepera</i> Linnaeus | Gadwall |
| 18. <i>Anser anser</i> (Linnaeus) | Greylag Goose |
| 19. <i>Anser indicus</i> (Latham) | Bar-headed Goose |
| 20. <i>Aythya ferina</i> (Linnaeus) | Common Pochard |
| 21. <i>Aythya fuligula</i> (Linnaeus) | Tufted Duck |
| 22. <i>Aythya nyroca</i> (Guldensrtadt) | Ferruginous Pochard/
White-eyed Pochard |
| 23. <i>Marmaronetta angustirostris</i> (Menetries) | Marbled Teal |
| 24. <i>Mergus merganser</i> Linnaeus | Common Merganser/ Goosander |
| 25. <i>Netta rufina</i> (Pallas) | Red-crested Pochard |
| 26. <i>Nettapus coromandelianus</i> (Gmelin) | Cotton Pygmy-Goose/ Cotton Teal |
| 27. <i>Sarkidiornis melanotos</i> (Pennant) | Comb Duck/ Nakta |
| 28. <i>Tadorna ferruginea</i> (Pallas) | Ruddy Shelduck |
| 29. <i>Tadorna tadorna</i> (Linnaeus) | Common Shelduck |

- Family DENDROCYGNIDAE
30. *Dendrocygna javanica* (Horsfield) Lesser Whistling-Duck
- Order TURNICIFORMES
- Family TURNICIDAE
31. *Turnix suscitator* (Gmelin) Common Bustard Quail
- Order PICIFORMES
- Family MEGALAIMIDAE
32. *Megalaima asiatica* Blue-throated Barbet
33. *Megalaima australis* Blue-eared Barbet
34. *Megalaima franklinii* Golden-throated Barbet
35. *Megalaima haemacephala* Coppersmith Barbet
36. *Megalaima zeylanica* Brown-headed Barbet
- Family PICIDAE
37. *Blythipicus pyrrhotis* Bay Woodpecker
38. *Chrysocolaptes lucidus* Greater Flameback
39. *Chrysocolaptes festivus* White-naped Woodpecker
40. *Dendrocopos canicapillus* Grey-capped Woodpecker
41. *Dendrocopos himalayensis* Himalayan Woodpecker
42. *Dendrocopos mahrattensis* Yellow-crowned Woodpecker
43. *Dendrocopos nanus* Brown-capped Woodpecker
44. *Dinopium benghalense* Black-rumped Flameback
45. *Dinopium shorii* Himalayan Flameback
46. *Jynx torquilla* Eurasian Wryneck
47. *Mulleripicus pulverulentus* Great Slaty Woodpecker
48. *Picus chlorolophus* Lesser Yellownape
49. *Picus flavinucha* Greater Yellownape
50. *Picus squamatus* Scaly-bellied Woodpecker
51. *Sasia ochracea* White-browed Piculet
- Order BUCEROTIFORMES
- Family BUCEROTIDAE
52. *Anthracoseros malabaricus* Indian Pied Hornbill
53. *Tockus birostris* Common grey Hornbill
54. *Buceros bicornis* Great Hornbill
- Order UPUPIFORMES
- Family UPUPIDAE
55. *Upupa epops* Eurasian Hoopoe

- | | | |
|---|----------------|---------------------------|
| Order | CORACIIFORMES | |
| Family | ALCEDINIDAE | |
| 56. <i>Alcedo atthis</i> | | Common Kingfisher |
| Family | CERYLIDAE | |
| 57. <i>Ceryle rudis</i> | | Pied Kingfisher |
| 58. <i>Megaceryle lugubris</i> | | Crested Kingfisher |
| Family | CORACIIDAE | |
| 59. <i>Coracias benghalensis</i> | | Indian Roller |
| Family | DACELONIDAE | |
| 60. <i>Halcyon smyrnensis</i> | | White-throated Kingfisher |
| 61. <i>Pelargopsis capensis</i> | | Stork-billed Kingfisher |
| Family | MEROPIDAE | |
| 62. <i>Merops leschenaulti</i> | | Chestnut-headed Bee-eater |
| 63. <i>Merops orientalis</i> | | Little Green Bee-eater |
| 64. <i>Merops persicus</i> | | Blue-cheeked Bee-eater |
| 65. <i>Merops philippinus</i> | | Blue-tailed Bee-eater |
| 66. <i>Nyctyornis athertoni</i> | | Blue-bearded Bee-eater |
| Order | CUCULIFORMES | |
| Family | CENTROPODIDAE | |
| 67. <i>Centropus sinensis</i> | | Greater Coucal |
| Family | CUCULIDAE | |
| 68. <i>Cacomantis passerinus</i> | | Grey-bellied Cuckoo |
| 69. <i>Clamator coromandus</i> | | Chestnut-winged Cuckoo |
| 70. <i>Cuculus canorus</i> | | Common Cuckoo |
| 71. <i>Cuculus micropterus</i> | | Indian Cuckoo |
| 72. <i>Cuculus sparveriioides</i> | | Large Hawk-Cuckoo |
| 73. <i>Cuculus varius</i> | | Common Hawk-Cuckoo |
| 74. <i>Eudynamys scolopacea</i> | | Asian Koel |
| 75. <i>Phaenicophaeus tristis</i> | | Green-billed Malkoha |
| 76. <i>Phaenicophaeus leschenaultii</i> | | Sirkeer Malkoha |
| Order | PSITTACIFORMES | |
| Family | PSITTACIDAE | |
| 77. <i>Loriculus vernalis</i> | | Vernal Hanging-Parrot |
| 78. <i>Psittacula cyanocephala</i> | | Plum-headed Parakeet |
| 79. <i>Psittacula eupatria</i> | | Alexandrine Parakeet |
| 80. <i>Psittacula krameri</i> | | Rose-ringed Parakeet |

Order	APODIFORMES	
Family	APODIDAE	
81. <i>Apus affinis</i>		Little Swift
82. <i>Apus pacificus</i>		Fork-tailed Swift
Family	HEMIPROCNIIDAE	
83. <i>Hemiprocne coronata</i>		Crested Treeswift
Order	STRIGIFORMES	
Family	CAPRIMULGIDAE	
84. <i>Caprimulgus affinis</i>		Savanna Nightjar
85. <i>Caprimulgus asiaticus</i>		Indian Nightjar
86. <i>Caprimulgus indicus</i>		Grey Nightjar
87. <i>Caprimulgus macrurus</i>		Large-tailed Nightjar
Family	STRIGIDAE	
88. <i>Athene brama</i>		Spotted Owlet
89. <i>Bubo bubo</i>		Eurasian Eagle-Owl
90. <i>Bubo coromandus</i>		Dusky Eagle-Owl
91. <i>Bubo nipalensis</i>		Spot-bellied Eagle-Owl
92. <i>Glaucidium cuculoides</i>		Asian Barred Owlet
93. <i>Glaucidium radiatum</i>		Jungle Owlet
94. <i>Strix aluco</i>		Tawny Owl
95. <i>Strix leptogrammica</i>		Brown Wood-Owl
Family	TYTONIDAE	
96. <i>Tyto alba</i>		Barn Owl
Order	Columbiformes	
Family	Columbidae	
97. <i>Chalcophaps indica</i>		Emerald Dove
98. <i>Columba livia</i>		Rock Pigeon
99. <i>Streptopelia chinensis</i>		Spotted Dove
100. <i>Streptopelia decaocto</i>		Eurasian Collared-Dove
101. <i>Streptopelia orientalis</i>		Oriental Turtle-Dove
102. <i>Streptopelia senegalensis</i>		Laughing Dove
103. <i>Streptopelia tranquebarica</i>		Red Collared-Dove
104. <i>Treron apicauda</i>		Pin-tailed Green-Pigeon
105. <i>Treron bicincta</i>		Orange-breasted Green-Pigeon
106. <i>Treron curvirostra</i>		Thick-billed Green-Pigeon
107. <i>Treron pompadora</i>		Pompadour Green-Pigeon

- Order GRUIFORMES
Family GRUIDAE
108. *Grus antigone* (Linnaeus) Sarus Crane
Family OTIDIDAE
109. *Eupodotis bengalensis* (Gmelin) Bengal Florican
110. *Eupodotis indica* (J.F. Miller) Lesser Florican
Family RALLIDAE
111. *Amaurornis akool* (Sykes) Brown Crane
112. *Amaurornis bicolor* Black-tailed Crane
113. *Amaurornis phoenicurus* (Pennant) White-breasted Waterhen
114. *Fulica atra* Linnaeus Common Coot
115. *Gallicrex cinerea* (Gmelin) Watercock
116. *Gallinula chloropus* (Linnaeus) Common Moorhen
117. *Porphyrio porphyrio* (Linnaeus) Purple Swamphen
118. *Porzana fusca* Ruddy-breasted Crane
119. *Porzana pusilla* (Pallas) Baillon's Crane
120. *Rallina eurizonoides* (Lafresnaye) Slaty-legged Crane
121. *Rallus aquaticus* Water Rail
122. *Rallus striatus* Linnaeus Indian bluebreasted Banded Rail
- Order CICONIIFORMES
Family ACCIPITRIDAE
123. *Accipiter badius* (Badius) Shikra
124. *Accipiter gentiles* Northern Goshawk
125. *Accipiter nisus* (Linnaeus) Sparrowhawk
126. *Accipiter trivirgatus* (Temminck) Crested Goshawk
127. *Accipiter virgatus* (Temminck) Besra Sparrowhawk
128. *Aquila clanga* Pallas Greater Spotted Eagle
129. *Aquila pomarina* C.L. Brehm Lesser Spotted Eagle
130. *Aquila vindhiana* Franklin Tawny Eagle
131. *Aviceda leuphotes* (Dumont) Black Baza/ Indian blackcrested baza
132. *Butastur teesa* (Franklin) White-eyed Buzzard
133. *Circus aeruginosus* (Linnaeus) Western Marsh Harrier
134. *Circus cyaneus* Northern Harrier
135. *Circus melanoleucos* (Pennant) Pied Harrier
136. *Circaetus gallicus* (Gmelin) Short-toed Eagle
137. *Elanus caeruleus* (Desfontaines) Black-winged Kite

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| 138. <i>Gyps bengalensis</i> (Gmelin) | White-rumped Vulture/
Bengal Vulture |
| 139. <i>Gyps fulvus</i> (Hablizl) | Eurasian Griffon/
Indian Griffon Vulture |
| 140. <i>Gyps indicus</i> (Scopoli) | Long-billed Vulture |
| 141. <i>Haliaeetus leucoryphus</i> (Pallas) | Pallas's Sea-Eagle |
| 142. <i>Haliaastur Indus</i> (Boddaert) | Brahminy Kite |
| 143. <i>Hieraaetus fasciatus</i> (Vieillot) | Bonelli's Hawk Eagle |
| 144. <i>Hieraaetus pennatus</i> (Gmelin) | Booted Eagle |
| 145. <i>Ichthyophaga ichthyaetus</i> (Horsfield) | Grey-headed Fish-Eagle |
| 146. <i>Ictinaetus malayensis</i> (Temminck) | Black Eagle |
| 147. <i>Milvus migrans</i> (Boddaert) | Black Kite/ Common Pariah kite |
| 148. <i>Neophron percnopterus</i> (Linnaeus) | Egyptian Vulture/
white Scavenger Vulture |
| 149. <i>Pandion haliaetus</i> (Linnaeus) | Osprey |
| 150. <i>Pernis ptilorhyncus</i> (Temminck) | Oriental Honey-buzzard |
| 151. <i>Sarcogyps calvus</i> (Scopoli) | Red-headed Vulture/King Vulture |
| 152. <i>Spilornis cheela</i> (Latham) | Crested Serpent-Eagle |
| 153. <i>Spizaetus cirrhatus</i> (Gmelin) | Changeable Hawk-Eagle |
| 154. <i>Spizaetus nipalensis</i> (Hodgson) | Mountain Hawk-Eagle/
Hodgson Hawk Eagle |
| Family ANHINGIDAE | |
| 155. <i>Anhinga rufa</i> (Daudin) | Oriental Darter |
| Family ARDEIDAE | |
| 156. <i>Ardea cinerea</i> Linnaeus | Grey Heron |
| 157. <i>Ardea purpurea</i> Linnaeus | Purple Heron |
| 158. <i>Ardeola grayii</i> (Sykes) | Indian Pond-Heron |
| 159. <i>Butorides striatus</i> (Linnaeus) | Little green heron |
| 160. <i>Bubulcus ibis</i> (Linnaeus) | Cattle Egret |
| 161. <i>Ardea alba</i> Linnaeus | Large Egret |
| 162. <i>Egretta garzetta</i> (Linnaeus) | Little Egret |
| 163. <i>Ixobrychus cinnamomeus</i> (Gmelin) | Cinnamon Bittern/ Chestnut bittern |
| 164. <i>Ixobrychus minutus</i> (Linnaeus) | Little Bittern |
| 165. <i>Ixobrychus sinensis</i> (Gmelin) | Yellow Bittern |
| 166. <i>Egretta intermedia</i> (Wagler) | Median Egret |
| 167. <i>Nycticorax nycticorax</i> Linnaeus | Black-crowned Night-Heron |
| 168. <i>Nycticorax falcicollis</i> (Latham) | Black bittern |

Family BURHINIDAE

169. *Burhinus oedicnemus* Eurasian Thick-knee

Family CHARADRIIDAE

170. *Charadrius alexandrinus* (Linnaeus) Kentish Plover
 171. *Charadrius dubius* Scopoli Little Ringed Plover
 172. *Charadrius placidus* Long-billed Plover
 173. *Pluvialis dominica* P.L.S.Muller Golden Plover
 174. *Himantopus himantopus* (Linnaeus) Black-winged Stilt
 175. *Ibidorhyncha struthersii* Ibisbill
 176. *Recurvirostra avosetta* Linnaeus Avocet
 177. *Vanellus indicus* (Boddaert) Red-wattled Lapwing
 178. *Vanellus leucurus* (Lichtenstein) White-tailed Lapwing
 179. *Vanellus malabaricus* (Boddaert) Yellow-wattled Lapwing
 180. *Vanellus spinosus* (Linnaeus) Spur winged Plover
 181. *Vanellus vanellus* Northern Lapwing

Family Ciconiidae

182. *Anastomus oscitans* (Boddaert) Asian Openbill
 183. *Ciconia ciconia* (Linnaeus) White Stork
 184. *Ciconia episcopus* (Boddaert) Woolly-necked Stork
 185. *Ciconia nigra* (Linnaeus) Black Stork
 186. *Ephippiorhynchus asiaticus* (Latham) Black-necked Stork
 187. *Leptoptilos dubius* (Gmelin) Greater Adjutant
 188. *Leptoptilos javanicus* (Horsfield) Lesser Adjutant
 189. *Mycteria leucocephala* (Pennant) Painted Stork

Family FALCONIDAE

190. *Falco chicquera* Daudin Red-necked Falcon
 191. *Falco columbarius* Merlin
 192. *Falcobiaricus jugger* Gray Laggar Falcon
 193. *Falco naumanni* Lesser Kestrel
 194. *Falco peregrinus* Tunstall Peregrine Falcon
 195. *Falco peregrinus peregrinator* Sundevall Shahin Falcon
 196. *Falco severus* Horsfield Oriental Hobby
 197. *Falco subbuteo* Linnaeus Eurasian Hobby
 198. *Falco tinnunculus* Linnaeus Common Kestrel
 199. *Falco vespertinus* Linnaeus Redlegged Falcon

Family	GLAREOLIDAE	
200.	<i>Cursorius coromandelicus</i>	Indian Courser
Family	JACANIDAE	
201.	<i>Hydrophasianus chirurgus</i> (Scopoli)	Pheasant-tailed Jacana
202.	<i>Metopidius indicus</i> (Latham)	Bronze-winged Jacana
Family	Laridae	
203.	<i>Larus brunnicephalus</i>	Brown-headed Gull
204.	<i>Larus ichthyaetus</i>	Great Black-headed Gull
205.	<i>Larus ridibundus</i>	Common Black-headed Gull
206.	<i>Sterna acuticauda</i>	Black-bellied Tern
207.	<i>Sterna albifrons</i>	Little Tern
208.	<i>Sterna aurantia</i>	River Tern
209.	<i>Sterna hirundo</i>	Common Tern
Family	PHALACROCORACIDAE	
210.	<i>Phalacrocorax carbo</i>	Great Cormorant
211.	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant
212.	<i>Phalacrocorax niger</i>	Little Cormorant
Family	PODICIPEDIDAE	
213.	<i>Podiceps cristatus</i>	Great Crested Grebe
214.	<i>Tachybaptus ruficollis</i>	Little Grebe
Family	PTEROCLIDAE	
215.	<i>Pterocles exustus</i>	Chestnut-bellied Sandgrouse
Family	ROSTRATULIDAE	
216.	<i>Rostratula benghalensis</i>	Greater Painted-snipe
Family	SCOLOPACIDAE	
217.	<i>Calidris minuta</i>	Little Stint
218.	<i>Calidris subminuta</i>	Long-toed Stint
219.	<i>Gallinago gallinago</i>	Common Snipe
220.	<i>Gallinago nemoricola</i>	Wood Snipe
221.	<i>Limosa lapponica</i>	Bar-tailed Godwit
222.	<i>Limosa limosa</i>	Black-tailed Godwit
223.	<i>Numenius arquata</i>	Eurasian Curlew
224.	<i>Philomachus pugnax</i>	Ruff
225.	<i>Scolopax rusticola</i>	Eurasian Woodcock
226.	<i>Tringa erythropus</i>	Spotted Redshank

227. *Tringa glareola* Wood Sandpiper
 228. *Tringa hypoleucos* Common Sandpiper
 229. *Tringa nebularia* Common Greenshank
 230. *Tringa ochropus* Green Sandpiper
 231. *Tringa stagnatilis* Marsh Sandpiper
 232. *Tringa totanus* Common Redshank
- Family THRESKIORNITHIDAE
233. *Platalea leucorodia* Linnaeus Eurasian Spoonbill
 234. *Pseudibis papillosa* (Temminck) Red-naped Ibis
 235. *Threskiornis aethiopica* (Latham) Black-headed Ibis/ White Ibis
- Order PASSERIFORMES
- Family ALAUDIDAE
236. *Alauda arvensis* Eurasian Skylark
 237. *Alauda gulgula* Oriental Skylark
 238. *Eremopterix grisea* Ashy-crowned Sparrow-Lark
 239. *Galerida cristata* Crested Lark
 240. *Mirafra assamica* Rufous-winged Lark
 241. *Mirafra javanica* Horsfield Singing Lark
 242. *Mirafra erythroptera* Indian Lark
- Family CERTHIIDAE
243. *Certhia familiaris* Eurasian Tree-creeper
 244. *Certhia himalayana* Bar-tailed Tree-creeper
 245. *Certhia nipalensis* Rusty-flanked Tree-creeper
- Family CISTICOLIDAE
246. *Cisticola exilis* Golden-headed Cisticola
 247. *Cisticola juncidis* Zitting Cisticola
 248. *Prinia atrogularis* Hill Prinia
 249. *Prinia cinereocapilla* Grey-crowned Prinia
 250. *Prinia criniger* Striated Prinia
 251. *Prinia flaviventris* Yellow-bellied Prinia
 252. *Prinia gracilis* Graceful Prinia
 253. *Prinia hodgsonii* Grey-breasted Prinia
 254. *Prinia subflava* (Gmelin) Plain Prinia
 255. *Prinia rufescens* Rufescent Prinia
 256. *Prinia socialis* Ashy Prinia
 257. *Prinia sylvatica* Jungle Prinia

Family CORVIDAE

258. <i>Aegithina tiphia</i>	Common Iora
259. <i>Coracina macei</i>	Large Cuckoo-shrike
260. <i>Coracina melanoptera</i>	Black-headed Cuckoo-shrike
261. <i>Corvus macrorhynchos</i>	Large-billed Crow
262. <i>Corvus splendens</i>	House Crow
263. <i>Dendrocitta vagabunda</i>	Rufous Treepie
264. <i>Dicrurus caerulescens</i>	White-bellied Drongo
265. <i>Dicrurus hottentottus</i>	Hair-crested Drongo
266. <i>Dicrurus leucophaeus</i>	Ashy Drongo
267. <i>Dicrurus macrocercus</i>	Black Drongo
268. <i>Dicrurus paradiseus</i>	Greater Racket-tailed Drongo
269. <i>Dicrurus remifer</i>	Lesser Racket-tailed Drongo
270. <i>Hemipus picatus</i>	Bar-winged Flycatcher-shrike
271. <i>Hypothymis azurea</i>	Black-naped Monarch
272. <i>Oriolus chinensis</i>	Black-naped Oriole
273. <i>Oriolus oriolus</i>	Eurasian Golden-Oriole
274. <i>Oriolus xanthornus</i>	Black-hooded Oriole
275. <i>Pericrocotus cinnamomeus</i>	Small Minivet
276. <i>Pericrocotus flammeus</i>	Scarlet Minivet
277. <i>Pericrocotus roseus</i>	Rosy Minivet
278. <i>Pericrocotus solaris</i>	Grey-chinned Minivet
279. <i>Pyrrhocorax graculus</i>	Yellow-billed Chough
280. <i>Pyrrhocorax pyrrhocorax</i>	Red-billed Chough
281. <i>Rhipidura albicollis</i>	White-throated Fantail
282. <i>Rhipidura aureola</i>	White-browed Fantail
283. <i>Rhipidura hypoxantha</i>	Yellow-bellied Fantail
284. <i>Tephrodornis gularis</i>	Large Woodshrike
285. <i>Tephrodornis pondicerianus</i>	Common Woodshrike
286. <i>Terpsiphone paradisi</i>	Asian Paradise-Flycatcher

Family FRINGILLIDAE

287. <i>Carpodacus erythrinus</i>	Common Rosefinch
288. <i>Carpodacus puniceus</i>	Red-fronted Rosefinch
289. <i>Carpodacus rodopeplus</i>	Spot-winged Rosefinch
290. <i>Carpodacus thura</i>	White-browed Rosefinch
291. <i>Emberiza aureola</i>	Yellow-breasted Bunting

292. *Emberiza bruniceps* Red-headed Bunting
 293. *Emberiza melanocephala* Black-headed Bunting
 294. *Emberiza rutila* Chestnut Bunting
 295. *Emberiza stewarti* Chestnut-breasted Bunting
 296. *Haematospiza sipahi* Scarlet Finch
 297. *Melophus lathamii* Crested Bunting
 298. *Serinus pusillus* Fire-fronted Serin
- Family HIRUNDINIDAE
299. *Delichon nipalensis* Nepal House-Martin
 300. *Delichon urbica* Northern House-Martin
 301. *Hirundo daurica* Red-rumped Swallow
 302. *Hirundo rustica* Barn Swallow
 303. *Hirundo smithii* Wire-tailed Swallow
 304. *Riparia paludicola* Plain Martin
 305. *Riparia riparia* Sand Martin
- Family IRENIDAE
306. *Chloropsis aurifrons* Golden-fronted Leafbird
 307. *Chloropsis hardwickii* Orange-bellied Leafbird
 308. *Irena puella* Asian Fairy-bluebird
- Family LANIIDAE
309. *Lanius excubitor* Northern Shrike
 310. *Lanius schach* Long-tailed Shrike
 311. *Lanius vittatus* Bay-backed Shrike
- Family MUSCICAPIDAE
312. *Brachypteryx montana* White-browed Shortwing
 313. *Copsychus malabaricus* White-rumped Shama
 314. *Copsychus saularis* Oriental Magpie-Robin
 315. *Cercomela fusca* Indian Chat
 316. *Luscinia brunnea* Indian Blue Robin
 317. *Luscinia calliope* Siberian Rubythroat
 318. *Luscinia pectoralis* White-tailed Rubythroat
 319. *Luscinia svecica* Bluethroat
 320. *Monticola cinclorhynchus* Blue-capped Rock-Thrush
 321. *Monticola rufiventris* Chestnut-bellied Rock-Thrush
 322. *Monticola solitarius* Blue Rock-Thrush
 323. *Myiophonus caeruleus* Blue Whistling-Thrush

324. <i>Phoenicurus frontalis</i>	Blue-fronted Redstart
325. <i>Phoenicurus hodgsoni</i>	Hodgson's Redstart
326. <i>Phoenicurus ochruros</i>	Black Redstart
327. <i>Phoenicurus schisticeps</i>	White-throated Redstart
328. <i>Saxicola caprata</i>	Pied Bushchat
329. <i>Saxicola ferrea</i>	Grey Bushchat
330. <i>Saxicola leucura</i>	White-tailed Stonechat
331. <i>Saxicoloides fulicata</i>	Indian Robin
332. <i>Tarsiger chrysaeus</i>	Golden Bush-Robin
333. <i>Tarsiger indicus</i>	White-browed Bush-Robin
334. <i>Turdus boulboul</i>	Grey-winged Blackbird
335. <i>Turdus merula</i>	Eurasian Blackbird
336. <i>Turdus rubrocanus</i>	Chestnut Thrush
337. <i>Turdus ruficollis</i>	Dark-throated Thrush
338. <i>Zoothera citrina</i>	Orange-headed Thrush
339. <i>Zoothera wardii</i>	Pied Thrush
Family NECTARINIIDAE	
340. <i>Aethopyga siparaja</i>	Crimson Sunbird
341. <i>Dicaeum chrysorrheum</i>	Yellow-vented Flowerpecker
342. <i>Dicaeum erythrorhynchos</i>	Pale-billed Flowerpecker
343. <i>Nectarinia asiatica</i>	Purple Sunbird
Family PARIDAE	
344. <i>Cephalopyrus flamminiceps</i>	Fire-capped Tit
345. <i>Parus major</i>	Great Tit
346. <i>Parus xanthogenys</i>	Black-lored Tit
Family PASSERIDAE	
347. <i>Amandava amandava</i>	Red munia or Avadavat
348. <i>Anthus campestris</i>	Tawny Pipit
349. <i>Anthus hodgsoni</i>	Olive-backed Pipit
350. <i>Anthus rufulus</i>	Paddyfield Pipit
351. <i>Anthus sylvanus</i>	Upland Pipit
352. <i>Anthus trivialis</i>	Tree Pipit
353. <i>Lonchura malacca</i>	Black-headed Munia
354. <i>Lonchura punctulata</i>	Scaly-breasted Munia
355. <i>Lonchura striata</i>	White-rumped Munia
356. <i>Motacilla alba</i>	White Wagtail

357. *Motacilla cinerea* Grey Wagtail
 358. *Motacilla citreola* Yellow-hooded Wagtail
 359. *Motacilla flava* Yellow Wagtail
 360. *Motacilla madaraspatensis* White-browed Wagtail
 361. *Passer domesticus* House Sparrow
 362. *Passer montanus* Eurasian Tree Sparrow
 363. *Petronia xanthocollis* Chestnut-shouldered Petronia
 364. *Ploceus benghalensis* Black-breasted Weaver
 365. *Ploceus manyar* Streaked Weaver
 366. *Ploceus philippinus* Baya Weaver
- Family PITTIDAE
367. *Pitta brachyura* Indian Pitta
- Family PYCNONOTIDAE
368. *Hypsipetes leucocephalus* Black Bulbul
 369. *Pycnonotus cafer* Red-vented Bulbul
 370. *Pycnonotus jocosus* Red-whiskered Bulbul
 371. *Pycnonotus leucogenys* Himalayan Bulbul
 372. *Pycnonotus melanicterus* Black-crested Bulbul
- Family SITTIDAE
373. *Sitta cashmirensis* Kashmir Nuthatch
 374. *Sitta castanea* Chestnut-bellied Nuthatch
 375. *Sitta frontalis* Velvet-fronted Nuthatch
- Family STURNIDAE
376. *Acridotheres fuscus* Jungle Myna
 377. *Acridotheres ginginianus* Bank Myna
 378. *Acridotheres tristis* Common Myna
 379. *Sturnus contra* Asian Pied Starling
 380. *Sturnus malabaricus* Chestnut-tailed Starling
 381. *Sturnus pagodarum* Brahminy Starling
- Family SYLVIIDAE
382. *Abroscopus superciliaris* Yellow-bellied Warbler
 383. *Acrocephalus agricola* Paddyfield Warbler
 384. *Acrocephalus stentoreus* Clamorous Reed-Warbler
 385. *Bradypterus thoracicus* Spotted Bush-Warbler
 386. *Cettia brunnifrons* Grey-sided Bush-Warbler

387. *Cettia major*
 388. *Chrysomma sinense*
 389. *Dumetia hyperythra*
 390. *Gampsorhynchus rufulus*
 391. *Garrulax albogularis*
 392. *Garrulax erythrocephalus*
 393. *Garrulax leucolophus*
 394. *Garrulax monileger*
 395. *Garrulax pectoralis*
 396. *Graminicola bengalensis*
 397. *Locustella certhiola*
 398. *Locustella lanceolata*
 399. *Megalurus palustris*
 400. *Orthotomus sutorius*
 401. *Pellorneum ruficeps*
 402. *Phylloscopus affinis*
 403. *Phylloscopus collybita*
 404. *Phylloscopus fuscatus*
 405. *Phylloscopus fuligiventer*
 406. *Phylloscopus inornatus*
 407. *Phylloscopus occipitalis*
 408. *Phylloscopus pulcher*
 409. *Phylloscopus trochiloides*
 410. *Pomatorhinus horsfieldii*
 411. *Tesia cyaniventer*
 412. *Timalia pileata*
 413. *Turdoides earlei*
 414. *Turdoides striatus*
 415. *Yuhina flavicollis*
 416. *Yuhina occipitalis*
 417. *Yuhina zantholeuca*
 Chestnut-crowned Bush- Warbler
 Yellow-eyed Babbler
 Tawny-bellied Babbler
 White-hooded Babbler
 White-throated Laughingthrush
 Chestnut-crowned Laughingthrush
 White-crested Laughingthrush
 Lesser Necklaced Laughingthrush
 Greater Necklaced Laughingthrush
 Rufous-rumped Grassbird
 Pallas's Warbler
 Lanceolated Warbler
 Striated Grassbird
 Common Tailorbird
 Puff-throated Babbler
 Tickell's Leaf-Warbler
 Common Chiffchaff
 Dusky Warbler
 Smoky Warbler
 Inornate Warbler
 Western Crowned-Warbler
 Buff-barred Warbler
 Greenish Warbler
 Indian Scimitar-Babbler
 Grey-bellied Tesia
 Chestnut-capped Babbler
 Striated Babbler
 Jungle Babbler
 Whiskered Yuhina
 Rufous-vented Yuhina
 White-bellied Yuhina

Family ZOSTEROPIDAE

418. *Zosterops palpebrosus*

Oriental White-eye

REPTILIA

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|---|------------------------------------|
| 1. <i>Geoclemys hamiltonii</i> | Spotted Pond turtle |
| 2. <i>Pangshura dhongoka</i> | Three striped roof turtle |
| 3. <i>Pangshura kachuga</i> | Red crowned roofed turtle |
| 4. <i>Pangshura tectum</i> | Indian roofed turtle |
| 5. <i>Pangshura tentoria circumdata</i> | Indian tent turtle |
| 6. <i>Melanochelys tricarinata</i> | Three keeled turtle |
| 7. <i>Morenia petersii</i> | Indian eyed turtle |
| 8. <i>Pangshura smithii</i> | |
| 9. <i>Hardella thurgi</i> | Brown river turtle |
| 10. <i>Melanochelys trijuga</i> | Brahminy river turtle |
| 11. <i>Cyclemys dentate</i> | Travancore vegetable-eating turtle |
| 12. <i>Indotestudo elongate</i> | Elongated tortoise |
| 13. <i>Lissemys punctata andersonii</i> | Indian Flap-shelled turtle |
| 14. <i>Aspideretes gangeticus</i> | Indian softshell turtle |
| 15. <i>Aspideretes hurum</i> | Indian peacock softshell turtle |
| 16. <i>Chitra indica</i> | |
| 17. <i>Varanus bengalensis</i> | Monitor lizard |
| 18. <i>Calotes versicolor</i> | Garden lizard |
| 19. <i>Hemidactylus brookii</i> | Gecko |
| 20. <i>Hemidactylus flaviviridis</i> | Common House lizard |
| 21. <i>Mabuya carinata</i> | Sanpki mausi or skink |
| 22. <i>Python morulus</i> | Indian Rock Python |
| 23. <i>Ptyas mucosus</i> | Rat snake or Dhamin |
| 24. <i>Naja naja</i> | Indian Cobra |
| 25. <i>Daboia russelli</i> | Russel's viper or pitless viper |
| 26. <i>Ancistrodon Himalayans</i> | Himalayan Pit viper |
| 27. <i>Bungarus caeruleus</i> | Common krait |
| 28. <i>Bungarus fasciatus</i> | Banded krait |
| 29. <i>Enhydris enhydris</i> | Fresh water snake |
| 30. <i>Typhlops vermicularis</i> | Blind snake |
| 31. <i>Dendrophis dendrophis</i> | Tree snake |
| 32. <i>Eryx johnii</i> | Double headed snake |
| 33. <i>Xenochrophis piscator</i> | water snake |
| 34. <i>Crocodylus palustris</i> | Crocodile or Mugger |
| 35. <i>Gavialis gangeticus</i> | Gharial |

AMPHIBIA

Order ANURA

Family RANIDAE

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|------------------------------------|------------------|
| 1. <i>Hoplobatrachus tigerinus</i> | Indian bull frog |
| 2. <i>Rana tyleri</i> | Leaping frog |
| 3. <i>Rhacophorus taeniatus</i> | Flying frog |
| 4. <i>Kaloula taprobanica</i> | |

Family BUFONIDAE

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| 5. <i>Duttaphrynus melanostictus</i> | Common toad |
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Family HYLIDAE

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| 6. <i>Chirixalus dudhwaensis</i> | |
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PISCES

Class OSTEICHTHYES

Order CYPRINIFORMES

Family CYRINIDAE

1. *Barilius barila* (Ham.)
2. *Barilius barna* (Ham.)
3. *Barilius bendelisis* (Ham)
4. *Barilius shacra* (Ham)
5. *Barilius. vagra* (Ham.)
6. *Salmostoma bacaila* (Ham.)
7. *Danio aequipinnatus* (McClelland)
8. *Danio dangila* (Ham.)
9. *Danio.devario* (Ham.)
10. *Danio rerio* (Ham.)
11. *Esomus danricus* Ham.
12. *Rasbora caverii* (Jerdon)
13. *Neolissocheilus hexagonolepis* (McClelland)
14. *Tor putitora* (Ham)
15. *Chagunius chagunio* (Ham.)
16. *Puntius chola* (Ham.)
17. *Puntius conchonius* (Ham)
18. *Puntius filamentosus* (Valenciennes)

19. *Puntius sarana* (Ham.)
20. *Puntius sophore* (Ham.)
21. *Puntius ticto* (Ham.)
22. *Cyprinion semiplotus* (McClelland)
23. *Catla catla* (Ham.)
24. *Cirrihinus reba* (Ham.)
25. *Cirrihinus mrigala* (Ham.)
26. *Labeo boga* (Ham.)
27. *Labeo dero* (Ham.)
28. *Labeo rohita* (Ham.)
29. *Labeo boggut* (Sykes)
30. *Labeo calbasu* (Ham.)
31. *Crossocheilus latius latius* (Ham.)
32. *Garra gotyla* (Gray)
33. *Garra mullya* (Sykes)
34. *Psilorhynchus balitora* (Ham.)
35. *Psilorhynchus sucatio* (Ham)

Family COBITIDAE

36. *Botia dayi* (Hora)
37. *Botia dario* (Ham.)

Family BALITORIDAE

38. *Acanthocobitis* (Ham.)

Order SILURIFORMES

Family BAGRIDAE

39. *Mystus bleekeri* (Dey)
40. *Sperata aor* (Ham.)
41. *Mystus cavasius* (Ham.)
42. *Sperata seenghala* (Sykes)

Family SISORIDAE

43. *Wallago attu* (Schneider)

Family CLARIIDAE

44. *Clarias batrachus* (Linn.)

- Family HETEROPNEUSTIDAE
45. *Heteropneustes fossilis* (Bloch)
Family OLYRIDAE
46. *Olyra longicaudata* McCl.
Order ATHERINIFORMES
Family BELONIDAE
47. *Xenentodon cancila* (Ham.)
Family CYPRINODONTIDAE
48. *Aplocheilus panchax* (Ham.)
Order CHANNIFORMES
Family CHANNIDAE
49. *Channa marulius* (Ham.)
50. *Channa orientalis* (Schneider)
51. *Channa punctatus* (Bloch)
52. *Channa striatus* (Bloch)
Order SYNBRANCHIFORMES
Family SYNBRANCHIDAE
53. *Monopterusuchia* (Ham.)
Family MASTACEMBELIDAE
54. *Macrogathus aculeatus* (Bloch)
55. *Mastacembelus armatus* (Lacepede)
56. *Macrogathus pancalus* (Ham.)
Order PERCIFORMES
Family AMBASSIDAE
57. *Chanda nama* (Ham.)
58. *Parambassis ranga* (Ham.)
Family NANDIDAE
59. *Nandus nandus* (Ham.)
60. *Badis badis* (Ranga)
Family ANABANTIDAE
61. *Anabas testudineus* (Bloch)
Family OSPHRONEMIDAE
62. *Colisa lalia* (Ham.)
63. *Polyacanthus fasciatus* (Schneider)
64. *Polyacanthus sota* (Ham.)

THREAT

Siltation : The north and northwest of the park lies near the Nepalese districts of Kailali and Kanchanpur and its border in Nepal has been cleared of forest. Flood carries enormous amount of silt resulting a decline in grassland and wetland habitats. The grassland along the Suheli river are threatened by the increased silt load that the river and its tributaries now carry. The increased silt has affected large parts of the woodlands in Kiratpur block causing the Sal to dry and be replaced by Jamun

Weed infestation : Weeds like *Cymbopogon martini* and *Parthenium. Lantana* has invaded large portions of the southern buffer and has been seen in small patches in the park.

NTFP collection : There are 101 and 24 villages within the 5 km wide zone of influence of both the park and the sanctuary. These people collect forest products threatening the Tiger Reserve.

Grazing pressure : It is estimated that more than 40,000 cattle alone graze in the buffer zone, apart from other livestock.

Tree felling : Illegal extraction of trees by ever increasing human pressure from fringe villagers and across the border has threatened the Tiger Reserve.

Poaching : Incidence of poaching of larger mammals is less. However, a constant increase in demand for fish has led to an increase in fishing activity in the Suheli, Nakaua and Sharda rivers in the PA limits.

Crop raiding : This is an important problem here from elephants and other animals. Killing of human and cattle lifting by tiger is a major problem in this reserve.

Encroachment : A total of 578.4537 ha is under encroachment.

Train line : The train line passing through the buffer zone of the reserve often resulted in death of wild animal including elephants.

REFERENCES

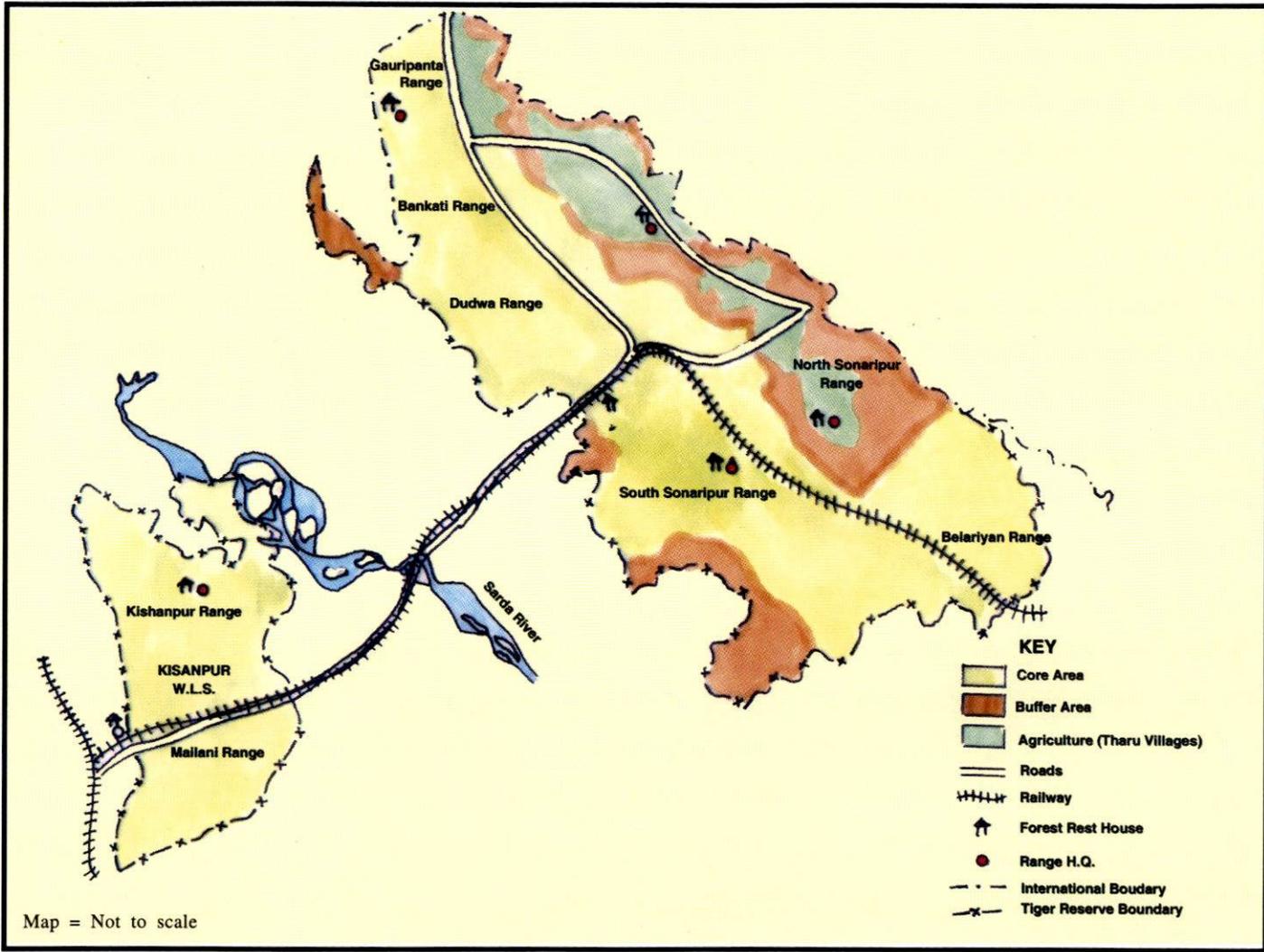
- De, Rupak. 2000. *Management plan of Dudhwa Tiger Reserve 2000-01 to 2009-10*.
- Gupta, P.D. 2000. A visit to dudhwa National Park. *The Twilight*, Vol. 1(5) : 19-22.
- Jain, P. 2001. Dudhwa Tiger Reserve. In : *Project Tiger Status Report, MOEF* : 47-50.
- Maheswaran, Gopinath. 2005. Dudhwa National Park. *Green Governance*, B.N.H.S. July-December (7-8)

- Qureshi, M. Q.; Sawarkar, V.B.; Mathur, P.K. (1990). Status and Management of Swamp Deer in Dudhwa Tiger Reserve Seminar on "Management of Swamp Deer in Dudhwa Tiger Reserve" Intach and WWF-India.
- Ray, Prajalendu. 1992. Description of a new Rhacophorid, *Chirilaxalus dudhwaensis* (Anura : Rhacophoridae) from Dudhwa National Park, district Lakhimpur Kheri, U.P., India. *Indian Journal of Forestry*, Vol. 15(3) : 260-265.
- Sale, J.B.; Singh, Samar (1987). Reintroduction of Greater Indian Rhinoceros Into Dudhwa National Park. *Oryx* : 81-84.
- Sinha, S.P. (1991); Sawarkar, V.B. Management of the Reintroduced Great one horned rhinoceros (Rhinoceros Unicornis) in Dudhwa National Park, Uttar Pradesh, India International Rhino Conference, Rhinoceros Biology And Conservation, San Diego, California, Usa 9-11 May, 1991.

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Map of Dudhwa Tiger Reserve



View of Dudhwa Tiger Reserve



Railway track in Dudhwa Tiger Reserve



Asian Elephant
Elephas maximus G. Cuvier



Barking Deer
Muntiacus muntjak Pocock



Indian one horned Rhinoceros
Rhinoceros unicornis Linnaeus



Oriental Turtle Dove —
Streptopelia orientalis

Oriental Turtle Dove
Streptopelia orientalis



Puntius conchonius (Ham.)



Indian Python – *Python morulus*



RANTHAMBHORE TIGER RESERVE

RAJASTHAN

INTRODUCTION

Once spread over the country, India's wildlife heritage is now restricted and preserved in the sanctuaries, national parks and reserves of India. With growing attention of naturalists and wildlife lovers across the subcontinent, rich areas of wildlife diversity were recognized and given different status of protection depending upon the need and importance of the flora and fauna. The proclamation of Wildlife (Protection) Act, 1972 became one such instrument in preserving the diverse wildlife in these protected areas. So far India has 94 National Parks and 498 sanctuaries covering an area of approximately 154, 931.38 sq. km, which amounts to 4.71% of the total land area of the country.

The present day Ranthambhore is one such nature's spot now under protection as National Park that holds the credit of being one of the most incredible hot spots of Indian wilderness preserved in the pristine environment of northern extremity of central India, also declared as Ranthambhore Tiger Reserve.

Ranthambhore - the name comes from the vast fort that stands in the middle of the forest in Sawai Madhopur district of Rajasthan State. The name is derived from two hills in the area, Ran and Thambhore. There is another version, which states that Ranthambhore was once known as Rana-Stambhapura or city with wall of pillars.

Infact, traces of settlement here dates as far back as the 8th century. Ranthambhore Fort, in Sawai Madhopur, Rajasthan is commonly believed to have been built by King Jayant of the Chouhan dynasty in 1110 AD. It is said that king Sapaldaksha, also a Chouhan founded Ranthambhore in 944 AD. Some are of the opinion that a relative of King Hasti of Hastinapura, called Rati Dev was the original founder. Another mythological belief is that the worshippers of Surya or Suryavanshis were the original inhabitants of the region.

The Mughal emperor Akbar also fought a battle for the control of the fort and the region in the 16th century. Sawai Madho Singh, the ruler of Jaipur in 1754 requested the Mughal emperor, Ahmed Shah to grant him Ranthambhore Fort in order to curb down the Marathas. On his refusal he fortified the Sherpur settlement of Ranthambhore and named it Sawai Madhopur in 1763, which is now a small town 14 km from Ranthambhore Fort. Later in the century especially before the arrival of British, the residents of Ranthambhore forests were the Meenas, a tribe who had lived fairly freely and easily in the region. By 1820 Rajputs and Britishers jointly exercised their control to use

the Ranthambhore forests as their private hunting reserves. This was the period when animal hunting was organized as game for the royal hierarchy in India. In the later part of the last century the fort and the surrounding forest became the property of the Maharaja of Jaipur, who built a delightful shooting lodge by the lake and limited hunting to two months in the year.

In 1960-61, the Queen Elizabeth II of England and HRH Duke of Edinburgh visited Ranthambhore as guests of Maharaja of Jaipur on a "Royal Shikar". Since hunting became restricted to special guests of Maharaja it resulted in slowing down the destruction of the forest and wildlife of the entire area of Sawai Madhopur, which is now a present day Ranthambhore National Park (Fig. 1).

Today Ranthambhore is one of the many protected areas in India, which began its life as hunting reserves. Nearly all the India's significant conservation laws date from the period since Independence, although there was some legislature activity during the days of the British Raj. The Britishers under nineteenth century Forest Acts restricted the hunting rights of forest dwellers and later divided forests into shooting blocks. These were opened and closed in accordance with the abundance or scarcity of animals as game, thus providing a measure of control over the hunting exploits of the forest dwellers.

Occasionally laws were passed to protect a single species whose future was deemed uncertain. On the global scale the foundation of the International Union for the Conservation of Nature (IUCN) in 1947 was the event of considerable significance, at India's level, the then government created the Indian Board for Wildlife, which forwarded the proposals in 1953 for establishment of 18 National Parks in the country.

The hunting reserve of His Highness, Maharaja of Jaipur at Sawai Madhopur was declared as Sawai Madhopur Wildlife Sanctuary in 1955. In the 1960s many scientists feared that before long the tiger would become extinct like the cheetah in the 1950s, and felt that new laws should be enforced to avert it. The fate of tiger spurred the Indian Government to introduce new laws to protect the country's remaining wildlife. WWF-I in 1969 was launched and later in 1972 a census of tiger was undertaken to count the dropping population from an estimated 40,000 to 1800. This prompted the Government to pass Wildlife (Protection) Act in 1972 and also to launch Operation Tiger known as Project Tiger in 1973. With the launch of Project Tiger in India, the former Sawai Madhopur Wildlife Sanctuary was included as Ranthambhore Tiger Reserve amongst the first nine tiger reserves declared in 1973. Later in 1980 a part of Sawai Madhopur Wildlife Sanctuary with an area of 392.50 sq. km was declared Ranthambhore National Park by designating 274.5 sq. km as core area and 118 sq. km as buffer area from within the Ranthambhore Tiger Reserve.

In order to accommodate increasing wildlife population of this region, the adjoining forest area of Karauli and Sapatara Tehsil with an area of 674 sq. km was notified as Kela Devi sanctuary in 1983. Subsequently in 1984, the forest area towards the south west of Ranthambhore National Park was also notified as Sawai Mansingh Sanctuary with an area of 127.60 sq. km. These Sanctuaries and the surrounding reserved and protected forest of 132.9 sq. km and Kwajji closed area (part) 7.58 sq. km are now part of the bigger umbrella named as Ranthambhore Tiger Reserve (Fig. 1) with a wider canvas encompassing other smaller nearby sanctuaries and other forest areas (Table-1a.).

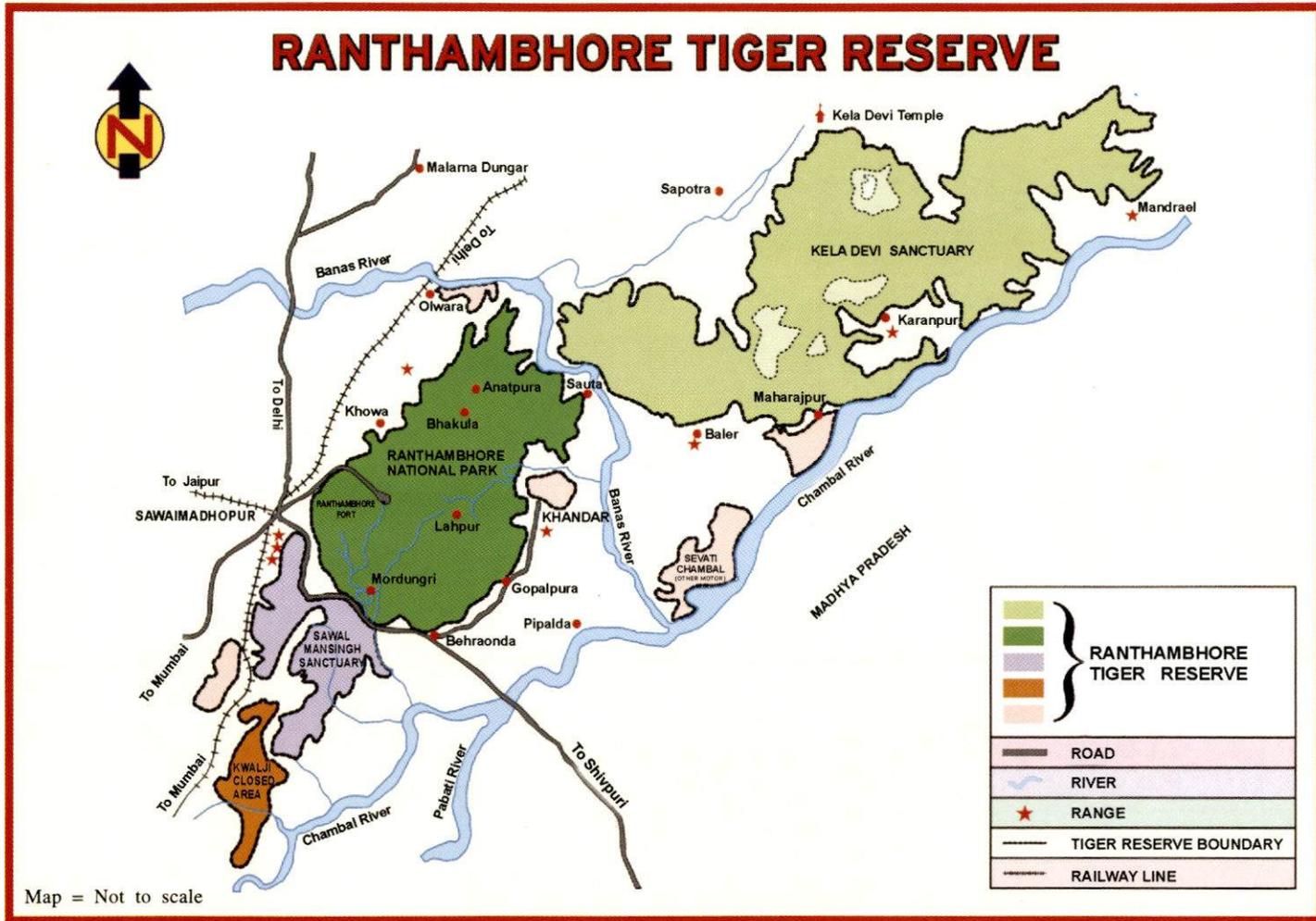


Fig. 1. Map of Ranthambhore Tiger Reserve

Table-1a : Existing Area under Ranthambhore Tiger Reserve

Protected zone	Area (Sq. Km)
Ranthambhore National Park	392.50
Sawai Mansingh Sanctuary	127.60
Kwalji Closed Area	7.58
Keladevi Sanctuary	674.00
Other Forest Area	132.96
Total	1334.64

The entire Ranthambhore Tiger Reserve area of 1334.64 sq. km is under protection for the unique species – tiger with more area underway (Table-1b) to be added to Ranthambhore Tiger Reserve (Anon, 1999-2000). At present the Ranthambhore National Park (274.5 sq. km) is managed as the core area while the remaining forest is managed as a buffer area.

Table-1b : Proposed Area for extension of Ranthambhore Tiger Reserve

Proposed area	Area (Sq. Km)
Ramgarh Vishdghary Sanctuary	307.00
Area transferred from Bundi Div. (Kwalji Closed Area Part)	25.98
Area transferred from Tonk Div. (Kwalji Closed Area Part)	3.78
Area transferred from Karauli Division	44.14
Proposed area of Bundi Div. to be included in RTR	167.53
Proposed area of Tonk Div. to be included in RTR	13.55
Proposed area on Karauli Div. to be included in RTR	54.08
Proposed area of Dholpur Div. to be included in RTR	
(a) Van Vihar Sanctuary (25.60)	
(b) Other Forest Areas (461.79)	487.39
Total Proposed Area	1103.45

The Ministry of Environment and Forests has taken several important steps in order to explore, conserve and manage protected areas of the country. The Zoological Survey of India (ZSI) and Botanical Survey of India (BSI) have been entrusted the work to carry out studies on fauna and flora, respectively, of selected sanctuaries and national parks. Since ZSI was assigned to assess the faunal diversity of Ranthambhore National Park, a project entitled Faunal Resources of Ranthambhore National Park, Sawai Madhopur, Rajasthan was taken up by the Desert Regional Station of ZSI, Jodhpur. Many faunistic surveys were undertaken during 1999-2003 by Dr. Sanjeev Kumar, Scientist-B and Dr. Ram Sewak, Asstt. Zoologist, to collect and document the faunal diversity of the Ranthambhore National Park. The permission to collect invertebrates and lower vertebrates were obtained from the State Govt. of Rajasthan for the study period. Some specific techniques were employed to study the faunal diversity of the national park and permission for use of such methodology was also obtained from the authorities. Data on various other parameters

of importance to the national park were also collected so as to project strategies for the conservation of valuable faunal taxa of the ecosystem.

REVIEW OF LITERATURE

Review of literature reveals that work on Ranthambhore Tiger Reserve is available in the form of books, published and unpublished reports, research papers, thesis and on various subjects related to general aspects of the park like history, cultural and religious heritage. Some paper deals with legal issues, medical health of animals, flora and fauna and over all management of the park. Verma (?) described the religious Shri Ganesh Yatra to Fort Ranthambhore; an overall view of Ranthambhore National Park is by Thapar (1987-1988); Israel and Sinclair (1989). Sharma (1991-1993) recorded the folk songs of the people living around the park. Anwar (1993) sketched the history of the area over 1000 years in Hindi. The work on management and planning was of Rathore (1984-1989); an assessment of Biological conservation by Mathur (1987). Rodgers and Panwar (1988 and 1993) worked on planning wildlife Protection Area Network in India.

Most of the published literature is on Tigers of Ranthambhore and villagers' interaction. Mention of tigers of Ranthambhore have been done by Singh (1959) in his book on "Tigers of Rajasthan"; Chaudhary and Chakrabarti (1979) mentioned the striking features of biotope of the nine tiger reserves including Ranthambhore Tiger Reserve; Vardhan (1979) wrote about shifting of villages from Ranthambhore; Rathore *et al.* (1983) described the period of tigers in Ranthambhore between 1976 to 1982; life of tiger between 1982-1985; family life of three tigresses between 1985 to 1988; worship of tiger over centuries and visuals narrating the story of Ranthambhore tigers between 1988 to 1991 and a children's book which used Ranthambhore's tigers as the visuals to explain the natural history of tiger has been published respectively, by Thapar (1986, 1989, 1992, 1999). Mention of Ranthambhore tigers have also been made by many publications, Rathore *et al.*, 1983; Thapar and Rathore, 1985 and 2000; Rathore, 1993; Roagers and Bhattacharjee, 1986; Sankhala, 1993; Sahu and Sharma, 1993; Ives, 1995; Helmut and Denzau, 1996; Kumat (1992) inquired into the missing tigers of Ranthambhore National Park; Khan (1993) on scientific management of buffer zone; Prey selection by tiger was described by Karanth and Sunquist (1995); Shah and Manoj (1996) recorded the period of 1990-1995 in the life of tiger at Ranthambhore; Breeden and Wright (1997) also mentioned on Ranthambhore Tiger in his publication; an intra-specific fight among tigers at Ranthambhore Tiger Reserve has been narrated by Chaudhary (1999) and detailed account of History of Ranthambhore and wildlife conservation in India with special reference to Ranthambhore accounting for census of wildlife; veterinary considerations for tiger conservations were studied by Singh (2000); flora and fauna existing up to 1998 has been summarized in "Ranthambhore Beyond Tigers" by Chaudhary (1997 and 2000).

Dr. Karanth in 1999 undertook the first scientific study of estimating the tiger population through "camera trap method". His works on tigers are published in books and journals (Karanth, 2001 and 2003). Census data - 2005 on Ranthambhore Tiger Reserve is by Singh (2005).

Interactions of the villagers with the National Park and the concerned authorities were by Berkmuller *et al.* (1989) who conducted studies on grazing and lopping pressures; Singh (1991) described in detail the encounters of villagers and forest officials and the reason for launching up of first eco-development programme as a remedy to the crisis that arose when villagers living

around the Ranthambhore Tiger Reserve forcibly started grazing their cattle's into the core area of the park. Bannerjee and Srinivasan (1993) worked on formulating a strategy to reduce dependence of the villagers on Ranthambhore National Park. Ward (1993) in his publication has a section devoted to Ranthambhore and the life of some of the tiger wallahs that have fought for Ranthambhore.

Sethi and Mandal (1994) have worked on energy consumption around Ranthambhore National Park. Satellite interpretation studies have been done by ISRO, CAZRI (1992-1998) and habitat characterization and GIS studies have been done by Devkota *et al.* (1999).

The major work on Ranthambhore National Park is in the form of review reports by Thaper (1987-88); a report on Project Tiger by Ministry of Environment and Forest (Anon, 1993 and Jain, 2001); report on bio-diversity conservation through Eco-development by UNDP (1994); World Bank Staff appraisal report on Eco Development Project on Ranthambhore; various reports by the Field Director, Ranthambhore National Park, State Forest Department, Rajasthan (Anon, 1994, 1995 and 1999-2000); research works in the form of number of papers presented at the Symposium on "Habitat Conservation-fresh vision in 2000 and beyond, Sawai Madhopur", organized by State Forest Department and Tiger Conservation: Gosain (2000) on law related to tigers; Singh (2000) on veterinary considerations for the Tigers; Joshi (2000) and Chauhan (2000) work relates to tiger-man-conflict. Impact assessment studies on Ranthambhore Sanctuary have been vividly described by Sharma (2000).

Works on various miscellaneous aspects of Ranthambhore National Park were during the years 1988-1993 in the form of reports on human population and tigers; milk and tigers by Rathore (? a & b) and case study mentioning and quantifying the different threats by Khan (1993).

Dalal (1998) has written on adventure tourism; a comprehensive useful guide for the tourists by Sippy and Kapoor (2001) gives a wholesome picture of Ranthambhore and its managerial aspects with review on academic work for the general awareness of the public and for effective eco-tourism. The flora of the park has been worked out by (Chundawat & Sharma, 1983; Das and Singh, 1995 and Singh, 2004).

The fauna was worked out by Thapar (1982) who described Ranthambhore Fortress as a heaven for Indian Wildlife; Kumar (2000) completed M.Sc. dissertation on "Ungulate Density and Biomass in the Tropical Semi-Arid Forest of Ranthambhore India". Faunal listing along with general aspects of Ranthambhore Tiger Reserve has been mentioned by Chaudhary (1997, 1999 and 2000). Bird listing has also been done by Reddy (1999) and Andheria (2000). Some stray research articles on sighting of one or two avian species are by Ranjitsinh (1999) who reported the presence of painted spurfowl; Andheria (2002) sighted of rock bunting and Srinivas (2002) reported a large congregation of Black-Shouldered kite. Recently an attempt has been made to study population of avian diversity by line transect method by Kumar and Sivaperuman (2005). An account of fauna on Ranthambhore National Park has been mentioned in Project report on "Inventorisation of Faunal Resources in National Parks of Rajasthan and Gujarat" by Desert Regional Station, Zoological Survey of India (Rathore, 2004); Snakes of Ranthambhore are being worked out by Rathore and Khandal (2005).

The review of literature clearly reveals that only emphasis has been made to conserve the bigger species like tiger along with few other mammals and recording of avian diversity. However, some listing of other vertebrates group like pisces, amphibians and reptiles have been just touched

upon. No documentation of smaller groups of vertebrates and invertebrates as a whole has been done in the recent past.

Attempts were made by Zoological Survey of India, Jodhpur to work out the invertebrate and vertebrate faunal diversity existing in the Ranthambhore National Park represented so far by a total of 536 species. However, the present reporting is still incomplete as vast majority of invertebrates and vertebrates especially lower invertebrates, arthropods including soil arthropods, entomofaunal groups, fishes, reptiles and smaller mammals are under the process of identification. Many more species are yet to be recorded, as the studies were restricted to a few days of the years from 1999 to 2003. The faunal diversity, their availability and abundance, behavioural changes with the change of topography, climate, vegetation, soil and water, their interdependence on each other and the entire food web and food pyramids need intensive study and diversity indices to be worked out on the basis of seasonal population fluctuations not only of the Ranthambhore National Park but other areas falling under the umbrella of Ranthambhore Tiger Reserve.

STUDY AREA

Ranthambhore National Park is situated amidst the hilly ranges of the Aravalli's and the Vindhyan in between the confluence of the rivers Chambal and Banas. The National Park is located between 76° 23' to 76° 39' E longitude and 25° 84' to 26° 12' N longitude in the Sawai Madhopur district of Rajasthan. The Ranthambhore Park is 15 km. away to the east of the Sawai Madhopur town. The town is well connected by railway network and metalled roads (Fig. 1.)

The total area of the park is 392.50 sq. km out of which 274.5 sq. km is core area and 118 sq. km is buffer zone. The area comes under the Indian bio-geographic zone – the semi-arid and the biotic province-4B Gujarat-Rajwara. Outside the core area of the park, Jogi Mahal an old palace of the Maharaja turned into guest house, allows visitors a glimpse of the opulent lifestyles of the past and supports present day tourism in the area.

Remnants of the old villages like Anantpura, Chiroli, Kachida and Bherda in the north; Lakarda and Lahpur in the middle and Guda in the south inside the core area are seen. The Sikargarhs and the ruins of archaeological significance of the earlier Maharajas still exist in the Park (Fig. 1.). Many of the ruins have water tanks and smaller water bodies like talao as traditional sites harvesting runoff of the monsoon precipitation. The park has six perennial wetlands and many seasonal water bodies including springs within the core area and the buffer zone, which supports the entire wildlife of the National Park.

There are numerous villages along the boundary of the core and buffer zone. To the north of the Ranthambhore Railway Station exist the villages of Ranwali, Kundera, Mokhali, Chakeri and Shampur. Towards the north on the right banks of Banas River are Khat, Padana, Bhuri Pahari, Baso and Doongri. Surial and Manipura lie along the Dausa road. The Sawata, Talaora, Moi Khan and Khandar villages are on the eastern margins of the sanctuary. In the south lies the Chhan, Behraoda, Bodal and Kushalipura or all along the tarred road like Dolatpura and Pali. The existence of these villages is mainly due to motorable-metalled roads, railroads and rich fertile alluvial soil supporting agriculture. In all, it is surrounded by 54 villages.

Administratively the area is divided into two main tehsils: the Khandar in the east and north and larger Sawai Madhopur in the west and south. On the basis of these two tehsils for the sake of proper administrative control and maintenance, the entire sanctuary is subdivided in two main groups named after their respective tehsils and each comprises of five main blocks, two in Sawai Madhopur Tehsil as Block - A on the west and north-west and Block - B on the south. The three Khandar blocks are referred to as Khandar A, B and C on the north, middle and southeast, respectively (Table-2). Each of these blocks are further subdivided into 164 compartments of different sizes mainly on the basis of natural barriers like mountain spurs, streamlets, plain lands, valleys etc.

Table-2 : Administrative Units of Ranthambhore National Park.

Block's name	Division	Location	#Compartments
Sawai Madhopur	Block A	West and North-West	47
Sawai Madhopur	Block B	South	20
Khandar	Block A	North	39
Khandar	Block B	Middle	22
Khandar	Block C	South-east	36

For the first time a major attempt was made by the survey parties of Desert Regional Station of ZSI, Jodhpur to collect the invertebrate faunal diversity by using high luminous screen light method in the National Park. Day-Night sampling from various habitats within the park was made and observations recorded on the vertebrate sightings during different hours of the day. In all there were a total of 19 sampling sites including water bodies within the national park selected to study various animal groups and other parameters of faunal importance (Fig. 2). The GPS Co-ordinates of 19 of these sites were also recorded to interpret the distribution and congregation of species with reference to habitat preference and abundance of macro and micro niches within the national park (Table 3). The duration of the study period was from 1999 to 2003.

Table-3 : Localities surveyed during 1999-2003 (GPS Co-ordinate of collection sites).

Sl. No.	Name of the Locality	GPS Co-ordinates
1.	Kachida area	26° 02' 45" N; 76° 27' 27" E
2.	Jogi Mahal Mori	26° 01' 63" N; 76° 27' 20" E
3.	Padam Talao	26° 01' 50" N; 76° 27' 34" E
4.	Before Bagdeh	26° 05' 51" N; 76° 32' 13" E
5.	Lakarda	N.A.
6.	Malik Talao	26° 05' 50" N; 76° 32' 12" E
7.	Bakaula area	26° 02' 65" N; 76° 28' 67" E
8.	Lahpur area	26° 59' 38" N; 76° 29' 10" E
9.	Bodal area	25° 59' 57" N; 76° 26' 93" E
10.	Mansarovar	26° 55' 34" N; 76° 26' 38" E



Fig. 2. Map showing survey localities of ZSI at Ranthambhore National Park

Sl. No.	Name of the Locality	GPS Coordinates
11.	Dhudhal Mal Ka Darra	26° 06' 70" N; 76° 32' 80" E
12.	Anantpura area	26° 05' 52" N; 76° 32' 44" E
13.	Sultanpur Ki Kui area	26° 00' 49" N; 76° 27' 47" E
14.	Nalghati	N.A.
15.	Gilai Sagar area	26° 01' 41" N; 76° 34' 91" E
16.	Indala area	25° 55' 88" N; 76° 29' 32" E
17.	High Point area	26° 01' 80" N; 76° 29' 38" E
18.	Raj Bagh area	26° 01' 86" N; 76° 28' 04" E
19.	Ranthambhore Fort Gate	26° 01' 43" N; 76° 27' 41" E

CLIMATE

Ranthambhore National Park is a representative of a habitat where well-defined spring, summer, rainy, autumn and winter seasons of the year can be experienced at the fullest. Climate is subtropical with rainfall as high as 900 mm and relative humidity ranging from 35 to over 75 %. The temperature varies from 48°C in summer to as low as 2°C in winters. The habitat of the animals also changes with the change in temperature. Generally the winds are calm and quite and cool with hot winds blowing in the summer accompanied by thunderstorms and dust storms or gales at times. The direction and intensity of wind is very indicative of the change of climate in the Park and plays an important role in the local movement of the fauna and dispersal of derelict forms. The overall climate plays an important role in the distribution of the animal groups, which are either found in particular niches or pockets or spread throughout whereas bigger animals restrict themselves to water points, dense vegetation and the ruins.

Aravalli ranges protrude 350 m to 450 m AMSL in this region. The steep slopes and undulating almost flat crests of the Aravallis girdle the park. During the rainy season the water flows in the form of seasonal springs from these sloppy terrains. The area represents a transitional belt of climate blending from arid-semiarid-arid northeast to the sub-humid-humid of the southeast. It is dominated by westerly winds, which strike the Aravallis resulting into heavy downpour in the area.

HYDROLOGY AND DRAINAGE

Sustenance of life is dependant on water. The Banas in the north and Chambal in the south collect the waters from Aravalli hills with most of the streams being seasonal but carrying huge flows of water in time of heavy downpour. The entire area is thus having rich alluvial soil, easy availability of ground water at shallow depths and storage of surface water in natural tanks and nullahs. Inside the core area are few natural wetlands having water availability throughout the year. Notable among them are Galai Sagar and Mansarovar reservoirs, which are artificially created by damming the rivers; these are supplying water for the irrigation to nearby villages also. Wildlife dependency on this lake arises only in extreme summer when other water bodies dries up. Padam Talao, a vast shallow lake on the banks of which stands the famous Jogi Mahal, provides water

throughout the year. Another big lake is Raj Bagh with availability of water; Milak Talao, a large depression dries on occasions when the monsoon is delayed or due to scanty rainfall in the area. Lahpur Lake, formed by damming of the river is another small water body, where excess water spread over the surrounding area in rainy season, giving rise to marshy habitat. The lake almost dries by March and is then artificially filled.

Besides these six permanent wetlands about hundred or more seasonal water points exist in the park. Many of them are in the form of old scattered ruined pools constructed by the Maharajas. Other water points are in the form of depressions in the flat areas or cesspools in the narrow valley. Some important water points of Ranthambhore National Park are shown in Fig. 3. Sitamata Spring, Pir Khera, Kandull, Mishar Darrah, Japkan, the Banas and the Chambal are perennial flowing water points found in Sawai Madhopur blocks of Ranthambhore National Park. These disappear gradually in severe summers. Relatively larger sized water points are Kushlipura, Devpura, Dualada Ka Tharna, Khemsya Kurd, Hati Patta, Kirmi Khora and Bhata Ki Pass Nala.

Majority of wild animals congregate around Padam Talao, Rajbagh Lake, Lahpur Lake and Nalghati wetlands, which have availability of water throughout the year. The drainage is flowing towards south and southeast. The streams and nallahs of the southeast drain into the Banas River and those of south into the Chambal River. Most of streams are controlled and flowing along the Bagda Nalla, Padam and Rajbagh Talao.

GEOLOGY

Geologically, the Ranthambhore National Park is divided into the eastern side and the western side. The eastern side is occupied by the Vindhyan and the western side by the Aravalli hills.

Pre-Aravalli rocks comprise of quartzites, mica schists, gneisses and migmatites. The rocks of Vindhyan super group comprise sandstones, shale, limestone and breccia. They are separated from the Pre-Aravalli's and Delhi's by a "Great Boundary Fault".

The Aravalli outcrop from several continuous ridges and groups of small hills striking in a northeast to southwest direction are ancient crystalline and metamorphic rocks with gneisses and schist's and covered by red sandy soils most suitable for Dhok (*Anogeissus pendula*) forests.

The geology of the southeastern region is mostly shared by these two rock systems. This distribution is mainly determined by the two important faults, which occur 12 miles apart and run in the northeast to southwest directions. The southeastern fault known as "Great Boundary Fault of Rajputana" passes through Phalodi-Bodal Lahpur-Chiroli and Quadeen. It is along this fault that Gwalior is brought against Vindhyan. The north-eastern fault is not very clear owing to the large spreads of alluvium under which it lies but is a real fault and important in effects. The lower Vindhyan are generally confined between these two faults.

RELIEF FEATURES

The overall landscape is of importance in studying the ecological niches of various faunal species. The topography generally comprises of low hills and parallel ranges of the Aravalli and

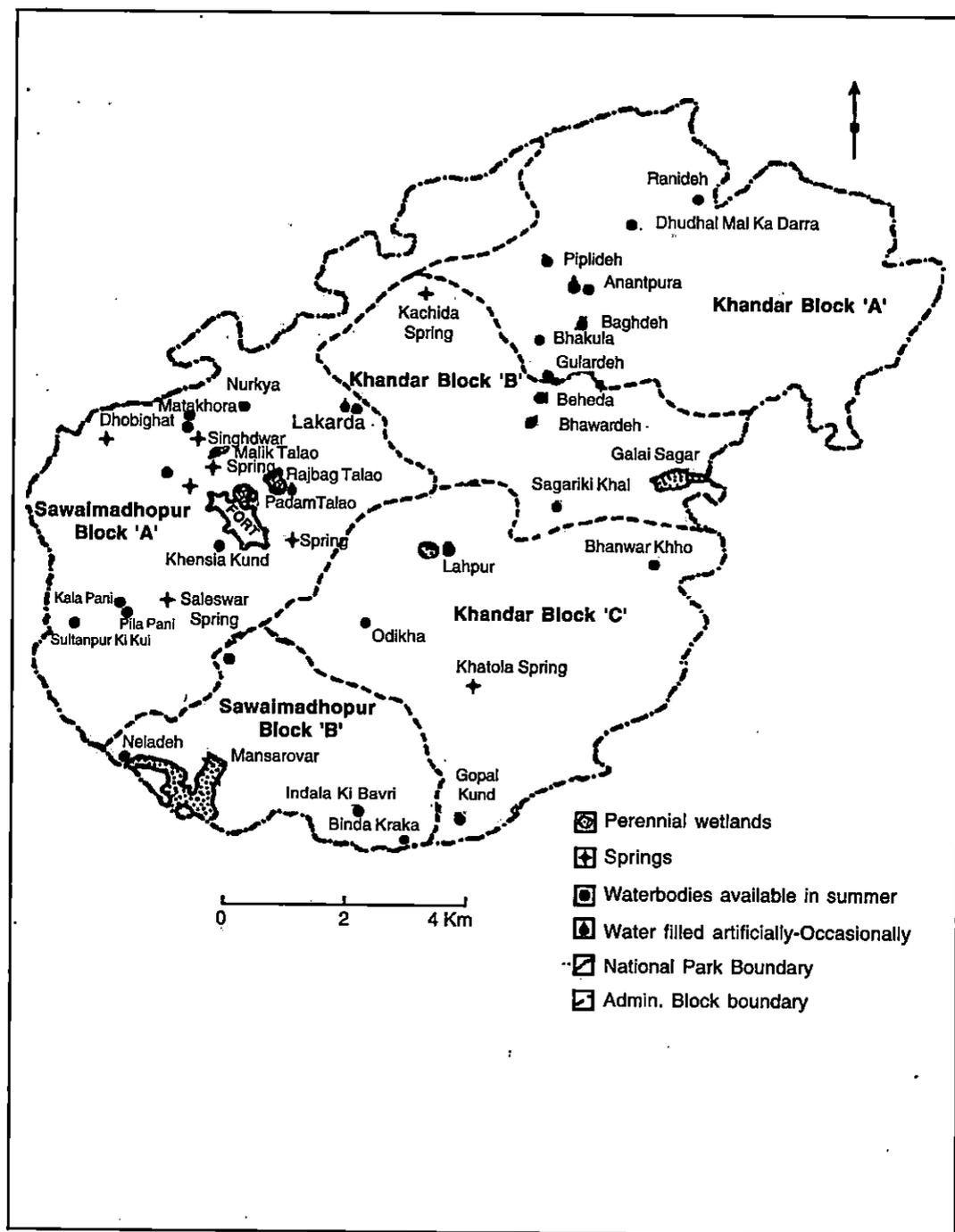


Fig. 3. Wetlands and seasonal water holes in Ranthambhore National Park

Vindhyan Mountain System. The general relief varies from 250 to 450 m ASML. The highest cliff point is 482 m AMSL. In the Sawai Madhopur block the Aravalli system prevails. The two main ranges the Salawai Dang and the Ranki Dang remains covered with fairly dense forest. To the south of these ranges are Rawarina Dungar hills on the lowlands, which were the villages of Sheopura, Halada, Kheri, Bhagwarpura and Todra. These have been evacuated as were coming under the buffer zone of the Park.

In the South, outside the limits of park lies the village of Chhan, Behraonda, Khund, Phiriya, and Mordoongri located in the flood Zone of Chambal River in between the confluence point of Banas and Chambal. The area in their immediate vicinity is an open scrubbed with small patch of open mixed forest of kikar trees. In the north, outside the park are Shyampura, Endwa, Basu, Doongri, Garhi and Sawata Kalan villages along the fertile alluvial plains of Banas River.

GEOMORPHOLOGY

The topography of Ranthambhore National Park varies from gentle slopes to steep vertical rocky escarpments. A unique geomorphologic feature of this sanctuary is that the hill ranges of two different systems of mountains of the Aravallis and the Vindhyan meet along the Great Boundary Fault. The conical hillocks of the older Aravallis are juxtaposed with the flat-topped hills of the Vindhyan are known as "Dang". Dangs have shallow soils with less moisture retention after rains and thus vegetation is sparse and dominated by grasslands. Depth of soil is enough to retain moisture and support mixed healthy forests in valleys. The landforms of this region have fluvial denudation and structural origins. Flood plains are confined along the Banas. Denudational hills of Quartzites brecciated rocks and limestone and buried pediplains a slates/schists having less than 5 metres of mantle and a regolith cover of 5 metres besides buried pediplains on limestones and shales having flat to undulating plains carved out on the Vindhyan; shales having shallow soil cover and with profound soil cover upto 5 metres. Hills of structural origin on limestone and quartzites have high rising ridges with steep slopes.

HUMAN SETTLEMENT AND POPULATION

The core area of the sanctuary is entirely free from any human population while the buffer zone villages portray a density of less than 100 persons per km² which is normal as these villages have only substantive farming on the limited agricultural areas (Sharma, 2000). Indala is the only village left with some population in the buffer zone at present.

Sole occupation of the locals is fire wood selling and livestock rearing, both of which are being easily pursued in the fringe zone by legal and illegal methods. A tribe called "Meenas" dominates the hilly ravenous and eroded lands of this mountainous area around Ranthambhore National Park. Till recently the agriculture was poor due to undulating terrain factors and labour intensive nature of the cultivation. But now due to development of better agricultural practices, provision of electricity on the wells and tube wells, availability of hybrid seeds and fertilizers these areas have rich harvest of wheat, mustard and groundnuts, which fetch cash money to peasants. The present population is now also engaged in other activities like trade, transport, cottage and small-scale

industries and official jobs. With the growing population of the region various other means of livelihood have developed based on illegal activities like poaching of birds, harvesting of fishes from the waterbodies and trafficking of forest produce which has adversely affected the development of the region particularly with respect to wildlife protection and conservation of the whole area of Ranthambhore Tiger Reserve.

FLORA

The national park has a vast assemblage of plant communities and associations ever changing according to seasons, terrain and proximity of wetlands. The entire park becomes fascinatingly green in August with profuse undergrowth of ephemerals. The open savannahs are enveloped with different grass association providing most superb camouflage to wildlife.

The vegetation cover of the park is typical Tropical dry forest seen all along the eastern slopes of Aravallis. According to Champion and Seth (1968) the forest of Ranthambore can be grouped under northern Tropical Dry deciduous and Dry mixed deciduous forest comprising mainly of *Anogeissus pendula*, *A. pendula* scrub, *Butea* forests and *Accacia catechu* and *Boswellia serrata* and northern tropical thorn forest which are represented by *Ziziphus* and *Euphorbia* scrubs. With the setting up of winter the grass turns pale and the foliage becomes copper brown. In the late winters red-brown and yellow dominates due to the pre-ponderance of flame of the forest, *Butea monosperma* and dhok, *Anogeissus pendula* in the area, which also becomes bare soon after the rains. The slopes of hills and flat dangs have vast stretches of grasslands. The grasses are a good food source and hiding niches for the wildlife. About 76 species of grasses have been reported from the area (Singh, 2004). The valleys have a profound growth of larger evergreen trees and they form a thick canopy throughout the year. However, the Gurjan tree density is very less which once dominated the ecosystem. In spring the entire forest is stark, leafless and bare dry with the ground covered with a thick litter of dry fallen leaves forming thick cushion on the floor of the forest giving refuge and shelter to soil dwelling animals especially arthropods, annelids, molluscs and micro-organisms. The entire National Park has large number of wetlands both seasonal and perennial, which provide variable terrain for the growth of hydrophytes throughout the National Park supporting aquatic wildlife. Hydrophytes may be free floating (*Spirodela polyrhiza*, *Utricularia stellaris*); fixed floating with floating leaves and attached at surface by roots (*Ipomea aquatica*, *Nymphaea nauchali*, *N. pubescens*, *Nelumbo nucifera*); surface submerged (*Hydrilla verticillata*, *Najas graminea*, *Lagarosiphon alternifolia*, *Zennichellia palustris*); attached submerged (*Ottelia alisnoides*); amphibious emerged (*Typha angustata*, *Limnophila indica*, *Ipomea carnea fistulosa*, *Sagittaria guayanensis*) and marshland (*Ammania baccifera*, *A. multiflora*, *Phyla nodiflora*). The National Park still has cultivated fields of villagers with growing crops like cereals, pulses, vegetables, oil seeds fruits and some common species of condiments. The growth and prevalence of wide variety of vegetation including many exotic species which might have been introduced into the area since pre-historic time or in the recent past either by national agencies or through their commercial route is seen in the park due to wide range of habitats, climatic factors, variable physiography, soil types and geographical features available within the boundary of National Park. So far 135 such exotic species have been recorded (Singh, 2004). The flora of Ranthambhore National Park has been worked out by Botanical Survey of India, Jodhpur. About 539 species of angiosperms and complete absence of gymnosperms except for few species of ferns have been recorded from the park Singh (2004).

The oldest of the trees are seen in the form of a banyan tree at the Jogi Mahal. *Ficus* species are scattered and mainly seen in the developing wastelands of the park. Many of these areas have become bare due to continuous felling of trees and over grazing. The last remains of the parent vegetation have almost vanished in the developing wastelands within the park. Regeneration is negligible due to biotic pressure and topsoil becoming inferior quality. The common casually seen trees of this area are *Acacia leucophloea*, *Prosopis juliflora*, *Balanites aegyptiaca*, *Butea monosperma*, *Ficus benghalensis*, *Salvadora oleoides*, *Moringa oleifera*, *Flacourtia indica* and *Anogeissus pendula*. Shrubs, herbs and climbers are more common than the trees. Vegetation is also seen around the old buildings and ruins of the park represented by meadow herbs like *Kickxia ramosissima*, *Lindenbergia indica*, *Glossocardia bosvallea*, *Verbascum chinense*, *Dipteracanthus patulus* etc. Some trees like *Ficus benghalensis* and *F. religiosa* are seen penetrating the wall of the monuments. Once Ranthambhore National Park was harbouring a variety of plant communities representing India's rich traditional medicinal, industrial, religious heritage supporting wildlife in a pristine natural tropical moist deciduous ecosystem, which has almost disappeared.

FAUNA

Hanuman langurs on an old banyan tree are there to welcome as one makes one's entry in the Ranthambhore National Park. India has such a vast variety of dazzling wildlife that one is reluctant to reveal a predilection but there is something special about Ranthambhore National Park, best known for its tigers but many other mammals are also seen in abundance. Besides common langur, wild boar, spotted deer, Indian gazelle, sambhar and blue bull (nilgai), the park supports sizeable population of leopard, sloth bear, porcupine, caracal and score of other wild species. Bird life is profuse and colourful. Both passerine and non-passerine groups of avian diversity are seen in plenty. Peacocks strut everywhere and conoys of quails fly like blown leaves. Purple moorhen can be seen sulking among the reeds. Wetlands are the most favourable spots for watching shore and upland birds within the National Park. Trees are full of chirping birds and as the season changes the bird life also changes automatically with scores of migratory species taking refuge during winter and making this place their roosting and staging ground.

Among the reptiles crocodiles can be seen in almost all big wetlands of the park along with turtles. Forest is thronged with lizards like *Varanus* and holes and crevices are full of snakes. Croaks of amphibians can be heard along the water bodies more prominently after rains. Almost all the water bodies at sometime or the other harbour fishes whereas perennial sources have vast assemblage of fresh water fishes in their impoundments.

The chirping of crickets or whistling of a cicada on a calm night indicates that park is certainly full of minute creatures invincible but plenty marking their presence in numerous ways.

The invertebrate faunal composition of species across the animal kingdom from protozoa to mollusca dominates every niche of the park. They are the part of unseen life support system of the national park. So far no study has been conducted on this mega assemblage of animals.

In the present study Zoological Survey of India made an attempt to document invertebrate and vertebrate faunal diversity. From protozoa to mammals all the faunal groups were either collected

or recorded by field sightings. Entomo-faunal groups were collected at 15 selected sites within the core/buffer area of the National Park by using high luminous screen-light method for the first time (Fig. 2). High intensity luminous bulbs were operated by generator against the screen to attract entomo-faunal elements of the park. Sites were also selected to collect the diverse animal groups and species besides insects found in different habitat within the national park. Avian species diversity was estimated by line transect method and point count method. Soil samples were collected from suitable moist habitats to study the nematode fauna of the national park. The pugmarks, fallen feathers, excreta, left-over of kills, bones were also collected to record the presence of animal in the park area and their presence in that habitat interpreted. The vast assemblage of invertebrate faunal groups such as zooplankton, annelids, arachnids, other arthropods including entomofaunal groups and molluscs are still under the process of identification as far as possible except where group experts are not available. A total of 345 species of animals have been recorded in the present study from the Ranthambhore National Park (RNP) (Table 4). Among them 159 species are recorded for the first time from RNP, 21 species from Rajasthan and 3 species from India. Besides an additional account of 191 species recorded by various workers have been documented in this report. The systematic account of animal species identified and recorded from Ranthambhore National Park is given below and marked with three asterisks (***) as New record from India, two asterisks (**) as New record from Rajasthan, single asterisks (*) as New record from Ranthambhore National Park and + as species of vertebrates recorded in the present study.

INVERTEBRATES

PLANT AND SOIL NEMATODES (THREAD WORMS)

Twenty-three species belonging to 21 genera of 12 families under four orders have been recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order TYLENCHIDA Thorne, 1949

Family HOPLOLAIMIDAE, Filipjev, 1934 (Wieser, 1953)

1. *Hoplolaimus indicus* Sher, 1963*

Order APHELENCHIDA Siddiqi, 1980

Family APHELENCHIDAE Fuchus, 1937 (Steiner, 1949)

2. *Aphelenchus avenae* Bastian, 1865*

Order DORYLAIMIDA Pearse, 1942

Family DORYLAIMIDAE De Man, 1876

3. *Mesodorylaimus mesonyctius* (Kreis, 1930) Andrassy, 1959*

4. *Laimydorus baldus* Baqri and Jana, 1982*

5. *Thornenema mauritianum* (Williams, 1959) Baqri and Jairajpuri, 1969*

6. *Prothornenema capitatum* Baqri and Bohra, 2003***

7. *Sicaguttur sartum* Siddiqi, 1971*

Family APORCELAIMIDAE Heyns, 1965

8. *Aporcelaimellus heynsi* Baqri and Jairajpuri, 1968*

Family QUADSIANEMATIDAE Jairajpuri, 1965

9. *Eudorylaimus chauhani* (Baqri and Khera, 1975) Andrassy, 1986*
 10. *Ecumenicus monohystera* (deMan, 1880) Thorne, 1974*
 11. *Discolaimus major* Thorne, 1939*
 12. *Discolaimium mukhtarpuriense* Baqri and Jairajpuri, 1969*
 13. *Discolaimoides bulbiferus* (Cobb, 1906) Heyns, 1963*
 14. *Latocephalus conicaudatus* Baqri and Bohra, 2003***

Family NORDIIDAE Jairajpuri and A. H. Siddiqi, 1964

15. *Kochinema farodai* Baqri and Bohra, 2001*
 16. *Kochinema caudatum* Baqri and Bohra, 2001*

Family LONGIDORIDAE Thorne, 1935

17. *Longidorus pisi* Edward, Mishra & Singh, 1964**

Family XIPHINEMATIDAE Dalmasso, 1969

18. *Xiphinema orbum* Siddiqi, 1963*

Family TYLENCHOLAIMIDAE Filipjev, 1934

19. *Tylencholaimus nagauriensis* Baqri and Bohra, 2001*
 20. *Tylencholaimus paracrassus* Monteiro, 1970**

Family LEPTONCHIDAE Thorne, 1935

21. *Leptonchus granulatus* Cobb, 1920*

Family NYGOLAIMIDAE Thorne, 1935

22. *Aquatides aquaticus* (Thorne, 1930) Thorne, 1974**

Order MONONCHIDA Jairajpuri, 1969

Family MYLONCHULIDAE Jairajpuri, 1969

23. *Mylonchulus minor* (Cobb, 1893) Andrassy, 1958*

ARACHNIDA (SCORPIONS)

Two species belonging to 2 genera and 2 families under 1 order have been recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order SCORPIONIDA

Family BUTHIDAE

Subfamily BUTHINAE

Genus *Compsobuthus* Vachon

1. *Compsobuthus acute carinatus rugosulus* (Pocock)*

Family BUTHIDAE
 Subfamily BUTHINAE
 Genus *Mesobuthus* Vachon

2. *Mesobuthus tamulus indicus* (Pocock)*

CHILOPODA (CENTIPEDES)

Eight species belonging to 6 genera and 2 families under 1 order have been recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order SCOLOPENDROMORPHA
 Family SCOLOPENDRIDAE
 Subfamily SCOLOPENDRINAE
 Genus *Cormocephalus*

1. **Cormocephalus westwoodi dispar*** Porath

Genus *Scolopendra*

2. *Scolopendra morsitans *** Linnaeus
 3. *Scolopendra amazonica*** Bucherl

Genus *Asananda*

4. *Asananda brevicornis*** Meinert

Subfamily OTOSTIGMINAE

Genus *Rhysida*

5. *Rhysida nuda immarginata*** (Porath)

Genus *Otostigmus*

6. **Otostigmus burnmurdochi*** Gravely

Family CRYPTOPIDAE

Genus *Cryptops*

7. **Cryptops sp. 1***
 8. **Cryptops sp. 2***

INSECTA : ORTHOPTERA (CRICKETS)

Two species belonging to 2 genera under 2 families have been recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order ORTHOPTERA
 Family GRYLLIDAE
 Genus *Gryllus* Linnaeus

1. *Gryllus bimaculatus* De Geer*

Family GRYLLOTALPIDAE

Genus *Gryllotalpa* Latreille

2. *Gryllotalpa africana* Beauvois*

INSECTA : DERMAPTERA (EARWIGS)

Four species belonging to 4 genera under 2 families have been so far recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order DERMAPTERA

Family ANISOLABIDADAЕ

Subfamily ANISOLABIDINAE

Genus *Euborellia* Burr

1. *Euborellia annulipes* (Lucas)*

Family LABIDURIDAE

Subfamily NALINAE

Genus *Nala* Zacher

2. *Nala lividipes* (Dufour)*

Subfamily LABUDRINAE

Genus *Labidura* Leach

3. *Labidura riparia* (Pallas)*

Genus *Forcipula* Bolivar

4. *Forcipula quadrispinosa* (Dohrn)*

INSECTA : ISOPTERA (TERMITES)

21 Species belonging to 4 genera under 2 families have been so far recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order ISOPTERA

Family RHINOTERMITIDAE

Subfamily COPTOTERMITINAE

1. *Coptotermes heimi* Wasmann*

Family TERMITIDAE

Subfamily AMITERMITINAE

2. *Amitermes baluchistanicus* Akhtar***
3. *Amitermes belli* Desneux*

Subfamily MACROTERMITINAE

4. *Odontotermes assmuthi* Holmgren**
5. *O. bellahunisensis* Holmgren and Holmgren*
6. *O. boveni* Thakur **
7. *O. brunneus* Hagen*
8. *O. feae* Wasmann*
9. *O. giriensis* Roonwal and Chottani*
10. *O. gurdaspurensis* Holmgren and Holmgren*
11. *O. indicus* Thakur **
12. *O. kushwahi* Roonwal and Bose*
13. *O. latiguloides* Roonwal and Verma*
14. *O. lokanandi* Chatterjee and Thakur**
15. *O. malabaricus* Holmgren and Holmgren**
16. *O. obesus* Rambur*
17. *O. paralatiguloides* Thakur**
18. *O. redemanni* Wasmann*
19. *Microtermes mycophagus* Desneux*
20. *M. obesi* Holmgren*
21. *M. unicolor* Snyder*

INSECTA : COLEOPTERA : SCARABAEIDAE (DUNG BEETLES)

22 Species belonging to 8 genera under one subfamily Corprinae of family Scarabaeidae are so far recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

- Order COLEOPTERA
 Suborder POLYPHAGA
 Superfamily SCARABAEOIDEA
 Family SCARABAEIDAE
 Subfamily COPRINAE

1. *Helicopris gigas* Linnaeus*
2. *Catharsius molosssus* Linnaeus*
3. *Copris repertus* Walker*
4. *Copris numa* Lansberge*
5. *Copris furciceps* Felsche*
6. *Copris cribratus* Gillet*

7. *Onthophagus catta* Fabricius*
8. *Onthophagus seniculu* Fabricius*
9. *Onthophagus tragus* Fabricius*
10. *Onthophagus troglodulta* Weidemann*
11. *Onthophagus ensifer* Boucomont*
12. *Onthophagus cervus* Fabricius*
13. *Oniticellus pallipes* Fabricius*
14. *Oniticellus cinctus* Fabricius*
15. *Onitis siva* Gillet*
16. *Onitis lama* Lansberge*
17. *Onitis philemon* Fabricius*
18. *Onitis castaneus* Redtenbacher*
19. *Onitis brahma* Lansberge*
20. *Chironitis indicus* Lansberge*
21. *Gymnopleurus cyaneus* Fabricius*
22. *Gymnopleurus miliaris* Fabricius*

INSECTA : LEPIDOPTERA : RHOPALOCERA/HETEROCERA

(BUTTERFLIES AND MOTHS)

Seven species under 7 genera and 5 families have so far been recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order LEPIDOPTERA

Family PAPILIONIDAE

1. *Pachilopta aristolochiae* (Fabricius)*
2. *Papilio demoleus* Linnaeus*

Family PIERIDAE

3. *Eurema hecabe* (Linnaeus)*

Family NYMPHALIDAE

4. *Hypolimnas bolina* (Linnaeus)*
5. *Precis lemonias* (Linnaeus)*

Family DANAIDAE

6. *Danias chrysippus* (Linnaeus)*

Family ARCTIIDAE

7. *Uthethesia pulchella* (Linnaeus)*

INSECTA : HYMENOPTERA : FORMICIDAE (ANTS)

16 Species belonging to 8 genera under 6 subfamilies of formicidae have been so far recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order HYMENOPTERA

Family FORMICIDAE

Subfamily DORYLINAE

1. *Dorylus labitus* Shuckard*

Subfamily PONERINAE

2. *Anochetus taylori* Forel **

3. *Anochetus yerburyi* Forel**

Subfamily PSEUDOMYRMECINAE

4. *Tetraponera rufonigra* Jerdon*

Subfamily MYRMICINAE

5. *Crematogaster (Orthrocrema) walshi* Forel**

6. *Crematogaster (Acrocoelia) rothneyi* Mayr **

7. *Monomorium (Xeromyrmex) salomonis indicum* Forel*

8. *Monomorium (Parholcomyrmex) gracillimum* Jerdon var. *mayri* Forel*

Subfamily DOLICHODERINAE

9. *Tapinoma melanocephalum* Fabricius*

Subfamily FORMICINAE

10. *Camponotus (Tanaemyrmex) compressus* Fabricius*

11. *Camponotus (Tanaemyrmex) irritans* Fred. Smith *

12. *Camponotus taylori* Forel*

13. *Camponotus dichrous* Forel**

14. *Camponotus variegatus* Smith**

15. *Camponotus carin* Emery**

16. *Polyrhachis (Myrmhopla) simplex* Mayr *

INSECTA : DIPTERA (FLIES)

Eight species belonging to 8 genera under 6 families have been recorded so far from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Order DIPTERA

Suborder NEMATOCERA

Family PSYCHODIDAE

1. *Psychoda alternata* Say*

Genus *Puntius* Hamilton-Buchanan4. *Puntius sophore* (Hamilton-Buchanan)+*

Subfamily RASBORINAE

Genus *Rasbora* Bleeker5. *Rasbora rasbora* (Hamilton-Buchanan)+

Family BALITORIDAE

Subfamily NEMACECILINAE

Genus *Nemacheilus* Bleeker6. *Nemacheilus botia* (Hamilton-Buchanan)+

Order SILURIFORMES

Family BAGRIDAE

Genus *Aorichthys* Wu7. *Aorichthys seenghala* (Sykes)+

Family SILURIDAE

Genus *Wallago* Bleeker8. *Wallago attu* (Schneider)+*

Order PERCIFORMES

Family CHANNIDAE

Genus *Channa* Scopoli9. *Channa marulius* (Hamilton-Buchanan)+10. *Channa punctatus* (Bloch)+

Family MASTACEMBELIDAE

Genus *Mastacembelus* Scopoli11. *Mastacembelus armatus* (Lacepede)+***AMPHIBIA (FROGS AND TOADS)**

Five species under 4 genera and 3 families have been recorded from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Class AMPHIBIA

Order ANURA

Family RANIDAE

1. *Hoplobatrachus tigrinus* (Daudin)+2. *Euphlyctis cyanophlyctis* (Schneider)+

Family BUFONIDAE

3. *Bufo stomaticus* Lutken Smith+*
4. *Bufo melanostictus* Schneider+*

Family MICROHYLIDAE

5. *Microhyla ornata* (Dum. and Bibr.)+

REPTILIA (TORTOISE, LIZARDS, SNAKES AND CROCODILES)

38 Species belonging to 30 genera under 14 families and 3 orders have been recorded so far from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

Class REPTILIA

Order TESTUDINES

Suborder CRYPTODILA

Family TRIONYCHIDAE

1. *Lissemys punctata punctata* (Lacepede)+
2. *Trionyx gangeticus* (Cuvier)+

Family EMYDIDAE

3. *Kachuga tentoria circumdata* (Mertens)+

Order SQUAMATA

Suborder SAURIA

Family GEKKONIDAE

4. *Hemidactylus brooki* Gray+*
5. *Hemidactylus leschenaulti* Dum. and Bibr.+*
6. *Hemidactylus flaviviridis* Ruppell+*

Family AGAMIDAE

7. *Calotes versicolor* (Daudin)+

Family CHAMAELEONIDAE

8. *Chamaeleo zeylanicus* Laurinti+

Family SCINCIDAE

9. *Mabuya macularia* (Blyth)+*
10. *Riopa punctata* (Linnaeus)+*

Family LACERTIDAE

11. *Ophisops jerdoni* Blyth+*
12. *Ophisops microlepis* Blanford+*

Family VARANIDAE

13. *Varanus griseus koniecznyi* Mertens+
 14. *Varanus bengalensis* (Linnaeus)+

Suborder SERPENTES

Family TYPHLOPIDAE

15. *Ramphotyphlops braminus* (Daudin)+

Family BOIDAE

16. *Python molurus* (Linnaeus)+
 17. *Eryx conicus* (Schneider)+
 18. *Eryx johnii* (Russell)+

Family COLUBRIDAE

19. *Elaphe helena* (Daudin)+
 20. *Ptyas mucosus* (Linnaeus)+
 21. *Argyrogena ventromaculatus* (Gray and Hardwicke)+
 22. *Argyrogena fasciolatus* (Shaw)+**
 23. *Oligodon taeniolatus* (Jerdon)+
 24. *Dendreolaphis tristicus* (Daudin)+
 25. *Lycodon striatus* (Shaw)+
 26. *Lycodon aulicus* (Linnaeus)+
 27. *Sibynophis subpunctatus* (Dumeril and Bibron)+
 28. *Xenochrophis piscator* (Schneider)
 29. *Boiga trigonata* (Schneider)+
 30. *Psammophis leithii* (Gunther)+
 31. *Ahaetulla nasuta* (Lacepede)+
 32. *Enhydris seiboldi* (Schlegel)+*

Family ELAPIDAE

33. *Bungarus fasciolatus* (Schneider)+
 34. *Bungarus caeruleus* (Schneider)+
 35. *Naja naja* (Linnaeus)+

Family VIPERIDAE

36. *Vipera russelli* (Shaw)+
 37. *Echis carinatus* (Schneider)+

Order CROCODYLIA

Family CROCODYLIDAE

38. *Crocodylus palustris* Lesson+

AVES (BIRDS)

A total of 331 avian species have been documented and 149 species were recorded in the present study from Ranthambhore National Park during the years 1999-2003.

SYSTEMATIC ACCOUNT

PODICIPEDIFORMES

PODICIPEDIDAE

1. Little Grebe+ *Tachybaptus ruficollis* (Pallas)

PELECANIFORMES

PELECANIDAE

2. Spot-billed Pelican+ *Pelecanus philippensis* Gmelin

PHALACROCORACIDAE

3. Indian Shag *Phalacrocorax fuscicollis* Stephens
 4. Great Cormorant *Phalacrocorax carbo* (Linnaeus)
 5. Little Cormorant+ *Phalacrocorax niger* (Vieillot)

ANHINGIDAE

6. Darter+ *Anhinga melanogaster* Pennant

CICONIIFORMES

ARDEIDAE

7. Black Bittern+* *Dupetor flavicollis* (Latham)
 8. Great Bittern *Botaurus stellaris* (Linnaeus)
 9. Cattle Egret+ *Bubulcus ibis* (Linnaeus)
 10. Median Egret+ *Mesophoyx intermedia* (Wagler)
 11. Little Egret+ *Egretta garzetta* (Linnaeus)
 12. Large Egret *Casmerodius albus* (Linnaeus)
 13. Black-crowned Night-Heron+ *Nycticorax nycticorax* (Linnaeus)
 14. Grey Heron+ *Ardea cinerea* Linnaeus
 15. Purple Heron+ *Ardea purpurea* Linnaeus
 16. Little Green Heron+ *Butorides striatus* (Linnaeus)
 17. Indian Pond-Heron+ *Ardeola grayii* (Sykes)

CICONIIDAE

18. Painted Stork+ *Mycteria leucocephala* (Pennant)
 19. Black-necked Stork+ *Ephippiorhynchus asiaticus* (Latham)
 20. Asian Openbill-Stork+ *Anastomus oscitans* (Boddaert)
 21. White-necked Stork+ *Ciconia episcopus* (Boddaert)

22. Black Stork
Ciconia nigra (Linnaeus)
23. European White Stork
Ciconia ciconia (Linnaeus)
- THRESKIORNITHIDAE
24. Oriental White Ibis+
Threskiornis melanocephalus (Latham)
25. Eurasian Spoonbill+
Platalea leucorodia Linnaeus
26. Glossy Ibis
Plegadis falcinellus (Linnaeus)
- ANSERIFORMES
- ANATIDAE
27. Lesser Whistling-Duck+
Dendrocygna javanica (Horsfield)
28. Common Teal+
Anas crecca Linnaeus
29. Northern Pintail+
Anas acuta Linnaeus
30. Spot-billed Duck+
Anas poecilorhyncha J.R. Forester
31. Gadwall +
Anas strepera Linnaeus
32. Garganey +
Anas querquedula Linnaeus
33. Northern Shoveller+
Anas clypeata Linnaeus
34. Mallard
Anas platyrhynchos Linnaeus
35. Eurasian Wigeon
Anas penelope Linnaeus
36. Falcated Teal
Anas falcata Georgi
37. Greylag Goose
Anser anser (Linnaeus)
38. Bar-headed Goose
Anser indicus (Latham)
39. Cotton Teal
Nettapus coromandelianus (Gmelin)
40. Comb Duck or Nakta
Sarkidiornis melanotos (Pennant)
41. Red-crested Pochard
Rhodonessa rufina (Pallas)
42. Brahminy Shelduck
Tadorna ferruginea (Pallas)
43. Common Pochard
Aythya ferina (Linnaeus)
44. Tufted Pochard
Aythya fuligula (Linnaeus)
45. Ferruginous Pochard
Aythya nyroca (Guldenstadt)
- FALCONIFORMES
- ACCIPITRIDAE
46. Black Eagle+
Ictinaetus malayensis (Temminck)
47. Black-shouldered Kite+
Elanus caeruleus (Desfontaines)
48. Bonelli's Eagle
Hieraaetus fasciatus (Vieillot)
49. Brahminy Kite+
Haliastur indus (Boddaert)
50. Changeable Hawk-Eagle
Spizaetus cirrhatus (Gmelin)
51. Mountain Hawk-Eagle
Spizaetus nipalensis Hodgson
52. Oriental Honey-Buzzard+
Pernis ptilorhynchus (Temminck)

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|----------------------------|---|
| 53. Crested Serpent Eagle | <i>Spilornis cheela</i> (Latham) |
| 54. Egyptian Vulture | <i>Neophron percnopterus</i> (Linnaeus) |
| 55. Greater Spotted Eagle | <i>Aquila clanga</i> Pallas |
| 56. Lesser Spotted Eagle | <i>Aquila pomarina</i> Brehm |
| 57. Steppe Eagle | <i>Aquila nipalensis</i> Hodgson |
| 58. Tawny Eagle | <i>Aquila rapax</i> (Temminck) |
| 59. Eurasian Griffon | <i>Gyps fulvus</i> (Hablizl) |
| 60. Himalayan Griffon | <i>Gyps himalayensis</i> Hume |
| 61. Long-billed Vulture | <i>Gyps indicus</i> (Scopoli) |
| 62. White-backed Vulture | <i>Gyps bengalensis</i> (Gmelin) |
| 63. Red-headed Vulture | <i>Sarcogypus calvus</i> (Scopoli) |
| 64. Long-legged Buzzard | <i>Buteo rufinus</i> (Cretzschmar) |
| 65. Western Marsh Harrier+ | <i>Circus aeruginosus</i> (Linnaeus) |
| 66. Hen Harrier | <i>Circus cyaneus</i> (Linnaeus) |
| 67. Montagu's Harrier | <i>Circus pygargus</i> (Linnaeus) |
| 68. Pallid Harrier+* | <i>Circus macrourus</i> (Gmelin) |
| 69. Pied Harrier+* | <i>Circus melanoleucos</i> (Pennant) |
| 70. Black Kite | <i>Milvus migrans</i> (Boddaert) |
| 71. Shikra + | <i>Accipiter badius</i> (Gmelin) |
| 72. Eurasian Sparrowhawk+ | <i>Accipiter nisus</i> (Linnaeus) |
| 73. Short-toed Snake-Eagle | <i>Circaetus gallicus</i> (Gmelin) |
| 74. White-eyed Buzzard | <i>Butastur teesa</i> (Franklin) |
| PANDIONIDAE | |
| 75. Osprey+ | <i>Pandion haliaetus</i> (Linnaeus) |
| FALCONIDAE | |
| 76. Peregrine Falcon | <i>Falco peregrinus</i> Tunstall |
| 77. Red-headed Falcon | <i>Falco chicquera</i> Daudin |
| 78. Amur Falcon | <i>Falco amurensis</i> Radde |
| 79. Eurasian Hobby | <i>Falco subbuteo</i> Linnaeus |
| 80. Oriental Hobby | <i>Falco severus</i> Horsfield |
| 81. Lagger | <i>Falco jugger</i> Gray |
| 82. Common Kestrel | <i>Falco tinnunculus</i> Linnaeus |
| GALLIFORMES | |
| PHASIANIDAE | |
| 83. Grey Francolin+ | <i>Francolinus pondicerianus</i> (Gmelin) |
| 84. Black Francolin | <i>Francolinus francolinus</i> (Linnaeus) |

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|--------------------------------|---|
| 85. Painted Francolin | <i>Francolinus pictus</i> (Jardine & Selby) |
| 86. Painted Spurfowl+ | <i>Galloperdix lunulata</i> (Valenciennes) |
| 87. Red Spurfowl | <i>Galloperdix spadicea</i> (Gmelin) |
| 88. Indian Peafowl+ | <i>Pavo cristatus</i> (Linnaeus) |
| 89. Rain Quail | <i>Coturnix coromandelica</i> (Gmelin) |
| 90. Common Quail | <i>Coturnix coturnix</i> (Linnaeus) |
| 91. Jungle Bush Quail | <i>Perdicula asiatica</i> (Latham) |
| 92. Rock Bush Quail | <i>Perdicula argoondah</i> (Sykes) |
| GRUIFORMES | |
| TURNICIDAE | |
| 93. Yellow-legged Buttonquail+ | <i>Turnix tanki</i> Blyth |
| 94. Common Buttonquail+ | <i>Turnix suscitator</i> (Gmelin) |
| GRUIDAE | |
| 95. Sarus Crane | <i>Grus antigone</i> (Linnaeus) |
| RALLIDAE | |
| 96. Ruddy-breasted Crake+ | <i>Porzana fusca</i> (Linnaeus) |
| 97. Slaty-legged Crake+ | <i>Rallina eurizonoides</i> (Lafresnaye) |
| 98. White-breasted Waterhen+ | <i>Amaurornis phoenicurus</i> (Pennant) |
| 99. Brown Crake | <i>Amaurornis akool</i> (Skyles) |
| 100. Watercock+ | <i>Gallicrex cinerea</i> (Gmelin) |
| 101. Common Moorhen+ | <i>Gallinula chloropus</i> (Linnaeus) |
| 102. Common Coot+ | <i>Fulica atra</i> Linnaeus |
| 103. Purple Moorhen | <i>Porphyrio porphyrio</i> (Linnaeus) |
| CHARADRIIFORMES | |
| JACANIDAE | |
| 104. Pheasant-tailed Jacana+ | <i>Hydrophasianus chirurgus</i> (Scopoli) |
| 105. Bronze-winged Jacana+ | <i>Metopidius indicus</i> (Latham) |
| CHARADRIIDAE | |
| 106. Red-wattled Lapwing+ | <i>Vanellus indicus</i> (Boddaert) |
| 107. Yellow-wattled Lapwing | <i>Vanellus malabaricus</i> (Boddaert) |
| 108. River Lapwing | <i>Vanellus duvaucelli</i> (Lesson) |
| 109. Lesser Sand Plover+ | <i>Charadrius mongolus</i> Pallas |
| 110. Little Ringed Plover+ | <i>Charadrius dubius</i> Scopoli |
| 111. Kentish Plover | <i>Charadrius alexandrinus</i> Linnaeus |

ROSTRATULIDAE

112. Greater Painted-Snipe *Rostratula benghalensis* (Linnaeus)

SCOLOPACIDAE

113. Common Snipe+ *Gallinago gallinago* (Linnaeus)
 114. Eurasian Woodcock+ *Scolopax rusticola* Linnaeus
 115. Common Red Shank+ *Tringa totanus* (Linnaeus)
 116. Marsh Sandpiper+ *Tringa stagnatilis* (Bechstein)
 117. Common Greenshank+ *Tringa nebularia* (Gunner)
 118. Green Sandpiper+ *Tringa ochropus* Linnaeus
 119. Wood Sandpiper+ *Tringa glareola* Linnaeus
 120. Spotted Redshank *Tringa erythropus* (Pallas)
 121. Common Sandpiper+ *Actitis hypoleucos* Linnaeus
 122. Ruddy Turnstone+ *Arenaria interpres* (Linnaeus)
 123. Little Stint+ *Calidris minuta* (Leisler)
 124. Temminck's Stint+ *Calidris temminckii* (Leisler)
 125. Eurasian Curlew *Numenius arquata* (Linnaeus)
 126. Blacktailed Godwit *Limosa limosa* (Linnaeus)
 127. Ruff *Philomachus pugnax* (Linnaeus)

RECURVIROSTRIDAE

128. Black-winged Stilt + *Himantopus himantopus* (Linnaeus)
 129. Pied Avocet+* *Recurvirostra avosetta* Linnaeus

BURHINIDAE

130. Great Stone-Plover *Esacus recurvirostris* (Cuvier)
 131. Stone Curlew+ *Burhinus oedicnemus* (Linnaeus)

GLAREOLIDAE

132. Small Pratincole+* *Glareola lactea* Temminck
 133. Indian Courser+ *Cursorius coromandelicus* (Gmelin)

LARIDAE

134. Whiskered Tern+ *Chlidonias hybridus* (Pallas)
 135. River Tern+ *Sterna aurantia* J.E. Gray
 136. Black-bellied Tern+ *Sterna acuticauda* J.E. Gray
 137. Gull-billed Tern *Gelocheidon nilotica* (Gmelin)

COLUMBIFORMES

PTEROCLIDIDAE

138. Painted Sandgrouse+ *Pterocles indicus* (Gmelin)

139. Chestnut-bellied Sandgrouse
COLUMBIDAE
Pterocles exustus Temminck
140. Blue Rock Pigeon+
Columba livia Gmelin
141. Yellow-legged Green-Pigeon+
Treron phoenicoptera (Latham)
142. Red Collared-Dove+
Streptopelia tranquebarica (Herman)
143. Eurasian Collared-Dove+
Streptopelia decaocto (Fridvaldszky)
144. Little Brown Dove
Streptopelia senegalensis (Linnaeus)
145. Oriental Turtle-Dove
Streptopelia orientalis (Latham)
146. Spotted Dove+
Streptopelia chinensis (Scopoli)
- PSITTACIFORMES
PSITTACIDAE
147. Rose-ringed Parakeet+
Psittacula krameri (Scopoli)
148. Plumheaded Parakeet+
Psittacula cyanocephala (Linnaeus)
149. Alexandrine Parakeet
Psittacula eupatria (Linnaeus)
- CUCULIFORMES
CUCULIDAE
150. Pied Crested Cuckoo+
Clamator jacobinus (Boddaert)
151. Brainfever Bird+
Hierococcyx varius (Vahl)
152. Indian Cuckoo+*
Cuculus micropterus Gould
153. Common Cuckoo
Cuculus canorus Linnaeus
154. Asian Koel+
Eudynamis scolopacea (Linnaeus)
155. Greater Coucal+
Centropus sinensis (Stephens)
156. Sirkeer Malkoha
Phaenicophaeus leschenaultii (Lesson)
- STRIGIFORMES
TYTONIDAE
157. Barn Owl
Tyto alba (Scopoli)
- STRIGIDAE
158. Brown Fish-Owl+
Ketupa zeylonensis (Gmelin)
159. Collared Scops-Owl+
Otus bakkamoena Pennant
160. Eurasian Scops-Owl
Otus scops (Linnaeus)
161. Dusky Eagle-Owl
Bubo coromandus (Latham)
162. Eurasian Eagle-Owl+
Bubo bubo (Linnaeus)
163. Spotted Owlet+
Athene brama (Temminck)
164. Brown Hawk-Owl
Ninox scutulata (Raffles)

CAPRIMULGIFORMES

CAPRIMULGIDAE

165. Common Indian Nightjar *Caprimulgus asiaticus* Latham
 166. Franklin's Nightjar *Caprimulgus affinis* Horsfield
 167. Indian Jungle Nightjar+ *Caprimulgus indicus* Latham

APODIFORMES

APODIDAE

168. House Swift+ *Apus affinis* (J. E. Gray)
 169. Pacific Swift *Apus pacificus* (Latham)
 170. Asian Palm-Swift *Cypsiurus balasiensis* (J. E. Gray)
 171. Alpine Swift+* *Tachymarptis melba* (Linnaeus)

CORACIIFORMES

ALCEDINIDAE

172. Black-capped Kingfisher *Halcyon pileata* (Boddaert)
 173. White-breasted Kingfisher+ *Halcyon smyrnensis* (Linnaeus)
 174. Stork-billed Kingfisher *Halcyon capensis* (Linnaeus)
 175. Small Blue Kingfisher+ *Alcedo atthis* (Linnaeus)
 176. Lesser Pied Kingfisher+ *Ceryle rudis* (Linnaeus)

MEROPIIDAE

177. Small Bee Eater+ *Merops orientalis* Latham

CORACIIDAE

178. Indian Roller+ *Coracias benghalensis* (Linnaeus)
 179. European Roller *Coracias garrulus* Linnaeus

UPUPIDAE

180. Common Hoopoe+ *Upupa epops* Linnaeus

BUCEROTIDAE

181. Indian Grey Hornbill *Ocyrceros birostris* (Scopoli)

PICIFORMES

CAPITONIDAE

182. Brown-headed Barbet *Megalaima zeylanica* (Gmelin)
 183. Coppersmith Barbet+ *Megalaima haemacephala* (P.L.S. Muller)

PICIDAE

184. Black-shouldered Woodpecker *Chrysocolaptes festivus* (Boddaert)
 185. Lesser Golden-backed Woodpecker+ *Dinopium benghalense* (Linnaeus)
 186. Brown-capped pygmy Woodpecker *Dendrocopos nanus* (Vigors)
 187. Yellow-fronted Pied Woodpecker+ *Dendrocopos mahrattensis* (Latham)

188. Eurasian Wryneck

Jynx torquilla Linnaeus

PASSERIFORMES

PITTIDAE

189. Indian Pitta+

Pitta brachyura Linnaeus

ALAUDIDAE

190. Ashy-crowned Sparrow-Lark

Eremopterix grisea (Scopoli)

191. Black-crowned Finch-Lark

Eremopterix nigriceps (Gould)

192. Bengal Bush Lark

Mirafra assamica Horsfield

193. Red-winged Bush-Lark

Mirafa erythroptera Blyth

194. Singing Bush Lark

Mirafra cantillans Blyth

195. Common Crested Lark

Galerida cristata (Linnaeus)

196. Indian Desert Finch-Lark

Ammomanes deserti (Lichtenstein)

197. Rufous-tailed Finch-Lark

Ammomanes phoenicurus (Franklin)

198. Greater Hoopoe-Lark

Alaemon alaudipes (Desfontaines)

199. Greater Short-toed Lark

Calandrella brachydactyla (Leisler)

200. Eastern Calandra Lark

Calandrella bimaculata (Menetries)

201. Hume's Short-toed Lark

Calandrella acutirostris Hume

202. Eastern Skylark

Alauda gulgula Franklin

HIRUNDINIDAE

203. Sand Martin

Riparia riparia (Linnaeus)

204. Plain Martin

Riparia paludicola (Vieillot)

205. House Swallow

Hirundo tahitica Gmelin

206. Streak-throated Swallow

Hirundo fluvicola Blyth

207. Red-rumped Swallow+

Hirundo daurica Linnaeus

208. Wire-tailed Swallow

Hirundo smithii Leach

209. Common Swallow+

Hirundo rustica Linnaeus

210. Eurasian Crag-Martin

Hirundo rupestris Scopoli

211. Dusky Crag-Martin

Hirundo concolor Sykes

MOTACILLIDAE

212. Yellow Wagtail+

Motacilla flava Linnaeus

213. Grey Wagtail+

Motacilla cinerea Tunstall

214. Large Pied Wagtail+

Motacilla maderaspatensis Gmelin

215. White Wagtail

Motacilla alba Linnaeus

216. Citrine Wagtail

Motacilla citreola Pallas

217. Paddyfield Pipit+

Anthus rufulus Vieillot

218. Eurasian Tree Pipit+

Anthus trivialis (Linnaeus)

219. Brown Rock Pipit

Anthus similis Jerdon

220. Oriental Tree Pipit *Anthus hodgsoni* Richmond
 221. Tawny Pipit *Anthus campestris* (Linnaeus)
 222. Blyth's Pipit *Anthus godlewskii* (Taczanowski)
- CAMPEPHAGIDAE
223. Large Cuckoo-Shrike *Coracina macei* (Lesson)
 224. Black-headed Cuckoo-Shrike *Coracina melanoptera* (Ruppell)
 225. Small Minivet *Pericrocotus cinnamomeus* (Linnaeus)
 226. Scarlet Minivet *Pericrocotus flammeus* (Forster)
 227. White-bellied Minivet *Pericrocotus erythropygus* (Jerdon)
 228. Common Wood-shrike *Tephrodornis pondicerianus* (Gmelin)
- PYCNONOTIDAE
229. Himalayan Bulbul *Pycnonotus leucogenys* (Gray)
 230. Red-whiskered Bulbul+ *Pycnonotus jocosus* (Linnaeus)
 231. Red-vented Bulbul+ *Pycnonotus cafer* (Linnaeus)
- IRENIDAE
232. Common Iora+ *Aegithina tiphia* (Linnaeus)
 233. Marshall's Iora *Aegithina nigrolutea* (Marshall)
 234. Gold-fronted Chloropsis+* *Chloropsis aurifrons* (Temminck)
 235. Jerdons Chloropsis+* *Chloropsis cochinchinensis* (Gmelin)
- LANIIDAE
236. Great Grey Shrike *Lanius excubitor* Linnaeus
 237. Rufous-backed Shrike *Lanius schach* Linnaeus
 238. Southern Grey Shrike *Lanius meridionalis* Temminck
 239. Bay-backed Shrike *Lanius vittatus* Valenciennes
 240. Rufous-tailed Shrike *Lanius isabellinus* Hemprich & Ehrenberg
 241. Brown Shrike+* *Lanius cristatus* Linnaeus
- MUSCICAPIDAE
- TURDINAE
242. Dark-throated Thrush *Turdus ruficollis* Pallas
 243. Blue Rock-Thrush *Monticola solitarius* (Linnaeus)
 244. Bluethroat *Luscinia svecica* (Linnaeus)
 245. Indian Chat *Cercomela fusca* (Blyth)
 246. Grey Buschat *Saxicola ferrea* Gray
 247. Common Stonechat *Saxicola torquata* (Linnaeus)
 248. Pied Bushchat+ *Saxicola caprata* (Linnaeus)

249. Stoliczka's Bushchat *Saxicola macrorhyncha* (Stoliczka)
250. Indian Robin+ *Saxicoloides fulicata* (Linnaeus)
251. Black Redstart+ *Phoenicurus ochruros* (Gmelin)
252. Isabelline Wheatear *Oenanthe isabellina* (Temminck)
253. Desert Wheatear+ *Oenanthe deserti* (Temminck)
254. Variable Wheeler *Oenanthe picata* (Blyth)
255. Oriental Magpie-Robin+ *Copsychus saularis* (Linnaeus)
256. Orange-headed Thrush *Zoothera citrina* (Latham)
- TIMALIINAE
257. Common Babbler+ *Turdoides caudatus* (Dumont)
258. Jungle Babbler+ *Turdoides striatus* (Dumont)
259. Large Grey Babbler *Turdoides malcolmi* (Sykes)
260. Rufous-bellied Babbler *Dumetia hyperythra* (Franklin)
261. Yellow-eyed Babbler *Chrysomma sinense* (Gmelin)
- SYLVIINAE
262. Ashy Prinia+ *Prinia socialis* Sykes
263. Franklin's Prinia *Prinia hodogsonii* (Blyth)
264. Plain Prinia+ *Prinia inornata* Sykes
265. Jungle Prinia *Prinia sylvatica* Jerdon
266. Rufous-fronted Prinia *Prinia buchanani* Blyth
267. Blyth's Reed Warbler+ *Acrocephalus dumetorum* Blyth
268. Indian Great Reed-Warbler+ *Acrocephalus stentoreus* (Hemprich & Ehrenberg)
269. Dusky Warbler *Phylloscopus fuscatus* (Blyth)
270. Greenish Leaf-Warbler *Phylloscopus trochiloides* (Sundevall)
271. Olivaceous Leaf-Warbler *Phylloscopus griseolus* Blyth
272. Smoky Warbler *Phylloscopus fuligiventer* (Hodgson)
273. Tickell's Warbler *Phylloscopus affinis* (Tickell)
274. Yellow-browed Warbler *Phylloscopus inornatus* (Blyth)
275. Common Chiffchaff *Phylloscopus collybita* (Vieillot)
276. Plain Leaf-Warbler *Phylloscopus neglectus* Hume
277. Brook's Leaf-Warbler *Phylloscopus subviridis* (Brooks)
278. Streaked Fantail-Warbler+ *Cisticola juncidis* (Rafinesque)
279. Hume's Warbler *Phylloscopus humei* (Brooks)
280. Common Tailorbird+ *Orthotomus sutorius* (Pennant)
281. Desert Warbler *Sylvia nama* (Hemprich & Ehrenberg)
282. Common Lesser Whitethroat *Sylvia curruca* Linnaeus

MUSCICAPINAE

283. Grey-headed Flycatcher *Culicicapa ceylonensis* (Swainson)
 284. Asian Brown Flycatcher *Muscicapa dauurica* Pallas
 285. Red-throated Flycatcher *Ficedula parva* (Bechstein)
 286. Ultramarine Flycatcher *Ficedula superciliaris* (Jerdon)
 287. Tickell's Blue-Flycatcher *Cyornis tickelliae* Blyth
 288. Verditer Flycatcher *Eumyias thalassina* (Swainson)

MONARCHINAE

289. Asian Paradise-Flycatcher+ *Terpsiphone paradisi* (Linnaeus)

RHIPIDURINAE

290. White-browed Fantail-Flycatcher *Rhipidura aureola* Lesson

REMIZIDAE

291. Fire-capped Tit *Cephalopyrus flammiceps* (Burton)

PARIDAE

292. Great Tit+ *Parus major* Linnaeus
 293. Black-lored Yellow Tit *Parus xanthogenys* Vigors

DICAIEIDAE

294. Tickell's Flowerpecker+* *Dicaeum erythrorhynchos* (Latham)

NECTARINIIDAE

295. Purple Sunbird+ *Nectarinia asiatica* (Latham)
 296. Purple-rumped Sunbird+* *Nectarinia zeylonica* (Linnaeus)

ZOSTEROPIDAE

297. Oriental White-eye *Zosterops palpebrosus* (Temminck)

EMBERIZIDAE

EMBERIZINAE

298. Crested Bunting *Melophus lathamii* (Gray)
 299. Greynecked Bunting *Emberiza buchanani* Blyth
 300. Red-headed Bunting *Emberiza bruniceps* Brandt
 301. Rock Bunting *Emberiza cia* Linnaeus
 302. White-capped Bunting *Emberiza stewarti* Blyth

FRINGILLIDAE

303. Common Rosefinch *Carpodacus erythrinus* (Pallas)

ESTRILDIDAE

304. Red Munia *Amandava amandava* (Linnaeus)
 305. White-throated Munia+ *Lonchura malabarica* (Linnaeus)

306. Black-throated Munia+* *Lonchura kelaarti* (Jerdon)
307. Spotted Munia+ *Lonchura punctulata* (Linnaeus)
308. Black-headed Munia+* *Lonchura malacca* (Linnaeus)
- PASSERIDAE
- PASSERINAE
309. House Sparrow *Passer domesticus* (Linnaeus)
310. Yellow-throated Sparrow *Petronia xanthocollis* (Burton)
- PLOCEINAE
311. Streaked Weaver *Ploceus manyar* (Horsfield)
312. Black-breasted Weaver *Ploceus benghalensis* (Linnaeus)
313. Baya Weaver+ *Ploceus philippinus* (Linnaeus)
- STURNIDAE
314. Bank Myna *Acridotheres ginginianus* (Latham)
315. Common Myna+ *Acridotheres tristis* (Linnaeus)
316. Jungle Myna+* *Acridotheres fuscus* (Wagler)
317. Brahminy Starling *Sturnus pagodarum* (Gmelin)
318. Grey-headed Starling+ *Sturnus malabaricus* (Gmelin)
319. Pied Starling *Sturnus contra* Linnaeus
320. Rosy Starling *Sturnus roseus* (Linnaeus)
321. Common Starling *Sturnus vulgaris* Linnaeus
- ORIOLIDAE
322. Black-headed Oriole+ *Oriolus xanthornus* (Linnaeus)
323. Eurasian Golden Oriole+ *Oriolus oriolus* (Linnaeus)
- DICRURIDAE
324. Black Drongo+ *Dicrurus macrocercus* Vieillot
325. White-bellied Drongo+ *Dicrurus caerulescens* (Linnaeus)
326. Ashy Drongo+ *Dicrurus leucophaeus* Vieillot
- ARTAMIDAE
327. Ashy Woodswallow+* *Artamus fuscus* Vieillot
- CORVIDAE
328. House Crow+ *Corvus splendens* Vieillot
329. Jungle Crow + *Corvus macrorhynchos* Wagler
330. Common Raven+* *Corvus corax* Linnaeus
331. Indian Treepie + *Dendrocitta vagabunda* (Latham)

MAMMALIA (MAMMALS)

38 Species have been documented out of which 29 species have been sighted in the present study from Ranthambhore National Park.

SYSTEMATIC ACCOUNT

- Order INSECTIVORA
 Family ERINACEIDAE
 Subfamily ERINACEINAE
 Genus *Hemiechinus* Fitzinger, 1866
1. *Hemiechinus collaris* (Gray, 1830) Indian Long-eared Hedgehog
 Family SORICIDAE
 Subfamily CROCIDURINAE
 Genus *Suncus* Ehrenberg, 1832
2. *Suncus murinus* (Linnaeus, 1766)+ Grey Musk Shrew
 Order CHIROPTERA
 Suborder MEGACHIROPTERA
 Family PTEROPODIDAE
 Subfamily PTEROPODINAE
 Genus *Cynopterus* Cuvier, 1824
3. *Cynopterus sphinx* (Vahl, 1797)+ Short-nosed Fruit Bat
 Genus *Pteropus* Erxleben, 1777
4. *Pteropus giganteus* (Brunnich, 1782)+ Indian Flying Fox
 Family MEGADERMATIDAE
 Genus *Megaderma* Geoffroy, 1810
5. *Megaderma lyra* Geoffroy, 1810+ Indian False Vampire
 Family VESPERTILIONIDAE
 Subfamily VESPERTILIONINAE
 Genus *Scotophilus* Leach, 1821
6. *Scotophilus heathi* (Horsfield, 1831) Asiatic Greater Yellow Bat
 Order PRIMATES
 Family CERCOPITHECIDAE
 Subfamily CERCOPITHECINAE
 Genus *Macaca* Lacepede, 1799
7. *Macaca mulatta* (Zimmermann, 1780)+ Rhesus Macaque

Subfamily COLOBINAE

Genus *Semnopithecus* Desmarest, 1822

- 8.
- Semnopithecus entellus*
- (Dufresne, 1797)+ Common Hanuman Langur

Order CARNIVORA

Family CANIDAE

Genus *Canis* Linnaeus, 1758

- 9.
- Canis aureus*
- Linnaeus, 1758+ Asiatic Jackal

- 10.
- Canis lupus*
- Linnaeus, 1758+ Wolf

Genus *Cuon* Hodgson, 1838

- 11.
- Cuon alpinus*
- (Pallas, 1811) Wild Dog or Dhol

Genus *Vulpes* Frisch, 1775

- 12.
- Vulpes bengalensis*
- (Shaw, 1800)+ Indian Fox

Family FELIDAE

Subfamily FELINAE

Genus *Caracal* Gray, 1843

- 13.
- Caracal caracal*
- (Schreber, 1776) Caracal

Genus *Felis* Linnaeus, 1758

- 14.
- Felis chaus*
- Schreber, 1777+ Jungle Cat

Subfamily PANTHERINAE

Genus *Panthera* Oken, 1816

- 15.
- Panthera pardus*
- (Linnaeus, 1758)+ Leopard

- 16.
- Panthera tigris*
- (Linnaeus, 1758)+ Tiger

Family HERPESTIDAE

Subfamily HERPESTINAE

Genus *Herpestes* Illiger, 1811

- 17.
- Herpestes edwardsii*
- (E. Geoffrey Saint-Hilaire, 1818)+ Indian Gray Mongoose

- 18.
- Herpestes javanicus*
- (E. Geoffrey Saint-Hilaire, 1818)+
- auripunctatus*
- Small Indian Mongoose

Family HYAENIDAE

Subfamily HYAENINAE

Genus *Hyaena* Brunnich, 1771

- 19.
- Hyaena hyaena*
- (Linnaeus, 1758)+ Striped Hyaena

Family MUSTELIDAE

Subfamily MELLIVORINAE

Genus *Mellivora* Storr, 1780

- 20.
- Mellivora capensis*
- (Schreber, 1776) Ratel or Honey Badger

- Family URSIDAE
Subfamily URSINAE
Genus *Melursus* Meyer, 1793
21. *Melursus ursinus* (Shaw, 1791)+ Sloth Bear
- Family VIVERRIDAE
Subfamily PARADOXURINAE
Genus *Paradoxurus* Cuvier, 1821
22. *Paradoxurus hermaphroditus* (Pallas, 1777)+ Toddy Cat
- Subfamily VIVERRINAE
Genus *Viverricula* Hodgson, 1838
23. *Viverricula indica* (Desmarest, 1804) Small Indian Civet
- Order ARTIODACTYLA
Family SUIDAE
Subfamily SUINAE
Genus *Sus* Linnaeus, 1758
24. *Sus scrofa* Linnaeus, 1758+ Indian Wild Boar
- Family CERVIDAE
Subfamily CERVINAE
Genus *Axis* H. Smith, 1827
25. *Axis axis* (Erxleben, 1777)+ Spotted Deer
- Genus *Cervus* Linnaeus, 1758
26. *Cervus unicolor* Kerr, 1792+ Sambhar
- Family BOVIDAE
Subfamily ANTILOPINAE
Genus *Antelope* Pallas, 1766
27. *Antelope cervicapra* (Linnaeus, 1758)+ Black Buck or Indian Antelope
- Genus *Gazella* Blainville, 1816
28. *Gazella bennettii* (Sykes, 1831)+ Indian Gazella or Chinkara
- Subfamily BOVINAE
Genus *Boselaphus* Blainville, 1816
29. *Boselaphus tragocamelus* (Pallas 1766) + Blue Bull

Order PHOLIDOTA

Family MANIDAE

Genus *Manis* Linnaeus, 1758

30. *Manis crassicaudata* Gray, 1827 Indian Pangolin

Order RODENTIA

Suborder SCIUROGNATHI

Family SCIURIDAE

Subfamily SCIURINAE

Genus *Funambulus* Lesson, 1835

31. *Funambulus pennantii* Wroughton, 1905+ Northern Palm Squirrel

Family MURIDAE

Subfamily GERBILLINAE

Genus *Meriones* Illiger, 1811

32. *Meriones hurrianae* (Jordon, 1867)+ Indian Desert Gerbil

Genus *Tatera* Lataste, 1882

33. *Tatera indica* (Hardwicke, 1807) Indian Gerbil

Subfamily MURINAE

Genus *Bandicota* Gray, 1873

34. *Bandicota bengalensis* (Gray and Hardwicke, 1833)+ Lesser Bandicoot Rat

Genus *Mus* Linnaeus, 1758

35. *Mus musculus* Linnaeus, 1758+ House Mouse

Genus *Rattus* Fischer, 1803

36. *Rattus rattus* (Linnaeus, 1758) Black Rat or House Rat

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

Genus *Hystrix* Linnaeus, 1758

37. *Hystrix indica* Kerr, 1792+ Indian Crested Porcupine

Order LAGOMORPHA

Family LEPORIDAE Fischer, 1817

Genus *Lepus* Linnaeus, 1758

38. *Lepus nigricollis* Cuvier, 1823+ Indian Hare or Black-napped Hare

Table-4 : Summary of faunal species recorded from Ranthambhore Tiger Reserve.

INVERTEBRATES		VERTEBRATES	
Order	Species	Order	Species
Nematoda (Thread worms)	23	Pisces	11
Arachnida (Scorpions)	02	Amphibians	05
Chilopoda (Centipedes)	8	Reptiles	38
Orthoptera (Crickets)	02	Aves	331
Dermaptera (Earwigs)	04	Mammals	38
Isoptera (Termites)	21		
Coleoptera : Scarabaeidae	22		
Hymenoptera : Formicidae (Ants)	16		
Lepidoptera (Butterflies/Moths)	07		
Diptera (Flies)	08		
Subtotal	113		423
Total		536	

Out of 536 species reported so far, 159 species have been recorded for the first time from RNP (Fig. 4 and Fig. 5). Among 113 species of invertebrates identified, 20 species are new to Rajasthan and 3 new to India. Seven species of lizards and 16 species of snakes have been added to the existing known fauna on reptiles of RNP. One species of snake *Argyrogena fasciolatus* (Shaw) has been reported for the first time from Rajasthan by Rathore and Khandal (2005). Kumar and Sivaperuman (2005) have also recorded 17 species of birds for the first time from RNP limits. Besides, large collection of invertebrates and fishes are under identification.

Among the important groups collected from the park area are zooplankton, annelids, arachnids, crustaceans, insects, molluscs, some 50-60 species of fresh water fishes and smaller mammals. Some 40 species of butterflies and 31 species of spiders have been identified by the scientist of Tiger Watch organization and will be included in the forthcoming publications on fauna of Ranthambhore National Park. Due to protection and conservation of the habitat, RNP has proved to be a land bank of rich germplasm. All the species are uniformly distributed through out the national park having habitat preference and sharing some kind of dependence on the niches of a specific nature especially grasslands and wetlands. Faunal elements are far and many but still unexplored. Apart from tiger conservation Ranthambhore National Park as a part of Ranthambhore Tiger Reserve needs attention of scientific organizations and State Govt. of Rajasthan to inventorize the faunal status of this protected area for its better health and management.

THREATS TO RANTHAMBHORE NATIONAL PARK

Ranthambhore National Park is a unique ecological habitat protected for wildlife especially tigers. The tiger once a National Pride is becoming the National Problem and in order to save the

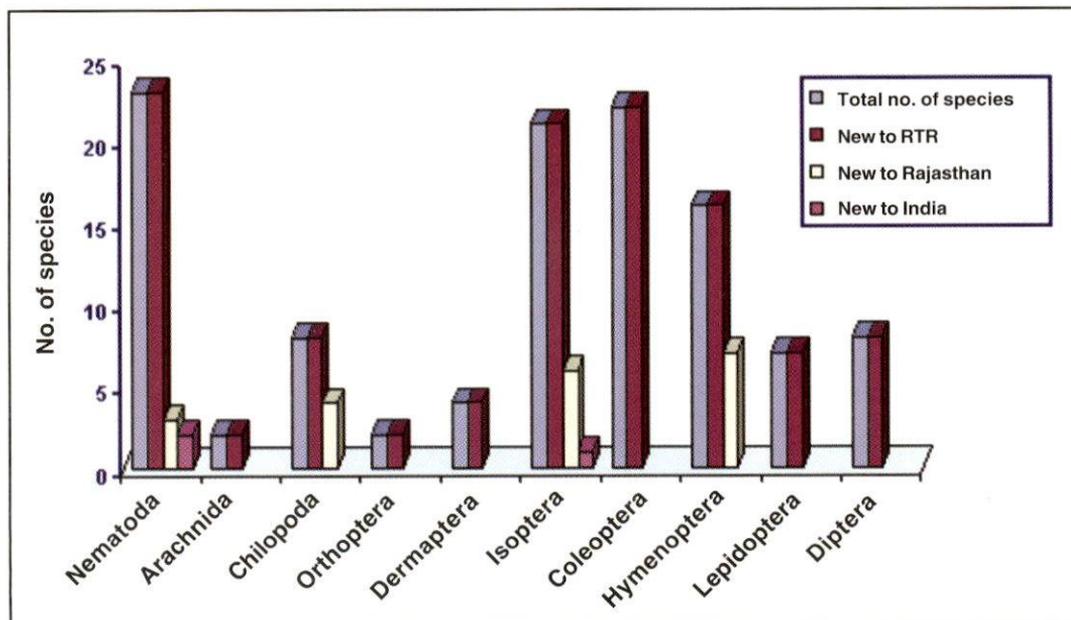


Fig. 4 : Faunal Diversity of Invertebrate species of Ranthambhore National Park

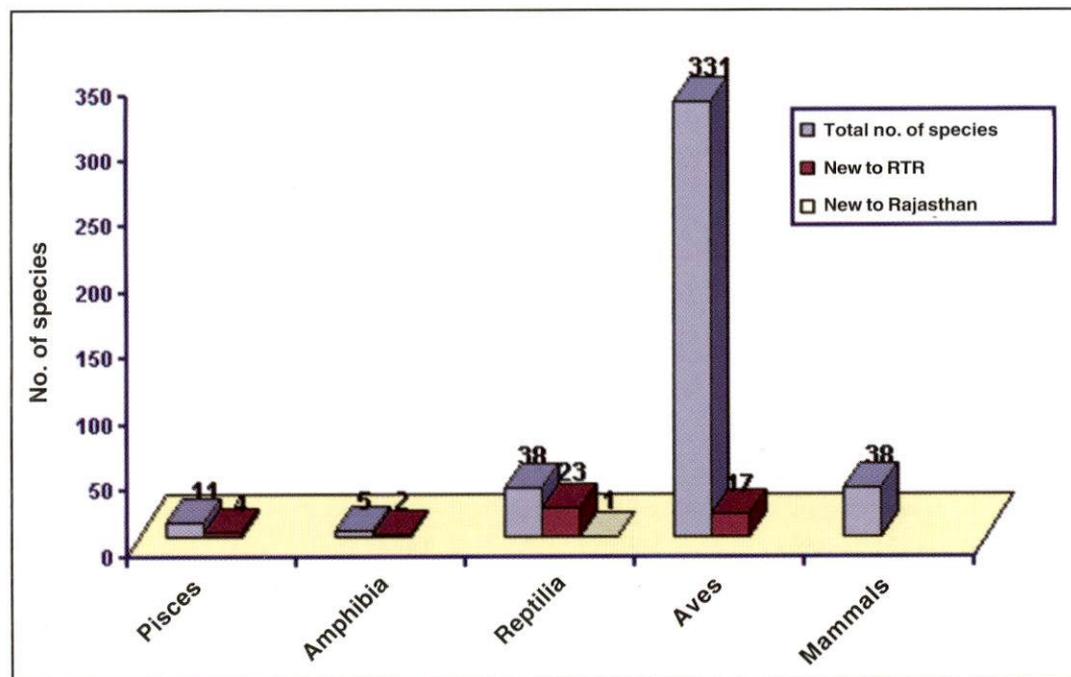


Fig. 5 : Faunal Diversity of vertebrate species of Ranthambhore National Park

tigers, the problems are worsening over the years for the government to handle such a situation. The people living around the park are considered as the main cause of depleting flora and fauna. Grazing, felling of trees, over exploitation of water resources, use of chemical fertilizers and pesticides, excessive tourism, vehicular interference and many man made ecological blunders including management by inadequately trained manpower are some of the main threats to the national park today. All of them needs to be addressed and tackled both individually and collectively based on global or national experience in the background of site-specific needs. Due to constant pressure of the villagers, the buffer zone of the national park has degraded. Some of the main threats to the park and the ways and means by which they can be solved for long survival of the faunal elements are discussed here.

GRAZING PRESSURE

The periphery of the park is surrounded by villages with high human cattle ratio. The soil cover in the buffer area is initially thin due to natural sandstone sheet rocks of Vindhyan System. The villagers are mainly dependent on cattle wealth as the domestic animals provide substantial surrogatory economy to them but are many a times maintaining poor quality cattle with lesser yields. Excessive grazing, uncontrolled felling and lopping of trees in the periphery and the buffer area have resulted into soil erosion and removal of vegetal cover. The quality of grasses is poor and the regeneration power of the buffer area has deteriorated due to heavy cattle grazing over the years. Hence, the villagers invade the core area of the park after a few showers of rain when the new vegetation starts flourishing. This ultimately leads to loss of faunal elements.

FELLING OF TREES FOR FUEL WOOD

There is enough to meet everybody's requirement. It's all based on planning and judicious use. But the overall increase of human population of the surrounding villages around the park and the felling and lopping without replanting young saplings for next process of succession and growth has resulted in increase of wasteland accentuated by poor soil quality. The fuel wood requirement of the villagers is being met by cutting the trees of the Park. Some of the felled trees are also smuggled to nearby industries and towns to earn livelihood. This ill planned cutting of trees has led to poor regeneration, wasteland formation and thereby depletion of existing fauna.

EXPLOITATION OF WATER RESOURCES

Use of water for human and animal drinking purposes together with irrigation is undoubtedly a pressure on water resources in this area. The impact of lifting out the water for human use is most decisive factor creating scarcity of water in the natural tanks and reservoirs of the sanctuary, which are exclusively used by wildlife for drinking and habitat creation. The increasing population pressure and run-off of chemical fertilizers are causing water pollution rendering it most unfit for wild animals.

USE OF CHEMICAL FERTILIZERS AND PESTICIDES

Harmful effects of chemical fertilizers like urea and di-ammonium are well known. These are extensively used by the villagers especially to grow vegetable and cereal crops. The toxic run-off of the agricultural fields gets mixed with the water of natural reservoirs used by wild animals. These toxic run-offs from agricultural fields are serious threat to plant and animal species. Raptors are the worst affected victims of pesticide usage in agriculture fields.

TOURISM

Ranthambhore National Park is one of the largest tourist sites of Rajasthan and India to have a glimpse of Tiger and other animals in the natural free roaming state. The tourist pressure remains high especially during winter and holidays. The rise in tourism encroaches upon the tranquility of existing wildlife, disturbs their habitat and their movements from one point to the other in search of food and water. Although the park authorities have made specified trails for the visitors, but the constant movements of jeeps full of enthusiastic visitors are common and most frequent sources of disturbance to the park animals especially during morning and evening hours of the day, when these animals are in siesta under the tree shades or near water holes. The tourists are becoming a source of sound pollution and also spreading perishable and non-perishable items such as cans, bottles, plastics etc. leading to unhygienic conditions. They sometimes also lure the animals to food items not suitable to them. The in-sanitary atmosphere leads to diseases disquieting the health and calmness of animals.

VEHICULAR PRESSURE

The gypsies and canter auto vans that carry tourists also disturb the tranquility of this sanctuary. The noise of engines is unbearable which disturbs the animals along with the exhaust smoke creating air pollution. Leakage of diesel, petrol and fuel oil on the ground become a potential threat to wildlife. Fast driving for chasing animals to see them from close proximity enhances the disturbance already caused by their presence.

ECOLOGICAL THREATS

The buffer area of the park, due to over exploitation of the forest wealth, has resulted into development of wastelands and barren hills. The denudation of hills and valleys is amounting to large-scale topsoil removal and leaching down of these nutrient rich soils into the drainage system causing silting and filling up of the riverbeds decreasing their water holding capacity. This is further accentuated due to over grazing by the cattle and excessive use of chemical fertilizers and pesticides for raising crops. The beneficial soil microorganisms and arthropods are severely affected due to use of these harmful chemicals.

INADEQUATE TRAINED MANPOWER

The increasing illegal poaching and disappearance of wild animals especially tigers are amounting to colossal loss of natural heritage wealth of the country. For monitoring of these wild animals, proper equipments and training of the manpower employed for their management is an utmost requirement.

CONSERVATION STRATEGIES

Love and regard for wildlife is a part of India's ancient culture. Man has practically used the wild animals for all the purposes like worship, food, shelter and entertainment. Many animals are symbols of their home states and being adopted as logos. They are worshipped as God or associated in the form of their vehicles.

India lies at the confluence of Africa, European and Southeast Asian biological systems and possesses components from each of these realms as well as several peculiar indigenous endemic floral and faunal species. Today the pressure of human activity on land and forests threatens a significant portion of this wealth. What makes matter worse is that knowledge of our wildlife is still largely incomplete except for a few groups of vertebrates such as aves and mammals. Large amount of floral and faunal wealth has to be unearthed and documented before they disappear without being known for their role in this world. A detailed animal-plant interaction and listing of fauna associated with particular plant species is needed, as the presence of one is indicative of the other in the ecosystem.

The need to preserve our natural and cultural heritage arose not merely to provide evidence of our historic past but in order to have a link between the past and the present for future sustenance. India has the oldest continuous civilization in the world and the evidences of our past evoke not only wonder at the achievements of our ancestors but empathy and emotional involvement of several religious historical antecedents and aspirations all co-existing in discrete natural eco-geographical regions. Unlike the west, India still has such an abundance of our past in our midst that we are referred to as a traditional society. The emerging issue in this milieu is that the old traditional values and our natural cultural heritage will determine our future as the most eco-developed country rather than developing country. The old traditional heritage are to be recreated to regain the rich and bewildering faunal diversity especially the keystone wildlife species and therefore has potential for conservation (Tewari, 1991a & b; Panwar, 1986 & 1991; Anon. 1999-2000). Some of the conservational suggestions are discussed below:

- The encroachments in the already existing village pastures and other revenue lands should be removed and they should be developed into proper "*Gochars*" with regulated grazing. Development of *Gochars* in the buffer area leading to religious *Orans* may solve the problem of poor regeneration of vegetal growth.
- Better and high yielding cattles should be provided through a regional cattle-breeding programme. This will stop open grazing.

- Trees attaining long life, such as *Ficus* species and requiring minimum care and maintenance need to be planted in the Aravallis, the Vindhya, the buffer and the core zone of the park. The growth of these trees is very fast and their leaves provide good fodder, which enhances milk production. They also evoke religious sentiments and are of medicinal and industrial value. *Ficus* species can increase the percentage of green cover and survival of many endangered and threatened wildlife species especially the bigger birds whose favourite food happens to be the berries of *Ficus* trees and nests in their hollows on the thick trunks.
- Milk Co-operatives should be formed similar to that initiated by Dr. V. Kurien, architect of India's modern dairy industry, who brought successful white revolution named "Operation Flood" in Indian History. Another historical revolution should come from State of the Warriors, the Ranthambhore, a place testimony to the historical events. Farmers should be convinced to form a co-operative instead of keeping individual cattle. A member of every household should hold an equal share in that co-operative irrespective of caste, colour, creed or wealth.
- Plant tree saplings of horticulture importance in the periphery as an alternate means of economy for the villagers so as to minimize their dependency on livestock.
- The villagers should be trained to use dried and fallen twigs for their fuel wood demand before gradually switching over to alternative means of non-renewal energy sources. Alternate means of energy such as use of biogas, solar and wind energy should be promoted to stop from destruction of natural habitat of the animals. Fuel wood requirements should strictly be met by proper lopping of tree parts without disturbing the faunal niches of the animals.
- Drinking water facilities should be developed in the villages itself so that they do not disturb the water sources of wild animals. The old ruined water harvesting structures built by the Maharajas many of which are still filled with water during rainy season need to be renewed. Few more water harvesting structures on the old traditional designs should be built at the periphery, inside the buffer and core area of the park to meet out the water requirements of the animals and the villagers. For maintaining better health and hygiene of the park water bodies, should not be allowed to become polluted. Planting of trees, shrubs, herbs and climbers with thick succulent stems and fruits so as to naturally meet the water requirements for many animals especially in the dry conditions is required. Grasses such as *Khus* should be grown near water bodies and other places as it keeps the ambient temperatures of the environment cool for the wild animals during extreme summers.
- Use of chemical fertilizers and pesticides should be banned in the near vicinity of the national park. The beneficial soil fauna is killed due to the use of chemical fertilizers and pesticides. Villagers should be encouraged to adopt their old traditional way of manuring and use of cow-dung and goat pellets. Properly treated natural farmyard manure should be used for healthy growth of plants and soil organisms, thus ensuring the flourishing of animal species diversity at all levels in the serene environment of Ranthambhore.
- The activities of the tourists spreading perishable and non-perishable items such as cans, bottles, plastics etc. that create nuisance to the wild animals and their habitat inside the Park be banned. Tourist pressure should not be built up and they should not be permitted to approach the habitat of wild animals and disturb them. The villagers and the tourists should

be well informed and educated through various audio-visual means about the rules and regulations of the park before entering so that well being of the animals can be maintained at all levels and at all times. A well-informed tourist will prefer to behave in accordance with the laws of the park unlike an ignorant entrant. The representatives of the villagers should form part of the tourism and they should be involved at every stage in the management of the park so that they associate themselves with the growth and activities of the park.

- Battery operated noiseless and smokeless vehicles to be driven on the roads inside the park. Introduction of electric vans, cable cars in between *dangs* and the valley terrain and balloon flights for the nature lovers may further encourage healthy eco-tourism in the area. The number of vehicles and the number of tourists in each vehicle entering inside the park should be strictly observed and reviewed from time to time based on the environmental conditions of the park and also the behaviour of the animals during certain period of time especially when climatic adversity becomes severe in some years. The carrying capacity of the park should be assessed based on opinion of experts for the park.
- *Prosopis juliflora* which was once raised for meeting out the fuel wood, fodder requirement and increase of green cover of Rajasthan is now causing problem in the park due to fast spread. Instead of uprooting it completely it should be lopped in such a way so as to make trees out of the bushy form and the lopped part utilized as fuel and fodder especially in adverse conditions. It should also be allowed to grow in small bushy intermittent patches as this forms the most suitable habitat for many wildlife species especially chinkaras and many species of reptiles.
- Fodder trees such as *Accacia leucopholea*, *Leucaena leucopholea*, *Ficus* sp., *Ailanthus excelsa*, *Holoptelea integrifolia*, *Azadirachta indica* and grasses such as *Motia*, *Dhaman*, *Karad*, *Bhurat*, *Neenjna* and *Bamboo* bush which are growing well in degraded lands need to be planted for fodder supplement to reduce pressure due to over-grazing and regenerate the grasslands. The seeds of these plant species provide good food for wild animals especially mammals and birds. Planting of tree species like *Garjan*, *Dhok*, *Phog*, *Thor* and *Ber* can also help in water conservation and prevent soil erosion besides providing good hideout for the wildlife. Other suitable plant species of multipurpose importance which require minimum maintenance, are self-perpetuating and have the power to regenerate on their own in all sort of adverse conditions should be planted with the help of State Forest Department.
- Proper lopping menstruation should be used to make trees attain height required for bigger birds especially raptors for nesting.
- Latest Information Technology should be used in building a data bank of each of the animal species with their habitat preference and dependence on other factors available within the national park. Methodology like Camera trap should be used to study tigers and other important species of the animals sharing this mega niche of the ecosystem.
- Tagging and monitoring of existing wildlife species is the need of the hour and should be implemented at the earliest to save further disappearance or vanishing of these beautiful

creatures of nature. The bird's ringing has been successfully practiced and should now be applied on bigger vertebrate species especially on rare and threatened faunal elements. This should slowly be tried on all representative groups of plant and animal diversity. The manpower should be trained accordingly. This will re-evolve strong emotions for conservation and preservation of wildlife.

- The living standards of the employees at the level of forest cleaners and forest guards onwards need to be upgraded making channels for progress of each group separately. They should be made more efficient by providing all the required infrastructure of monitoring and management techniques. When we can think of conserving and working on improving the living conditions of feared and fierce animals like tiger why can't we think of understanding the problems of the employees working in such a natural harsh environmental conditions.
- Basic facilities and amenities are to be provided to the forest employees working in the high-risk zones. Introduction of Information Technology can help in minimizing the risks faced daily by the forest staff directly involved in the management of the park.
- Working hours of employees to be reviewed and certified on medical grounds. Overburdening and also no work for many are resulting into ill health. Scrutiny of the old manpower and further employment on the basis of job requirement and their capabilities may be ascertained. Many countries have less working hours than that practiced in India especially for those rendering field duties.

SUMMARY

The faunal account of 536 species so far recorded from the Ranthambhore National Park, a part of Ranthambhore Tiger Reserve amply suggests that the national park area is rich in faunal resources and supports large assemblage of faunal entities from protozoa to mammalia. The Ranthambhore National Park is still under explored and needs extensive investigations to be undertaken by agencies engaged in systematic studies on fauna.

The Ranthambhore National Park still holds capacity of rejuvenation if the vast majority of the park resources including wastelands and watersheds are conserved on biologically sound management strategies for sustainability. The wasteland rejuvenation in the buffer zone may prove to be a major step in conserving the area for wildlife. Even if it is marginally exploited by villagers of the region, it can sustain the interaction without threats to the resources of core area especially animals. People's participation on a proportional benefit-sharing basis can be of significance to overcome the difficulties in bringing together the collective efforts of the people around it.

Ranthambhore National Park has proved to be a land bank of rich germplasm. Faunal elements are far and many but still unexplored. Apart from tiger conservation Ranthambhore National Park needs attention of scientific organizations and State Government of Rajasthan to inventorise the faunal status of this protected area for better ecosystem health and management. Similar studies should be undertaken for other areas falling under Ranthambhore Tiger Reserve (Table-1) also.

The Ranthambhore National Park is a unique representative of the glorious cultural, religious, archaeological, geological, biological and natural heritage of the country hence should be further protected under a wider umbrella by designating Ranthambhore National Park and its surrounding historical town as a "heritage site".

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REFERENCES

- Andheria, A.P. 2000. Birds of Ranthambhore National Park, Rajasthan. *Newsletter for Birds Watcher*, 40(4) : 51-53.
- Andheria, A.P. 2002. Sighting of the Rock Bunting *Emberiza CIA* Linn. In Ranthambhore National Park, Rajasthan. *J. Bombay nat. Hist. Soc.*, 99(3) : 536-537.
- Anon. (?). World Bank staff appraisal report (Report No. 14194-IN). India Eco Development Project Ranthambhore.
- Anon. 1993. A report on Project Tiger. Ministry of Environment and Forests, Government of India, New Delhi : 19-20.
- Anon. 1994. Brief technical note for Ranthambhore Tiger Reserve. Report by Field Director Ranthambhore.
- Anon. 1995. Ranthambhore Tiger Reserve. Field Director, Ranthambhore Tiger Reserve, Forest Department, Govt. of Rajasthan.

- Anon. 1999-2000. Ranthambhore Tiger Reserve Status paper. Field Director, Ranthambhore Tiger Reserve, Forest Department, Govt. of Rajasthan.
- Anwar, J. 1993. A History of Ranthambhore (In Hindi).
- Bannerjee and Srinivasan. 1993. Formulating a strategy to reduce the dependence of the villages on Ranthambhore National Park.
- Berkmuller, K.P., Mukherjee, S.K. and Mishra, B.K. 1989. Grazing and cutting pressures on Ranthambhore National Park in Rajasthan, Report by WII, Dehradun, Uttar Pradesh, India.
- Breeden, Stanley and Wright, Belinda. 1997. Through the tiger's eyes (Published by Ten Speed Press).
- Champion, H.G. and Seth, S.K. 1968. A revised survey of forest types of India, Delhi.
- Chawdhary, A.B. and Chakrabarti, K. 1979. Project Tiger - A premier and intricate conservation project. Proceedings of International Symposium on Tiger, Feb., 1979, India : 262-264.
- Chaudhary, S.S. 1997. Biodiversity in Ranthambhore Tiger Reserve, Sawai Madhopur : An overview. *Tiger Paper*, 24(4) : 27-32.
- Chaudhary, S.S. 1999. Intra-specific fights in tigers in Ranthambhore Tiger Reserve. *Indian Forester*, 125(10) : 1063.
- Chaudhary, S.S. 2000. Ranthambhore beyond tigers. Himanshu Publications, Udaipur-Delhi : 334.
- Chauhan, N.P.S. 2000. Man-animal conflicts: Challenges in the fields. Paper presented at Symposium on Habitat Conservation- Fresh Vision in 2000 and beyond, Sawai Madhopur, 1-2 October 2000 (Unpublished).
- Chundawat, Usha. (?). The Flora of Ranthambhore Tiger Reserve.
- Dalal, Deepak. 1998. Ranthambhore Adventure. Published by Tarini Publishers.
- Das, S.N. and Singh, V. 1995. A study on the Ranthambhore Tiger Reserve National Park (Rajasthan) with reference to its existing flora. *J. Econ. Tax. Bot.*, 19(1) : 27-46.
- Devkota, L., Manglik, P., Srivastava, S. and Niphadkar, M. 1999. Habitat characterization in Ranthambhore National Park using remote sensing and geographical information system. Report by Forestry and Ecology Division, Indian Institute of Remote Sensing, National Remote Sensing Agency, Dept. of Space, Dehradun.
- Gosain, A. 2000. Tiger conservation-New Challenges. Paper presented at Symposium on Habitat Conservation-Fresh Vision in 2000 and beyond, Sawai Madhopur, 1-2 October 2000 (Unpublished).

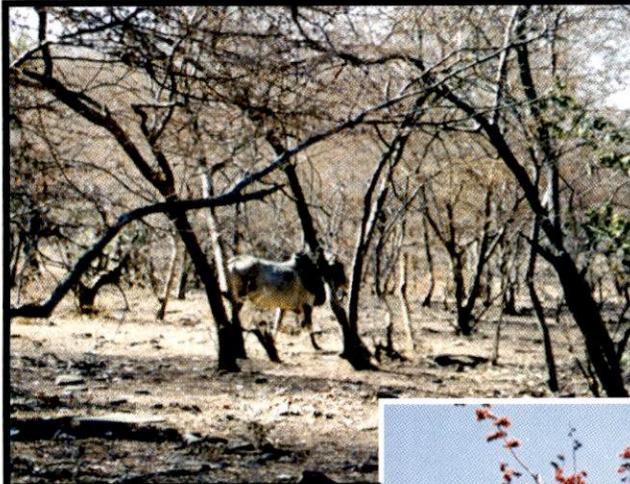
- Helmut, Gertrude and Denzau. 1996. *Konigs Tiger* (Tecklenburg Verlag).
- Israel, S. and Sinclair, Toby. 1989. Ranthambhore National Park. In: *Indian wildlife*. APA Publications (HK) Ltd. : 126-127.
- ISRO, CAZRI. 1992-1998. Change detection in and around Ranthambhore National Park, ISRO, CAZRI, Jodhpur, Rajasthan, India.
- Ives, Richard. 1995. *Of Tigers and Men* (Published by Doubleday).
- Jain, Pushp. 2001. Project Tiger Status Report, Project Tiger, Ministry of Environment and Forests, Government of India, New Delhi.
- Joshi, K.C. 2000. Man animal conflict : Challenges in the field. Paper presented at Symposium on Habitat Conservation- Fresh Vision in 2000 and beyond, Sawai Madhopur, 1-2 October 2000 (Unpublished).
- Karant, K.U. 2001. The way of the tiger: Natural history and conservation of the endangered big cat. *Voyageur press, MN USA* (Special South Asia Edition 2002, Centre for Wildlife Studies) : 132.
- Karant, K.U. 2003. Tiger ecology and conservation in the Indian Subcontinent. *J. Bombay nat. Hist. Soc.*, **100**(2 & 3) : 169-189.
- Karant, K.U. and Sunquist, M.E. 1995. Prey selection by tiger, leopard and dhole in tropical forests. *J. Anim. Eco.*, **64** : 439-450.
- Kayasth, Hiranand. (?). *Tareek a kila Ranthambhore*.
- Khan, Imran. (?). *Park-People Interface and Options for Habitat Recovery*.
- Khan, I.A. 1993. Scientific management of buffer zone - A case study of Ranthambhore National Park. *Proceedings of International Symposium on Tiger, Feb., 1979, India*.
- Kumar, N. Samba. 2000. Ungulated Density and Biomass in the Tropical Semi-Arid Forest of Ranthambhore, India.
- Kumar, S. and Sivaperuman, C. 2005. Bird community structure in Ranthambhore National Park, Rajasthan, India. *Tiger Paper*, **XXXII**(2) : 16-23..
- Kumat, R.S. 1992. Inquiry into missing tigers of Ranthambhore National Park. Report on poaching by Government of Rajasthan (Jaipur).
- Mathur, H.S. 1987. The Ranthambhore National Park : An assessment of biological conservation. In Sharma, H.S. and Sharma, M.L. (eds.) *Environmental Design and Development Conflict or Harmony*. Scientific Publishers, Jodhpur : 361-380.

- Panwar, H.S. 1986. Wildlife Institutes of India- A profile. *Indian Forester*, **112**(10) : 954-956.
- Panwar, H.S. 1991. Some suggestions for conservation of biodiversity in India. *Indian Forester*, **117**(10) : 812-817.
- Ranjitsinh, M.K. 1999. The painted spurfowl *Galloperdix lunulata* Valenciennes in Ranthambhore National Park, Rajasthan. *J. Bombay nat. Hist. Soc.*, **96**(2) : 314.
- Rathore, S. 1984-1989. Management Plan for Ranthambhore Tiger Reserve : 160.
- Rathore, F.S. 1993. Prospects of tiger census. Proceedings of International Symposium on Tiger, Feb., 1979, India.
- Rathore, F.S. and Khandal, Darmendra. 2005. Snakes in and around the Ranthambhore National Park. *Tiger Watch* (Personal communication, unpublished).
- Rathore, F.S., Singh, T. and Thapar, V. 1983. With Tigers in the Wild : An experience in an Indian forest. Vikas Publishing House Pvt. Ltd., New Delhi : 176.
- Rathore, G.S. (? a). Human Population Growth and Decreasing Tigers.
- Rathore, G.S. (? b). Milk and Tigers – A report.
- Rathore, L.S. (?). The glory of Ranthambhore.
- Rathore, N.S. 2004. Inventorisation of faunal resources in National Parks of Rajasthan and Gujarat. *Final Project report, DRS, ZSI, Jodhpur* : 1-41 (Unpublished).
- Reddy, G.V. 1999. Check list of Birds of Ranthambhore, Unpublished. Forest Department, Sawai Madhopur, Rajasthan.
- Rodgers, W.A. and Bhattacharjee, K.K. 1986. Field studies in Ranthambhore Tiger Project, Rajasthan. Wildlife Institute of India, Dehra Dun.
- Rodgers, W.A. and Panwar, H.S. 1988. Planning a Wildlife Protection Area Network in India, Wildlife Institute of India, Dehradun.
- Rodgers, W.A. and Panwar, H.S. 1993. Restoration of wildlife diversity with particular reference to wildlife communities in India. In restoration of degraded lands: Concepts and strategies : i-vi + 1-321.
- Sahu, Y.K. and Sharma, V.D. 1993. Observations on growing up tiger cubs and their learning to hunt. Proceedings of International Symposium on Tiger, Feb., 1979, India.
- Sankhala, K. 1993. Return of the Tiger. Published by Lustre Press.
- Sethi and Mandal. 1994. Energy Consumption around Ranthambhore National Park and Demand Projection and Strategy Framework. Report of Institute of Rural Management, Anand, Gujarat.

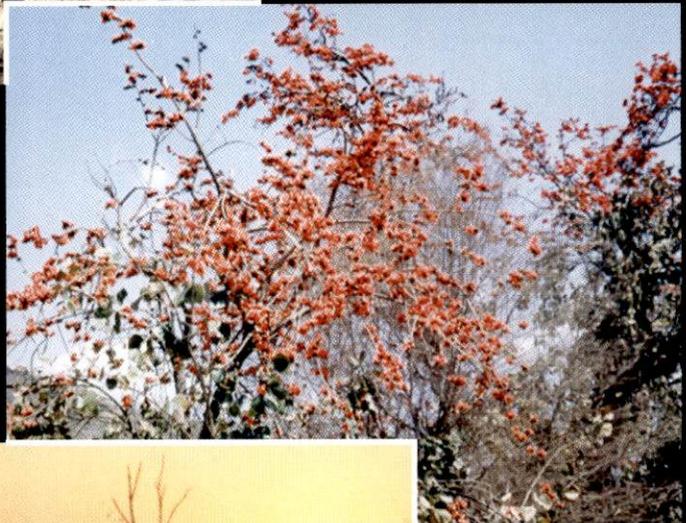
- Shah, A. and Manoj, A. 1996. A Tiger Tale. Published by Fountain Press.
- Sharma, H.S. 2000. Ranthambhore Sanctuary Dilemma of Eco-Development. Concept Publishing Company, New Delhi : 164.
- Sharma, Hanuman Prasad. 1991-1993. Folk Songs of the Villages.
- Sharma, S. 1983. A contribution to the Botany of Ranthambhore Tiger Reserve/National Park. A report by Dept. of Environment, Government of India, New Delhi : 1-18.
- Sharma, V.D. (?). Observation on behaviour of tiger: Response of Tiger to jeep and visitors in tourism area of Ranthambhore National Park. (unpublished).
- Singh, D.P. 2000. Veterinary considerations for tiger conservations. Paper presented at Symposium on Habitat Conservation - Fresh Vision in 2000 and beyond, Sawai Madhopur, 1-2 October, 2000 (Unpublished).
- Singh, Kesri. 1959. The Tiger of Rajasthan. Book published in London.
- Singh, R.L. 1991. Wildlife conservation and Eco-development programme – a case study. *Indian Forester*, 117(10) : 804-811.
- Singh, V. 2004. General aspects of the vegetation of Ranthambhore National Park. Report by Botanical Survey of India, Jodhpur (Personal Communication).
- Singh, V.P. 2005. Rajasthan Empowered Committee Releases Ranthambhore Census figures. Chairman, Empowered Committee on Forests and Wildlife management, Govt. of Rajasthan.
- Sippy, S. and Kapoor, S. 2001. The ultimate Ranthambhore guide. Krishna Graphics : 89.
- Srinivas, V. 2002. A large congregation of Black-shouldered kite *Elanus caeruleus* at Ranthambhore National Park. *J. Bombay nat. Hist. Soc.*, 99(2) : 297-298.
- Thapar, V. 1982. Ranthambhor Fortress Haven for Indian Wildlife. *Sanctuary Asia*, 2(1) : 46-57.
- Thapar, V. 1986. Tiger Portrait of a Predator (Published by Collins).
- Thapar, V. 1987-1988. A review of Ranthambhore National Park.
- Thapar, V. 1989. The secret life of Tigers. Published by Hamish Hamilton.
- Thapar, V. 1992. The Tiger's Destiny. Published by Kyle Cathie.
- Thapar, V. 1999. Tiger. Published by Wayland Press.
- Thapar, V. and Rathore, F.S. 1985. The Tigers of Ranthambhor. *Sanctuary*, 5(1) : 14-33.
- Thapar, V. and Rathore, F.S. 2000. Wild Tiger's of Ranthambhore. Oxford University Press.

- Tewari, D.N. 1991a. Forestry Research. *Indian Forester*, **117**(11) : 941-951.
- Tewari, D.N. 1991b. Forest and Tribal. *Indian Forester*, **117**(11) : 984-989.
- UNDP. 1994. Biodiversity Conservation through Eco-development. An indicative Plan for Ranthambhore Tiger Reserve, Rajasthan, UNDP, IIPA, New Delhi : 151-154.
- Vardhan, M. 1979. Tiger lacks lobby - A case study of Sariska and Ranthambhore Tiger Reserves for shifting of villages. International Symposium on Tiger, Feb., 1979, India.
- Verma, Goverdhan Lal. (?). Shri Ganesh Yatra (Fort Ranthambhore Hike), Sawai Madhopur.
- Ward, Geoffrey C. 1993. Tiger Wallahs. Published by Harper Collins.

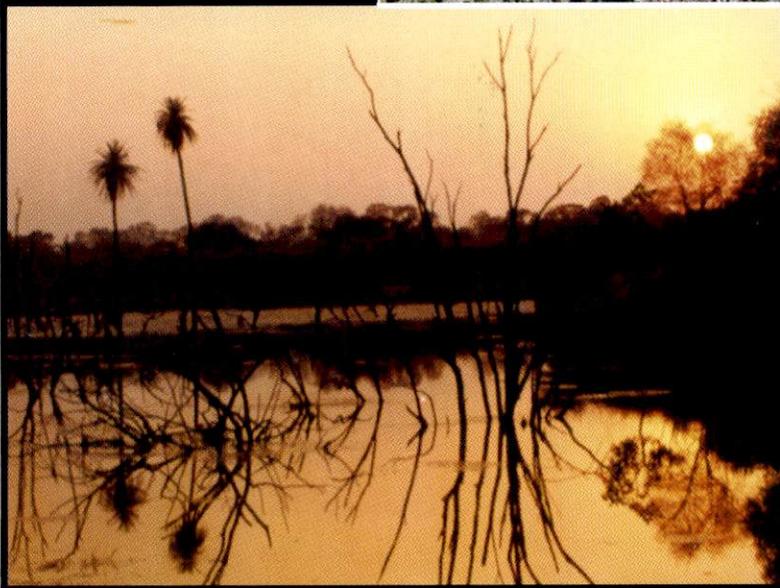
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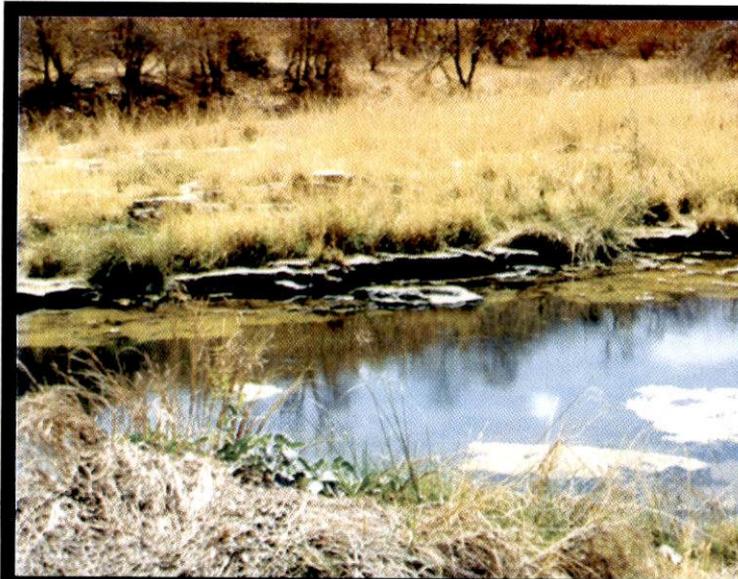
Grazing at Ranthambhore core area



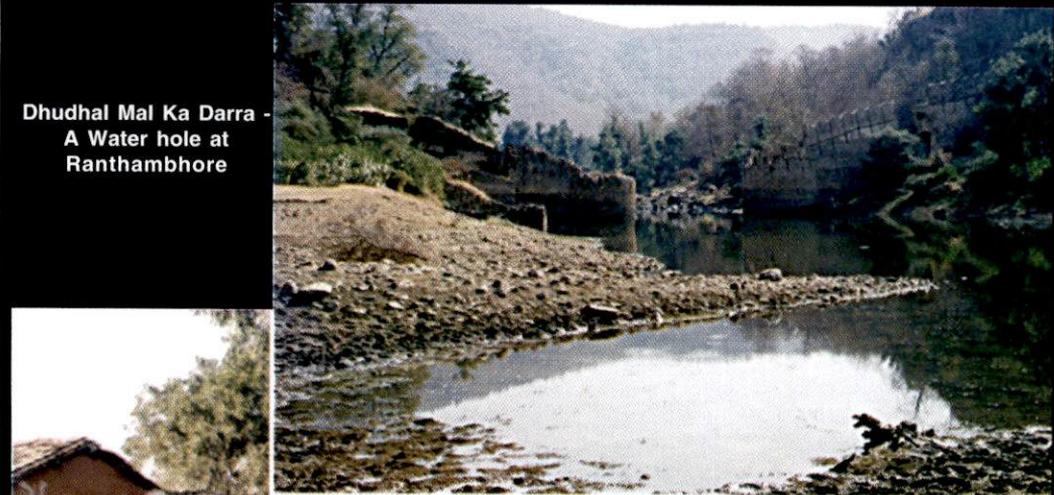
Forest flame at Ranthambhore



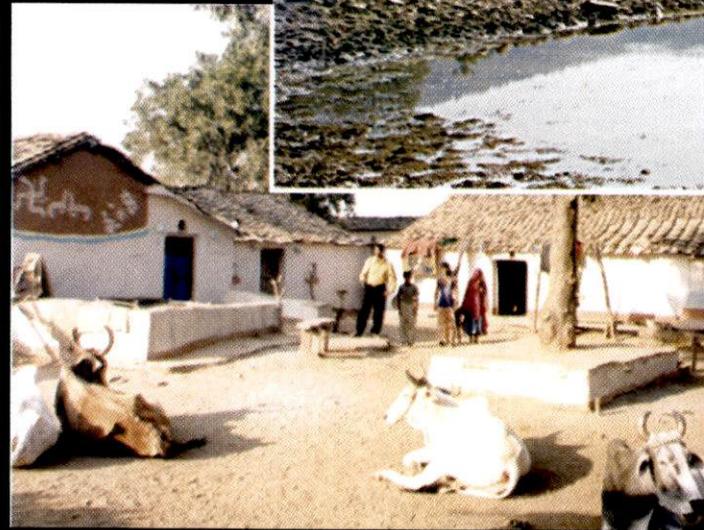
Sunset at Ranthambhore



Wetland at Ranthambhore



**Dhudhal Mal Ka Darra -
A Water hole at
Ranthambhore**



Village at Ranthambhore

Invertebrate Fauna of Ranthambhore Tiger Reserve



Scolopendra mersitans



1



2

1. *Mesobuthus tamulus indicus*
2. *Compsobithusacuta carinatus rugosuius*



Heliocopris gigas



Hypolimnas bolina



Precis lemonias



Precis lemonias



Eurema hecabe



Apis dorsata

Amphibians and Reptiles of Ranthambhore Tiger Reserve



Bufo melanostictus



Hoplobatrachus tigerinus



Calotes versicolor Juvenile and adult



Hemidactylus leschenaulti



Mabuya macularia



Ophisops microlepis



Enhydris seiboldi



Crocodylus palustris

Avian fauna of Ranthambhore Tiger Reserve



Grey Francolin



Indian Treepie



Eurasian Eagle Owl



Rose Ringed Parakeet



Plum Headed Parakeet



Spotted Dove



Jungle Babbler



Greater Coucal



White throated Kingfisher



Little Cormorant



Painted Spurfowl



Black Headed Ibis



Great Egret



Black Winged Stilt



Common Snip



Osprey



Pied Kingfisher

Tiger – *Panthera tigris* in Ranthambhore Tiger Reserve



Mammals of Ranthambhore Tiger Reserve*Vulpes bengalensis**Felis chaus**Herpestes edwardsii**Paradoxurus hermaphroditus**Melursus ursinus**Suncus murinus*

Mammals of Ranthambhore Tiger Reserve



Sus scrofa



Semnopithecus entellus



Axis axis



Cervus unicolor



Boselaphus tragocamelus



Gazella bennettii



SARISKA TIGER RESERVE

ALWAR, RAJASTHAN

INTRODUCTION

Tiger, being at the apex of a forest ecosystem, has been given much importance by wildlife conservationists in India and world over. The attempt at International level by the World Wildlife Fund for nature to save tiger from a sharp decline resulted in the formation of Project Tiger in 1972. The Project Tiger identified different viable reserves in India for preservation of the Royal Bengal Tiger.

Rajasthan (Ranthambhore) known for its rich and diversified social, cultural, ethnic heritage, historical identifies, distinct flora and fauna was among one of the states along with Karnataka (Bandipur), Uttar Pradesh (Corbett), Madhya Pradesh (Kanha), Assam (Manas), Maharashtra (Melghat), Bihar (Palamanu), Orissa (Simplipal), and West Bengal (Sunderbans) selected for tiger conservation out of the first nine tiger reserves constituted (Anon, 1972). Sariska, Rajasthan became the 11th Tiger Reserve, included in the second stage during the year 1978-79 (Melkani, 2001). At present there are 27 tiger reserves in the country (Islam and Rahamani, 2004).

Nestled amidst the Aravalli's, Sariska Tiger Reserve located around Kankwari fort, Alwar, Rajasthan is one of the extreme limits of the distribution of the tiger in India. It is larger than Ranthambhore Tiger Reserve but has similar topography and is less commercialized with comparatively less number of tigers. The terrain is predominantly hilly with sharp cliffs, narrow valleys and sprawling undulating plateaus of the Aravallis. The typical sharp hog-back ridges of the Aravallis are very conspicuous and mesmerizing in Sariska Tiger Reserve. The Ruparel River drained eastward out of the Sariska hills encompassed number of villages. Similarly River Arvari considered being a seasonal, dead, dry river in the Aravallis once flowed in this region have now come back into existence due to construction of Johads in the area (Samantaray, 1998). The scenic Silisad Lake lies along the edge of the Sariska Tiger Reserve with an enchanting hunting lodge overlooking it, is a marvelous place for a vintage view and harbours large number of amphibiotic elements of fauna.

Prior to independence, the forests within the reserve were a part of the erstwhile Alwar state and maintained as a hunting preserve for the Maharaja. It was in 1885, Maharaja Mangal Singh, Alwar declared the forest of Sariska as his Sikargrah wherein it was unlawful to hunt, shoot, net, trap, snare, capture or kill any kind of wild animals. Forests in 1907 were being preserved as Orans named as *Rundh*. By 1909 about 27 villages were there in its vicinity inhabited by tribal *Meenas*. *Gujars* were migratory cattle grazers who started settling in Sariska. By 1929-1932 Raja Jai Singh

had put ban on hunting wild animals such as bear, wild boar etc. In 1935 Alwar, Forest Law was enacted. People living inside the Sariska Forest were not disturbed and they continued to live with the wild animals. Raja Jai Singh died in 1937. The same year witnessed severe draught and was a period of freedom struggle. Sariska Tiger Reserve was affected. Many people vacated the area. The *Thakur* of Kanakwari village also left and did not return. Very few people were left. After independence, this hunting preserve of the Maharaja of Alwar was first notified as a Reserve in 1955. The Reserve status of the forest area was upgraded to that of a sanctuary in 1958. Later, in view of the preservation of wild animals in an improved way, forest areas in close proximity to the Sanctuary were also incorporated. When Project Tiger was launched in 1979, Sariska Sanctuary was merged into it and Sariska Tiger Reserve was created in 1978-1979. The primary notification to declare part of the core area as National Park was issued in 1982. The final notification is still pending in view of the need to relocate few villages from the reserve.

The present area of the Sariska Tiger Reserve sprawls over 867 sq. km. of dry tropical forests both dry deciduous scrub jungles and thorn forests dramatically changing with the change in season. The core area of the reserve is 498 sq. km. with three distinct and separate core-zones, which are not contiguous. 'Dhok' is the principal tree species that covers 90 per cent of the entire area. There are diversity of grasses and shrubs in the valleys and plateaus. The broad range of wildlife here is a wonderful example of ecological adoption and tolerance. The climate here is variable as well as erratic.

The increasing trend of the population of the tiger from 11 to 25 in the recent past, as per Government census of 1995, made Sariska a unique Tiger Reserve. But the present status reached to a point when no tiger was sighted in the Reserve in 2004-2005. Sariska faces a set of challenging problems that require a combined effort by all the concerned people to resolve the existing critical issues so that the Sariska Tiger Reserve has a chance to recuperate its indigenous wild richness.

STUDY AREA

Sariska Tiger Reserve is on the Golden Triangle Delhi-Alwar-Jaipur Highway. This reserve is situated only 200 km from Delhi and 107 km. from Jaipur. Alwar is mere 21 km from Sariska. It is open to visitors throughout the year, although certain jungle tracks are closed during the

CLIMATE

Months	Temperature
Summer	March to June
	Max. 41°C
	Min. 28° C
Winter	December to February
	Max. 23°C
	Min. 8°C
Rainfall	July to September 57.77 cms - 650 mm
Humidity	Average 70 per cent

monsoon and the breeding season. The best time to visit the park is late in the winter around January or February. The temperatures during summer can rise as high as 47°C. Though hot, April to June is an appropriate time to see animals at the water holes. The rock caves and forested valleys were tiger's niches during summer. Information on Sariska can be obtained from the Field Director, Sariska Tiger Reserve, District Alwar, Rajasthan.

The present area of the Sariska Tiger Reserve sprawls over 867 sq. km. of dry tropical forests both dry deciduous scrub jungles and thorn forests dramatically changing with the change in season (Map 1). The core area of the Park is 498 sq. km. with three distinct and separate core-zones. Total prohibition exists in the core area regarding cutting/felling of trees, grasses and collection of non-wood timber produces. Such activities were however permitted in the buffer area. Kankwari, Kaligati, Udainath, Raikamala, Duharmala, Naldeshwar, Slopka, Pandupole, Siliberi, Umri and Devri comes under the core area-I. The forest of Kalikhali and Panidhal comes under core-II. The forest of Mala-Kishori, Silibabdi, Ajabgarh, Bhangarh, Narayanji, Parashar and Khoh comes under core area-III. The northern boundary touches the Manawas, Talvriksh, Sahodi, Jhir Sukal, Paintpur, Silisad, Bathakpura, Garvaji and Nathusar. The southern boundary comprises of Ajabgarh, Bhangarh, Golaka Was, Narayani, Blabgarh, Tehla Talab and Gata Gholan. In the west are Talvriksh, Raikamala, Duharmala, Amra Ka Was, Todi Nijran, Kishori, Bhaman Was and Ajabgarh. Towards the east boundary are Gatagolan, Bortha, Anavada, Baleta, Prithivipura, Chand Pahari, Dharpura, Akbarpura, Dhamala and Sahodi Villages.

The Sariska area is inhabited by 17 *rajasav* villages namely Madhogarh; Indrok, Nangalhedhi, Duharmala, Mithravat, Kaniya Was, Raika Mala, Garh, Rajhore, Devri, Davli, Kushalgarh, Kalachara, Karna Ka Was, Kriraska, Kundalka and Beravas. Besides Kankwari, Umri, Haripura, Siliberi, Lilunda, Slopka and Ganka are inhabited by *guwande*. Out of these 17 villages Devri, Davli, Karna Ka Was and Kriraska are in the core area. Settlement of Karna Ka Was has been shifted elsewhere, and other three are in the process of being evacuated. Similarly, Siliberi and Ganka have been removed and Umri, Haripura and Kankwari are in the process of being shifted.

Sariska Tiger Reserve has many seasonal and permanent wetlands such as Bandipul, Algal, Pandupole, Tuda, Tarunda, Udainathji, Narayni and Talvriksh nullahs. Besides, wells are present at Isawhalla, Navabala, Slopka, Kalighati, Tarunda, Sariska, Kanakwari and Gunka. At some places man made water *kunds* are also present.

The administrative set-up of the Forest Department of the Sariska Tiger Reserve comprises of four ranges *viz.* Sariska, Tehla, Talvriksh and Akbarpur Ranges. All range headquarters are equipped with wireless sets. Field Director is the controlling authority with main headquarters at Sariska.

Central coordinates	76° 28' East 27° 26' North
Altitude	400-777m/300 m. to 722. m. msl.
Longitude	79° 17' to 76° 34' N
Latitude	27° 5' to 27° 33' E
Core Area-I	274 sq. km.
Core Area-II	126 sq. km.
Core Area-III	98 sq. km.
Core Area (Total)	498 sq. km.
Buffer Area	369 sq. km.
Total Area	867 sq. km.

The Ministry of Environment and Forests has taken several important steps in order to explore, conserve and manage protected areas of the country. The Zoological Survey of India (ZSI) have been entrusted the work to carry out studies on fauna of selected sanctuaries, national parks and reserves. Since ZSI was assigned to assess the faunal diversity of Sariska Tiger Reserve a project entitled "Faunal Resources of Sariska Tiger Reserve, Alwar, Rajasthan" has been taken up by the Desert Regional Station of ZSI, Jodhpur for the period 2004-2007. Faunistic surveys have been initiated and three surveys were undertaken during 2004-2006 so as to document the faunal diversity of the Sariska Tiger Reserve. The permission to collect invertebrates and lower vertebrates were obtained from the State Government of Rajasthan for the study period. Some specific techniques were used to study the faunal diversity of the Sariska Tiger Reserve and permission for such methodology was obtained from the competent authorities.

HYDROLOGY

Rivers Ruparel and Sabi are two seasonal rivers in the Alwar district housing the famous Sariska Tiger Reserve. River Ruparel rises from the hills of Thanagazi and finally terminates in Bharatpur district whereas River Sabi rises from Jaipur district and enters Bansur tehsil of the district then flows through Behror, Mandawar, Kishangarh Bas and Tijara tehsil and then it enters Gurgaon district of Haryana state.

There are numerous seasonal and permanent wetlands in Sariska Tiger Reserve. Water is found in Bandipul, Algal, Pandupole, Tuda, Tarunda, Udainathji, Narayni and Talvriksh nallahs throughout the year. There are about 14 ephemeral springs in Sariska. Besides, wells are present at Isawhalla, Navabala, Slopka, Kalighati, Tarunda, Sariska, Kanakwari and Gunka. Wildlife is dependant on these water bodies.

Hundreds of peafowl congregate on the waterhole at Kalighati whereas nilgai congregation can be seen at the Slopka waterhole. The other one is where chowsingha gather around the Pandupole Nallah. Excellent teeming of wildlife around water holes in Sariska is also mentioned by Ward and Gunter (1986). The best time to spot tigers was in summer, when they moved to waterholes for quenching their thirst. Sometimes tigers were sighted even lounging around the roads. Animals get so used to prying human eyes that they often completely ignore human presence if not alarmed.

The picturesque Silisad Lake lies along the edge of the Sariska Tiger Reserve with a quaint hunting lodge overlooking it. In the morning and evening, wildlife in Sariska heads towards the water holes providing the visitors best chance of viewing the spectacular diversity of animals. The reserve has many hides warily located near the water holes. In Sariska, these waterholes known as *kunds* were earlier constructed by the Maharaja and later on maintained by Forest Department. At the time of water scarcity during summer some of these *kunds* are filled by water tankers.

Local water harvesting structures called 'Johads' were also constructed with the help of villagers and efforts of Tauru Bharat Sangh, an NGO body. The management has created 46 anicuts, 30 earthen stock dams during last five years. Large tracts of land have been closed to raise trees and grasses in the buffer zone to meet the requirement of fuel wood and fodder and simultaneously help solve soil and water conservation problems. It has also helped in deflecting

the pressures of livestock on the core zone. Some of the wetlands in and around Sariska Tiger Reserve such as Somasagar Lake, Manglasar Dam at Tahla and Devti spring cascading from the hard limestone rocks give the region the most enthralling look and has created a natural ambience favourable to the reserve. Water is still a limiting factor in this reserve and plans are underway to create more artificial water holes, anicuts etc. to resolve the crisis. The reserve needs the conservation of soil and water on priority basis to conserve its unique biodiversity.

GEOLOGY

Sariska Tiger Reserve falls under the stratigraphic succession of the Delhi super Group as developed in the Alwar and Bayana basin in northeastern part of the Delhi Fold Belt (Roy and Jakhar, 2002). Major parts of the area are occupied by rocks of the Delhi and Aravalli systems, comprising of quartzite's, conglomerates, grits, limestone, phyllites, granites and schist's. High ridges are composed of quartzite conglomerates and grits. The interlinking valley consists of limestones, phyllites and schist's. The ancient crystalline and metamorphic rocks with gneisses, schist's etc. are generally covered by red sandy soil.

HUMAN SETTLEMENT

There are 17 villages inside the core zone with a population of nearly 10,000 cattle and livestock. In the buffer zone also 17 villages are found with a high population of cattle, goats and camels. About 125 villages including the large township of Alwar surround the reserve causing a very heavy pressure for fuel wood, timber, and fodder.

There are two state highways, Alwar-Thanaagazi-Jaipur and Sariska-Kalighati-Tehla traverse core-I for over 44 km. in length that criss-cross the heart of the reserve. Traffic along the Alwar-Jaipur highway is heavy making management and protection exceedingly difficult. A proposal for the diversion of these high-ways is under consideration.

Relocation of villages to mitigate human impact was a major issue before tiger project authority. A wall was constructed in some parts of the reserve to separate core area from the buffer and to keep off the domestic cattle. Another major threat to the park has surfaced recently with the plans for dam across a river, which divides the core area. The project has been shelved at least for the time being.

REVIEW OF LITERATURE

Sariska is documented since historic times in published or grey literature Bhoop Singh (Undated), Anon. (1972, 1993, 2004). Undated a, b, c) and Johnsingh, (2006). A well-illustrated article on Sariska Tiger Reserve is by Tiwari (Undated); Sharma (1986); Need for interpretation center for the Sariska Tiger Reserve was felt by Verma (1986); Israel and Sinclair (1989); Rodgers (1990) gives an account on preliminary ecological survey of Algal Spring, Sariska Tiger Reserve, Rajasthan. Singh (1991) described how from the experience of a tribal village, Gopalpura, some fifty nearby villages in and around Sariska Tiger Reserve Alwar, Rajasthan, were motivated. Local water harvesting structures called 'Johads' were constructed with the help of villagers and efforts

of Tarun Bharat Sangh (Anonymous, Undated a, b, c; Karnik and Kapur, Undated; Ravi and Jain, 1998 & 1999; Shrotriya, Undated; Shrotriya and Avinash, Undated; Vaibhav, Undated).

Studies on different aspects of faunal behaviour and diversity were on tree debarking and habitat use by porcupine (*Hystrix indica* Kerr) in Sariska National Park, Sharma and Prasad (1992); Ichthyo-fauna of Sariska Wild life Sanctuary by Ajithkumar and Sankar (1993); Sankar *et al.* (1993 b) on birds of Sariska Tiger Reserve; talks on an indigenous land tenure system revival to rehabilitate a protected area, a case study of Sariska National Park in Rajasthan is by Sjoblom and Singh (1993); Flora of Sariska Tiger Reserve is by Parmer (1985, 1998); Mukherjee, *et al.* (1998) studied the Behavioural Ecology of Caracal; Fuel wood consumption and forest degradation around villages bordering Sariska Tiger Reserve is by Heltberg *et al.* (2000); Sekhar (2000) examined the policy impact on natural resources management in the Sariska Tiger Reserve and adjoining villages located in the semi-arid part of Rajasthan, India; Status of project tiger, Sariska is by Jain (2001); on population structure of tree species in the Sariska Tiger Reserve by Gupta and Yadav (2005).

Work on Tigers of Rajasthan including Sariska has been by Sankhala (1967, 1969, 1978); Singh (1967); Tinker (1974); Chaudhary and Chakrabarti (1979); Vardhan (1979); Ward and Gunter (1986); Karanth (1987); Rathore (1993) and Sankar, *et al.* (1993 a).

FLORA

The forest type is mixed tropical dry deciduous and thorn forest, represented mainly by *Anogeissus pendula* - *Boswellia serrata* (Champion and Seth, 1968). The higher slopes have pure stand of Dhok (*Anogeissus pendula*) which is the dominant tree species covering over 90 per cent area of the forest with few trees of *Boswellia serrata*, *Sterculia urens* and *Lannea coromandelica* at rocky patches. Middle slopes show Kumat (*Acacia senegal*), Kachnar (*Bauhinia racemosa*), Amaltas (*Cassia fistula*), Gundi (*Capparis sepiaria*), *Dicrostachys cinerea*, *Diospyros melanoxylon*, *Lannea coromandelica*, *Wrightia tinctoria*, Bel (*Aegle marmelos*), *Adina cordifolia*. Lower slopes and valleys are dominated by Palas (*Butea monosperma*), Dhak (*Butea frondosa*), (*Cassia fistula*), Aval (*Cassia auriculata*), Desi Subabool (*Acacia leucophloea*) Bamboo (*Dendrocalamus strictus*), Thor (*Euphorbia caducifolia*), Khejri (*Prosopis cineraria*), Chural (*Holoptelia integrifolia*). Badi Jargha, Baru, Bharut, Bhinder, Bhuhari, Dhuv, Anjan, Gathia, Goria, Gunera, Kali Charkali, Kans, Lapala, Sewan, Kattha/khair (*Acacia catechu*), Babool/Kikar (*Acacia nilotica*), Jamun (*Syzygium kumini*), Tendu (*Diospyros melanoxylon*), Ber (*Zizyphus mauritiana*), Gundi (*Cordia graff*), Arjun (*Terminalia arjuna*), Neem (*Azadirachta indica*), Gugal (*Commiphora wightii*), Kadaya (*Sterculia urens*), Amla (*Emblica officinalis*), Bahera (*Terminalia bellerica*), Vad/Bargadh (*Ficus bengalensis*), Peepal (*Ficus religiosa*), Gular (*Ficus glomeratus*), Kadam (*Anthocephalus kadamba*), Shisham (*Dalbergia sissou*), Hingota (*Balanites aegyptica*) are some other noteworthy species of medicinal importance. Flora of Sariska Tiger Reserve is dealt in detail by Parmer (1985, 1998; Moghe, 1994). It remains lush green during the monsoon period and dry in summer. The aquatic vegetation is represented by *Hydrilla* sp. *Potamogeton* sp. *Vallisneria* sp. *Nymphoides* sp. *Trapa* and *Nelumbo nucifera*. *Cyperus rotundus* is common in marshy habitats. *Cynodon dactylon*, *Dicanthium annulatum*, *Vetiveria zizaniodes* etc. are common grasses. *Phoenix sylvestris* is common near Kankwari Dam.

The green cover is sustaining the daily needs of fuel, fodder, food, wood, medicines, and other non-wood value added forest produce such as honey, lac, gum, resins, oils, tannins etc.

FAUNA

The invertebrate faunal composition of species across the animal kingdom from protozoa to mollusca dominates every niche of the reserve. They are the part of unseen life support system of the Sariska Tiger Reserve. So far no studies have been conducted on this mega assemblage of animals. In the present study, Zoological Survey of India made an attempt to document invertebrate and vertebrate faunal diversity. From protozoa to mammals all the faunal groups were either collected or recorded by field sightings. Entomo-faunal groups were collected at 18 selected sites within the core/buffer area of the tiger reserve by using high luminous screen light method. High intensity luminous bulbs were operated by generator against the screen to attract entomofaunal elements of the reserve. Sites were also selected to collect the diverse animal groups and species besides insects found in different habitat within the reserve. Avian species diversity was estimated by line transect method and point count method. Soil samples were collected from suitable moist habitat to study the nematode fauna of the sanctuary. The pugmarks, fallen feathers, excreta, left-over of kills, bones were also collected to record the presence of animal in the reserve area and their presence in that habitat as interpreted. The vast assemblage of invertebrate faunal groups such as zooplankton, annelids, arachnids, other arthropods including entomofaunal groups and molluscs are still under the process of identification.

A total of 331 species of animals have been recorded in the present study from the Sariska Tiger Reserve (STR) (Table 1). Among them 122 species are recorded for the first time from STR. Besides, species recorded by various other workers have also been documented in this report. The systematic account of animal species identified and recorded from Sariska Tiger Reserve is given below and marked with three asterisks (***) as new record from India, with two asterisks (**) as new records from Rajasthan, single asterisks (*) as new record from Sariska Tiger Reserve and + as species of vertebrates recorded in the present study and also reported earlier.

INVERTEBRATES

PLANT AND SOIL NEMATODES (THREAD WORMS)

Total 22 species of plant and soil nematodes listed below are reported from Sariska Tiger Reserve, belongs to 3 orders under 10 families and 17 genera. One is new record from India and 5 are new records from Rajasthan.

SYSTEMATIC ACCOUNT

Order TYLENCHIDA Thorne, 1949

Family HOPLOLAIMIDAE Filipjev, 1934 (Wieser, 1953)

Hoplolaimus indicus Sher, 1963

Helicorylenchus dihystra (Cobb, 1893) Sher, 1961

Helicotylenchus erytherinae (Zimmermann, 1904) Golden, 1956

Family DOLICHODORIDAE Chitwood in Chitwood & Chitwood, 1950 (Skarbilovich, 1959)

Tylenchorhynchus nordiensis Khan & Nanjappa, 1972**

Order DORYLAIMIDA Pearse, 1942

Family DORYLAIMIDAE De Man, 1896

Dorylaimus sp. n.

Ischiodorylaimus sp. n.

Mesodorylaimus mesonyctius (Kreis, 1930) Andrassy, 1959

Thornenema mauritanum (Williams, 1959) Baqri & Jairajpuri

Sicagnttur sartum Siddiqi, 1971

Family QUDSIANEMATIDAE Jairajpuri, 1965

Eudorylaimus chauhani (Baqri & Khera, 1975) Andrassy, 1986

Ecumenicus monohystera De Man, 1880

Latocephalus lineatus Siddiqi, 2003***

Moshajia cultristyla Siddiqi, 1982**

Moshajia idiofora Siddiqi, 1982

Family CARCHAROLAIMIDAE Thorne, 1967

Carcharolaimus masoodi Jairajpuri, 1968

Family NORDIIDAE Jairajpuri & A. H. Siddiqi, 1964

Kochinema farodai, Baqri/Bohra 2001

Family BELONDIRIDAE Thorne, 1939

Dorylaimells (Belondorylaimells) discocephalus Siddiqi, 1964

Family TYLENCHOLAIMIDAE Filipjev, 1934

Tylencholaimus terrestris Peña Santiago & Coomans, 1996**

Tylencholaimus innebus Ahmad & Jairajpuri, 1980**

Tylencholaimus nagauriensis Baqri & Bohra, 2001

Family NYGOLAIMIDAE Thorne, 1935

Nygolaimus hyans Thorne, 1974 **

Order TRIPLONCHIDA Cobb, 1920

Family TRICHODORIDAE Thorne, 1935

Paratrichodorus sp. n. Siddiqi, 1974

ISOPTERA

8 Species of termite distributed under 3 genera and 1 family are identified from Sariska Tiger Reserve. All the termite species are recorded for the first time from the area.

SYSTEMATIC ACCOUNT

Family TERMITIDAE

Subfamily AMITERMITINAE

**Amitermes belli* (Desneux)

Subfamily MACROTERMITINAE

Odontotermes bhagwati* Chatterjee and ThakurOdontotermes brunneus* (Hagen)**Odontotermes gurdaspurensis* Holmgren & Holmgren**Odontotermes horai* Roonwal and Chhotani**Odontotermes obesus* (Rambur)**Odontotermes redemanni* (Wasmann)**Microtermes obesi* Holmgren**COLEOPTERA**

21 Species of scarabid beetles distributed under 10 genera and 1 family is identified from Sariska Tiger Reserve. All the reported species are recorded for the first time from the reserve area. Two species are reported for the first time from Rajasthan.

SYSTEMATIC ACCOUNT

Class INSECTA

Order COLEOPTERA

Suborder POLYPHAGA

Superfamily SCARABAEOIDEA

Family SCARABAEIDAE

Subfamily COPRINAE

Tribe **Scarabaeini**Genus *Gymnopleurus* Illiger* *Gymnopleurus miliaris* FabriciusTribe **Coprini**Genus *Heliocopris* Burmiester* *Heliocopris gigas* Linnaeus* *Heliocopris bucephalus* Fabricius

Genus *Catharsius* Hope

- * *Catharsius sagax* Quens
- * *Catharsius pithecius* Fabricius

Genus *Copris* Geoffroy

- * *Copris delicates* Arrow

Genus *Phalops* Erichson

- * *Phalops divisus* Wiedmann

Genus *Caccobius* Thomson

- * *Caccobius vulcanus* Fabricius
- * *Caccobius indicus* Harold

Genus *Onthophagus* Latreille

- * *Onthophagus catta* Fabricius
- * *Onthophagus orientalis* Harold
- * *Onthophagus seniculus* Fabricius
- * *Onthophagus kuluensis* Bates
- * *Onthophagus ensifer* Boucomont
- * *Onthophagus frugivorus* Arrow
- * *Onthophagus marginalis* Gebler**
- * *Onthophagus madoqua* Arrow**

Genus *Drepanocerus* Kirby

- * *Drepanocerus exsul* Sharp

Genus *Onitis* Fabricius

- * *Onitis lama* Lansberge
- * *Onitis philemon* Fabricius

Genus *Chironitis* Redtenbacher

- * *Chironitis indicus* Lansberge

**INSECTA : LEPIDOPTERA : RHOPALOCERA/HETEROCERA
(BUTTERFLIES AND MOTHS)**

5 Species under 5 genera and 5 families have so far been recorded from Sariska Tiger Reserve. The species are reported for the first time from the Sariska Tiger Reserve.

SYSTEMATIC ACCOUNT

Order LEPIDOPTERA

Family PAPILIONIDAE

* *Papilio demoleus* Linnaeus

Family PIERIDAE

* *Eurema hecabe* (Linnaeus)

Family NYMPHALIDAE

* *Hypolimnas bolina* (Linnaeus)

Family DANAIDAE

* *Dansus chrysippus* (Linnaeus)

Family ARCTIIDAE

* *Uthethesia pulchella* (Linnaeus)

INSECTA : DIPTERA (FLIES)

8 Species belonging to 7 genera under 6 families have been recorded so far from Sariska Tiger Reserve. All are new records from the area.

SYSTEMATIC ACCOUNT

Order DIPTERA

Suborder NEMATOCERA

Family PSYCHODIDAE

* *Psychoda alternata* Say* *Clogmia albipunctata* (Williston)

Suborder BRACHYCERA

Family STRATIOMYIDAE

Subfamily SARGINAE

* *Sargus metallinus* (Fabricius)

Family TABANIDAE

* *Tabanus (Tabanus) striatus* (Fabricius)* *Tabanus sp.*

Family ASILIDAE

* *Stichopogon sp.*

Family BOMBYLIIDAE

Subfamily ANTHRACINAE

* *Anthrax distigma* Weidemann

Suborder CYCLORRAPHA

Family SYRPHIDAE

- * *Eristalinus arvorum* (Fabricius)

INSECTA : HYMENOPTERA (ANTS)

6 Species belonging to 4 genera under 1 family have been recorded so far from Sariska Tiger Reserve. All are new records from the area.

SYSTEMATIC ACCOUNT

Order HYMENOPTERA

Family FORMICIDAE

Subfamily MYRMICINAE

- * *Monomorium glabrum* Andre

- * *Monomorium criniceps* Maya

- * *Monomorium indicum* Forel

Subfamily DOLICHODERINAE

- * *Tapinoma melanocephalum* Fabricius

Subfamily FORMICINAE

- * *Acantholepis fravenfeldi* Maya

- * *Cataglyphis bicolor setipes* Forel

VERTEBRATES

PISCES

16 Species belonging to 10 genera under 4 families and 3 orders of freshwater fishes have been recorded so far from Sariska Tiger Reserve.

SYSTEMATIC ACCOUNT

Class OSTEICHTHYES

Subclass ACTINOPTERYGII

Order CYPRINIFORMES

Family CYPRINIDAE

Subfamily CYPRININAE

Genus *Cirrhinus* Cuvier

- Cirrhinus mrigala* (Hamilton-Buchanan) +

Genus *Labeo* Cuvier

Labeo bata (Hamilton-Buchanan)

Labeo boggut (Sykes) +

Labeo dero (Hamilton-Buchanan)

Labeo pangusia (Hamilton-Buchanan)

Genus *Puntius* Hamilton-Buchanan

Puntius sarana sarana (Hamilton-Buchanan) +

Puntius sophore (Hamilton-Buchanan) +

Puntius ticto (Hamilton-Buchanan) +

Subfamily CULTRINAE

Genus *Salmostoma* Swainson

Salmostoma bacaila (Hamilton-Buchanan) +

Subfamily RASBORINAE

Genus *Esomus* Swainson

Esomus danricus (Hamilton-Buchanan) +

Genus *Parluciosoma* Howes

Parluciosoma daniconius (Hamilton-Buchanan) +

Subfamily GARNINAE

Genus *Garra* Hamilton-Buchanan

Garra gotyla gotyla (Gray) +

Family BALITORIDAE

Subfamily NEMACECILINAE

Genus *Noemacheilus* Bleeker

Noemachilus botia (Hamilton-Buchanan) +

Order SILURIFORMES

Family SILURIDAE

Genus *Wallago* Bleeker

Wallago attu (Schneider)

Order PERCIFORMES

Family CHANNIDAE

Genus *Channa* Scopoli

Channa marulius (Hamilton-Buchanan)*

Channa punctatus (Bloch)*

AMPHIBIA

5 Species under 4 genera and 3 families have been recorded from Sariska Tiger Reserve. All are new records from the Sariska Tiger Reserve.

SYSTEMATIC ACCOUNT

Class AMPHIBIA

Order ANURA

Family RANIDAE

Hoplobatrachus tigrinus (Daudin) *

Euphlyctis cyanophlyctis (Schneider) *

Family BUFONIDAE

Bufo stomaticus Lutken Smith *

Bufo melanostictus Schneider *

Family MICROHYLIDAE

Microhyla ornata (Dum. and Bibr.) *

REPTILES

22 Species belonging to 19 genera under 12 families and 3 orders have been recorded so far from Sariska Tiger Reserve. Only 2 species *Crocodylus palustris* and *Python molurus* were reported earlier (Anon, 2004 and Islam and Rahamani, 2004). Twenty reptilian species are reported for the first time from the Sariska Tiger Reserve with more species yet to be identified.

SYSTEMATIC ACCOUNT

Class REPTILIA

Order TESTUDINES

Suborder CRYPTODILA

Family TRIONYCHIDAE

Lissemys punctata punctata (Lacepede)*

Trionyx gangeticus (Cuvier)*

Family EMYDIDAE

Kachuga tentoria circumdata (Mertens)*

Order SQUAMATA

Suborder SAURIA

Family GEKKONIDAE

Hemidactylus brooki Gray*

Hemidactylus leschenaulti Dum. and Bibr.*

Hemidactylus flaviviridis Ruppell*

Family AGAMIDAE

Calotes versicolor (Daudin)*

Family SCINCIDAE

Mabuya macularia (Blyth)*

Riopa punctata (Linnaeus)*

Family LACERTIDAE

Ophisops jerdoni Blyth*

Ophisops microlepis Blanford*

Family VARANIDAE

Varanus bengalensis (Linnaeus)*

Suborder SERPENTES

Family BOIDAE

Python molurus (Linnaeus) +

Eryx johnii (Russell)*

Family COLUBRIDAE

Ptyas mucosus (Linnaeus)*

Xanochrophis piscator (Schneider)*

Enhydris seiboldi (Schlegel)*

Family ELAPIDAE

Bungarus caeruleus (Schneider)*

Naja naja (Linnaeus)*

Family VIPERIDAE

Vipera russelli (Shaw)*

Echis carinatus (Schneider)*

Order CROCODYLIA

Family CROCODYLIDAE

Crocodylus palustris Lesson +

AVES

The avifauna is also well represented with a rich, varied and colourful birdlife. The reserve earlier supported 238 species of aves (Sankar *et al.*, 1993b and Anon, 2004) and has the largest population of peafowl in the entire country. The other important avian species are grey partridge, bush quail, sand grouse, tree pie, golden backed woodpecker, white-breasted kingfisher, crested

serpent eagle and The great Indian horned owl. Some species fall under various conservation criteria of Indian Wildlife Act, 1972, IUCN, IBA : dalmatian pelican (*Pelecanus crispus*), white-rumped vulture (*Gyps bengalensis*), Indian vulture (*Gyps indicus*), greater spotted eagle (*Aquila clanga*), imperial eagle (*Aquila heliaca*) are globally threatened and sarus crane (*Grus antigone*) darter (*Anhinga melanogaster*), painted stork (*Mycteria leucocephala*), oriental white ibis (*Threskiornis melanocephalus*) and red-headed vulture (*Sarcogyps calvus*) are near threatened species but not in significant numbers. Islam and Rahamani (2004) states that Sariska is not only important for the survival of any globally threatened species but best representative of the original Tropical Dry Deciduous and Thorn Forest of the northern part of the Aravalli hill ranges. Sariska is mainly classified as an IBA on the basis of Biome-1 bird assemblages.

A total of 238 avian species have been documented. 189 species were recorded in the present study from Sariska Tiger Reserve out of which 24 species are reported for the first time from the area.

SYSTEMATIC ACCOUNT

Podicipediformes

Podicipedidae

Little Grebe+

Tachybaptus ruficollis (Pallas)

Great Crested Grebe+

Podiceps cristatus (Linnaeus)

Pelecaniformes

Pelecanidae

Great White Pelican+

Pelecanus onocrotalus Linnaeus

Spot-billed Pelican*

Pelecanus philippensis Gmelin

Dalmatian Pelican+

Pelecanus crispus Bruch

Phalacrocoracidae

Indian Shag+

Phalacrocorax fuscicollis Stephens

Great Cormorant+

Phalacrocorax carbo (Linnaeus)

Little Cormorant+

Phalacrocorax niger (Vieillot)

Anhingidae

Darter+

Anhinga melanogaster Pennant

Ciconiiformes

Ardeidae

Cattle Egret+

Bubulcus ibis (Linnaeus)

Median Egret +

Mesophoyx intermedia (Wagler)

Little Egret+

Egretta garzetta (Linnaeus)

Large Egret+

Casmerodius albus (Linnaeus)

Grey Heron+

Ardea cinerea Linnaeus

Purple Heron+

Ardea purpurea Linnaeus

Indian Pond Heron	<i>Ardeola grayii</i> Sykes
Little Green Heron	<i>Butorides striatus</i> Linnaeus
Ciconiidae	
Painted Stork +	<i>Mycteria leucocephala</i> (Pennant)
Asian Openbill Stork	<i>Anastomus oscitans</i> (Boddaert)
White-necked Stork+	<i>Ciconia episcopus</i> (Boddaert)
Black Stork+	<i>Ciconia nigra</i> (Linnaeus)
Threskiornithidae	
Oriental White Ibis+	<i>Threskiornis melanocephalus</i> (Latham)
Black Ibis	<i>Pseudibis papillosa</i> (Temminck)
Eurasian spoonbill+	<i>Platalea leucorodia</i> Linnaeus
Glossy Ibis*	<i>Plegadis falcinellus</i> (Linnaeus)
Phoenicopteridae	
Greater Flamingo	<i>Phoenicopterus ruber</i> Linnaeus
Anseriformes	
Anatidae	
Common Teal+	<i>Anas crecca</i> Linnaeus
Northern Pintail+	<i>Anas acuta</i> Linnaeus
Spot-billed Duck+	<i>Anas poecilorhyncha</i> J.R. Forester
Gadwall+	<i>Anas strepera</i> Linnaeus
Northern Shoveller+	<i>Anas clypeata</i> Linnaeus
Mallard+	<i>Anas platyrhynchos</i> Linnaeus
Greylag Goose	<i>Anser anser</i> Linnaeus
Bar-headed Goose+	<i>Anser indicus</i> (Latham)
Cotton Teal+	<i>Nettapus coromandelianus</i> (Gmelin)
Nakta or Comb Duck	<i>Sarkidiornis melanotos</i> (Pennant)
Red-crested Pochard+	<i>Rhodonessa rufina</i> (Pallas)
Brahminy Shelduck+	<i>Tadorna ferruginea</i> (Pallas)
Common Pochard+	<i>Aythya ferina</i> (Linnaeus)
Tufted Pochard	<i>Aythya fuligula</i> (Linnaeus)
Falconiformes	
Accipitridae	
Black-shouldered Kite+	<i>Elanus caeruleus</i> (Desfontaines)
Oriental Honey – Buzzard+	<i>Pernis ptilorhynchus</i> (Temminck)
Crested Serpent Eagle+	<i>Spilornis cheela</i> (Latham)
Eastern Imperial Eagle	<i>Aquila heliaca</i> Savigny

Greater Spotted Eagle	<i>Aquila clanga</i> Pallas
Egyptian Vulture+	<i>Neophron percnopterus</i> (Linnaeus)
Eurasian Griffon+	<i>Gyps fulvus</i> (Hablizl)
Long-billed Vulture+	<i>Gyps indicus</i> Scopoli
White Backed Vulture+	<i>Gyps bengalensis</i> (Gmelin)
Red-headed Vulture	<i>Sarcogyps calvus</i> (Scopoli)
Western Marsh Harrier+	<i>Circus aeruginosus</i> (Linnaeus)
Black Kite+	<i>Milvus migrans</i> (Boddaert)
Shikra +	<i>Accipiter badius</i> (Gmelin)
Eurasian Sparrow Hawk+	<i>Accipiter nisus</i> (Linnaeus)
White-eyed Buzzard +	<i>Butastur teesa</i> (Franklin)
Falconidae	
Pied Falconet*	<i>Microhierax melanoleucos</i> (Blyth)
Common Kestrel+	<i>Falco tinnunculus</i> Linnaeus
Oriental Hobby+	<i>Falco severus</i> Horsfield
Galliformes	
Phasianidae	
Grey Francolin+	<i>Francolinus pondicerianus</i> (Gmelin)
Black Francolin	<i>Francolinus francolinus</i> (Linnaeus)
Painted Francolin*	<i>Francolinus pictus</i> (Jardine & Selby)
Painted Spurfowl+	<i>Galloperdix lunulata</i> (Valenciennes)
Red Spurfowl+	<i>Galloperdix spadecia</i> (Gmelin)
Indian Peafowl+	<i>Pavo cristatus</i> (Linnaeus)
Rain Quail+	<i>Coturnix coromandelica</i> (Gmelin)
Common Quail*	<i>Coturnix coturnix</i> (Linnaeus)
Blue-breasted Quail+	<i>Coturnix chinensis</i> (Linnaeus)
Jungle Bush Quail+	<i>Perdica asiatica</i> (Latham)
Rock Bush Quail	<i>Perdica argoondah</i> (Sykes)
Gruiformes	
Turnicidae	
Small Buttonquail+	<i>Turnix sylvatica</i> (Desfontaines)
Gruidae	
Sarus Crane	<i>Grus antigone</i> (Linnaeus)
Rallidae	
White-breasted Waterhen+	<i>Amaurornis phoenicurus</i> (Pennant)
Common Moorhen+	<i>Gallinula chloropus</i> (Linnaeus)

Common Coot+	<i>Fulica atra</i> Linnaeus
Purple Moorhen+	<i>Porphyrio porphyrio</i> (Linnaeus)
Charadriiformes	
Charadriidae	
Red-wattled Lapwing+	<i>Vanellus indicus</i> (Boddaert)
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i> (Boddaert)
River Lapwing+	<i>Vanellus duvaucelii</i> (Lesson)
Northern Lapwing	<i>Vanellus vanellus</i> (Linnaeus)
Little Ringed Plover+	<i>Charadrius dubius</i> Scopoli
Kentish Plover+	<i>Charadrius alexandrinus</i> Linnaeus
Scolopacidae	
Common Red Shank+	<i>Tringa totanus</i> (Linnaeus)
Marsh Sandpiper*	<i>Tringa stagnatilis</i> (Bechstein)
Common Green Shank+	<i>Tringa nebularia</i> (Gunner)
Green Sandpiper	<i>Tringa ochropus</i> Linnaeus
Wood Sandpiper +	<i>Tringa glareola</i> Linnaeus
Spotted Redshank*	<i>Tringa erythropus</i> (Pallas)
Common Sandpiper+	<i>Actitis hypoleucos</i> Linnaeus
Little Stint+	<i>Calidris minuta</i> (Leisler)
Temminck's Stint+	<i>Calidris temminckii</i> (Leisler)
Black-tailed Godwit+	<i>Limosa limosa</i> (Linnaeus)
Ruff and Reeve*	<i>Philomachus pugnax</i> (Linnaeus)
Recurvirostridae	
Black-winged Stilt+	<i>Himantopus himantopus</i> (Linnaeus)
Pied Avocet+	<i>Recurvirostra avosetta</i> Linnaeus
Burhinidae	
Stone-Curlew+	<i>Burhinus oedicnemus</i> (Linnaeus)
Laridae	
Brown-headed Gull	<i>Larus brunnicephalus</i> Jerdon, 1840
Whiskered Tern+	<i>Chlidonias hybridus</i> (Pallas)
River Tern+	<i>Sterna aurantia</i> J.E. Gray
Black-Bellied Tern+	<i>Sterna acuticauda</i> J.E. Gray
Columbiformes	
Pteroclididae	
Black-bellied Sandgrouse	<i>Pterocles orientalis</i> Linnaeus
Painted Sandgrouse+	<i>Pterocles indicus</i> (Gmelin)

Chestnut-bellied Sandgrouse

Columbidae

Blue Rock Pigeon+

Yellow-legged Green Pigeon

Red Collared Dove+

Eurasian Collared Dove+

Little Brown Dove+

Oriental Turtle-Dove+

Spotted Dove+

Psittaciformes

Psittacidae

Rose-ringed Parakeet+

Blossom-headed Parakeet*

Plum-headed Parakeet+

Alexandrine Parakeet+

Cuculiformes

Cuculidae

Pied Crested Cuckoo+

Brainfever Bird+

Indian Cuckoo+

Asian Koel+

Greater Coucal+

Sirkeer Malkoha+

Strigiformes

Tytonidae

Barn Owl

Strigidae

Brown Fish Owl+

Collared Scops Owl

Spotted Owlet +

Forest Owlet *

Mottled Wood-Owl

Short-eared Owl

Caprimulgiformes

Caprimulgidae

Grey Nightjar+

Pterocles exustus Temminck

Columba livia Gmelin

Treron phoenicoptera (Latham)

Streptopelia tranquebarica (Herman)

Streptopelia decaocto (Frisvaldszky)

Streptopelia senegalensis (Linnaeus)

Streptopelia orientalis (Latham)

Streptopelia chinensis (Scopoli)

Psittacula krameri (Scopoli)

Psittacula roseata Biswas

Psittacula cyanocephala (Linnaeus)

Psittacula eupatria (Linnaeus)

Clamator jacobinus (Boddaert)

Hierococcyx varius (Vahl)

Cuculus micropterus Gould

Eudynamis scolopacea (Linnaeus)

Centropus sinensis (Stephens)

Phaenicophaeus leschenaultia (Lesson)

Tyto alba (Scopoli)

Ketupa zeylonensis Gmelin

Otus bakkamoena Pennant

Athene brama Temminck

Heteroglaux blewitti Hume

Strix ocellata Lesson

Asio flammeus (Pontoppidan)

Caprimulgus indicus Latham

Apodiformes**Apodidae**

House Swift+

Apus affinis (J.E. Gray)**Coraciiformes****Alcedinidae**

White-breasted Kingfisher+

Halcyon smyrnensis (Linnaeus)

Small Blue Kingfisher*

Alcedo atthis (Linnaeus)

Lesser Pied Kingfisher+

Ceryle rudis (Linnaeus)**Meropidae**

Small Green Bee Eater+

Merops orientalis Latham

Blue Tailed Bee Eater+

Merops philippinus Linnaeus**Coraciidae**

Indian Roller+

Coracias benghalensis (Linnaeus)**Upupidae**

Common Hoopoe+

Upupa epops Linnaeus

Indian Grey Hornbill

Ocyrceros birostris (Scopoli)**Piciformes****Capitonidae**

Coppersmith Barbet+

Megalaima heamacephala (P. L. S. Muller)**Picidae**

Lesser Golden-backed Woodpecker+

Dinopium benghalense (Linnaeus)

Brown capped pygmy Wood Pecker+

Dendrocopos nanus (Vigors)

Yellow-fronted Pied Wood Pecker+

Dendrocopos mahrattensis (Latham)**Passeriformes****Pittidae**

Indian Pita+

Pitta brachyuran Linnaeus**Alaudidae**

Ashy Crowned Sparrow Lark*

Eremopterix grisea (Scopoli)

Black Crowned Finch-Lark*

Eremopterix nigriceps (Gould)

Singing Bush Lark+

Mirafra cantillans Blyth

Red-winged Bush -Lark

Mirafra erythroptera Blyth

Indian Short toed Lark*

Calandrella raytal (Blyth)

Greater Short toed Lark*

Calandrella brachydactyla (Leisler)**Hirundinidae**

Plain Martin+

Riparia paludicola (Vieillot)

House Swallow*

Hirundo tahitica Gmelin

Red-Rumped Swallow+	<i>Hirundo daurica</i> Linnaeus
Wire-tailed Swallow+	<i>Hirundo smithii</i> Leach
Common Swallow+	<i>Hirundo rustica</i> Linnaeus
Dusky Crag Martin+	<i>Hirundo concolor</i> Sykes
Motacillidae	
Yellow Wagtail+	<i>Motacilla flava</i> Linnaeus
Grey Wag tail+	<i>Motacilla cinerea</i> Tunstall
Large Pied Wagtail+	<i>Motacilla maderaspatensis</i> Gmelin
White Wagtail+	<i>Motacilla alba</i> Linnaeus
Paddy field Pipit	<i>Anthus rufulus</i> Vieillot
Eurasian Tree Pipit	<i>Anthus trivialis</i> (Linnaeus)
Campephagidae	
Large Cuckoo Shrike+	<i>Coracina macei</i> (Lesson)
Black-headed Cuckoo-Shrike+	<i>Coracina melanoptera</i> (Rüppell)
Small Minivet+	<i>Pericrocotus cinnamomeus</i> (Linnaeus)
Scarlet Minivet	<i>Pericrocotus flammeus</i> (Forster)
Wood Shrike+	<i>Tephrodornis pondicerianus</i> (Gmelin)
Pycnonotidae	
Himalayan Bulbul +	<i>Pycnonotus leucogenys</i> (Gray)
Red Vented Bulbul+	<i>Pycnonotus cafer</i> (Linnaeus)
White-Eared Bulbul+	<i>Pycnonotus leucotis</i> (Gould)
Irenidae	
Common Iora	<i>Aegithina tiphia</i> (Linnaeus)
Laniidae	
Grey Shrike+	<i>Lanius excubitor</i> Linnaeus
Rufosbacked Shrike+	<i>Lanius schach</i> Linnaeus
Bay-Backed Shrike+	<i>Lanius vittatus</i> Valenciennes
Muscicapidae	
Turdinae	
Blue Throat+	<i>Luscinia svecica</i> (Linnaeus)
Indian Chat+	<i>Cercomela fusca</i> (Blyth)
Common Stone Chat	<i>Saxicola torquata</i> (Linnaeus)
Pied Bush Chat+	<i>Saxicola caprata</i> (Linnaeus)
Stoliczka's Stone Chat	<i>Saxicola macrorhyncha</i> (Stoliczka)
Grey Bush Chat+	<i>Saxicola ferrea</i> Gray
Indian Robin+	<i>Saxicoloides fulvicata</i> (Linnaeus)

Black Redstart+	<i>Phoenicurus ochruros</i> (Gmelin)
Desert Wheatear +	<i>Oenanthe deserti</i> (Temminck)
Oriental Magpie Robin+	<i>Copsychus saularis</i> (Linnaeus)
Timaliinae	
Common Babbler+	<i>Turdoides caudatus</i> (Dumont)
Jungle Babbler+	<i>Turdoides striatus</i> (Dumont)
Large Grey Babbler+	<i>Turdoides malcolmi</i> (Sykes)
Rufos-bellied Babbler	<i>Dumetia hyperythra</i> (Franklin)
Yellow eyed Babbler+	<i>Chrysomma sinense</i> (Gmelin)
Sylviinae	
Ashy Wren-Warbler+	<i>Prinia socialis</i> Sykes
Franklin's Wren - Warbler+	<i>Prinia hodgsonii</i> Blyth
Plain Prinia+	<i>Prinia inornata</i> Sykes
Jungle Prinia+	<i>Prinia sylvatica</i> Jerdon
Rufosfronted Wren - Warbler*	<i>Prinia buchanani</i> Blyth
Greenish Leaf Warbler	<i>Phylloscopus trochiloides</i> (Sundevall)
Yellowbrowed Leaf Warbler	<i>Phylloscopus inornatus</i> (Blyth)
Common Chiff Chaff	<i>Phylloscopus collybita</i> (Vieillot)
Common Tailor Bird	<i>Orhotomus sutorius</i> (Pennant)
Common Lesser Whitethroat	<i>Sylvia curruca</i> (Linnaeus)
Muscicapinae	
Greyheaded Flycatcher+	<i>Culicicapa ceylonensis</i> (Swainson)
Red throated Flycatcher	<i>Ficedula parva</i> (Bechstein)
Tickell's Blue Flycatcher+	<i>Cyornis tickelliae</i> Blyth
Monarchinae	
Asian Paradise-Flycatcher+	<i>Terpsiphone paradisi</i> (Linnaeus)
Rhipidurinae	
White browed Fantail Flycatcher +	<i>Rhipidura aureola</i> Lesson
Paridae	
Grey Tit+	<i>Parus major</i> Linnaeus
Certhiidae	
Spotted Creeper+	<i>Salpornis spilonotus</i> (Franklin)
Dicaeidae	
Tickell's Flowerpecker*	<i>Dicaeum erythrorhynchos</i> (Latham)
Nectariniidae	
Purple Sunbird+	<i>Nectarinia asiatica</i> (Latham)
Purple-rumped Sunbird*	<i>Nectarinia zeylonica</i> (Linnaeus)

Zosteropidae	
Oriental White Eye+	<i>Zosterops palpebrosus</i> (Temminck)
Emberizidae	
Emberizinae	
Crested Bunting	<i>Melophus lathamii</i> (Gray)
Greynecked Bunting+	<i>Emberiza buchanani</i> Blyth
Redheaded Bunting*	<i>Emberiza bruniceps</i> Brandt
Rock Bunting*	<i>Emberiza brunicers</i> Linnaeus
White-capped Bunting+	<i>Emberiza stewarti</i> Linnaeus
Fringillidae	
Common Rosefinch+	<i>Carpodacus erythrinus</i> (Pallas)
Estrildidae	
Red Munia	<i>Amandava amandava</i> (Linnaeus)
White-throated Munia+	<i>Lonchura malabarica</i> (Linnaeus)
Black-throated Munia*	<i>Lonchura kelaarti</i> (Jerdon)
Spotted Munia	<i>Lonchura punctulata</i> (Linnaeus)
Black headed Munia*	<i>Lonchura malacca</i> (Linnaeus)
Passeridae	
Passerinae	
House Sparrow+	<i>Passer domesticus</i> (Linnaeus)
Spanish sparrow+	<i>Passer hispaniolensis</i> Temmenck
Eurasian Tree Sparrow+	<i>Passer montanus</i>
Yellow-throated Sparrow	<i>Petronia xanthocollis</i> (Burton)
Ploceinae	
Streaked Weaver Bird*	<i>Ploceus manyar</i> (Horsfield)
Baya Weaver	<i>Ploceus philippinus</i> (Linnaeus)
Sturnidae	
Bank Myna	<i>Acridotheres ginginianus</i> (Latham)
Indian Common Myna	<i>Acridotheres tristis</i> (Linnaeus)
Jungle Myna*	<i>Acridotheres fuscus</i> (Wagler)
Brahminy Starling+	<i>Sturnus pagodarum</i> (Gmelin)
Greyheaded Starling	<i>Sturnus malabaricus</i> (Gmelin)
Pied Starling+	<i>Sturnus contra</i> Linnaeus
Rosy Starling	<i>Sturnus roseus</i> (Linnaeus)
Common Starling+	<i>Sturnus vulgaris</i> Linnaeus
Oriolidae	
Golden Oriole+	<i>Oriolus oriolus</i> (Linnaeus)

Dicruridae

Black Drongo+

Dicrurus macrocercus Vieillot

White-bellied Drongo+

Dicrurus caerulescens (Linnaeus)**Corvidae**

House Crow+

Corvus splendens Vieillot

Jungle Crow +

Corvus macrorhynchos Wagler

Common Raven+

Corvus corax Linnaeus

Indian Tree Pie +

Dendrocitta vagabunda (Latham)**MAMMALS**

Tiger, the top most predator of the existing food pyramid was not sighted in the Sariska Tiger Reserve. Interestingly enough, the dhole or wild dog which was sighted in the reserve only in the last few years, ratel (honey badgers), Indian pangolin and black buck were also not sighted during the present survey. Though, Sariska Tiger Reserve is home to numerous other carnivore vertebrates including leopard/panther, caracals, rusty spotted cat, wild dog, jungle cat, civets, hyena, and jackal. These prey on abundant herbivores mammalian species such as sambar (large asiatic deer), chital (spotted deer), chinkara (Indian gazelle), nilgai, chowsingha (four-horned antelopes), wild boar and langur. Sariska is also well known for rhesus monkeys, which are found in large numbers around Talvriksh, a grove of Arjun trees, the hub of these monkeys and hundreds of them can be seen at a time. A rare feature of the fauna is the four horned antelope. Hares and porcupines are easily spotted. Forty species of mammals have been documented earlier out of which 34 species have been sighted in the present study from Sariska Tiger Reserve. *Herpestes smithii* ruddy mongoose have been reported for the first time from the reserve. One species of cat probably marbled cat is still to be taxonomically determined. All species fall under different categories of Wildlife Protection Act, IUCN, Camp, 1998, CITES, 2003 (Alfred *et al.*, 2006).

SYSTEMATIC ACCOUNT

Order INSECTIVORA

Family ERINACEIDAE

Subfamily ERINACEINAE

Genus *Hemiechinus* Fitzinger, 1866*Hemiechinus collaris* (Gray, 1830)

Indian Long Eared Hedgehog +

Family SORICIDAE

Subfamily CROCIDURINAE

Genus *Suncus* Ehrenberg, 1832*Suncus murinus* (Linnaeus, 1766)

Grey Musk Shrew +

- Order CHIROPTERA
 Suborder MEGACHIROPTERA
 Family PTEROPODIDAE
 Subfamily PTEROPODINAE
 Genus *Cynopterus* Cuvier, 1824
Cynopterus sphinx (Vahl, 1797) **Short Nosed Fruit Bat +**
 Genus *Pteropus* Erxleben, 1777
Pteropus giganteus (Brunnich, 1782) **Indian Flying Fox +**
 Family MEGADERMATIDAE
 Genus *Megaderma* Geoffroy, 1810
Megaderma lyra Geoffroy, 1810 **Indian False Vampire +**
 Family VESPERTILIONIDAE
 Subfamily VESPERTILIONINAE
 Genus *Scotophilus* Leach, 1821
Scotophilus heathi (Horsfield, 1831) **Asiatic Greater Yellow Bat +**
- Order PRIMATES
 Family CERCOPITHECIDAE
 Subfamily CERCOPITHECINAE
 Genus *Macaca* Lacepede, 1799
Macaca mulatta (Zimmermann, 1780) **Rhesus Macaque +**
 Subfamily COLOBINAE
 Genus *Semnopithecus* Desmarest, 1822
Semnopithecus entellus (Dufresene, 1797) **Common Hanuman Langur +**
- Order CARNIVORA
 Family CANIDAE
 Genus *Canis* Linnaeus, 1758
Canis aureus Linnaeus, 1758 **Asiatic Jackal +**
Canis lupus Linnaeus, 1758 **Wolf +**
 Genus *Cuon* Hodgson, 1838
Cuon alpinus (Rallas, 1811) **Wild Dog or Dhol**
 Genus *Vulpes* Frisch, 1775
Vulpes bengalensis (Shaw, 1800) **Indian Fox +**

Family FELIDAE

Subfamily PANTHERINAE

Genus *Panthera* Oken, 1816

Panthera tigris (Linnaeus, 1758) **Tiger**
Panthera pardus (Linnaeus, 1758) **Leopard/Panther +**

Subfamily FELINAE

Genus *Caracal* Gray, 1843

Caracal caracal (Schreber, 1776) **Caracal +**

Genus *Felis* Linnaeus, 1758

Felis chaus Schreber, 1777 **Jungle Cat +**

Felis rubiginosa Geoffroy

= *Prionailurus rubiginosus* Geoffroy **Rusty-spotted Cat**

Family HERPESTIDAE

Subfamily HERPESTINAE

Genus *Herpestes* Illiger, 1811

Herpestes edwardsii

(E. Geoffroy Saint Hilare, 1818) **Indian Grey Mongoose +**

Herpestes javanicus

(Geoffrey Saint Hilare, 1818) *auropunctata* **Small Indian Mongoose +**

Herpestes smithii Gray, 1837 **Indian Ruddy Mongoose ***

Family HYAENIDAE

Subfamily HYAENINAE

Genus *Hyaena* Brunnich, 1771

Hyaena hyaena (Linnaeus, 1758) **Striped Hyaena +**

Family MUSTELIDAE

Subfamily MELLIVORINAE

Genus *Mellivora* Storr, 1780

Mellivora capensis (Schreber, 1776) **Ratel or Honey Badger**

Family VIVERRIDAE

Subfamily PARADOXURINAE

Genus *Paradoxurus* Cuvier, 1821

Paradoxurus hermaphroditus (Pallas, 1777) **Toody Cat +**

- Subfamily VIVERRINAE
 Genus *Viverricula* Hodgson, 1838
Viverricula indica (Desmarest, 1804) **Small Indian Civet +**
- Order ARTIODACTYLA
 Family SUIDAE
 Subfamily SUINAE
 Genus *Sus* Linnaeus, 1758
Sus scrofa Linnaeus, 1758 **Indian Wild Boar +**
- Family CERVIDAE
 Subfamily CERVINAE
 Genus *Axis* H. Smith, 1827
Axis axis (Erxleben, 1777) **Spotted Deer/Chital +**
- Genus *Cervus* Linnaeus, 1758
Cervus unicolor Kerr, 1792 **(Sambhar) +**
- Family BOVIDAE
 Subfamily ANTILOPINAE
 Genus *Antilope* Pallas, 1766
Antilope cervicapra (Linnaeus, 1758) **Blackbuck or Indian Antilope**
- Genus *Gazella* Blainville, 1816
Gazella bennetti (Sykes, 1831) **(Indian Gazella or Chinkara) +**
- Subfamily BOVINAE
 Genus *Boselaphus* Blainville, 1816
Boselaphus tragocamelus (Pallas 1766) **Blue Bull/Nilgai +**
- Genus *Tetracerus* Blainville, 1816
Tetracerus quadricornis Blainville **Four-horned Antelope +**
- Order PHOLIDOTA
 Family MANIDAE
 Genus *Manis* Linnaeus, 1758
Manis crassicaudata Gray, 1827 **Indian Pangolin**
- Order RODENTIA
 Suborder SCIUROGNATHI
 Family SCIURIDAE
 Subfamily SCIURINAE
 Genus *Funambulus* Lesson, 1835
Funambulus pennati Wroughton, 1905 **Northern Palm Squirrel +**

- Family MURIDAE
Subfamily GERBILLINAE
Genus *Meriones* Illiger, 1811
- Meriones hurrianae* (Jordon, 1867) **Desert Gerbil +**
Genus *Tatera* Lataste, 1882
- Tatera indica* (Hardwicke, 1807) **Indian Gerbil +**
Subfamily MURINAE
- Genus *Bandicota* Gray, 1873
- Bandicota bengalensis*
(Gray and Hardwicke, 1833) **Lesser Bandicoot Rat +**
Genus *Mus* Linnaeus, 1758
- Mus musculus* Linnaeus, 1758 **House Mouse +**
Genus *Rattus* Fischer, 1803
- Rattus rattus* (Linnaeus, 1758) **Black Rat or House Rat +**
- Superfamily HYSTRICOGENATHI
Subfamily HYSTRICIDAE
Genus *Hystrix* Linnaeus, 1758
- Hystrix indica* Kerr, 1792 **Indian Crested Porcupine +**
- Order LAGOMORPHA
Family LEPORIDAE FISCHER, 1817
Genus *Lepus* Linnaeus, 1758
- Lepus nigricollis* Cuvier, 1823 **Indian Hare or Black-napped Hare +**

Table-1 : Summary of Faunal Species Recorded from Sariska Tiger Reserve.

INVERTEBRATES		VERTEBRATES	
Order	No. of Species	Order	No. of Species
Nematoda (Thread worms)	22	Pisces	11
Isoptera (Termites)	08	Amphibians	05
Coleoptera: Scarabaeidae (Dung Beetles)	21	Reptiles	22
Lepidoptera (Butterflies/Moths)	05	Aves	189
Diptera (True Flies)	08	Mammals	34
Hymenoptera: Formicidae (Ants)	06		
Total	70		261

Out of 331 species reported so far, 70 species of invertebrates have been recorded for the first time from Sariska Tiger Reserve. Among 261 species of vertebrates 52 species are new records from Sariska Tiger Reserve. Besides, large collection of invertebrates, fishes and mammals which are under identification.

Due to some protection and conservation of the habitat, Sariska Tiger Reserve has proved to be a land bank of losing biotic germplasm. All the species are evenly distributed through out the tiger reserve having specific habitat preference and sharing some kind of dependence on the niches of a macro nature especially forest and wetlands. Faunal elements are far and many but still unexplored. Apart from tiger reintroduction and conservation Sariska Tiger Reserve needs attention of scientific organizations and State Govt. of Rajasthan to inventorize the whole gamut of faunal elements.

THREATS AND CONSERVATION STRATEGIES

Once a den of tigers, Sariska Tiger Reserve has now become a den of poachers, miners, tourists and encroachers. Due to sheer human error the forest vegetation has degraded, the wildlife started disappearing and the water sources dried-up. Thus it has become the need of the hour that the villages around the reserve that were depended on the forest ecosystem should nurture the wildlife and rejuvenates the forests for sustainability of such a mega ecosystem in this region.

Mining

Sariska is facing threat due to un-regularized mining activities. Over 200 mines were functional in the protected forest area and over 40 mines in the partly protected area resulting in severe damage and denudation of the forest. Environmentally sustainable legal mining with compulsory afforestation and clearing of the area with mining debris, implementing correct methodology for mining needs priority to solve the problem.

Grazing

Cattle's farming is the main profession of the local people inhabiting many villages inside the reserve and villages on the periphery. As they depend on forest area for grazing, the core as well as the buffer zone of the tiger reserve always remains under pressure of over grazing. The population of livestock is also increasing steadily. Foot and mouth disease is found in local cattle. Because of this, there is a possibility of the spread of this disease among the wild animals also. Health of cattle is to be ensured by providing the veterinary services and regular camps for creating awareness among the villagers about the healthy up-keep of their cattle population.

Eco-restoration of degraded hills and pasture development activities are to be carried out in the peripheral area to meet the fuel wood and fodder needs of local people. Proper Gochars are to be developed and co-operatives be formed for up-liftment of the villagers and their economy by the way of systematizing the cattle grazing. The population of livestock also needs to be regulated and healthy high yielding cattle's are to be provided to the villagers.

Felling of trees for fuel wood

There is enough to meet everybody's requirement. It's all based on planning and judicious use. But the overall increase of human population of the surrounding villages around the reserve

and the felling and lopping without replanting young saplings for next process of succession and growth has resulted in increase of wasteland accentuated by gradual degrading in soil quality. The fuel wood requirement of the villagers is being met by cutting the trees of the reserve. Some of the felled trees are also smuggled to nearby industries and towns to earn livelihood.

Exploitation of water resources

Use of water for human and animal drinking purposes together with irrigation is undoubtedly a pressure on water resources in this area. The impact of lifting out the water for human use is most decisive factor creating scarcity of water in the natural tanks and reservoirs of the sanctuary, which were otherwise exclusively used for wildlife and micro-habitat creation. The increasing population pressure and run-off of chemical fertilizers is causing water pollution rendering it most unfit for wild animals.

Use of chemical fertilizers and pesticides

Harmful effects of chemical fertilizers like urea and di-ammonium are well known. These are extensively used by the villagers especially to grow vegetable and cereal crops. The toxic run-off of the agricultural field's drains into the water of natural reservoirs used by wild animals is a serious threat to the vegetation and wildlife population of the reserve.

Poaching

Poaching of flora and fauna is common in Sariska Tiger Reserve. Illegal collection and felling of timber, fuel wood and value added non-wood forest produce takes place round the year. Poaching of wild animals was though occasional but in recent years has resulted in completely wiping out the population of tigers from the reserve. Most herbivores are poached for meat but carnivores like tiger, leopards and others are poached for their products in the international market. Poaching of both fauna and flora needs to be stopped and villagers should be involved in their protection along with restriction on harvesting of value added non-wood forest produce from the reserve area.

Human population, settlement and encroachment

The increasing population, the consequent biotic pressure, lack of awareness and communication gap has resulted in encroachment and subsequent degradation of the forest areas, particularly on the fringes. Human population inside the core zone, the buffer zone and around the Reserve is increasing rapidly. Due to the human settlement there are numerous problems. The peripheral area of the reserve is more prone to encroachment. The ever-increasing human population inside and around the Reserve needs to be controlled.

Highways

There are two state highways, Alwar-Thanagazhi-Jaipur and Sariska-Kalighati-Tehla road. Both the state highways pass through the heart of the Sariska Tiger Reserve and the proposed National Park. This is the most disturbing factor hindering the free movements of wild animals and increase number of kills in the Tiger Reserve.

Tourism and pilgrimage

Tourists in thousands throng this reserve every year. Pilgrims visiting mainly the Hanuman temple at Pandupole causes much disturbance in the core area as they penetrate nearly 22 km inside the reserve. Bharathari temple is yet another area visited by several hundred thousand people every year. Tuesdays and Saturdays are days of free entry for the pilgrims and these days alone register few thousand pilgrims. Pilgrimage pressure also increases particularly during monsoon and virtually becomes unmanageable during festival season. There are number of other religious places such as Nahar Sati, Sati Mata Narayani Ji, Talvriksh and Garbaji in the buffer zone visited by several hundred thousand people every year. Regulated pilgrimage can help solve this problem.

Fire

Forest fires are common during summer when the grasses dry up. Unregulated and continuous flow of pilgrims together with extensive human interference by villagers are serious threat in aggravating and enhancing the possibility of forest fires.

Ecological threats

The buffer area of the reserve, due to over exploitation of the forest wealth, has resulted into development of wastelands and barren hills. The denudation of hills and valleys is amounting to large-scale topsoil removal and leaching down of these nutrient rich soils into the drainage system causing silting and filling up of the riverbeds decreasing their water holding capacity. This is further accentuated due to over grazing by the cattle and excessive use of chemical fertilizers and pesticides by farmers. The beneficial soil microorganisms and arthropods are severely affected due to large-scale manipulation of land use in and around the reserve.

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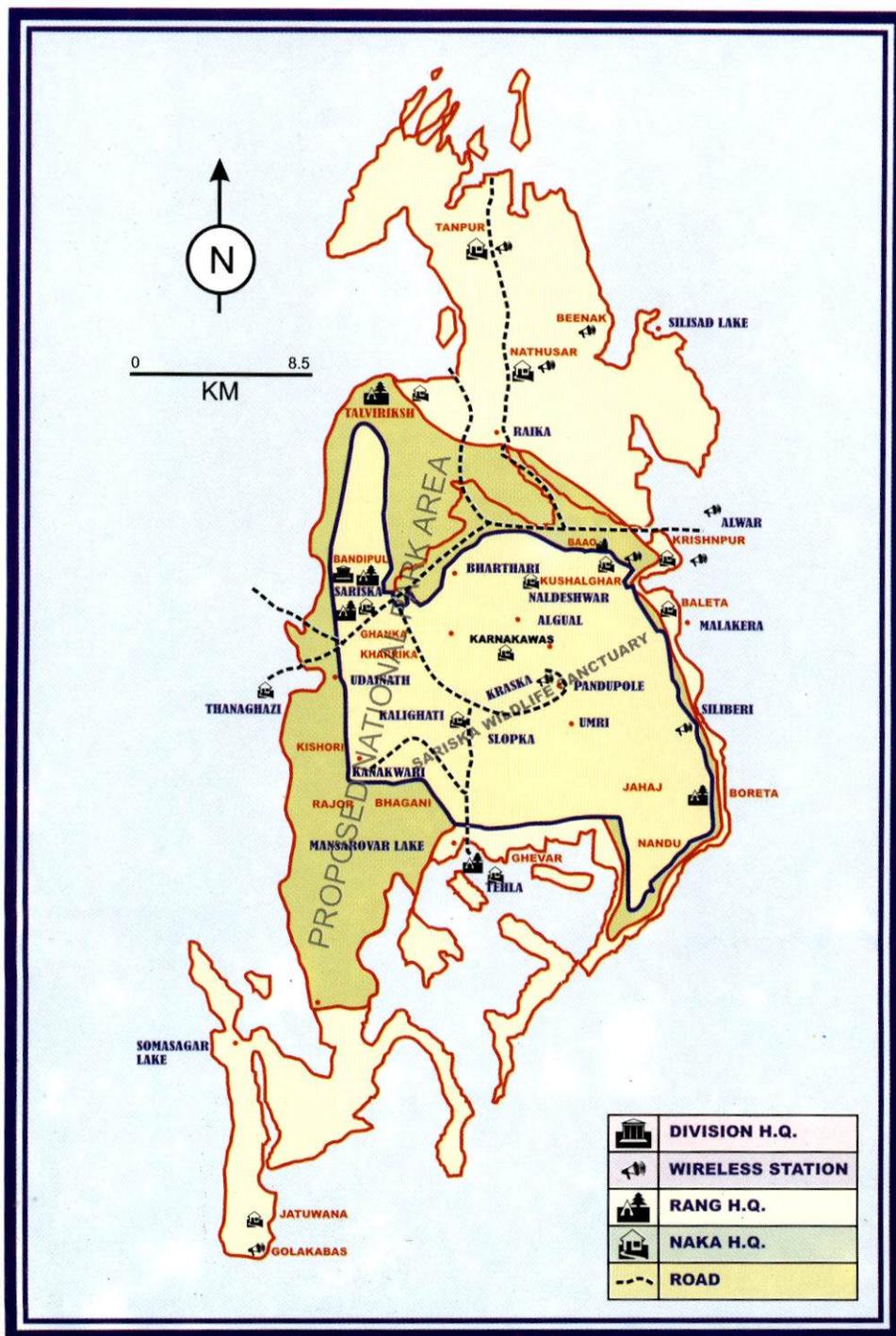
REFERENCES

- Ajithkumar, C.R. and Sankar, K. 1993. Ichthyo-fauna of Sariska Wild life Sanctuary. *J. Bombay nat. Hist. Soc.*, **90** (2) : 299-300.
- Alfred, J.R.B., Ramakrishna, Pradhan, M.S. 2006. Validation of Threatened Mammals of India : 1-568. (Published by the Director, *Zool. Surv. India, Kolkata*).
- Anon. 1972. Indian Board for Wildlife (1972): Project Tiger- a planning proposal for preservation of tiger in India. Task Force Report : 1-114. Govt. of India, Ministry of Agriculture.
- Anon. 1993. A report on project Tiger. Ministry of Environment and Forest of India, New Delhi : 23-24.
- Anon. 2004. Management Plan of Sariska Tiger Reserve. Field Director, Sariska Tiger Reserve, Forest Department, Government of Rajasthan : 13, Annexure XXI (A).
- Anon. (Undated a). Sariska Tiger Reserve. Forest Department, Government of Rajasthan. *Phamphlet*.
- Anon. (Undated b). *Sarika Bagh Abhyaranya*. Forest Department, Government of Rajasthan. (*Phamphlet in Hindi*).
- Anon. (Undated c). Sarika Tiger Reserve. Project Tiger Status Report : 153-157.
- Anonymynous (Undated a). 1996. Floods of Barah Basin. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Anonymynous (Undated b). *Aravali Ka Singhnaad*. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Anonymynous (Undated c). Dialogue on Sariska. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Badhwa, A. 2002. Tiger at the crossroads. *Indian Forester*. **128**(10) : 1106-1112.
- Bhoop Singh, P. S. Undated. *Alwar Ek Parichay* (Part -1) : 1-6. Unpublished.
- Champion, H.G. and Seth, S.K. 1968. A revised Survey of the forest types of India. New Delhi.
- Chaudhary, A.B. and Chakrabarti, K. 1979. Project Tiger- A premier and intricate conservation project. *Proceeding of International Symposium on Tiger India*, Feb., 1979.
- Gupta, S.K. and Yadav, A.S. 2005. Population Structure of Tree Species in the Sariska Tiger Reserve: Effect of Aspects of Hill Slopes and Human Disturbance. *Bulletin of the National Institute of Ecology*, **15** : 35-41.
- Heltberg, R.; Arndt, T.C. and Sekhar, N.U. 2000. Fuel wood consumption and forest degradation: a household model for domestic energy substitution in rural India. *Land Economics*, **76**(2) : 213-232.
- Islam, M.Z. and Rahamani, A.R. 2004. Important Bird Areas in India: Priority sites for conservation. Indian Bird Conservation Network: *Bombay Natural History Society and Birdlife International* (UK) : xviii+1133.

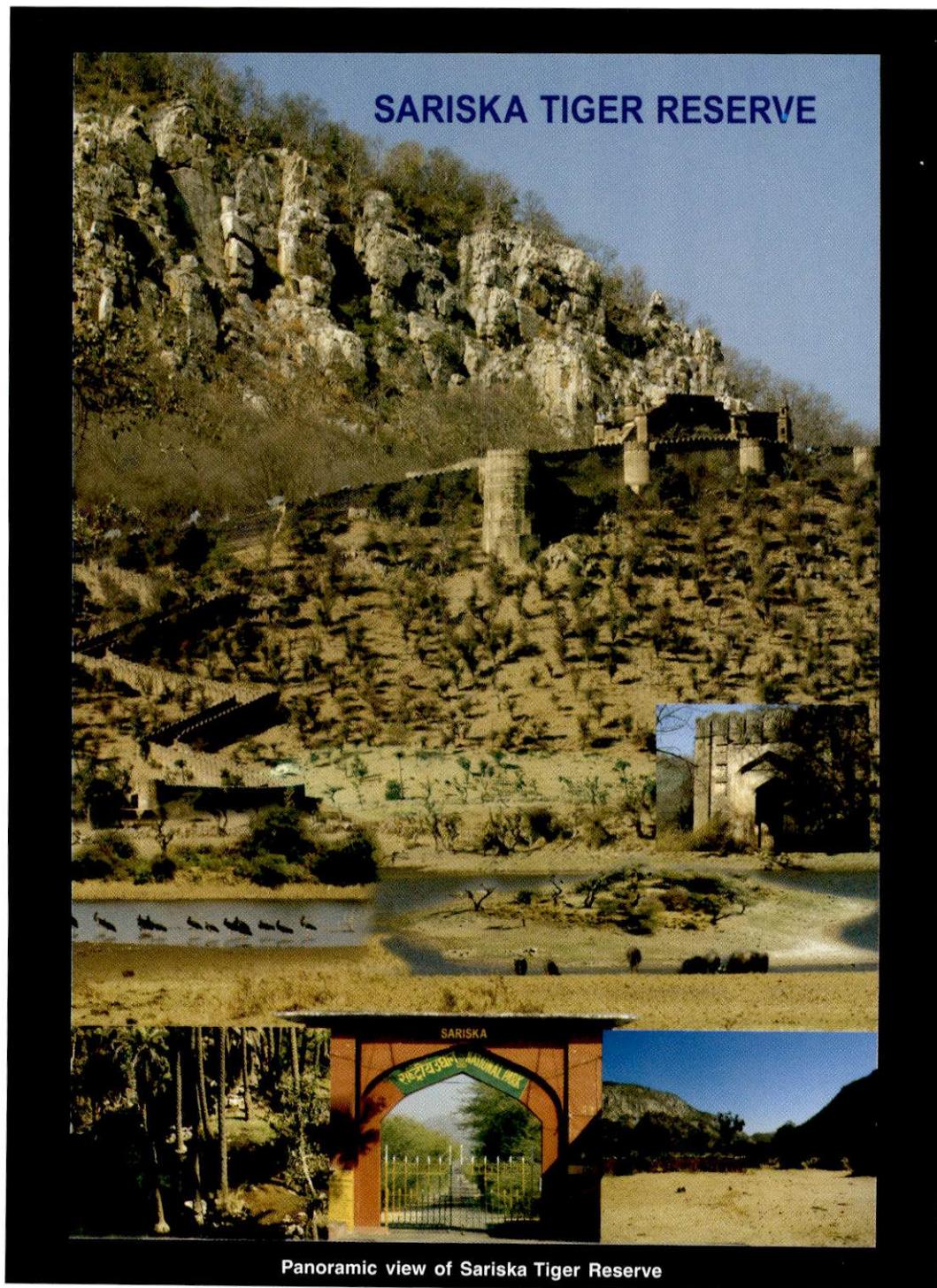
- Israel, S. and Sinclair, T. 1989. Sariska Tiger Reserve. In : *Indian Wildlife*. APA Publications (H K) Ltd. : 128.
- Jain, Pushp. 2001. Project Tiger Status Report, Project Tiger, Ministry of Environment and Forest, Government of India, New Delhi.
- Johnsingh, A.J.T. 2006. Sariska on my mind. *Sanctuary Asia*, August 2006. : 34-38.
- Karant, K.U. 1987. Tigers in India: A critical review of field census. Tigers of the world. Proceeding Minnesota Zoo garden, IUCN/SSC Symposium, April 1986, Ed. Tilson-Seal : 118-132.
- Karnik, K. and Kapur A. Undated. *Devri Ki Sangarsh Gatha*. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Melkani, V.K. 2001. Tiger conservation in India: Past, Present and Future. *Indian Forester*, **127**(10) : 1081-1097.
- Moghe, V.B. 1994. Resource Atlas of Rajasthan. Indian map service, Jodhpur, Rajasthan, India.
- Mukherjee, S., Goyal, S.P. and JohnSingh, A.J.T. 1998. Behavioral Ecology of Caracal (*Caracal caracal schmitzi*) in Sariska Tiger Reserve, Rajasthan, India. Final Report.
- Panwar, H.S. 1986. Wildlife Institutes of India- A profile. *Indian Forester*, **112**(10) : 954-956.
- Panwar, H.S. 1991. Some suggestions for conservation of biodiversity in India. *Indian Forester*, **117**(10) : 812-817.
- Parmer, P.J. 1985. A contribution to the flora of Sariska Tiger Reserve, Alwar District, Rajasthan. *Bull. Bot. Surv. India*, **27**(1-4) : 29-40.
- Parmer, P.J. 1998. Floral Status of Sariska Tiger Reserve, Rajasthan. In: *Plant diversity in the tiger reserves of India, Botanical Survey of India*, Kolkata : 82-86.
- Rathore, F.S. 1993. Prospects of tiger census. Proceeding. *International Symposium on tiger*, Feb. 1993, India.
- Ravi, R. and Jain, J. 1998. *Pahardh Par Pani*. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Ravi, R. and Jain, J. 1999. *Sagha Shram*. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Rodgers, W.A. 1990. A preliminary ecological survey of Algal Spring, Sariska Tiger Reserve, Rajasthan. *J. Bombay nat. Hist. Soc.*, **87**(2) : 201-209.
- Roy, A.B. and Jakhar, S.R. 2002. Geology of Rajasthan (Northwest India) Precambrian to recent. Scientific Publications (India), Jodhpur : 1-421.
- Samantaray, R. 1998. Putting tradition back into practice. Johad watershed in Alwar District Rajasthan. UN-Inter Agency Working Group on Water and Environmental Sanitation. United Nations System, UN-IAWG-WES.
- Sankar, K. Goyal, S.P. and Johnsingh, A.J.T. 1993 a. Feeding ecology of tiger and leopard in Sariska Tiger Reserve. *Proceeding International Symposium on Tiger*, Feb. 1993, India.

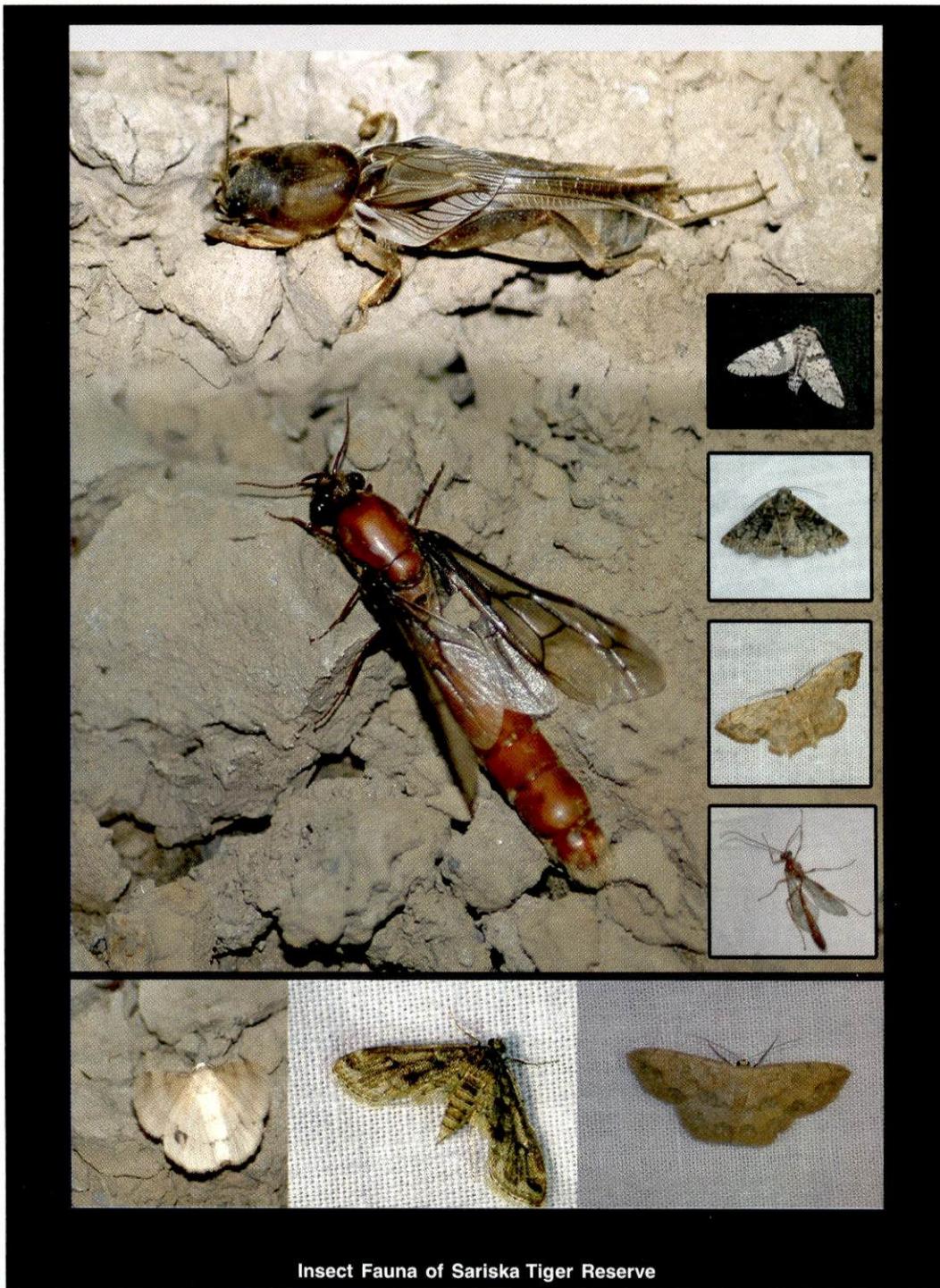
- Sankar, K., Mohan, D. and Pandey, S. 1993 b. Birds of Sarika Tiger Reserve, Rajasthan India. *Forktail*, **8** : 133-141.
- Sankhala, K.S. 1967. Breeding behaviour of the tiger in Rajasthan. *Int. Zoo Yb.* **7** : 133-147.
- Sankhala, K.S. 1969. The tiger in Rajasthan a study of its habitat, distribution and status. *Indian Forester*, **9**(11) : 763-770.
- Sankhala, K.S. 1978. Tigers in the wild-their distribution and habitat preferences. Ist International Symposium on the management and breeding of the tiger, Oct. 1978, Leipzig, pp. 43-59.
- Sekhar, N.U. 2000. Decentralized natural resource management: from state to co-management in India. *Journal Environmental Planning Management*. **43**(1) : 123-138.
- Sharma, D. and Prasad, S.N. 1992. Tree debarking and habitat use by porcupine (*Hystrix indica* Kerr) in Sariska National Park in Western India. *Mammalia*, **56**(3): 351-361.
- Sharma, V.D. 1986. Sariska-Jewel of the Aravallis. *Sanctuary*, **6**(2) : 143, 165-169.
- Sharma, V.D. 1997. Sariska Wildlife Sanctuary. *Rajasthan Atithi*, **VII**(4) : 20-23.
- Shrotriya, M. and Avinash. Undated. *Samman Ka Pani Lanewalle Bhaghani-Tildeh Nadi*. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Shrotriya, M. Undated. Regenerating of Forest. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Singh, A. 1991. Gopalpura: a village where environmental consciousness is exceptionally high? *Forests, Trees and People Newsletter*, **13** : 20-22.
- Singh, K. 1967. The Tigers of Rajasthan. Jaico Publishing House, M.G. Road Bombay : 1-198.
- Sjoblom, D. and Singh, A. 1993. An indigenous land tenure system is revived to rehabilitate a protected area - the case of Sariska National Park in Rajasthan. *Forests, Trees and People Newsletter*, **22** : 68.
- Tewari, D.N. 1991a. Forestry Research. *Indian Forester*, **117**(11) : 941-951.
- Tewari, D.N. 1991b. Forest and Tribal. *Indian Forester*, **117**(11) : 984-989.
- Tinker, J. 1974. Will India save the tiger? *New Scientist*, **61** : 802-805.
- Tiwari, S.K. (Undated) Sariska. In : Encyclopedia of Indian Wildlife Sanctuaries and National Parks.
- Vaibhav. Undated. Sariska. Publication, Tarun Bharat Sangh, Thanagazi, Alwar, Rajasthan.
- Vardhan, H. 1979. Tiger lacks lobby- A case study of Sariska and Ranthambhore Tiger Reserves for shifting of villages. *International symposium on Tiger*, Feb. 1979. India : 262-264.
- Verma, K. 1986. The Sariska Tiger Reserve. *Sanctuary*, **6**(2) : 130-142.
- Ward, G.C. and Gunter 1986. Tiger on Road. *Andubon*, **88**(3) : 40-63.

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Map 1. Sariska Tiger Reserve





Insect Fauna of Sariska Tiger Reserve





Avian Fauna of Sariska Tiger Reserve



Avian Fauna of Sariska Tiger Reserve



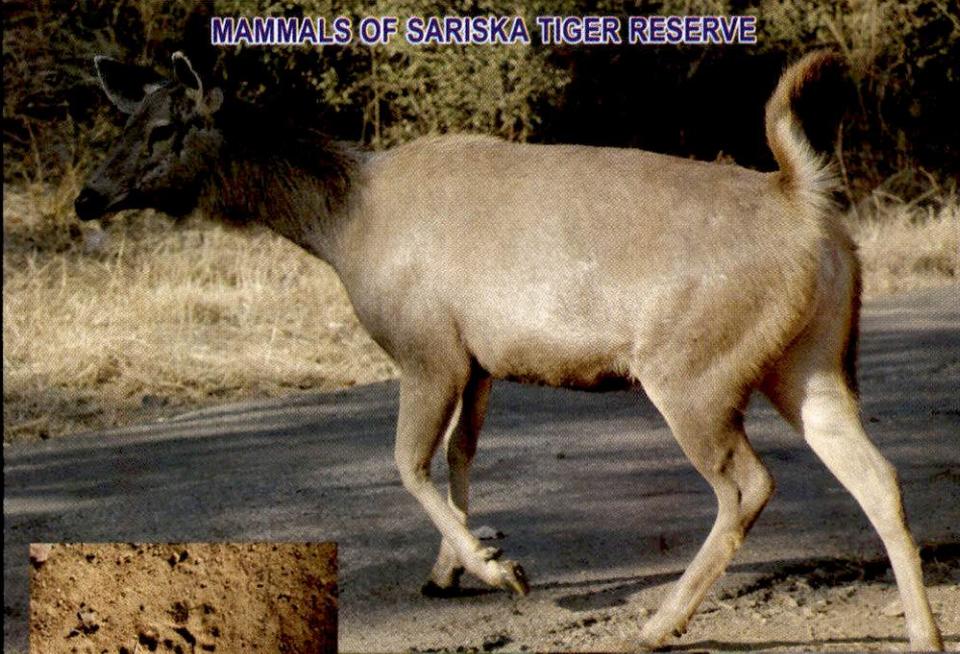
Wetland Birds of Sariska Tiger Reserve



Wetland Birds of Sariska Tiger Reserve



MAMMALS OF SARISKA TIGER RESERVE



Mammals of Sariska Tiger Reserve





TIGER RESERVES IN MADHYA PRADESH AND CHHATTISGARH

INTRODUCTION

The Project Tiger was launched on 1st April, 1973 to achieve the objectives to ensure maintainance of a viable population of Tiger in India for scientific, economic, aesthetic, cultural and ecological values and preserve for all times these areas of biological importance as National Heritage. The area under Project Tiger encompasses a very wide range of climatic, phisiographic and biogeographic ranges and realms, wherein thousands of the plant and animal species survive and represent almost all major forest habitats. There are 28 Tiger Reserves throughout the country, which cover an area of 37,761 sq. km. They play an important role in conserving the 80 % of the amphibia, reptilia and mammalian fauna of the country (Chaudhary and Sarkar, 2004, ZSI Chapter). Besides, these reserves are also the natural gene banks of many known and unknown animal species.

Madhya Pradesh and Chhattisgarh occupy the very heartland of India and together form the unit of Central India. The total area of these two states is 4,43,446 sq. km lying between latitudes 21° to 25° N and longitudes 74° to 84° E, covering about 13.5% of the total area of India. Madhya Pradesh and Chhattisgarh in recent years have proved to be a major force in developing a viable protected area network. Madhya Pradesh has a total of 9 National Parks and 25 Wildlife Sanctuaries, 1 Biosphere Reserve and 5 Tiger Reserves, whereas Chhattisgarh has 3 National Parks and 13 Wildlife Sanctuaries, 1 Tiger Reserve and 1 proposed Biosphere Reserve. Madhya Pradesh is also known as Tiger state. It has approximately 22% of the tiger population of the world and the state has maximum number of Tiger Reserves in comparision to any state or union territory in India.

Madhya Pradesh and Chhattisgarh falls under two *Bio-geographic* zones, viz., - (i) **Zone 4** : Semi Arid; (ii) **Zone 6** : Deccan Plateau.

1. SEMIARID ZONE

Zone 4 : Semi Arid – It is well known that semi arid regions have dominance of grass and palatable shrub layers of highest biomass. The zone is the region of transition from the true desert to the West and the extensive Deccan communities of Peninsular India to the South and East. The semi arid zone has a single province in M.P.-4B : Gujrat Rajwara. This province is the north west of state largely being the Chambal drainage area, extending south to the Narmada River watershed

and east to the Betwa River. Two subdivisions are recognised: the Malwa Plateau, and a fragmented unit-Wetland (being lakes, tanks, major river systems).

2. DECCAN ZONE

(1) **Zone 6 : Deccan Zone** : The Deccan zone has three provinces in M.P.

6 C- Eastern Highlands : This is a small province but biologically rich, having the Eastern Ghats and valleys of the Chhattisgarh Dandakaranya area, the moist area of the region. Only the northern half of the Ghat is included, that is north of the river Cauvery. The southern and more fragmented half lying south of the river Krishna is more difficult to demarcate in the map.

6 D- Chhota Nagpur Plateau : The moist plateau in the northwest of the zone is a continuation of many of the distributional trends found in 6-B and 6-C. However, floristically and faunistically especially in terms of lesser vertebrates, it is distinctive.

6 E- Central Highlands : This province includes both the Satpura and Vindhya Hill ranges.

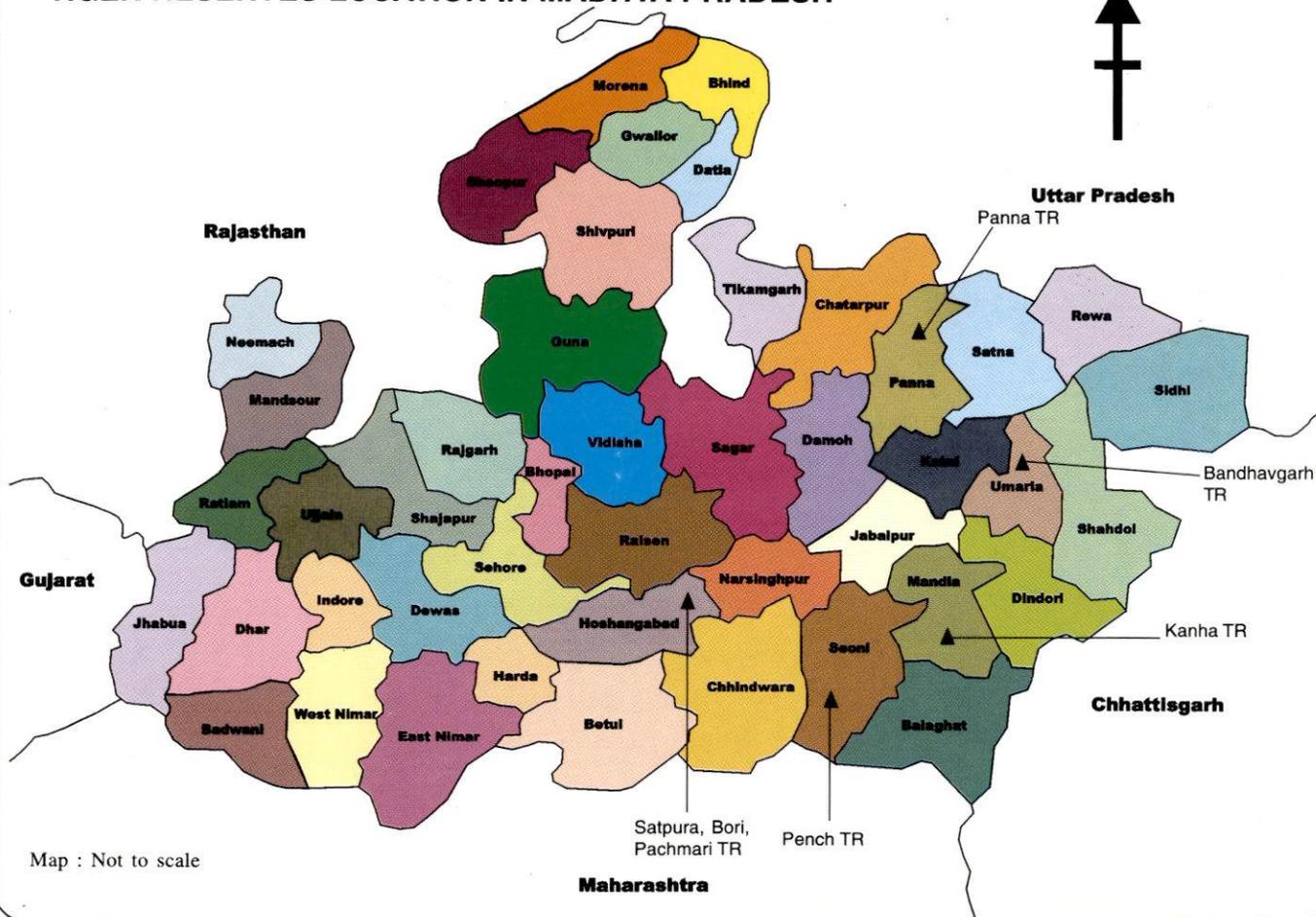
TIGER RESERVES IN MADHYA PRADESH AND CHHATTISGARH

Sl. No.	Name of Tiger Reserve	Area (sq. km)	Establishment year	District
MADHYA PRADESH				
1.	Bandhavgarh Tiger Reserve	1161.47	1993-94	Umaria and Katni
2.	Bori-Satpura-Pachmarhi TR	1427.87	1999-2000	Hoshangabad, Betul and Balaghat
3.	Kanha Tiger Reserve	2059.74	1973-74	Mandla, Balaghat, Kawardha and Dindori.
4.	Panna Tiger Reserve	666.40	1994-95	Panna, Chattarpur
5.	Pench Tiger Reserve	757.90	1992-93	Seoni, Chindwara
CHHATTISGARH				
1.	Indravati Tiger Reserve	2,799.00	1982-83	Bastar, Dantewada

FAUNAL ANALYSIS

The Zoological Survey of India initiated the programme for the preparation of faunal inventory of Tiger Reserves in India at the invitation of Indian Board of Wildlife during 1982. In 1993, the department published 'Fauna of Tiger Reserves : An Overview', wherein 18 Tiger Reserves were included. The publication also included the information on Kanha and Indravati Tiger Reserves from Madhya Pradesh and Chhattisgarh. During the same year, the Zoological Survey of India brought out the publication on 'Butterflies and Moths of Indian Tiger Reserves' and 110 species (Butterflies-85 and Moths-25) were dealt. The publication also included the record of 21 species of butterflies and 4 species of moths from Indravati Tiger Reserve. Since 1987, Zoological Survey

TIGER RESERVES LOCATION IN MADHYA PRADESH



Map : Not to scale

of India commenced the publication on 'Fauna of Conservation Area Series' and the faunal inventories of 8 Tiger Reserves were published viz. Corbett Tiger Reserve, Indravati Tiger Reserve, Kanha Tiger Reserve, Manas Tiger Reserve, Palamau Tiger Reserve, Simlipal Tiger Reserve, Sundarbans Tiger Reserve and Valmiki Tiger Reserve. The faunal account of Kanha Tiger Reserve included 403 species (335 vertebrates and 68 invertebrates) and 277 species (174 vertebrates and 103 invertebrates) were reported from Indravati Tiger Reserve.

Although, many species of major groups like Mammals, Birds and Reptiles are known in these protected areas, but the information on invertebrates except the butterflies is completely lacking. Therefore, the initiatives to prepare the faunal inventories of all the Tiger Reserves of these states were undertaken by the Zoological Survey of India and for the last 6 years, the faunal explorations of the various protected areas of Madhya Pradesh and Chhattisgarh were made. These surveys showed good results and presently the faunal account of all the six Tiger Reserves of Madhya Pradesh and Chhattisgarh has been made available and it includes 1358 species under 279 families pertaining to 29 groups of animals (vertebrates-664 and invertebrates-694). Of these, more than 300 species were recorded for the first time from the Tiger Reserves of these 2 states. In the event, such studies are continued, there may not only be much more new reports to the fauna, but also new species of animals to the science. The baseline faunal inventories information provided here is expected to help in identifying conservation of threatened species at state level, but also expected to help in drafting the management action plans of the Tiger Reserves of these states.

All the species are given alphabetically in each family. Although many species are common in all the Tiger Reserves, but the present record is mainly based on material examined particularly in case of invertebrates.

Annelida : The earliest record on the Annelids of Central India is from Stephenson (1923). Harding & Moore (1927) reported four species of leaches from Madhya Pradesh, of which three species are from Bori Stapura and Pachmarhi Tiger Reserve. Julka *et al.* (1989) reported one species of Oligochaeta from Bori Satapura and Pachmarhi Tiger Reserve. Present analysis includes four species of Annelid fauna from the Tiger Reserves in Madhya Pradesh.

Scorpions : Very little information is available on the 'Scorpions' found in Central India. Although, population of scorpions present in Madhya Pradesh is substantial. The description of the group is from the work of Tikader & Bastawade (1983) and Bastawade (1992) with one species from Kanha Tiger Reserve and another species from Bori-Stapura and Pachmarhi Tiger Reserve.

Solifugae : Commonly known as 'Wind Scorpions' or 'False Spiders' and the significant work on Indian Solifugae is from the work of Pocock (1900), reporting lone species of genus *Galeodes* from Bori Stapura and Pachmarhi Tiger Reserve and Pench Tiger Reserve.

Opiliones : The 'Harvestmen' or 'Daddy-long-legs' are very poorly represented in the Indian fauna and so far only the genus *Phalangium* under family Phalangidae has been recorded from Pench Tiger Reserve.

Araneae : Although, reports on 'spiders' from Central India are available, not much is known from Tiger Reserves of Madhya Pradesh and Chhattisgarh. Rane & Singh (1977) reported few species from Kanha National Park. Gajbe (1995a, b) recorded spiders of Indravati Tiger Reserve and

Kanha Tiger Reserve. Gajbe (2003a) reported a total of 186 species of spiders from the region including 170 species from Madhya Pradesh and 49 species from Chhattisgarh. Gajbe and Bhandari (2003) reported a few species of spiders from Pench Tiger Reserve. Presently, a total of 60 species of spiders under 15 families are known from tiger reserves in Madhya Pradesh and Chhattisgarh.

Prostigmata : During the present survey of Pachmarhi Biosphere Reserve from April 2000 to December 2002, 12 species of plant mites belonging to family Tetranychidae were collected and identified. Seven species were identified from BANTR, out of 14 species known from the Tiger Reserves of Madhya Pradesh. Three species of plant mites belonging to family Phytoseidae are also recorded from the BSPTR, belonging to Mesostigmata.

Crustacea : Among the crustaceans, only Ostracodes were studied from these Tiger Reserves. Harshey & Shrivastava (1983) reported a few species from Madhya Pradesh; of which one species of ostracoda reported from Kanha Tiger Reserve. Harshey (1995a, b) recorded the ostracod fauna of Indravati Tiger Reserve and Kanha Tiger Reserve, respectively. A total of 12 species under two families are presently known from the TRs in Madhya Pradesh and Chattishgarh.

Odonata : These amphibiotic insects are commonly known as 'dragonflies' and 'damselflies'. Fraser (1918, 1919, 1933, 1934, 1936) working on Fauna of Odonata of India included many species from different localities of MP. Mitra (1995), while working on Odonata of Indravati Tiger Reserve reported 20 species. Besides above, four species were also recorded from BANTR. In total, 40 species of dragonflies and damselflies belonging to 11 families are known from Tiger Reserves of which, most of them are from PENTR, BSPTR and INDTR.

Plecoptera : The representatives of the order are commonly known as 'stoneflies', of which only 1 species pertaining to the family Perlidae is known from PENTR, through the work of Singh & Rane (1976).

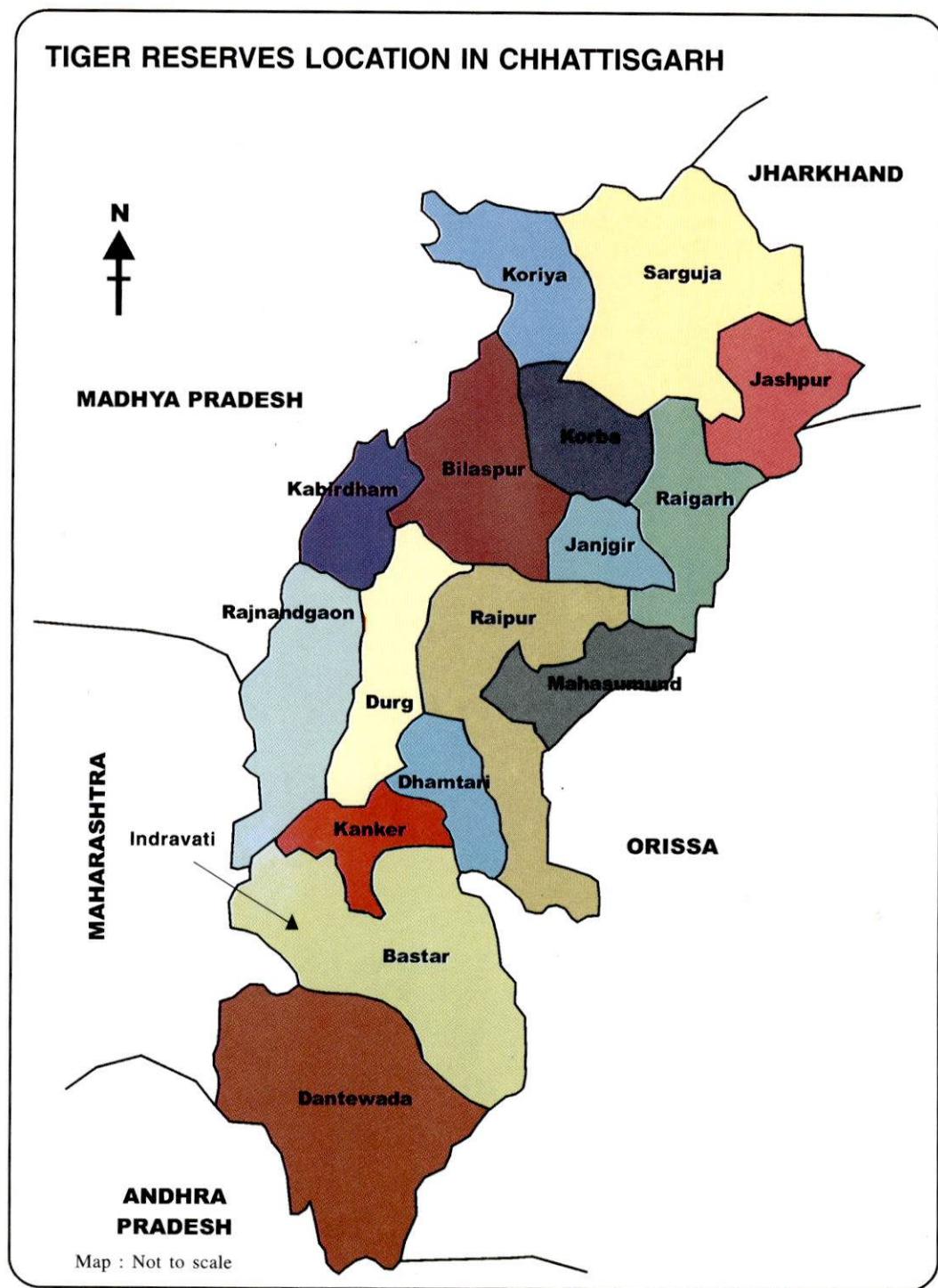
Orthoptera : The order includes common insects such as grasshoppers, locusts, crickets, moles crickets and grouse locusts. Kirby (1914) and Chopard (1969) studied Acrididae and Grylloidea of India. Tandon *et al.* (1976, 1995) worked on the Orthoptera of Kanha National Park. Shishodia (1991) worked on Tetrigidae of Kanha National Park. Shishodia (1995, 1999) studied the Orthoptera of Indravati Tiger Reserve (Chhattisgarh) and Patalkot (Madhya Pradesh) respectively. In all, 57 species under 9 families are so far reported from Tiger Reserves.

Dermaptera : These insects are commonly known as 'earwigs'. Shrivastava (1988, 2004) reported 1 species from Bori satpura and Pachmarhi TR and 6 species from PENTR in Madhya Pradesh.

Blattariae : The order Blattariae includes Cockroaches. A total 12 species of Cockroaches from Pench Tiger Reserve and two species from Bori-Satpura-Pachmarhi Tiger Reserve are known.

Mantodea : These are carnivorous insects popularly known as 'praying mantids'. Mukherjee *et al.* (1995) in his publication on the Mantid fauna of India included 16 species representing 2 families from Madhya Pradesh and Chhattisgarh, wherein only 1 species is known from KANTR.

Isoptera : These social and polymorphic insects are commonly known as 'termites' or 'white ants'. 6 species from PENTR are known through the collection of Zoological Survey of India. Chhotani (1995) recorded 16 termite species from KANTR. All together, 18 species under 2 families are known from TRs.



Mallophaga (Phthiraptera) : The 'biting lice' are generally ectoparasites of birds and very occasionally on mammals. Through the work of Lakshminarayana (1979), only one species of Mallophaga is known from KANTR.

Hemiptera : These are small to medium-sized insects commonly called 'true bugs' and possess piercing and sucking type mouthparts. A few species are also aquatic. They are generally phytophagous but a few are predaceous. Biswas & Ghose (1995) studied the Hemiptera of Indravati Tiger Reserve (Chhattisgarh) with description of 18 species. Chandra (2004) included 15 species from PENTR. Presently, a total of 33 species under 13 families are known from TRs of these two states.

Thysanoptera : These are relatively small insects and are commonly known as 'thrips'. Most of them are phytophagous, some are mycophagous and a few species are predaceous. Sen (1982) recorded a lone species of thrips from BSPTR.

Coleoptera : These insects are commonly known as 'beetles' characterized by the forewings much thickened, veinless and meeting in a mid-dorsal straight line. Available publications on the group are from the work by Mathur (1978), Newton & Coe (1985) who listed the dung beetles from KANTR. Basu & Halder (1987), Verma (1988), Biswas & Chatterjee (1991), Sengupta & Pal (1996), Ghosh *et al.* (2000) on the beetle fauna of these states. Chandra & Singh (2000a) reported the Paussidae from Pachmarhi Biosphere Reserve. Chandra (2000b) published an inventory of 96 species of Scarabaeid beetles from Madhya Pradesh. Chandra & Gupta (2002) further added 3 species from SNP. Chandra & Singh (2004) reported 18 species of scarabaeid beetles from Pachmarhi Biosphere Reserve. In total, 154 species of beetles under 16 families are so far reported from TRs of Madhya Pradesh and Chhattisgarh, dominated by the families Scarabaeidae, Carabidae and Dytiscidae.

Siphonoptera : These are small, wingless insects with piercing and sucking type mouthparts. Adults are ectoparasites on warm-blooded animals. Sharif (1930) reported two species of family Pulicidae from Madhya Pradesh, of which one species is recorded from BSPTR.

Diptera : This order comprises mosquitoes, midges and flies, which are generally two-winged, with two halteres, but there are some that have partially or entirely lost their wings, usually leaving their halteres intact behind. Through the works of Brunetti (1912, 1920, 1923), Barraud (1934), Gokulpure (1969), Datta (1983), in their faunal and monographical work, several species were included from Madhya Pradesh, but not many species are known from the Protected Areas. Parui and Mitra (2004) contributed a paper on Diptera of Pench Tiger Reserve and in all 32 species were reported.

Lepidoptera : These are small to very large size insects commonly known as 'butterflies' and 'moths' and possess two pairs of well-developed brilliantly coloured wings with coloured scales on them. Fauna of Butterflies of India are from the work of De Niceville (1886, 1890), Talbot (1939, 1947), Wynter-Blyth (1957), Swinhoe (1886) and Chaudhary (1995) and butterflies from Central provinces is from Betham (1890, 1891, 1892). Singh (1995), Singh & Koshta (1997) studied the butterfly fauna of Kanha National Park. Chandra *et al.* (2002) worked on the butterfly fauna of Pench Tiger Reserve. Singh and Chandra (2002) reported 69 species from Chhattisgarh. Choudhary and Khan (2003) in their publication 'Bandhavgarh: Fort of the Tiger' listed the 111 species of butterflies pertaining to seven families from BANTR.

Cotes and Swinhoe (1886, 1887, 1888, 1889) in six volumes of "A Catalogue of Moths of India" included 122 species from these two states out of recent estimation of over 12,000 species of moths

from India. Hampson (1892, 1894, 1895, 1896) and Bell & Scott (1937) in five volumes of "*Fauna of British India*" included 76 species from Central India (Madhya Pradesh and Chhattisgarh). Presently, 201 species/subspecies of butterflies and moths under 25 families are known from TRs of Madhya Pradesh and Chhattisgarh.

Hymenoptera : These are small to large sized insects with two pairs of veined or almost veinless wings or may be wingless, as in some worker ants. Bingham (1897, 1903) and Morley (1913) published the '*Fauna of British India*' on different families of Hymenoptera. Mani (1989a, 1989b) published '*Fauna of India*' on Chalcidoidea. So far very little information is available on Hymenoptera fauna of protected areas in M.P. and C.G. Through the above work, only 15 species under seven families are known from BSPTR.

Mollusca : The Mollusca include familiar soft-bodied animals like snails, slugs and mussell. Blanford & Godwin-Austen (1908) and Gude (1914) reported the Mollusca of Central India. Kaburaki (1921) reported several species from Central Province. Agrawal (1976a, 1977a, 1993, 1995) reported many species from Madhya Pradesh including conservation areas like Pench National Park, Madhav National Park and Kanha National Park. Subba Rao & Mitra (1979), Goel & Srivastava (1980), Subba Rao *et al.* (1989), and Rao & Mitra (2000), Ramakrishna & Mitra (2002) reported the distribution of many species. Presently, 21 species under 12 families are known from TRs of Madhya Pradesh and Chhattisgarh.

Pisces (Fresh-water fishes) : Among the vertebrates, fishes play an important role in balancing the natural system of wetlands and they form bulk of the primary and secondary consumers in the aquatic ecosystem. They are also of immense economic importance to mankind. Hitherto, no comprehensive account on the fish fauna of Madhya Pradesh is available, except for the scattered records by Hora (1938, 1940), Hora & Nair (1941), Swarup (1953), Dubey & Mehra (1959), Mehra (1959), Soni (1959, 1960), Malviya (1961), Dubey & Verma (1965), Mathur & Mishra (1976), Tilak & Sinha (1979), Karmakar & Datta (1988), Saxena (1988) and Sen (1995a) providing valuable information on the fish fauna of these two states.

A fair proportion of the area of the state is hilly or undulating and some of the important rivers of India such as the Narmada, the Tapti, the Mahanadi, the Wainganga, the Son and the Chambal have their source in these elevated regions. The Chambal, Narmada, Betwa, Son, Mahanadi and Indravati are some of the main important perennial rivers with varied fish fauna and promising fishery. Presently, 93 species/subspecies of freshwater fishes distributed under 22 families are reported in the aquatic ecosystem of Tiger Reserves.

Amphibia (Frogs and Toads) : Chanda (1995b) and Eric D' Cunha (2002) recorded 6 species of amphibia from Kanha Tiger Reserve. Chanda (1995a) recorded 8 species of amphibia from Indravati Tiger Reserve. The amphibiáns are mainly found in moist habitats, especially close to freshwater bodies. The frogs and toads are mainly insectivorous and consume a large number of insect prey during their lifetime and are therefore of economic importance. Through the current information, 11 species under four families are known from the tiger reserves of these states.

Reptilia (Tortoises, Lizards and Snakes) : Comprehensive study of the reptiles of India is from the work of Smith (1931, 1935, 1943) and Sharma (2002), who described the distribution of 33 species of reptiles from Central India and Central Provinces. Many species are also known from the

different conservation areas. Agrawal (1976b) recorded 8 species of reptiles from Kanha National Park. Sanyal and Sur (1995) studied 22 species of reptiles from Kanha Tiger Reserve. Khajuria (1986) reported East Indian Leopard Gecko (*Eublepharis hardwickii*) from Bandhavgarh National Park. Agrawal (1977b) recorded 3 species of reptiles from Pench National Park. Pasha *et al.* (2000) reported 19 species of snakes from Pench National Park. Sanyal (1995) reported 12 species of reptilia from Indravati Tiger Reserve. Altogether, 44 species/subspecies of reptiles under 14 families are known from the TRs of these two states.

Aves (Birds) : The status of avifauna of Madhya Pradesh and Chhattisgarh is based on the available literature of birds of Madhya Pradesh and the localities of Central Provinces and Central India. Osmaston (1922a) studied 135 species of Birds from Pachmarhi. Baker (1922, 1924, 1926, 1927, 1928, 1929, 1930a, b) in the *Fauna of British India* included 58 species of birds from Madhya Pradesh. In 1927, Bates also contributed his "Impressions of Pachmarhi birds". D'Abreu (1935) published notes on birds found of Central India. The collection of 88 skins were made by Roonwal (1942) from Hoshangabad, which resulted in the identification of 47 species. Ali and Ripley (1968, 1969a, b, 1970, 1971, 1972a, b, 1973a, b and 1974) in their 10 volumes on '*Handbook of the Birds of India and Pakistan*' included the species so far recorded from Madhya Pradesh. The birds of Kanha Tiger Reserve recorded by Newton *et al.* (1986) and Ghosal (1995) included 231 species. Saha (1995) also contributed on Birds of Indravati Tiger Reserve and included 92 species. Choudhary and Khan (2003) in their book '*Bandhavgarh : Fort of the Tiger*' listed 241 species of birds from BANTR. Some other sporadic papers also contributed the information on birds of TRs of these two states. In all 433 species/subspecies are recorded mostly through the observations from these tiger reserves, out of 517 species and subspecies of birds under 69 families of 19 orders are reported from Chhattisgarh and Madhya Pradesh (Chandra and Singh, 2004). The species marked with * and subspecies marked with ** are reported by the various earlier works, but their occurrence is to be ascertained.

Mammalia : A perusal on the literature on the mammals of Madhya Pradesh reveals that work was initiated in the late nineteenth century. W. T. Blanford published first edition on the *Fauna of British India-Mammalia*, (two parts) in 1888 and 1891. A total of 46 species of Mammals were reported from Central Provinces by Wroughton (1913, 1918). Later, on the basis of these studies, Pocock published '*Fauna of British India*' in two parts (1939, 1941) and other papers (1929 to 1942), which included the information on mammals of Central India. Brander (1924) published a book entitled "Wild Animals of Central India", which included a list of 45 species of mammals of Central India. Khajuria (1967 to 1984) published seven papers on mammals mostly on bats from various localities. The book on "Indian Mammals" by Prater (1971) also provides information on the mammals of Central India/Madhya Pradesh. Besides, many other authors have also contributed on the diversity and distribution of mammals from the tiger reserves of these two states, and presently 82 species/subspecies of mammals under 26 families are reported in these TRs.

Species under threat

Presently, 1362 species of various groups of animals are reported from Tiger Reserves of Madhya Pradesh and Chhattisgarh. Of these, only butterflies, amphibians, reptiles, birds and mammals are represented in the different Schedules of Wildlife Protection Act (1972) are found in the tiger Reserves of the area. Total 86 species of mammals are reported from these Tiger Reserves

and 60 species are protected under Wildlife (Protection) Act, 1972 (WLPA). The species included in Schedule-I are : Blackbuck, Caracal, Chinkara, Desert Cat, Four Horned Antelope, Hispid Hare, Flying Squirrel, Gaur, Indian Pangolin, Indian Wolf, Leopard, Leopard Cat, Mouse Deer, Ratel, Sloth Bear, Swamp Deer, Tiger and Wild Buffalo. Amongst the birds, 433 species/subspecies of birds known from the tiger reserves, of these 285 species/subspecies are included in Schedule I, IV and V of Wildlife (Protection) Act, 1972. Of the 44 species of reptiles recorded, 29 species are included under WLPA. Eleven species of frogs and toads are known from the area; only 2 species belonging to the genera *Haplobatrachus* and *Rana* are included under WLPA. Butterflies are the indicator of environment conditions. 201 species of butterflies and moths have been recorded, of these, only nine species are included in the Schedule I and II.

Number of species protected under Wildlife (Protection) Act, 1972 from Tiger Reserves of Madhya Pradesh & Chhattisgarh

Protected under	Total Species	Number of species				
		<i>Mammalia</i>	<i>Birds</i>	<i>Reptilia</i>	<i>Amphibia</i>	<i>Butterflies</i>
Schedule I	42	19	12	5		6
Schedule II	21	11		7		3
Schedule III	6	6				
Schedule IV	299	7	273	17	2	
Schedule V	17	17				
Total	385	60	285	29	2	9

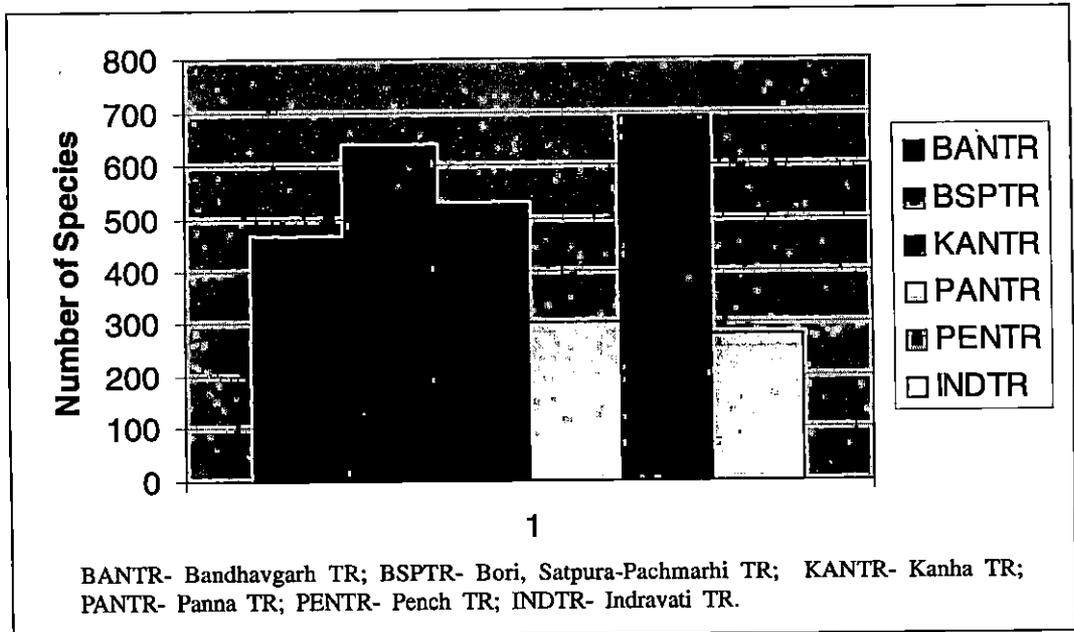
Group-wise faunal diversity of Tiger Reserves

S. N.	GROUP	Total no. of families	Total no. of species	BANTR	BSPTR	KANTR	PANTR	PENTR	INDTR
1.	ANNELIDA	2	4		4				
2.	SCORPIONES	2	2		1	1			
3.	SOLIFUGAE	1	1		1				
4.	OPILIONES	1	1					1	
5.	ARANEAE	15	60		29	17		20	13
6.	PROSTIGMATA	1	14	7	12				
7.	MESOSTIGMATA	1	3		3				
8.	OSTRACODA	2	12			6			8
9.	ODONATA	11	40	4	13			23	22
10.	PLECOPTERA	1	1					1	
11.	ORTHOPTERA	9	57		8	19		37	15
12.	DERMAPTERA	4	7					6	
13.	BLATTARIAE	4	12					12	
14.	MANTODEA	1	1			1			
15.	ISOPTERA	2	18			16		5	

Sl. No.	GROUP	Total no. of families	Total no. of species	BANTR	BSPTR	KANTR	PANTR	PENTR	INDTR
16.	MALLOPHAGA	1	1			1			
17.	HEMIPTERA	13	33					15	25
18.	THYSANOPTERA	1	1		1				
19.	COLEOPTERA	16	155	19	68	35	17	70	3
20.	SIPHONOPTERA	1	1		1				
21.	DIPTERA	13	33					33	
22.	LEPIDOPTERA	25	201	141**	68	83	50	109	18
23.	HYMENOPTERA	7	15		15				
24.	MOLLUSCA	12	21		12	11		10	
25.	PISCES	22	93		68	9		51	
26.	AMPHIBIA	4	11	4	8	6	4	7	9
27.	REPTILIA	14	45	11	17	22	7	30	12
28.	AVES	68	433	241**	275	231	200*	222	92
29.	MAMMALIA	26	82	35	29	66	24	40	38
	TOTAL	280	1358	462	633	524	302	692	277

MP- Madhya Pradesh; CG- Chhattisgarh; TR- Tiger Reserve, BANTR- Bandhavgarh TR; BSPTR- Bori, Satpura-Pachmarhi TR; KANTR- Kanha TR; PANTR- Panna TR; PENTR- Pench TR; INDTR- Indravati TR.

*Only total number reported in Dwivedi (2003); ** Choudhary and Khan (2003) listed 111 species of Butterflies and 241 species of birds from BANTR.



Faunal diversity in Tiger Reserves of Madhya Pradesh and Chhattisgarh

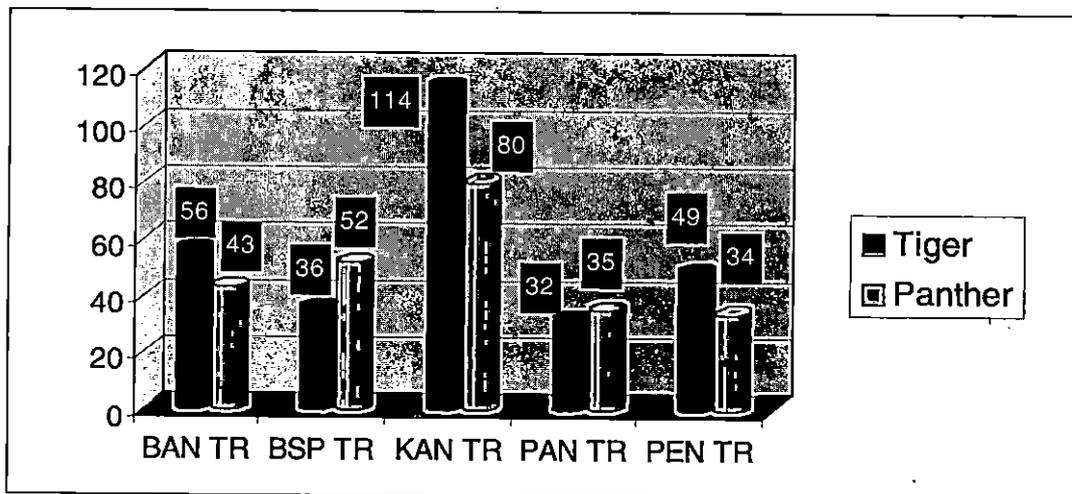
Endangered and Unique Fauna

Wild Buffalo : The wild buffalo (*Bubalis bubalis*) is a robust, slaty black animal, much a like the domestic buffalo. Its distribution in India is in the grass jungle of Bramhputra in Assam, Arunachal Pradesh, western Orissa, eastern Maharashtra and Chhattisgarh. Once it was found in abundance in Chhattisharh area, which was sighted by Captain F.C. Forsyth a century back. It is now greatly endangered species due to shrinkage of its habitat, poaching, death by contagious diseases etc. The distribution of this species in Chhattisgarh is confined only to Udanti Wildlife Sanctuary in Raipur district and the Indravati Tiger Reserve in Bastar district and the total surviving population is less than 75 individuals (Ranjitsingh *et al.* 2004.)

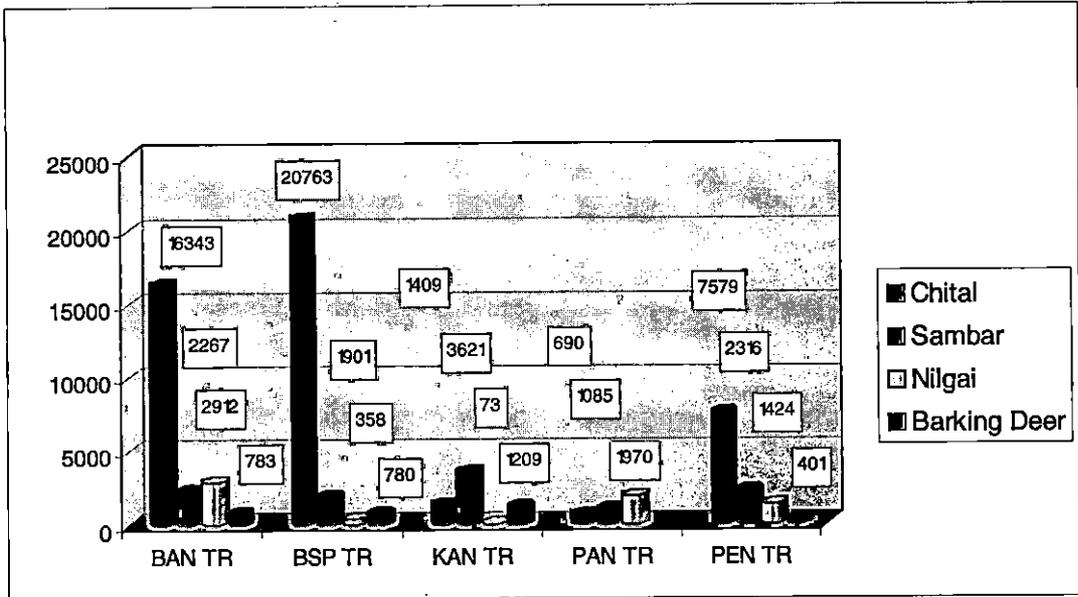
Bastar Hill Myna : This bird is among the four sub-species of Hill Myna known in Central Indian Region. The Bastar Hill Myna (*Gracula religiosa peninsularis*) is also declared as State Bird of Chhattisgarh. This is a magnificent bird known for imitation (mimicry and repeating the sweet songs). The population of the bird is depleting in the area due to large scale trapping of the bird for keeping in houses for the recreation. The distribution of this bird covers the Chhattisgarh, small patch of western Orissa, and northern Andhra Pradesh. In Chhattisgarh, the distribution of the bird is recorded from the Bailadila Hill Range, Barsoor, Chhote-Donger, Kanger Valley National Park and its surrounding areas.

Central Indian Swamp Deer or Barasingha : The Swamp Deer is endemic to India. In Madhya Pradesh, the KTR holds the distinction of harbouring the last world population of the Central Indian Barasingha, *Cervus duvauceli branderi*, which is highly endangered species. The species witnessed a steep decline and reached almost at the brink of extinction during the early seventies, conseration efforts has further restored its position from mere 66 to 349 currently.

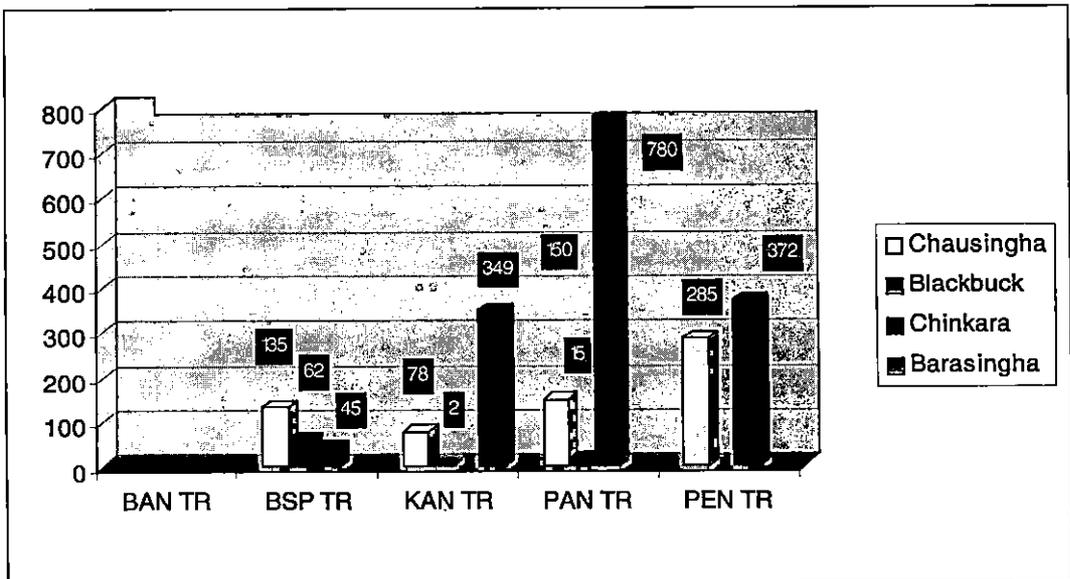
The Giant squirrels and Flying squirrels : These squirrels are known from various protected areas of Madhya Pradesh. and Chhattisgarh. including the BSPTR, KANTR, PENTR. The Giant Central Indian Squirrel (*Ratufa indica centralis*) and Flying Squirrel (*Petaurista petaurista*) are known to be endemic to Central India.



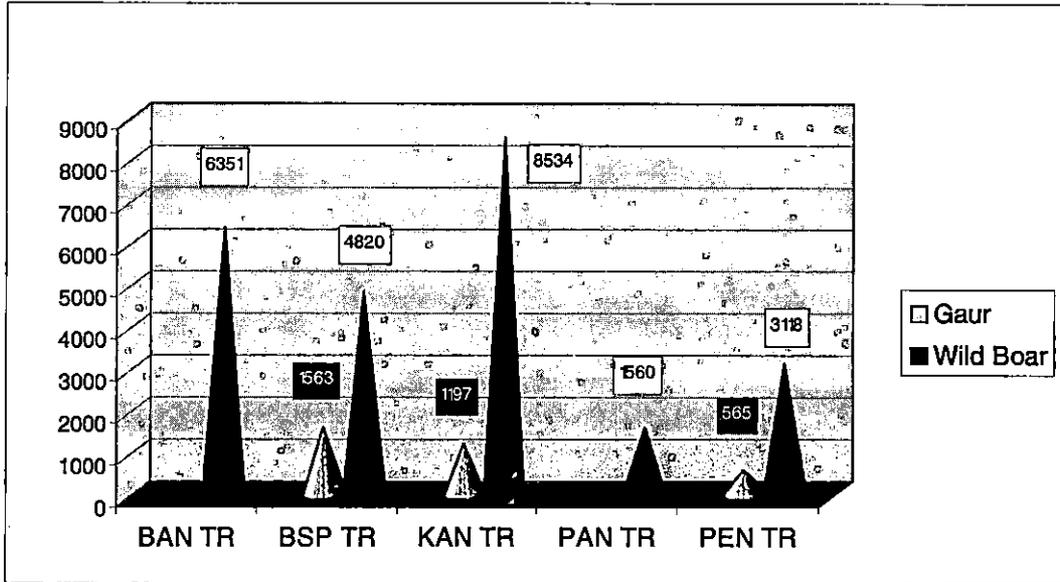
Population of Tiger and Panther in Tiger Reserves of Madhya Pradesh



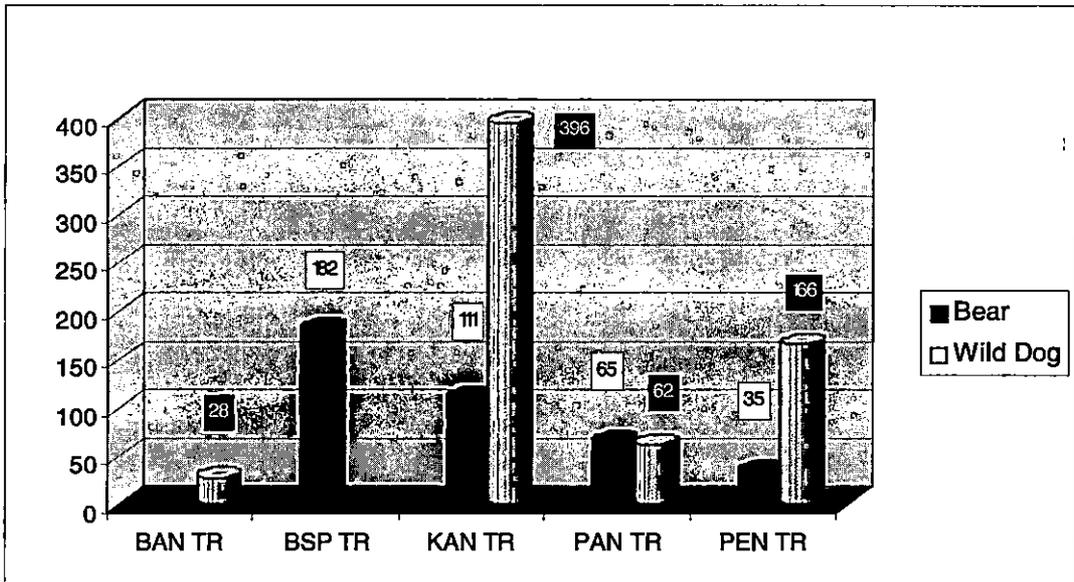
Population of Chital, Sambar, Nilgai and Barking Deer in Tiger Reserves of Madhya Pradesh



Population of Chausingha, Blackbuck, Chinkara and Barasingha in Tiger Reserves of Madhya Pradesh



Population of Gaur and Wild Boar in Tiger Reserves of Madhya Pradesh



Population of Bear and Wild Dog in Tiger Reserves of Madhya Pradesh

BANDHAVGARH TIGER RESERVE

Bandhavgarh Tiger Reserve is also known as 'Fort of the Tiger' and encompasses several places of historical and archaeological significance. Bandhavgarh fort, located in the centre of the reserve, atop on Bandhavgarh hill, was the seat of Bandhavgarh Tiger Reserve. BANTR is located in eastern hill range of Umaria and Katni districts and lies between 23°30'12" to 23°45'45" N latitudes and 80°47'15" to 81°11'45" E longitudes. Its total area is 1161.47 sq. km, which includes the area of Bandhavgarh NP, its extension, Panpatha WLS and few other forested areas. BANTR was included in Project Tiger network in 1993.

The vegetation of the BANTR is tropical moist deciduous type, which may be further classified into Sal Forests, Mixed Forests and Grasslands. The sal (*Shorea robusta*) forests occupy about 59% of the reserve. The mixed forests cover an area of about 35 % of the reserve and occupy mostly upper hill slopes and hill tops containing shallow soils and rocky crops. These types of forests also occur on southern and comparatively warmer hillocks. The grasslands or meadows occupy 6% of the reserve area and occur along the Charanganga, Damar, Chachahi, Sukhi, Bandehi and other perennial streams. Bamboo (*Dendrocalamus strictus*) occurs throughout the sal and mixed miscellaneous forests.

Zone-wise breakup of Bandhavgarh Tiger Reserve

S. No.	Constituents	Area (sq. km)
1.	Bandhavgarh National Park	105 (As in 1968)
2.	Bandhavgarh National Park extension area	343
3.	Panpatha Wildlife Sanctuary	245
4.	Other Forest Areas	466
	Total	1,160

The fauna of BANTR is typical of Central Indian species. This Tiger Reserve is rich in biodiversity and harbours a good population of tigers. As many as 35 species of mammals are known from this Tiger Reserve making it one of the most important conservation units in Central India (Dwivedi, 2003). There are 56 tigers and 43 Panthers as per the 2000 census, which is the second highest population of these important species in TRs of MP. The gaur population of around 30 animals was present during the eighties, but presently none of them are present in reserve area. It is presumed that either they might have migrated out of reserve or died. The population of Chausingha, Blackbuck, Chinkara and Bear has not been reported in the 2000 census. However, the Nilgai population is reported to be highest in this TR.

Although the fauna of the BANTR is rich and varied, but presently, very little information is available on species diversity of this tiger reserve. So far, 462 animal species are known, which includes 291 vertebrates and 191 invertebrate species. Of these, butterflies, moths, beetles, dragonflies and mites are added recently through the work of Zoological Survey of India (ZSI). Invertebrates are very poorly studied, on which the surveys are being undertaken by the ZSI and the department will publish the detailed report of the fauna separately.

Population of major animal species in BANTR

S. No.	Species	1982	1984	1986	1990	1992	1994	1996	1998	2000
1.	Tiger	22	35	46	63	55	41	46	57	56
2.	Panther	4	7	9	22	45	24	26	39	43
3.	Chital	1105	1717	2783	8659	10735	6500	7408	11300	16343
4.	Sambar	403	754	600	4620	809	700	821	1700	2267
5.	Nilgai	138	158	414	440	681	550	644	2300	2912
6.	Chausingha	5	50	100	61	72	10	13	30	0
7.	Blackbuck	-	13	13	17	206	17	0	0	0
8.	Barking Deer	81	309	243	849	263	160	0	1180	783
9.	Gaur	11	17	17	38	35	32	-	1	0
10.	Wild Boar	11	17	17	38	35	32	-	4500	6351
11.	Bear	-	43	32	-	107	42	-	-	0
12.	Wild Dog	-	26	55	-	119	35	49	-	28
13.	Peacock	-	-	-	-	381	-	-	-	476

Source : Dwivedi (2003)

BORI-SATPURA-PACHMARHI TIGER RESERVE

Bori-Satpura-Pachmarhi Tiger Reserve (BSPTR) is one of the most important conservation area in Madhya Pradesh. It has a total area of 1427.87 sq. km. lying between 22°15' and 22°45' N latitudes and 77°50' and 78°30' E longitudes. It is situated in Central Narmada valley, extends over the Satpura hill ranges, and comprises the highest peaks of Madhya Pradesh. The highest point of the Reserve is the Dhoopgarh Hill (1352 msl). The important river of the area is Narmada and its tributaries are Tawa, Malani, Sonbhadra, Denwa and Dudhi, which run in south-north direction. BSPTR includes three protected areas, including a national park, the Satpura National Park and two wildlife sanctuaries, viz., Pachmarhi Sanctuary and Bori Sanctuary having the diverse habitats representing the example of natural biome of exceptional importance. The BSPTR represents the Deccan Peninsular zone of the Bio-geographic classification of India (Rodgers and Panwar, 1988).

Zone-wise breakup of Bori-Satpura, Pachmarhi Tiger Reserve

Sl. No.	Constituents of BSPTR	Area (sq. km)
1.	Bori Wildlife Sanctuary	485.72
2.	Satpura National Park	524.37
3.	Pachmarhi Wildlife Sanctuary	417.78
	Total	1427.87

The BSPTR abounds rich and diverse vegetation including several rare and endangered plant species. The region is situated in the heart of the Indian subcontinent and bestowed with natural heritage. The area is noteworthy on account of the integration of two major plant communities of Sal and Teak forests. The Sal occupies the high Gondwana sandstone to the east, while Teak predominates the intrusions of the Deccan trap. However, majority of the area is comprised of mixed forests.

The Bori Sanctuary in BSPTR, earlier had a rich natural heritage, where major animals like lions, elephants, wild buffaloes and barashinga were quite common (Forsyth 1919). But due to fast deterioration of wildlife habitat, these animals have disappeared from these localities. Tawa reservoir, Denwa and Bori rivers within the BSPTR provide an ideal habitat for fishes and water birds. The commercial species of fishes are dominant in the Tawa reservoir and Denwa River. However, local species are still available in the Bori River. As many as 68 species are known from the BSPTR, but the local species diversity is reduced. The common species of reptiles and amphibians, e.g. lizards, geckos, skinks, crocodiles, frogs and toads have been known from the Biosphere Reserve, which includes 25 species. A few common reptiles found in the area are girgit (*Calotes versicolor*), Goh (*Varanus bengalensis*), nag (*Naja naja*) Russel's viper (*Vipera russelli*), and rat snake (*Ptyas mucosus*) etc.

The birds of Pachmarhi were first studied by Osmaston (1923), who published the list of 136 species of birds observed from Pachmarhi and its surrounding areas. Presently 275 species of birds are known from the BSPTR. Aquatic birds are common and mostly found near the water bodies, while the arboreal birds have wide range. About 50 species of mammals are reported from the BSPTR. The tigers being top carnivores are generally confined to deep forests of national park and sanctuaries. However, Panthers are well distributed in the most of the area of BSPTR. Gaurs are the largest wild herbivore in the area and are localized in the moist and semi-moist forests having bamboo underneath. Sambar and chital are widely distributed in the area. Barking deer and four horned antelopes are also known from the area, but sighting is quite rare. Nilgai (blue bull), being a larger herbivore are localized in the drier area, where the growth of forest is thin. Bears are also frequently seen in the scrub forests having fruit bearing trees e.g. Tendu, Achar, etc., particularly in the Sonbhadra valley of the Reserve area. The populations of bear and blackbuck have been reported to be highest among the TRs of MP. Langurs are quite common and evenly distributed in the entire area whereas, rhesus monkeys are localized at Pachmarhi plateau particularly near inhabitations. The giant squirrels and flying squirrels are also found in BSPTR. These squirrels are recorded along the streams and rivers around Pachmarhi, Bori, Dhain and Churna. The giant central Indian squirrels and flying squirrels are known to be endemic to Central India. The populations of blackbuck and bear is quite significant in the BSPTR.

Population of major animal species in BSPTR

S. No.	Species	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000
1.	Tiger	41	25	29	42	49	41	30	31	31	36
2.	Panther	60	48	54	64	67	67	39	48	45	52
3.	Chital	757	531	614	988	1027	758	929	1134	1417	1452
4.	Sambar	1835	1559	1949	1587	1617	1878	1920	1852	1949	1901
5.	Nilgai	406	106	312	398	445	205	269	236	371	358
6.	Chausingha	74	304	311	305	158	125	705	882	133	135
7.	Chinkara	136	142	145	113	454	31	73	67	-	45
8.	Blackbuck	8	22	35	223	405	2	3	-	28	62
9.	Barking Deer	992	528	701	1009	1282	924	498	-	-	780
10.	Gaur	1233	1035	1124	1319	1172	1220	1281	1178	1526	1563
11.	Wild Boar	6701	2876	3587	4651	4302	2414	2832	3162	-	4820
12.	Bear	393	178	157	201	152	82	99	-	-	182
13.	Wild Dog	2066	228	165	164	88	47	102	73	-	78
14.	Langur	-	-	-	-	-	4801	6255	6200	5822	6100
15.	Crocodile	-	-	-	-	-	-	10	15	20	18

Source : Dwivedi (2003)

KANHA TIGER RESERVE

Kanha Tiger Reserve is one of the oldest and most important conservation areas in Madhya Pradesh. It is located between 22°1'5" and 22°27'48" N latitudes and 80°26'10" and 81°4'40" E longitudes in the Mandla and Balaghat districts of Madhya Pradesh, near the geographic centre of India and is famous for abundance of varieties of animals. The area of Kanha Tiger Reserve is 2059.74 sq. km enclosing Kanha National Park, the Buffer Zone and the Phen Sanctuary. It lies slightly in the east of these high lands and cradles in the Maikal branch of Satpuras. Its forests are Tropical Moist Deciduous types, which may be divided into following subtypes- Sal Forests, Mixed Deciduous Forests and Grasslands.

Zone-wise breakup of Kanha Tiger Reserve

Sl. No.	Constituents of Kanha T.R.	Area (sq. km)
1.	Kanha National Park	940.00
2.	Buffer Zone	1009.00
3.	Phen Wildlife Sanctuary	110.74
	Total	2059.74

The rich combination of vegetation and the topography of KANTR offer excellent shelter for the variety of herbivores and carnivores. Presently 66 mammalian species have been recorded from KANTR. The herbivores are common langur (*Presbytis entellus*), gaur or Indian Bison (*Bos gaurus*), Indian gazelle or chinkara (*Gazella dorcas benetti*), four-horned antelope or chausingha (*Tetracerus quadricornis*), nilgai or blue bull (*Boselaphus tragocamelus*), cheetal or spotted deer (*Axis axis*), sambar (*Cervus unicolor*), and Branderi Barasingha or Central Indian Barasingha (*Cervus duvauceli branderi*). The other herbivores, infrequent to the area are barking deer (*Muntiacus muntjac*), mouse deer (*Tragulus meminna*) is occasionally abundant in its population. Nilgai prefers to live in open areas, scrubs and habitats close to cultivation, but avoids dense forests and are seen in herds of 4 to 15 individuals.

The carnivores of KANTR are represented by highly threatened species like tiger and leopard. This reserve is also unique in having the highest number of tigers and leopard than any other protected area in Madhya Pradesh. The number of tigers has increased from mere 48 in 1976 to 127 in 2001 (Dwivedi, 2003). Other threatened species distributed in the reserve are leopard cat, wolf, Bengal fox, wild dog, striped hyaena, small Indian civet, sloth bear etc. The primates are represented by the two species : Rhesus macaque (*Macaca mulatta*) and Hanuman or common langur (*Presbytis entellus*), are abundant in KANTR. Indian pangolin (*Manis crassicaudata*) looks like an unusual animal due to its armour of large overlapping plates or scutes. The bats are represented by some of the species like Indian flying fox (*Pteropus giganteus*) and Indian pipistrelle (*Pipistrellus coromandra*). Insectivores are represented by common or house shrew (*Suncus murinus*) and pygmy shrew (*Suncus etruscus*), while rodents by large bandicoot rat (*Bandicota indica*), Indian bush rat (*Golunda ellioti*), little Indian field mouse (*Mus booduga*), Blaford's rat (*Cremonomys blanfordi*), house rat (*Rattus rattus rufescens*), Indian palm squirrel (*Funambulus palmarum robertsoni*), northern palm squirrel (*Funambulus pennanti*) etc. from this region. These small mammals are abundant in number. However, large sized rodent species like crested porcupine (*Hystrix indica*), giant central Indian squirrel (*Ratufa indica centralis*) and flying squirrel (*Petaurista petaurista*) are less common. Lagomorpha are represented by a single species, viz., *Lepus nigricollis*. The hispid hare has also been recorded from the KANTR on the basis of the identification of pellets.

The avifauna is quite rich and more than 230 species are reported in the reserve. The reptiles include 22 species of snakes and lizards, of which python and rat snake are common. Among the common frogs and toads, *Rana malabarica* is important species distributed in this TR. Very little information is available on fishes and only nine species are so far reported.

Kanha Tiger Reserve holds the distinction of harbouring the last world population of the Central Indian barasingha, *Cervus duvauceli branderi*, which is an endangered species. The species witnessed a steep decline and reached almost at the brink of extinction during the early seventies has further restored its position from mere 66 in 1970 to the 349 currently. The population of chital, sambar, barking deer, wild boar, gaur and wild dog is also highest in TRs of MP.

Among the invertebrates, though many species of scorpion and spiders are present in the TR, but so far only one species of Scorpion and 17 species of spiders have been identified. Almost all the major insect orders are known in this TR. Isoptera is represented by 16 species of termites; Orthoptera by 20 species of grasshoppers, crickets and mole crickets; Mantodea and Mallophaga by one species each; Coleoptera by 35 species of beetles and the Lepidoptera by 83 species of butterflies and moths. Six and eleven species of Ostracodes and Molluscs are also reported from the TR.

Population of major animal species in KANTR

S. No.	Species	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000
1.	Tiger	83	85	94	-	100	105	105	101	108	114
2.	Panther	54	49	60	-	68	67	81	70	81	80
3.	Chital	17548	14574	17099	17314	18495	19988	21816	20041	21437	20763
4.	Sambar	1778	1732	1781	1863	2061	2062	4369	3539	3623	3621
5.	Nilgai	80	104	102	120	113	105	62	62	66	73
6.	Chausingha	266	261	167	193	211	125	116	68	70	78
7.	Blackbuck	28	33	32	32	32	21	-	-	2	2
8.	Barking Deer	1015	721	835	781	822	1027	1253	1026	1181	1209
9.	Barasingha	454	479	534	547	525	441	368	322	332	349
10.	Gaur	459	509	573	671	751	889	1245	1103	1203	1197
11.	Wild Boar	5329	5004	4188	4291	4799	6733	9587	8537	8692	8534
12.	Bear	76	-	-	52	56	46	66	78	89	111
13.	Wild Dog	178	141	156	171	210	166	206	340	356	396
14.	Langur	-	-	-	-	-	6765	6550	5652	6804	6668

Source : Dwivedi (2003)

PANNA TIGER RESERVE

Panna National Park is one of the 11 National Parks of Madhya Pradesh, constituted in the year 1981 and declared a Tiger reserve in the year 1994. The Parks extends in two districts; Panna and Chhatarpur, has an area of 543 sq. km, lies in the 'Vindhya Hill Ranges' of Bundelkhand Region located between 24° 27' to 24° 46' N latitude and 79° 45' to 80° 90' E longitude, and is about 20 Km west of Panna town. It can be approached from Panna either from Madla or from Hinauta. A large area of Park covers the catchments area of river Ken, a tributary of Yamuna River.

Zone-wise breakup of Panna Tiger Reserve

Sl. No.	Units of Panna T.R.	Area (sq. km)
1.	Panna National Park	542.662
2.	Gangau Wildlife Sanctuary	87.539
3.	Ken Gharial Wildlife Sanctuary	45.202
	Total	666.403

The fauna of the PANTR is quite rich and varied but the faunal diversity has not yet been explored extensively and only few major groups of animals like birds, mammals, reptiles and amphibian are known. So far, 302 faunal species are known, includes 235 vertebrates and 67 invertebrates. Among

the vertebrates, nearly 200 species of birds including the migratory species are known from the TR. Mammals are quite common in the Madla and Hinouta ranges, include a substantive population of chinkara, nilgai, sloth bear and wild boar. The Chandranagar range is considered congenial for the abundant population and distribution of major mammalian species. The common reptiles which frequent the area are monitor lizard, garden lizard, chameleon, python, kraits, cobra, of which so far seven species have been identified. Four species of frogs and toads are also known from the TR, however fishes are not yet reported. Among the invertebrates, only 50 species of butterflies and 17 species of scarabaeid beetles are added recently through the work of Zoological Survey of India (ZSI). Further investigation will certainly enhance the species richness of the area.

Population of major animal species in PANTR

S. No.	Species	1982	1986	1988	1990	1992	1994	1996	1998	2000
1.	Tiger	22	32	37	30	25	25	30	31	32
2.	Panther	50	27	31	17	14	13	28	32	35
3.	Chital	365	383	522	385	354	467	522	669	690
4.	Sambar	619	529	860	430	456	544	962	1084	1085
5.	Nilgai	951	2187	2325	1075	1096	985	1507	1961	1970
6.	Chausingha	131	213	546	125	137	106	139	147	150
7.	Chinkara	908	1647	1790	780	784	650	661	751	780
8.	Blackbuck	39	29	51	25	29	-	-	12	15
9.	Wild Boar	2909	2877	3741	-	-	-	1360	1470	1560
10.	Bear	213	38	82	-	-	-	-	61	65
11.	Wild Dog	188	39	191	-	-	-	180	140	62
12.	Crocodile	-	1	-	-	-	-	-	25	26
13.	Peacock	-	-	684	700	-	-	468	300	350
14.	Hyena	-	-	-	-	-	-	-	12	13

Source : Dwivedi (2003)

PENCH TIGER RESERVE

Pench Tiger Reserve is located in the Seoni and Chhindwara districts of Madhya Pradesh between 21° 37' to 21° 50' 30" N latitudes and 79° 07' 45" to 79° 22' 30" E longitudes, with a total area of 757.907 sq. km. It takes its name from Pench River flowing through its central region and consists of following forest types, *viz.*, (1) Southern Tropical slightly Moist Teak Forests, (2) Southern Tropical Dry Teak Forest and (3) Southern Dry Mixed Deciduous Forests.

Pench Tiger Reserve includes the Pench Sanctuary notified in the year 1977 and the Pench National Park notified in the year 1983. These two were brought under the Project Tiger in the year 1992. This step was undertaken to ensure the reversal of this area back to its original natural

diversity and abundance by zealously protecting it against the heedless over-exploitation of its natural resources by man. This Tiger Reserve has healthy populations of all groups of wild animals including tigers.

Zone wise break-up of area (in sq. km)

Sl. No.	Zone	Status	Area
1.	Core	Pench National Park	292.860
2.	Buffer	Pench Sanctuary	118.307
		Other Forest Area	346.740
Total			757.907

District wise break-up of area (in sq. km)

PTR Area	Seoni	Chhindwara	Total
Core	145.568	147.289	292.860
Buffer	238.919	226.128	465.047
Total	284.487	373.417	757.907

The PENTR has been extensively and intensively surveyed from June 2001 to December 2002 in all the ranges, viz., Karmajhiri, Gumtara, Kurai, Chaurai and Bichua. It was observed that PTR is quite rich in the number and diversity of its fauna and almost all the trophic levels are present in the ecosystem. A large number of mammals, birds, reptiles, amphibians and fishes are represented in its fauna, which is also comprised of diverse forms of invertebrates. However, in the present report, detailed information of insects, fishes, reptiles and amphibians from the Pench Tiger Reserve are incorporated. The site of occurrence/observation, habit, habitat, diagnostic characters, distribution in the PTR and elsewhere and status of almost all the known and newly recorded species are also given. It is also certain that the present results are just the findings of the one half year investigation of the area, which may increase to many folds if more such systematic studies are undertaken.

The Pench Tiger Reserve, Madhya Pradesh, is quite rich in the number and diversity of its fauna. A large number of mammals, birds, reptiles, amphibians and fishes are represented in its fauna, which is also comprised of diverse forms of invertebrates. The spiders are represented by the 21 species. All the major insect orders are known in the TR. Among the hemimetabolous insects (with incomplete metamorphosis), the Odonata are represented by 23 species of dragonflies; the Plecoptera (stonefly) 1 species; the Orthoptera (grasshoppers, katydids, crickets and mole crickets) 37 species; the Dermaptera (earwigs) 6 species; the cockroaches 12 species, the Isoptera (termites), 5 species; and the Hemiptera (bugs) 15 species. Among the holometabolous insects (with complete metamorphosis), the Coleoptera (beetles) are represented by 70 species and the Lepidoptera (butterflies and moths) 109 species.

The Pench river and the large wetland area in the PENTR provide a rich habitat to 51 species of fishes, some of which have been introduced in recent years. Besides common smaller ones, larger forms like the Rohu, Cirrhina, Catla and Channa have also been introduced. The Amphibian

fauna of PENTR is represented by seven species, commonly found amphibians are the Indian bull frog, painted frog, common tree frog, ornate microhylid frog, cricket frog, burrowing frog and the common toad. The reptilian fauna of PENTR is rich and varied, consists of 30 species representing the top carnivore of the aquatic system; mugger or crocodile (*Crocodylus palustris*), three species of testudines and 26 species of lizards and snakes. As many as 222 species of birds have been recorded from PENTR and of these approximately 25% are aquatic birds or waterfowls, totally dependent on water bodies for their survival. About 40 species of mammals are also reported from the PENTR, which includes almost all the common species from Central India.

Population of major animal species in PENTR

S. No.	Species	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000
1.	Tiger	28	26	30	32	32	36	35	35	45	49
2.	Panther	15	16	16	18	19	24	20	38	29	34
3.	Chital	743	630	880	961	1636	3693	7050	1002	6823	7579
4.	Sambar	744	754	574	867	981	2045	2479	1283	1429	2316
5.	Nilgai	304	276	246	253	310	882	1474	1683	1302	1424
6.	Chausingha	13	200	75	42	59	128	242	190	280	285
7.	Chinkara	42	8	33	19	-	23	45	672	380	372
8.	Barking Deer	410	46	227	256	348	453	512	-	380	401
9.	Gaur	159	178	191	228	170	424	534	131	532	565
10.	Wild Boar	1606	1984	843	1158	1201	532	576	-	2861	3118
11.	Bear	32	30	23	38	-	-	-	30	28	35
12.	Wild Dog	136	236	154	132	15	15	24	-	156	166

Source : Dwivedi (2004)

INDRAVATI TIGER RESERVE

The part of this Tiger Reserve was once protected as Kurtu game sanctuary. In 1981, the area of Indravati National Park was 1258 sq. km (which now constitutes the core area of INDTR). Indravati Tiger Reserve is situated in the districts of Bastar and Dantewada of Chhattisgarh, notified in February 1983, as one of the important protected areas in Chhattisgarh, known for harbouring populations of wild buffaloes. The total area of the INDTR covers an area of 2799 sq. km. It has also got a sizeable population of tigers, leopards and other carnivores. The reserve area having the good density of prey animals and shelter makes this TR an excellent home for the tiger. The tiger being the supreme predator allows it to utilise the habitat to a considerable extent. The co-predator leopard also keeps its presence felt in the habitat for the claim in utilisation of their habitat resources. The other predators are wild dog and python. The prey animals are mostly wild artiodactyls, primates and lagomorphs, which includes wild boar, sambar, chital, barking deer, nilgai, blackbuck, gaur, wild buffalo, chausingha, rhesus macaque, common langur etc.

The dense forest cover and suitable habitats harbor quite good number of invertebrates, which includes spiders (13 species), orthopterans (15 species), hemiptera (18 species), dragonflies (22 species), butterflies (21 species), moths (4 species), and ostracodes (8 species). The vertebrates are represented by the 24 species of fishes, which are known from the Indravati River. The common frogs and toads are also known, and nine species are reported. The reptiles are more in number in the area, but so far only 12 species are known. 92 species of birds are observed within the TR by the team of Zoological Survey of India, the number likely to increase if more extensive and seasonal surveys are undertaken. There are 38 species of mammals so far recorded from the INDTR.

SPECIES DIVERSITY IN TIGER RESERVES OF MADHYA PRADESH AND CHHATTISGARH

ANNELIDA

Class OLIGOCHAETA

I. Family NAIDIDAE

1. *Nais paraguayensis* (Michaelson) BSPTR

Class HIRUDINEA

II. Family GLOSSIPHONIDAE

2. *Glossiphonia weberi weberi* Blanchard BSPTR
 3. *Hemiclepsis marginata marginata* (Muller) BSPTR
 4. *Placobdella emydae* Harding BSPTR

SCORPIONES

I. Family BUTHIDAE

1. *Stenochirus politus* (Pocock) KANTR

II. Family VAEJOVIDAE

2. *Scorpiops scorpiops pachmarhicus* Bastawade BSPTR

SOLIFUGAE

I. Family GALEODIDAE

1. *Galeodes indicus* Pocock BSPTR, PENTR

OPILIONES

I. Family PHALANGIIDAE

1. *Phalangium* sp. PENTR

ARANEAE

Suborder LABIDOGNATHA

I. Family FILISTATIDAE

1. *Pritha poonaensis* (Tikader) BSPTR

- II. Family MIMETIDAE
 2. *Mimetus* sp. BSPTR
- III. Family ERESIDAE
 3. *Stegodyphus pacificus* Pocock BSPTR
 4. *Stegodyphus sarasinorum* Karsch BSPTR
 5. *Stegodyphus socialis* Pocock BSPTR
- IV. Family OECOBIIDAE
 6. *Oecobius putus* Cambridge BSPTR
- V. Family UROCTEIDAE
 7. *Uroctea indica* Pocock BSPTR
- VI. Family HERSILIIDAE
 8. *Hersilia savignyi* Lucas BSPTR, KANTR, PENTR
- VII. Family TETRAGNATHIDAE
 9. *Eucta* sp. BSPTR
 10. *Tetragnatha geniculata* Karsch BSPTR
- VIII. Family AGENELIDAE
 11. *Tegenaria* sp. PENTR
- IX. Family ARANEIDAE
 12. *Argiope aemula* (Walckenaer) BSPTR, INDTR, KANTR, PENTR
 13. *Argiope pradhani* Sinha INDTR, PENTR
 14. *Argiope pulchella* Thorell INDTR, KANTR, PENTR
 15. *Cyclosa hexatuberculata* Tikader INDTR, KANTR
 16. *Larinia* sp. PENTR
 17. *Leucauge decorata* (Blackwall) BSPTR, PENTR
 18. *Neoscona bengalensis* Tikader & Bal KANTR, PENTR
 19. *Neoscona biswasi* Bhandari & Gajbe PENTR
 20. *Neoscona excelsus* (Simon) PENTR
 21. *Neoscona muckerjei* Tikader BANTR, BSPTR, PENTR
 22. *Neoscona platnicki* Gajbe & Gajbe BSPTR, PENTR
 23. *Neoscona theis* (Walckenaer) BSPTR
 24. *Nephila maculata* (Fabricius) BSPTR, PENTR
- X. Family LYCOSIDAE
 25. *Arctosa himalayensis* Tikader & Malhotra KANTR
 26. *Hippasa agelenoides* (Simon) INDTR
 27. *Hippasa hansae* Gajbe & Gajbe BSPTR
 28. *Hippasa partita* (O. P. Cambridge) BSPTR, KANTR
 29. *Hippasa pisaurina* Pocock KANTR
 30. *Lycosa nigrotibialis* (Simon) BSPTR
 31. *Lycosa poonaensis* Tikader & Malhotra INDTR
 32. *Lycosa wroughtoni* Pocock PENTR

33. <i>Pardosa annandalei</i> (Gravely)	KANTR
34. <i>Pardosa birmanica</i> Simon	INDTR, KANTR
35. <i>Pardosa sumatrana</i> (Thorell)	INDTR, KANTR
36. <i>Trochosa</i> sp.	PENTR
XI. Family PISAURIDAE	
37. <i>Dolomedes</i> sp.	PENTR
38. <i>Pisaura</i> sp.	PENTR
XII. Family OXYOPIDAE	
39. <i>Oxyopes pankaji</i> Gajbe & Gajbe	BSPTTR, PENTR
40. <i>Oxyopes shwetae</i> Tikader	PENTR
41. <i>Peuceetia</i> sp.	PENTR
XIII. Family CITHAERONIDAE	
42. <i>Cithaeron indicus</i> Platnick & Gajbe	BSPTTR
XIV. Family GNAPHOSIDAE	
43. <i>Callilepis lambai</i> Tikader & Gajbe	INDTR
44. <i>Drassodes pashanensis</i> Tikader & Gajbe	BSPTTR
45. <i>Geodrassus sirmourensis</i> Tikader & Gajbe	BSPTTR
46. <i>Gnaphosa pauriensis</i> Tikader & Gajbe	BSPTTR
47. <i>Haplodrassus sataransensis</i> Tikader & Gajbe	BSPTTR, KANTR
48. <i>Scopodes maitraiae</i> Tikader & Gajbe	BSPTTR, INDTR
49. <i>Scotophaeus poonaensis</i> Tikader	BSPTTR
50. <i>Sosticus poonaensis</i> Tikader	KANTR
51. <i>Zelotes ashae</i> Tikader & Gajbe	BSPTTR
52. <i>Zelotes mandlaensis</i> Tikader & Gajbe	BSPTTR
XV. Family THOMISIDAE	
53. <i>Amyciaea forticeps</i> (O. P. Cambridge)	INDTR
54. <i>Oxyptila jabalpurensis</i> Bhandari & Gajbe	PENTR
55. <i>Thomisus cherapunjeus</i> Tikader	INDTR, KANTR
56. <i>Thomisus projectus</i> Tikader	INDTR
57. <i>Thomisus pugilis</i> Stoliczka	KANTR
58. <i>Tmarus</i> sp.	PENTR
59. <i>Xysticus joyantius</i> Tikader	BSPTTR
60. <i>Xysticus minutus</i> Tikader	KANTR

PROSTIGMATA

Family TETRANYCHIDAE

1. <i>Eutetranychus africanus</i> (Tucker)	BSPTTR
2. <i>Eutetranychus orientalis</i> (Klein)	BSPTTR, BANTR
3. <i>Eutetranychus frostii</i> (Mc Gregor)	BSPTTR
4. <i>Schizotetranychus andropogoni</i> (Hirst)	BSPTTR

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| 5. <i>Schizotetranychus baltazari</i> Rimando | BSPTR |
| 6. <i>Oligonychus biharensis</i> (Hirst) | BANTR |
| 7. <i>Oligonychus coffeae</i> (Neitner) | BSPTR |
| 8. <i>Oligonychus indicus</i> (Hirst) | BSPTR, BANTR |
| 9. <i>Oligonychus iseilemae</i> (Hirst) | BSPTR |
| 10. <i>Oligonychus mangiferus</i> (Rahman & Sapra) | BSPTR, BANTR |
| 11. <i>Oligonychus sacchari</i> (Mc Gregor) | BANTR |
| 12. <i>Tetranychus macfarlanei</i> Baker & Pritchard | BSPTR, BANTR |
| 13. <i>Tetranychus neocaledonicus</i> Andre | BSPTR, BANTR |
| 14. <i>Tetranychus urticae</i> Koch | BSPTR |

MESOSTIGMATA

Family PHYTOSEIIDAE

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| 1. <i>Amblyseius (Euseius) coccineae</i> Gupta | BSPTR |
| 2. <i>Amblyseius (Typhlodromalus) kalimpongensis</i> Gupta | BSPTR |
| 3. <i>Typhlodromus (Orientiseius) rickeri</i> Chant | BSPTR |

CRUSTACEA

Subclass OSTRACODA

Order PODOCOPIIDA

I. Family CYPRIDIDAE

- | | |
|---|--------------|
| 1. <i>Chrissia humilis</i> (Klie) | INDTR |
| 2. <i>Cypris subglobosa</i> Sowerby | INDTR, KANTR |
| 3. <i>Hemicypris pyxidata</i> (Moniez) | KANTR |
| 4. <i>Parastenocypris biswasi</i> (Deb) | INDTR |
| 5. <i>Stenocypris derupta</i> Vavra | INDTR |
| 6. <i>Stenocypris histopi</i> Ferguson | INDTR |
| 7. <i>Stenocypris major</i> (Baird) | KANTR |
| 8. <i>Strandesia purpurascens</i> (Brady) | KANTR |
| 9. <i>Strandesia webri</i> (Moniez) | INDTR, KANTR |
| 10. <i>Tanycypris pellucida</i> (Klie) | KANTR |

II. Family CYPRIDOPSISIDAE

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| 11. <i>Cypretta raciborskii</i> Grochmalicki | INDTR |
| 12. <i>Pseudocypretta maculata</i> Klie | INDTR, KANTR |

ODONATA

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

I. Family COENAGRIONIDAE

I. Subfamily PSEUDAGRINAE

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| 1. <i>Ceriagrion coromandelianum</i> (Fabricius) | INDTR, PENTR |
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2.	<i>Pseudagrion decorum</i> (Rambur)	PENTR
3.	<i>Pseudagrion hypermelas</i> Selys	INDTR
4.	<i>Pseudagrion microcephalum</i> (Rambur)	BSPTR
II.	Subfamily ISCHNURINAE	
5.	<i>Aciagrion hisopa hisopa</i> Selys	INDTR
6.	<i>Aciagrion pallidum</i> Selys	INDTR
7.	<i>Enallagma parvum</i> Selys	PENTR
8.	<i>Ischnura aurora aurora</i> (Brauer)	PENTR
III.	Subfamily AGRIOCNEMINAE	
9.	<i>Agriocnemis d'abreui</i> Fraser	INDTR
10.	<i>Agriocnemis pieris</i> Laidlaw	INDTR
11.	<i>Agriocnemis pygmaea</i> (Rambur)	INDTR, PENTR
II.	Family PROTONEURIDAE	
IV.	Subfamily DISPARONEURINAE	
12.	<i>Disparoneura quadrimaculata</i> Rambur	BSPTR, PENTR
III.	Family PLATYCNEMIDIDAE	
V.	Subfamily PLATYCNEMININAE	
13.	<i>Copera marginipes</i> (Rambur)	BSPTR, PENTR
	Superfamily LESTIDOIDEA	
IV.	Family LESTIDAE	
VI.	Subfamily LESTINAE	
14.	<i>Lestes umbrinus</i> Selys	INDTR, PENTR
15.	<i>Lestes viridulus</i> Rambur	INDTR
	Superfamily CALOPTERYGOIDEA	
V.	Family CHLOROCYPHIDAE	
16.	<i>Rhinocypha bisignata</i> Selys	BSPTR
VI.	Family CALOPTERYGIDAE	
VII.	Subfamily CALOPTERYGINAE	
17.	<i>Vestalis smaragdina</i> Selys	INDTR
	Suborder ANISOPTERA	
	Superfamily AESHNOIDEA	
VII.	Family AESHNIDAE	
VIII.	Subfamily AESHNINAE	
18.	<i>Anax guttatus</i> (Burmeister)	BSPTR, PENTR
IX.	Subfamily GYNACANTHAGINAE	
19.	<i>Gynacantha bayadera</i> Selys	INDTR, PENTR

- VIII Family GOMPHIDAE
 X Subfamily ICTINOGOMPHINAE
 20. *Ictinogomphus rapax* (Rambur) PENTR
 Superfamily LIBELLULOIDEA
 IX Family LIBELLULIDAE
 XI Subfamily LIBELLULINAE
 21. *Lathrecista asiatica asiatica* (Fabricius) INDTR
 22. *Orthetrum glaucum* (Brauer) BSPTR
 23. *Orthetrum pruinatum neglectum* (Rambur) INDTR, PENTR
 24. *Orthetrum sabina sabina* (Drury) BSPTR, INDTR, PENTR
 25. *Orthetrum taeniolatum* (Schneider) PENTR
 XII Subfamily SYMPETRINAE
 26. *Brachythemis contaminata* (Fabricius) BSPTR, PENTR, BANTR
 27. *Crocothemis servilia servilia* (Drury) PENTR
 28. *Diplacodes trivialis* (Rambur) BSPTR, PENTR
 29. *Indothemis limbata sita* Campion INDTR
 30. *Neurothemis fulvia* (Drury) INDTR
 31. *Neurothemis intermedia intermedia* (Rambur) BSPTR, INDTR, PENTR
 32. *Trithemis aurora* (Burmeister) BSPTR, INDTR, PENTR
 33. *Trithemis festiva* (Rambur) BSPTR, INDTR, PENTR, BANTR
 34. *Trithemis kirbyi kirbyi* Selys PENTR
 XIII Subfamily TRAMEINAE
 35. *Pantala flavescens* (Fabricius) BSPTR, INDTR, PENTR, BANTR
 36. *Tholymis tillarga* (Fabricius) INDTR
 37. *Tramea basilaris burmeisteri* Kirby BSPTR, PENTR, BANTR

PLECOPTERA

- I Family PERLIDAE
 1. *Phanoperla limosa* (Hagen) PENTR

ORTHOPTERA

- Suborder ENSIFERA
 Superfamily TETTIGONIOIDEA
 I Family TETTIGONIOIDAE
 1. *Euconocephalus* sp. PENTR
 2. *Mecopoda elongata* Linnaeus PENTR
 Superfamily GRYLLOIDEA
 II Family GRYLLOTALPIDAE
 3. *Grylotalpa africana* Beauvois INDTR, PENTR

- III. Family GRYLLIDAE
Subfamily GRYLLINAE
4. *Grylloides sigillatus* (Walker) INDTR, KANTR
5. *Gryllus bimaculatus* De Geer BSPTR, KANTR, PENTR
6. *Gryllus confirmatus* (Walker) KANTR
7. *Gymnogryllus minor* (Chopard) PENTR
8. *Modicogryllus confirmatus* (Walker) BSPTR, KANTR, PENTR
9. *Paranemobius pictus* (Saussure) PENTR
10. *Plebeigryllus guttiventris* (Walker) BSPTR, INDTR
11. *Pteronemobius fascipes* (Walker) BSPTR, INDTR, KANTR
12. *Pteronemobius taprobanensis* (Walker) INDTR
13. *Teleogryllus mitratus* (Burmeister) KANTR
14. *Teleogryllus testaceus* (Walker) PENTR
- IV. Family OECANTHIDAE
15. *Oecanthus indicus* Saussure KANTR, PENTR
- V. Family TRIGONIDIDAE
16. *Trigonidium humbertianum* (Saussure) INDTR
- VI. Family ENEOPTERIDAE
17. *Xenogryllus* sp. PENTR
18. *Xya* sp. BSPTR
- VII. Family ACRIDIDAE
Subfamily ACRIDINAE
19. *Acrida exaltata* (Walker) BSPTR, KANTR, PENTR
20. *Ceracris* sp. PENTR
21. *Clonacris kirbyi* Finot PENTR
22. *Hieroglyphus banian* Fabricius PENTR
23. *Leva cruciata* Bolivar PENTR
24. *Pachacris* sp. BSPTR
25. *Phlaeoba infumata* Brunner von Wattenwyl KANTR
26. *Pternoscirta cinctifemur* (Walker) BSPTR, PENTR
- Subfamily EYPREPOCNEMIDINAE
27. *Eyprepocnemis rosea* Uvarov KANTR
- Subfamily HEMIACRIDINAE
28. *Spathosternum prasiniferum prasiniferum* (Walker) INDTR, KANTR, PENTR
- Subfamily OEDIPODINAE
29. *Acrotylus humbertianus* Saussure PENTR
30. *Aiolopus thalassinus tamulus* (Fabricius) KANTR, PENTR
31. *Aulacobothrus strictus* Bolivar KANTR
32. *Ditopternis venusta* (Walker) KANTR, PENTR

33. *Gastrimargus africanus africanus* (Saussure) BSPTR, KANTR, PENTR
 34. *Mesopsis cylindricus* (Kirby) KANTR
 35. *Morphacris fasciata sulcata* (Thunberg) PENTR
 36. *Oedaleus abruptus* (Thunberg) KANTR, PENTR
 37. *Trilophidia annulata* (Thunberg) KANTR, PENTR
 Subfamily OXYINAE
 38. *Oxya hyla hyla* Serville INDTR, PENTR
 Subfamily CATANTOPINAE
 39. *Catantops pinguis innotabilisi* (Walker) PENTR
 40. *Stenocatantops splendens* (Thunberg) KANTR, PENTR
 41. *Xenocatantops humilis humilis* (Serville)
 Subfamily COPTACRIDINAE
 42. *Eucoptacra saturata* (Walker) INDTR
 Subfamily TROPIDOPOLINAE
 43. *Tristria* sp. INDTR
 Subfamily TRUXALINAE
 44. *Truxalis* sp. PENTR
 VIII. Family PYRGOMORPHIDAE
 45. *Atractomorpha crenulata crenulata* (Fabricius) INDTR, KANTR, PENTR
 46. *Chrotogonus (Chrotogonus) trachypterus trachypterus* (Blanch.) KANTR, PENTR
 47. *Pyrgomorpha* sp. PENTR
 Superfamily TETRIGOIDEA
 IX. Family TETRIGIDAE
 Subfamily SCELIMENINAE
 48. *Thorodonta pruthii* Günther KANTR
 Subfamily TETRIGINAE
 49. *Coptotettix conspersus* (Han) KANTR
 50. *Criotettix bispinosus* (Dalman) KANTR
 51. *Ergatettix dorsifera* (Walker) INDTR
 52. *Euparatettix histricus* Stål PENTR
 53. *Euparatettix pessonatus* (Bolivar) INDTR
 54. *Hedotettix gracilis* (De Hann) INDTR, PENTR
 Subfamily ROMAINEINAE
 55. *Teratodes monticollis* (Gray) PENTR
 Subfamily CYRTACANTHACRINAE
 56. *Cyrtacanthacris tatarica* (Linnaeus) PENTR

PHASMIDA

- I. Family LONCHODIDAE
 1. *Lonchodes* sp. Stick insect PENTR

DERMAPTERA

- Superfamily PYGIDICRANOIDEA
 I. Family PYGIDICRANIDAE
 1. *Diplatys fletcheri* Burr BSPTR
- Superfamily LABIOIDEA
 II. Family ANISOLABIDIDAE
 2. *Euborellia femoralis* (Dohrn) PENTR
- III. Family LABIDURIDAE
 Subfamily LABIDURINAE
 3. *Forcipula quadrispinosa* (Dohrn) PENTR
 4. *Labidura riparia* (Pallas) PENTR
 5. *Nala lividipes* (Dufour) PENTR
- IV. Family FORFICULIDAE
 6. *Forficula greeni* Burr PENTR
 7. *Hypurgus humeralis* (Kirby) PENTR

DICTYOPTERA

- Suborder BLATTARIA
 I. Family DEROCALYMMIDAE
 1. *Pseudoglomeris glomeris* (Saussure) PENTR
- II. Family BLATTIDAE
 2. *Periplanata affinis* Saussure BSPTR, PENTR
- III. Family POLYPHAGIDAE
 3. *Theria nuptialis* (Gerst) BSPTR, PENTR
- IV. Family BLATTELLIDAE
 4. *Balta acutiventris* PENTR
 5. *Balta chopardi* Princis PENTR
 6. *Blattella germanica* Linnaeus PENTR
 7. *Episymphloe brevipes* (Walker) PENTR
 8. *Lupparia unguiculata* (Bolivar) PENTR
 9. *Pholeosilpha dispar* (Chopard) PENTR
 10. *Pholeosilpha obliquetruncata* (Chopard) PENTR
 11. *Pholeosilpha* sp. PENTR
 12. *Symphloe biligata* (Walker) PENTR

MANTODEA

II. Family MANTIDAE

1. *Humbertiella similis* Giglio - Tos KANTR

ISOPTERA

I. Family RHINOTERMITIDAE

Subfamily COPTOTERMITINAE

1. *Coptotermes heimi* (Wasmann) KANTR

II. Family TERMITIDAE

Subfamily AMITERMITINAE

2. *Euhamitermes kanhaensis* Roonwal & Chhotani KANTR
 3. *Eurytermes boveni* Roonwal & Chhotani KANTR
 4. *Microcerotermes beelsoni* Snyder KANTR
 5. *Microcerotermes cameroni* (Snyder) PENTR
 6. *Speculitermes sinhalensis* Roonwal & Sen-Sarma KANTR
 7. *Synhamitermes quadriceps* (Wasmann) KANTR

Subfamily TERMITINAE

8. *Dicuspiditermes obtusus* (Silvestri) KANTR
 9. *Pericapritermes tetraphilus* (Silvestri) KANTR

Subfamily MACROTERMITINAE

10. *Microtermes obesi* Holmgren KANTR, PENTR
 11. *Microtermes unicolor* Snyder KANTR
 12. *Odontotermes assmuthi* Holmgren KANTR
 13. *Odontotermes bhagwatii* Chatterjee & Thakur KANTR, PENTR
 14. *Odontotermes guptai* Roonwal & Bose KANTR
 15. *Odontotermes horni* (Wasmann) KANTR, PENTR
 16. *Odontotermes microdentatus* Roonwal & Sen-Sarma KANTR
 17. *Odontotermes obesus* (Rambur) KANTR, PENTR
 18. *Odontotermes wallonensis* (Wasmann) PENTR

MALLOPHAGA (PHTHIRAPTERA)

1. *Chapinia acutovulvata* (Piaget) KANTR

HEMIPTERA

Suborder HOMOPTERA

I. Family CERCOPIIDAE

1. *Callitettix versicolor* (Fabricius) PENTR
 2. *Clovioa conifera* (Walker) INDTR

II. Family CICADELLIDAE

3. *Goniagnathus punctifer* (Walker) INDTR

III.	Family MEMBRACIDAE	
4.	<i>Leptocentrus substitutus</i> (Walker)	INDTR
IV.	Family FULGORIDAE	
5.	<i>Dichoptera hyalinata</i> (Fabricius)	PENTR, BSPTR
	Suborder HETEROPTERA	
V.	Family COREIDAE	
6.	<i>Cletus bipunctatus</i> (Westwood)	INDTR
VI.	Family LYGAEIDAE	
7.	<i>Nysius ceylonicus</i> (Motschulsky)	INDTR
8.	<i>Nysius lacustrinus</i> Distant	INDTR
9.	<i>Pachygrontha bipunctata</i> Stål	INDTR
10.	<i>Paromius pallidus</i> (Montrousier)	INDTR
11.	<i>Spilostethus pandurus militaris</i> (Fabricius)	INDTR
12.	<i>Stigmatonotum minutum</i> Malipatil	INDTR
VII.	Family PENTATOMIDAE	
13.	<i>Bagrada picta</i> (Fabricius)	PENTR
14.	<i>Eusarcocris guttiger</i> (Thunberg)	INDTR
15.	<i>Halys dentatus</i> (Fabricius)	INDTR, PENTR
16.	<i>Nezara viridula</i> Linnaeus	PENTR
VIII.	Family PHYRRHOCORIDAE	
17.	<i>Dysdercus cingulatus</i> (Fabricius)	INDTR, PENTR
18.	<i>Scantius</i> sp.	BSPTR
IX.	Family REDUVIIDAE	
19.	<i>Ectomocoris quadriguttatus</i> (Fabricius)	PENTR
20.	<i>Ectrychotes dispar</i> Reuter	PENTR
21.	<i>Ectrychotes</i> sp.	PENTR
22.	<i>Euagoras plagiatus</i> (Burmeister)	INDTR
23.	<i>Pirates atromaculatus</i> (Stål)	INDTR
24.	<i>Pirates quadrinotatus</i> (Fabricius)	INDTR
25.	<i>Polididus armatissimus</i> Stål	PENTR
26.	<i>Pygolampis unicolor</i> Walker	INDTR
27.	<i>Sastrapada baerensprungi</i> (Stål)	INDTR
28.	<i>Tribelocephala orientalis</i> Distant	PENTR
X.	Family NEPIDAE	
29.	<i>Laccotrephes</i> sp.	PENTR
XI.	Family NOTONECTIDAE	
30.	<i>Enithares</i> sp.	PENTR
XII.	Family BELOSTOMATIDAE	
31.	<i>Diplonychus rusticum</i> (Fabricius)	PENTR
32.	<i>Lethocerus indicus</i> (Lep. & Serv.)	PENTR

XII. Family GERRIDAE

33. *Limnometra* sp. PENTR

THYSANOPTERA

I. Family THIRIPIDAE

1. *Liothrips epacrus* Ananth. & Muraleedharan BSPTR

COLEOPTERA

I. Family PAUSSIDAE

1. *Paussus hearseyanus* Westwood BSPTR
2. *Platyrhopalus denticornis* Donovan BSPTR

II. Family CICINDELIDAE

3. *Cicindela cancellata* Dej. BANTR, BSPTR, PENTR
4. *Cicindela haemorrhoidalis* Wied. PENTR
5. *Cicindela sexpunctata* Fabricius PENTR
6. *Cicindela minuta* Oliv. PENTR
7. *Cicindela catena* (Fabricius) BSPTR
8. *Cicindela funerea* var. *assimilis* Hope BSPTR
9. *Cicindela striolata* Illiger PENTR

III. Family CARABIDAE

10. *Anthia sexguttata* Fabricius PENTR
11. *Bembidion xanthacrum* Chaud BANTR
12. *Clivina semicarinata* Putz BANTR
13. *Craspedophorus* sp. PENTR
14. *Drypta* nr. *lineola* Macleay PENTR
15. *Luperca faevigata* Fabricius BANTR
16. *Omophunon lunatus* Bann. KANTR
17. *Scarites indicus* (Oliv.) BSPTR
18. *Scarites laticeps* Andrews KANTR
19. *Scarites mahratta* Andrews KANTR
20. *Tachys babaulti* Andrews BSPTR
21. *Tachys blandus* Andrews BSPTR
22. *Tachys ornatus* Apetz BSPTR
23. *Tachys vafer* Andrews KANTR

IV. Family DYTISCIDAE

24. *Canthydrus laetabilis* Walker KANTR
25. *Canthydrus luctuosus* (Aube) KANTR
26. *Cybister limbatus* (Fabricius) PENTR
27. *Hydaticus fabricii* Macleay PENTR
28. *Hydaticus luczonicus* Aube KANTR, PENTR
29. *Hydaticus vittatus* Fabricius PENTR
30. *Neptosternus circumductus* Reg. KANTR
31. *Sandracottus dejeani* Aube BSPTR

- V. Family GYRINIDAE
32. *Dineutus indicus* Aube BANTR
 33. *Dineutus (Spinodineutus) unidentatus* (Aube) KANTR
 34. *Orectochilus (Patrus) cardoni* Reg. BSPTR
 35. *Orectochilus (Patrus) discifer* (Walker) BANTR, BSPTR
 36. *Orectochilus (Patrus) fletcheri* Ochs. BSPTR
 37. *Orectochilus (Patrus) haemorrhous* Regimbart BSPTR, KANTR
 38. *Orectochilus (Patrus) indicus* Reg. KANTR
 39. *Orectochilus limbatus* Reg. BSPTR, KANTR
 40. *Orectochilus (Patrus) productus* Reg. KANTR
 41. *Orectochilus (Patrus) ritsemai* Reg. BSPTR, KANTR
- VI. Family HYDROPHILIDAE
42. *Hydrophilus olivaceous* (Fabricius) PENTR
 43. *Stenolophus rufipes* Fabricius PENTR
- VII. Family STAPHYLINIDAE
44. *Stenus nigripes* Cameron BSPTR
 45. *Trogophleus (Boopinus) chatterjeei* Cameron BSPTR
 46. *Trogophleus (Boopinus) congruus* Cameron BSPTR
 47. *Trogophleus piceicollis* Cameron BSPTR
 48. *Trogophleus trivialis* Cameron BSPTR
- VIII. Family LUCANIDAE
49. *Dorcus bisignatus* (Parry) PENTR
- IX. Family SCARABAEIDAE
- Subfamily HYBOSORINAE
50. *Hybosorus orientalis* (Westwood) BSPTR, PANTR, PENTR, BANTR
 51. *Phaeochrous* sp. BSPTR, PANTR, PENTR
- Subfamily APHODIINAE
52. *Aphodius crenatus* Harold BSPTR, PANTR, PENTR, BANTR
 53. *Termitopisthes laticollis* Wasmann BSPTR
- Subfamily BOLBOCERINAE
54. *Bolboceras quaadridens* (Fabricius) BANTR, PENTR
- Subfamily COPRINAE
55. *Caccobius unicornis* Fabricius BANTR, KANTR
 56. *Catharsius molossus* (Linnaeus) BANTR, BSPTR, KANTR, BANTR
 57. *Catharsius pithecius* (Fabricius) BANTR, KANTR, PENTR, BANTR
 58. *Catharsius sagax* Queensland BANTR, KANTR, PENTR
 59. *Chironitis indicus* Lansberg BSPTR
 60. *Copris carinicus* Gillet KANTR
 61. *Copris davisoni* Waterhouse KANTR, PANTR, PENTR
 62. *Copris imitans* Felsche BANTR, PANTR, PENTR

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|---|--------------------------------------|
| 63. <i>Copris repertus</i> Walker | INDTR, KANTR |
| 64. <i>Drepanocerus setosus</i> (Wiedemann) | BSPTR, INDTR, KANTR, PANTR |
| 65. <i>Gymnopleurus cyaneus</i> (Fabricius) | BSPTR, KANTR, PENTR |
| 66. <i>Gymnopleurus miliaris</i> (Fabricius) | BSPTR, KANTR |
| 67. <i>Gymnopleurus mundus</i> (Wied.) | BSPTR, KANTR |
| 68. <i>Gymnopleurus opacus</i> (Redt.) | BSPTR |
| 69. <i>Gymnopleurus parvus</i> (Macleay) | BSPTR |
| 70. <i>Gymnopleurus sinuatus</i> (Olivier) | BANTR, KANTR, PENTR, BANTR |
| 71. <i>Heliocopris bucephalus</i> (Fabricius) | BANTR, BSPTR, KANTR, PENTR |
| 72. <i>Liatongus rhadamistus</i> (Fabricius) | BANTR, BSPTR, KANTR |
| 73. <i>Oniticellus cinctus</i> (Fabricius) | BSPTR, KANTR, PANTR |
| 74. <i>Oniticellus spinipes</i> Roth | BANTR, KANTR, PANTR |
| 75. <i>Oniticellus pallens</i> Oliv. | BSPTR |
| 76. <i>Onitis brahma</i> Lansberg | BSPTR, KANTR, PANTR, PENTR |
| 77. <i>Onitis philemon</i> Fabricius | BSPTR, INDTR, PANTR,
PENTR, BANTR |
| 78. <i>Onitis subopacus</i> Arrow | KANTR |
| 79. <i>Onitis virens</i> Lansberg | INDTR |
| 80. <i>Onthophagus abreu</i> Arrow | BSPTR |
| 81. <i>Onthophagus agnus</i> Gill | PENTR |
| 82. <i>Onthophagus bicaudatus</i> Fabricius | BANTR |
| 83. <i>Onthophagus bonasus</i> (Fabricius) | BSPTR, KANTR |
| 84. <i>Onthophagus catta</i> Fabricius | BSPTR, KANTR, PANTR,
PENTR, BANTR |
| 85. <i>Onthophagus cervus</i> (Fabricius) | BANTR, KANTR |
| 86. <i>Onthophagus dama</i> (Fabricius) | KANTR |
| 87. <i>Onthophagus fasciatus</i> Boucomont | BANTR |
| 88. <i>Onthophagus griseosetosus</i> Arrow | PENTR, KANTR |
| 89. <i>Onthophagus gulo</i> Arrow | |
| 90. <i>Onthophagus hystrix</i> Boucomont | KANTR |
| 91. <i>Onthophagus orientalis</i> Harold | KANTR |
| 92. <i>Onthophagus pactolus</i> (Fabricius) | BSPTR, BANTR, KANTR, PENTR |
| 93. <i>Onthophagus quadridentatus</i> (Fabricius) | BANTR |
| 94. <i>Onthophagus ramosus</i> (Wiedemann) | BANTR, BSPTR, KANTR,
PANTR, BANTR |
| 95. <i>Onthophagus sagittarius</i> (Fabricius) | BANTR, BSPTR, KANTR |
| 96. <i>Onthophagus tarandus</i> (Fabricius) | BANTR, BSPTR, PANTR |
| 97. <i>Phalops candezei</i> Lansberg | KANTR |
| 98. <i>Phalops divisus</i> (Wied.) | BANTR, BSPTR, PENTR |
| 99. <i>Scarabaeus sanctus</i> (Fabricius) | BSPTR, PENTR |
| 100. <i>Sisyphus crispatus hirtus</i> Wied. | KANTR |
| 101. <i>Sisyphus longipes</i> (Oliv.) | BANTR, BSPTR |
| Subfamily MELOLONTHINAE | |
| 102. <i>Schizonycha ruficollis</i> (Fabricius) | BSPTR |
| 103. <i>Apogonia</i> sp. | BANTR, KANTR, PENTR |
| 104. <i>Holotrichia sculpticollis</i> Burmeister | PENTR |

Subfamily RUTELINAE

- | | |
|---|---------------------|
| 105. <i>Adoretus bicaudatus</i> Arrow | BANTR, BSPTR |
| 106. <i>Adoretus bicolor</i> Brenske | BSPTR |
| 107. <i>Adoretus duvauceli</i> Blanchard | BANTR |
| 108. <i>Adoretus lasiopygus</i> Burmeister | BANTR, BSPTR |
| 109. <i>Anomala bengalensis</i> Blanchard | BSPTR, PENTR |
| 110. <i>Anomala biharensis</i> Arrow | BSPTR, PENTR, KANTR |
| 111. <i>Anomala dimidiata</i> (Hope) | BSPTR, PENTR |
| 112. <i>Anomala dorsalis</i> (Fabricius) | BSPTR, PENTR |
| 113. <i>Anomala robusta</i> (Ohaus) | BANTR |
| 114. <i>Anomala rugosa</i> Arrow | BSPTR, PENTR |
| 115. <i>Anomala varicolor</i> (Gyll.) | BSPTR, KANTR, PENTR |
| 116. <i>Mimela inscripta</i> (Nonfr.) | BANTR, KANTR |
| 117. <i>Mimela macleayana</i> Vigors | BSPTR, KANTR, PENTR |
| 118. <i>Mimela xanthorrhina</i> Hope | BSPTR |
| 119. <i>Pachyrrhinadoretus frontatus</i> (Burmeister) | BANTR |
| 120. <i>Rhinyptia meridionalis</i> Arrow | BANTR |

Subfamily DYNASTINAE

- | | |
|---|---------------------|
| 121. <i>Alisonotum simile</i> Arrow | BANTR |
| 122. <i>Dipelicus cantator</i> Arrow | BANTR, PENTR |
| 123. <i>Oryctes rhinoceros</i> (L.) | PENTR |
| 124. <i>Phyllognathus dionysius</i> (Fabricius) | BSPTR, PENTR |
| 125. <i>Eophileurus platypterus</i> (Wied.) | BSPTR, PENTR |
| 126. <i>Heteronychus lioderes</i> Redtenbacher | BANTR, PENTR |
| 127. <i>Xylotropes gideon</i> (Linnaeus) | BANTR, BSPTR, KANTR |

Subfamily CETONINAE

- | | |
|---|--------------------------------------|
| 128. <i>Chiloloba acuta</i> (Wied.) | BANTR, BSPTR, PENTR |
| 129. <i>Clinteria hearseiana</i> Westwood | BSPTR |
| 130. <i>Clinteria klugi</i> (Hope) | BANTR, BSPTR, KANTR,
PENTR, BANTR |
| 131. <i>Oxycetonia versicolor</i> (Fabricius) | BSPTR, PENTR |
| 132. <i>Protaetia aurichalcea</i> (Fabricius) | BSPTR |
| 133. <i>Heterorrhina elegans</i> (Fabricius) | PENTR |

Subfamily TROGINAE

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| 134. <i>Trox</i> sp. | PANTR, PENTR |
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X Family BUPRESTIDAE

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| 135. <i>Psiloptera lempetis coerulea</i> Oliv. | BSPTR, PENTR |
| 136. <i>Sternocera chrysis</i> Fabricius | BSPTR, PENTR |

XI Family ELATERIDAE

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| 137. <i>Lanelatex fuscipes</i> (Fabricius) | PENTR |
| 138. <i>Plectosternus rufus</i> Lacord | PENTR |
| 139. <i>Calais eryx</i> (Candeze) | PENTR |

- XII. Family BOSTRYCHIDAE
 140. *Cyrtotrachelus longipes* Fabricius PENTR
 141. *Anthia sexguttata* Fabricius PENTR
- XIII. Family COCCINELLIDAE
 142. *Brumus suturalis* (Fabricius) BSPTR, PANTR
 143. *Coccinella transversalis* Fabricius PANTR, PENTR
 144. *Menochilus sexmaculatus* (Fabricius) BSPTR, PANTR, PENTR
 145. *Harmonia arcuata* Fabricius PENTR
 146. *Henoseplichna septina* (Deike) PANTR, PENTR
- XIV. Family MELOIDAE
 147. *Mylabris phalerata* Pall. PENTR
 148. *Eletica* sp. PENTR
 149. *Cylindrothorax ruficollis* (Fabricius) PENTR
- XV. Family CERAMBYCIDAE
 150. *Acanthophorus serraticornis* (Oliv.) PENTR
 151. *Calothryza schestedi* Fabricius PENTR
 152. *Macrotoma* sp. PENTR
 153. *Olenecamptus* sp. PENTR
 154. *Prionomma atratum* (Gmelin) BSPTR
 155. *Prionomma* sp. PENTR
 156. *Stibora nigricornis* Fabricius PENTR
 157. *Xystrocera globosa* Oliv. BSPTR, PENTR
- XVI. Family CURCULIONIDAE
 158. *Protocerius* sp. PENTR
 159. *Atractogaster nr. antennalis* Desbr. PENTR
 160. *Xanthophora faunas* Oliv. PENTR

SIPHONOPTERA

- I. Family PULICIDAE
 1. *Xenopsylla brasiliensis* (Baker) BSPTR

DIPTERA

- I. Family TIPULIDAE
 Subfamily LIMONIINAE
 1. *Trentepohlia (Trentepohlia) trentepohlii* (Wiedemann) PENTR
- II. Family BIBIONIDAE
 Subfamily PLECIINAE
 2. *Plecia (Plecia) dispersa* Hardy PENTR
- III. Family SCIARIDAE
 3. *Trichosia rufithorax* (Walker) PENTR
- IV. Family TABANIDAE
 Subfamily PANGONIINAE
 4. *Philoliche taprobans* (Walker) PENTR

	Subfamily	TABANINAE	
5.	<i>Haematopota javana</i>	Wiedemann	PENTR
6.	<i>Haematopota roralis</i>	Fabricius	PENTR
7.	<i>Tabanus (Tabanus) orientalis</i>	Walker	PENTR
V.	Family	ASILIDAE	
8.	<i>Clephydroneura pulla</i>	Oldroyd	PENTR
9.	<i>Laxenecera albibarbis</i>	Macquart	PENTR
10.	<i>Michotamia aurata</i>	(Fabricius)	PENTR
11.	<i>Ommatius minor</i>	Doleschall	PENTR
12.	<i>Philodicus femoralis</i>	Ricardo	PENTR
13.	<i>Philodicus pruthii</i>	Bromley	PENTR
14.	<i>Promachus duvaucelii</i>	(Macquart)	PENTR
VI.	Family	BOMBYLIIDAE	
	Subfamily	EXOPROSOPINAE	
15.	<i>Exoprosopa (Exoprosopa) insulata</i>	(Walker)	PENTR
16.	<i>Exoprosopa (Exoprosopa) lateralis</i>	Brunetti	PENTR
17.	<i>Litorhynchus lar</i>	(Fabricius)	PENTR
VII.	Family	SYRPHIDAE	
	Subfamily	SYRPHINAE	
18.	<i>Dideopsis aegrotus</i>	(Fabricius)	PENTR
19.	<i>Episyrphus balteatus</i>	(De Geer)	PENTR
20.	<i>Ischiodon scutellaris</i>	(Fabricius)	PENTR
VIII.	Family	PYRGOTIDAE	
21.	<i>Taeniomastix pictiventris</i>	(Hendel)	PENTR
IX.	Family	TEPHRITIDAE	
	Subfamily	TEPHRITINAE	
22.	<i>Platensina acrostacta</i>	(Wiedemann)	PENTR
X.	Family	OTTIDAE	
	Subfamily	ULIDINAE	
23.	<i>Physiphora aenea</i>	(Fabricius)	PENTR
XI.	Family	MUSCIDAE	
	Subfamily	MUSCILINAE	
24.	<i>Musca (Musca) domestica</i>	Linnaeus	PENTR
25.	<i>Orthellia indica</i>	(Robineau-Desvoidy)	PENTR
26.	<i>Stomoxys calcitrans</i>	(Linnaeus)	PENTR
XII.	Family	CALLIPHORIDAE	
	Subfamily	CHRYSOMYINAE	
27.	<i>Chrysomya megacephala</i>	(Fabricius)	PENTR
	Subfamily	CALLIPHORINAE	
28.	<i>Bengalia jejuna</i>	(Fabricius)	PENTR
29.	<i>Bengalia torosa</i>	(Wiedemann)	PENTR

- Subfamily RHINIINAE
30. *Rhinia melanostoma* (Wiedemann) PENTR
- XIII. Family SARCOPHAGIDAE
- Subfamily SARCOPHAGINAE
31. *Iranihindia martellata* (Senior-White) PENTR
32. *Parasarcophaga (Parasarcophaga) albiceps* (Meigen) PENTR
33. *Parasarcophaga (Parasarcophaga) hirtipes* (Wiedemann) PENTR

LEPIDOPTERA

- Suborder RHOPALOCERA
- I. Family PAPILIONIDAE
1. *Chilasa clytia clytia* (Linnaeus)
Common Mime PENTR Sch.I
2. *Graphium agamemmon agamemmon* (Linn.)
Tailed Jay BSPTR
3. *Pathysa nomius nomius* (Esper)
Spot Swordtail PANTR, PENTR
4. *Pachliopta hector* (Linnaeus)
Crimson Rose BSPTR, PANTR, PENTR Sch.I
5. *Papilio demoleus demoleus* Linnaeus
Lime Butterfly BANTR, INDTR, PANTR, PENTR
6. *Papilio polytes romulus* Cramer
Common Mormon BSPTR, INDTR, PANTR, PENTR
- II. Family PIERIDAE
7. *Anapheis aurota aurota* (Fabricius)
Pioneer BSPTR, PANTR, PENTR
8. *Catopsilia florella gnoma* (Fabricius)
African Emigrant BSPTR, KANTR, PANTR, PANTR, PENTR
9. *Catopsilia pomona* (Fabricius)
Lemon Emigrant BANTR, BSPTR, KANTR, PANTR, PENTR
10. *Catopsilia pyranthe pyranthe* (Linnaeus)
Mottled Emigrant BSPTR, KANTR, PENTR
11. *Cepora nerissa phryne* (Fabricius)
Common Gull PANTR
12. *Colotis etrida etrida* (Boisduval)
Little Orange Tip BSPTR
13. *Delias eucharis* (Drury)
Common Jezebel BSPTR, INDTR, PANTR
14. *Eurema brigitta rubella* (Wallace)
Small Grass Yellow KANTR, PANTR, PENTR
15. *Eurema hecabe simulata* (Moore)
Common Grass Yellow BSPTR, INDTR, KANTR, PANTR, PENTR
16. *Eurema laeta laeta* (Boisduval)
Spotless Grass Yellow BSPTR, INDTR, PANTR, PENTR

17. *Leptosia nina nina* (Fabricius)
Psyche PANTR
18. *Pereronia valeria hippia* (Fabricius)
Common Wanderer KANTR, PANTR
- III. Family DANAIIDAE
Subfamily DANAINAE
19. *Danaus chrysippus chrysippus* (Linnaeus)
Plain Tiger BSPTR, INDTR,
PANTR, PENTR
20. *Danaus genutia* (Cramer)
Common Tiger BANTR, BSPTR, KANTR,
PANTR PENTR
21. *Euploea core core* (Cramer)
Common Crow BSPTR, INDTR, KANTR,
PANTR, PENTR
22. *Tirumala limniace leopardus* (Butler)
Blue Tiger BSPTR, KANTR,
PANTR, PENTR
- IV. Family SATYRIDAE
23. *Elymnias hypermnestra undularis* (Drury)
Common Palmfly BSPTR, KANTR,
PANTR, PENTR
24. *Lethe rohita neelgheriensis* (Guerin)
Common Tree Brown BSPTR
25. *Melanitis leda ismene* (Cramer)
Common Evening Brown BSPTR, KANTR,
PANTR, PENTR
26. *Melanitis phedima bethami* de Niceville
Dark Evening Brown KANTR
27. *Mycalesis lepcha bethami* (Moore)
Lepcha Bushbrown PANTR
28. *Mycalesis mineus* (Linnaeus)
Dark-brand Bushbrown PENTR
29. *Mycalesis perseus tabitha* (Fabricius)
Common Bushbrown BSPTR, PANTR
30. *Mycalesis visala visala* Moore
Long-brand Bushbrown INDTR, PANTR
31. *Orsotrioena medus medus* (Fabricius)
Nigger INDTR
32. *Ypthima asterope* (Klug)
Common Three Rings PANTR, PENTR
33. *Ypthima ceylonica hubneri* Kirby
Common Four Ring BSPTR
34. *Ypthima inica* Hewitson
Lesser Three Rings BSPTR, PANTR
- V. Family NYMPHALIDAE
35. *Ariadne merione* (Cramer)
Common Castor PANTR
36. *Athyma perius* (Linnaeus)
Common Sergeant BSPTR

37. <i>Cynthia cardui</i> (Linnaeus) Painted lady	KANTR	
38. <i>Charaxes fabius</i> (Fabricius)	PANTR	
39. <i>Euthalia aconthea</i> Cramer Common Baron	PANTR	
40. <i>Hypolimnas bolina</i> (Linnaeus) Great Egffly	BANTR, PANTR, PENTR	
41. <i>Hypolimnas misippus</i> (Linnaeus) Danaid Egffly	BANTR, KANTR, PANTR	Sch.I
42. <i>Junonia almana almana</i> (Linnaeus) Peacock Pansy	BANTR, KANTR, PANTR, PENTR	
43. <i>Junonia atlites</i> (Linnaeus) Grey Pansy	INDTR, KANTR, PANTR, PENTR	
44. <i>Junonia hierta hierta</i> (Fabricius) Yellow Pansy	BSPTR, PANTR, PENTR	
45. <i>Junonia lemonias vaisya</i> (Fruhstorfer) Lemon Pansy	BSPTR, INDTR, PANTR, PENTR	
46. <i>Junonia orithya swinhoiei</i> Butler Blue Pansy	BSPTR, KANTR, PANTR PENTR	
47. <i>Neptis hordonia</i> (Stoll) Common Lascar	INDTR	
48. <i>Neptis hylas astola</i> Moore Common Sailer	BANTR, BSPTR, INDTR, PANTR, PENTR	
49. <i>Neptis jumbah</i> Moore Chestnut Streaked Sailor	BSPTR	Sch.I
50. <i>Neptis soma soma</i> Moore Sullied Sailer	KANTR	Sch.II
51. <i>Parathyma ranga</i> (Moore) Sergeant	INDTR	
52. <i>Parathyma selenophora</i> (Kollar) Staff Sergeant	INDTR	
53. <i>Phacdyma columella</i> Cramer Short-banded Sailor	BSPTR	Sch.I
54. <i>Phalanta alcippe</i> (Cramer) Small Leopard	INDTR	
55. <i>Phalanta phalantha phalantha</i> (Drury) Common Leopard	BANTR, BSPTR, PANTR, PENTR	
56. <i>Precis iphita pluviatilis</i> Fruhstorfer Chocolate Pansy	BSPTR, INDTR, PANTR	
57. <i>Symphaedra nais</i> (Forster) Baronet	BANTR, BSPTR, KANTR, PANTR, PENTR	
VI Family ACRAEIDAE		
58. <i>Acraea violae</i> (Fabricius) Tawny Coster	INDTR, PANTR, PENTR	

VII	Family RIODINIDAE		
59.	<i>Abisara echerius</i> Stål	BSPTR, PANTR	
VIII	Family LYCAENIDAE		
60.	<i>Castalius rosimon rosimon</i> (Fabricius) Common Pierrot	BSPTR, INDTR, PANTR, PENTR	Sch.I
61.	<i>Catochrysops strabo strabo</i> (Fabricius) Forget-me-not	PENTR	
62.	<i>Euchrysops cnejus</i> (Fabricius) Gram Blue	PENTR	Sch.II
63.	<i>Euchrysops pandava</i> (Horsfield) Plains Cupid	PENTR	
64.	<i>Jamides celeno celeno</i> Cramer Common Cerulean	BSPTR, PANTR	
65.	<i>Lampides boeticus</i> (Linnaeus) Pea Blue	INDTR	
66.	<i>Rapala melampus</i> (Cramer) Indian Red Flash	BSPTR, PENTR	
67.	<i>Rapala jarbus jarbus</i> (Fabricius) Indian Red Flash	PANTR	
68.	<i>Spindasis vulcanus vulcanus</i> (Fabricius) Common Silverline	PANTR	
69.	<i>Tajuria cippus</i> (Fabricius) Peacock Royal	BSPTR	Sch.II
70.	<i>Tarucus extricatus</i> Butler Rounded Pierrot	PENTR	
71.	<i>Tarucus nara</i> (Kollar) Striped Pierrot	PANTR	
72.	<i>Tarucus theophrastus</i> (Fabricius) Pointed Pierrot	PENTR	
73.	<i>Virachola isocrates</i> (Fab.) Common Guava Blue	BSPTR, PANTR	
74.	<i>Zizeeria gaika</i> (Trimen) Tiny Grass Blue	PENTR	
IX.	Family HESPERIIDAE		
75.	<i>Badamia exclamationis</i> (Fabricius) Brown Awl	PENTR	
76.	<i>Pelopidas mathias mathias</i> (Fabricius) Small Branded Swift	BSPTR, PANTR, PENTR	
77.	<i>Spialia galba</i> (Fabricius) Indian Skipper	PENTR	
78.	<i>Telicota ancilla</i> Herrich-Schaffer Dark Palm Dart	PANTR, PENTR	
79.	<i>Telicota ancilla bambusae</i> (Moore) Dark Palm Dart	BSPTR	
80.	<i>Udaspus folus</i> Cramer Grass Demon	PANTR	

	Suborder	HETEROCERA	
X.	Family	SESIIDAE	
81.	<i>Melittia eurytion</i>	(Westwood)	PENTR
XI.	Family	PYRALIDAE	
82.	<i>Agathodes ostentalis</i>	Hubner	KANTR
83.	<i>Cirrhochrista brizoalis</i>	(Walker)	BANTR, KANTR, PENTR
84.	<i>Cnaphalocrocis medinalis</i>	(Guence)	BANTR, KANTR
85.	<i>Diaphania bicolor</i>	(Swainson)	PENTR
86.	<i>Diaphania indica</i>	(Saunders)	BSPTR, KANTR, PENTR
87.	<i>Diaphania bivitalis</i>	(Guenee)	BANTR
88.	<i>Hymenia recurvalis</i>	(Fabricius)	BANTR, BSPTR, KANTR, PENTR
89.	<i>Lepyrodes neptis</i>	Cramer	PENTR
90.	<i>Maruca testulalis</i>	(Geyer)	BANTR, BSPTR, KANTR, PENTR
91.	<i>Nymphula fluctuosalis</i>	Zeller	KANTR
92.	<i>Prophantis octoguttale</i>	(Felder)	KANTR
93.	<i>Pygospila tyres</i>	(Cramer)	KANTR
94.	<i>Sameodes cancellalis</i>	Zeller	BANTR, BSPTR, KANTR, PENTR
95.	<i>Synclera traducalis</i>	(Zeller)	BANTR
96.	<i>Syngamia latimarginalis</i>	Walker	PENTR
97.	<i>Sylepta derogata</i>	Fabricius	KANTR
98.	<i>Tyspanodes linealis</i>	Moore	BANTR
XII.	Family	EUPTEROTIDAE	
99.	<i>Eupterote</i>	sp.	BSPTR, PENTR
100.	<i>Ganisa plana</i>	Walker	PENTR
XIII.	Family	SATURNIIDAE	
101.	<i>Actias selene</i>	(Hubner)	BANTR, PENTR
102.	<i>Antheraea paphia</i>	(Linnaeus)	BANTR, PENTR
103.	<i>Attacus atlas</i>	(Linnaeus)	KANTR
XIV.	Family	GEOMETRIDAE	
104.	<i>Antitrygodes cuneilinea</i>	(Walker)	BANTR, BSPTR, KANTR, PENTR
105.	<i>Aporandria specularia</i>	Gueflee	BANTR, KANTR, PENTR
106.	<i>Godonela translineata</i>	Walker	BANTR
107.	<i>Hyposidra talaca</i>	(Walker)	BANTR, KANTR
108.	<i>Macaria fasciata</i>	Fabricius	KANTR
109.	<i>Pingasa chlora</i>	(Stoll)	PENTR
110.	<i>Plutodes transmutata</i>	Walker	PENTR
XV.	Family	URANIIDAE	
111.	<i>Micronia aculeata</i>	Gueflee	BANTR, BSPTR, KANTR, PENTR
XVI.	Family	SPHINGIDAE	
112.	<i>Acherontia lachesis</i>	(Fabricius)	PENTR
113.	<i>Acherontia styx styx</i>	(Westwood)	PENTR
114.	<i>Deilephila nerii</i>	(Linnaeus)	BSPTR
115.	<i>Herse convolvuli convolvuli</i>	(Linnaeus)	KANTR, PENTR
116.	<i>Hippotion boerhaviae</i>	(Fabricius)	BANTR, BSPTR, KANTR, PENTR

117. <i>Marumba dyras dyras</i> (Walker)	BANTR, BSPTR, KANTR, PENTR
118. <i>Nephele didyma</i> (Fabricius)	BANTR, PENTR
119. <i>Polyptychus dentatus</i> (Cramer)	PENTR
120. <i>Psilogamma menephron</i> (Cramer)	BANTR, PENTR
121. <i>Rhyncholaba acteus</i> (Cramer)	BANTR
122. <i>Theretra alecto alecto</i> (Linn.)	BANTR, BSPTR, KANTR, PENTR
123. <i>Theretra boisduvali</i> (Bagh.)	BANTR
124. <i>Theretra nessus</i> (Drury)	PENTR
125. <i>Theretra oldenlandiae oldenlandiae</i> (Fabricius)	BANTR, BSPTR, KANTR, PENTR
XVII Family NOCTUIDAE	
126. <i>Achaea janata</i> Linnaeus	BSPTR, KANTR, PENTR
127. <i>Acontia transversa</i> Guéfée	BSPTR, PENTR
128. <i>Anua tirhaca</i> Cramer	KANTR
129. <i>Brevipecten captatus</i> Butler	BSPTR
130. <i>Callopietria recurvata</i> Moore	PENTR
131. <i>Callina jugaria</i> Walker	KANTR
132. <i>Carea subtilis</i> (Walker)	KANTR
133. <i>Chalciope mygdon</i> (Cramer)	BSPTR, PENTR
134. <i>Entomogramma tortum</i> Guéfée	PENTR
135. <i>Episparis varialis</i> (Walker)	BANTR, KANTR
136. <i>Grammodes geometrica</i> (Fabricius)	BANTR, KANTR, PENTR
137. <i>Helicoverpa assulta</i> Guence	KANTR
138. <i>Helicoverpa armigera</i> (Hubner)	KANTR, PENTR
139. <i>Homaea clathrum</i> Guence	KANTR
140. <i>Hyblaea puera</i> Cramer	KANTR, PENTR
141. <i>Hypocala</i> sp.	BSPTR, KANTR, PENTR
142. <i>Ischyja manlia</i> Cramer	PENTR, KANTR
143. <i>Mocis undata</i> Fabricius	KANTR
144. <i>Nyctipao hieroglyphia</i> Drury	PENTR
145. <i>Nyctipao macrops</i> Linnaeus	KANTR, PENTR
146. <i>Ophiusa algira</i> (Linn.)	PENTR
147. <i>Ophiusa coronata</i> Fabricius	BANTR, KANTR, PENTR
148. <i>Ophiusa honesta</i> (Hübner)	BANTR
149. <i>Ophiusa joviana</i> (Cramer)	BANTR, PENTR
150. <i>Ophiusa triphaenoides</i> Walker	BANTR
151. <i>Ophiusa oneliai</i> (Guenee)	INDTR
152. <i>Ophideres fullonica</i> (L.)	BANTR, KANTR
153. <i>Ophideres materna</i> Linn.	PENTR
154. <i>Polytela gloriosae</i> Fabricius	PENTR
155. <i>Plusia orichalcea</i> Fabr.	BSPTR, PENTR
156. <i>Prodenia litura</i> (Fabricius)	BANTR, KANTR
157. <i>Pseudelydna rufoflava</i> Walker	PENTR
158. <i>Psimada quadripennis</i> Walker	KANTR
159. <i>Serrodus inara</i> Cramer	PENTR
160. <i>Spirama retorta</i> Cramer	BANTR, KANTR, PENTR
161. <i>Thermesia bolinoides</i> (Guence)	KANTR
162. <i>Thermesia rubricans</i> (Boisduval)	PENTR, KANTR

163. *Trigonodes disjuncta* Moore KANTR
 164. *Trigonodes hyppasia* (Cramer) BANTR, BSPTR, PENTR, KANTR
 165. *Trisula variegata* Moore PENTR, KANTR
 166. *Westermannia argentea* Hampson BSPTR, KANTR, PENTR
- XVIII. Family LYMANTRIIDAE
 167. *Euproctis* sp. PENTR
 168. *Lymantria* sp. PENTR
 169. *Perina nuda* Fabricius KANTR
- XIX. Family NOTODONTIDAE
 170. *Allata argentifera* Walker BANTR, KANTR, PENTR
 171. *Antheua servula* (Drury) PENTR
 172. *Cerura liturata* Walker BANTR, KANTR, PENTR
 173. *Phalera raya* Moore BANTR, BSPTR, KANTR, PENTR
- XX. Family AGARISTIDAE
 174. *Aegocera venulia* Cramer PENTR
 175. *Mimeusemia* sp. PENTR
 176. *Sarbanissa transiens* (Walker) PENTR
- XXI. Family HYPSTIDAE
 177. *Asota caricae* (Fabricius) BANTR, BSPTR, KANTR, PENTR
- XXII. Family COSSIDAE
 178. *Xyleutes persona* (Le Guillou) PENTR
 179. *Xyleutes stryx* Linnaeus PENTR
 180. *Zeuzera* sp. KANTR
- XXIII. Family ARCTIIDAE
 181. *Argina astraea* (Drury) BSPTR, KANTR, PENTR
 182. *Cretonotus gangis* (Linnaeus) BANTR, KANTR
 183. *Cretonotus lactineus* Cramer BANTR, KANTR, PENTR
 184. *Cyana bianca* (Walker) INDTR
 185. *Cynana puella* Drury KANTR
 186. *Olepa ricini* (Fabricius) BANTR, KANTR
 187. *Oeonistis altica* (Linnaeus) KANTR
 188. *Phissama transiens* (Walker) KANTR
 189. *Syntomis passalis* (Fabricius) INDTR
 190. *Utetheisa pulchelloides* (Hampson) BSPTR, PENTR
- XXIV. Family LASIOCAMPIDAE
 191. *Estigena pardalis* Walker BANTR, KANTR
 192. *Lebeda* sp. PENTR

HYMENOPTERA

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|------|---------------------------------|----------------|-------|
| I. | Family | VESPIDAE | |
| 1. | <i>Vespa orientalis</i> | (Linnaeus) | BSPTR |
| II. | Family | MUTILIDAE | |
| 2. | <i>Mutilla niveosignata</i> | Bingham | BSPTR |
| III. | Family | FORMICIDAE | |
| 3. | <i>Aphaenogaster rothneyi</i> | (Forel) | BSPTR |
| 4. | <i>Aphaenogaster schurri</i> | (Forel) | BSPTR |
| 5. | <i>Formica fusca</i> | (Linnaeus) | BSPTR |
| 6. | <i>Leptothorax rothneyi</i> | Forel | BSPTR |
| 7. | <i>Leptothorax schurri</i> | Forel | BSPTR |
| 8. | <i>Monomorium aberrans</i> | Forel | BSPTR |
| 9. | <i>Myrmica inezae</i> | (Forel) | BSPTR |
| IV. | Family | ICHNEUMONIDAE | |
| 10. | <i>Henicospilus merdarius</i> | (Grav.) | BSPTR |
| 11. | <i>Nototrachys foliator</i> | (Fabricius) | BSPTR |
| 12. | <i>Pristimerus microdon</i> | Cushman | BSPTR |
| V. | Family | ENCYRTIDAE | |
| 13. | <i>Cheiloneurus fusciscapus</i> | Agarwal | BSPTR |
| VI. | Family | PERILAMPIDAE | |
| 14. | <i>Perilampus microgastris</i> | Ferriere | BSPTR |
| VII. | Family | TETRASTICHIDAE | |
| 15. | <i>Tetrastichus satpurensis</i> | (Saraswat) | BSPTR |

MOLLUSCA

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|------|------------------------------|----------------|---------------------|
| | Class | GASTROPODA | |
| | Subclass | PROSOBRANCHIA | |
| | Order | MESOGASTROPODA | |
| I. | Family | PILIDAE | |
| 1. | <i>Pila globosa</i> | (Swainson) | BSPTR |
| 2. | <i>Pila virens</i> | (Lamarck) | KANTR |
| II. | Family | VERTIGINIDAE | |
| 3. | <i>Gastrocopta bathyodon</i> | (Benson) | BSPTR |
| | Subclass | PULMONATA | |
| | Order | BASOMMATOPHORA | |
| III. | Family | LYMNAEIDAE | |
| 4. | <i>Lymnaea acuminata</i> | (Lamarck) | BSPTR, KANTR, PENTR |
| 5. | <i>Lymnaea luteola</i> | (Lamarck) | BSPTR, KANTR |
| IV. | Family | PLANORBIDAE | |
| 6. | <i>Indoplanorbis exustus</i> | (Deshayes) | BSPTR, KANTR |

- Order MEGAGASTROPODA
 V. Family VIVIPARIDAE
 7. *Viviparus bengalensis* (Lamarck) BSPTR, PENTR
 8. *Viviparus variatus* (Frauenfeld) BSPTR, PENTR
 VI. Family THIARIDAE
 9. *Thiara (Tarebia) lineatus* (Gray) BSPTR, KANTR
 10. *Thiara (Melanoides) tuberculatus* (Müller) BSPTR, KANTR, PENTR
 Order STYLOMMATOPHORA
 Family CERASTUIDAE
 11. *Rachis punctatus* (Anton) PENTR
 VII. Family SUBULINIDAE
 12. *Zootecus chion* (Pfeiffer) BSPTR
 VIII. Family ARIOPHANTIDAE
 13. *Ariophanta laevipes* Mueller KANTR
 Class BIVALVIA
 Order UNIONOIDA
 Superfamily UNIONACEA
 IX. Family UNIONIDAE
 14. *Lamellidens corrianus* (Lea) PENTR
 15. *Lamellidens marginalis* (Lamarck) KANTR
 X. Family LENIANIDAE
 16. *Parreysia corrugata* (Müller) BSPTR, KANTR, PENTR
 17. *Parreysia favidens* (Benson) PENTR
 18. *Parreysia wynegunaensis* (Lea) BSPTR, PENTR
 XI. Family CORBICULIDAE
 19. *Corbicula occidens* (Deshayes) KANTR
 20. *Corbicula striatella* (Deshayes) KANTR, PENTR
 XII. Family ARIOPHANTIDAE
 21. *Macrochlamys glauca* (Pfeiffer) PENTR

FRESH WATER FISHES

- Superorder OSTEGLLOSSOMORPHA
 Order OSTEGLLOSSIFORMES
 I. Family NOTOPTERIDAE
 1. *Notopterus notopterus* (Pallas) Feather Back BSPTR, PENTR
 Superorder OSTARIOPHYSI
 Order CYPRINIFORMES
 II. Family CYPRINIDAE
 Subfamily CULTRINAE
 2. *Chela (Chela) cachi* (Hamilton) Chela BSPTR, PENTR

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| 3. <i>Chela (Chela) laubuca</i> (Hamilton)
Winged Rasbora | BSPTR, PENTR |
| 4. <i>Salmostoma bacaila</i> (Hamilton) | INDTR, PENTR |
| 5. <i>Salmostoma clupeoides</i> (Bloch) | BSPTR, INDTR |
| III. Subfamily RASBORINAE | |
| 6. <i>Amblypharingodon mola</i> (Hamilton) | PENTR |
| 7. <i>Aspidopariya jaya</i> (Hamilton) | PENTR |
| 8. <i>Barilius barila</i> (Hamilton) | PENTR |
| 9. <i>Barilius barna</i> (Hamilton) | PENTR |
| 10. <i>Barilius bendelisis bendelisis</i> (Hamilton)
Hill Trout | BSPTR, PENTR |
| 11. <i>Barilius shacra</i> (Hamilton) | BSPTR |
| 12. <i>Danio aequipinnatus</i> (Mc Clelland)
Giant Danio | INDTR, KANTR,
BSPTR |
| 13. <i>Danio devario</i> (Hamilton)
Danio | BSPTR, PENTR |
| 14. <i>Danio neilgherriensis</i> (Day) | BSPTR |
| 15. <i>Danio rerio</i> (Hamilton) | BSPTR, KANTR, PENTR |
| 16. <i>Esomus danricus</i> (Hamilton)
Flying Barb | INDTR, KANTR,
PENTR |
| 17. <i>Rasbora daniconius daniconius</i> (Hamilton)
Common Rasbora | BSPTR, INDTR,
KANTR, PENTR |
| 18. <i>Rasbora rasbora</i> (Hamilton) | PENTR |
| IV. Subfamily CYPRININAE | |
| 19. <i>Catla catla</i> (Hamilton) Catla | BSPTR, PENTR |
| 20. <i>Cirrhinus mrigala</i> (Hamilton) Mrigal | BSPTR, PENTR |
| 21. <i>Cirrhinus reba</i> (Hamilton) Reba | BSPTR, INDTR, PENTR |
| 22. <i>Labeo angra</i> (Hamilton) | INDTR |
| 23. <i>Labeo bata</i> (Hamilton) Bata | BSPTR, PENTR |
| 24. <i>Labeo boga</i> (Hamilton) Burmese Fish | BSPTR |
| 25. <i>Labeo boggut</i> (Sykes) | INDTR, BSPTR |
| 26. <i>Labeo calbasu</i> (Hamilton)
Orange Fin Labeo | BSPTR, PENTR |
| 27. <i>Labeo fimbriatus</i> (Bloch)
Fringe-lipped Carp | BSPTR, INDTR |
| 28. <i>Labeo gonius</i> (Hamilton) | INDTR, PENTR |
| 29. <i>Labeo kawrus</i> (Sykes) | BSPTR |
| 30. <i>Labeo nandina</i> (Hamilton) | INDTR |
| 31. <i>Labeo pangusia</i> (Hamilton) | |
| 32. <i>Labeo porcellus</i> (Heckel) | |
| 33. <i>Labeo rohita</i> (Hamilton) Rohu | BSPTR, PENTR |
| 34. <i>Oreochthys cosuatis</i> (Hamilton) | BSPTR |
| 35. <i>Osteobrama cotio cotio</i> (Hamilton) | BSPTR |
| 36. <i>Puntius amphibius</i> (Valenciennes)
Scarlet Banded Barb | BSPTR, PENTR |
| 37. <i>Puntius chola</i> (Hamilton)
Green Barb | BSPTR, PENTR |

38. *Puntius conchoni* (Hamilton)
Stigma Barb BSPTR, INDTR, PENTR
39. *Puntius curmuca* (Hamilton) BSPTR
40. *Puntius dorsalis* (Jerdon) BSPTR
41. *Puntius guganio* (Hamilton) BSPTR
42. *Puntius kolus* (Sykes) INDTR
43. *Puntius punjabensis* (Day) PENTR
44. *Puntius sarana sarana* (Hamilton)
Olive Carp BSPTR, INDTR, PENTR
45. *Puntius sophore* (Hamilton)
Stigma Barb BSPTR, INDTR,
KANTR, PENTR
46. *Puntius ticto* (Hamilton)
Fire Fin Barb BSPTR, PENTR
47. *Tor khudree* (Sykes)
Khudree Mahaseer BSPTR
48. *Tor putitora* (Hamilton) INDTR, PENTR
49. *Tor tor* (Hamilton) INDTR
- V Subfamily GARRINAE
50. *Garra gotyla gotyla* (Gray)
Stone Sucker INDTR, BSPTR
51. *Garra lamta* (Hamilton)
Stone Sucker BSPTR, PENTR
52. *Garra mullya* (Sykes)
Stone Sucker BSPTR, PENTR
- VI Family HOMALOPTERIDAE
Subfamily NOEMACHEILINAE
53. *Noemacheilus botia* (Hamilton)
Striped Loach BSPTR
54. *Noemacheilus denisoni dayi* Hora BSPTR, PENTR
55. *Noemacheilus evezardi* Day BSPTR
56. *Noemacheilus savona* (Hamilton) INDTR, BSPTR
57. *Noemacheilus sikmaiensis* Hora KANTR
- VII Family COBITIDAE
Subfamily COBITINAE
58. *Lepidocephalus (Lepidocephalichthys) guntea* (Hamilton)
Loach BSPTR, KANTR,
PENTR
- Order SILURIFORMES
- VIII. Family BAGRIDAE
59. *Aorichthys aor* (Hamilton)
Long Whiskered Cat Fish BSPTR
60. *Aorichthys seenghala* (Sykes)
Giant River Cat Fish BSPTR
61. *Mystus bleekeri* (Day) BSPTR, PENTR
62. *Mystus cavasius* (Hamilton)
Dwarf Cat Fish BSPTR, INDTR
63. *Mystus montanus* (Jerdon) BSPTR, PENTR

64. *Mystus vittatus* (Bloch)
Striped Dwarf Cat Fish
BSPTR, INDTR, PENTR
65. *Rita gogra* (Sykes)
BSPTR
66. *Rita kuturnee* (Sykes) Rita
PENTR, INDTR
67. *Rita rita* (Hamilton)
BSPTR, INDTR
- IX. Family SILURIDAE
68. *Ompok bimaculatus* (Bloch)
Butter Cat Fish
BSPTR, INDTR, PENTR
69. *Ompok pabda* (Hamilton)
Butter Cat Fish
BSPTR
70. *Wallago attu* (Schneider)
Freshwater Shark
BSPTR, INDTR, PENTR
- X. Family SCHILBEIDAE
Subfamily AILINAE
Subfamily SCHILBEINAE
71. *Clupisoma garua* (Hamilton)
BSPTR, INDTR
72. *Pseudeutropius atherinoides* (Bloch)
PENTR
- XI. Family AMBLYCIPITIDAE
73. *Amblyceps mangois* (Hamilton)
BSPTR
- XII. Family SISORIDAE
74. *Bagarius bagarius* (Hamilton)
Bagarius
PENTR
75. *Laguvia ribeiroi ribeiroi* Hora
BSPTR
- III. Family CLARIIDAE
76. *Clarias batrachus* (Linnaeus)
Air breathing Cat Fish
BSPTR, PENTR
- XIV. Family HETEROPNEUSTIDAE
77. *Heteropneustes fossilis* (Bloch)
Stinging Cat Fish
BSPTR, PENTR
Superorder ATHERINOMORPHA
Order ATHERINIFORMES
- XV. Family BELONIDAE
78. *Xenentodon cancila* (Hamilton)
Freshwater Garfish
BSPTR, PENTR, KANTR
- XVI. Family CYPRINODONTIDAE
79. *Aplocheilichthys panchax* (Hamilton)
Lesser Top Minnow
BSPTR
Superorder ACANTHOPTERYGII
Order CHANNIFORMES
- VII. Family CHANNIDAE
80. *Channa marulius* (Hamilton)
Giant Snake-head Murrel
BSPTR, INDTR, PENTR
81. *Channa orientalis* (Schneider)
Brown Snake-head Murrel
BSPTR, KANTR, PENTR

82. *Channa punctatus* (Bloch)
Green Snake-head Murrel
BSPTR, KANTR, PENTR
83. *Channa stewartii* (Playfair)
INDTR
84. *Channa striatus* (Bloch)
Striped Snake-head Murrel
BSPTR, PENTR
- Order PERCIFORMES
- XVIII. Family CHANDIDAE
85. *Chanda nama* (Hamilton)
Indian Glass Fish
BSPTR, PENTR
86. *Chanda ranga* (Hamilton)
Indian Glass Fish
BSPTR
- XIX. Family NANDIDAE
87. *Badis badis* (Hamilton)
BSPTR, INDTR, KANTR
88. *Nandus nandus* (Hamilton)
BSPTR
- XX. Family CICHLIDAE
89. *Oreochromis mossambica* (Peters)
Tilapia
PENTR
- XXI. Family GOBIIDAE
Subfamily GOBINAE
90. *Glossogobius giuris* (Hamilton)
Bar-eyed Goby
BSPTR, INDTR, PENTR
- Order MASTACEMBELIFORMES
- XXII. Family MASTACEMBELIDAE
91. *Macrogathus aculeatus* (Bloch)
Lesser Spiny Eel
BSPTR
92. *Mastacembelus armatus armatus* (Lacepede)
Spiny Eel
BSPTR, PENTR
93. *Mastacembelus pancalus* (Hamilton)
BSPTR, PENTR

AMPHIBIA

- Class AMPHIBIA
- Order ANURA
- I. Family BUFONIDAE
1. *Bufo melanostictus* Schneider
Common Asian Toad
BANTR, BSPTR, INDTR,
KANTR, PANTR, PENTR
- II. Family MICROHYLIDAE
2. *Kaloula taprobarica* Parker
Painted Kaloula
BSPTR, PENTR
3. *Microhyla ornata* (Duméril & Bibron)
Ornate Narrow-mouthed Frog
BSPTR, INDTR,
KANTR, PENTR
4. *Uperodon globulosus* (Gunther)
Gray Balloon Frog
INDTR

III. Family RANIDAE

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| 5. <i>Euphlyctis cyanophlyctis</i> (Schneider)
Indian Skipping Frog | BSPTR, INDTR, KANTR | |
| 6. <i>Haplobatrachus tigerinus</i> (Daudin)
Indian Bull Frog | BANTR, BSPTR, INDTR,
KANTR, PANTR, PENTR | Sch.IV |
| 7. <i>Limnonectes limnocharis</i> (Boie in : Wiegmann)
Cricket Frog | BSPTR, INDTR, KANTR,
PANTR, PENTR | |
| 8. <i>Rana malabarica</i> Tschudi
Fungoid Frog | INDTR, KANTR | Sch.IV |
| 9. <i>Tomopterna breviceps</i> (Schneider)
Short-headed Burrowing Frog | BSPTR, INDTR, PENTR | |
| IV. Family RHACOPHORIDAE | | |
| 10. <i>Polypedates leucomystax</i> Gravenhorst
Six-lined Tree Frog | INDTR | |
| 11. <i>Polypedates maculatus</i> (Gray)
Indian Tree Frog | BANTR, BSPTR, PENTR | |

REPTILIA

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| Order CROCODYLIA | | |
| I. Family CROCODYLIDAE | | |
| 1. <i>Crocodylus palustris</i> Lesson
Mugger Crocodile | BSPTR, PANTR,
PENTR | Sch.I |
| 2. <i>Gavialis gangeticus</i> (Gmelin)
Gharial | PANTR | Sch.I |
| Order TESTUDINES | | |
| II. Family TRIONYCHIDAE | | |
| 3. <i>Aspideretes gangeticus</i> (Cuvier)
Indian Softshell Turtle | BANTR, PENTR | Sch.I |
| 4. <i>Lessemys punctata</i> (Bonnaterre)
Indian Flapshell Turtle | BANTR, PENTR | Sch.I |
| Order SQUAMATA | | |
| Suborder SAURIA | | |
| III. Family EUBLEPHARIDAE | | |
| 5. <i>Eublepharis hardwickii</i> Gray in : Hardwicke & Gray
East Indian Leopard Gecko | BANTR | |
| IV. Family GEKKONIDAE | | |
| 6. <i>Cyrtodactylus collegalensis</i> (Beddome)
Kollegal Ground Gecko | KANTR | |
| 7. <i>Cyrtodactylus nebulosus</i> (Beddome)
Clouded Ground Gecko | KANTR | |
| 8. <i>Hemidactylus brooki</i> (Gray)
Brook's House Gecko | BSPTR, INDTR, KANTR,
PANTR, PENTR | |
| 9. <i>Hemidactylus flaviviridis</i> Rüppell
Yellow-green House Gecko | INDTR, KANTR | |

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| 10. | <i>Hemidactylus gracilis</i> Blanford
Slender Gecko | KANTR | |
| 11. | <i>Hemidactylus leschenaulti</i> (Dumeril and Bibron) | KANTR | |
| 12. | <i>Hemidactylus triedrus</i> (Daudin)
Indian Termite Hill Gecko | INDTR, PENTR | |
| V. | Family AGAMIDAE | | |
| 13. | <i>Calotes emma</i> Gray
Emma Gray's Forest Lizard | KANTR | |
| 14. | <i>Calotes versicolor</i> (Daudin)
Indian Garden Lizard | BANTR, BSPTR, INDTR,
KANTR, PANTR, PENTR | |
| 15. | <i>Psammodromus blanfordianus</i> (Stoliczka)
Blanford's Rock Agama | BSPTR, INDTR
KANTR, PANTR, PENTR | |
| 16. | <i>Sitana ponticeriana</i> Cuvier
Fan-throated Lizard | BANTR, BSPTR, INDTR,
KANTR, PANTR, PENTR | |
| 17. | <i>Uromastix hardwickii</i> Gray in : Hardwicke & Gray
Hardwick's Spiny-tailed Lizard | BANTR, BSPTR | |
| VI. | Family CHAMAELEONIDAE | | |
| 18. | <i>Chamaeleo zeylanicus</i> Laurenti
Indian Chamaeleon | BSPTR, PENTR | Sch.II |
| VII. | Family SCINCIDAE | | |
| 19. | <i>Lygosoma albopunctata</i> (Gray)
White-spotted Supple Skink | KANTR | |
| 20. | <i>Mabuya carinata</i> (Schneider)
Keeled Grass Skink | BSPTR, INDTR,
KANTR, PENTR | |
| 21. | <i>Mabuya macularius</i> (Blyth)
Bronze Grass Skink | INDTR, KANTR | |
| VIII. | Family VARANIDAE | | |
| 22. | <i>Varanus bengalensis</i> (Linnaeus)
Bengal Monitor | BANTR, BSPTR, KANTR,
PANTR, PENTR | Sch.II |
| | Suborder SERPENTES | | |
| IX. | Family TYPHLOPIDAE | | |
| 23. | <i>Ramphotyphlops braminus</i> (Daudin)
Brahminy Worm Snake | BSPTR, KANTR,
PENTR | Sch.IV |
| 24. | <i>Typhlops acutus</i> (Duméril, Bibron & Duméril)
Beaked Worm Snake | PENTR | Sch.IV |
| X. | Family UROPELTIDAE | | |
| 25. | <i>Uropeltis ocellata</i> (Beddome)
Ocellate Shield Tail | BSPTR | Sch.IV |
| XI. | Family BOIDAE | | |
| 26. | <i>Eryx conica</i> (Schneider)
Common Sand Boa | PENTR | Sch.IV |
| 27. | <i>Eryx johnii</i> (Russell)
Red Sand Boa | PENTR | Sch.IV |

28.	<i>Python molurus molurus</i> (Linnaeus) Indian Rock Python	BANTR, BSPTR, KANTR, PANTR, PENTR	Sch.I
XII.	Family COLUBRIDAE		
29.	<i>Ahaetulla nasutus</i> (Andersson) Common Vine Snake	PENTR	Sch.IV
30.	<i>Amphiesma stolata</i> (Linnaeus) Buff-striped Keelback	INDTR, PENTR	Sch.IV
31.	<i>Argyrogena fasciolatus</i> (Shaw) Banded Racer	KANTR	Sch.IV
32.	<i>Atretium schistosum</i> (Daudin) Olive Keelback Water Snake	PENTR	Sch.II
33.	<i>Boiga trigonatus</i> (Schneider in : Bechstein) Common Indian Cat Snake	PENTR	Sch.IV
34.	<i>Dendrelaphis tristis</i> (Daudin) Common Bronzeback Tree Snake	PENTR	Sch.IV
35.	<i>Elaphe helena helena</i> (Daudin) Common Indian Trinket Snake	PENTR	Sch.IV
36.	<i>Lycodon aulicus</i> (Linnaeus) Common Wolf Snake	INDTR, KANTR, PENTR	Sch.IV
37.	<i>Macropisthodon plumbicolor</i> (Cantor) Green Keelback	PENTR	Sch.IV
38.	<i>Ptyas mucosus</i> (Linnaeus) Indian Rat Snake	BSPTR, INDTR, KANTR, PENTR	Sch.II
39.	<i>Sibynophis sagittaria</i> (Cantor) Cantor's Black-headed Snake	KANTR	Sch.IV
40.	<i>Xenochrophis piscator</i> (Schneider) Checkered Keelback Water Snake	BSPTR, INDTR, KANTR, PENTR	Sch.II
XIII.	Family ELAPIDAE		
41.	<i>Bungarus caeruleus</i> (Schneider) Common Indian Krait	BANTR, BSPTR, KANTR, PENTR	Sch.IV
42.	<i>Naja naja naja</i> (Linnaeus) Spectacled Cobra	BSPTR, KANTR, PENTR	Sch.II
XIV.	Family VIPERIDAE		
43.	<i>Echis carinatus</i> (Schneider) Indian Saw-scaled Viper	PANTR, PENTR	Sch.IV
44.	<i>Daboia russelii</i> (Shaw & Nodder) Russell's Viper	BANTR, BSPTR, KANTR, PANTR, PENTR	Sch.II
45.	<i>Trimeresurus gramineus</i> (Shaw) Bamboo Pit Viper	BSPTR, PANTR	Sch.IV

BIRDS

Order PODICIPEDIFORMES
I Family PODICIPEDIDAE

1.	<i>Tachybaptus ruficollis capensis</i> Salvadori Little Grebe	BSPTR, INDTR, KANTR, PENTR	Sch.IV
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	Order	PELECANIFORMES		
II.	Family	PHALACROCORACIDAE		
2.	<i>Phalacrocorax carbo sinensis</i> (Shaw)	Great Cormorant	BSPTR, KANTR, BANTR	Sch.IV
3.	<i>Phalacrocorax fuscicollis</i> Stephens	Indian Shag	BSPTR, KANTR, PENTR	Sch.IV
4.	<i>Phalacrocorax niger</i> (Vieillot)	Little Cormorant	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
III.	Family	ANHINGIDAE		
5.	<i>Anhinga rufa melanogaster</i> Pennant	Darter	BANTR, BSPTR, PENTR	Sch.IV
	Order	CICONIIFORMES		
IV.	Family	ARDEIDAE		
6.	<i>Ardea cinerea rectirostris</i> Gould	Grey Heron	BSPTR, KANTR, PENTR, BANTR	Sch.IV
7.	<i>Ardea purpurea manilensis</i> Meyen	Purple Heron	BANTR, KANTR	Sch.IV
8.	<i>Ardeola grayii grayii</i> (Sykes)	Indian Pond-Heron	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.IV
9.	<i>Bubulcus ibis coromandus</i> (Boddaert)	Cattle Egret	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.IV
10.	<i>Butorides striatus chloriceps</i> (Bonaparte)	Little Green Heron	BSPTR	Sch.IV
11.	<i>Casmerodius albus</i> (Linnaeus)	Large Egret	BSPTR, INDTR, PENTR	Sch.IV
12.	<i>Egretta garzetta garzetta</i> (Linnaeus)	Little Egret	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
13.	<i>Egretta gularis</i> (Bosc)	Western Reef-Egret	PENTR	Sch.IV
14.	<i>Ixobrychus cinnamomeus</i> (Gmelin)	Chestnut Bittern	BSPTR	Sch.IV
15.	<i>Ixobrychus flavicollis</i> (Latham)	Black Bittern	BANTR	Sch.IV
16.	<i>Ixobrychus minutus</i> (Linnaeus)	Little Bittern	PENTR	Sch.IV
17.	<i>Ixobrychus sinensis</i> (Gmelin)	Yellow Bittern	BSPTR	Sch.IV
18.	<i>Mesophox intermedia intermedia</i> (Wagler)	Median Egret	BANTR, BSPTR, KANTR	Sch.IV
19.	<i>Nycticorax nycticorax</i> (Linnaeus)	Black-crowned Night-Heron	PENTR	Sch.IV
V.	Family	CICONIIDAE		
20.	<i>Anastomus oscitans</i> (Boddaert)	Asian Openbill-Stork	BANTR, BSPTR, INDTR, PENTR	Sch.IV
21.	<i>Ciconia ciconia ciconia</i> (Linnaeus)	European White Stork	BSPTR, PENTR	Sch.IV

22.	<i>Ciconia episcopus episcopus</i> (Boddaert) White-necked Stork	BANTR, BSPTR, KANTR, PENTR	Sch.IV
23.	<i>Ciconia nigra</i> (Linnaeus) Black Stork	BANTR, BSPTR, KANTR, PENTR	Sch.IV
24.	<i>Ephippiorhynchus asiaticus asiaticus</i> (Latham) Black-necked Stork	PENTR	Sch.IV
*25.	<i>Leptoptilos dubius</i> (Gmelin) Adjutant-Stork	PENTR	Sch.IV
26.	<i>Leptoptilos javanicus</i> (Horsfield) Lesser Adjutant-Stork	BANTR, KANTR, PANTR	Sch.IV
27.	<i>Mycteria leucocephala</i> (Pennant) Painted Stork	PENTR	Sch.IV
VI.	Family THRESKIORNITHIDAE		
28.	<i>Platalea leucorodia major</i> Temminck & Schlegel Eurasian Spoonbill	PENTR	Sch.I
29.	<i>Pseudibis papillosa papillosa</i> (Temminck) Black Ibis	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
30.	<i>Threskiornis melanocephalus</i> (Latham) Oriental White Ibis	BSPTR, KANTR, PENTR	Sch.IV
VII.	Family PHOENICOPTERIDAE		
31.	<i>Phoenicopterus ruber</i> Linnaeus Greater Flamingo	BSPTR	Sch.IV
	Order ANSERIFORMES		
VIII.	Family ANATIDAE		
32.	<i>Anas acuta</i> Linnaeus Northern Pintail	BANTR, BSPTR, KANTR, PENTR	Sch.IV
33.	<i>Anas clypeata</i> Linnaeus Northern Shoveller	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
34.	<i>Anas crecca crecca</i> Linnaeus Common Teal	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
35.	<i>Anas penelope</i> Linnaeus Eurasian Wigeon	KANTR, PENTR	Sch.IV
36.	<i>Anas platyrhynchos</i> Linnaeus Mallard	PENTR	Sch.IV
37.	<i>Anas poecilorhyncha poecilorhyncha</i> J.R. Forster Spot-billed Duck	BSPTR, KANTR	Sch.IV
38.	<i>Anas querquedula</i> Linnaeus Garganey	BSPTR, KANTR	Sch.IV
39.	<i>Anas strepera strepera</i> Linnaeus Gadwall	BSPTR, PENTR	Sch.IV
40.	<i>Anser indicus</i> (Latham) Bar-headed Goose	BANTR, BSPTR, PENTR	Sch.IV
41.	<i>Aythya ferina</i> (Linnaeus) Common Pochard	BANTR, PENTR	Sch.IV
42.	<i>Aythya nyroca</i> (Guldenstadt) Ferruginous Pochard	PENTR	Sch.IV

43. <i>Dendrocygna bicolor</i> (Vieillot)		
Large Whistling-Duck	BSPTR	Sch.I
44. <i>Dendrocygna javanica</i> (Horsfield)	BANTR, BSPTR, INDTR	
Lesser Whistling-Duck	KANTR, PENTR	Sch.I
45. <i>Nettapus coromandelianus coromandelianus</i> (Gmelin)	BANTR, KANTR,	
Cotton Teal	PENTR	Sch.IV
46. <i>Rhodonessa rufina</i> (Pallas)		
Red-crested Pochard	PENTR	Sch.IV
47. <i>Sarkidiornis melanotos melanotos</i> (Pennant)		
Comb Duck	BANTR, PENTR	Sch.IV
48. <i>Tadorna ferruginea</i> (Pallas)		
Brahminy Shelduck	BANTR, BSPTR	Sch.IV
Order FALCONIFORMES		
IX. Family ACCIPITRIDAE		
49. <i>Accipiter badius dussumieri</i> (Temminck)	BANTR, BSPTR, INDTR,	
Shikra	KANTR, PENTR	Sch.IV
50. <i>Accipiter nisus</i> (Linnaeus)		
Eurasian Sparrowhawk	BANTR	Sch.I
51. <i>Accipiter trivirgatus indicus</i> (Hodgson)		
Crested Goshawk	BSPTR, INDTR	Sch.IV
52. <i>Aquila heliaca</i> Savigny		
Eastern Imperial Eagle	PENTR	Sch.IV
53. <i>Aquila pomarina hastata</i> (Lesson)		
Lesser Spotted Eagle	BANTR,	Sch.IV
54. <i>Aquila rapax</i> (Temminck)		
Tawny Eagle	BSPTR, PENTR	Sch.IV
55. <i>Aviceda jerdoni jerdoni</i> (Blyth)		
Jerdon's Baza	INDTR	Sch.I
56. <i>Butastur teesa</i> (Franklin)	BANTR, BSPTR,	
White-eyed Buzzard	KANTR	Sch.IV
57. <i>Circaetus gallicus gallicus</i> (Gmelin)	BANTR, BSPTR,	
Short-toed Snake-Eagle	PENTR	Sch.IV
58. <i>Circus aeruginosus aeruginosus</i> (Linnaeus)		
Western Marsh-Harrier	KANTR, BANTR	Sch.IV
59. <i>Circus macrourus</i> (S.G. Gmelin)	BSPTR, KANTR,	
Pallid Harrier	PENTR	Sch.IV
60. <i>Circus melanoleucos</i> (Pennant)	BANTR, BSPTR,	
Pied Harrier	KANTR, PENTR	Sch.IV
61. <i>Elanus caeruleus vocifer</i> (Latham)	BANTR, BSPTR, INDTR,	
Black-shouldered Kite	KANTR, PENTR	Sch.IV
62. <i>Gyps bengalensis</i> (Gmelin)	BANTR, BSPTR, INDTR,	
Indian White-backed Vulture	KANTR, PENTR	Sch.IV
63. <i>Gyps fulvus fulvescens</i> Hume		
Eurasian Griffon	BSPTR	Sch.IV
64. <i>Gyps indicus indicus</i> (Scopoli)	BSPTR, INDTR, PENTR,	
Long-billed Vulture	KANTR, PANTR,	Sch.IV
65. <i>Haliastur indus indus</i> (Boddaert)		
Brahminy Kite	BANTR, BSPTR	Sch.IV

66.	<i>Hieraaetus fasciatus fasciatus</i> (Vieillot) Bonelli's Eagle	BANTR, BSPTR	Sch.IV
67.	<i>Hieraaetus kienerii</i> (E. Geoffroy) Rufous-bellied Eagle	PENTR	Sch.IV
68.	<i>Ichthyophaga ichthyaetus</i> (Horsfield) Greater Grey-headed Fish-Eagle	BANTR, PENTR	Sch.IV
69.	<i>Ictinaetus malayensis perniger</i> (Hodgson) Black Eagle	BSPTR, PENTR	Sch.IV
70.	<i>Milvus migrans govinda</i> Sykes Black Kite	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
71.	<i>Neophron percnopterus ginginianus</i> (Latham) Egyptian Vulture	BANTR, BSPTR, KANTR, PENTR	Sch.IV
72.	<i>Pernis ptilorhynchus ruficollis</i> Lesson Oriental Honey-Buzzard	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
73.	<i>Sarcogyps calvus</i> (Scopoli) Red-headed Vulture	BANTR, BSPTR, KANTR, PENTR	Sch.IV
74.	<i>Spilornis cheela cheela</i> (Latham) Crested Serpent-Eagle	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
75.	<i>Spizaetus cirrhatus cirrhatus</i> (Gmelin) Changeable Hawk-Eagle	BSPTR, KANTR	Sch.IV
76.	<i>Spizaetus cirrhatus limnaetus</i> (Horsfield) Changeable Hawk-Eagle	BSPTR, KANTR, PENTR	Sch.IV
77.	<i>Spizaetus nipalensis nipalensis</i> (Hodgson) Mountain Hawk-Eagle	BSPTR	Sch.IV
X.	Family PANDIONIDAE		
78.	<i>Pandion haliaetus haliaetus</i> (Linnaeus) Osprey	BANTR, BSPTR, PENTR	Sch.I
XI.	Family FALCONIDAE		
79.	<i>Falco chicquera chicquera</i> Daudin Red-headed Falcon	BSPTR, PENTR	Sch.I
80.	<i>Falco jugger</i> J.E. Gray Laggar	BSPTR, KANTR	Sch.I
81.	<i>Falco naumanni pekinensis</i> Swinhoe Lesser Kestrel	BSPTR	Sch.IV
82.	<i>Falco peregrinus babylonicus</i> P.L. Sclater Peregrine Falcon	BSPTR, KANTR	Sch.I
83.	<i>Falco peregrinus japonensis</i> Gmelin Peregrine Falcon	BSPTR	Sch.I
84.	<i>Falco peregrinus peregrinator</i> Sundevall Peregrine Falcon	BANTR, KANTR, PENTR	Sch.I
85.	<i>Falco subbuteo subbuteo</i> Linnaeus Eurasian Hobby	BANTR, BSPTR	Sch.IV
86.	<i>Falco tinnunculus tinnunculus</i> Linnaeus Common Kestrel	BANTR, BSPTR, KANTR	Sch.IV

	Order	GALLIFORMES		
XII.	Family	PHASIANIDAE		
87.	<i>Coturnix coromandelica</i> (Gmelin)		BANTR, BSPTR, KANTR	Sch.IV
	Rain Quail			
88.	<i>Coturnix coturnix coturnix</i> (Linnaeus)		BSPTR, KANTR	Sch.IV
	Common Quail			
89.	<i>Francolinus francolinus asiae</i> Bonaparte		BANTR, KANTR, PENTR	Sch.IV
	Black Francolin			
90.	<i>Francolinus pictus pallidus</i> (J.E. Gray)		BANTR, BSPTR, KANTR, PENTR	Sch.IV
	Painted Francolin			
91.	<i>Francolinus pondicerianus pondicerianus</i> (Gmelin)		BANTR, INDTR, KANTR, PENTR	Sch.IV
	Grey Francolin			
92.	<i>Galloperdix lunulata</i> (Valenciennes)		BANTR, BSPTR	Sch.IV
	Painted Spurfowl			
93.	<i>Galloperdix spadicea spadicea</i> (Gmelin)		BSPTR, KANTR, PENTR	Sch.IV
	Red Spurfowl			
94.	<i>Gallus gallus murghi</i> Robinson & Kloss		BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
	Red Junglefowl			
95.	<i>Gallus sonneratii</i> Temminck		BANTR, BSPTR	Sch.IV
	Grey Junglefowl			
96.	<i>Pavo cristatus</i> Linnaeus		BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
	Indian Peafowl			
97.	<i>Perdicula argoondah argoondah</i> (Sykes)		BSPTR, INDTR, PENTR	Sch.IV
	Rock Bush-quail			
98.	<i>Perdicula asiatica</i> (Latham)		KANTR	
99.	<i>Perdicula erythrorhyncha blewitti</i> (Hume)		BSPTR	Sch.IV
	Painted Bush-quail			
	Order	GRUIFORMES		
XIII.	Family	TURNICIDAE		
100.	<i>Turnix suscitator tigoor</i> (Sykes)		BANTR, BSPTR, INDTR, PENTR	Sch.IV
	Common Buttonquail			
101.	<i>Turnix sylvatica dussumier</i> (Temminck)		BSPTR	Sch.IV
	Small Buttonquail			
102.	<i>Turnix tanki tanki</i> Blyth		BSPTR	Sch.IV
	Yellow-legged Buttonquail			
XIV.	Family	GRUIDAE		
103.	<i>Grus antigone antigone</i> (Linnaeus)		BANTR, BSPTR, KANTR, PENTR	Sch.IV
	Sarus Crane			
104.	<i>Grus grus lilfordi</i> Sharpe		BSPTR, PENTR	Sch.IV
	Common Crane			
105.	<i>Grus virgo</i> (Linnaeus)		BSPTR, PENTR	Sch.IV
	Demoiselle Crane			
XV.	Family	RALLIDAE		
106.	<i>Amaurornis akool akool</i> (Sykes)		KANTR	
	Brown Crake			

107.	<i>Amaurornis phoenicurus chinensis</i> (Boddaert) White-breasted Waterhen	BANTR, BSPTR, KANTR, PENTR	
108.	<i>Fulica atra atra</i> Linnaeus Common Coot	BANTR, PENTR	
109.	<i>Gallinula chloropus indica</i> Blyth Common Moorhen	BANTR, INDTR, KANTR, PENTR	
110.	<i>Gallirallus striatus albiventer</i> Swainson Blue-breasted Rail	KANTR	Sch.IV
111.	<i>Porphyrio porphyrio</i> (Linnaeus) Purple Moorhen	INDTR, PENTR	
112.	<i>Porzana pusilla pusilla</i> (Pallas) Baillon's Crane	KANTR	
XVI.	Family OTITIDAE		
113.	<i>Sypheotides indica</i> (J. F. Miller) Lesser Florican	KANTR	Sch.I
	Order CHARADRIIFORMES		
XVII.	Family JACANIDAE		
114.	<i>Hydrophasianus chirurgus</i> (Scopoli) Pheasant-tailed Jacana	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
115.	<i>Metopidius indicus</i> (Latham) Bronze-winged Jacana	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
VIII.	Family ROSTRATULIDAE		
116.	<i>Rostratula benghalensis benghalensis</i> (Linnaeus) Greater Painted Snipe	BANTR, BSPTR, KANTR, PENTR	Sch.IV
XIX.	Family CHARADRIIDAE		
117.	<i>Charadrius dubius jerdoni</i> (Legge) Little Ringed Plover	BANTR, BSPTR, PENTR	Sch.IV
118.	<i>Vanellus duvaucelii</i> (Lesson) River Lapwing	BSPTR, PENTR	
119.	<i>Vanellus indicus indicus</i> (Boddaert) Red-wattled Lapwing	BANTR, BSPTR, INDTR, KANTR, PENTR	
120.	<i>Vanellus leucurus</i> (Lichtenstein) White-tailed Lapwing	BANTR, BSPTR, PENTR	
121.	<i>Vanellus malabaricus</i> (Boddaert) Yellow-wattled Lapwing	BANTR, BSPTR, KANTR, PENTR	
XX.	Family SCOLOPACIDAE		
122.	<i>Actitis hypoleucos</i> Linnaeus Common Sandpiper	BSPTR, PENTR	
123.	<i>Calidris minuta</i> (Leisler) Little Stint	BANTR, PENTR	
124.	<i>Calidris temminckii</i> (Leisler) Temminck's Stint	BANTR	
125.	<i>Gallinago gallinago</i> (Linnaeus) Common Snipe	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
126.	<i>Gallinago stenura</i> (Bonaparte) Pintail Snipe	BSPTR	Sch.IV

127.	<i>Numenius arquata orientalis</i> C. L. Brehm Eurasian Curlew	BSPTR	Sch.IV
128.	<i>Tringa erythropus</i> (Pallas) Spotted Redshank	BANTR, KANTR	
129.	<i>Tringa glareola</i> Linnaeus Wood Sandpiper	BANTR, BSPTR, KANTR, PENTR	Sch.IV
130.	<i>Tringa nebularia</i> (Gunner) Common Greenshank	BANTR, BSPTR, KANTR	
131.	<i>Tringa ochropus</i> Linnaeus Green Sandpiper	BSPTR, INDTR, KANTR	Sch.IV
132.	<i>Tringa stagnatilis</i> (Bechstein) Marsh Sandpiper	PENTR	Sch.IV
133.	<i>Tringa totanus totanus</i> (Linnaeus) Common Redshank	BSPTR	
XXI.	Family RECURVIROSTRIDAE		
134.	<i>Himantopus himantopus himantopus</i> (Linnaeus) Black-winged Stilt	BANTR, BSPTR, KANTR, PENTR	Sch.IV
135.	<i>Recurvirostra avosetta</i> Linnaeus Pied Avocet	PENTR	
XXII.	Family BURHINIDAE		
136.	<i>Burhinus oedicnemus indicus</i> (Salvadori) Stone-Curlew	BANTR, BSPTR, KANTR, PENTR	Sch.IV
137.	<i>Esacus magnirostris recurvirostris</i> (Cuvier) Beach Stone-Plover	BSPTR	
XXIII.	Family GLAREOLIDAE		
138.	<i>Cursorius coromandelicus</i> (Gmelin) Indian Courser	PENTR	
139.	<i>Glareola lactea</i> Temminck Small Pratincole	BSPTR	
XXIV.	Family LARIDAE		
140.	<i>Larus brunnicephalus</i> Jerdon Brown-headed Gull	BSPTR	
141.	<i>Sterna acuticauda</i> J.E. Gray Black-bellied Tern	BANTR	
142.	<i>Sterna aurantia</i> J.E. Gray River Tern	BANTR, BSPTR, PENTR	
XXV.	Family RYNCHOPIDAE		
143.	<i>Rynchops albicollis</i> Swainson Indian Skimmer	BSPTR	
	Order COLUMBIFORMES		
XXVI.	Family PTEROCLIDIDAE		
144.	<i>Pterocles exustus erlangeri</i> (Neumann) Chestnut-bellied Sandgrouse	BANTR, BSPTR	Sch.IV
145.	<i>Pterocles indicus indicus</i> (Gmelin) Painted Sandgrouse	BANTR, BSPTR	Sch.IV

XXVII Family COLUMBIDAE

146.	<i>Chalcophaps indica indica</i> (Linnaeus) Emerald Dove	BANTR, KANTR, PENTR	Sch.IV
147.	<i>Columba livia intermedia</i> Strickland Blue Rock Pigeon	BANTR, BSPTR, KANTR, PENTR	
148.	<i>Columba punicea</i> Blyth Purple Wood-Pigeon	INDTR	Sch.IV
149.	<i>Streptopelia chinensis suratensis</i> (Gmelin) Spotted Dove	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
150.	<i>Streptopelia decaocto decaocto</i> (Frivaldszky) Eurasian Collared-Dove	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
151.	<i>Streptopelia orientalis agricola</i> (Tickell) Oriental Turtle-Dove	KANTR	Sch.IV
152.	<i>Streptopelia orientalis meena</i> (Sykes) Oriental Turtle-Dove	BSPTR	Sch.IV
153.	<i>Streptopelia orientalis orientalis</i> (Latham) Oriental Turtle-Dove	BANTR, INDTR	Sch.IV
154.	<i>Streptopelia senegalensis cambayensis</i> (Gmelin) Little Brown Dove	BANTR, BSPTR	Sch.IV
155.	<i>Streptopelia tranquebarica</i> (Herm) Red Collared-Dove	BANTR, BSPTR, KANTR, PENTR	Sch.IV
156.	<i>Treron bicincta bicincta</i> (Jerdon) Orange-breasted Green-Pigeon	INDTR, PENTR	Sch.IV
157.	<i>Treron phoenicoptera chlorigaster</i> (Blyth) Yellow-legged Green-Pigeon	BSPTR, KANTR	Sch.IV
158.	<i>Treron phoenicoptera phoenicoptera</i> (Latham) Yellow-legged Green-Pigeon	BANTR, INDTR, KANTR, PENTR	Sch.IV

Order PSITTACIFORMES

XXVIII Family PSITTACIDAE

159.	<i>Loriculus vernalis</i> (Sparman) Indian Hanging-Parrot	PENTR	Sch.IV
160.	<i>Psittacula cyanocephala bengalensis</i> (Forster) Plum-headed Parakeet	KANTR	Sch.IV
161.	<i>Psittacula cyanocephala cyanocephala</i> (Linnaeus) Plum-headed Parakeet	BANTR, BSPTR, PENTR	Sch.IV
162.	<i>Psittacula eupatria eupatria</i> (Linnaeus) Alexandrine Parakeet	BSPTR, KANTR, PENTR	Sch.IV
163.	<i>Psittacula eupatria nipalensis</i> (Hodgson) Alexandrine Parakeet	BANTR, BSPTR, INDTR, KANTR	Sch.IV
164.	<i>Psittacula krameri borealis</i> (Neumann) Rose-ringed Parakeet	BANTR, INDTR, KANTR, PENTR	Sch.IV
165.	<i>Psittacula krameri manilensis</i> (Bechstein) Rose-ringed Parakeet	BSPTR	Sch.IV

Order CUCULIFORMES

XXIX Family CUCULIDAE

166.	<i>Cacomantis merulinus</i> (Scopoli) Rufous-bellied Plaintive Cuckoo	BSPTR, PENTR	Sch.IV
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167.	<i>Cacomantis passerinus</i> (Vahl) Indian Plaintive Cuckoo	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
168.	<i>Cacomantis sonneratii sonneratii</i> (Latham) Banded Bay Cuckoo	BSPTR, KANTR	Sch.IV
169.	<i>Centropus bengalensis</i> (Gmelin) Lesser Coucal	PENTR	Sch.IV
170.	<i>Centropus sinensis parroti</i> Stresemann Greater Coucal	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
171.	<i>Clamator jacobinus jacobinus</i> (Boddaert) Pied Crested Cuckoo	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
172.	<i>Cuculus canorus canorus</i> Linnaeus Common Cuckoo	BANTR, BSPTR, KANTR, PANTR, PENTR	Sch.IV
173.	<i>Cuculus micropterus micropterus</i> Gould Indian Cuckoo	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
174.	<i>Cuculus poliocephalus poliocephalus</i> Latham Lesser Cuckoo	BSPTR	Sch.IV
175.	<i>Eudynamys scolopacea scolopacea</i> (Linnaeus) Asian Koel	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
176.	<i>Hierococcyx varius</i> (Vahl) Brainfever Bird	BANTR, BSPTR, INDTR, KANTR, PENTR	
177.	<i>Hierococcyx varius ciceliae</i> (Phillips) Brainfever Bird	BANTR, BSPTR	
178.	<i>Phaenicophaeus leschenaultii leschenaultii</i> (Lesson) Sirkeer Malkoha	BSPTR, INDTR, KANTR, PENTR	Sch.IV
179.	<i>Phaenicophaeus tristis tristis</i> (Lesson) Large Green-billed Malkoha	INDTR	Sch.IV
180.	<i>Phaenicophaeus viridirostris</i> (Jerdon) Small Green-billed Malkoha	BSPTR	Sch.IV
181.	<i>Surniculus lugubris dicruroides</i> (Hodgson) Drongo Cuckoo	BANTR, BSPTR	Sch.IV
	Order STRIGIFORMES		
XXX.	Family TYTONIDAE		
182.	<i>Tyto alba stertens</i> Hartert Barn Owl	BSPTR, KANTR	Sch.IV
XXXI.	Family STRIGIDAE		
183.	<i>Asio flammeus flammeus</i> (Pontoppidan) Short-eared Owl	BSPTR, KANTR	Sch.IV
184.	<i>Athene brama brama</i> (Temminck) Spotted Owlet	BSPTR, INDTR, BANTR, PENTR	
185.	<i>Athene brama indica</i> (Franklin) Spotted Owlet	BSPTR	
186.	<i>Bubo bubo bengalensis</i> (Franklin) Eurasian Eagle Owl	BANTR, BSPTR, INDTR, KANTR	Sch.IV
187.	<i>Bubo coromandus coromandus</i> (Latham, 1790) Dusky Eagle-Owl	BSPTR	Sch.IV
188.	<i>Bubo nipalensis</i> Hodgson Forest Eagle-Owl	PENTR	Sch.IV

189.	<i>Glaucidium radiatum radiatum</i> (Tickell) Jungle Owlet	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
190.	<i>Ketupa zeylonensis leschenaulti</i> (Temminck) Brown Fish-Owl	BSPTR, KANTR, PENTR	Sch.IV
191.	<i>Ninox scutulata lugubris</i> (Tickell) Brown Hawk-Owl	BANTR, BSPTR, KANTR	Sch.IV
192.	<i>Otus bakkamoena bakkamoena</i> Pennant Collared Scops-Owl	BANTR, BSPTR	Sch.IV
193.	<i>Otus bakkamoena marathae</i> Ticehurst Collared Scops-Owl	BSPTR, INDTR, KANTR	Sch.IV
194.	<i>Otus scops sunia</i> (Hodgson) Eurasian Scops-Owl	BSPTR	Sch.IV
195.	<i>Strix leptogrammica connectens</i> Koelz Brown Wood-Owl	BSPTR, INDTR	Sch.IV
196.	<i>Strix ocellata ocellata</i> (Lesson) Mottled Wood-Owl	BANTR, BSPTR	Sch.IV
	Order CAPRIMULGIFORMES		
XXXII.	Family CAPRIMULGIDAE		
197.	<i>Caprimulgus affinis monticola</i> Franklin Franklin's Nightjar	BANTR, BSPTR, KANTR, PENTR	Sch.IV
198.	<i>Caprimulgus asiaticus asiaticus</i> Latham Common Indian Nightjar	BANTR, BSPTR, PENTR	Sch.IV
199.	<i>Caprimulgus indicus indicus</i> Latham Indian Jungle Nightjar	BANTR, BSPTR, INDTR, KANTR	Sch.IV
	Order APODIFORMES		
XXXIII.	Family APODIDAE		
200.	<i>Apus affinis affinis</i> (J.E. Gray) House Swift	BANTR, BSPTR, INDTR, KANTR, PENTR	
201.	<i>Collocalia unicolor</i> (Jerdon) Indian Edible-nest Swiftlet	PENTR	
202.	<i>Cypsiurus balasiensis</i> (J.E. Gray) Asian Palm-Swift	BANTR, PENTR	
203.	<i>Tachymarptis melba bakeri</i> Hartert Alpine Swift	BSPTR	
204.	<i>Tachymarptis melba melba</i> (Linnaeus) Alpine Swift	BSPTR	
205.	<i>Zoonavena sylvatica</i> (Tickell) White-rumped Needletail-Swift	BSPTR, KANTR	
XXXIV.	Family HEMIPROCNIIDAE		
206.	<i>Hemiprocne coronata</i> (Tickell) Crested Tree-Swift	BANTR, BSPTR, INDTR, KANTR, PENTR	
	Order TROGONIFORMES		
XXXV.	Family TROGONIDAE		
207.	<i>Harpactes fasciatus legerli</i> Koelz Malabar Trogon	INDTR	Sch.IV

	Order	CORACIIFORMES	
XXXVI.	Family	ALCEDINIDAE	
208.	<i>Alcedo atthis bengalensis</i> Gmelin	INDTR, KANTR, PENTR	Sch.IV
	Small Blue Kingfisher		
209.	<i>Alcedo atthis pallasii</i> Reichenbach	BSPTR	Sch.IV
	Small Blue Kingfisher		
210.	<i>Alcedo atthis taprobana</i> Kleinschmidt	BSPTR	Sch.IV
	Small Blue Kingfisher		
211.	<i>Alcedo meninting</i> Horsfield	INDTR	Sch.IV
	Blue-eared Kingfisher		
212.	<i>Ceyx erithacus</i> (Linnaeus)	PENTR	Sch.IV
	Oriental Dwarf Kingfisher		
213.	<i>Halcyon capensis capensis</i> (Linnaeus)	BANTR, BSPTR, PENTR	Sch.IV
	Stork-billed Kingfisher		
214.	<i>Halcyon pileata</i> (Boddaert)	BSPTR, KANTR	Sch.IV
	Black-capped Kingfisher		
215.	<i>Halcyon smyrnensis fusca</i> (Boddaert)	KANTR	Sch.IV
	White-breasted Kingfisher		
216.	<i>Halcyon smyrnensis perpulchra</i> Madaras		Sch.IV
	White-breasted Kingfisher		
217.	<i>Halcyon smyrnensis smyrnensis</i> (Linnaeus)	BANTR, BSPTR, INDTR, PENTR	Sch.IV
	White-breasted Kingfisher		
XXXVII.	Family	MEROPIDAE	
218.	<i>Merops leschenaulti leschenaulti</i> Vieillot	BSPTR, PENTR	
	Chestnut-headed Bee-eater		
219.	<i>Merops orientalis orientalis</i> Latham	BANTR, BSPTR, INDTR, KANTR, PENTR	
	Small Bee-eater		
220.	<i>Merops philippinus philippinus</i> Linnaeus	BSPTR, KANTR	
	Blue-tailed Bee-eater		
221.	<i>Nyctornis athertoni athertoni</i> (Jardine & Selby)	BANTR, BSPTR	
	Blue-bearded Bee-eater		
XXXVIII.	Family	CORACIIDAE	
222.	<i>Coracias benghalensis benghalensis</i> (Linnaeus)	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.IV
	Northern Roller		
223.	<i>Coracias benghalensis indica</i> Linnaeus	BSPTR	Sch.IV
	Southern Roller		
XXXIX.	Family	UPUPIDAE	
224.	<i>Upupa epops ceylonensis</i> Reichenbach	BSPTR	
	Common Hoopoe		
225.	<i>Upupa epops epops</i> Linnaeus	BANTR, KANTR, PENTR	
	Common Hoopoe		
XL.	Family	BUCEROTIDAE	
226.	<i>Anthracoceros albirostris albirostris</i> (Gmelin)		Sch.IV
	Oriental Pied Hornbill		
227.	<i>Anthracoceros coronatus coronatus</i> (Boddaert)	BANTR, BSPTR, KANTR, PENTR	Sch.IV
	Malabar Pied Hornbill		

228.	<i>Ocyrceros birostris</i> (Scopoli) Indian Grey Hornbill	BANTR, BSPTR, KANTR, PENTR	Sch.IV
	Order PICIFORMES		
XLI.	Family CAPITONIDAE		
229.	<i>Megalaima asiatica</i> (Latham) Blue-throated Barbet	PENTR	Sch.IV
230.	<i>Megalaima haemacephala indica</i> (Latham) Coppersmith Barbet	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
231.	<i>Megalaima rubricapilla</i> (Gmelin) Crimson-throated Barbet	BSPTR	Sch.IV
232.	<i>Megalaima viridis</i> (Boddaert) White-cheeked Barbet	BSPTR	Sch.IV
233.	<i>Megalaima zeylanica caniceps</i> (Franklin) Brown-headed Barbet	BANTR, BSPTR, INDTR, KANTR	Sch.IV
XLII.	Family PICIDAE		
234.	<i>Celeus brachyurus brachyurus</i> (Vieillot) Rufous Woodpecker	BANTR, KANTR, PENTR	Sch.IV
235.	<i>Chrysocolaptes festivus festivus</i> (Boddaert) Black-shouldered Woodpecker	BANTR, BSPTR, KANTR, PENTR	Sch.IV
236.	<i>Chrysocolaptes lucidus guttacrastatus</i> (Tickell) Greater Golden-backed Woodpecker	PENTR	Sch.IV
237.	<i>Dendrocopos canicapillus</i> (Blyth) Grey-capped Pygmy Woodpecker	INDTR	Sch.IV
238.	<i>Dendrocopos mahrattensis mahrattensis</i> (Latham) Yellow-fronted Pied Woodpecker	BANTR, BSPTR, KANTR, PENTR	Sch.IV
239.	<i>Dendrocopos nanus hardwickii</i> (Jerdon) Brown-capped Pygmy Woodpecker	BANTR, BSPTR, KANTR, PENTR	Sch.IV
240.	<i>Dinopium benghalense benghalense</i> (Linnaeus) Lesser Golden-backed Woodpecker	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
241.	<i>Dinopium javanense</i> (Ljungh) Common Golden-backed Woodpecker	PENTR	Sch.IV
242.	<i>Dryocopus javensis hodgei</i> (Jerdon) Great Black Woodpecker	BSPTR, PENTR	Sch.IV
243.	<i>Hemicircus canente</i> (Lesson) Heart-spotted Woodpecker	BSPTR	Sch.IV
244.	<i>Jynx torquilla torquilla</i> Linnaeus Eurasian Wryneck	BANTR	Sch.IV
245.	<i>Picus chlorolophus</i> Vieillot Small yellow-naped Woodpecker	KANTR	Sch.IV
246.	<i>Picus xanthopygaeus</i> (J.E. Gray & G.R. Gray) Little Scaly-bellied Green Woodpecker	BSPTR, KANTR	Sch.IV
	Order PASSERIFORMES		
XLIII.	Family PITTIDAE		
247.	<i>Pitta brachyura brachyura</i> (Linnaeus) Indian Pitta	BANTR, BSPTR, KANTR, PENTR	Sch.IV

XLIV. Family ALAUDIDAE		
248.	<i>Alauda gulgula gulgula</i> Franklin Eastern Skylark	BSPTR, KANTR, PENTR Sch.IV
249.	<i>Ammomanes phoenicurus phoenicurus</i> (Franklin) Rufous-tailed Finch-Lark	BANTR, BSPTR, KANTR, PENTR Sch.IV
250.	<i>Eremopterix grisea</i> (Scopoli) Ashy-crowned Sparrow-Lark	BANTR, BSPTR, KANTR, PENTR Sch.IV
251.	<i>Galerida cristata chendoola</i> (Franklin) Common Crested Lark	BSPTR Sch.IV
252.	<i>Galerida deva</i> (Sykes) Sykes's Crested Lark	BSPTR Sch.IV
253.	<i>Galerida malabarica</i> (Scopoli) Malabar Crested Lark	PENTR Sch.IV
254.	<i>Mirafra assamica assamica</i> Horsfield Bengal Bush-Lark	BANTR, KANTR, PENTR Sch.IV
255.	<i>Mirafra erythroptera erythroptera</i> Blyth Red-winged Bush-Lark	BANTR, BSPTR, PENTR Sch.IV
XLV. Family HIRUNDINIDAE		
256.	<i>Delichon urbica urbica</i> (Linnaeus) Northern House-Martin	KANTR, PENTR
257.	<i>Hirundo concolor concolor</i> Sykes Dusky Crag-Martin	BANTR, BSPTR, PENTR
258.	<i>Hirundo daurica erythropygia</i> Sykes Red-rumped Swallow	BSPTR
259.	<i>Hirundo daurica japonica</i> Temminck & Schlegel Red-rumped Swallow	BANTR, KANTR, PENTR
260.	<i>Hirundo fluvicola</i> Blyth Streak-throated Swallow	BSPTR, KANTR, PENTR
261.	<i>Hirundo rupestris</i> Scopoli Eurasian Crag-Martin	BSPTR
262.	<i>Hirundo rustica rustica</i> Linnaeus Common Swallow	BANTR, BSPTR, KANTR, PENTR
263.	<i>Hirundo smithii filifera</i> Stephens Wire-tailed Swallow	BANTR, BSPTR, KANTR, PENTR
XLVI. Family MOTACILLIDAE		
264.	<i>Anthus campestris campestris</i> (Linnaeus) Tawny Pipit	KANTR Sch.IV
265.	<i>Anthus hodgsoni hodgsoni</i> Richmond Oriental Tree Pipit	BANTR, BSPTR, INDTR, KANTR, PENTR Sch.IV
266.	<i>Anthus roseatus</i> Blyth Rosy Pipit	BSPTR Sch.IV
267.	<i>Anthus rufulus rufulus</i> Vieillot Paddyfield Pipit	BANTR, KANTR, PENTR Sch.IV
268.	<i>Anthus rufulus waitei</i> Whistler Paddyfield Pipit	BSPTR Sch.IV
269.	<i>Anthus similis similis</i> Jerdon Brown Rock Pipit	BANTR, PENTR Sch.IV

270. *Dendronanthus indicus* (Gmelin)
Forest Wagtail BANTR, PENTR
271. *Motacilla alba dukhunensis* Sykes
White Wagtail BANTR, BSPTR,
PENTR
272. *Motacilla alba leucopsis* Gould
White Wagtail BSPTR
273. *Motacilla cinerea cinerea* (Tunstall)
Grey Wagtail BANTR, BSPTR, INDTR,
KANTR, PENTR
274. *Motacilla citreola citreola* Pallas
Citrine Wagtail BANTR, KANTR,
PENTR
275. *Motacilla flava thunbergi* Billberg
Yellow Wagtail PENTR
276. *Motacilla maderspatensis* Gmelin
Large Pied Wagtail BANTR, BSPTR,
KANTR, PENTR
- XLVII. Family CAMPEPHAGIDAE
277. *Coracina macei* (Lesson)
Large Cuckoo-Shrike BANTR, BSPTR, INDTR,
KANTR, PENTR
278. *Coracina melanoptera sykesi* (Strickland)
Black-headed Cuckoo-Shrike BANTR, BSPTR, INDTR,
KANTR, PENTR
279. *Hemipus picatus picatus* (Sykes)
Pied Flycatcher-Shrike BSPTR, KANTR
280. *Pericrocotus cinnamomeus cinnamomeus* (Linnaeus)
Small Minivet BANTR, INDTR, Sch.IV
KANTR, PENTR
281. *Pericrocotus cinnamomeus peregrinus* (Linnaeus)
Small Minivet BSPTR, KANTR Sch.IV
282. *Pericrocotus erythropygius erythropygius* (Jerdon)
White-bellied Minivet BANTR, BSPTR, Sch.IV
PENTR
283. *Pericrocotus ethologus favillaceus* Bangs & Phillips
Long-tailed Minivet BANTR, KANTR Sch.IV
284. *Pericrocotus flammeus flammeus* (Forster)
Scarlet Minivet BANTR, BSPTR, Sch.IV
PENTR
285. *Pericrocotus flammeus semiruber* Whistler & Kinnear
Scarlet Minivet KANTR Sch.IV
286. *Pericrocotus roseus roseus* (Vieillot)
Rosy Minivet KANTR Sch.IV
287. *Tephrodornis pondicerianus pallidus* Ticehurst
Common Woodshrike BANTR
288. *Tephrodornis pondicerianus pondicerianus* (Gmelin)
Common Woodshrike BSPTR, KANTR,
PENTR
- XLVIII. Family PYCNONOTIDAE
289. *Pycnonotus cafer humayuni* Deignan
Red-vented Bulbul BANTR, BSPTR, INDTR, Sch.IV
KANTR, PENTR
290. *Pycnonotus jocosus* (Linnaeus)
Red-whiskered Bulbul KANTR Sch.IV
291. *Pycnonotus jocosus fuscicaudatus* (Gould)
Red-whiskered Bulbul BSPTR Sch.IV

292. *Pycnonotus leucotis* (Gould)
White-eared Bulbul BSPTR, PENTR Sch.IV
293. *Pycnonotus luteolus luteolus* (Lesson)
White-browed Bulbul BSPTR Sch.IV
294. *Pycnonotus melanicterus flaviventris* (Tickell)
Black-crested Bulbul BSPTR Sch.IV
- XLIX. Family IRENIDAE
295. *Aegithina nigrolutea* (Marshall)
Marshall's Iora BSPTR Sch.IV
296. *Aegithina tiphia humei* Baker
Common Iora BANTR, BSPTR, KANTR, PENTR Sch.IV
297. *Chloropsis aurifrons* (Temminck)
Gold-fronted Chloropsis BANTR, KANTR, PENTR Sch.IV
298. *Chloropsis cochinchinensis* (Gmelin)
Jerdon's Chloropsis BANTR, BSPTR, PENTR Sch.IV
299. *Chloropsis cochinchinensis jerdoni* (Blyth)
Jerdon's Chloropsis BSPTR, KANTR Sch.IV
- L. Family LANIIDAE
300. *Lanius cristatus cristatus* Linnaeus
Brown Shrike BANTR, BSPTR, KANTR
301. *Lanius excubitor* Linnaeus
Great Grey Shrike KANTR, PENTR
302. *Lanius excubitor lahtora* (Sykes)
Great Grey Shrike BSPTR
303. *Lanius schach* Linnaeus
Rufous-backed Shrike BANTR, KANTR, PENTR
304. *Lanius schach erythronotus* (Vigors)
Rufous-backed Shrike BSPTR
305. *Lanius vittatus vittatus* Valenciennes
Bay-backed Shrike BANTR, BSPTR, KANTR, PENTR
- LI. Family MUSCICAPIDAE
Subfamily TURDINAE
306. *Cercomela fusca* (Blyth)
Indian Chat BSPTR, PENTR
307. *Copsychus malabaricus indicus* (Baker)
White-rumped Shama BSPTR
308. *Copsychus malabaricus malabaricus* (Scopoli)
White-rumped Shama BSPTR, INDTR, KANTR, PENTR
309. *Copsychus saularis saularis* (Linnaeus)
Oriental Magpie-Robin BANTR, BSPTR, INDTR, KANTR, PENTR
310. *Luscinia brunnea* (Hodgson)
Indian Blue Robin BSPTR, PENTR
311. *Luscinia calliope* (Pallas)
Siberian Rubythroat KANTR
312. *Luscinia svecica svecica* (Linnaeus)
Bluethroat BSPTR, KANTR

313.	<i>Monticola cinclorhynchus</i> (Vigors) Blue-headed Rock-Thrush	KANTR	Sch.IV
314.	<i>Monticola solitarius</i> (Linnaeus) Blue Rock-Thrush	KANTR, PENTR	Sch.IV
315.	<i>Monticola solitarius pandoo</i> (Sykes) Blue Rock-Thrush	BSPTR	Sch.IV
316.	<i>Myiophonus horsfieldii</i> (Vigors) Malabar Whistling-Thrush	BSPTR	Sch.IV
317.	<i>Phoenicurus ochruros ochruros</i> (Gmelin) Black Redstart	BANTR, KANTR, PENTR	Sch.IV
318.	<i>Phoenicurus ochruros rufiventris</i> (Vieillot) Black Redstart	BSPTR	
319.	<i>Saxicola caprata bicolor</i> Sykes Pied Bushchat	BANTR, KANTR, PENTR	
320.	<i>Saxicola caprata burmanica</i> Baker Pied Bushchat	PENTR	
321.	<i>Saxicola ferrea</i> Gray Grey Bushchat	KANTR	
322.	<i>Saxicola jerdoni</i> (Blyth) Jerdon's Bushchat	PENTR	
323.	<i>Saxicola torquata indica</i> (Blyth) Common Stonechat	BANTR, BSPTR, KANTR, PENTR	
324.	<i>Saxicoloides fulicata cambaiensis</i> (Latham) Indian Robin	BSPTR	
325.	<i>Saxicoloides fulicata fulicata</i> (Linnaeus) Indian Robin	KANTR, PENTR	
326.	<i>Saxicoloides fulicata intermedia</i> Whistler & Kinnear Indian Robin	BSPTR, INDTR	
327.	<i>Turdus merula merula</i> Linnaeus Eurasian Blackbird	KANTR, PENTR	
328.	<i>Turdus merula nigropileus</i> (Lafresnaye) Eurasian Blackbird	BSPTR, KANTR	
329.	<i>Turdus merula simillimus</i> Jerdon Eurasian Blackbird	BSPTR	
330.	<i>Zoothera citrina citrina</i> (Latham) Orange-headed Thrush	INDTR, KANTR	
331.	<i>Zoothera citrina cyanotus</i> (Jardine & Selby) Orange-headed Thrush	BSPTR, PENTR	
LII.	Subfamily TIMALIINAE		
332.	<i>Alcippe poioicephala brucei</i> (Jerdon) Quaker Tit-Babbler	BANTR, BSPTR, KANTR, PENTR	Sch.IV
333.	<i>Chrysomma sinense sinense</i> (Gmelin) Yellow-eyed Babbler	BANTR, BSPTR, KANTR, PENTR	Sch.IV
334.	<i>Dumetia hyperythra hyperythra</i> (Franklin) Rufous-bellied Babbler	BANTR, BSPTR, KANTR, PENTR	Sch.IV
335.	<i>Pellorneum ruficeps ruficeps</i> Swainson Spotted Babbler	BANTR, BSPTR, KANTR, PENTR	Sch.IV

336.	<i>Pomatorhinus horsfieldii</i> Sykes Indian Scimitar-Babbler	BSPTR, KANTR, PENTR	Sch.IV
337.	<i>Pomatorhinus schisticeps obscurus</i> Hume Hodgson's Scimitar-Babbler	BANTR, BSPTR	Sch.IV
338.	<i>Turdoides caudatus caudatus</i> (Dumont) Common Babbler	BANTR, BSPTR, PENTR	Sch.IV
339.	<i>Turdoides earlei</i> (Blyth) Striated Babbler	PENTR	Sch.IV
340.	<i>Turdoides malcolmi</i> (Sykes) Large Grey Babbler	BANTR, BSPTR, KANTR, PENTR	Sch.IV
341.	<i>Turdoides striatus orientalis</i> (Jerdon) Jungle Babbler	BANTR, BSPTR, KANTR, PENTR	Sch.IV
342.	<i>Turdoides striatus somervillei</i> (Sykes) Jungle Babbler	BSPTR, INDTR	Sch.IV
343.	<i>Turdoides subrufus hyperythrus</i> (Sharpe) Indian Rufous Babbler	BSPTR	Sch.IV
	Subfamily SYLVIINAE		
344.	<i>Acrocephalus dumetorum</i> Blyth Blyth's Reed-Warbler	BANTR	
345.	<i>Acrocephalus stentoreus brunnescens</i> (Jerdon) Indian Great Reed-Warbler	BANTR	
346.	<i>Cisticola juncidis</i> (Rafinesque) Streaked Fantail-Warbler	KANTR, PENTR	
347.	<i>Cisticola juncidis cursitans</i> Franklin) Streaked Fantail-Warbler	BSPTR	
348.	<i>Megalurus palustris</i> Horsfield Striated Marsh-Warbler	BSPTR	
349.	<i>Orthotomus sutorius guzuratus</i> (Latham) Common Tailorbird	BANTR, BSPTR, KANTR, PENTR	
350.	<i>Phylloscopus affinis</i> (Tickell) Tickell's Warbler	BSPTR, KANTR	
351.	<i>Phylloscopus collybita</i> (Vieillot) Common Chiffchaff	KANTR	
352.	<i>Phylloscopus griseolus</i> Blyth Olivaceous Leaf-Warbler	KANTR	
353.	<i>Phylloscopus magnirostris</i> Blyth Large-billed Leaf-Warbler	KANTR	
354.	<i>Phylloscopus reguloides</i> (Blyth) Blyth's Leaf Warbler	BSPTR	
355.	<i>Phylloscopus trochiloides viridanus</i> Blyth Greenish Leaf-Warbler	BANTR, KANTR	
356.	<i>Prinia buchanani</i> Blyth Rufous-fronted Prinia	BSPTR, PENTR	
357.	<i>Prinia gracilis blythi</i> (Franklin) Graceful Prinia	BSPTR	
358.	<i>Prinia hodgsonii hodgsonii</i> Blyth Franklin's Prinia	BANTR, BSPTR, KANTR	
359.	<i>Prinia socialis stewarti</i> Blyth Ashy Prinia	BSPTR, KANTR, PENTR	

360.	<i>Prinia subflava inornata</i> Sykes Plain Prinia	BSPTTR, KANTR, PENTR	
361.	<i>Prinia sylvatica sylvatica</i> Jerdon Jungle Prinia	BANTR, BSPTTR, INDTR, KANTR, PENTR	
362.	<i>Seicercus burkii</i> (Burton) Gold-spectacled Flycatcher-Warbler	BSPTTR	
363.	<i>Sylvia curruca</i> (Linnaeus) Common Lesser Whitethroat	BANTR, KANTR	
364.	<i>Sylvia hortensis jerdoni</i> (Blyth) Orphean Warbler	BSPTTR	
	Subfamily MUSCICAPINAE		
365.	<i>Culicicapa ceylonensis ceylonensis</i> (Swainson) Grey-headed Flycatcher	BANTR, BSPTTR, KANTR, PENTR	Sch.IV
366.	<i>Cyornis pallipes</i> (Jerdon) White-bellied Blue-Flycatcher	PENTR	Sch.IV
367.	<i>Cyornis tickelliae tickelliae</i> Blyth Tickell's Blue-Flycatcher	BANTR, BSPTTR, INDTR, KANTR, PENTR	Sch.IV
368.	<i>Eumyias thalassina thalassina</i> (Swainson) Verditer Flycatcher	BSPTTR, KANTR, PENTR	Sch.IV
369.	<i>Ficedula nigrorufa</i> (Jerdon) Black-and-Orange Flycatcher	PENTR	Sch.IV
370.	<i>Ficedula parva parva</i> (Bechstein) Red-throated Flycatcher	BANTR, BSPTTR, KANTR	Sch.IV
371.	<i>Ficedula superciliaris superciliaris</i> (Jerdon) Ultramarine Flycatcher	BANTR, BSPTTR, KANTR	Sch.IV
372.	<i>Muscicapa muttui</i> (Layard) Brown-breasted Flycatcher	KANTR	Sch.IV
373.	<i>Muscicapa ruficauda</i> Swainson Rusty-tailed Flycatcher	PENTR	Sch.IV
	Subfamily MONARCHINAE		
374.	<i>Hypothymis azurea</i> (Boddaert) Black-naped Monarch-Flycatcher	BANTR, KANTR, PENTR	Sch.IV
375.	<i>Hypothymis azurea styani</i> (Hartlaub) Black-naped Monarch-Flycatcher	BSPTTR, INDTR	Sch.IV
376.	<i>Terpsiphone paradisi leucogaster</i> (Swainson) Asian Paradise-Flycatcher	BSPTTR	Sch.IV
377.	<i>Terpsiphone paradisi paradisi</i> (Linnaeus) Asian Paradise-Flycatcher	BANTR, BSPTTR, INDTR, KANTR, PENTR	Sch.IV
	Subfamily RHIPIDURINAE		
378.	<i>Rhipidura albicollis albogularis</i> (Lesson) White-throated Fantail-Flycatcher	BSPTTR, INDTR, KANTR, PENTR	Sch.IV
379.	<i>Rhipidura albicollis orissae</i> Ripley White-throated Fantail-Flycatcher	BSPTTR	Sch.IV
380.	<i>Rhipidura aureola aureola</i> (Lesson) White-browed Fantail-Flycatcher	BANTR, BSPTTR, KANTR, PENTR	Sch.IV

LIII.	Family REMIZIDAE		
381.	<i>Cephalopyrus flammiceps flammiceps</i> (Burton) Fire-capped Tit	KANTR	
LIV.	Family PARIDAE		
382.	<i>Parus major mahrattarum</i> Hartert Great Tit	BSPTR	Sch.IV
383.	<i>Parus major stupae</i> Koelz Great Tit	BANTR, BSPTR, KANTR, PENTR	Sch.IV
384.	<i>Parus xanthogenys aplonotus</i> Blyth Black-lored Yellow Tit	BANTR, BSPTR, KANTR, PENTR	Sch.IV
LV.	Family SITTIDAE		
385.	<i>Sitta castanea castanea</i> Lesson Chestnut-bellied Nuthatch	BANTR, BSPTR, KANTR	
386.	<i>Sitta frontalis frontalis</i> Swainson Velvet-fronted Nuthatch	BSPTR, KANTR	
LVI.	Family CERTHIIDAE		
387.	<i>Salpornis spilonotus spilonotus</i> (Franklin) Spotted Creeper	BANTR, BSPTR	
LVII.	Family DICAIEIDAE		
388.	<i>Dicaeum agile agile</i> (Tickell) Thick-billed Flowerpecker	BSPTR, KANTR	Sch.IV
389.	<i>Dicaeum erythrorhynchos erythrorhynchos</i> (Latham) Tickell's Flowerpecker	BSPTR, INDTR, KANTR	Sch.IV
LVIII.	Family NECTARINIIDAE		
390.	<i>Nectarinia asiatica asiatica</i> (Latham) Purple Sunbird	ANTR, BSPTR, INDTR, BKANTR, PENTR	Sch.IV
391.	<i>Nectarinia lotenia</i> (Linnaeus) Loten's Sunbird	BSPTR	Sch.IV
392.	<i>Nectarinia zeylonica sola</i> (Vieillot) Purple-rumped Sunbird	BSPTR	Sch.IV
LIX.	Family ZOSTEROPIDAE		
393.	<i>Zosterops palpebrosus palpebrosus</i> (Temminck) Oriental White-eye	BANTR, KANTR	Sch.IV
LX.	Family EMBERIZIDAE Subfamily EMBERIZINAE		
394.	<i>Emberiza buchanani</i> Blyth Grey-necked Bunting	BSPTR	Sch.IV
395.	<i>Emberiza melanocephala</i> Scopoli Black-headed Bunting	PENTR	Sch.IV
396.	<i>Melophus lathamii</i> (Gray) Crested Bunting	BANTR, KANTR, PENTR	Sch.IV
LXI.	Family FRINGILLIDAE		
397.	<i>Carpodacus erythrinus erythrinus</i> (Pallas) Common Rosefinch	BANTR, KANTR	

398.	<i>Carpodacus erythrinus roseatus</i> (Blyth) Common Rosefinch	BSPTR	
LXII.	Family ESTRILDIDAE		
399.	<i>Amandava amandava</i> (Linnaeus) Red Munia	KANTR, PENTR	
400.	<i>Amandava formosa</i> (Latham) Green Munia	KANTR, PENTR	Sch.IV
401.	<i>Lonchura malabarica</i> (Linnaeus) White-throated Munia	BSPTR, PENTR	Sch.IV
402.	<i>Lonchura malacca malacca</i> (Linnaeus) Black-headed Munia	BSPTR, KANTR, PENTR	Sch.IV
403.	<i>Lonchura punctulata punctulata</i> (Linnaeus) Spotted Munia	BANTR, KANTR, PENTRS	Sch.IV
404.	<i>Lonchura striata striata</i> (Linnaeus) White-rumped Munia	BANTR, KANTR	Sch.IV
LXIII.	Family PASSERIDAE Subfamily PASSERINAE		
405.	<i>Passer domesticus indicus</i> Jardine & Selby House Sparrow	BANTR, BSPTR, INDTR, KANTR, PENTR	
406.	<i>Petronia xanthocollis xanthocollis</i> (Burton) Yellow-throated Sparrow Subfamily FLOCEINAE	BANTR, BSPTR, INDTR, KANTR, PENTR	
407.	<i>Ploceus manyar flaviceps</i> Lesson Streaked Weaver	PENTR	Sch.IV
408.	<i>Ploceus philippinus philippinus</i> (Linnaeus) Baya Weaver	BANTR, KANTR, PENTR	Sch.IV
LXIV.	Family STURNIDAE		
409.	<i>Acridotheres fuscus fuscus</i> (Wagler) Jungle Myna	BSPTR, KANTR, PENTR	Sch.IV
410.	<i>Acridotheres ginginianus</i> (Latham) Bank Myna	BANTR, BSPTR, KANTR, PENTR	Sch.IV
411.	<i>Acridotheres tristis tristis</i> (Linnaeus) Common Myna	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.IV
412.	<i>Sturnus contra contra</i> Linnaeus Asian Pied Starling	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
413.	<i>Sturnus malabaricus malabaricus</i> (Gmelin) Grey-headed Starling	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
414.	<i>Sturnus pagodarum</i> (Gmelin) Brahminy Starling	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
415.	<i>Sturnus roseus</i> (Linnaeus) Rosy Starling	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
LXV.	Family ORIOLIDAE		
416.	<i>Oriolus chinensis</i> Linnaeus Black-naped Oriole	BSPTR, PENTR	Sch.IV
417.	<i>Oriolus oriolus kundoo</i> Sykes Eurasian Golden Oriole	BANTR, BSPTR, INDTR, KANTR	Sch.IV

418.	<i>Oriolus xanthornus maderaspatanus</i> Franklin Black-headed Oriole	BSPTR, KANTR	Sch.IV
419.	<i>Oriolus xanthornus xanthornus</i> (Linnaeus) Black-headed Oriole	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV
LXVI	Family DICRURIDAE		
420.	<i>Dicrurus caerulescens caerulescens</i> (Linnaeus) White-bellied Drongo	BANTR, BSPTR, INDTR, KANTR	Sch.IV
421.	<i>Dicrurus hottentottus hottentottus</i> (Linnaeus) Spangled Drongo	BANTR, BSPTR, INDTR, KANTR	Sch.IV
422.	<i>Dicrurus leucophaeus</i> Vieillot Ashy Drongo	KANTR	Sch.IV
423.	<i>Dicrurus leucophaeus longicaudatus</i> Hay Ashy Drongo	BANTR, BSPTR, INDTR	Sch.IV
424.	<i>Dicrurus macrocercus</i> Vieillot Black Drongo	BANTR, BSPTR, KANTR, PANTR, PENTR	Sch.IV
425.	<i>Dicrurus paradiseus paradiseus</i> (Linnaeus) Greater Racket-tailed Drongo	BANTR, BSPTR, INDTR, KANTR	Sch.IV
LXVII	Family ARTAMIDAE		
426.	<i>Artamus fuscus</i> Vieillot Ashy Woodswallow	BSPTR, KANTR	
LXVIII	Family CORVIDAE		
427.	<i>Corvus macrorhynchos culminatus</i> Sykes Jungle Crow	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.IV
428.	<i>Corvus splendens splendens</i> Vieillot House Crow	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.V
429.	<i>Dendrocitta vagabunda vagabunda</i> (Latham) Indian Treepie	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.IV

MAMMALS

	Order ARTIODACTYLA		
I.	Family BOVIDAE		
1.	<i>Antelope cervicapra cervicapra</i> (Linnaeus) Blackbuck	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
2.	<i>Bos gaurus gaurus</i> Smith Gaur	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
3.	<i>Boselaphus tragocamelus</i> (Pallas) Nilgai/Blue Bull	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.III
4.	<i>Bubalus bubalis bubalis</i> Linnaeus Wild Buffalo	INDTR	Sch.I
5.	<i>Gazella bennettii</i> (Sykes) Indian Gazelle, Chinkara	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
6.	<i>Tetracerus quadricornis</i> Blainville Chowsingha, Four Horned Antelope	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
II.	Family CERVIDAE		
7.	<i>Axis axis axis</i> (Erxleben) Chital, Spotted Deer	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.III

8.	<i>Cervus duvaucelli branderi</i> Pocock Barahsinga	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
9.	<i>Cervus unicolor</i> Kerr Sambhar	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.III
10.	<i>Muntiacus muntjak</i> (Zimmermann) Barking Deer	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.III
III.	Family SUIDAE		
11.	<i>Sus scrofa</i> Linnaeus Wild Boar	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.III
IV.	Family TRAGULIDAE		
12.	<i>Moschiola meminna</i> (Erxleben) Mouse Deer	BANTR, BSPTR, INDTR, KANTR	Sch.I
	Order CARNIVORA		
V.	Family CANIDAE		
13.	<i>Canis aureus</i> Linnaeus Asiatic Jackal	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.II
14.	<i>Canis lupus</i> Linnaeus Wolf	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
15.	<i>Cuon alpinus</i> (Pallas) Wild Dog	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.II
16.	<i>Vulpes bengalensis</i> (Shaw) Bengal Fox	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.II
VI.	Family FELIDAE		
17.	<i>Caracal caracal</i> Matschie Caracal	PANTR	Sch.I
18.	<i>Felis chaus kutas</i> Pearson Jungle Cat	BANTR, BSPTR, INDTR, KANTR, PANTR	Sch.II
19.	<i>Felis libyca</i> Forster Desert Cat	PANTR	Sch.I
20.	<i>Panthera pardus fusca</i> (Meyer) Leopard	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
21.	<i>Panthera tigris</i> (Linnaeus) Tiger	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.I
22.	<i>Prionailurus bengalensis</i> (Kerr) Leopard Cat	INDTR, KANTR, PENTR	Sch.I
23.	<i>Prionailurus rubiginosus</i> (Geoffroy) Rustyspotted Cat	PANTR, PENTR	Sch.I
24.	<i>Prionailurus viverrina</i> Benett Fishing Cat	BSPTR	Sch.I
VII.	Family HERPESTIDAE		
25.	<i>Herpestes auropunctatus</i> Hodgson	BANTR	Sch.IV
26.	<i>Herpestes edwardsi nyula</i> (Hodgson) Indian Grey Mongoose	BANTR, BSPTR, INDTR, KANTR, PANTR, PENTR	Sch.IV
27.	<i>Herpestes smithii</i> (Gray) Ruddy Mongoose	KANTR, PANTR	Sch.IV

- VIII. Family HYNAENIDAE
28. *Hyaena hyaena* (Linnaeus)
Striped Hyaena BANTR, BSPTR, INDTR,
KANTR, PANTR, PENTR Sch.III
- IX. Family MUSTELIDAE
29. *Lutra perspicillata* (I. Geoffroy Saint Hilaire)
Smooth-coated Indian Otter BANTR, BSPTR, INDTR,
KANTR, PENTR Sch.II
30. *Mellivora capensis indica* (Kerr)
Ratel BANTR, BSPTR, INDTR,
KANTR, PANTR Sch.I
- X. Family VIVERRIDAE
31. *Paradoxurus hermaphroditus* (Pallas)
Common Indian Civet BSPTR, INDTR, KANTR,
PANTR, PENTR Sch.II
32. *Viverricula indica* (Desmarest)
Small Indian Civet BSPTR, INDTR, KANTR,
PANTR, PENTR Sch.II
- XI. Family URSIDAE
33. *Melursus ursinus* (Shaw)
Sloth Bear BANTR, BSPTR, INDTR,
KANTR, PANTR, PENTR Sch.I
- Order CHIROPTERA
- XII. Family EMBALLONURIDAE
34. *Taphozous longimanus longimanus* Hardwicke
Long-armed Sheath-tailed Bat BSPTR, KANTR
35. *Taphozous melanopogon* Temminck
Black-bearded Tomb Bat BSPTR, KANTR
36. *Taphozous nudiventris kachhensis* Dobson
Naked-bellied Tomb Bat KANTR
37. *Taphozous saccolaimus* Temminck
Pouchbearing Bat KANTR
- XIII. Family HIPPOSIDERIDAE
38. *Hipposideros galeritus brachyotus* (Dobson) KANTR
39. *Hipposideros lankadiva unitus* Anderson
Leaf-nosed Bat KANTR
- XIV. Family MEGADERMATIDAE
40. *Megaderma lyra lyra* Geoffroy
Indian False Vampire BANTR, BSPTR,
INDTR, KANTR
- XV. Family MOLOSSIDAE
41. *Tadarida plicata* (Buchannan)
Wrinkle-lipped Bat KANTR
- XVI. Family PTEROPODIDAE
42. *Cynopterus sphinx* (Vahl)
Short-nosed Fruit Bat BSPTR
INDTR, KANTR Sch.V
43. *Pteropus giganteus giganteus* (Brunnich)
Indian Flying Fox INDTR, PENTR Sch.V
44. *Rousettus leschenaulti leschenaulti* (Desmarest)
Fulvus Fruit Bat INDTR, KANTR Sch.V

- XVII. Family RHINOLOPHIDAE
45. *Rhinolophus lepidus lepidus* Blyth
Little Indian Horse-shoe Bat BANTR
BSPTR, KANTR,
46. *Rhinolophus rouxi* Temminck
Rufous Horse-shoe Bat INDTR, KANTR
- XVIII. Family RHINOPOMATIDAE
47. *Rhinopoma hardwickii hardwickii* Gray
Hardwick's Fruit Bat KANTR Sch.V
- XVIX. Family VESPERTILIONIDAE
48. *Pipistrellus ceylonicus chrysothrix* Wroughton
Kelaart's Pipistrelle KANTR
49. *Pipistrellus coromandra coromandra* (Gray)
Indian Pipistrelle BANTR, KANTR,
PENTR
50. *Pipistrellus mimus mimus* Wroughton
Indian Pygmy Pipistrelle KANTR
51. *Scotophilus heathi heathi* Horsfield
Yellow Bat BANTR
52. *Scotophilus kuhlii* Leach
Lesser Yellow Bat KANTR
53. *Scotophilus temminckei* Horsfield
BSPTR
- Order SCANDANTIA
- XX. Family TUPAIDAE
54. *Anathana ellioti pallida* Lyon
Madras Tree Shrew BSPTR, KANTR
- Order INSECTIVORA
- XXI. Family SORICIDAE
55. *Crocidura bidiana* Anderson
BSPTR
56. *Suncus etruscus perotteiti* (Duvernoy)
Pygmy Shrew KANTR
57. *Suncus murinus* (Linnaeus)
Common Shrew INDTR, KANTR,
PENTR
58. *Suncus stoliczkanus* Anderson
Anderson's Shrew KANTR
- Order LAGOMORPHA
- XXII. Family LEPORIDAE
59. *Caprolagus hispidus* (Pearson)
Hispid Hare KANTR Sch.I
60. *Lepus nigricollis mahadeva* Wroughton & Ryley
Pachmarhi Hare INDTR, KANTR,
BANTR, BSPTR Sch.IV
61. *Lepus nigricollis nigricollis* F. Cuvier
Black-naped Hare PENTR Sch.IV
- Order PHOLIDOTA
- XXIII. Family MANIDAE
62. *Manis crassicaudata* (Gray)
Indian Pangolin KANTR, PENTR Sch.I

	Order PRIMATES		
XXIV.	Family CERCOPITHECIDAE		
63.	<i>Macaca mullata</i> (Zimmermann) Rhesus Macaque	BSPTR, INDTR, KANTR, BANTR, PENTR	Sch.II
64.	<i>Semnopithecus entellus</i> (Dufresne) Common Langur	BANTR, BSPTR, INDTR, KANTR, PENTR	Sch.II
	Order RODENTIA		
XXV.	Family MURIDAE		
65.	<i>Bandicota bengalensis</i> (Gray) Lesser Bandicoot Rat	BANTR, KANTR	Sch.V
66.	<i>Bandicota indica</i> (Bechstein) Large Bandicoot Rat	KANTR, PENTR	Sch.V
67.	<i>Cremnomys blanfordi</i> (Thomas). Blanford's Rat	BANTR KANTR, PENTR	Sch.V
68.	<i>Golunda ellioti</i> Gray Indian Bush Rat	KANTR, PENTR	Sch.V
69.	<i>Mus booduga</i> (Gray) Little Indian Field Mouse	KANTR, PENTR	Sch.V
70.	<i>Mus musculus urbanus</i> Linnaeus House Mouse	INDTR	Sch.V
71.	<i>Mus platythrix</i> Bennett Brown Spiny Mouse	KANTR	Sch.V
72.	<i>Rattus blanfordi</i> (Thomas) Whitetailed Wood Rat	INDTR	Sch.V
73.	<i>Rattus rattus</i> (Linnaeus) House Rat	BANTR, INDTR	Sch.V
74.	<i>Rattus rattus rufescens</i> (Gray) Dark-bellied House Rat	KANTR, PENTR	Sch.V
75.	<i>Rattus rattus wroughtoni</i> Hinton White-bellied House Rat	KANTR	Sch.V
76.	<i>Tatera indica indica</i> (Hardwicke) Indian Gerbil	KANTR	Sch.V
77.	<i>Vandeleuria oleracea</i> (Bennet) Indian Long-tailed Tree Mouse	KANTR	Sch.V
XXVI.	Family PTEROMIDAE		
78.	<i>Petaurista petaurista</i> (Pallas) Flying Squirrel	INDTR, KANTR, PENTR	Sch.II
XXVII.	Family SCIURIDAE		
79.	<i>Funambulus palmarum robertsoni</i> Wroughton Three Striped Palm Squirrel	BANTR, BSPTR INDTR, KANTR, PENTR	
80.	<i>Funambulus pennanti</i> Wroughton Five Striped Palm Squirrel	BANTR, INDTR, KANTR, PENTR	Sch.IV
81.	<i>Ratufa indica centralis</i> (Erxleben) Indian Giant Squirrel	INDTR, KANTR	Sch.II
XXVIII.	Family HYSTRICIDAE		
82.	<i>Hystrix indica</i> Kerr Indian Crested Porcupine	BANTR, KANTR, PENTR	Sch.IV

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REFERENCES

- Agrawal, H.P. 1976 a. New records of freshwater gastropods from M.P., India. *Newsl. zool. Surv. India*, 2(5) : 191-192.
- Agrawal, H.P. 1976 b. Fauna of Kanha National Park, Reptilia. *News. zool. Surv. India*, 2(6) : 247-249.
- Agrawal, H.P. 1977 a. Fauna of Pench National Park, Mollusca. *Newsl. zool. Surv. India*, 3(1) : 33-36.
- Agrawal, H.P. 1977 b. Fauna of Pench National Park, Reptilia. *News. zool. Surv. India*, 3(3) : 115-116.
- Agrawal, H.P. 1993. On a collection of molluscs from Kanha National Park, M.P. *Cheetal*, 32(3-4) : 1-9.
- Agrawal, H.P. 1995. Mollusca. In : *Fauna of Kanha Tiger Reserve, Conservation Areas Series*, 7 : 33-39.
- Ali, S. & Ripley, S.D. 1968 to 1974. *Handbook of the Birds of India and Pakistan*. Vols. 1 to 10. Oxford University Press, Bombay.
- Arrow, G.J. 1910. *The fauna of British India including Ceylon and Burma, Vol. 1, Coleoptera : Scarabaeidae : Cetoniinae and Dyanstinae*. Taylor and Francis Ltd., London, 322 pp.
- Arrow, G.J. 1931. *The fauna of British India, including Burma and Ceylon. Vol. 4, Coleoptera : Scarabaeidae : Coprinae*. Taylor and Francis Ltd., London, 428 pp.
- Arrow, G.J. 1950. *Fauna of British India, Coleoptera : Scarabaeidae*, Part 4 : xvii + 274 pp.
- Baker, E.C. 1922 to 1930. *The Fauna of British India, Birds*. Vols. 1-8. Taylor & Francis, London.
- Barraud, P.J. 1934. *The Fauna of British India, including Ceylon and Burma : Diptera. Vol.V. Family Culicidae : Tribes Megarhinini and Culicini*. Taylor and Francis Ltd., London, 463 p.
- Bastawade, D. 1992. First report of the family Vajovidae (Scorpionidae : Arachnida). In Madhya Pradesh with the discription of new sps. Scorpiops. Pachmarhi. *J. Bombay nat. Hist. Soc.*, 89 : 99-103.
- Basu, C.R. & Halden, S.K. 1987. *Insecta : Coleoptera : Chrysomelidae. Fauna of Orissa, State Fauna Series*, 1(Part-1) : 213-240. *Zool. Surv. India, Kolkata*.

- Bates, R.S. 1927. Impression of Pachmarhi. *J. Bombay nat. Hist. Soc.*, : 31(4) : 918-931.
- Bell, T. R.D & Scott, F. B. 1937. *The Fauna of British India including Burma and Ceylon. Moths : Sphingidae*, Vol. 5. Taylor and Francis Ltd., London, 537 pp.
- Betham J.A. 1891a. The Butterflies of Central Provinces. Part IV. *J. Bombay nat. Hist. Soc.*, : 175-183.
- Betham, J.A. 1891b. The Butterflies of Central Provinces. Part V. *J. Bombay nat. Hist. Soc.*, : 318-331.
- Betham, J.A. 1892. The Butterflies of Central Provinces. *J. Bombay nat. Hist. Soc.*, : 425-429.
- Bingham, C.T. 1897. *Fauna of British India, Hymenoptera*, Vol. 1 : xxix + 579 pp.
- Bingham, C.T. 1903. *Fauna of British India, Hymenoptera*, Vol. 2 : xix + 503 pp.
- Biswas, S. and Chatterjee, S.K. 1991. *Insecta : Coleoptera : Scarabaeidae. Fauna of Orissa, State Fauna Series, 1(Part-3) : 243-262. Zool. Surv. India, Kolkata.*
- Biswas, B. & Ghosh, L.K. 1995. *Insecta : Hemiptera*. In : *Fauna of Indravati Tiger Reserve, Fauna of Conservation Areas Series, 6 : 19-29.*
- Blanford, W. T. 1888. *The Fauna of British India including Ceylon and Burma, Mammalia, Part-I*. Taylor and Francis, London.
- Blanford, W. T. 1891. *The Fauna of British India including Ceylon and Burma, Mammalia, Part-II*. Taylor and Francis, London
- Blanford, W. T. & Godwin-Austen, H. H. 1908. *Fauna of British India, Mollusca*, Vol. 1 : xxxii + 311
- Brander, D.A.A. 1924. Wild Animals of Central India.
- Brunetti, E. 1912. *The fauna of British India including Ceylon and Burma. Diptera : Nematocera*. Vol. I. Taylor and Francis Ltd., London, : 1-581.
- Brunetti, E. 1920. *The fauna of British India, including Ceylon and Burma : Diptera : Brachycera*. Vol. II. Taylor and Francis Ltd., London, : 1-401.
- Brunetti, E. 1923. *The fauna of British India including Ceylon and Burma. Diptera : Pipunculidae, Syrphidae, Canopidae, Oestridae*. Vol. III Taylor and Francis Ltd., London, : 1-424.
- Chanda, S.K. 1995 a. Amphibia. In : *Fauna of Indravati Tiger Reserve, Fauna of Conservation Areas No. 6 : 71-75.*
- Chanda, S.K. 1995b. Amphibia. In : *Fauna of Kanha Tiger Reserve, Fauna of Conservation Areas No. 7 : 47-49.*
- Chandra, K. 2000a. Records of the Lace-bugs from M.P. India (Hemiptera : Tingidae). *Bionotes*. 2(3) : 57.
- Chandra, K., 2000b. Inventory of Scarabaeid beetles (Coleoptera) from Madhya Pradesh, India. *Zoo's Print Journal*. 15(11) : 359-362.
- Chandra, K. 2004. Hemiptera : Fauna of Pench Tiger Reserve, M.P., *Zoological Survey of India*. (Comm.)
- Chandra, K. and Gajbe, P. 2003. New record of Ocellate Shield Tail (*Uropeltis ocellata* Beddome) from Pachmarhi Biosphere Reserve, Madhya Pradesh. *Cobra*, 52 : 15-16.

- Chandra, K. & Gupta, Y.N. 2002. Three new records of Scarabaeid beetles from Pachmarhi Biosphere Reserve. *Geobios new reports*, 29(1) : 63-64.
- Chandra, K. and Singh, R.K. 2000. Notes on Paussidae (Coleoptera) from Pachmarhi Biosphere Reserve, Madhya Pradesh, *Bionotes*, 2(1) : 15.
- Chandra, K. and Singh, R.K., 2004a. On a collection of Scarabaeid beetles (Coleoptera) from Pachmarhi Biosphere Reserve, Madhya Pradesh. *Rec. zool. Surv. India* 102(Part 1-2) : 43-46.
- Chandra, K. and Singh, R.K. 2004b. Avifauna of Madhya Pradesh and Chhattisgarh. *Zoos' Print Journal* 19(7) : 1534-1539.
- Chandra, K. *et al.*, 2002. Butterflies of Pench Tiger Reserve, Madhya Pradesh. *Zoos' Print Journal* 17(10) : 908-909.
- Chaudhury, M. 1995. Insecta : Lepidoptera. In : *Fauna of Indravati Tiger Reserve, Fauna of Conservation Areas Series*, 6 : 45-52.
- Chaudhary, A.B. and Sarkar, D.D. 2004. *Project Tiger Reserves : Resources, Diversity, Sustainability and Ecodevelopment* : Daya Publishing House, Delhi : 1-341.
- Choudhary, L.K. and Khan, S.A. 2003. *Bandhavgarh : Fort of the Tiger*, Wild Atlas Books : 1-113.
- Chhotani, O.B. 1995. Insect : Isoptera. *Fauna of Kanha Tiger Reserve, Fauna of Conservation Areas Series*, 7 : 9-14.
- Chopard, L. 1969. *Fauna of India, Orthoptera*, Vol. 2 : 1-421.
- Cotes, E. C. & Swinhoe, C. 1886-89. *A catalogue of the moths of India*. Parts I-VI : 1-812.
- D'Abreu, E.A. 1935. A list of the birds of the Central Provinces. *J. Bombay nat. Hist. Soc.* 38(1) : 95-116.
- De Niceville, L. 1886. *The Butterflies of India, Burmah and Ceylon*. Vol. 2. Reprinted by A.J. Reprints Agency, New Delhi : 1-332.
- De Niceville, L. 1890. *The Butterflies of India, Burmah and Ceylon*. Vol. 3. Reprinted by A.J. Reprints Agency, New Delhi, : 1-503.
- Distant, W.L. 1902. *The fauna of British India including Ceylon and Burma, Rhynchota, Vol. 1*. Taylor & Francis, London, 1-438.
- Distant, W.L. 1906. *The fauna of British India including Ceylon and Burma, Rhynchota, Vol. 3*. Taylor & Francis, London, : 1-503.
- Distant, W. L. 1908. *The fauna of British India including Ceylon and Burma, Rhynchota, Vol. 4*. Taylor & Francis, London, : 1-501.
- Dubey, G.P. and Mehra, R.K. 1959 (1962). Fish and fisheries of Chambal River. *Proc. First All India Congr. Zool.*, 647-664, 1 map.
- Dubey, G.P. and Verma, M.N. 1965. A preliminary study of the fish fauna of Madhya Pradesh. *The Vikram, J. Vikram, Univ.*, 8(4) : 1-8.

- Dwivedi, A.P. 2003. *Protected Areas of Madhya Pradesh*, Published by P.C.C.F. (Wildlife), Govt. Printing Press, Bhopal, : 1-254.
- Eric D' Cunha, E. P. 1996. Jackal (*Canis aureus*) hunting common langur (*Presbytis entellus*) in Kanha National Park). *J. Bombay nat. Hist. Soc.*, **93** (2): 285-286.
- Eric D'Cunha, E. P. 2002. Range extension of *Rana malabarica* (Bibr.) in Madhya Pradesh. *J. Bombay nat. Hist. Soc.*, **99**(2) : 332-333.
- Fraser, F. C. 1918-19. Description of four new Indian Odonata. *Rec. Ind. Mus.*, **16** : 451-455.
- Fraser, F. C. 1933. *Fauna of British India, Odonata*, **1** : xviii + 423 pp.
- Fraser, F. C. 1934. *Fauna of British India, Odonata*, **2** : xxiii + 398 pp.
- Fraser, F. C. 1936. *Fauna of British India, Odonata*, **3** : xi + 461 pp.
- Gajbe, P. 2003a. Checklist of spiders (Arachnida : Araneae) of Madhya Pradesh and Chhattisgarh. *Zoos' Print Journal*, **18**(10) : 1223-1226.
- Gajbe, P. 2003b. A checklist of spiders (Arachnida : Araneae) of Jabalpur, Madhya Pradesh, India. *Rec. zool. Surv. India*, **101**(3-4) : 43-47.
- Gajbe, P. & Bhandari, R. 2003. Observations on some interesting spiders (Arachnida : Araneae) of Pench Tiger Reserve, Madhya Pradesh, India. *Vislesana*, **8**(1) : 16-21.
- Gajbe, U.A. 1995a. Arachnida : Spiders. In : *Fauna of Indravati Tiger Reserve, Fauna of Conservation Areas No. 6* : 53-56.
- Gajbe, U. A. 1995b. Arachnida : Spiders. In : *Fauna of Kanha Tiger Reserve, Fauna of Conservation Areas Series, 7* : 27-30.
- Ghosal, D.K. 1995. Aves. In : *Fauna of Kanha Tiger Reserve, Fauna of Conservation Areas Series, 7* : 63-91.
- Ghose, R.K. & Bhattacharya, T.P. 1995a. Mammalia. In : *Fauna of Indrawati Tiger Reserve, Fauna of Conservation Areas Series, 6* : 93-107.
- Ghose, R.K. & Bhattacharya, T.P. 1995b. Mammalia. In : *Fauna of Kanha Tiger Reserve, Fauna of Conservation Areas Series, 7* : 93-117.
- Ghosh, S.K., Mukhopadhyay, P. & Biswas, S. 2000. Insecta : Coleoptera : Gyrinidae, Dytiscidae, Hydrophilidae. In : *Fauna of Tripura, State Fauna Series 7* : Part-3 : 35-108.
- Goel, H.C. & Srivastava, C.P. 1980. Freshwater snails of Gwalior (M.P.) *J. Bombay nat. Hist. Soc.*, **77**(2) : 215-222.
- Gokulpure, R.S. 1969. Further collection of the Syrphidae (Diptera) from Central India. *J. Bom. nat. Hist. Soc.*, **68**(3) : 848.
- Gopal, R. 1996. The Kanha success story : An ecological Retrospective. *Cheetal*, **35**(3-4) : 5-9.
- Gude, G.K. 1914. *Fauna of British India, Mollusca, Vol. 2* : xii + 520 pp.
- Gupta, I.J. & Shukla, J.P.N. 1987. Butterflies from Bastar district (Madhya Pradesh). *Rec. zool. Surv. India, Occ. Pap. No. 106* : 1-74.

- Gupta, Y.N. 1997. New record of some tetranychid mites (Acari : Tetranychidae) from Chhindwara district, Madhya Pradesh. *Rec. zool. Surv. India*, **96**(1-4) : 185-188.
- Hampson, G.F. 1892. *The fauna of British India including Ceylon and Burma. Moths*, Vol. 1. Taylor & Francis Ltd., London, : 1-527.
- Hampson, G.F. 1894. *The fauna of British India including Ceylon and Burma. Moths*, Vol. 2, Taylor & Francis Ltd., London, : 1-609.
- Hampson, G.F. 1895. *The fauna of British India including Ceylon and Burma. Moths*, Vol. 3, Taylor & Francis Ltd., London, : 1-546.
- Hampson, G.F. 1896. *The fauna of British India including Ceylon and Burma. Moths*, Vol. 4. Taylor & Francis Ltd., London, : 1-594.
- Harding, W.A. & Moore, J.P. 1927. *The fauna of British India, Hirudinea* : xxxviii + 302 pp.
- Harshey, D.K. 1995a. Crustacea : Ostracoda. In : *Fauna of Indravati Tiger Reserve, Conservation Areas Series*, **6** : 57-59.
- Harshey, D.K. 1995b. Crustacea : Ostracoda. In : *Fauna of Kanha Tiger Reserve, Conservation Areas Series*, **7** : 31-32.
- Harshey, D.K. and Chandra, K. 2001. Mammals of Madhya Pradesh and Chhattishgarh. *Zoo's Print Journal*, **16**(2) : 659-660.
- Harshey, D.K. & Shrivastava, A.K. 1983. Some new records of freshwater ostracoda (Crustacea : Entomostraca) from India. *Curr. Sci.*, **52**(15) : 741.
- Hora, S.L. 1938. Notes of fishes in the Indian Museum xxxvii. On a collection of fish Bailadila range, Bastar State, Central Provinces. *Rec. Indian Mus.*, **40**(3) : 237-241.
- Hora, S.L. 1940. On a collection of fish from the headwaters of the Mahanadi river, Raipur district, C.P. *Rec. Indian Mus.*, **42**(2) : 365-375.
- Hora, S.L. and Nair, K.K. 1941. Fishes of the Satpura Range, Hoshangabad District, Central Provinces, *Rec. Indian Mus.*, **43**(3) : 361-373.
- Jayaram, K. C. 1981. *The freshwater fishes of India, Pakistan, Bangladesh, Burma and Sri Lanka - A Handbook*, 475 pp., 13 pls.
- Jayaram, K. C. 1991. Revision of the genus *Puntius* Hamilton from the Indian Region (Pisces : Cypriniformes, Cyprinidae, Cyprininae). *Rec. zool. Surv. India, Occ. Pap. No.* **135** : 1-178.
- Julka, J. M. 1988. *The fauna of India, Megadrile Oligochaeta*, Vol. 1 : vi + 407 pp.
- Julka, J.M., Senapati, B.K. and Paliwal, R. 1989. Oligochaeta, A checklist, *Fauna of Orissa, State Fauna Series*, **1**(Part-2) : 79-92. *Zool. Surv. India, Calcutta*.
- Karmakar, A.K and Datta, A.K. 1988. On a collection of fish from Bastar District, Madhya Pradesh. *Rec. zool. Surv. India, Occ. Paper No.*, **98** : 1-50.
- Khajuria, H. 1967. A remarkable specimen of Indian Chiroptera. *Sci. & Cult.*, **33** : 296-297.
- Khajuria, H. 1984. Notes on some Central Indian bats. *J. zool. Soc. India.*, **36**(1-2) : 125-126.

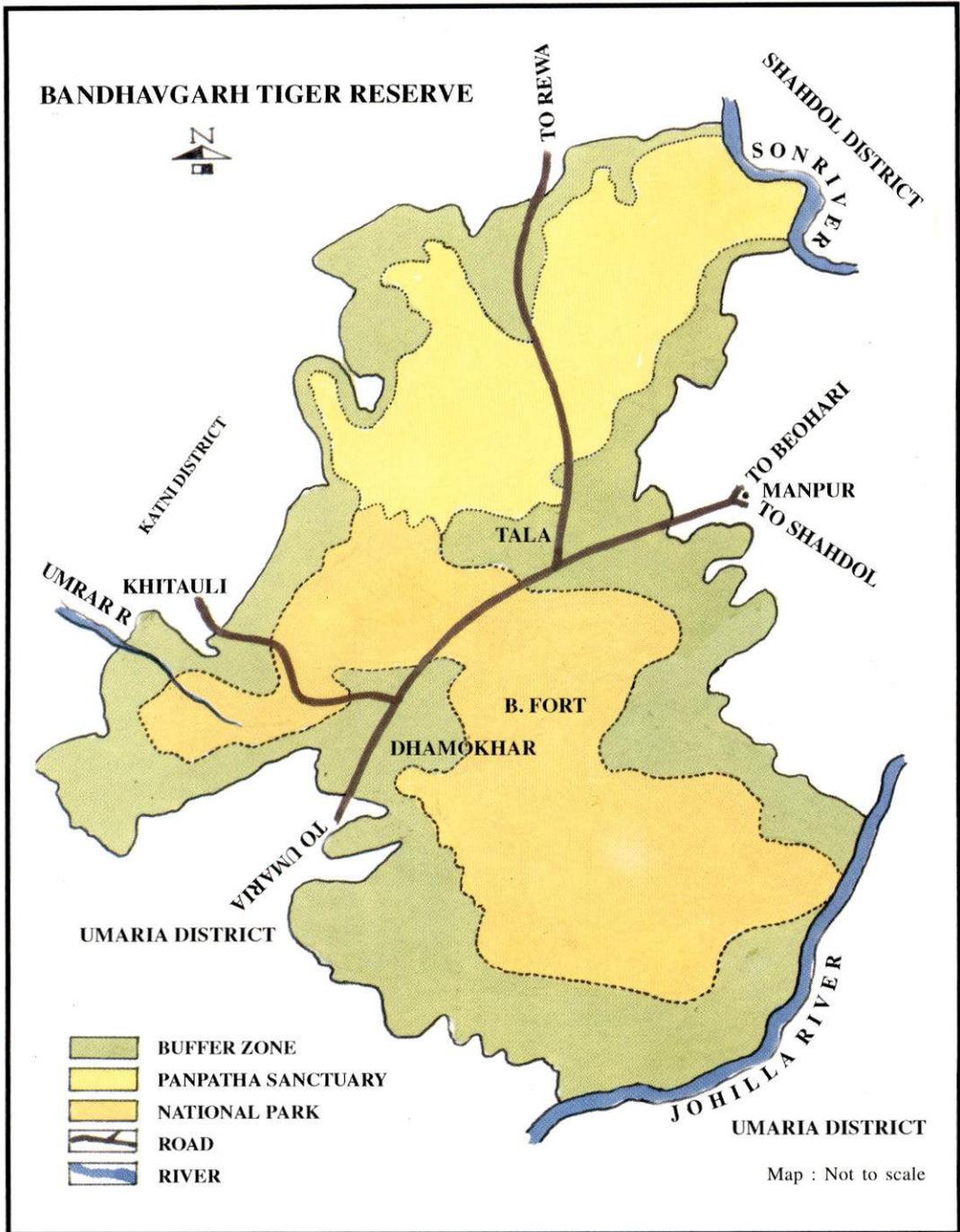
- Khajuria, H. 1986. On habits of some Central Indian Lizards with morphological notes on *Eublepharis hardwickii* Gray. *Rec. zool. Surv. India*, **83**(1-2) : 19-23.
- Kirby, W. F. 1914. *Fauna of British India, Orthoptera*, Vol. 1 : ix + 276 pp.
- Lad, P. M. & Gopal, R. 1992. The Status of Indian Gaur (*Bos gaurus*) in Bandhavgarh National Park. *Journal of Tropical Forestry*, **8**(1) : 84-95.
- Lakshminarayana, K.V. 1979. A synoptic list of Mallophaga (Phthiraptera : Insecta) from India and adjacent countries together with host and regional indices. *Rec. zool. Surv. India*, **75** : 39-201.
- Malviya, R.B. 1961. A list of fishes from Jabalpur, M.P. *Proc. nat. Acad. Sci. India. Sec. B*, **31**(3) : 349-354.
- Mani, M. S. 1989 a & b. *Fauna of India, Chalcidoidea (Hymenoptera)*, Part1 : xiv + 1067 pp., Part 2 : xvi + 566 pp.
- Marshall, G.F.L. and De Niceville, L. 1882. *The Butterflies of India, Burmah and Ceylon*. Vol. 1. Reprinted by A.J. Reprints Agency, New Delhi, : 1-327.
- Mathur, D.S. and Mishra, S.K. 1976. Addition to the fish fauna of Jabalpur district (M.P.). *Newsl. zool. Surv. India*, **2**(4) : 156-158.
- Maulik, S. 1919. *Fauna of British India, Coleoptera : Chrysomelidae*, Vol. 2 : xi + 439 pp.
- Mehra, R.K. 1959. A preliminary fisheries survey of Nagda reservoir. *Proc. Indian Sci. Congr. IV*. No. 14 : 25.
- Menon, A.G.K. 1987. *The fauna of India and all the adjacent countries, Pisces*, Vol. 4, Part 1, i-x + 259 pp., pls. 16.
- Mitra, T. R. 1995. Insecta : Odonata. In : *Fauna of Indravati Tiger Reserve, Conservation Areas Series*, **6** : 31-44.
- Morley, C. 1913. *Fauna of British India, Hymenoptera*, Vol. 3 : xxxvi + 531 pp.
- Mukherjee, T.K., Hazra, A.K. & Ghosh, A.K. 1995. The mantid fauna of India (Insecta : Mantodea). *Ori. Ins.*, **29** : 185-358.
- Newton, P.N. & Coe, M.J. 1986. Dung and dung beetles in Kanha Tiger Reserve, Central Indian Highlands. *J. Bombay nat. Hist. Soc.*, **85** : 218-220.
- Newton, P.N., Breeden, S. & Norman, G.J. 1986. The birds of Kanha Tiger Reserve, Madhya Pradesh, India. *J. Bombay nat. Hist. Soc.*, **83**(3) : 477-497.
- Osmaston, B.B. 1922. Birds of Pachmarhi. *J. Bombay nat. Hist. Soc.*, **28** : 453-459.
- Puri, P. and Mitra, B. 2004. Diptera, Fauna of Pench Tiger Reserve, (Communicated).
- Pasha, M.K.S., Areendran, G., Sankar, K. and Qureshi, Q. 2000. A preliminary checklist of snakes of Pench Tiger Reserve, Madhya Pradesh. *Cobra*, **40** : 5-8.
- Pocock, R. I. 1900. *The Fauna of British India, Arachnida*. Taylor & Francis, London : 1-279.
- Pocock, R.I. 1939. *The Fauna of British India including Ceylon and Burma, Mammalia*, Vol. 1 : xxxiii + 464 pp.

- Pocock, R.I. 1941. *The Fauna of British India including Ceylon and Burma, Mammalia*, Vol. 2 : xii + 504 pp.
- Prator, H. 1971. *The Mammals of India*. Bombay Natural History Society Publication, : 1-324.
- Rane, P.D. & Singh, R.K. 1977. Spiders (Arachnida : Araneida) from Kanha National Park, Madhya Pradesh, India. *Newsl. zool. Surv. India*, 3(2) : 84.
- Ranjitsingh, M.K. 1983. Occurrence of lesser florican (*Sypheotides indica*) in Kanha National Park. *J. Bombay nat. Hist. Soc.*, 80(3) : 641.
- Ranjitsingh, M.K., Verma, S.C., Akhtar, S.A. Patil, V., Sivakumar, K. and Bhanbhakude, S. 2004. Status and conservation of the Wild buffalo *Bubalis bubalis* in Peninsular India. *J. Bombay nat. Hist. Soc.*, 101(1) : 64-70.
- Rao, K. V. S. & Mitra, S. C. 2000. Mollusca. In : *Fauna of Renuka Wetland, Wetland Ecosystem Series, 2* : 17-20.
- Roonwall, M.N. 1942-46. On a collection of birds from the Hoshangabad District (Central Provinces. India). *Record of the Indian Museum*.
- Saha, S.S. 1995. Aves. In : *Fauna of Indravati Tiger Reserve, Conservation Areas Series, 6* : 85-91.
- Sanyal, D.P. 1995. Reptilia. In : *Fauna of Indravati Tiger Reserve, Conservation Areas Series, 6* : 77-83.
- Sanyal, D.P. and Sur, S. 1995. Reptilia. In : *Fauna of Kanha Tiger Reserve, Conservation Areas Series, 7* : 51-62.
- Saxena, R. 1986. Instance of an Indian pangolin *Manis crassicaudata* (Gray) digging into a house. *J. Bombay nat. Hist. Soc.*, 83(3) 1986 [1987] : 660.
- Saxena, R.M. 1988. A check list of fishes of Rewa district, Madhya Pradesh (India). *Cheetal*, 29(1) : 40-50.
- Sen, S. 1982. On a collection of Thysanoptera (Insecta) from Silent Valley, Kerala, India. *Rec. zool. Surv. India*, 79 : 505-514.
- Sen, T.K. 1995a. Pisces. In : *Fauna of Indravati Tiger Reserve, Conservation Areas Series, 6* : 61-70.
- Sen, T.K. 1995b. Pisces. In : *Fauna of Kanha Tiger Reserve, Conservation Areas Series, 7* : 41-45.
- Sengupta, T. & Pal, T.K. 1996. *Fauna of India, Coleoptera : Sylvanidae*.
- Sharif, M. 1928. A revision of the Indian Ixodidae with special reference to collection in the Indian Museum. *Rec. Indian Mus.*, 30 : 217.
- Sharma, H.S. 2004. *Fauna of Madhya Pradesh (Freshwater Fishes)* (Communicated).
- Sharma, R.C. 1976. Three new records of Reptiles from M.P., India. *Newsl. zool. Surv. India*, 2 (3) : 101-102.

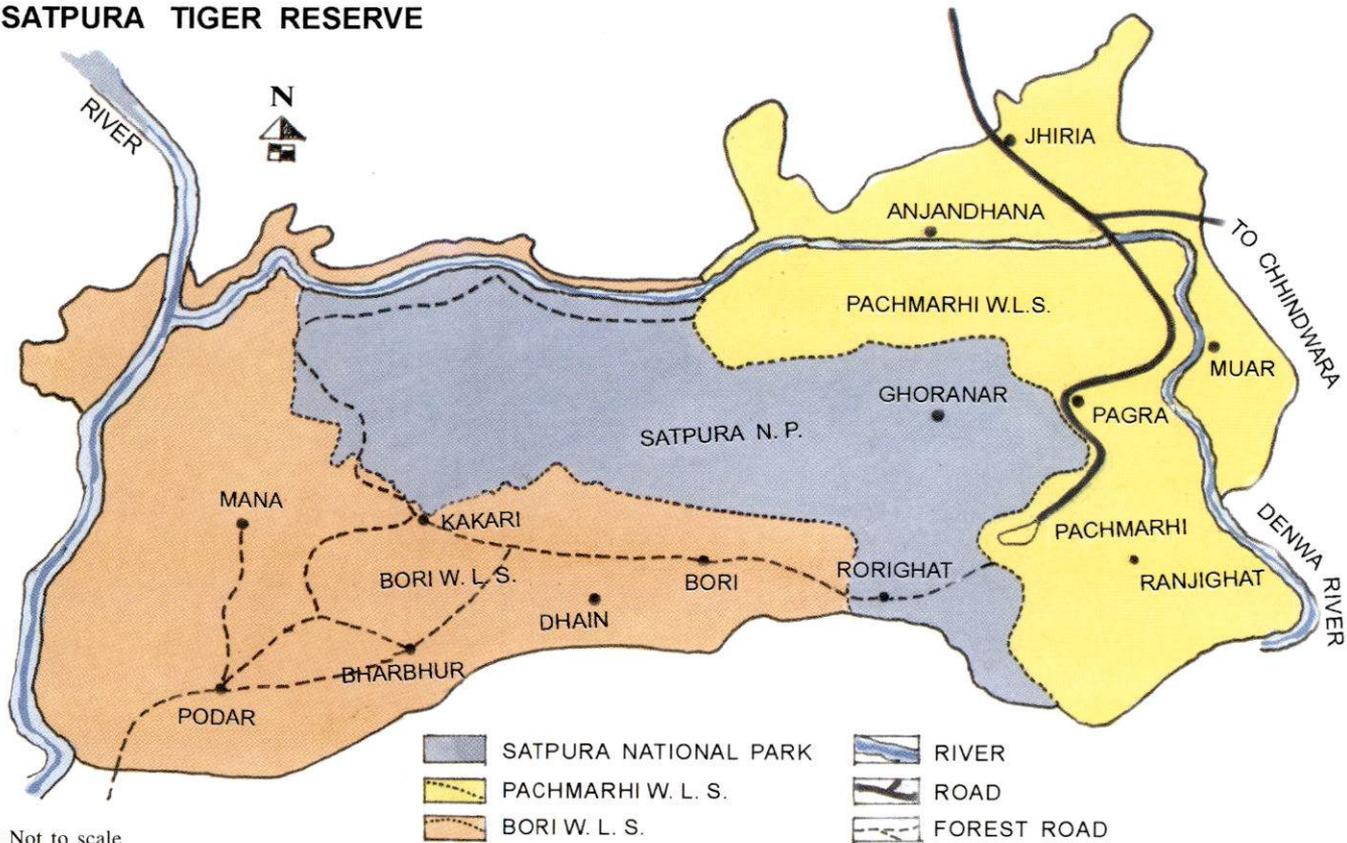
- Shishodia, M.S. 1991. Grouse locusts (Insecta: Orthoptera: Tetrigidae) of the Kanha National Park, District Mandla, Madhya Pradesh, India. *Rec. zool. Surv. India*, **89**(1-4) : 101-104.
- Shishodia, M.S. 1995. Insecta : Orthoptera. In : *Fauna of Indravati Tiger Reserve, Conservation Areas Series*, **6** : 11-17.
- Shishodia, M.S. 1999. Orthoptera. Fauna of Pataalkot, Chhindwara, M.P., India. *Rec. zool. Surv. India*, **97**(4) : 33-43.
- Shrivastava, G. K. 1988. *The Fauna of India, Dermaptera, Pygidicranoidea, Part-1* : xii + 268 pp.
- Shrivastava, G. K. 2004. Dermaptera : Fauna of Pench Tiger Reserve, (Communicated).
- Shrivastava, R. J. 1995. Sighting of Indian tree shrew *Anathana ellioti* at Bori wildlife sanctuary, Hoshangabad District. Madhya Pradesh. *J. Bombay nat. Hist. Soc.*, **92**(3) : 410.
- Shukla, R. 1997. Study on ungulate population in the Pench Wildlife Reserve, M.P. *J. Trop. Forestry*, **13**(1) : 60-64.
- Shukla, R. & Khare, P.K. 1998. Food habits of wild ungulates and their competition with livestock in Pench Wildlife Reserve, Central India. *J. Bombay nat. Hist. Soc.*, **95**(3) : 418-421.
- Singh, R.K. 1977. On a collection of butterflies (Insecta) from Bastar district, M. P. *Newsl. zool. Surv. India*, **3**(5) : 323-326.
- Singh, R. K. 1995. Insecta : Lepidoptera. In : *Fauna of Kanha Tiger Reserve, Conservation Areas Series*, **6** : 15-17.
- Singh R.K. and Chandra K. 2002. An inventory of butterflies of Chhattisgarh. *J. Tropical Forestry*, **18**(1) : 67-74.
- Singh, R.K. & Koshta, M.L. 1997. On a collection of butterflies (Lepidoptera : Rhopalocera) from Kanha National Park, M.P., India. *Rec. zool. Surv. India*, **96**(1-4) : 15-23.
- Sinha, N.K. 1977. Mammals of Bandhavgarh National Park, Shahdol district, M.P. *Newsl. zool. Surv. India*, **3**(1) : 3-7.
- Smith, M.A. 1931. *Fauna of British India, Reptilia and Amphibia, Vol. 1, Loricata, Testudines*. Taylor & Francis, London, xxviii + 185 pp.
- Smith, M.A. 1935. *Fauna of British India, Reptilia and Amphibia, Vol. 2, Sauria*. Taylor & Francis, London, iv + 440 pp.
- Smith, M.A. 1943. *Fauna of British India, Reptilia and Amphibia, Vol. 3, Serpentes*. Taylor & Francis, London, xii + 584 pp.
- Soni, D.D. 1959(1962). Fish fauna of Bhopal lower lake. *Proc. First All India Congr. Zool.*, : 639-641.
- Soni, D.D. 1960. Fish fauna of Bhopal Upper lake *Proc. Indian Sci.*, **47**(3) : 477.
- Stephenson, J. 1923. *The fauna of British India, Oligochaeta*, : xxiv + 518 pp.

- Subba Rao, N.V. & Mitra, S.C. 1979. On land and fresh water molluscs of Pune District, Maharashtra. *Rec. zool. Surv. India*, **75** : 1-37.
- Subba Rao, N.V., Thakur, D.K. & Mitra, S.C. 1989. Mollusca (Freshwater). In State Fauna series : Orissa
- Swarup, H. 1953. Fish fauna of Sagar lake. *Saugar Univ. J.*, **1**(2) : 239-244.
- Swinhoe, C. 1886. On the Lepidoptera of Mhow. *Proc. zool. Soc. Lond.*, : 421-465.
- Talbot, G. 1939. *The fauna of British India including Ceylon and Burma, (Butterflies)*, 2nd ed., Vol. **1** : 1-600. Taylor & Francis Ltd., London.
- Talbot, G. 1947. *The fauna of British India including Ceylon and Burma, (Butterflies)*, 2nd ed., Vol. **2** : 1-506. Taylor & Francis Ltd., London.
- Tandon, S.K., Shishodia, M.S. & Dey, A. 1976. On a collection of orthoptera (Insecta) from the Kanha National Park. *Newsl. zool. Surv. India*, **2**(4) : 167-170.
- Tandon, S.K., Shishodia, M.S. & Dey, A. 1995. Insecta : Orthoptera. *Fauna of Conservation Areas No. 7 : Fauna of Kanha Tiger Reserve*, : 19-25.
- Tikader, B.K. & Bastawade, B.D. 1983. *The Fauna of India, Scorpionida : Arachnida*, Vol. **3** : xii + 671 pp.
- Tilak, R. and Sinha, N.K. 1979. A check-list of Fishes from Madhya Pradesh (India). *Zool. Jb. Syst.*, **106** : 175-196.
- Tiwari, S.K. 1998. *National Parks of M.P., State of biodiversity and human infringement* APH Publishing Corporation, : 1-286.
- Verma, K.K. 1988. MAPCOST Symposium on Indian Studies on Chrysomelidae and Bruchidae. *Chrysomela* No. **18** : 5-6, illustr.
- Wroughton, R. C. 1913. Bombay Natural History Society's Mammals Survey of India Report No. **7**. *J. Bombay nat. Hist. Soc.*, **22**(1) : 29-44.
- Wroughton, R.C. 1918. Summary of the results from the Indian Mammal survey of Bombay Natural History Society I, Primates and Chiroptera (Part). *J. Bombay nat. Hist. Soc.*, **25** : 547-598.
- Wynter-Blyth, M.A. 1957. *Butterflies of the Indian Region*. Bombay Natural History Society, Bombay, : 1-523, 72 pls.
- Yoganand, T.R.K. 1998a. Wolves in Panna National Park. *J. Bombay nat. Hist. Soc.*, **95**(2) : 327-328.
- Yoganand, T.R.K. 1998b. Sloth bear movement in Panna National Park. *Zoos Print*, **13**(1) : 38.

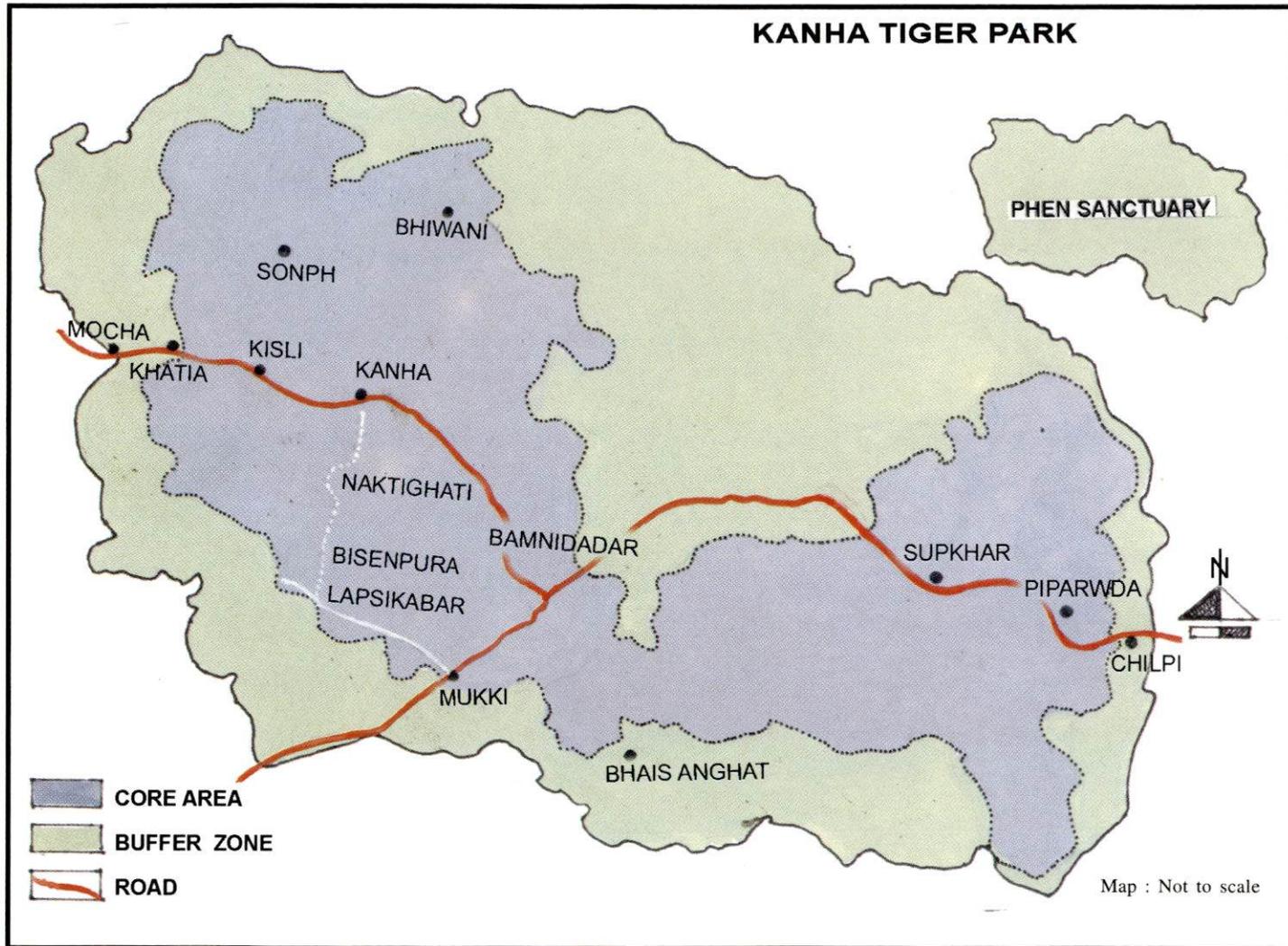
Compiled by : **KAILASH CHANDRA***, **RAMAKRISHNA** AND **J.R.B. ALFRED**
Zoological Survey of India, M-Block, New Alipore, Kolkata-700053
**Zoological Survey of India, Central Regional Station, Jabalpur*

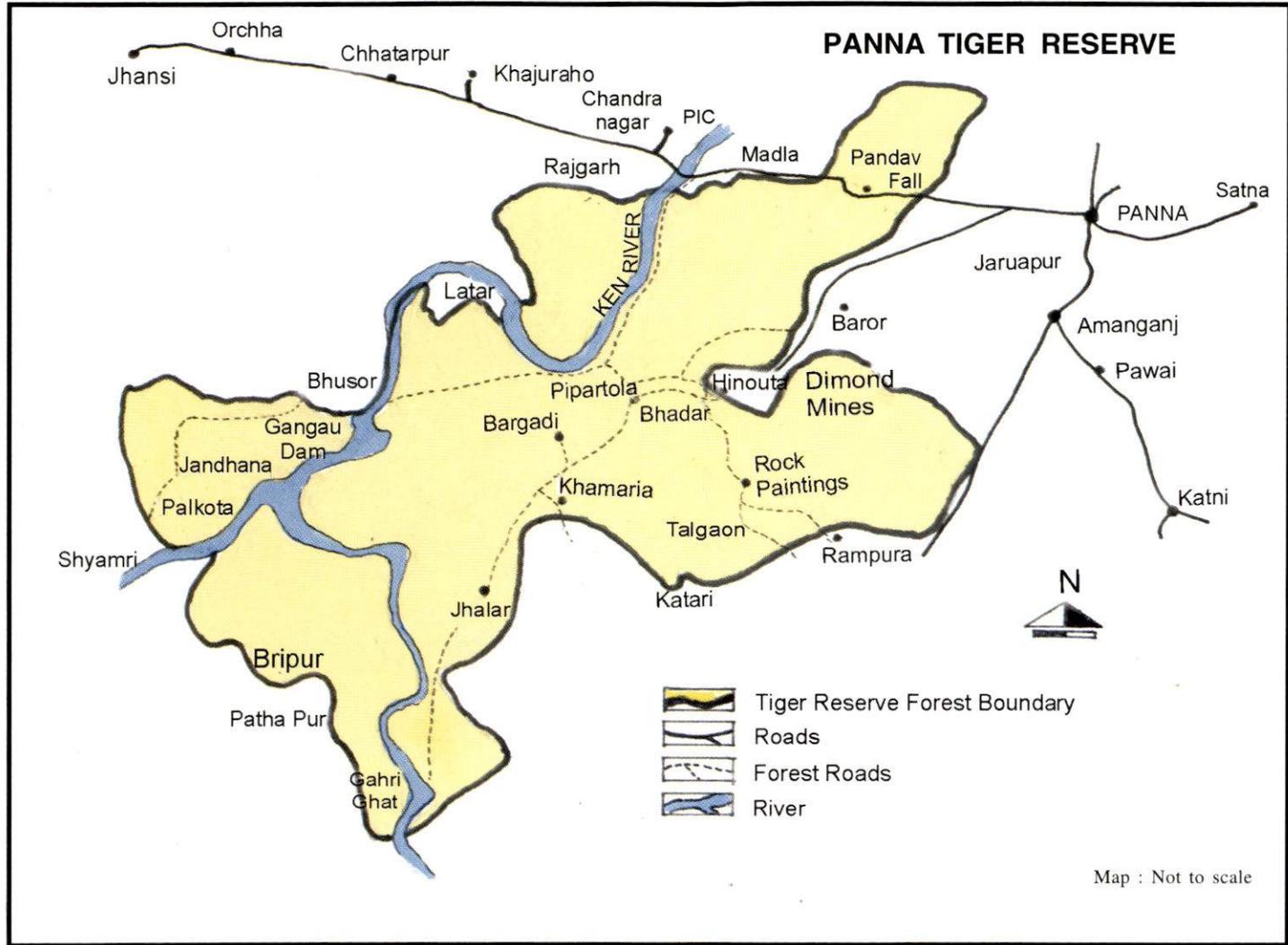


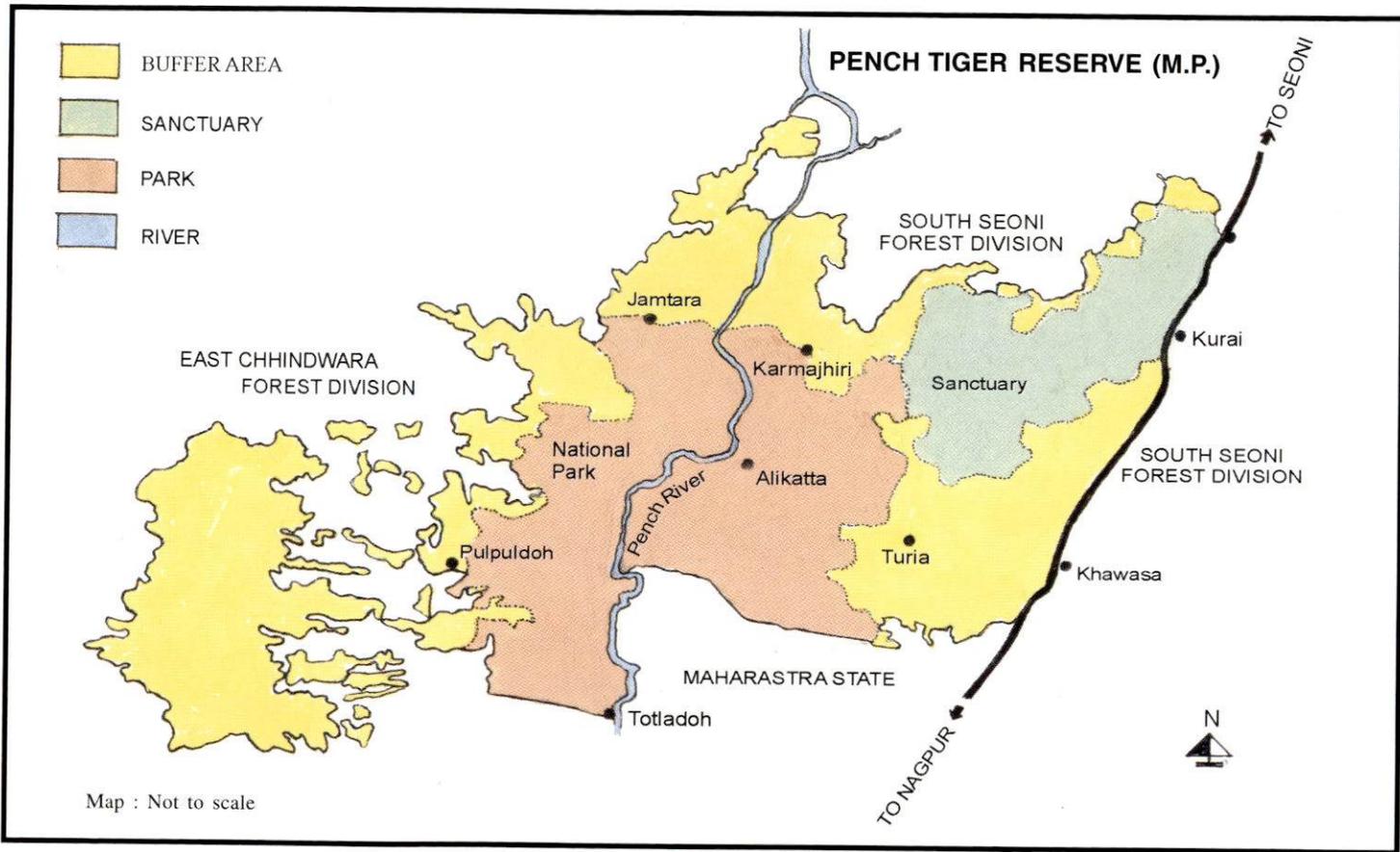
SATPURA TIGER RESERVE

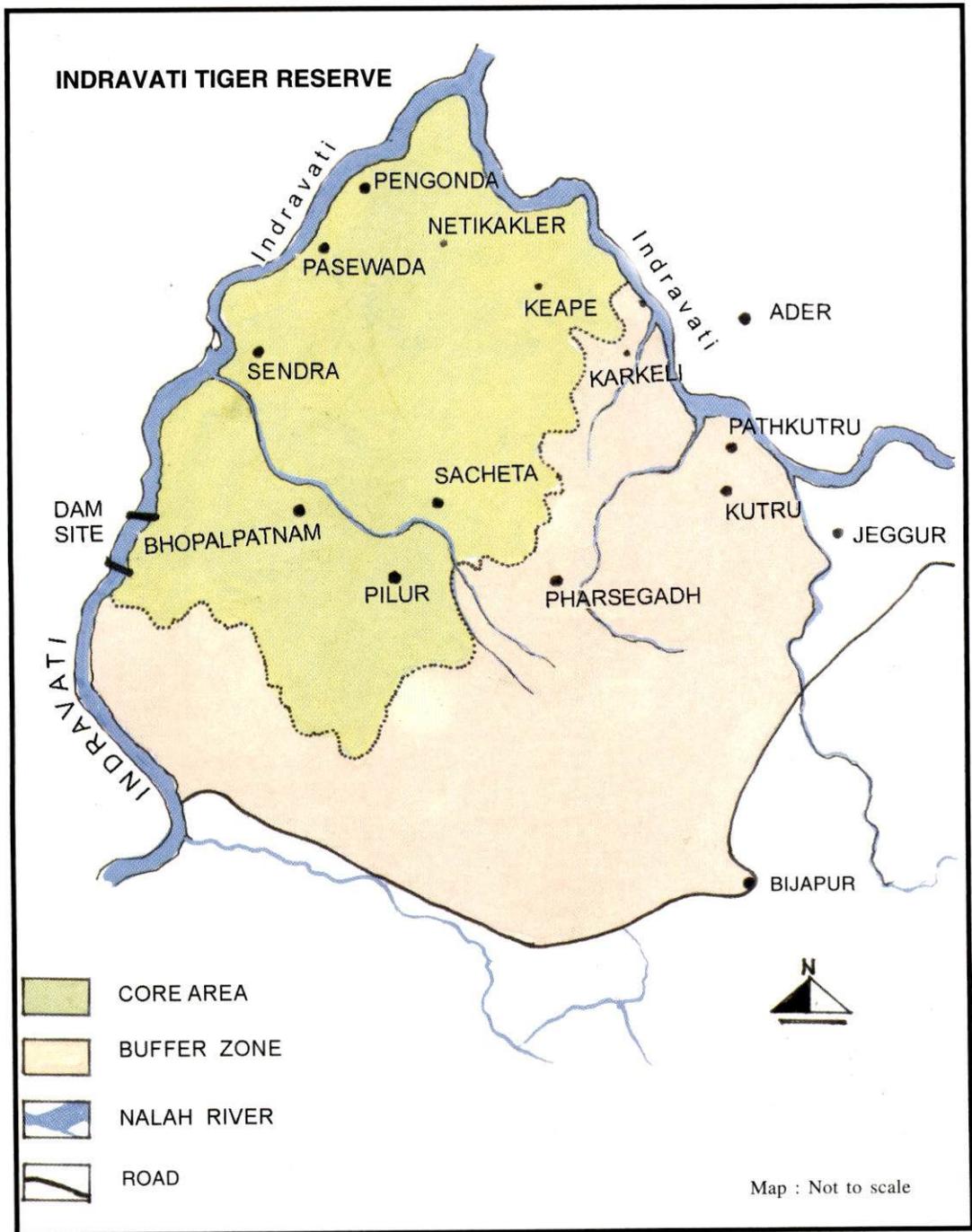


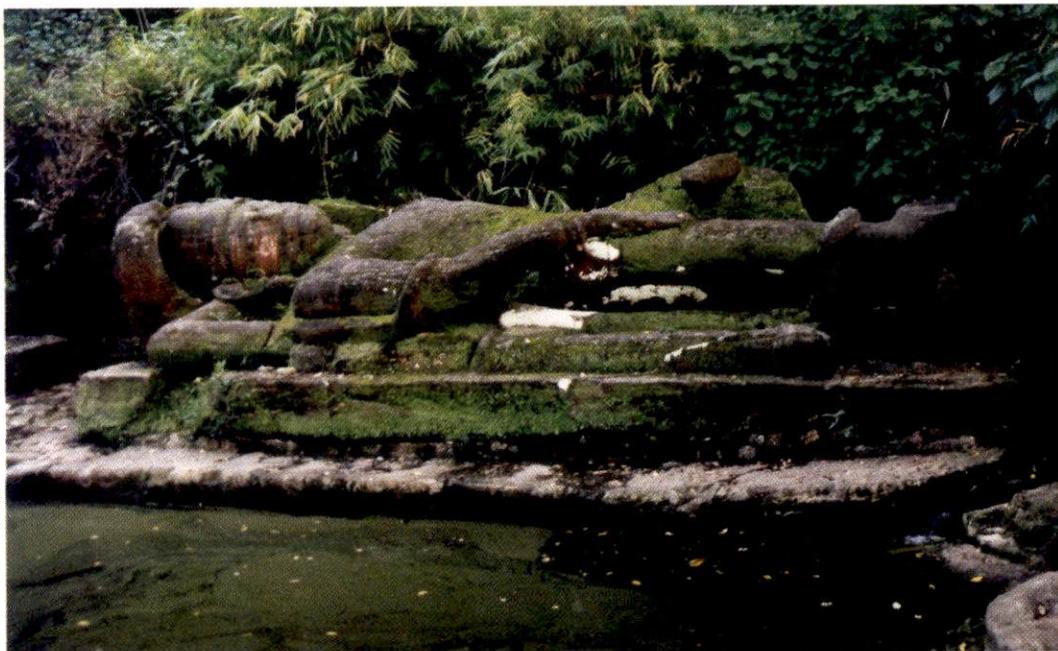
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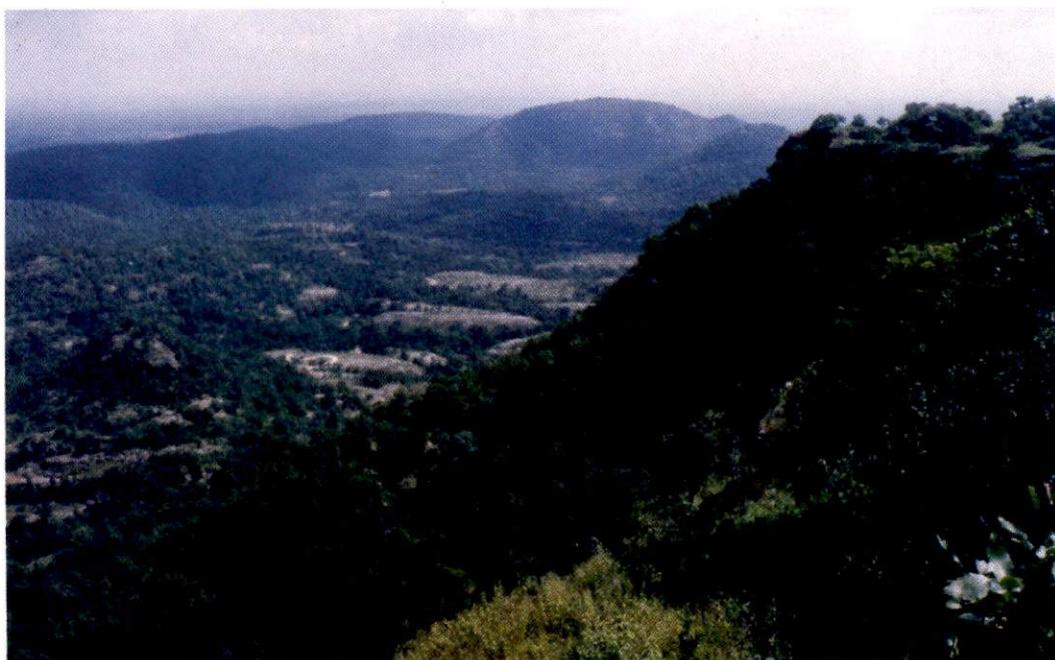








A view of Shesh Shaiya in Bandhavgarh Tiger Reserve



A view of Bandhavgarh Fort, Bandhavgarh Tiger Reserve



Jhalariya Mahadeo Hills, Panna Tiger Reserve



Magardabri, Ken River in Panna Tiger Reserve



Baghdeo Baba-prayed in Pench Tiger Reserve



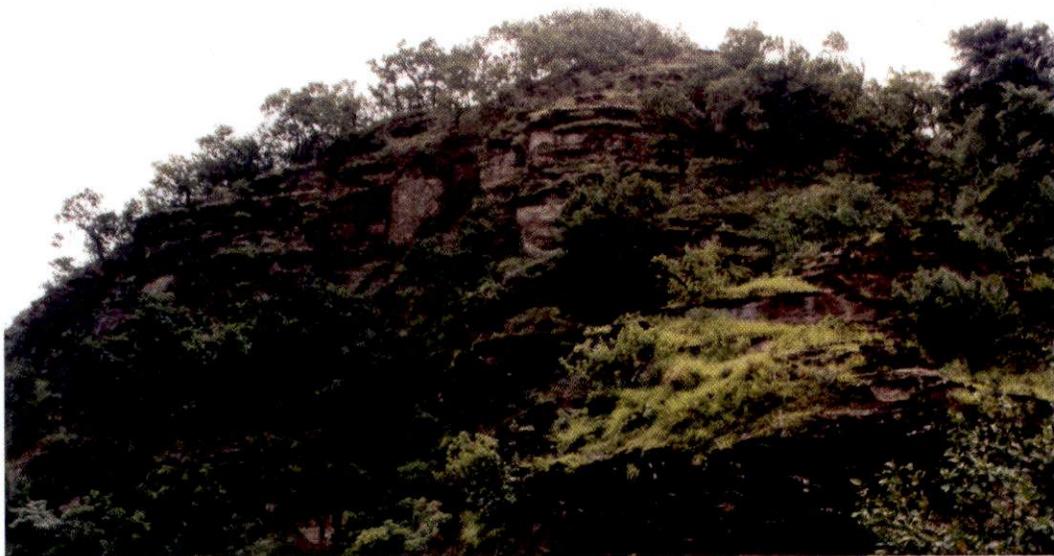
Pench River, lifeline of Pench Tiger Reserve



Local inhabitants praying to idols of wildlife in Pench Tiger Reserve



Waterbodies in Kanha Tiger Reserve



Dry Deciduous Forests on Pachmarhi Hills, BSPTR



Dry Mixed Deciduous Forests, Bori Sanctuary, BSPTR



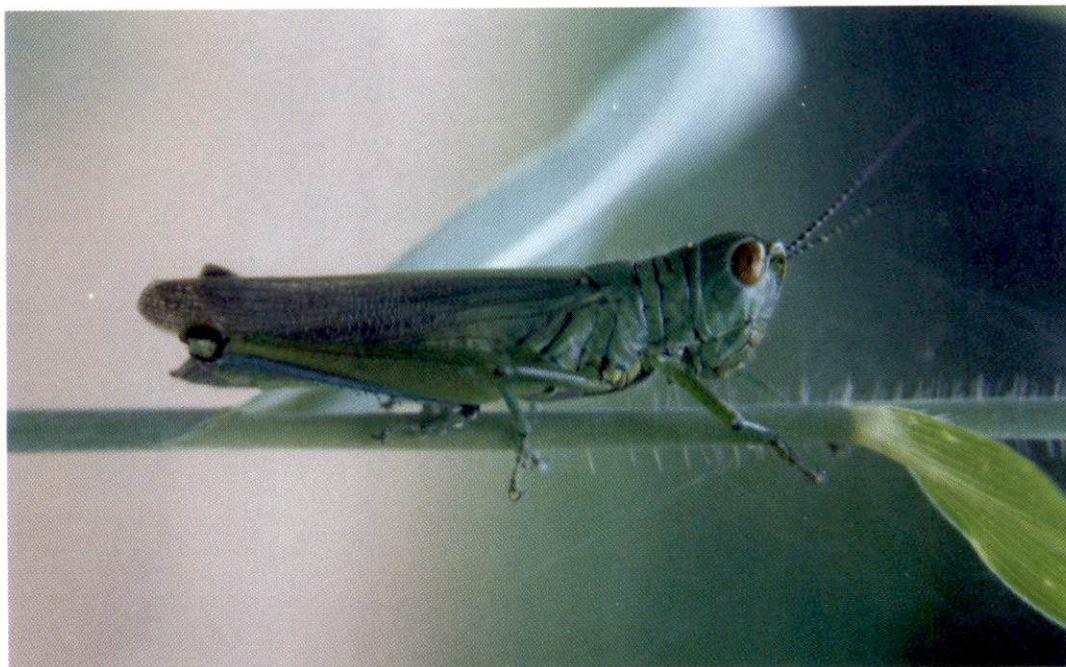
A view of Apsara Vihar-Water fall in Pachmarhi, BSPTTR



Bamboo Forests in Bori Sanctuary, BSPTTR



Argiope aemula (Walckenaer) : Pench Tiger Reserve



Grasshopper - *Hieroglyphus banian* (Fabricius) : Kanha Tiger Reserve



Grasshopper - *Gastrimargus africanus africanus* (Saussure)



Grasshopper - *Teratodes monticollis* (Gray) : Pench Tiger Reserve



1. Dung roller - *Liatongus rhadamistus* (Fabricius) with dung ball; 2. Dung beetle - *Onthophagus pactolus* (Fabricius) : Bandhavgarh Tiger Reserve; 3. Dynastid beetle - *Xylotrupes gideon* (Linnaeus) : Bandhavgarh Tiger Reserve; 4. Ruteline beetle - *Mimela inscripta* (Nonfreid) : Bandhavgarh Tiger Reserve; 5. Cetoniine beetle - *Oxycetonia versicolor* (Fabricius) : Pench Tiger Reserve; 6. Cetoniine beetle - *Clineria klugi* (Hope) : Bandhavgarh Tiger Reserve.



1. Jewel beetle - *Stenocera chrysis* Linnaeus : Bori-Satpura Pachmarhi TR; 2. Cerambycid beetle - *Stibora nigricornis* Fabricius : Pench Tiger Reserve; 3. The Spot Swordtail - *Graphium nomius nomius* (Esper) : Pench Tiger Reserve; 4. The Common Tiger - *Danaus genutia* (Cramer); 5. The Blue Tiger - *Tirumala limniace leopardus* (Butler); 6. The Common Sailor - *Neptis hylas astola* Moore.



1. The Baronet - *Symphaedra nais* (Forster); 2. The Common Pierrot - *Castalius rosimon rosimon* (Fabricius); 3. The Pointed Parrot - *Tarucus theophrastus* (Fabricius); 4. The Tiny Grass Blue - *Zizeeria gaika* (Trime); 5. *Celaenorrhinus ambareesa* (Moore); 6. Toad - *Bufo melanostictus* Schneider : Bori-Satpura, Pachmarhi TR.



Painted Frog - *Kaluola taprobanica* Parker : Pench Tiger Reserve.

Indian Bull Frog - *Haplobatrachus tigerinus* (Daudin) : Pench Tiger Reserve.



Indian Flapshell Turtle - *Lissemys punctata* (Bonnaterre) : Pench Tiger Reserve.



Indian Garden Lizard - *Calotes versicolor* (Daudin), common in all TRs.

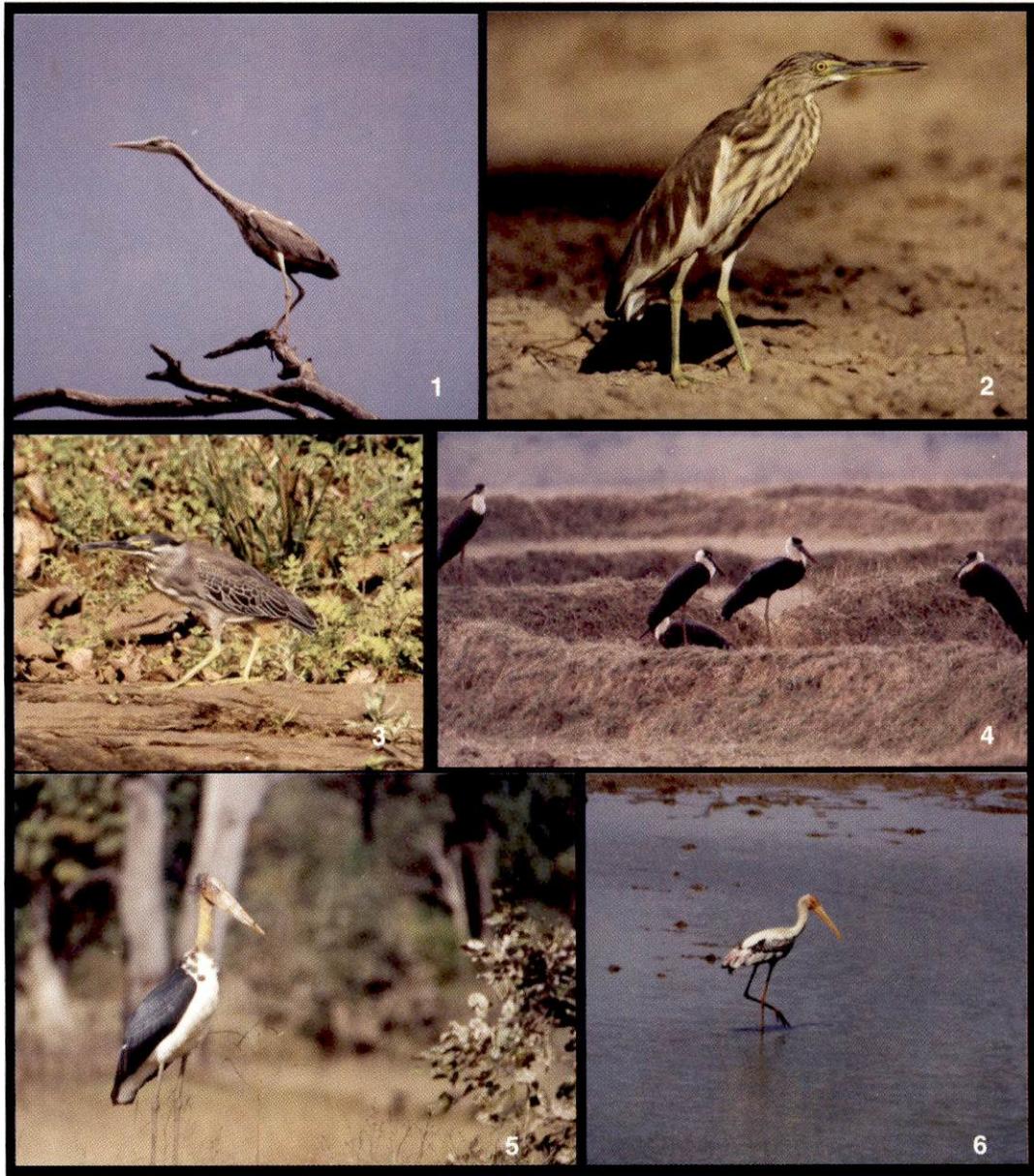
Common Indian Monitor Lizard - *Varanus bengalensis* (Linnaeus)



Green or Bamboo Pit Viper - *Trimersurus gramineus* (Shaw) : Bori-Satpura Pachmarhi TR.



Checkedred Keelback - *Xenochrophis piscator* (Schneider)



1. Grey Heron - *Ardea cinerea rectirostris* Gould : Bori-Satpura Pachmarhi TR; 2. Pond Heron - *Ardeala grayii grayii* (Sykes) : Bori-Satpura Pachmarhi TR; 3. Little Green Heron - *Butorides striatus chloriceps* (Bonaparte) : Bori-Satpura Pachmarhi TR; 4. White necked Stork - *Ciconia episcopus episcopus* (Boddaert) : Bandhavgarh Tiger Reserve; 5. Lesser Adjutant - *Leptoptilos javanicus* (Horsfield) : Bandhavgarh Tiger Reserve; 6. Painted Stork - *Mycteria leucocephala* (Pennant) : Panna Tiger Reserve.



1. Black Ibis - *Pseudibis papillosa papillosa* (Temminck) : Bori-Satpura Pachmarhi Tiger Reserve. 2. Indian White-backed Vulture - *Gyps bengalensis* (Gmelin) : Bandhavgarh Tiger Reserve; 3. Crested Serpent Eagle - *Spilornis cheela cheela* (Latham) : Pench Tiger Reserve; 4. Pea Fowl - *Pavo cristatus* Linnaeus : common in all Tiger Reserves; 5. Little Ringed Plover - *Charadrius dubius* Scopoli : Pench Tiger Reserve; 6. White-breasted Waterhen - *Amaurornis phoeniceurus chinensis* (Boddaert).



1. Blue Rock Pigeon - *Columba livia intermedia* Gmelin : Kanha Tiger Reserve; 2. Spotted Dove - *Streptopelia chinensis suratensis* (Gmelin) : Bori-Satpura Pachmarhi Tiger Reserve; 3. Barred Jungle Owlet - *Glacidium radiatum radiatum* (Tickel) : Bori-Satpura Pachmarhi Tiger Reserve; 4. Small Blue Kingfisher - *Alcedo atthis taprobana* Kleinschmidt : Bandhavgarh Tiger Reserve; 5. White breasted Kingfisher - *Halcyon smyrensis fusca* (Boddaert); 6. Blue Jay - *Coracias bengalensis bengalensis* (Linnaeus) : Pench Tiger Reserve; 7. White Wagtail - *Motacilla alba dukhuensis* Sykes : Bandhavgarh Tiger Reserve; 8. Yellow Wagtail - *Motacilla flava thunbergi* Billberg : Kanha Tiger Reserve; 9. Oriental Magpie Robin - *Copsychus saularis* (Linnaeus) : Pench Tiger Reserve; 10. Blue Throat - *Luscinia svecicus* (Linnaeus) : Pench Tiger Reserve; 11. Orange headed Thrush - *Zoothera citrina cyanotus* (Jardine and Selby) : Bori-Satpura Pachmarhi Tiger Reserve; 12. White Browed Fantail Flycatcher - *Rhiphidura acreola acreola* (Lesson) : Pench Tiger Reserve.



Spotted Munia - *Lonchura punctulata punctulata* (Linnaeus) : Pench Tiger Reserve.



Tree Pie - *Dendrocitta vagabunda vagabunda* (Latham) : Bori-Satpura Pachmarhi Tiger Reserve.



Blackbuck - *Antilope cervicapra cervicapra* (Linnaeus) : Bori-Satpura Pachmarhi Tiger Reserve.



Gaur - *Bos gaurus gaurus* Smith : Pench Tiger Reserve.



Chital or Spotted Deer - *Axis axis axis* (Erxleben) : Bandhavgarh Tiger Reserve.



Sambar - *Cervus unicolor* Kerr : Pench Tiger Reserve.

Pack of Wild Dog - *Cuon alpinus* (Pallas) : Pench Tiger Reserve.



Tiger - *Panthera tigris* (Linnaeus) - Umbrella species of the Tiger Reserves.



PENCH TIGER RESERVE

NAGPUR, MAHARASHTRA

INTRODUCTION

Pench National Park came into existence in 1975 by the notification of Government of Maharashtra State Revenue & Forest Department No.GPS/1375/1217158-F1 dated 22nd Nov., 1975 (Singh, 1966). Though recognized recently as "Project Tiger Area" the forests in Nagpur District were declared as "Protected" as early as in 1879 under the then Indian Forests act (VII of 1878). These forests, thereafter, were constituted into Reserved Forests during the period from 1879 to 1893. The first working plan for these forests was proposed in 1895 by Mr. Dobbs. Since then, four working plans were proposed for the forests of district Nagpur up to 1957. Major step towards conservation of the natural wealth of the area was by abolition of proprietary rights in the forests in 1951 by which 960 sq. km of forests in the Nagpur District, formerly privately owned, were transferred for management to the Forest Department. This decision accelerated work on regeneration and maintenance of forest land in the District.

Main aspects focused for the development and protection of forests included preserving physical features, maintaining the fertility of the land by checking erosion, regulating water flow, guard the forest against damages from fire, theft, encroachment and misuse of rights and privileges. Thus areas of Vidarbha region of Maharashtra in general still holds good quality of natural forests and wildlife.

The area of Pench National Park covers about 258 sq. km with excellent forest. This area is adjoining to the Pench National Park and sanctuary of adjoining state, Madhya Pradesh. Thus it forms a large unit sustaining wildlife and biodiversity existing there.

The Western Regional Station, Zoological Survey of India, Pune thoroughly surveyed area of Pench National Park in the years from 1994 to 1999. Representative faunal samples for smaller groups (unscheduled animals only) were collected and observations only for higher animals like birds and mammals were recorded to inventorise fauna of Pench National Park. A total of 9 Surveys were conducted. Collection for about 16 animal groups was worked out and details have been published by the Zoological Survey of India, under the Fauna of Pench National Park, Maharashtra (2004).

District Nagpur has important rivers like, Wainganga, Wardha, Kanhan and Pench. Besides these, tanks and lakes area also located here. Important tanks and lakes are (1) Ramsagar, (2) Ambazari, (3) Gorewada, (4) Telakhedi, (5) Gandhi Sagar, (6) Mansar and (7) Charkorda. All these

support aquatic forms of life. Amongst the fishes of economic importance, species from family Cyprinidae (26 spp.); Cobitidae (4 spp.); Siluroideae (5 spp.); Bagridae (3 spp.); Disoridae (1 sp.); Anguillidae (1 sp.); Xenenotodontidae (1 sp.); Ophicephalidae (4 sp.); Nandidae (2 spp.); Ambassidae (2 spp.); Gobiidae (1 sp.); Mastacea mbelidae (3 spp.) and Notopteridae (1 sp.) have been recorded. Wild animals like, tiger, *Panthera tigris*; panther, *Panthera pardus fusca* (Meyer); sloth bear, *Melursus ursinus* (Shaw); gaur, *Bos gauru*, Smith; chital, *Axis axis axis* (Erxleben); sambhar, *Cervus unicolor nigar* Blainville; barking deer, *Muntiacus muntjak aureus* (H. Smith); black buck, *Antilope cervicapra cervicapra* (Linn.); four horned antelope, *Tetracerus quadricornis* (Blainville); neel-gai, *Boselaphus tragocamelus* (Pillus); hyaena, *Hyaena hyaena hyaena* (Linn.); wildboar, *Sus acrofa cristatus* Wagner; jackal, *Canis aureus* Linn.; wild dog, *Cuon alpinus* (Pallas); hare, *Lepus nigricollis nigricollis* Cuvier; porcupine, *Hystrix indica* Kerr. are mentioned. Description of birds (7 spp.); snakes : non poisonous (10 spp.) and poisonous (4 spp.) have been also provided. The snakes were identified by P.T. Deoras of the Haffkin Institute, Bombay.

In the recent years, the Deputy Conservator of Forests, Wildlife, Nagpur prepared a "Checklist of Birds of Pench National Park", based mainly on the work of Gopal Thosar of Nagpur and updated by Forest officials and Birdwatchers (Misra 1995?). It provides name of the species, corresponding page numbers from the book "Pictorial guide by Salim Ali". Other information like, movements : (whether resident, local migratory or migratory), Status : (common, abundant, occasional, uncommon) and its local name in Marathi is also given for 164 species. This checklist, though priced and meant for circulation amongst visitors and tourists of the National Park does not bear year of publication, which is approximated to 1995.

While discussing emerging trends and population estimation of Tigers in Maharashtra state (Chaudhuri, 2003) presence of tigers is indicated in 8 territorial circles out of 11, in which Nagpur holds 19 tigers. Most of the tigers in Amravati circle, North Chandrapur and Nagpur Circle seem to be in the buffer areas (adjoining forests) of the 3 Tiger Reserves in the State and therefore it has been suggested that management as well as working plans of these forest area need to take note of this scenario, when planning prescriptions for this areas. Information on salient features of all Tiger Reserves in India has been compiled (Anon, 2004).

Estimated number of Tigers in Maharashtra

Area	1993	1997	2001
Protected Areas (PA) (including Multiple use area) and Melghat Tiger Project	140	94	155
Territorial Area (Non-Protected Areas).	136	94	83
Total	276	257	238

Source : Chaudhuri, 2003

GENERAL INFORMATION

Name of District	: Nagpur.
State	: Maharashtra.
Boundries	
North	: Chindwada and Seoni Districts of Chattisgarh State.
East	: Chandrapur and Bhandara Districts, Maharashtra.
South	: Wardha District, Maharashtra.
West	: Amravti District, Maharashtra.
Area	: 257.26 sq. km.
Connectivity	: Road : 75 km. From Nagpur city.
Nearest Railway Station	: Nagpur.
Nearest Airport	: Nagpur.

TOPOGRAPHY

The Area of Nagpur District has an undulating plateau, with height 652.70 m above sea level on the upland ridges in North and about 254.50 m near the Kanhan river. The northern range of hills extends along the whole border of the district, from where rivers Kanhan and Pench originate. From Kanhan to the Pench, it is the major range of Satpuras which dominates the landscape. These rivers, Kanhan and Pench unite near Kamptee. Along the length of the hills are well-wooded forest land.

GEOLOGY

Nagpur city is almost the dividing line between Archean rocks exposed to the east and younger formations like Deccan basalts, the infra-trappean Lametus and the Gondwanas on the west. Thus the formation represents streaky Granite eg. Neisses Sausar and Sakoli series of most ancient metasediments; Gondawana group (Talchir, Barakar, Kamthi stages); Lameta beds; Deccan basalt flows (Traps) with associated Intertrappean sediments to the recently formed soil. The Archaean area of the rocks are hidden beneath a considerable thickness of alluvial soil deposited by the tributaries of the Kanhan river in the Pench National Park. Industrial minerals like brick clays, Limestones, Manganese, Coal, Silica etc. are prominent. In the area of Pench National Park, rocks, loose stones and riverbeds have shining particles of Silica present in them. Analytical report of few samples from the District shows presence of 42.28 – 56.52% Manganese; 2.09.– 16.34 % Iron and 2.90 – 18.40% Silica in the rocks.

CLIMATE

The climate is characterised by hot summer in the months of April to June. Atmospheric temperature varies between 27° to 47.8° C (Maximum). Rain is brought by south-west monsoon usually in the second week of June. From June to September it amounts to about 90% of the average annual rainfall which is about 1150 mm. Variation in the annual rainfall is not very large.

On an average 59 rainy days are recorded in a year. The "cold" season persists, with pleasant weather from November/December to February. In the past, night temperature drop up to 3.9° C is also recorded during this period. Except during the monsoon season when the humidity is high, the air is generally dry. During summer days humidity goes down to 29%.

FORESTS

Floristically Pench National Park is very rich. The Forest type is Tropical Dry Deciduous and mixed Southern Type. Teak, *Tactona grindis* is the main important species. Teak timber yielded corresponds to type IV and type III of the standard quality (Champion & Seth, 1968). Proportion of Teak plantation varies from 30 to 60% at different places. Other associates of Teak are Saj *Terminalia tomentosa*; Achar, *Buchanania latifolia*; Salai, *Boswellia serrata*; Dhaora, *Anogeissus latifolia*, Tiwas, *Ougeinia oogenensis*; Tendu, *Diospyrosa melanoxylon*; Bija, *Pterocarpus marsupium*; Dhaman, *Grewia tiliaefolia*; etc. Forests in this area come under "Protected" Forest category since 1879. Timber and fuel wood constitute major forest products in Nagpur District. Other forest products are bamboo, tendu leaves, grass particularly rosha grass which is used to extract perfume and gum. The shrubby undergrowth and presence of grassy patches in the forested area is also observed.

SOCIO-ECONOMIC ASPECTS

Forests of Pench National Park are well-known for their timber produce. Other non-timber forest products are mentioned earlier. With restrictions on exploitation of the forest areas and strict vigil by the State Forest Departments, dependence of local population on forest is minimized. Compound effect of social awareness towards conservation of natural wealth and wildlife, together with availability and acceptance of alternative energy resources, the area of national park is supporting the flora and fauna satisfactorily, with the locals and tribes living in the area.

Tribes in this area are Gonds.

TOURISM

Area of Pench National Park is adjoining to Nagpur-Jabalpur Highway. Lots of tourists flock in from the Nagpur City. There is a direct tar road to Totladoh, which is motorable. Totladoh lies at the extreme end of the park. The road leads through Sillari from where Ranidoh area can be approached. Several tourists visit a temple at Ambakhori. It is on the bank of river Pench. Being place of worship and equally a picnic spot for casual visitor, Ambakhori remains a favorite spot for youngsters. During surveys conducted by Western Regional Station of Zoological Survey of India from 1994 – 1999, rush of tourists was experienced specially during holidays and weekends.

MANAGEMENT HAZARDS

Being in close proximity to the city of Nagpur, which is regarded as second capital of Maharashtra, the National Park is viewed as a tourist place. Every year, Maharashtra Assembly winter session is held in Nagpur. During this period variety of people in the city search for recreation around and

accommodation facilities in National Park experience lot of pressure. Local people try to collect non timber forest produce. Cases of forest fire are comparatively low.

HIGHLIGHTS OF RESULTS OF FAUNISTIC SURVEY BY WESTERN REGIONAL STATION, Z.S.I., PUNE DURING 1994-1999

A total of nine faunistic surveys of Pench National Park were conducted by the scientists of Western Regional Station of Zoological Survey of India, Pune during the years 1994-1999. These surveys were aimed at enlisting faunal diversity of the area. Collections, for small animals were made to ascertain their identity up to species level, while observations alone on higher groups were made. There was no consolidated information on existing fauna in Pench National Park except publication in the District Gazetteer Nagpur (1966) and a Check List of Birds of Pench National Park (Misra, 1995) as stated earlier.

As the outcome of the surveys by the Zoological Survey of India, information on approximately 425 animal species has been collected. As many as 16 faunal groups have been worked out. Analysis of taxonomic data is presented in Table 1. While recording interesting findings, Kulkarni, *et al.* 1999) described perdition of a dragonfly, *Pantala flavescens* (Far.) by the giant wood spider, *Nephila maculata* (Fabr.) and (Prasad, *et al.* 2000) described andromorphic female of *Neurothemis tullia tullia* (Drury); Odonata : Insecta from Pench National Park.

Collection of faunal samples was worked out mainly by the scientists of Western Regional Station, Zoological Survey of India, Pune. Specialists from other regional stations and institutions also identified few groups. List of faunal groups and present address of the specialists is presented here. **Mammalia and Reptilia** - Dr. M.S. Pradhan¹; **Aves** - Dr. A.S. Mahabal¹; **Amphibia** - Shri. S.S. Kamble¹; **Pisces and Centipeds** - Dr. B.E. Yadav¹; **Lepidoptera** - Dr. R.M. Sharma² and Shri. C. Radhakrishnan³; **Mantodea** - Dr. P.M. Sureshan⁴, Dr. H.V. Ghate⁵ and C. Radhakrishnan³; **Aquatic Hemiptera** - Dr. G. Thirumalai⁶, R. Sureshkumar⁶ and Dr. R.M. Sharma²; **Orthoptera** - Dr. P.P. Kulkarni¹ and Dr. M.S. Shishodia⁷; **Odonata** - Dr. P.P. Kulkarni¹, Dr. M. Prashad⁸ and Shri. S.S. Talmale¹; **Arachnida : Scorpionida, Araneae and Sloifugi** - Dr. D.B. Bastawade¹; **Cladocera** - Dr. P.D. Rane¹; **Mollusca** - Dr. S.G. Patil¹.

Summary of the results highlighting important findings on each group is presented here. Apart from the collection listed, specimens for other groups of animals could not be worked out due to non availability of experts. All collection is duly preserved and registered in the National Zoological Collection of Western Regional Station, Zoological Survey of India, Pune.

Addresses :

1. Western Regional Station, Zoological Survey of India, (Z.S.I.), Pune.
2. High Altitude Zoology Field Station, Z.S.I., Solan.
3. Western Ghat Regional Station, Z.S.I., Calicut.
4. Easturine Biology Regional Station, Z.S.I., Berhampur.
5. Modern College, Shivajinagar, Pune.
6. Southern Regional Station, Z.S.I., Chennai.
- 7 and 8. Scientists, (Retired), Z.S.I., Kolkata.

TABLE - 1

S. No.	Group	Order	Sub order	Family	Subfamily	Genera	Species	Subspecies
1.	Mammalia	9	4	12	23	52	24	47
2.	Aves	17	2	50	8	117	170	-
3.	Reptilia	3	3	16	-	38	49	4
4.	Amphibia	1	-	4	-	5	7	-
5.	Pisces	8	-	11	6	23	33	-
6.	Mollusca	5	-	12	6	15	36	-
Insecta								
7.	Odonata	1	2	6	13	24	38	-
8.	Mantodea	1	-	2	5	8	9	-
9.	Lepidoptera	1	2	7	-	52	65	-
10.	Orthoptera	1	2	8	11	25	26	-
11.	Aquatic Hemiptera	1	1	6	-	15	22	-
12.	Centipedes	1	-	2	2	6	13	-
13.	Scorpion	1	-	2	2	3	5	-
14.	Spiders	1	-	10	-	18	19	-
15.	Solifugi	1	-	1	-	1	1	-
16.	Cladocera	1	1	6	3	17	19	-

1. Mammals

It has been observed that mammalian species diversity in Pench National Park is very rich. Orders like Chiroptera, Carnivora, Artiodactyla and Rodentia are well represented. When endemism of species is analyzed only 5% species are found endemic. Out of the total mammalian fauna about 71% species feature in different Schedules of the existing Wildlife (Protection) Act.

2. Aves

Rich Avifauna exists in Pench National Park. A total of 170 species are enlisted from here. Order Passeriformes and Ciconiiformes are well represented. Only 3 species of birds were found amongst endangered species and those feature in the Wildlife (Protection) Act.

3. Reptilia

Out of 53 species and subspecies of reptiles reported from this area, 12 species are observed endemic where as (31 species) are included in various Schedules of Wildlife (Protection) Act.

4. Amphibia

Amphibian fauna of Pench National Park was found to be consisting of only 7 species. Special efforts to collect this form of life may add to its number.

5. Pisces

Though about 55 species of fishes are on record from Nagpur district, Zoological Survey of India could enlist only 33 species from the area of Pench Tiger Project alone. Details of these species are given in volume on Fauna of Pench National Park published by Zoological Survey of India.

6. Mollusca

36 species of Mollusca have been identified to be present in Pench Tiger Reserve. These contain both, Gastropods and Bivalves. Some of these species are recorded only carriers for parasites.

7. Odonata

A total of 84 species of Odonates are known from Maharashtra State. 38 species including one new record, could be collected from Pench Tiger Reserve. This area is rich in diversity as it holds about 45% species from the state.

8. Mantodea

9 species of mantids were identified, all these were collected for the first time from Pench, out of which three species form new record for Maharashtra State.

9. Lepidoptera

65 species of Lepidoptera are listed to be present. This represents two suborders, 9 families and 25 genera.

10. Orthoptera

Collection of Orthoptera yielded 26 species. All these are reported for the first time from Pench Tiger Reserve.

11. Aquatic Hemiptera

As mentioned in the text, area of Pench National Park holds water bodies. Aquatic insects collected from here, contained 22 species of aquatic Hemiptera. These collections are recorded for the first time from Pench National Park.

12. Centipedes

35 species of centipedes are so far known from Maharashtra State, of which 13 could be recorded from Pench National Park.

13. Scorpions

Out of 34 species of scorpions reported from Maharashtra and about 110 species from India, only 5 species could be collected from Pench. It is expected that few more species could be available there.

14. Spiders

19 species of spiders were collected and identified. Representatives from families like, Oonopidae; Palpimanidae, Pisauridae and Theraphosidae are new records from Pench National Park.

15. Solifugi

Only one species of "Sun spiders" Solifugi could be collected. This beautiful fast running, nocturnal species was collected from the area in Pench Tiger Reserve.

16. Cladocera

19 species and 2 subspecies of cladocera could be identified from this area. All are new records from here.

LIST OF FAUNA OF PENCH TIGER RESERVE

MOLLUSCA

Phylum MOLLUSCA
 Class GASTROPODA
 Subclass PROSOBRANCHIA
 Order MESOGASTROPODA
 Family VIVIPARIDAE
 Subfamily BELLAMYINAE

1. *Bellamyia bengalensis f. typica* (Lamarck)
- *2. *B. bengalensis f. doliaris* (Gould)
3. *B. bengalensis f. annandalai* Kobelt
4. *B. bengalensis f. eburnea* Annandale & Sewell
5. *B. dissimilis* (Muller)

Family BYTHYNIIDAE

6. *Digonistoma pulchella* (Benson)

7. *D. cerameopoma* Benson
 8. **Gabbia oracula* Frauenfeld
- Family PILIDAE
9. *Pila globosa* (Swainson)
 10. **P. virens* (Lamarck)
- Family THIARIDAE
 Subfamily THIARINAE
11. *Thiara (Thiara) scabra* (Mueller)
 12. **Thiara (Tarebia) lineata* (Gray)
 13. *T. (Melanoides) tuberculata* (Muller)
- Subfamily PALUDOMINAE
14. **Paludomus (P) obesus* (Philippi)
- Order BASOMMATOPHORA
 Family LYMNAEIDAE
15. *Lymnaea (Pseudosuccinea) acuminata f. typica* (Lamarck)
 16. **L. (P) acuminata f. brevisima* Annandale & Rao
 17. *L. (P) acuminata f. patula* Troschel
 18. *L. (P) acuminata f. rufescens* Gray
 19. *L. (P) luteola f. typica* (Lamarck)
 20. **L. (P) luteola f. australis* Annandale and Rao
 21. *L. (P) luteola f. succinea* Deshayes
- Family PLANORBIDAE
 Subfamily BULININAE
22. *Indoplanorbis exustus* (Deshayes)
 23. *Gyraulus convexiusculus* (Hutton)
- Class BIVOLVIA
 Order UNIONOIDA
 Family UNIONOIDAE
 Subfamily UNIONINAE
24. *Lamellidens consobrinus* (Lea)
 25. *L. corrianus* (Lea)
 26. *L. marginalis* (Lamarck)
- Family AMBLEMIDAE
27. **Perreysia (P) annandalei* Preston
 28. **Perreysia (P) nagpoorensis* (Lea)
 29. *Perreysia (P) flavidens* (Benson)

30. *P. (P) corrugata* (Mueller)
31. *P. (P) corrugata laevirostris* Benson
32. **P. (P) cylindrica* Annandale and Prashad
33. *P. (Radiatula) caerulea* Lea

Order VENEROIDA

Family CORBICULIDAE

34. *Corbicula striatella* Deshayes

LAND MOLLUSCA

Order STYLOMMATOPHORA

Family CERSTUIDAE

Subfamily NEPACINAE

35. *Rachis punctatus* Anton

Family GLESSULIDAE

36. **Glessula notigena* Benson

Family SUBULINIDAE

37. *Lamellaxis gracile* Hutton.

* From records and literature

CLADOCERA : CRUSTACEA

Phylum ARTHROPODA

Class CRUSTACEA

Subclass BRANCHIOPODA

Superorder DIPLOSTRACA

Order CLADOCERA

Suborder EUCLADOCERA

Superfamily (a) SIDOIDEA

Family (I) SIDIDAE

1. *Pseudosida bidentata* var. *szalayi* Daday
2. *Latonopsis australis* Sars
3. *Diaphanosoma excisum* Sars

Superfamily (b) CHYDOROIDAE

Family (II) DAPHNIIDAE

4. *Ceriodaphnia cornuta* Sars
5. *Daphnia carinata* King
6. *Simocephalus vetulus* (O.F. Muller)

2. *Scolopendra morsitans* Linnaeus *
3. *Scolopendra hardwickei* Newport
4. *Cormocephalus nigrificatus* Verhoeff. *
5. *Cormocephalus westwoodi* (Newport) *
6. *Cormocephalus dentipes* Pocock *
7. *Cormocephalus pilosus* Jangi

Tribe **Asanadini**

8. *Asanada indica* Jangi & Dass
9. *Asanada sokotrana* Pocock

Subfamily OTOSTIGMINAE

Tribe **Otostigmini**

10. *Rhysida nuda subnuda* Jangi
11. *Rhysida longipes longipes* (Newport)

Family CRYPTOPIDAE

12. *Cryptops orientalis* Jangi

INSECTA : ORTHOPTERA

Order ORTHOPTERA

Suborder ENSIFERA

Superfamily TETTIGONIOIDEA

Family PHANEROPTERIDAE

1. *Letana intermedia* Ingrisch
2. *Elimaea (Orthelimaea) securigera* Brunner
3. *Himertula kinneari* (Uvarov)
4. *Ducetia japonica* (Thunberg)
5. *Isopersa pedunculata* Brunner

Family CONOCEPHALIDAE

6. *Conocephalus maculatus* (Le Guillou)

Family MECOPODIDAE

7. *Mecopoda elongata* (Linn.)

Family PSEUDOPHYLLIDAE

8. *Sathrophyllia femorata* (Fabricius)

Superfamily GRYLLOIDEA

Family GRYLLIDAE

Subfamily GRYLLINAE

9. *Grullus* sp.

* Asterisk indicate species actually collected

Order ARANEAE

Family ARANEIDAE

6. *Nephila maculata* (Fabr.)
7. *Neoscona theis* (Walckenaer)
8. *Neoscona laglaize* (Simon)
9. *Neoscona lugubris* (Walckenaer)
10. *Neoscona excelsus* (Simon)
11. *Neoscona muckerjei* Tikader
12. *Cyclosa hexatuberculata* Tikader & Bal
13. *Cyclosa moonduensis* Tikader & Bal
14. *Argiope aemula* Walckenaer
15. *Argiope pradhani* Sinha
16. *Leucauge decorata* (Blackwall)
17. *Leucauge pondae* Tikader
18. *Araneus* sp.

Family ERESIDAE

19. *Stegodyphus sarasinorum* Karsch.

Family THOMISIDAE

20. *Thomisus sorajaii* Basu
21. *Thomisus* sp.

Family LYCOSIDAE

22. *Lycosa phipsoni* Pocock
23. *Lycosa* sp.
24. *Hippasa partita* (Cambridge)
25. *Pardosa sumatrana* (Thorell)
26. *Pardosa birmanica* Simon

Family PHOLCIDAE

27. *Crossopriza lyoni* (Blackwall)
28. *Artema atlanta*

Family TETRAGNATHIDAE

29. *Tetragnatha mandibulata* (Fabr.)
30. *Tetragnatha* sp.
31. *Eucta* sp.

Family OXYOPIDAE

32. *Oxyopus nalineae* Gajabe
33. *Oxyopus* sp.

Family SALTICIDAE

34. *Salticus* sp.

- Suborder CAELIFERA
 Superfamily TETRIGOIDEA
 Family TETRIGIDAE
 Subfamily SCELIMENINAE
10. *Euscelimena harpago* (Serville)
 Subfamily TETRIGINAE
11. *Pseudoparatettix histricus* (Stål)
12. *Hedotettix cristitergus* Hancock
 Superfamily ACRIDOIDEA
 Family PYRGOMORPHIDAE
13. *Atractomorpha crenulata* (Fabricius)
 Family ACRIDIDAE
 Subfamily ACRIDINAE
14. *Acrida exaltata* (Walker)
15. *Acrida indica* Dirsh
16. *Gonista* sp.
 Subfamily GOMPHOCERINAE
17. *Aulacobothrus* sp.
 Subfamily OEDIPODINAE
18. *Aiolopus thalassinus tamulus* (Fabricius)
19. *Oedalius abruptus* (Thunberg)
20. *Gastrimargus africanus africanus* (Saussure)
21. *Trilophidia annulata* (Thunberg)
 Subfamily HEMIACRIDINAE
22. *Hieroglyphus indicus* Mason
 Subfamily COPTACRIDINAE
23. *Eucoptacra saturata* (Walker)
 Subfamily CATANTOPINAE
24. *Catantops pinguis innotabilis* (Walker)
 Subfamily EYPREPOCNEMIDINAE
25. *Tylotropidius varicornis* (Walker)
 Subfamily CYRTACANTHACRIDINAE
26. *Cyrtacanthacris tatarica* (Linn.)

INSECTA : ODONATA

Order ODONATA

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

Family COENAGRIONIDAE

Subfamily PSEUDAGRIONINAE

1. *Ceriagrion coromandelianum* (Fabr.)
2. *Pseudagrion decorum* (Rambur)
3. *Pseudagrion rubriceps rubriceps* (Selys)

Subfamily ISCHNURINAE

4. *Ischnura aurora aurora* (Brauer)
5. *Ischnura senagalensis* (Rambur)
6. *Rhodishnura nursei* (Morton)

Subfamily AGRIOCNEMIDINAE

7. *Agriocnemis pygmaea* (Rambur)

Family PLATYCNEMIDIDAE

Subfamily PLATYCNEMIDINAE

8. *Copera ciliata* (Selys)
9. *Copera marginipes* (Ramb.)
10. *Copera vittata deccanensis* Laidlaw

Family PROTONEURIDAE

Subfamily DISPARONEURINAE

11. *Disparoneura quadrimaculata* (Ramb.)

Superfamily LESTOIDEA

Family LESTIDAE

Subfamily LESTINAE

12. *Lestes viridulus* Rambur

Suborder ANISOPTERA

Superfamily AESHNOIDEA

Family GOMPHIDAE

Subfamily ONYCHOGOMPHINAE

13. *Paragomphus lineatus* (Selys)

Subfamily LINDENIINAE

14. *Ictinogomphus rapax* (Rambur)

Family AESHNIDAE

Subfamily AESHNINAE

15. *Anax guttatus* (Burmeister)
16. *Anax immaculifrons* Rambur
17. *Gynacantha bayadera* Selys

Superfamily LIBELLULOIDEA

Family CORDULIIDAE

Subfamily MACROMIINAE

18. *Epopthalmia vittata vittata* Burmeister

Family LIBELLULIDAE

Subfamily LIBELLULINAE

19. *Orthetrum glaucum* (Brauer)
20. *Orthetrum pruinatum neglectum* (Rambur)
21. *Orthetrum sabina sabina* (Drury)
22. *Orthetrum taeniolatum* (Schn.)
23. *Potamarcha congener* (Rambur)

Subfamily SYMPETRINAE

24. *Acisoma panorpoides panorpoides* Rambur
25. *Brachythemis contaminata* (Fabr.)
26. *Bradinyopyga geminata* (Rambur)
27. *Crocothemis servilia servilia* (Drury)
28. *Diplacodes trivialis* (Rambur)
29. *Neurothemis intermedia intermedia* (Rambur)
30. *Neurothemis tullia tullia* (Drury)

Subfamily TRITHEMISTINAE

31. *Trithemis aurora* (Burmeister)
32. *Trithemis festiva* (Rambur)
33. *Trithemis kirbyi kirbyi* Selys
34. *Triathemis pallidinervis* (Kirby)

Subfamily TRAMEINAE

35. *Pantala flavescens* (Fabr.)
36. *Tamea basilaris burmeisteri* Kirby
37. *Tamea verginia* (Rambur)
38. *Tholymis tillarga* (Fabr.)

AQUATIC AND SEMIAQUATIC HEMIPTERA

- Order HEMIPTERA
 Suborder HETEROPTERA
 Infraorder NEPOMORPHA
 Family NOTONECTIDAE Latreille
 Subfamily ANISOPINAE Hutchinson
 Genus *Anisops* Spinola
1. *Anisops barbatus* Brooks, 1951
 2. *Anisops campbelli* Brooks, 1951
 3. *Anisops cavifrons* Brooks, 1951
 4. *Anisops nigrolineatus* Lundblad, 1933
- Subfamily NOTONECTINAE Latreille
 Tribe Notonectini Latreille
5. *Enithares ciliata* (Fabricius, 1798)
- Tribe Nychini Hungerford
6. *Nychia sappho* Kirkaldy, 1901
- Family NEPIDAE Latreille
 Subfamily RANATRINAE Douglas & Scott
 Tribe Ranatrini Douglas & Scott
7. *Cercotmetus pilipes* Dall 1850
 8. *Ranatra elongata* Fabricius, 1790
 9. *Ranatra filiformis* Fabricius, 1790
- Subfamily NEPINAE Latreille
 Tribe Nepini Latreille
10. *Laccotrephes griseus* (Guerin-Meneville, 1835)
 11. *Laccotrephes ruber* (Linnaeus, 1764)
- Family BELOSTOMATIDAE Leach
 Subfamily BELOSTOMATINAE Leach
12. *Diplonychus rusticus* (Fabricius, 1781)
- Family CORIXIDAE Leach
 Subfamily CORIXINAE Leach
 Tribe Agraptocorixini Hungerford
13. *Agraptocorixa hyalinipennis hyalinipennis* (Fabricius, 1803)
- Tribe Corixini Leach
 Subgenus *Tropocorixa* Hutchinson
14. *Sigara tropocorixa pruthiana* (Hutchinson, 1940)

Infraorder GERROMORPHA Popov
 Superfamily GERROIDEA Reuter
 Family GERRIDAE Leach
 Subfamily GERRINAE

15. *Aquarius adelaidis* (Dohrn) 1860

Subgenus *Limnogonus* Stål

16. *Limnogonus (Limnogonus) fossarum fossarum* (Fabricius, 1775)
 17. *Limnogonus (Limnogonus) nitidus* (Mayr) 1865
 18. *Limnometra anadyomene* (Kirkaldy) 1901
 19. *Limnometra fluviorum* (Fabricius) 1798

Subfamily HALOBATINAE

20. *Metrocoris communis* (Distant, 1910)

Subfamily PTILOMERINAE

21. *Stridulobates anderseni* Zettel & Thirumalai, 2001

Family HYDROMETRIDAE

Subfamily HYDROMETRINAE

22. *Hydrometra greeni* Kirkaldy 1898

INSECTA : MANTODEA

Order MANTODEA

Family HYMENOPODIDAE

Subfamily HYMENOPODINAE

1. *Creobroter apicalis* Saussure
 2. *Creobroter laevicollis* (Saussure)

Family MANTIDAE

Subfamily LITURGUSINAE

3. *Humbertiella affinis* Giglio-Tos.

Subfamily AMELINAE

Tribe **Amelini**

4. *Amantis saussurei* (Bolivar)

Subfamily MANTINAE

Tribe **Miomantini**

5. *Deiphobe indica* Giglio-Tos.

Tribe **Mantini**

6. *Hierodula (Hierodula) tenuidentata* Saussure

7. *Mantis inornata* Werner.

8. *Tenodera* sp.

Subfamily PHYLLOTHELINAE

9. *Phyllothelys westwoodi* Wood-Mason

INSECTA : LEPIDOPTERA (BUTTERFLIES)

Order LEPIDOPTERA

Suborder RHOPALOCERA

Superfamily PAPILIONOIDEA

I. Family PAPILIONIDAE

Subfamily PAPILIONINAE

Tribe **Leptocircini**

1. *Pathysa nomius* Esper.

2. *Graphium sarpedon* (Linn.)

Tribe **Papilionini**

3. *Papilio demoleus* Linn.

4. *Papilio polytes* Linn.

5. *Chilasa clytia* (Linn.)

Tribe **Troidini**

6. *Pachliopta aristolochiae* (Fab.)

II. Family PIERIDAE

Subfamily PIERINAE

Tribe **Pierini**

7. *Pieris canidia* Sparrman

8. *Belenois aurota* (Fab).

9. *Cepora nerissa* (Fab).

10. *Delias eucharis* (Drury)

11. *Appias albina* (Boisduval)

Tribe **Colotini**

12. *Ixias marianne* (Cramer)

13. *Colotis etrida* (Boisduval)

Subfamily COLIADINAE

14. *Catopsilia pomona* (Fab.)

15. *Catopsilia pyranthe* (Linn.)

16. *Terias brigitta* (Stoll)

17. *Terias hecabe* (Linn.)

18. *Terias laeta* Boisduval

19. *Terias blanda* (Boisduval)

III. Family DANAIIDAE

Subfamily DANAINAE

20. *Danaus chrysippus* (Linn.)

21. *Danaus genutia* (Cramer)

22. *Tirumala limniace* (Cramer)

Subfamily EUPLOEINAE

23. *Euploea core* (Cramer)

IV. Family SATYRIDAE

Subfamily SATYRINAE

Tribe Melanitini

24. *Melanitis leda* (Linn.)

Tribe Lethini

25. *Lethe rohria* (Fab.)

Tribe Mycalesini

26. *Mycalesis mineus* (Linn.)

Tribe Ypthini

27. *Ypthima asterope* Klug.

28. *Ypthima huebneri* Kirby

V. Family NYMPHALIDAE

Subfamily BIBLIDINAE

29. *Ariadne ariadne* (Linn.)

Tribe Argynnini

30. *Phalanta phalantha* (Drury)

Subfamily NYMPHALINAE

Tribe Vanessidi

31. *Cynthia cardui* (Linn.)

32. *Precis iphita* (Cramer)

33. *Junonia almana* (Linn.)

34. *Junonia hierta* (Fab.)

35. *Junonia lemonias* (Linn.)

36. *Junonia orithya* (Linn.)

37. *Junonia atlites* (Linn.)

Tribe Hypolimni

38. *Hypolimnas bolina* (Linn.)

Subfamily PYRGINAE

62. *Spialia galba* (Fab.)
63. *Pseudocladenia indrani* (Moore)

Subfamily HESPERIINAE

64. *Telicota ancilla* Mabille
65. *Baoris sinensis* (Moore)

PISCES

Order OSTEOGLOSSIFORMES

Family NOTOPTERIDAE

1. *Notopterus notopterus* (Pallas)

Order CYPRINIFORMES

Family CYPRINIDAE

Subfamily CULTRINAE

2. *Salmostoma boopis* (Day)

Subfamily RASBORINAE

3. *Barilius vagra* (Ham.-Buch.)
4. *Brachydania rerio* (Ham.-Buch.)
5. *Danio aequipinnatus* (McClelland)
6. *Esomus danricus* (Ham.-Buch.)
7. *Rasbora daniconius* (Ham.-Buch.)
8. *Barilius barila* (Ham.-Buch.)
9. *Rasbora rasbora* (Ham.-Buch.)

Subfamily CYPRININAE

10. *Tor khudree* (Sykes)
11. *Puntius sophore* (Ham.-Buch.)
12. *Puntius conchoni* (Ham.-Buch.)
13. *Puntius ticto* (Ham.-Buch.)
14. *Puntius jerdoni* (Day)
15. *Osteobrama c. cotio* (Ham.-Buch.)
16. *Catla catla* (Ham.-Buch.)

Subfamily GARRINAE

17. *Garra gotyla gotyla* (Gray)
18. *Garra mullya* (Sykes)

Family BALITORIDAE

Subfamily NOEMACHEILINAE

19. *Noemacheilus botia* (Ham.-Buch.)

20. *Noemacheilus d. denisoni* Day
 21. *Noemacheilus evezardi* Day
- Order SILURIFORMES
 Family BAGRIDAE
22. *Mystus cavasius* (Ham-Buch.)
 23. *Gagata nangra* (Ham-Buch)
- Family HETEROPNEUSTIDAE
24. *Heteropneustes fossilis* (Bloch)
- Order PERCIFORMIS
 Family AMBASSIDAE
25. *Pseudambassis ranga* (Ham-Buch.)
 26. *Oreochromis mossambica* (Peters)
- Order MUGILIFORMES
 Family MUGILIDAE
27. *Rhinomugil corsula* (Ham.-Buch.)
- Family GOBIIDAE
28. *Glossogobius giuris* (Ham.-Buch.)
- Order CHANNIFORMES
 Family CHANNIDAE
29. *Channa orientalis* Bloch & Schneider
 30. *Channa punctatus* (Bloch.)
 31. *Poecilia reticulata* Peters
- Order SYNBRANCHIFORMES
 Family MASTACEMBELIDAE
32. *Mastacembelus a. armatus* (Lacepede)
 33. *Mastacembelus pancalus* (Ham.-Buch.)

AMPHIBIA

- Phylum CHORDATA
 Class AMPHIBIA
 Order ANURA
 Family BUFONIDAE
1. *Bufo melanostictus* Schn.
- Family MICROHYLIDAE
2. *Microhyla ornata* (Dum. & Bibr.)
- Family RANIDAE
3. *Hoplobatrachus crassus* (Jerdon)

4. *Euphlyctis cyanophlyctis* (Schn.)
5. *Limnonectes limnocharis* (Gravenhorst.)
6. *Sphaerotheca breviceps* (Schn.)

Family RHACOPHORIDAE

7. *Polypedates maculatus* (Gray)

REPTILIA

Phylum CHORDATA

Class REPTILIA

Order LORICATA (CROCODYLIA)

Family CROCODYLIDAE

1. Marsh Crocodile : *Crocodylus palustris* Lesson

Order TESTUDINES (CHELONIA)

Suborder CRYPTODIRA

Family EMYDIDAE

2. South Indian Roofed turtle : *Kachuga tentoria* (Gray)
3. Indian snail eating turtle : *Melanochelys trijuga trijuga* (Schweigger)

Family TESTUDINIDAE

4. Star Tortoise or Indian starred Tortoise : *Geochelone elegans* (Schoepff)

Family TRIONYCHIDAE

5. Southern flap-shelled turtle : *Lissemys punctata granosa* (Schoepff)
6. Peninsular or Deccan Soft-shelled turtle : *Trionyx leithi* Gray

Order SQUAMATA

Suborder SAURIA (LACERTILIA)

Family GEKKONIDAE

7. Spotted House Gecko : *Hemidactylus brooki* Gray
8. Square spotted Gecko : *Hemidactylus gracilis* Blanford
9. Ticticky House Gecko : *Hemidactylus frenatus* Schlegel
10. Common Bark Gecko : *Hemidactylus leschenaulti* Dumeril & Bibron
11. Yellow bellied house Gecko : *Hemidactylus flaviviridis* Ruppell

Family EUBLEPHARIDAE

12. Desert Fat tailed Gecko : *Eublepharis macularius* (Blyth)

Family AGAMIDAE

13. Indian fan throated lizard : *Sitana ponticeriana* Cuvier.
14. Indian garden lizard : *Calotes versicolor* (Daudin)
15. Forest Calotes or Matheran olive-Brown calotes : *Calotes rouxi* Dum. & Bibr.

16. Common Indian rock lizard : *Psammophilus blanfordanus* (Stoliczka)
Family LACERTIDAE
17. Punjab snake eyed lacerta, Jerdon's snake eye : *Ophisops jerdoni* Blyth
Family CHAMAELEONIDAE
18. Indian chameleon : *Chamaeleo zeylanicus* Laurenti
Family SCINCIDAE
19. Bronzy-olive skink : *Mabuya innotata* (Blanford)
20. Little skink, Bronzy : Grass skink *Mabuya macularia* (Blyth)
21. Common Indian skink, Common skink, Brahminy skink : *Mabuya carinata* (Schneider)
22. Beddom's South Indian skink, Brahminy skink : *Mabuya beddomii* (Jerdon)
23. Five striped skink : *Mabuya trivittata* (Hardwicke & Gray)
24. Dotted Garden skink, Snake skink : *Riopa punctata* (Linnaeus)
Family VARANIDAE
25. Common Indian monitor, Monitor lizard : *Varanus bengalensis* (Daudin)
Suborder SERPENTES (OPHIDIA)
Family TYPHLOPIDAE
26. Common Blind snake, Worm snake : *Ramphotyphlops braminus* (Daudin)
= *Typhlops braminus* (Daudin)
27. Slender Blind snake : *Typhlops porrectus* Stoliczka
28. Beaked Blind snake : *Typhlops acutus* (Dum. & Bibr.)
Family BOIDAE
29. Indian rock python : *Python molurus* (Linnaeus)
30. Indian Sand Boa, John's sand boa, Red Sand boa,
Black Earth boa, Stump-tailed sand boa : *Eryx johni johni* (Russell)
31. Russell's sand Boa, Russell's Earth Boa : *Eryx conicus* (Schneider)
Family COLUBRIDAE
32. Trinket Snake, Common Trinket Snake : *Elaphe helena* (Daudin)
33. Indian rat Snake, Dhaman : *Ptyas mucosus* (Linnaeus)
34. Banded racer, Fasciolated rat snake : *Argyrogena fasciolatus* (Shaw)
35. Common green whip snake, Common vine snake : *Ahaetulla nasutus* Lacep.
36. Streaked kukri snake, Russell's, variegated kukri snake : *Oligodon taeniolatus* (Jerdon)
37. Russel's kukri snake, common kukri snake : *Oligodon arnensis* (Shaw)
38. Wall's yellow-spotted wolf snake : *Lycodon flavomaculatus* Wall
39. Common wolf snake : *Lycodon aulicus* (Linn.)
40. Shaw's wolf snake : *Lycodon striatus* (Shaw)
41. Dumeril's Black Headed Snake : *Sibynophis subpunctatus* (Dum. & Bibr.)
42. Green keelback snake : *Macropisthodon plumbicolor* (Cantor)
43. Checkered keelback snake : *Xenochrophis piscator* (Schneider)

44. Striped keelback, buff striped keelback : *Amphiesma stolata* (Linnaeus)
45. Indian Gamma or cat snake : *Boiga trigonata* (Schneider)
46. Indian sand snake, condanarous sand snake : *Psammophis condanururs* (Merrem)
47. Sand snake : *Psammophis longifrons* Boulenger

Family ELAPIDAE

48. Common Indian Krait : *Bungarus caeruleus* (Schneider)
49. Slender coral snake : *Callophis melanurus* (Shaw)
50. Indian Cobra : *Naja naja naja* (Linnaeus)

Family VIPERIDAE

51. Russell's viper : *Vipera russelli* (Shaw)
52. Saw-scaled viper : *Echis carinatus* (Schneider)
53. Bamboo Pit viper : *Trimeresurus gramineus* (Shaw)

AVES (Birds)

Order PODICIPEDIFORMES

Family PODICIPEDIDAE

1. *Tactybaptus ruficollis* (Pallas) Little Dabchick/Dabchick

Order PELECANIFORMES

Family PHALACROCORACIDAE

2. *Phalacrocorax niger* (Vieillot) Little Cormorant
3. *Phalacrocorax carbo* (Linnaeus) Great Cormorant

Family ANHINGIDAE

4. *Anhinga melanogaster* Pennant Darter/Snake bird

Order CICONIIFORMES

Family ARDEIDAE

5. *Egretta garzetta* (Linnaeus) Little Egret
6. *Ardea cinerea* Linnaeus Grey Heron
7. *Ardea purpurea* Linnaeus Purple Heron
8. *Casmerodius albus* (Linnaeus) Eastern Large Egret
9. *Mesophoyx intermedia* (Wagler) Median Egret
10. *Bubulcus ibis* (Linnaeus) Cattle Egret
11. *Ardeola grayii* (Sykes) Indian Pond-Heron

Family CICONIIDAE

12. *Anastomus oscitans* (Boddaert) Asian Openbill Stork
13. *Ciconia episcopus* (Boddaert) White-necked Stork

Family THRESKIORNITHIDAE

14. *Threskiornis melanocephalus* (Latham) Oriental White Ibis

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| 15. | <i>Pseudibis papillosa</i> (Temminck) | Black Ibis |
| 16. | <i>Platalea leucorodia</i> Linnaeus | Eurasian Spoonbill |
| | Order | ANSERIFORMES |
| | Family | ANATIDAE |
| 17. | <i>Dendrocygna javanica</i> (Horsfield) | Lesser Whistling-Duck |
| 18. | <i>Tadorna ferruginea</i> (Pallas) | Brahminy Shelduck |
| 19. | <i>Anas perelope</i> Linnaeus | Eurasian Wigeon |
| 20. | <i>Anas poecilorhyncha</i> J.R. Forster | Spot-billed Duck |
| 21. | <i>Anas clypeata</i> Linnaeus | Northern Shoveller |
| 22. | <i>Anas acuta</i> Linnaeus | Northern Pintail |
| 23. | <i>Anas querquedula</i> Linnaeus | Garganey |
| 24. | <i>Anas crecca</i> Linnaeus | Common Teal |
| | Order | FALCONIFORMES |
| | Family | ACCIPITRIDAE |
| 25. | <i>Elanus caeruleus</i> (Desfontaines) | Black-shouldered Kite |
| 26. | <i>Milvus migrans</i> (Boddaert) | Black Kite |
| 27. | <i>Haliastur indus</i> (Boddaert) | Brahminy Kite |
| 28. | <i>Haliaeetus leucoryphus</i> (Pallas) | Pallas's Fish-Eagle |
| 29. | <i>Ichthyophaga ichthyaetus</i> (Horsfield) | Greater Grey-headed Fish-Eagle |
| 30. | <i>Gyps bengalensis</i> (Gmelin) | Indian White-backed Vulture |
| 31. | <i>Spilornis cheela</i> (Latham) | Crested Serpent-Eagle |
| 32. | <i>Circus aeruginosus</i> (Linnaeus) | Western Marsh-Harrier |
| 33. | <i>Circus macrourus</i> (S.G. Gmelin) | Pallied Harrier |
| 34. | <i>Accipiter badius</i> (Gmelin) | Shikra |
| 35. | <i>Accipiter nisus</i> (Linnaeus) | Eurasian Sparrowhawk |
| 36. | <i>Aquila clanga</i> Pallas | Greater Spotted Eagle |
| 37. | <i>Aquila rapax</i> (Temminck) | Twany Eagle |
| 38. | <i>Spizaetus cirrhatus</i> (Gmelin) | Changeable Hawk-Eagle |
| | Family | FALCONIDAE |
| 39. | <i>Falco naymanni</i> Fleischer | Lesser Kestrel |
| | Order | GALLIFORMES |
| | Family | PHASIANIDAE |
| 40. | <i>Francolinus pictus</i> (Jerdine & Selby) | Painted Francolin |
| 41. | <i>Francolinus pondicerianus</i> (Gmelin) | Grey Francolin |
| 42. | <i>Coturnix coturnix</i> (Linnaeus) | Common Quail |
| 43. | <i>Coturnix coromandelica</i> (Gmelin) | Black-breasted or Rain Quail |

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| 44. | <i>Perdicula asiatica</i> (Latham) | Jungle Bush-Quail |
| 45. | <i>Galloperdix spadicea</i> (Gmelin) | Red Spurfowl |
| 46. | <i>Galloperdix lunulata</i> (Valenciennes) | Painted Spurfowl |
| 47. | <i>Gallus gallus</i> (Linnaeus) | Red Junglefowl |
| 48. | <i>Gallus sonneratii</i> (Temminck) | Grey Junglefowl |
| 49. | <i>Pavo cristatus</i> Linnaeus | Indian Peafowl |
| | Order | GRUIFORMES |
| | Family | TURNICIDAE |
| 50. | <i>Turnix suscitator</i> (Gmelin) | Common Buttonquail |
| | Family | RALLIDAE |
| 51. | <i>Amaurornis phoenicurus</i> (Pennant) | White-breasted Waterhen |
| 52. | <i>Fulica atra</i> Linnaeus | Common Coot |
| | Order | CHARADRIIFORMES |
| | Family | CHARADRIIDAE |
| 53. | <i>Charadrius dubius</i> Scopoli | Little Ringed Plover |
| 54. | <i>Vanellus malabaricus</i> (Boddaert) | Yellow-wattled Lapwing |
| 55. | <i>Vanellus indicus</i> (Boddaert) | Red-wattled Lapwing |
| 56. | <i>Tringa totanus</i> (Linnaeus) | Common Redshank |
| 57. | <i>Tringa glareola</i> Linnaeus | Wood Sandpiper |
| 58. | <i>Actitis hypoleucos</i> Linnaeus | Common Sandpiper |
| | Family | RECURVIROSTRIDAE |
| 59. | <i>Himantopus himantopus</i> (Linnaeus) | Black-winged Stilt |
| | Family | BURHINIDAE |
| 60. | <i>Burhinus oedipnes</i> (Linnaeus) | Stone-Curlew |
| | Family | GLAREOLIDAE |
| 61. | <i>Cursorius coromandelicus</i> (Gmelin) | Indian Courser |
| | Family | LARIDAE |
| 62. | <i>Sterna aurantia</i> J.E. Gray | River Tern |
| | Order | COLUMBIFORMES |
| | Family | COLUMBIDAE |
| 63. | <i>Columba livia</i> Gmelin | Blue Rock Pigeon |
| 64. | <i>Streptopelia senegalensis</i> (Linnaeus) | Little Brown Dove |
| 65. | <i>Streptopelia chinensis</i> (Scopoli) | Spotted Dove |
| 66. | <i>Streptopelia tranquebarica</i> (Hermann) | Red Collared-Dove |
| 67. | <i>Streptopelia decaocto</i> (Frisvaldszky) | Eurasian collared-Dove |

68. *Treron phoenicoptera* (Latham) Yellow-legged Green Pigeon
 Order PSITTACIFORMES
 Family PSITTACIDAE
69. *Psittacula eupatria* (Linnaeus) Alexandrine Parakeet
 70. *Psittacula krameri* (Scopoli) Rose-ringed Parakeet
 71. *Psittacula cyanocephala* (Linnaeus) Plum-headed Parakeet
 Order CUCULIFORMES
 Family CUCULIDAE
72. *Clamator jacobinus* (Boddaert) Pied Crested Cuckoo
 73. *Hierococcyx varius* (Vahl) Brainfever Bird
 74. *Cuculus micropterus* Gould Indian Cuckoo
 75. *Cuculus canorus* Linnaeus Common Cuckoo
 76. *Eudynamys scolopacea* (Linnaeus) Asian Koel
 77. *Phaenicophaeus leschenaultii* (Lesson) Sirkeer Malkoha
 78. *Centropus sinensis* (Stephens) Greater Coucal
 Order STRIGIFORMES
 Family STRIGIDAE
79. *Otus scops* (Linnaeus) Oriental Scops-Owl
 80. *Otus bakkamoena* Pennant Collared Scops-Owl
 81. *Bubo bubo* (Linnaeus) Eurasian Eagle-Owl
 82. *Athene brama* (Temminck) Spotted Owlet
 Order CAPRIMULGIFORMES
 Family CAPRIMULGIDAE
83. *Caprimulgus indicus* Latham Indian Jungle Nightjar
 84. *Caprimulgus asiaticus* Latham Common Indian Nightjar
 Order APODIFORMES
 Family APODIDAE
85. *Apus affinis* (J.F. Gray) Indian House Swift
 Order CORACIIFORMES
 Family ALCEDINIDAE
86. *Alcedo atthis* (Linnaeus) Small Blue Kingfisher
 87. *Halcyon capensis* (Linnaeus) Stork-billed Kingfisher
 88. *Halcyon smyrnensis* (Linnaeus) White-breasted Kingfisher
 89. *Ceryle rudis* (Linnaeus) Lesser Pied Kingfisher
 Family MEROPIDAE
90. *Merops orientalis* Latham Small Bee-eater

- Family CORACIIDAE
91. *Coracias benghalensis* (Linnaeus) Indian Roller
- Family UPUPIDAE
92. *Upupa epops* Linnaeus Common Hoopoe
- Family BUCEROTIDAE
93. *Ocyrceros birostris* (Scopoli) Indian Grey Hornbill
94. *Anthracoceros albirostris* (Shaw) Oriental Pied Hornbill
- Order PICIFORMES
- Family CAPITONIDAE
95. *Megalaima zeylanica* (Gmelin) Brown-headed Barbet
96. *Megalaima haemacephala* (P.L.S. Muller) Coppersmith Barbet
- Family PICIDAE
97. *Dendrocopos mahrattensis* (Latham) Yellow-fronted Pied Woodpecker
98. *Dinopium benghalensis* (Linnaeus) Lesser Golden-backed Woodpecker
- Order PASSERIFORMES
- Family PITTIDAE
99. *Pitta brachyura* (Linnaeus) Indian Pitta
- Family ALAUDIDAE
100. *Ammomanes phoenicurus* (Franklin) Rufous-tailed Finch-Lark
101. *Galerida deva* (Sykes) Sykes's Crested Lark
102. *Alauda gulgula* Franklin Eastern or Small Skylark
- Family HIRUDINIDAE
103. *Hirundo concolor* Sykes Dusky Crag-Martin
104. *Hirundo rustica* Linnaeus Common Swallow
105. *Hirundo daurica* Linnaeus Red-rumped Swallow
- Family MOTACILLIDAE
106. *Motacilla alba* Linnaeus White Wagtail
107. *Motacilla maderaspatensis* Gmelin Large Pied Wagtail
108. *Motacilla citreola* Pallas Citrine Wagtail
109. *Motacilla flava* Linnaeus Yellow Wagtail
110. *Motacilla cinerea* Tunstall Grey Wagtail
111. *Anthus rufulus* Vieillot Paddyfield Pipit
112. *Anthus hodgsoni* Richmond Oriental Tree Pipit
- Family CAMPEPHAGIDAE
113. *Coracina macei* (Lesson) Large Cuckoo-shrike
114. *Pericrocotus cinnainomeus* (Linnaeus) Small Minivet

115. *Pericrocotus flammeus* (Forster) Scarlet Minivet
 116. *Tephrodornis pondicerianus* (Gmelin) Common Woodshrike
- Family PYCNONOTIDAE
117. *Pycnonotus jocosus* (Linnaeus) Red-whiskered Bulbul
 118. *Pycnonotus cafer* (Linnaeus) Red-vented Bulbul
 119. *Pycnonotus luteolus* (Lesson) White-browed Bulbul
- Family IRENIDAE
120. *Aegithina tiphia* (Linnaeus) Common Iora
 121. *Chloropsis cochinchinensis* (Gmelin) Jerdon's Chloropsis
- Family LANIDAE
122. *Lanius cristatus* Linnaeus Brown Shrike
 123. *Lanius vittatus* Valenciennes Bay-backed Shrike
 124. *Lanius schach* Linnaeus Rufous-backed Shrike
 125. *Lanius excubitor* Linnaeus Grey Shrike
- Family MUSCICAPIDAE
 Subfamily TURDINAE
126. *Monticola solitarius* (Linnaeus) Blue Rock-Thrush
 127. *Zoothera citrina* (Latham) Orange-headed Thrush
 128. *Luscinia svecica* (Linnaeus) Blue throat
 129. *Copsychas saularis* (Linnaeus) Oriental Magpie-Robin
 130. *Saxicoloides fulicata* (Linnaeus) Indian Robin
 131. *Phoenicurus ochruros* (Gmelin) Black Redstart
 132. *Saxicola torquata* (Linnaeus) Common Stone Chat
 133. *Saxicola caprata* (Linnaeus) Pied Bushchat
- Subfamily TIMALIINAE
134. *Dumetia hyperythra* (Franklin) Rufous-bellied Babbler
 135. *Chrysomma sinense* (Gmelin) Yellow-eyed Babbler
 136. *Turdoides caudatus* (Dumont) Common Babbler
 137. *Turdoides malcolmi* (Sykes) Large Grey Babbler
 138. *Turdoides striatus* (Dumont) Jungle Babbler
- Subfamily SYLVIINAE
139. *Prinia socialis* Sykes Ashy Prinia
 140. *Prinia inornata* Sykes Plain Prinia
 141. *Orthotomus sutorius* (Pennant) Indian Tailor Bird
- Subfamily MUSCICAPINAE
142. *Ficedula parva* (Bechstein) Red-throated Flycatcher

Family HIPPOSIDERIDAE

13. Fulvous Leaf-nosed Bat : *Hipposideros fulvus fulvus* Gray
14. Kelaart's Leaf-nosed Bat : *Hipposideros lankadiva indus* (Andersen)
15. Schneider's Leaf-nosed Bat : *Hipposideros speoris speoris* (Schneider)

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

16. Asiatic Lesser Yellow House Bat : *Scotophilus kuhlii kuhlii* Leach
17. Asiatic Greater Yellow House Bat : *Scotophilus heathi heathi* (Horsfield)
18. Pipistrelle Bat : *Pipistrellus ceylonicus indicus* (Dobson)
19. Coromandel Pipistrelle, Indian Pipistrelle,
Little Indian bat : *Pipistrellus coromandra coromandra* (Gray)
20. Least Pipistrelle, Indian Pygmy Pipistrelle,
Indian Pygmy Bat : *Pipistrellus tenuis mimus* Wroughton
21. Dormer's Bat : *Pipistrellus d. dormeri* (Dobson)

Family MOLOSSIDAE

22. Wrinkle-lipped Free-tailed Bat : *Tadarida (Chaerephon) plicata plicata* (Buchanan)
23. Egyptian Free-tailed Bat : *Tadarida aegyptiaca thomasi* Wroughton

Order PRIMATES

Family CERCOPITHECIDAE

Subfamily CERCOPITHICINAE

24. Rhesus Macaque : *Macaca mulatta mulatta* (Zimmermann)

Subfamily COLOBINAE

25. Common or Hanuman Langur : *Semnopithecus entellus* (Dufresne)

Order PHOLIDOTA

Family MANIDAE

26. Indian Pangolin : *Manis crassicaudata* Gray

Order CARNIVORA

Family CANIDAE

27. Indian Wolf : *Canis lupus pallipes* Sykes
28. Asiatic Jackal, Golden Jackal, Jackal : *Canis aureus* Linn
29. Indian Wild Dog, Dhole : *Cuon alpinus* (Pallas)
30. Bengal Fox : *Vulpes bengalensis* (Shaw)

Family URSIDAE

Subfamily URSINAE

31. Sloth bear : *Melursus ursinus* (Shaw)

- Family MUSTELIDAE
Subfamily MELLIVORINAE
32. Ratel or Honey Badger : *Mellivora capensis* (Schreber)
Subfamily LUTRINAE
33. Smooth-coated Indian Otter/Smooth Indian Otter : *Lutragale perspicillata* (Geoffroy)
Family VIVERRIDAE
Subfamily VIVERRINAE
34. Small Indian civet : *Viverricula indica indica* (Desmarest)
Subfamily PARADOXURINAE
35. Common Palm civet or Toddy cat : *Paradoxurus h. hermaphroditus* (Pallas)
Family HERPESTIDAE
Subfamily HERPESTINAE
36. Indian Grey Mongoose : *Herpestes edwardsii edwardsii* (Geoffroy)
37. Indian Ruddy Mongoose : *Herpestes smithii smithii* Gray
Family HYAENIDAE
Subfamily HYAENINAE
38. Striped Hyaena : *Hyaena hyaena hyaena* (Linn.)
Family FELIDAE
Subfamily FELINAE
39. India Desert Cat : *Felis silvestris ornata* Gray
40. India Jungle Cat : *Felis chaus affinis* Gray
41. Leopard Cat : *Prionailurus bengalensis bengalensis* (Kerr.)
Subfamily PANTHERINAE
42. Leopard/Panther : *Panthera pardus fusca* (Meyer)
43. Royal Bengal Tiger/Tiger : *Panthera tigris tigris* (Linn.)
Order ARTIODACTYLA
Family SUIDAE
Subfamily SUINAE
44. Indian Wild Boar : *Sus scrofa cristatus* Wagner
Family TRAGULIDAE
45. Indian Chevrotain or Mouse Deer : *Moschiola meminna* (Erxleben)
Family CERVIDAE
Subfamily CERVINAE
46. Spotted Deer Chital : *Axis axis axis* (Erxleben)

47. Sambar : *Cervus unicolor niger* Blainville
 Subfamily MUNTIACINAE
48. Indian Muntjac or Barking Deer : *Muntiacus muntjak aureus* (H. Smith)
 Family BOVIDAE
 Subfamily BOVINAE
49. Gaur : *Bos gaurus* Smith
50. Blue Bull : *Boselaphus tragocamelus* (Pallas)
51. Four Horned Antelope : *Tetracerus quadricornis* (Blainville)
 Subfamily ANTILOPINAE
52. Blackbuck or Indian Antelope : *Antelope cervicapra cervicapra* (Linn.)
53. Indian Gazelle or Chinkara : *Gazella bennettii* (Sykes)
 Order RODENTIA
 Suborder SCIUROGNATHI
 Family SCIURIDAE
 Subfamily RATUFINAE
54. Indian Giant squirrel : *Ratufa indica centralis* Ryley
 Subfamily FUNAMBULINAE
55. Indian Three Striped Palm Squirrel : *Funambulus palmarum robertsoni* Wroughton
56. Indian Five Striped Northern Palm Squirrel : *Funambulus pennanti* Wroughton
 Family PTEROMYIDAE
57. Common Giant Flying Squirrel : *Petaurista philippensis philippensis* (Elliot)
 Family MURIDAE
 Subfamily MURINAE
58. House Mouse : *Mus musculus castaneus* Waterhouse
59. Little Indian Field Mouse : *Mus booduga booduga* (Gray)
60. Wroughton's small spiny Mouse : *Mus phillipsi* Wroughton
61. Indian Long-tailed Tree Mouse : *Vandeleuria oleracea oleracea* (Bennett)
62. House Rat : *Rattus rattus rufescens* (Gray)
63. White-bellied House Rat : *Rattus rattus narbadae* Hinton
64. Soft-furred Metad : *Millardia meltada meltada* (Gray)
65. Blanford's Rat : *Cremnomys blanfordi* (Thomas)
66. Indian Bush Rat : *Golunda ellioti ellioti* Gray
67. Indian Mole Rat : *Bandicota bengalensis bengalensis* (Gray)
68. Large Bandicoot Rat : *Bandicota indica indica* (Bechstein)

Subfamily GERBILLINAE

69. Indian Antelope Rat : *Tatera indica indica* (Hardwicke)

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

70. Indian crested porcupine : *Hystrix indica* Kerr

Order LAGOMORPHA

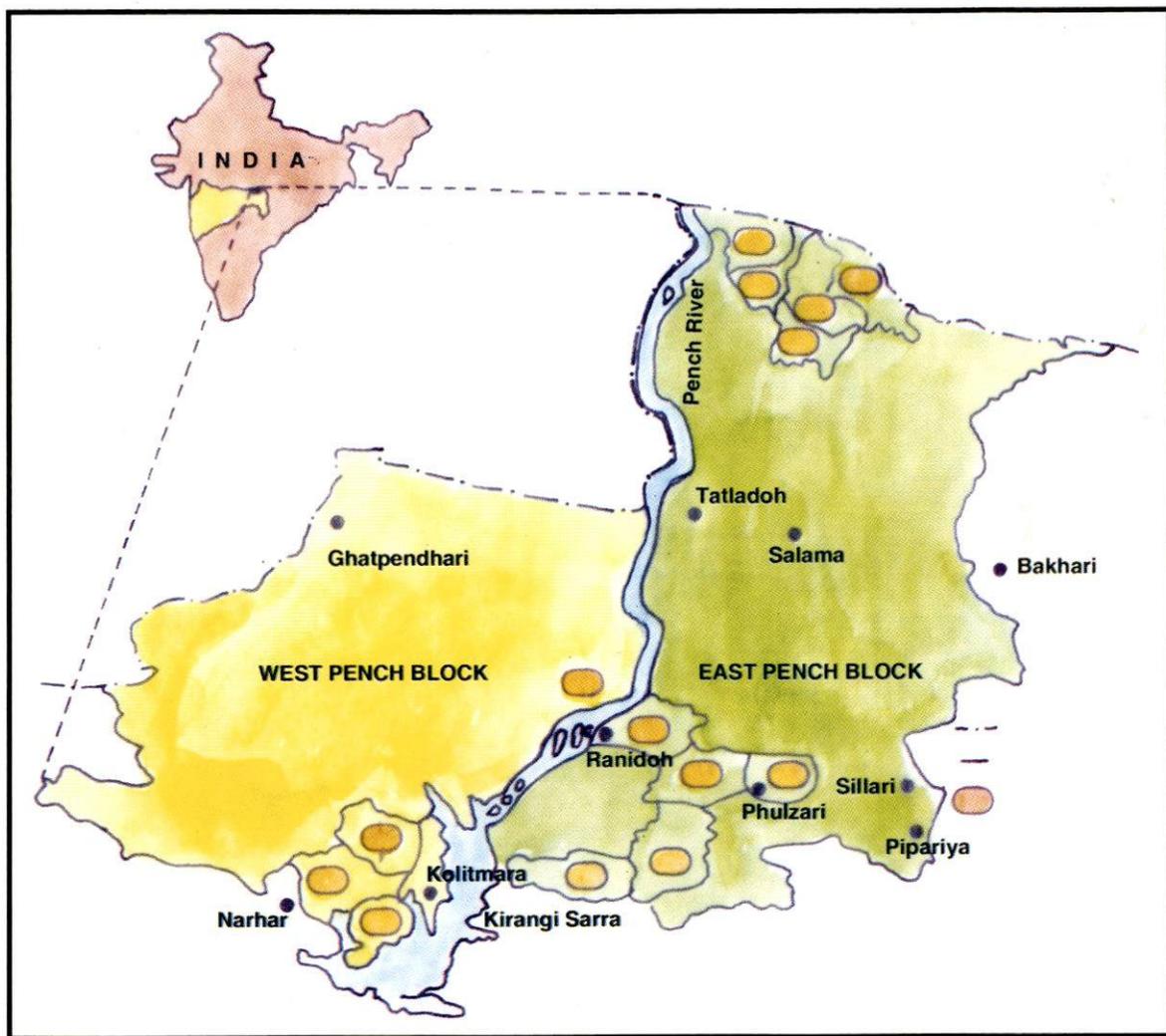
Family LEPORIDAE

71. Indian black-naped hare or Indian Hare : *Lepus nigricollis nigricollis* Cuvier

REFERENCES

- Anony., 2004. In : Three decades of Tiger Reserve, *Sanctuary*, 24(3) : 29-50.
- Champion, H.G., Seth, S.K. 1968. A revised survey of forest types of India, *Manager of publication* Delhi, 6, pp. xxv + 404 pl. 103+7 maps.
- Chaudhary, Ramanuj, 2003 Population estimation of Tigers in Maharashtra – Emerging Trends. *Tiger paper*, 30(1) : 11-12.
- Director, Zoological Survey of India 2004. *Fauna of Pench National Park (Maharashtra), Conservation Area Series*, 20 : 1-312.
- Jajir Singh, 1996. Status report of National Parks and sanctuaries in Maharashtra : *Chief Conservator of Forests (Wildlife) Nagpur, Maharashtra*, : 136 pp. (In Marathi).
- Kulkarni, P.P., Bastawade, D.B. and Talmale, S.S. 1999. Predation of Dragonflies, *Ictinogomphus rapax* (Rambur) and *Pantala flavescens* (Fabr.) (Odonata : Anisoptera), by the giant wood spider, *Nephila maculata* (Fabr.) *Bionotes*, 1(4) : 84.
- Mishra, S.S. 1995? Check list of birds of Pench National Park *Deputy Conservator of Forests, Wildlife, Nagpur (Pub.)* : 1-14.
- P. Setu Madhava Rao, (executive editor) : 1966. *Gazetter of Nagpur District* 890 pp. + Plates + Index xv.
- Prasad, M., Kulkarni, P.P. and Talmale, S.S. 2000. New record of andromorphic females in two species of *Neurothemis* Dragonflies (Odonata : Libellulidae) from Central India *Bionotes*, : 2(3) : 54.

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Map of Pench Tiger Reserve, Maharashtra



View of Pench River and
Forest



Forest in Pench National Park



Scorpion
Mesobuthus tamulus tamulus
(Fab.) ♂



Scorpion *Mesobuthus tamulus tamulus* (Fab.) ♀



Mantid



Spider *Argiope* sp.



Russel's viper.



Rose-ringed Parakeet (-a wounded ♀)



Blackheaded Oriole and Black Drongo



Claw marks of Sloth Bear on tree trunk



Pugmarks of Tiger



TADOBA-ANDHARI TIGER RESERVE

CHANDRAPUR, MAHARASHTRA

INTRODUCTION

Tadoba-Andhari Tiger Reserve is situated in Chandrapur District of Maharashtra State. Well known in the history for holding rich heritage of wildlife, Tadoba was recognized as a reserved forest as early as 1879, under the Indian Forest Act VII of 1878 through a notification issued by the then Central Province. In 1905 it was declared as a shooting block, which turned into a "Sanctuary" in 1935 under the governance of Central Province and Berar Government. The area of 45 sq. km was given the protection as "Sanctuary".

Administratively, under the then Madhya Pradesh Government, the 116.55 sq. km area of Tadoba National Park, as declared under the Madhya Pradesh National Park Act, 1955, was transferred to the newly formed Maharashtra State in 1956. Adjoining area of Andhari Wildlife Sanctuary was declared as Protected Area in 1986.

At present, Tadoba National Park and Andhari Wildlife sanctuary are constituted under centrally sponsored "Tiger Project" Scheme by the Government of India, in 1993. Both fall under contiguous biogeographic areas of the District. Thus, the total area of 578.04 sq. km (116.08 sq. km of Tadoba National Park and 461.96 sq. km of Andhari Wildlife Sanctuary) has been declared as Tadoba - Andhari Tiger Reserve, vide Government of Maharashtra Revenue and Forests Department Resolution No. WLP/1094/CR/225/F-1 dated 23-2-1995. This area is spread over in Bhadrawati, Chimur, Warore and Sindewahi Tahsils of Chandrapur District.

District Chandrapur is also known for availability of rich minerals and coal. Open cast mines for extraction of coal and the establishment of cement factories lie in close vicinity of the conservation area of Tadoba Andhari Tiger Reserve. A big thermal power plant, supplying major part of electricity to Maharashtra is also located in this District. The coal extracted from mines is not only used for thermal power but also is supplied to various places through rail and road transport.

ETYMOLOGY

Area of Tadoba has significant historic importance. In ancient times, the legendary tale says that the village chief "Taru" was killed in an epic fight with the Tiger. In his honor and remembrance, local tribal villagers worship the chief as Deity of Tadoba, whose shrine is installed on the shore of Tadoba lake. Every year in January, the local people hold a large "Yatra" to worship this forest god. It is also believed that sprinkling of water from Tadoba lake in the farms, helps control or minimize pest attacks on crops.

REVIEW OF LITERATURE ON FAUNA

Old records on fauna of Tadoba-Andhari Tiger Reserve mainly pertain to Medium and large mammals. A total of 41 species were recorded of which 9 species still feature in the Wildlife Act. The gazetteer on District Chandrapur (Kunte, 1973) gives an account of wildlife present there which is as follows :

"In this district, an area of 45.57 sq miles around Tadoba lake is constituted as a National Park, in which complete protection is given to the existing wildlife. Most of the wild animals found in the forest areas of the district are met within this park. The herds of chital, sambar, blue bull, Indian bison or gaur, wild boars are often seen around the lake. Occasionally a tiger, panther or sloth bear are also noticed. The birds are also found in large number around the lake, in addition to crocodiles and different varieties of fish". "Tigers are found near Kolsa, Moharli, Piperkhute etc. Maneaters practically unknown".

Under the section fish and fisheries important varieties of fishes occurring naturally in water resources of the District are recorded as : carps, 29 species; loaches, 2; catfishes, 15; knife fishes, 3; eels, 1; gar pikes, 1; gray mullets, 1; murrels or snake head fishes, 4; perches and allies, 2; grass fishes, 3; gobies, 1 and spinney eels, 3.

Information on the carnivores like panther, *Panthera pardus fusca* (Meyer); sloth bear, *Melursus ursinus* (Shaw); wild dogs, *Cuon alpinus* (Pallas); jackal, *Canis aureus* Linn.; kolhu or shial, *Canis aureus* Linn.; hyaena, *Hyaena hyaena hyaena* (Linn.); wild cat, *Felis chaus affinis* Gray and ran manjar, *Felis chaus* sp. is available. List of following animals along with notes on their description is also provided. Bison (gaur, *Bos gaurus* Smith; wild buffalow, (Migrating from Bastar Forests); deer; sambhar, *Cervus unicolor niger* Blainville; chital, *Axis axis axis* (Erxleben); mouse deer, *Moschiola meminna* (Erxleben); blue bull, *Boselaphus tragocamelyus* (Pallus); barking deer, *Muntiacus muntjack aureus* (H. Smith). gazalla chinkara, *Gazella bennettii* (Sykes); black buck, *Antelope cervicapra cervicapra* (Linn.); wild boar, *Sus scarofa cristatus* (Wagner); langur, *Semnopithecus entellus entellus* (Dufresne); flying squirrel, *Petaurista phillippensis* (Elliot); porcupines, *Hystrix indica* Kerr; pangolin, *Manis crassicaudata* Gray and Indian ratel, *Mellivora capensis* (Schreder). It is followed by few prominent bird species. In spite of good biodiversity of this area, comprehensive documentation of fauna is not available except the records cited above.

Checklist of Birds of Tadoba National Park (Rajkondawar, 1991) contains 181 species. It gives scientific names, local names, habitat, period of stay for migratory birds, their status and also corresponding reference page numbers in the Book of Indian Birds by Salim Ali. Status report on National Parks and Sanctuaries in Maharashtra is available (Singh, 1996).

The Western Regional Station of the Zoological Survey of India, Pune in the recent years, 1994 – 2001, had surveyed the area of Tadoba-Andhari Tiger Reserve and collected representatives of all available faunal groups. Observations alone on birds, reptiles and mammals were recorded. Few interesting findings have also been published. Thus, (Kulkarni *et al.* 1999) recorded observations on predation of dragonflies by the giant wood spider, *Nephila maculata* (Fabr.); (Prasad *et al.* 2000) documented andromorphic female of Odonata, *Neurothemis intermedia intermedia* (Rambur); (Sharma *et al.* 2000) provided an account of Odonates attracted to light at Tadoba-Andhari Tiger Reserve and Patil and Kulkarni (2000) recorded a fresh water turtle *Lissemys punctata* (Lacepede : Chelonia) from this Tiger Reserve. Majority of the faunal groups have been worked out and inventory of the species has been prepared. All the details, along with synonymy, diagnostic

characters, collection data and outside distribution for each of the species has been published by the Zoological Survey of India (2005). Chaudhary (2003) recorded steep decline in the tiger population in non protected (Territorial) South Chandrapur Circle. Nine tigress are reported to be rearing 19 cubs in the different parts of Tadoba during the Census on 15th May 2004 as reported (Anonymous, 2004). Data on census carried out by Conservator of Forests and Field Director, Tadoba-Andhari Tiger Reserve, Chandrapur for the years 1995-2004 was made available, which is given in Table 1.

GENERAL INFORMATION

Particulars of Tadoba Andhari Tiger Reserve

Location and Area	
Name of the District	: Chandrapur.
State	: Maharashtra.
Position	: 20° 25' 50" - 20° 04' 53" North latitude 79° 33' 34" East longitude.
Area	: 116.08 sq. km Tadoba National Park. 461.96 sq. km Andhari Wildlife Sanctuary.
Connectivity	: Road : 1) Nagpur - Chandrapur - Tadoba. (190 km) 2) Umerer - Chimur - Khadsinghi (140 km)
Rail	: Chandrapur Railway Station on Ghugus-Ballarshah Railway
Air	: Nearest Airport - Nagpur.

TOPOGRAPHY

The area of Tadoba-Andhari Tiger reserve is with low undulating gently rolling hills which are covered with Dry Deciduous Forest. The forest belongs to the sub-group 5A, Southern Tropical Dry Deciduous Forest. Teak (*Tectona grandis*) and Bamboo (*Dendrocalamus strictus*) are the dominant species. It has an average elevation of 300 m above sea level.

RIVERS AND DRAINAGE

Tadoba is gifted with centrally located large waterbody on over 120 hectare shallow land. This is a perennial natural water body. The bank of it is covered by tall trees. A motorable road round the lake also exists providing opportunity to observe wildlife.

The rest house is located on bank of this lake. Andhari is the main river which originates from Pandharpawani in Tadoba National Park. It is a tributary of Wainganga. Andhari river during its course between Jamini and Dewad-Kolsa retains water in pockets, which are termed "Doh". In rest of the area, water remains a scarce commodity particularly in hot months of the year. Similarly Bhhanukundi Nalla originating from Katezari in Tadoba National Park and joins Erai river also retains water at places during summer.

TABLE-1
Tadoba Andhari Tiger Reserve Census Figures (1995-2004)

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

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

To overcome the situation of water shortage, water tankers are provided at various places, which are artificially watered during the peak period of water scarcity. The Tiger Reserve is gifted with 10 tanks inside the protected area and 7 in the periphery, where the wildlife frequently visits. All these tanks are perennial source of water. Even in hot months, when the soil was dug to collect scorpions and other burrowing forms, it was observed that chambers inhabiting these fauna retained considerable moisture even at about 1 m deep from the surface.

CLIMATE

The annual temperature varies from 9° to 47° C. Summer begins from end of February to July with increasing heat up to about 30° to 47° C. May and June are the hottest months. Onset of monsoon in July brings the atmospheric temperature down to 25° C. Rainfall continues from mid June to mid October. 1175 mm is the annual rainfall. Few showers also occur between July to December, particularly in October/November, brought by North East wind. Practically there is no winter season, however pleasant weather remains from November to end of January where night temperature comes down to 9° C.

VEGETATION

Forest in Tadoba-Andhari Tiger Reserve is Southern Tropical Dry Deciduous and Classified as Sub-Group 5A (Champion and Seth, 1968). Teak *Tectona grandis* is the dominant species. Other important components of forest are Bija, *Pterocarpus marsupium*; Bibba, *Semecarpus anaecardium*; Bamboo, *Dendrocalamus strictus*; Khair *Acacia catchu*; Haldu, *Adina cordifolia*; Mohua, *Madhuca latifolia*; Dhaoda *Anogeissus latifolia*; Palas, *Butea frondosa*; Tendu, *Diospyros melanoxylon* etc. Bamboo is more prominent in Andhari forest than in Tadoba proper. It is estimated that forest cover contains 11.48% Teak; 76.16% mixed forests and 7.17% grasslands, with 5.19% degraded area. In Katezari area, two wild varieties of rice are known to exist.

SOCIO ECONOMIC IMPORTANCE

There are no villages in the Tadoba National Park. Villages Khatoda and Pandharpauni are rehabilitated in the past in Compartment No. 14 of Worora Range and Kharsanghi of Chimur Range. However there are few (six) villages in the Andhari Sanctuary and 13 in the peripheral area. Around the entire protected area, as many as 53 villages exist. Obviously, all these villages, people and livestock together depend heavily on the forests. Requirement for their basic needs like, firewood, grazing are met with from vegetation in some open patches. In few cases, collection of Bamboo, small amount of timber and non timber logs is made to fulfil their local needs. Impact of fuel wood collection is seen in peripheral area of Kolsa and Moharli Ranges. Association of these local residents with forest is through ages and the bonds are deep, thus demands for their needs cannot be totally ignored.

TOURISM

Tadoba-Andhari Tiger Reserve is the main tourist spot, receiving an average of 55,000 tourists annually (Faroqui, 1996). Tourists include nature lovers, picnickers, students and pilgrims. Pilgrims, mostly from the Tribes or Adivasis, visit Tadoba temple near Tadoba lake or the Hanuman temple

at Ramdeghi. Variety of accommodation is available in the National Park, which has Guest Houses 4 suites; Rest Houses 6 suites, Gypsi Hut 2 suites. Youth Hostel with 36 beds; 3 rooms in Holiday Home. Tourists can avail facilities such as canteen; toilets, and minibus service on guided routes. There is an Information Centre and newly established Interpretation Centre at Mohosli.

MANAGEMENT HAZARDS

As stated earlier, in the peripheral area population is partly dependent on forest produce, at times it involves illicit felling of timber and fuel wood collection; illicit felling and transport of Bamboos; illegal collection of non-timber forest produce like Tendu leaves, Mohua flowers and Gum.

Fire is the important reason damaging forested area. Complete Kolsa range is vulnerable to fire. It is estimated that 14% area is vulnerable to 100% burning involving 8 compartments. This is mainly due to grasslands. Areas around roads and where people collect tendu leaves are under threat of fire. In spite of regular vigil, forest fire once erupted is difficult to control. The existing fire lines are maintained to check the spreading of fire to other areas.

Grazing by live stock from villages is difficult to control. Incidences of tiger/panther attack also frequently occur. During a period of 6 years from 1991-1996 as many as 209 cattle kills and 8 human victims are on record (Faroqui, 1996).

The main non timber forest produce is Tendu leaves, Mohua flowers and Gum. There is total ban on collection of these products but people collect Mohua flowers and Tendu leaves specially from the bordering area.

SURVEYS BY ZOOLOGICAL SURVEY OF INDIA

Western Regional Station, Zoological Survey of India, Pune conducted a program to explore faunal wealth of the Tadoba–Andhari Tiger Reserve. A total of 11 surveys were conducted during the year 1994-2001. Faunal samples were collected for smaller groups and observation were recorded on higher vertebrates like reptiles, birds and mammals. Important findings were published from time to time. Those include papers published by Kulkarni *et al.*, 1999, Prasad *et al.*, 2000; Sharma *et al.*, 2000, Patil and Kulkarni, 2000.

Under Conservation Area Series, the Zoological Survey of India has brought out “Fauna of Tadoba–Andhari Tiger Reserve” (Mahabal, 2005) which contains detailed information on 673 species from 14 groups. Systematic account, diagnostic characters and collection data/observation recordings for every species will be provided. The information is summarized in Table 2. Major findings in each group are highlighted here :

Collection of faunal samples was worked out mainly by the scientists of Western Regional Station, Zoological Survey of India, Pune. Specialists from other regional stations and institutions also identified few groups. List of faunal groups with present address of the specialists is presented here. Mammalia and Reptilia - Dr. M.S. Pradhan¹; Aves - Dr. Anil Mahabal¹; Amphibia - Shri. S.S. Kamble¹; Pisces and Centipedes - Dr. B.E. Yadav¹; Lepidoptera - Dr. R.M. Sharma² and Shri. C. Radhakrishnan³; Mantodea - Dr. P.M. Sureshan⁴, Dr. H.V. Ghate⁵ and C. Radhakrishnan³;

TABLE-2

Fauna of Tadoba Andhari Tiger Reserve
Findings from Surveys by Zoological Survey of India (1994-2001)

S. No.	Group	Order	Suborder	Family	Subfamily	Genera	Species	Subspecies
1.	Mammalia	9	4	12	25	52	20	60
2.	Aves	17	-	55	8	139	192	-
3.	Reptiles	3	3	16	-	41	50	4
4.	Amphibia	1	-	4	-	7	10	-
5.	Pisces	9	-	18	7	52	84	-
6.	Mollusca	4	-	12	-	15	36	-
7.	Scorpions	1	-	2	2	3	4	-
8.	Arachnida	1	-	6	-	19	29	-
9.	Solifugi	1	-	1	-	1	1	-
10.	Centipedes	1	-	2	2	6	13	-
11.	Cladocera	1	1	6	-	23	40	-
12.	Odonata	1	2	6	11	17	41	-
13.	Mantodea	1	-	2	6	9	10	1
14.	Lepidoptera	1	2	7	-	56	78	-

Odonata - Dr. P.P. Kulkarni¹, Shri. S.S. Talmale¹ and Dr. M. Prasad⁶; Arachnida : Scorpionida, Araneae and Sloifugi - Dr. D.B. Bastawade¹; Cladocera - Dr. P.D. Rane¹; Mollusca - Dr. S.G. Patil¹.

1. **Mammalia** : 80 species of mammals exist in the Tadoba-Andhari Tiger Reserve. Out of those, 51 species find their place in different Schedules of Wildlife (Protection) Act : (Schedule I-12; II-13; III-5; IV-4 and V-17 species).

2. **Aves** : Out of 192 species of birds found in Tadoba-Andhari Tiger Reserve, 68.8% are terrestrial, and 31.2% are aquatic in habitat. About 17.2% species are winter visitors and can be sighted during September/October to March. 4 species feature in Wildlife (Protection) Act Schedules.

3. **Reptilia** : 54 species of reptiles have been recorded, of which 32 are included in the Wildlife (Protection) Act. Those are Crocodylia (1); Testudines (2) : Squamata (Sauria) (2); Squamata (Serpents) (26).

4. **Amphibia** : Amongst about 300 examples of Amphibia examined, most abundant was *Euphyctis cyanophyctis* Schnider. A total of 10 species were recorded. Tree frog *Polypedatus maculatus* Grey and Malabar Hill Frog *Ramanella montana* Jerden are noteworthy.

5. **Pisces** : 37 species of fishes were collected, during surveys by ZSI. When published record from adjoining area and rivers were examined, it is expected that a total of 84 species could be existing there. Details of specimens collected and old data will be given in the publication on 'Fauna of Tadoba Andhari Tiger Reserve' to be published by Zoological Survey of India.

6. **Mollusca** : 36 species of mollusca, (33 freshwater and 3 land dwelling) are recorded for the first time from Tadoba Andhari Tiger Reserve.

7-9. **Aracnida** : Diverse groups like Scorpions 4 species; Spiders 29 species and Soligugi 1 species could be identified from collection of Arachnida. Other specimens could not be identified due to lack of experts.

10. **Chilopoda** : Only two species of Chilopoda (Centipedes) could be collected from here, however 11 species are known to occur in Nagpur and Pench National Park.

11. **Cladocera** : 40 species of cladocera were collected from Tadoba Andhari Tiger Reserve. All these are recorded for the first time from here. Tadoba Tank; Pandharpani tank, Jamunbodi tank, Kolsa and Telis dam and other perennial water bodies contain these cladocera.

12. **Odonata** : Out of the 84 species known from Maharashtra 41 species are recorded for the first time from Tadoba Andhari Tiger Reserve. These include two new records for the state.

13. **Mantodea** : *Statilia nemoralis* (Saussure) is recorded for the first time from Maharashtra State. A total of 10 species were collected. Thus now 52 species of Mantids are recorded from Maharashtra.

Address :

1. Western Regional Station, Zoological Survey of India, (Z.S.I.), Pune.
2. High Altitude Zoology Field Station, Z.S.I., Solan.
3. Western Ghat Regional Station, Z.S.I., Calicut.
4. Easturine Biology Regional Station, Z.S.I., Beharampur.
5. Modern College, Shivajinagar, Pune.
6. Retired Scientists, Z.S.I., Kolkata.

FAUNA OF TADOBA-ANDHARI TIGER RESERVE

Phylum MOLLUSCA

Class GASTROPODA

Subclass PROSOBRANCHIA

Order MESOGASTROPODA

Family VIVIPARIDAE

Subfamily BELLAMYINAE

1. *Bellamyia bengalensis f. typica* (Lamarck)
2. *B. bengalensis f. doliaris* (Gould)
3. *B. bengalensis f. annandalei* (Kobelt)
4. *B. bengalensis f. eburnea* (Annandale)
5. *B. dissimilis* (Mueller)

Family PILIDAE

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

Family BYTHYNIIDAE

8. *Digoniostoma cerameopoma* (Benson)
9. *D. pulchella* (Benson)
10. *Gabbia orcula* (Frauenfeld)

Family THIARIDAE

Subfamily THIARINAE

11. *Thiara (Thiara) scabra* (Mueller)
12. *Thiara (Tarebia) lineata* (Gray)
13. *T. (Melanoides) tuberculata* (Mueller)

Order BASOMMATOPHORA

Family LYMNAEIDAE

14. *Lymnaea (Pseudosuccinea) acuminata f. typica* (Lamarck)
15. *L. (P) acuminata f. brevissima* Annandale & Rao
16. *L. (P) acuminata f. rufescens* Gray
17. *L. (P) luteola typica* Lamarck
18. *L. (P) luteola f. australis* Annandale and Rao
19. *L. (P) luteola f. succinea* Deshayes
20. *L. (P) luteola f. impura* Troschel

Family PLANORBIDAE

21. *Indoplanorbis exustus* (Deshayes)
22. *Gyraulus convexiusculus* (Hutton)

Class BIVALVIA
 Order UNIONOIDA
 Family UNIONIDAE
 Subfamily UNIONINAE

23. *Lamellidens consobrinus* Lea
 24. *L. marginalis* (Lamarck)
 25. *L. corrianus* Lea

Family AMBLEMIDAE

26. *Parreysia (P) annandalei* Preston
 27. *P. (P) nagpoorensis* Lea
 28. *Parreysia (P) favidens* (Benson)
 29. *P. (P) corrugata* (Mueller)
 30. *P. (P) corrugata laevirostris* Benson
 31. *P. (P) cylindrica* Annandale and Prashad*
 32. *P. (Radiatula) caerulea* Lea

Order VENEROIDA
 Family CORBICULIDAE

33. *Corbicula striatella* Deshayes

Order STYLOMMATOPHORA
 Family ENIDAE

34. *Rachis punctatus* Anton

Family SUBULINIDAE

35. *Glessula notigena* (Benson)

Family ARIOPHANTIDAE

36. *Ariophanta bajadera* (Pfeifer)
 37. *Macrochlamys indica* Godwin & Austen

CLADOCERA : CRUSTACEA

Phylum ARTHROPODA
 Class CRUSTACEA
 Subclass BRANCHIOPODA
 Superorder DIPLOSTRACA
 Order CLADOCERA
 Suborder EUCLADOCERA
 Superfamily (a) SIDOIDEA
 Family (I) SIDIDAE Sars, 1865

1. *Pseudosida bidentata* Herrick, 1884

2. *Latonopsis australis* Sars, 1888
3. *Diaphanosoma excisum* Sars, 1885
4. *D. e. var longiremis* Ekman, 1904
5. *D. senegalensis* Gauthier, 1951

Superfamily (b) CHYDOROIDEAE

Family (II) DAPHNIIDAE Straus, 1820

6. *Ceriodaphnia cornuta* Sars, 1885
7. *C. laticaudata* P.E. Muller, 1867
8. *Daphnia longicephala* Herbert, 1977
9. *D. lumholtzi* Sars, 1885
10. *Simocephalus vetulus* (O.F. Muller, 1776)
11. *S. serrulatus surekhae* (Rane, 1985) Comb. nov.
12. *Scapholeberis kingi* Sars, 1903b

Family (III) MONIDAE Goulden, 1967

13. *Moina micrura* Kurz, 1874
14. *M. m. dubia* Gurne and Richard, 1892

Family (IV) BOSMINIDAE Sars, 1865

15. *Bosmina longirostris* (O.F. Muller, 1945)
16. *Bosminopsis deitersi* Richard, 1895

Family (V) MACROTHRICIDAE Baird, 1843

17. *Macrothrix spinosa* King, 1852
18. *Echinisca triserialis* (Brady, 1886)
19. *E. odiosa* (Cremey, 1907)
20. *Ilyocryptus spinifer* (Herrick, 1882)

Family (VI) CHYDORIDAE Stebbing, 1902

21. *Pleuroxus aduncus bhigawanensis* Rane, 2002
22. *P. similis* Vavra, 1900
23. *Alonella excisa* (Fischer, 1854)
24. *Chydorus sphaericus* (O.F. Muller, 1776)
25. *C. faviformis* Birge, 1893
26. *C. ventricosus* Daday, 1898
27. *C. gibbus* Sars, 1891
28. *Dunhevedia crassa ciliocaudata* (Sovinski, 1891)
29. *D. serrata* Daday
30. *Dadaya macrops* (Daday, 1898)
31. *Pseudochydorus globosus* (Baird, 1843)
32. *Alona pulchella* King, 1853

33. *A. guttata* Sars, 1862b
34. *A. costata* Sars, 1862b
35. *A. psedanodentata anodonta* Daday, 1905
36. *A. rectangula* Sars, 1862b
37. *Biapertura affinis* (Leydig, 1860)
38. *B. karua* King, 1853
39. *Oxyurella singalensis* (Daday, 1898)
40. *Ephemeroporus barroisi* Richard, 1894

ARACHNIDA

Order SCORPIONIDA

Family BUTHIDAE

Subfamily BUTHINAE

1. *Mesobuthus tamulus tamulus* (Fabr.)
2. *Lychas (Endothrichus) laevifrons* Pocock

Family SCORPIONIDAE

Subfamily SCORPIONINAE

3. *Heterometrus (Chersonesometrus) granulomanus* Coujz.
4. *Heterometrus (Chersonesometrus) barberi* (Pocock)

Order ARANEAE

Family ARANEIDAE

5. *Nephila maculata* (Fabr.)
6. *Gea corbetti* Tikader
7. *Argiope aemula* (Walckenaer)
8. *Argiope pradhani* Sinha
9. *Leucauge decorata* (Blackwall)
10. *Zygeilla melanocrania* (Thorell)
11. *Zygeilla indica* Tikader and Bal
12. *Neoscona theis* (Walckenaer)
13. *Neoscona mukerjei* Tikader
14. *Neoscona nautica* (L. Koch)
15. *Cyclosa hexatuberculata* Tikader
16. *Cyrtophora cicatrosa* (Stoliczka)

Family OXYOPIDAE

17. *Oxyopes shweta* Tikader
18. *Oxyopes pavani* Gajbe
19. *Oxyopes ratnae* Tikader

Family THOMISIDAE

20. *Tibellus poonaensis* Tikader
21. *Xysticus jayanticus* Tikader
22. *Thanatus stripatus* Tikader
23. *Monaeses mukundi* Tikader
24. *Tmarus kotigeharus* Tikader
25. *Camericus bipunctatus* Bastawade

Family LYCOSIDAE

26. *Lycosa mackenziei* Gravely
27. *Lycosa prolifica* Pocock
28. *Lycosa nigrotibialis* Simon
29. *Pardosa birmanica* Simon
30. *Pardosa sangosa* Tikader & Malhotra
31. *Hippasa pisaurina* Pocock

Family TETRAGNATHIDAE

32. *Tetragnatha mandibulata* Walckenaer

Family SALTICIDAE

33. *Myrmarachne orientalis* Tikader

Order SOLIFUGI

Family GALEODIDAE

34. *Galeodes indicus* Pocock

IDENTIFICATION UPTO ONLY FAMILY AND GENERIC LEVEL TAXA

Family ARANEIDAE

1. *Neoscona* sp.
2. *Araneus* sp.
3. *Larinia* sp.
4. *Cyclosa* sp.

Family LYCOSIDAE

5. *Lycosa* sp.

Family SALTICIDAE

6. *Zygoballus* sp.
7. *Rhene* sp.

Family PISAURIDAE

8. *Pisaurus* sp.

Family SPARASSIDAE

9. *Sparssus* sp.

10. *Oxyopus* sp. Family OXYOPIDAE
11. *Tetragnatha* sp. Family TETRAGNATHIDAE
12. *Eucta* sp.
13. *Hesilus* sp. Family HERSILIIDAE
14. *Theridion* sp. Family THERIDIIDAE
15. *Clubiona* sp. Family CLUBIONIDAE
16. *Cheirucanthius* sp.
17. *Thomisus* sp. Family THOMISIDAE
18. *Xysticus* sp.
19. *Misumenus* sp.

SCOLOPENDRA (Centipede)

- SuperPhylum ARTHROPODA
- Phylum UNIRAMIA
- SubPhylum MYRIAPODA
- Class CHILOPODA
- Subclass EPIMORPHA
- Order SCOLOPENDROMORPHA
- Family SCOLOPENDRIDAE
- Subfamily SCOLOPENDRINAE
- Tribe Scolopendrini

1. *Scolopendra amazonca* (Bucherl)
2. *Scolopendra morsitans* Linnaeus
3. *Scolopendra hardwickei* Newport
4. *Cormocephalus nigrificatus* Verhoeff.
5. *Cormocephalus westwoodi* (Newport)
6. *Cormocephalus dendipes* Pocock

Tribe Asanadini

7. *Asanada indica* Jangi & Dass
8. *Asanada sokotrana* Pocock

Subfamily OTOSTIGMINAE

Tribe **Otostigmini**

9. *Rhysida nuda subnuda* Jangi
10. *Rhysida longipes longipes* (Newport)

Family CRYPTOPIDAE

11. *Cryptops orientalis* Jangi

INSECTA : ODONATA

Order ODONATA

Suborder ZYGOPTERA

Superfamily COENAGRIONOIDEA

Family COENAGRIONIDAE

Subfamily PSEUDAGRIONINAE

1. *Ceriagrion coromandelianum* (Fabr.)
2. *Ceriagrion olivaceum* Laidlaw
3. *Pseudagrion decorum* (Rambur)
4. *Pseudagrion rubriceps rubriceps* Selys
5. *Pseudagrion spencei* Fraser

Subfamily ISCHNURINAE

6. *Enallagma parvum* Selys
7. *Ischnura aurora aurora* (Brauer)
8. *Ischnura senegalensis* (Rambur)
9. *Rhodischneura nursei* (Morton)

Subfamily AGRIOCNEMIDINAE

10. *Agriocnemis lacteola* Selys
11. *Agriocnemis pygmaea* (Rambur)

Family PLATYCNEMIDIDAE

Subfamily PLATYCNEMIDINAE

12. *Copera marginipes* (Ramb.)
13. *Copera vittata deccanensis* Laidlaw

Family PROTONEURIDAE

Subfamily DISPARONEURINAE

14. *Disparoneura quadrimaculata* (Ramb.)

Superfamily LESTOIDEA

Family LESTIDAE

Subfamily LESTINAE

15. *Lestes viridula* Rambur

- Suborder ANISOPTERA
 Superfamily AESHNOIDEA
 Family GOMPHIDAE
 Subfamily ONYCHOGOMPHINAE
16. *Paragomphus lineatus* (Selys)
 Subfamily LINDENIINAE
17. *Ictinogomphus rapax* (Rambur)
 Family AESHNIDAE
 Subfamily AESHNINAE
18. *Gynacantha bayadera* Selys
 Superfamily LIBELLULOIDEA
 Family LIBELLULIDAE
 Subfamily BRACHYDIPLACTINAE
19. *Brachydiplax sorbina* (Rambur)
 Subfamily LIBELLULINAE
20. *Lathrecista asiatica asiatica* (Fabr.)
 21. *Orthetrum luzonicum* (Brauer)
 22. *Orthetrum pruinosum neglectum* (Rambur)
 23. *Orthetrum sabina sabina* (Drury)
 24. *Orthetrum taeniolatum* (Schn.)
 25. *Potamarcha congener* (Rambur)
 Subfamily SYMPETRINAE
26. *Acisoma panorpoides panorpoides* Rambur
 27. *Brachythemis contaminata* (Fabr.)
 28. *Bradinopyga geminata* (Rambur)
 29. *Crocothemis servilia servilia* (Drury)
 30. *Diplacodes nebulosa* (Fabricius)
 31. *Diplacodes trivialis* (Rambur)
 32. *Neurothemis intermedia intermedia* (Rambur)
 33. *Neurothemis tullia tullia* (Drury)
 Subfamily TRITHEMISTINAE
34. *Trithemis aurora* (Burmeister)
 35. *Trithemis festiva* (Rambur)
 36. *Trithemis pallidinervis* (Kirby)
 Subfamily TRAMEINAE
37. *Rhyothemis variegata variegata* (Linnaeus)
 38. *Pantala flavescens* (Fabr.)

39. *Tramea basilaris burmeisteri* Kirby
40. *Tholymis tillarga* (Fab.)
41. *Zyxomma petiolatum* Rambur

MANTODEA

- Order MANTODEA
 Family HYMENOPODIDAE
 Subfamily ACROMANTINAE
 Tribe **Acromantini**
 Family MANTIDAE
 Subfamily LITURGUSINAE
1. *Humbertiella ceylonica* Saussure
 Subfamily SCHIZOCEPHALINAE
 2. *Schizocephala bicornis* (Linnaeus)
 Subfamily IRIDOPTERYGINAE
 Tribe **Tropidomantini**
 3. *Eomantis guttatipennis* (Stal)
 Subfamily MANTINAE
 Tribe **Mantini**
 4. *Hierodula (Hierodula) tenuidentata* Saussure
 5. *Mantis inornata* Werner
 6. *Statilia maculata* (Thunberg)
 7. *Statilia nemoralis* (Saussure)
 8. *Tenodera* sp.
 Subfamily PHYLLOTHELINAE
 9. *Phyllothelys westwoodi* Wood-Mason

INSECTA : LEPIDOPTERA (BUTTERFLIES)

- Order LEPIDOPTERA
 Suborder RHOPALOCERA
 Superfamily PAPILIONOIDEA
 I. Family PAPILIONIDAE
 Subfamily PAPILIONINAE
 Tribe **Leptocircini**
1. *Graphium agamemnon* Linn.
 2. *Pathysa nomius* Esper.
 Tribe **Papilionini**
 3. *Papilio demoleus* Linn.

4. *Papilio polytes* Linn.
5. *Chilasa clytia* (Linn.)

Tribe **Troidini**

6. *Pachliopta aristolochiae* (Fab.)
7. *Pachliopta hector* Linn.

II. Family **PIERIDAE**Subfamily **PIERINAE**Tribe **Pierini**

8. *Pieris canidia* Sparrman
9. *Belenois aurota* (Fab).
10. *Cepora nerissa* (Fab).
11. *Delias eucharis* (Drury)
12. *Leptosia nina* Fabricius

Tribe **Colotini**

13. *Ixias marianne* (Cramer)
14. *Ixias pyrene* Linn.
15. *Hebomoia glaucippe* Linn.
16. *Pareronia valeria* Cramer

Subfamily **COLIADINAE**

17. *Catopsilia pomona* (Fab.)
18. *Catopsilia pyranthe* (Linn.)
19. *Terias brigitta* (Stoll)
20. *Terias hecabe* (Linn.)
21. *Terias laeta* Boisduval
22. *Terias blanda* (Boisduval)

III. Family **DANAIDAE**Subfamily **DANAINAE**

23. *Danaus chrysippus* (Linn.)
24. *Danaus genutia* (Cramer)
25. *Parantica aglea* Stoll
26. *Tirumala limniace* (Cramer)

Subfamily **EUPLOEINAE**

27. *Euploea core* (Cramer)

IV. Family **SATYRIDAE**Subfamily **SATYRINAE**Tribe **Melanitini**

28. *Melanitis leda* (Linn.)

- Tribe **Lethini**
29. *Lethe europa* (Fab.)
- Tribe **Mycalesini**
30. *Mycalesis mineus* (Linn.)
31. *Mycalesis perseus* Fabricius
32. *Orsotriaena medus* Fabricius
- Tribe **Ypthimini**
33. *Ypthima asterope* Klug.
34. *Ypthima huebneri* Kirby
35. *Ypthima baldus* Fab.
- V. Family **NYMPHALIDAE**
36. *Ariadne ariadne* (Linn.)
37. *Byblia ilithyia* Drury
- Tribe **Argynnini**
38. *Phalanta phalantha* (Drury)
- Subfamily **NYMPHALINAE**
- Tribe **Vanessidi**
39. *Precis iphita* (Cramer)
40. *Junonia almana* (Linn.)
41. *Junonia hierta* (Fab.)
42. *Junonia lemonias* (Linn.)
43. *Junonia orithya* (Linn.)
44. *Junonia atlites* (Linn.)
- Tribe **Hypolimni**
45. *Hypolimnas bolina* (Linn.)
46. *Hypolimnas misippus* (Linn.)
- Subfamily **LIMENTIDINAE**
- Tribe **Neptini**
47. *Neptis hylas* (Linn.)
- Tribe **Limenitidini**
48. *Moduza procris* (Cramer)
- Tribe **Euthaliini**
49. *Symphaedra nais* (Forster)
- Subfamily **PSEUDERGOLINAE**
50. *Pseudergolis wedah* Kollar
- Subfamily **CHARAXINAE**
- Tribe **Charaxini**
51. *Polyura athamas* Drury

52. *Charaxes solon* (Fab.)

53. *Charaxes bernardus* Fabricius

Subfamily ACRAEINAE

54. *Acraea terpsicore* (Linn.)

VI. Family LYCAENIDAE

Subfamily POLYOMMATINAE

Tribe **Polyommagini**

55. *Jamides bochus* Stoll

56. *Jamides celeno* (Cramer)

57. *Catochrysops strabo* (Fab.)

58. *Lampides boeticus* (Linn.)

59. *Leptotes plinius* (Fab.)

60. *Castalius rosimon* (Fab.)

61. *Zizina otis* Fab.

62. *Pseudozizeeria maha* (Kollar)

63. *Zizula hylax* (Fab.)

64. *Celastrina lavendularis* Moore

65. *Euchrysops cnejus* (Fab.)

66. *Chilades laius* Stoll

67. *Freyeria trochylus* (Freyer)

Subfamily APHNAEINAE

68. *Spindasis vulcanus* (Fab.)

Subfamily THECLINAE

Tribe **Arhopalini**

69. *Narathura amentes* Hewitson

70. *Surendra vivarna* Horsefield

Tribe **Deudorigini**

71. *Rapala airbus* Fab.

Suborder GRYPOCERA

VII. Family HESPERIIDAE

Subfamily COELIADINAE

72. *Hasora chromus* Cramer

73. *Badamia exclamationis* (Fab.)

Subfamily PYRGINAE

74. *Spialia galba* (Fab.)

Subfamily HESPERIINAE

75. *Udaspes folus* Cramer
76. *Oriens goloides* Moore
77. *Telicota ancilla* Mabille
78. *Caltoris kumara*

Subfamily ERIONOTINAE

79. *Matapa aria* (Moore)

PISCES (FISHES)

Order ANGUILLIFORMES

Family ANGUILLIDAE

1. *Anguilla bengalensis* (Gray)
2. *Goniolosa manmina* (Ham-Buch.)

Order OSTEOGLOSSIFORMES

Family NOTOPTERIDAE

3. *Chitala chitala* (Ham-Buch.)
4. *Notopterus notopterus* (Pallas)

Order CYPRINIFORMES

Family CYPRINIDAE

5. *Chela dadiburjori* (Menon)
6. *Chela laubuca* (Ham-Buch.)
7. *Salmostoma bacaila* (Ham-Buch.)
8. *Salmostoma clupeoides* (Bloch)

Subfamily RASBORINAE

9. *Amblypharyngodon mola* (Ham-Buch.)
10. *Aspidoparia morar* (Ham-Buch.)
11. *Barilius barna* (Ham-Buch.)
12. *Barilius bendelisis* (Ham-Buch.)
13. *Brachydanio rerio* (Ham-Buch.)
14. *Danio devario* (Ham-Buch.)
15. *Danio aequipinnatus* (McClelland)
16. *Esomus danricus* (Ham-Buch.)
17. *Rasbora daniconius* (Ham-Buch.)
18. *Rasbora rasbora* (Ham-Buch.)

Subfamily CYPRININAE

19. *Thynnichthys sandkhol* (Sykes)

20. *Tor tor* (Ham-Buch.)
21. *Osteobrama cotio cotio* (Ham-Buch.)
22. *Osteobrama vigorsii* (Sykes)
23. *Puntius amphibius* (Val.)
24. *Puntius conchoni* (Ham-Buch.)
25. *Puntius filamentosus* (Val.)
26. *Puntius sophore* (Ham-Buch.)
27. *Puntius s. sarana* (Ham-Buch.)
28. *Puntius ticto* (Ham-Buch.)
29. *Puntius chola* (Ham-Buch.)
30. *Catla catla* (Ham-Buch.)
31. *Cirrhinus cirrhosus* (Bloch)
32. *Cirrhinus reba* (Ham-Buch.)
33. *Labeo bata* (Ham-Buch.)
34. *Labeo boggut* (Sykes)
35. *Labeo calbasu* (Ham-Buch.)
36. *Labeo fimbriatus* (Bloch)
37. *Labeo rohita* (Ham-Buch.)

Subfamily GARRINAE

38. *Garra gotyla gotyla* (Gray)
39. *Garra mullya* (Sykes)
40. *Crossocheilus latius latius* (Ham-Buch.)

Family BALITORIDAE

Subfamily NOEMACHEILINAE

41. *Noemacheilus botia* (Ham-Buch.)
42. *Noemacheilus d. denisoni* Day
43. *Noemacheilus evezardi* Day
44. *Noemacheilus keralensis* (Rita & Nalbant)

Family COBITIDAE

45. *Lepidocephalus guntea* (Ham-Buch.)
46. *Lepidocephalus thermalis* (Val.)

Order SILURIFORMES

Family BAGRIDAE

47. *Aorichthys aor* (Ham-Buch.)
48. *Aorichthys seenghala* (Sykes)
49. *Mystus bleekeri* (Day)

50. *Mystus cavasius* (Ham-Buch)
51. *Rita pavementata* (Valenciennes)
- Family SILURIDAE
52. *Ompok bimaculatus* (Bloch)
53. *Wallago attu* (Schneider)
- Family SCHILBEIDAE
- Subfamily AILINAE
54. *Ailia coila* (Ham-Buch.)
- Subfamily SCHILBEINAE
55. *Clupisoma garua* (Ham-Buch.)
56. *Eutropiichthys vacha* (Ham-Buch.)
57. *Proeutropiichthys t. taakree* (Sykes)
58. *Pseudotropius atherinoides* (Bloch)
59. *Silonia silondia* (Ham-Buch.)
- Family PANGASIIDAE
60. *Pangasius pangasius* (Ham-Buch.)
- Family SISORIDAE
61. *Bagarius bagarius* (Ham-Buch.)
- Family CLARIIDAE
62. *Clarias batrachus* (Linn.)
- Family HETEROPNEUSTIDAE
63. *Heteropneustes fossilis* (Bloch)
- Order ATHERINIFORMES
- Family BELONIDAE
64. *Xenentodon cancila* (Ham-Buch.)
- Series PERCOMORPHA
- Order PERCIFORMES
- Suborder PERCOIDEI
- Family AMBASSIDAE
65. *Chanda nama* (Ham-Buch.)
66. *Pseudambasis ranga* (Ham-Buch.)
67. *Pseudambasis baculis* (Ham.-Buch.)

- Family CICHLIDAE
68. *Oreochromis mossambica* (Peters)
- Family NANDIDAE
Subfamily NANDIDINAE
69. *Nandus nandus* (Ham-Buch.)
- Subfamily BADINAE
70. *Badis badis* (Ham-Buch.)
- Suborder GOBIOIDEI
Family GOBIIDAE
71. *Glossogobius giuris* (Ham-Buch)
- Family CHANNDAE
72. *Channa murulus* (Ham-Buch)
73. *Channa orientalis* (Bloch & Schneider)
74. *Channa punctatus* (Bloch)
75. *Channa striatus* (Bloch)
- Order MUGILIFORMES
Family MUGILIDAE
76. *Rhinomugil corsula* (Ham-Buch.)
- Order SYNBRANCHIFORMES
Family MASTACEMBELIDAE
77. *Macrornathus aral* (Bloch & Schneider)
78. *Mastacembelus a. armatus* (Lacepede)
79. *Mastacembelus puncalus* Ham-Buch.

AMPHIBIA

- Phylum CHORDATA
Class AMPHIBIA
Order ANURA
Family BUFONIDAE
1. *Bufo melanostictus* Schn.
2. *Bufo stomaticus* Lutken
- Family MICROHYLIDAE
3. *Microhyla ornata* Dum. & Bibr.
4. *Ramanella montana* Jerdon
5. *Uperodon globulosum* Gunther

Family RANIDAE

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

Family RHACOPHORIDAE

11. *Polypedates maculatus* (Gray)

REPTILIAPhylum **CHORDATA**Class **REPTILIA**Order **LORICATA (CROCODILIA)**Family **CROCODYLIDAE**

1. Marsh Crocodile : *Crocodylus palustris* Lesson

Order **TESTUDINES (CHELONIA)**Suborder **CRYPTODIRA**Family **EMYDIDAE**

2. South Indian Roofed turtle : *Kachuga tentoria* (Gray)
3. Indian snail eating turtle : *Melanochelys trijuga trijuga* (Schweigger)

Family **TESTUDINIDAE**

4. Star Tortoise or Indian starred Tortoise : *Geochelone elegans* (Schoepff)

Family **TRIONYCHIDAE**

5. Southern flap-shelled turtle : *Lissemys punctata granosa* (Schoepff)
6. Peninsular or Deccan Soft-shelled turtle : *Trionyx leithi* Gray

Order **SQUAMATA**Suborder **SAURIA (LACERTILIA)**Family **GEKKONIDAE**

7. South Indian Rock Gecko : *Cyrtodactylus collegalensis* (Beddome)
8. Spotted House Gecko : *Hemidactylus brooki* Gray
9. Square spotted Gecko : *Hemidactylus gracilis* Blanford
10. Ticticky House Gecko : *Hemidactylus frenatus* Schlegel
11. Common Bark Gecko : *Hemidactylus leschenaulti* Dumeril & Bibron
12. Yellow bellied house Gecko : *Hemidactylus flaviviridis* Ruppell

Family EUBLEPHARIDAE

13. Desert Fat tailed Gecko : *Eublepharis macularius* (Blyth)

Family AGAMIDAE

14. Indian fan throated lizard : *Sitana ponticeriana* Cuvier
 15. Indian garden lizard : *Calotes versicolor* (Daudin)
 16. Forest Calotes or Matheran olive-Brown calotes : *Calotes rouxi* Dum. & Bibr.
 17. Common Indian rock lizard : *Psammophilus blanfordanus* (Stoliczka)

Family CHAMAELEONIDAE

18. Indian chameleon : *Chamaeleo zeylanicus* Laurenti

Family SCINCIDAE

19. Bronzy-olive skink : *Mabuya innotata* (Blanford)
 20. Little skink, Bronzy : Grass skink *Mabuya macularia* (Blyth)
 21. Common Indian skink, Common skink, Brahminy skink : *Mabuya carinata* (Schneider)
 22. Beddom's South Indian skink, Common skink, Brahminy skink : *Mabuya beddomii* (Jerdon)
 23. Dotted Garden skink, Snake skink : *Riopa punctata* (Linnaeus)

Family LACERTIDAE

24. Indian Golden Cabrita : *Cabrita jerdoni* Beddome
 25. Punjab snake eyed lacerta, Jerdon's snake eye : *Ophisops jerdoni* Blyth

Family VARANIDAE

26. Common Indian monitor, Monitor lizard, Indian monitor : *Varanus bengalensis* (Daudin)

Suborder SERPENTES (OPHIDIA)

Family TYPHLOPIDAE

27. Common Blind snake, Worm snake : *Ramphotyphlops braminus* (Daudin)
 28. Slender Blind snake : *Typhlops porrectus* Stoliczka
 29. Beaked Blind snake : *Typhlops acutus* (Dum. & Bibr.)

Family BOIDAE

30. Indian rock python : *Python m. molurus* (Linnaeus)
 31. Russell's sand Bao, Russell's Earth Bao : *Eryx conicus* (Schneider)

Family COLUBRIDAE

32. Trinket Snake, Common Trinket Snake : *Elaphe helena* (Daudin)
 33. Indian rat Snake, Dhaman : *Ptyas mucosus* (Linnaeus)
 34. Banded racer, Fasciolated rat snake : *Argyrogena fasciolatus* (Shaw)
 35. Indian Smooth Snake : *Coronella brachyura* (Gunther)
 36. Common green whip snake, Common vine snake : *Ahaetulla nasutus* Lacep
 37. Streaked kukri snake, Russell's, variegated kukri snake : *Oligodon taeniolatus* (Jerdon)

38. Russel's kukri snake, common kukri snake : *Oligodon arnensis* (Shaw)
39. Wall's yellow-spotted wolf snake : *Lycodon flavomaculatus* Wall
40. Common wolf snake : *Lycodon aulicus* (Linn.)
41. Shaw's wolf snake : *Lycodon striatus* (Shaw)
42. Dumeril's Black Headed Snake : *Sibynophis subpunctatus* (Dum. & Bibr.)
43. Green keelback snake : *Macropisthodon plumbicolor* (Cantor)
44. Checkered keelback snake : *Xenochrophis piscator* (Schneider)
45. Striped keelback, buff stripped keelback : *Amphiesma stolata* (Linnaeus)
46. Indian Gamma or cat snake : *Boiga trigonata* (Schneider)
47. Indian sand snake, condanarous sand snake : *Psammophis condanarus* (Merrem)
48. Sand snake : *Psammophis longifrons* Boulenger

Family ELAPIDAE

49. Common Indian Krait : *Bungarus caeruleus* (Schneider)
50. Slender coral snake : *Callophis melanurus* (Shaw)
51. Indian Cobra : *Naja naja naja* (Linnaeus)

Family VIPERIDAE

52. Russell's viper : *Vipera russelli* (Shaw)
53. Saw-scaled viper : *Echis carinatus* (Schneider)
54. Bamboo Pit viper : *Trimeresurus gramineus* (Shaw)

BIRDS

Class AVES
Order PODICIPEDIFORMES
Family PODICIPEDIDAE

1. *Tactybaptus ruficollis* (Pallas) Little Grebe
2. *Podiceps cristatus* (Linnaeus) Great Crested Grebe

Order PELECANIFORMES
Family PHALACROCORACIDAE

3. *Phalacrocorax niger* (Vieillot) Little Cormorant

Family ANHINGIDAE

4. *Anhinga melanogaster* Pennant Darter

Order CICONIFORMES
Family ARDEIDAE

5. *Egretta garzetta* (Linnaeus) Little Egret
6. *Ardea cinerea* Linnaeus Grey Heron
7. *Ardea purpurea* Linnaeus Purple Heron
8. *Casmerodius albus* (Linnaeus) Eastern Large Egret

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| 9. <i>Mesophoyx intermedia</i> (Wagler) | Median Egret |
| 10. <i>Bubulcus ibis</i> (Linnaeus) | Cattle Egret |
| 11. <i>Ardeola grayii</i> (Sykes) | Indian Pond-Heron |
| Family CICONIIDAE | |
| 12. <i>Anastomus oscitans</i> (Boddaert) | Asian Openbill-Stork |
| 13. <i>Ciconia episcopus</i> (Boddaert) | White-necked Stork |
| Family THRESKIORNITHIDAE | |
| 14. <i>Threskiornis melanocephalus</i> (Latham) | Oriental White Ibis |
| 15. <i>Pseudibis papillosa</i> (Temminck) | Black Ibis |
| 16. <i>Platalea leucorodia</i> Linnaeus | Eurasian Spoonbill |
| Order ANSERIFORMES | |
| Family ANATIDAE | |
| 17. <i>Dendrocygna javanica</i> (Horsfield) | Lesser Whistling-Duck |
| 18. <i>Tadorna ferruginea</i> (Pallas) | Brahminy Shelduck |
| 19. <i>Sarkidiornis melanotus</i> (Pennant) | Comb Duck |
| 20. <i>Nettapus coromandelianus</i> (Gmelin) | Cotton Teal |
| 21. <i>Anas poecilorhyncha</i> J.R. Forster | Spot-billed Duck |
| 22. <i>Anas clypeata</i> Linnaeus | Northern Shoveller |
| 23. <i>Anas acuta</i> Linnaeus | Northern Pintail |
| 24. <i>Anas crecca</i> Linnaeus | Common Teal |
| 25. <i>Rhodonessa rufina</i> (Pallas) | Red-crested Pochard |
| 26. <i>Aythya nyroca</i> (Guldenstadt) | Ferruginous Pochard |
| 27. <i>Aythya fuligula</i> (Linnaeus) | Tufted Pochard |
| Order FALCONIFORMES | |
| Family ACCIPITRIDAE | |
| 28. <i>Elanus caeruleus</i> (Desfontaines) | Black-shouldered Kite |
| 29. <i>Milvus migrans</i> (Boddaert) | Black Kite |
| 30. <i>Haliastur indus</i> (Boddaert) | Brahminy Kite |
| 31. <i>Ichthyophaga ichthyæetus</i> (Horsfield) | Greater Grey-headed Fish-Eagle |
| 32. <i>Neophron percnopterus</i> (Linnaeus) | Egyptian Vulture |
| 33. <i>Gyps bengalensis</i> (Gmelin) | Indian White-backed Vulture |
| 34. <i>Circaetus gallicus</i> (Gmelin) | Short-toed Snake-Eagle |
| 35. <i>Spilornis cheela</i> (Latham) | Lesser Crested Serpent-Eagle |
| 36. <i>Circus aeruginosus</i> (Linnaeus) | Western Marsh-Harrier |
| 37. <i>Circus macrourus</i> (S.G. Gmelin) | Pallied Harrier |
| 38. <i>Accipiter badius</i> (Gmelin) | Shikra |
| 39. <i>Accipiter nisus</i> (Linnaeus) | Eurasian Sparrow-hawk |

40. *Butastur teesa* (Franklin) White-eyed Buzzard
 41. *Aquila rapax* (Temminck) Twany Eagle
 42. *Spizaetus cirrhatus* (Gmelin) Changeable Hawk-Eagle
 Family FALCONIDAE
 43. *Falco tinnunculus* Linnaeus Common Kestrel
 44. *Falco peregrinus* Tunstall Peregrine Falcon
 Order GALLIFORMES
 Family PHASIANIDAE
 45. *Francolinus pictus* (Jerdine & Selby) Painted Francolin
 46. *Francolinus pondicerianus* (Gmelin) Grey Francolin
 47. *Cotrunix coturnix* (Linnaeus) Common Quail
 48. *Cotrunix coromandelica* (Gmelin) Black-breasted or Rain Quail
 49. *Perdicula asiatica* (Latham) Jungle Bush-Quail
 50. *Galloperdix spadicea* (Gmelin) Red Spurfowl
 51. *Gallus sonneratii* (Temminck) Grey Junglefowl
 52. *Pavo cristatus* Linnaeus Indian Peafowl
 Order GRUIFORMES
 Family TURNICIDAE
 53. *Turnix suscitator* (Gmelin) Common Buttonquail
 Family GRUIDAE
 54. *Grus antigone* (Linnaeus) Sarus Crane
 Family RALLIDAE
 55. *Amauromis phoenicurus* (Pennant) White-breasted Waterhen
 56. *Gallicrex cinerea* (Gmelin) Watercock
 57. *Porphyrio porphyrio* (Linnaeus) Purple Moorhen
 58. *Gallinula chloropus* (Linnaeus) Common Moorhen
 59. *Fulica atra* Linnaeus Common Coot
 Order CHARADRIIFORMES
 Family JACANIDAE
 60. *Hydrophasianus chirurgus* (Scopoli) Pheasant-tailed Jacana
 61. *Metopidius indicus* (Latham) Bronze-winged Jacana
 Family ROSTRATULIDAE
 62. *Rostratula benghalensis* (Linnaeus) Greater Painted-Snipe
 Family CHARADRIIDAE
 63. *Charadrius dubius* Scopoli Little Ringed Plover

64. *Vanellus malabaricus* (Boddaert) Yellow-wattled Lapwing
 65. *Vanellus indicus* (Boddaert) Red-wattled Lapwing
- Family SCOLOPACIDAE
66. *Gallinago gallinago* (Linnaeus) Common Snipe
 67. *Numenius arquata* (Linnaeus) Curlew
 68. *Tringa totanus* (Linnaeus) Common Redshank
 69. *Tringa nebularia* (Gunner) Common Greenshank
 70. *Tringa ochropus* Linnaeus Green Sandpiper
 71. *Tringa glareola* Linnaeus Wood Sandpiper
 72. *Actitis hypoleucos* Linnaeus Common Sandpiper
- Family RECURVIROSTRIDAE
73. *Himantopus himantopus* (Linnaeus) Black-winged Stilt
- Family BURHINIDAE
74. *Burhinus oedicephalus* (Linnaeus) Stone-Curlew
- Family LARIDAE
75. *Sterna aurantia* J.E. Gray River Tern
- Order COLUMBIFORMES
- Family PTEROCLIDIDAE
76. *Pterocles indicus* (Gmelin) Painted Sandgrouse
- Family COLUMBIDAE
77. *Columba livia* Gmelin Blue Rock Pigeon
 78. *Streptopelia senegalensis* (Linnaeus) Little Brown Dove
 79. *Streptopelia chinensis* (Scopoli) Spotted Dove
 80. *Streptopelia decaocto* (Frisvaldszky) Eurasian collared-Dove
 81. *Treron phoenicoptera* (Latham) Yellow-legged Green Pigeon
- Order PSITTACIFORMES
- Family PSITTACIDAE
82. *Psittacula eupatria* (Linnaeus) Alexandrine Parakeet
 83. *Psittacula krameri* (Scopoli) Rose-ringed Parakeet
 84. *Psittacula cyanocephala* (Linnaeus) Plum-headed Parakeet
- Order CUCULIFORMES
- Family CUCULIDAE
85. *Clamator jacobinus* (Boddaert) Pied Crested Cuckoo
 86. *Hierococcyx varius* (Vahl.) Brainfever Bird
 87. *Cuculus micropterus* Gould Indian Cuckoo
 88. *Cuculus canorus* Linnaeus Common Cuckoo
 89. *Cacomantis passerinus* (Vahl.) Plaintive Cuckoo

90. *Eudynamys scolopacea* (Linnaeus) Asian Koel
 91. *Phaenicophaeus leschenaultii* (Lesson) Sirkeer Malkoha
 92. *Centropus sinensis* (Stephens) Greater Coucal
- Order STRIGIFORMES
 Family STRIGIDAE
93. *Bubo bubo* (Linnaeus) Eurasian Eagle-Owl
 94. *Athene brama* (Temminick) Spotted Owlet
- Order CAPRIMULGIFORMES
 Family CAPRIMULGIDAE
95. *Caprimulgus indicus* Latham Indian Jungle Nightjar
 96. *Caprimulgus asiaticus* Latham Common Indian Nightjar
- Order APODIFORMES
 Family APODIDAE
97. *Capsiurus balasensis* (J.E. Gray) Palm Swift
 98. *Apus affinus* (J.E. Gray) Indian House Swift
- Family HEMIPROCINIDAE
99. *Hemiprocne coronata* (Tickell) Crested Tree Swift
- Order CORACIIFORMES
 Family ALCEDINIDAE
100. *Alcedo atthis* (Linnaeus) Small Blue Kingfisher
 101. *Halcyon capensis* (Linnaeus) Stork-billed Kingfisher
 102. *Halcyon smyrnensis* (Linnaeus) White-breasted Kingfisher
 103. *Ceryle rudis* (Linnaeus) Lesser Pied Kingfisher
- Family MEROPIDAE
104. *Merops orientalis* Latham Small Bee-eater
 105. *Merops philippinus* Linnaeus Blue-tailed Bee-eater
- Family CORACIIDAE
106. *Coracias benghalensis* (Linnaeus) Indian Roller
- Family UPUPIDAE
107. *Upupa epops* Linnaeus Common Hoopoe
- Family BUCEROTIDAE
108. *Ocyrceros birostris* (Scopoli) Indian Grey Hornbill
- Order PICIFORMES
 Family CAPITONIDAE
109. *Megalaima zeylanica* (Gmelin) Brown-headed Barbet

110. *Meglaïma haemacephala* (P.L.S. Muller) Coppersmith Barbet
 Family PICIDAE
111. *Dendrocopos nanus* (Vigors) Brown-capped Pygmy Woodpecker
 112. *Dendrocopos mahrattensis* (Latham) Yellow-fronted Pied Woodpecker
 113. *Celeus brachyurus* (Vieillot) Rufous Woodpecker
 114. *Dinopium benghalense* (Linnaeus) Lesser Golden-backed Woodpecker
- Order PASSERIFORMES
 Family PITTIDAE
115. *Pitta brachyura* (Linnaeus) Indian Pitta
 Family ALAUDIDAE
116. *Eremopterix grisea* (Scopoli) Ashy-crowned Sparrow-Lark
 117. *Ammomanes phoenicurus* (Franklin) Rufous-tailed Finch-Lark
 118. *Galerida cristata* (Linnaeus) Crested Lark
 119. *Galerida deva* (Sykes) Sykes's Crested Lark
 120. *Alauda gulgula* Franklin Eastern or Small Skylark
- Family HIRUDINIDAE
121. *Hirundo concolor* Sykes Dusky Crag-Martin
 122. *Hirundo rustica* Linnaeus Common Swallow
 123. *Hirundo smithii* Leach Wire-tailed Swallow
 124. *Hirundo daurica* Linnaeus Red-rumped Swallow
 125. *Hirundo fluvicola* Blyth Streak-throated Swallow
- Family MOTACILLIDAE
126. *Motacilla alba* Linnaeus White Wagtail
 127. *Motacilla maderaspatensis* Gmelin Large Pied Wagtail
 128. *Motacilla citreola* Pallas Citrine Wagtail
 129. *Motacilla flava* Linnaeus Yellow Wagtail
 130. *Motacilla cinerea* Tunstall Grey Wagtail
 131. *Anthus rufulus* Vieillot Paddyfield Pipit
- Family CAMPEPHAGIDAE
132. *Coracina macei* (Lesson) Large Cuckoo-Shrike
 133. *Pericrocotus cinnamomeus* (Linnaeus) Small Minivet
 134. *Pericrocotus flammeus* (Forster) Scarlet Minivet
 135. *Tephrodornis pondicerianus* (Gmelin) Common Woodshrike
- Family PYCNONOTIDAE
136. *Pynonotus jocosus* (Linnaeus) Red-whiskered Bulbul

137. *Pycnonotus cafer* (Linnaeus) Red-vented Bulbul
Family IRENIDAE
138. *Aegithina tiphia* (Linnaeus) Common Iora
139. *Chloropsis cochinchinensis* (Gmelin) Jerdon's Chloropsis
140. *Chloropsis aurifrons* (Temminck) Gold-fronted Chloropsis
Family LANIDAE
141. *Lanius vittatus* Valenciennes Bay-backed Shrike
142. *Lanius schach* Linnaeus Rufous-backed Shrike
143. *Lanius excubitor* Linnaeus Great Grey Shrike
Family MUSCICAPIDAE
Subfamily TURDINAE
144. *Zoothera citrina* (Latham) Orange-headed Thrush
145. *Copsychas saularis* (Linnaeus) Oriental Magpie-Robin
146. *Saxicoloides fulicata* (Linnaeus) Indian Robin
147. *Phoenicurus ochruros* (Gmelin) Black Redstart
148. *Saxicola caprata* (Linnaeus) Pied Bushchat
Subfamily TMALIINAE
149. *Dumetia hyperythra* (Franklin) Rufous-bellied Babbler
150. *Chrysomma sinense* (Gmelin) Yellow-eyed Babbler
151. *Turdoides caudatus* (Dumont) Common Babbler
152. *Turdoides malcolmi* (Sykes) Large Grey Babbler
153. *Turdoides striatus* (Dumont) Peninsular Jungle Babbler
Subfamily SYLVIINAE
154. *Cisticola juncidis* (Rafinesque) Streaked Fantail Warbler
155. *Prinia socialis* Sykes Ashy Prinia
156. *Prinia hodgsonii* Blyth Franklin's Prinia
157. *Prinia sylvatica* Jerdon Jungle Prinia
158. *Prinia inornata* Sykes Plain Prinia
159. *Orthotomus sutorius* (Pennant) Indian Tailor Bird
160. *Phylloscopus collybita* (Vieillot) Common Chiff Chaff
Subfamily MUSCICAPINAE
161. *Muscicapa daurica* Pallas Asian Brown Flycatcher
162. *Ficedula superciliaris* (Jerdon) Ultramarine Flycatcher
163. *Eumyias thalassina* (Swainson) Verditer Flycatcher
164. *Cyornis tickelliae* Blyth Tickell's Blue-Flycatcher
165. *Culicicapa ceylonensis* (Swainson) Grey-headed Flycatcher

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| | Subfamily | MONARCHINAE | |
| 166. | <i>Terpsiphone paradisi</i> (Linnaeus) | | Asian Paradise Flycatcher |
| | Subfamily | RHIPIDURINAE | |
| 167. | <i>Rhipidura albicollis</i> (Vieillot) | | White-throated Fantail Flycatcher |
| 168. | <i>Rhipidura aureola</i> Lesson | | White-browed Fantail Flycatcher |
| | Family | PARIDAE | |
| 169. | <i>Parus major</i> Linnaeus | | Great Tit |
| | Family | SITTIDAE | |
| 170. | <i>Sitta castanea</i> Lesson | | Chestnut-bellied Nuthatch |
| | Family | DICAEIDAE | |
| 171. | <i>Dicaeum agile</i> (Tickell) | | Thick-billed Flowerpecker |
| 172. | <i>Dicaeum erythrorhynchos</i> Latham | | Tickell's Flowerpecker |
| | Family | NECTARINIDAE | |
| 173. | <i>Nectarinia zeylonica</i> (Linnaeus) | | Purple-rumped Sunbird |
| 174. | <i>Nectarinia asiatica</i> (Latham) | | Indian Purple Sunbird |
| | Family | ZOSTEROPIDAE | |
| 175. | <i>Zosterops palpebrosa</i> (Temminck) | | Oriental White-eye |
| | Family | EASTRILDIDAE | |
| 176. | <i>Amandava amandava</i> (Linnaeus) | | Red Munia |
| 177. | <i>Amandava formosa</i> (Latham) | | Green Munia |
| 178. | <i>Lonchura malabarica</i> (Linnaeus) | | White-throated Munia |
| 179. | <i>Lonchura striata</i> (Linnaeus) | | White-rumped Munia |
| 180. | <i>Lonchura punctulata</i> (Linnaeus) | | Spotted Munia |
| | Family | PASSERIDAE | |
| | Subfamily | PASSERINAE | |
| 181. | <i>Passer domesticus</i> (Linnaeus) | | Indian House Sparrow |
| | Subfamily | PLOCEINAE | |
| 182. | <i>Ploceus philippinus</i> (Linnaeus) | | Baya Weaver |
| | Family | STURNIDAE | |
| 183. | <i>Sturnus pagodarum</i> (Gmelin) | | Brahminy Starling |
| 184. | <i>Sturnus contra</i> (Linnaeus) | | Asian Pied Starling |
| 185. | <i>Acridotheres tristis</i> (Linnaeus) | | Common Myna |
| | Family | ORIOOLIDAE | |
| 186. | <i>Oriolus oriolus</i> (Linnaeus) | | Eurasian Golden Oriole |
| 187. | <i>Oriolus xanthornus</i> (Linnaeus) | | Black-headed Oriole |

Family DICRURIDAE

188. *Dicrurus macrocercus* Vieillot Black Drongo
 189. *Dicrurus caerulescens* (Linnaeus) White-bellied Drongo

Family CORVIDAE

190. *Dendrocitta vagabunda* (Latham) Indian Tree Pie
 191. *Corvus splendens* Vieillot House Crow
 192. *Corvus macrorhynchos* Wagler Jungle Crow

MAMMALIA

Phylum CHORDATA

Class MAMMALIA

Order INSECTIVORA

Family SORICIDAE

Subfamily CROCIDURINAE

1. Savi's Pygmy Shrew : *Suncus etruscus* (Savi)
 2. House shrew : *Suncus murinus murinus* (Lin.)
 3. Anderson's shrew : *Suncus stoliczkanus* (Anderson)

Order SCANDENTIA

Family TUPAIIDAE

Subfamily TUPAINAE

4. Indian/Madras Tree Shrew : *Anathana ellioti ellioti* (Waterhouse)

Order CHIROPTERA

Suborder MEGACHIROPTERA

Family PTEROPODIDAE

Subfamily PTEROPODINAE

5. Fulvous fruit bat : *Rousettus l. leschenaulti* (Desmarest)
 6. Indian Flying Fox : *Pteropus giganteus giganteus* (Brunnich)
 7. Short-nosed fruit bat : *Cynopterus sphinx sphinx* (Vahl)

Family RHINOPOMATIDAE

8. Mouse-tailed bat : *Rhinopoma microphyllum* (Brunnich)
 9. Mouse-tailed bat : *Rhinopoma hardwickei* Gray

Family EMBALLONURIDAE

10. Black-bearded tomb bat : *Taphozous m. melanopogon* Temminck
 11. Long-winged tomb bat/
 Long-armed Sheath-tailed Bat : *Taphozous l. longimanus* Hardwicke

12. Naked-rumped tomb bat : *Taphozous (Liponycteris) nudiventris* Cretzschmar
 13. Pouch bearing bat : *Saccolaimus saccolaimus* (Temminck)

Family MEGADERMATIDAE

14. Lesser false vampire bat : *Megaderma spasma horsfieldii* Blyth
 15. Indian false vampire bat : *Megaderma l. lyra* Geoffroy

Family RHINOLOPHIDAE

16. Woolly or Great Eastern Horseshoe bat : *Rhinolophus luctus* Temminck
 17. Rufous/Roux's Horseshoe bat : *Rhinolophus rouxii rouxii* Temminck

Family HIPPOSIDERIDAE

18. Dusky Leaf-nosed bat : *Hipposideros ater ater* Templeton
 19. Fulvous Leaf-nosed bat : *Hipposideros fulvus fulvus* Gray
 20. Cantor's Leaf-nosed bat : *Hipposideros galeritus brachyotus* (Dobson)
 21. Kelaart's Leaf-nosed bat : *Hipposideros lankadiva indus* (Andersen)
 22. Schneider's Leaf-nosed bat : *Hipposideros speoris speoris* (Schneider)

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

23. Asiatic Lesser Yellow House bat : *Scotophilus kuhlii kuhlii* Leach
 24. Asiatic Greater Yellow House bat : *Scotophilus heathi heathi* (Horsfield)
 25. Pipistrelle bat : *Pipistrellus ceylonicus indicus* (Dobson)
 26. Coromandel Pipistrelle, Indian Pipistrelle,
 Little Indian bat : *Pipistrellus coromandra coromandra* (Gray)
 27. Least Pipistrelle, Indian Pygmy Pipistrelle,
 Indian Pygmy bat : *Pipistrellus tenuis mimus* Wroughton
 28. Dormer's bat : *Pipistrellus d. dormeri* (Dobson)

Subfamily MINIOPTERINAE

29. Schreiber's Long-fingered bat : *Miniopterus schreibersi fuliginosus* (Hodgson)

Family MOLOSSIDAE

30. Wrinkle-lipped Free-tailed bat : *Tadarida (Chaerephon) plicata plicata* (Buchanan)
 31. Egyptian Free-tailed bat : *Tadarida aegyptiaca thomasi* Wroughton

Order PRIMATES

Family CERCOPITHECIDAE

Subfamily CERCOPITHICINAE

32. Rhesus Macaque : *Macaca mulatta mulatta* (Zimmermann)

Subfamily COLOBINAE

33. Common or Hanuman Langur :
- Semnopithecus entellus entellus*
- (Dufresne)

Order PHOLIDOTA

Family MANIDAE

34. Indian Pangolin :
- Manis crassicaudata*
- Gray

Order CARNIVORA

Family CANIDAE

35. Indian Wolf :
- Canis lupus pallipes*
- Sykes

36. Asiatic Jackal, Golden Jackal, Jackal :
- Canis aureus*
- Linn

37. Indian Wild Dog, Dhole :
- Cuon alpinus*
- (Pallas)

38. Bengal Fox :
- Vulpes bengalensis*
- (Shaw)

Family URSIDAE

Subfamily URSINAE

39. Sloth bear :
- Melursus ursinus*
- (Shaw)

Family MUSTELIDAE

Subfamily MELLIVORINAE

40. Ratel or Honey Badger :
- Mellivora capensis*
- (Schreber)

Subfamily LUTRINAE

41. Smooth-coated Indian Otter/Smooth Indian Otter :
- Lutragale perspicillata*
- (Geoffroy)

Family VIVERRIDAE

Subfamily VIVERRINAE

42. Small Indian civet :
- Viverricula indica indica*
- (Desmarest)

Subfamily PARADOXURINAE

43. Common Palm civet or Toddy cat :
- Paradoxurus h. hermaphroditus*
- (Pallas)

Family HERPESTIDAE

Subfamily HERPESTINAE

44. Indian Grey Mongoose :
- Herpestes edwardsii edwardsii*
- (Geoffroy)

45. Indian ruddy mongoose :
- Herpestes smithii smithii*
- Gray

Family HYAENIDAE

Subfamily HYAENINAE

46. Striped Hyaena :
- Hyaena hyaena hyaena*
- (Linn.)

Family FELIDAE

Subfamily FELINAE

47. India Desert Cat : *Felis silvestris ornata* Gray
 48. India Jungle Cat : *Felis chaus affinis* Gray
 49. Leopard Cat : *Prionailurus bengalensis bengalensis* (Kerr)

Subfamily PANTHERINAE

50. Leopard/Panther : *Panthera pardus fusca* (Meyer)
 51. Royal Bengal Tiger/Tiger : *Panthera tigris tigris* (Linn.)

Order ARTIODACTYLA

Family SUIDAE

Subfamily SUINAE

52. Indian Wild Boar : *Sus scrofa cristatus* Wagner

Family TRAGULIDAE

53. Indian Chevrotain or Mouse Deer : *Moschiola meminna* (Erxleben)

Family CERVIDAE

Subfamily CERVINAE

54. Spotted Deer Chital : *Axis axis axis* (Erxleben)
 55. Sambar : *Cervus unicolor niger* Blainville

Subfamily MUNTIACINAE

56. Indian Muntjac or Barking Deer : *Muntiacus muntjak aureus* (H. Smith)

Family BOVIDAE

Subfamily BOVINAE

57. Indian Gaur : *Bos gaurus* Smith
 58. Blue Bull : *Boselaphus tragocamelus* (Pallas)
 59. Four Horned Antelope : *Tetracerus quadricornis* (Blainville)

Subfamily ANTILOPINAE

60. Blackbuck or Indian Antelope : *Antelope cervicapra cervicapra* (Linn.)

Order RODENTIA

Suborder SCIUROGNATHI

Family SCIURIDAE

Subfamily RATUFINAE

61. Indian Giant squirrel : *Ratufa indica centralis* Ryley

Subfamily FUNAMBULINAE

62. Indian three striped palm squirrel : *Funambulus palmarum robertsoni* Wroughton
 63. Indian five striped northern palm squirrel : *Funambulus pennanti* Wroughton

Family PTEROMYIDAE

64. Common giant flying squirrel : *Petaurista philippensis philippensis* (Elliot)

Family MURIDAE

Subfamily MURINAE

65. House Mouse : *Mus musculus castaneus* Waterhouse
 66. House Mouse : *Mus musculus homourus* Hodgson
 67. Little Indian Field Mouse : *Mus booduga booduga* (Gray)
 68. Indian Brown Spiny Mouse : *Mus platythrix* (Bennett)
 69. Wroughton's small spiny Mouse : *Mus phillipsi* Wroughton
 70. Indian Long-tailed Tree Mouse : *Vandeleuria oleracea oleracea* (Bennett)
 71. House Rat : *Rattus rattus rufescens* (Gray)
 72. White-bellied House Rat : *Rattus rattus narbadae* Hinton
 73. Soft-furred Metad : *Millardia meltada meltada* (Gray)
 74. Blanford's Rat : *Cremnomys blanfordi* (Thomas)
 75. Indian Bush Rat : *Golunda ellioti ellioti* Gray
 76. Indian Mole Rat : *Bandicota bengalensis bengalensis* (Gray)
 77. Large Bandicoot Rat : *Bandicota indica indica* (Bechstein)

Subfamily GERBILLINAE

78. Indian Antelope Rat : *Tatera indica indica* (Hardwicke)

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

79. Indian crested porcupine : *Hystrix indica* Kerr

Order LAGOMORPHA

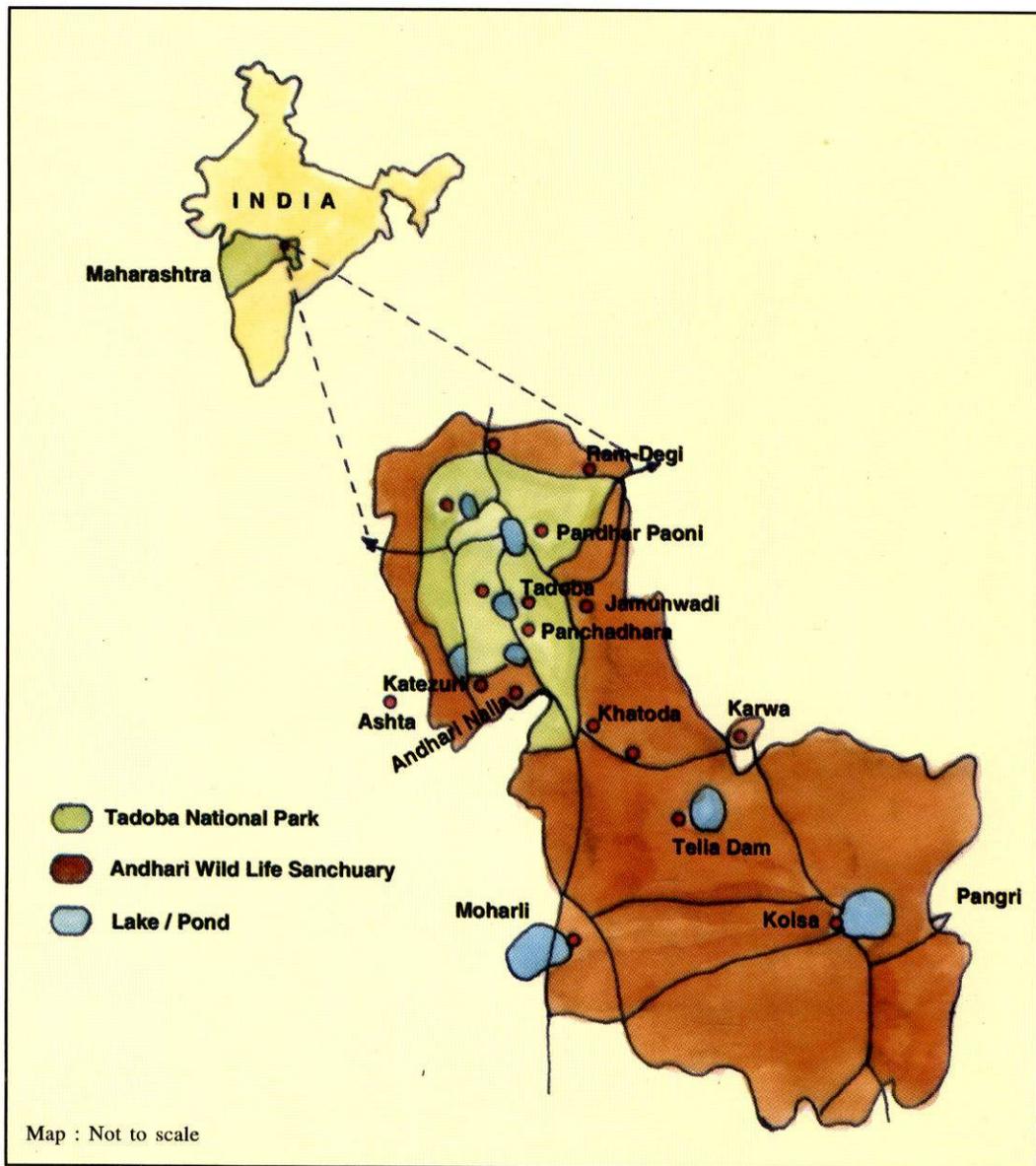
Family LEPORIDAE

80. Indian black-naped hare or Indian Hare : *Lepus nigricollis nigricollis* Cuvier

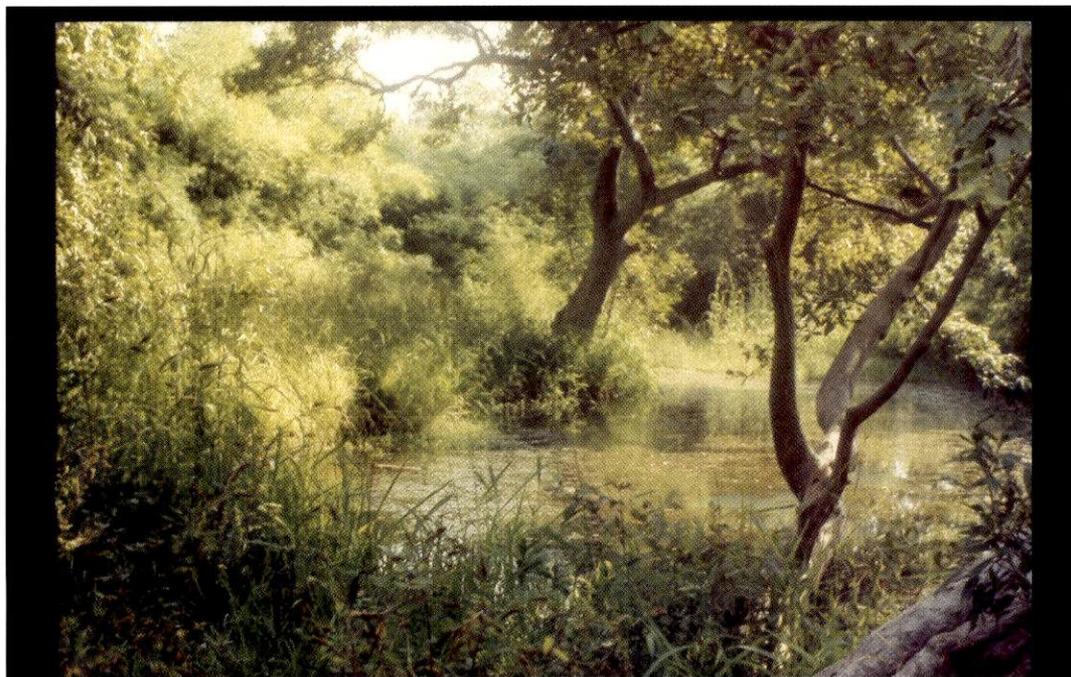
REFERENCES

- Anonymous, 2004. In Three decades of Tiger Reserve, *Sanctuary*, **25**(3) : 29-50.
- Champion, H.G., Seth, S.K. 1968. A revised survey of forest types of India, *Manager of publication* Delhi, 6, pp. xxv + 404; pl. 103+7 maps.
- Chaudhary, Ramanuj, 2003 Population estimation of Tigers in Maharashtra – Emerging Trends. *Tiger paper*, **30**(1) : 11-12.
- Director, Zoological Survey of India (Ed.) 2005. *Fauna of Tadoba–Andhari Tiger Reserve, Conservation Area Series*, **25** : 1-309.
- Faroqui, U.M. 1996. Tadoba-Andhari Tiger Reserve, the beginning. *Conservator of Forest (Wildlife) Nagpur*, : 1-18.
- Jagir Singh, 1996? Status report of National Parks and sanctuaries in Maharashtra : *Chief Conservator of Forests (Wildlife) Nagpur, Maharashtra* : 1-136. (In Marathi).
- Kulkarni, P.P., Bastawade, D.B. and Talmale, S.S. 1999. Predation of Dragonflies, *Ictinogomphus rapax* (Rambur) and *Pantala flavescens* (Fabr.) (Odonata : Anisoptera), by the giant wood spider, *Nephila maculata* (Fabr.) *Bionotes* **1**(4) : 84.
- Kunte, B.G. (executive editor) : 1973. *Gazetter of Chandrapur*, : 1-982 + Plates + Index xviii.
- Patil, S.G. and Kulkarni, P.P. 2000. Record on freshwater turtle, *Lissemys punctata* (Lacepede) Reptilia Chelonia. Trionychidae from Tadoba Andhari Tiger Reserve, Maharashtra. *Cobra*, **41** : 8-9.
- Prasad, M., Kulkarni, P.P. and Talmale, S.S. 2000. New record of andromorphic females in two species of *Neurothemis* Dragonflies (Odonata : Libellulidae) from Central India *Bionotes*, : **2**(3) : 54.
- Rajkondawar, P.L. 1991. Tadoba National Park, Chandrapur, Checklist of Avifauna *Deputy Conservator of Forests, Tadoba National Park Chandrapur, pub.*, : 1-10.
- Sharma, R.M., Talmale, S.S. and Kulkarni, P.P. 2000. Odonates attracted to light at Tadoba-Andhari Tiger Reserve, Maharashtra. *Bionotes*, : **2**(1) : 12.

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Map of Tadoba-Andhari Tiger Reserve, Maharashtra



Deciduous forest and nallah flowing inside the park area



Panoramic view of Tadoba Lake



Female Giant Wood Spider
Nephula maculata on web

Large Black Scorpion *Heterometrus* sp.
on openland in park area



Stingless Honey Bee's Comb
inside tree trunk

Bamboo Beetle on bamboo trunk





Sand Boa (Snake) in Stony habitat of park

Bison in forested area of Tadoba Park



Common Langur *Presbytis* sp. with its spread out long tail on forested road



MELGAHT TIGER RESERVE AMRAVATI, MAHARASHTRA

INTRODUCTION

Melghat Tiger Reserve, Dist. Amravati, Maharashtra enjoys the status since 1973-1974, when a total of 9 Tiger Reserves were initially declared by the Government to conserve the most magnificent species *Panthera tigris*, the "tiger". To be more precise on 22nd Feb, 1974, an area of 1571.94 sq. km in Amravati District was notified as Melghat Tiger Reserve located at 20° 32' and 21° 46' N latitude; 76° 37' and 78° 27' E. longitude with North : Districts of Madhya Pradesh in the East : Nagpur and Wardha districts of Maharashtra and Yatoimal District in South-South West. Melghat derives its name from "Mel" in local language Marathi "admixture or joints" and "Ghat" meaning hills. Thus this is the terrain of hills and valleys of Satpura Ranges spread in the Chikhaldara and Dharni Talukas of Amravati District. It is a contiguous area of forests in Maharashtra and that of adjoining Madhya Pradesh State. Successively, Government of Maharashtra specified the area and recognized the area of the project as under :

- | | | |
|--------------------------------|---|----------------|
| 1) Melghat Sanctuary | : | 1150.30 sq. km |
| 2) Peripheral Area | : | 0526.90 sq. km |
| 3) Total Area of Project Tiger | : | 1676.93 sq. km |

Multifarious efforts to conserve the biodiversity of the area in general, and the "tiger" in particular, has over the past 30 years, resulted in flourishing the faunal and floral components in this area. Enforcement of the provisions in the Wildlife (Protection) Act 1972 and strict vigil by the Project Tiger Staff and Local State Forest Department personnel has brought in encouraging results. Today, there exists no human settlement in the core area. However, in the Wild life Sanctuary 22 villages and in peripheral area 39 villages still exist supporting approx. 25,000 human being and the domestic live stock of nearly 25,000 animals.

The Western Regional Station, Pune of The Zoological Survey of India had in the recent past, from 1991 to 1996 surveyed the area of Melghat Tiger Reserve to assess faunal diversity and inventories of animal groups up to species level. A total of 13 surveys were conducted

by the scientists and staff of the Western Regional Station, ZSI, Pune. Good number of representative faunal samples for small animals were collected, preserved and identified, whereas observations were recorded for higher groups.

REVIEW OF LITERATURE ON FAUNA

It may be mentioned that prior to these intensive systematic surveys, information on faunal component, mainly for higher mammals alone was available, which is summarized for the years 1983 – 1993. This detailed data is the outcome of yearly census of large animals conducted in the Tiger Reserve by the State Forest Department (Kirpekar 1994). Approximately 250 species of Birds are recorded from here, for which a checklist was published (Sawarkar 1988) and (Anonymous 1994?). Amongst other vertebrate groups including reptiles and pisces, stray records are available. 16 species of snakes, 5 species of lizards (Anonymous, 1997) and 24 species of fishes (Gujar 1992) were so far known to exist.

The Gazetteer of District Amravati (P. Setu Madhav Rao, 1968) enumerated the wildlife from Melghat, which includes mainly the big games. The current scientific names for those are provided here. Red monkey or lal makad, *Macaca mulatta mulatta* (Zimmermann); black monkey, *Semnopithecus entellus entellus* (Dufresne); jackal, *Canis aureus* Linn.; wild dog, *Cuon alpinus* (Pallas); sloth bear, *Melursus ursinus* (Shaw); badger or ratel, *Mellivora capensis* (Schreder); otter, *Lutragale perspicillat* (Geoffroy); mongoose, *Herpestes edwardsii edwardsii* (Geoffroy) and *H. smithii smithii* Gray; hyaena, *Hyaena hyaena hyaena* (Linn.); udmanjar, *Paradoxurus h. hermaphroditus* (Pallas) and *Viverricula indica indica* (Desmarest); jungle cat, *Felis chaus affinis* Gray; panther, *Panthera pardus fusca* (Meyer); wild pig, *Sus acrofa cristatus wagner*; chital, *Axix axis axis* (Erxleben); sambhar, *Cervus unicolor niger* Blainville; barking deer, *Muntiacus muntjak aureus* (H. Smith); Indian bison or gaur, *Bos gaurus* Smith; Blue bull, *Boselaphus tragocamelus* (Pallus); black buck, *Antelope cervicapra cervicapra* (Linn.); porcupines, *Hystrix indica* Kerr, common Indian hare, *Lepus nigricollis nigricollis* Cuvier and fishes (19 species), snakes (14 species).

However, there seems to be no published information available on still smaller vertebrate species and invertebrate fauna like mollusca, crustacea, arachnida, centipedes, chilopoda, insects etc.

Area of Melghat consists of succession of hills and valleys, which are extension of main Stapura Range. Main ridge of Gawilgad hills run east and west, where the highest point is Vairat 1178 m above sea level. Melghat is a part of Decan trap. The soil formation also varies from rocky, clayey, lacustrine sediments with porous, pitted, clay like rocks to alluvium calcareous, black cotton soil covering extensive areas. Melghat has main rivers of Khandu, Sipna, Gadga and Dolar. All these are tributaries of River Tapi. The main ridge of Gavilgarh hills forms, a water divide between Tapi and Purna Rivers. The Tiger Reserve lies in the catchment area of Tapi river. Numerous streams and hard - bed hill streams feed these rivers in monsoon. However, the rainwater quickly drains off from fast flowing hill streams rendering only dry beds retaining water in intermittent depressions.

The climate of the region is tropical. December is the coldest month with 22°C as its mean daily maximum temperature and 13°C as mean daily minimum temperature; night temperature may fall to 5°C. From the months of February to May, temperature raises rapidly, reach a above 45°C with minimum daily temperature of 23°C during May. In mid June the temperature drops suddenly with the arrival of monsoon and the weather turns pleasant. At the end of October daily maximum temperature shows a short spurt before onset of "winter" in November. The air is generally dry. In summer humidity averages to 25-35%. Winds are generally light to moderate with increase in speed before monsoon months.

Annual average rainfall is 2250 mm, which greatly decreases towards north, where it touches to 1000 mm only. About 85% of the rainfall occurs in June to September. Usually July is the rainiest month at Chikhaldara. About 77 rainy days are recorded in a year. Fog and mist also prevails at places of height whereas the rest of the months are dry.

Forest in Melghat is designated as "Southern Tropical Dry Deciduous Forests" and is included in Sub Group 5A of Group 5 as per classification of Forest types by Champion and Seth (1968). Most dominant floral elements are Teak (*Tactona grandis*) and bamboo. Patel (1968) published the flora of Melghat. In recent years, Dhore and Joshi (1988) enumerated a total of 648 plant species from Melghat Tiger Reserve. Those represent 398 genera in 97 families. Bhogaonkar and Devarkar (1999) provided update to the work of Dhore & Joshi (1988) added 67 plants to the list. Thus a total of 715 plant species are known from Melghat Forests. However, both the works of Dhore and Joshi (1988) and Bhogaonkar and Devarkar (1999) were published by State Forest Authorities of Project Tiger and are mainly in report form, thus had limited circulation. Giri (1994) gave an account of medicinal plants of Melghat Tiger Reserve. A Technical bulletin published by Project Tiger Directorate contains information on as many as 175 plant species being used as medicine by local people. These contain 64 trees, 27 shrubs, 29 climbers, 2 sedges, 1 bamboo and 2 grasses. The percentage of forested area in Melghat was recorded to 81.7% in the year 1968. Management and afforestation efforts have further enriched the forest cover.

FAUNAL DIVERSITY

Melghat was declared as the Tiger Reserve in the year 1973 amongst those 9 established at the first instance. Immediately the area acquired prime importance and slowly attracted attention of scientists and amateurs as well, who tried to understand faunal components present there. Publications like 'An Annotated Bibliography on Tigers' (1989); Fauna of Tiger Reserves an Overview (Director, Z.S.I., 1993); two decades of Project Tiger, Past Present and Future (Anonymous 1992); Assessment Report Project Tiger Melghat 1974-1994 (Kirpekar, 1994), checklist of Birds of Melghat and various leaflets, booklets contained information on some faunal aspects. However, their focus remained on large and medium sized mammals, birds, and to some extent reptiles and fishes.

With an aim to inventorise available fauna in Melghat Tiger Reserve and to collect samples for their confirmed identification, Western Regional station conducted faunistic Survey of Melghat Tiger Project area during the years 1991-1996.

A total of 13 surveys were conducted by the Scientists of WRS, Pune, during the period. Several examples belonging to as many as 39 different groups of animals were collected. Observations alone were recorded on higher vertebrates (mammals, reptiles and birds). No collection for these animals was made. With the expertise available at WRS, Pune and also with the help of scientists at other regional stations of ZSI and also at Head office Kolkata as many as 15 groups were thoroughly worked out. The faunal diversity (Number of species and higher taxonomic categories) is mentioned in Table 1. Results of these studies are being published by ZSI, separately in the volume No. 19 under the *Conservation Area Survey Series* Director, Zoological Survey of India (ed.) (in Press).

Collection of faunal samples was worked out mainly by scientists of Western Regional Station, Zoological Survey of India, Pune. Specialists from other regional stations and institutions also identified few groups. List of faunal groups and present address of the specialists is presented here. **Mammalia and Reptilia** - Dr. M.S. Pradhan¹; **Aves** - Dr. A.S. Mahabal¹; **Amphibia** - Shri. S.S. Kamble¹; **Pisces and Centipeds** - Dr. B.E. Yadav¹; **Lepidoptera** - Dr. R.M. Sharma² and Shri. C. Radhakrishnan³; **Orthoptera** - Dr. P.P. Kulkarni¹ and Dr. M.S. Shishodia⁵; **Homoptera : Aphidoidea** - Dr. P.P. Kulkarni¹; **Diptera : Cecidomyiidae** - Dr. R.M. Sharma²; **Odonata** - Dr. P.P. Kulkarni¹ and Dr. M. Prasad⁵; **Aquatic Hemiptera** - Dr. G. Thirumalai⁴ and Dr. R.M. Sharma²; **Arachnida : Scorpionida, Araneae and Sloifugi** - Dr. D. B. Bastawade¹; **Cladocera** - Dr. P.D. Rane¹; **Mollusca** - Dr. S.G. Patil¹.

A summary of the results highlighting important achievements and total number of species recorded in each group are presented here. Apart from the collection worked out here, rest of the faunal samples are well preserved and kept in National Zoological collection at WRS, ZSI, Pune. An account of 742 species will be provided in the document on fauna of Melghat by the Zoological Survey of India (In press).

1) Cladocera (Crustacea) : As many as 29 species of Cladocera : Crustacea are recorded, those belong to Suborder Eucladocera, 2 superfamilies; 5 families and 19 genera. One new subspecies is described.

2) Freshwater Mollusca : 23 species representing 9 families from both suborders viz. Gastropoda and Bivalvia spread over 11 genera are recorded.

3) Scolopendra (Centipedes) : Previous record from Melghat Tiger Reserve and adjoining area amounts to 5 species. However a total of 15 species (including 5 mentioned earlier) are reported in the present studies.

Addresses

1. Western Regional Station, Zoological Survey of India, (Z.S.I.), Pune.
2. High Altitude Zoology Field Station, Z.S.I., Solan.
3. Western Ghat Regional Station, Z.S.I., Calicut.
4. Southern Regional Station, Z.S.I., Chennai.
5. Retired Scientists, Z.S.I., Kolkata.

Table - 1 : Composition of fauna of Melghat Tiger Reserve (Surveys by Z.S.I.,W.R.S., Pune)

Sl. No.	Name of the Group	Orders	Families	Genera	Species/ Sub species	New Records For Melghat	New species/ Sub species
1.	CLADOCERA	1	5	19	29	29	1
2.	MOLLUSCA-Fresh Water	1	9	11	23	23	-
3.	SCOLOPENDRA	1	1	5	15	10	-
	ARACHNIDA						
4.	Araneae	1	16	26	14	14	-
5.	Scorpions	1	3	6	8	8	-
6.	Soilfugida	1	1	1	1	1	-
	INSECTA						
7.	Diptera (Cecidomyiidae)	1	1	8	15	15	-
8.	Hemiptera (Aquatic/Semi Aq.)	1	6	14	20	20	-
9.	Aphids	1	1	6	8	8	-
10.	Odonata	1	6	17	24	24	-
11.	Orthoptera	1	7	34	38	38	-
12.	Lepidoptera	1	8	36	45	-	-
13.	PISCES	6	17	50	96	41	-
14.	AMPHIBIA	1	4	7	8	8	-
15.	REPTILES	4	16	36	54	-	-
16.	AVES	16	57	167	263	11	-
17.	MAMMALS	9	28	53	80	-	-

4) Arachnida : Araneae (Spiders) : 14 species of spiders belonging to family Aranea were identified. 11 species could be identified up to generic level. So a total of 25 genera were recorded from Melghat Tiger Project.

5) Scorpions : Scorpions belonging to 3 families, 6 genera and eight species were collected and identified.

6) Solifugida : Only one species of sun spiders order Solifugida was collected. *Galeodus indicus* Pocock, is the only representative of this order from Melghat Tiger Reserve.

7) Insecta : Diptera (Cecidomyiidae) : 15 species of Gall midges (Cecidomyiidae) are recorded. All these species are identified from the adult gall midges or the galls formed by them on variety of plants.

8) Aquatic & Semi Aquatic Hemiptera : An account of 20 species under 14 genera and 6 families was made available through the recent surveys.

9) Aphids : 8 species of Aphids were recorded from Melghat Tiger Project area.

10) Odonata : 24 species belonging to 17 genera in 11 subfamilies and 6 families representing both the suborders viz. Anisoptera and Zygoptera have been reported from Melghat Tiger Reserve, which contains one new record for Maharashtra State (Kulkarni *et al.* 2002).

11) Orthoptera : A total of 38 species from Orthoptera were collected and identified. These represent both the suborders 1) Caclifera and 2) Ensifora. These Orthopteran species are distributed amongst 34 genera & 7 families.

12) Pisces : Only 55 species of fishes were recorded earlier from Melghat Tiger Reserve. Now, a total of 96 species under 50 genera belonging to 17 families and 6 orders are known after these faunistic surveys conducted by WRS, ZSI, Pune. The total collection of 41 species was actually made while 55 are updated from literature and distributional records.

13) Amphibia : 8 species of amphibia are available, included under 7 genera and 4 families.

14) Aves : Birds. Considerable work on birds of Melghat Tiger Reserve was published earlier. The checklist included 253 species of birds which was published by Forest Authorities of Project Tiger Reserve. The present study raised this total to 263 species. As many as 16 orders, 9 subfamilies and 167 genera are represented here. Out of these birds five species viz. Indian Whitebacked Vulture, Indian Long-billed Vulture, Osprey, Indian Peafowl and Forest Owlet are falling under Schedule I, Part III (Birds) and Grey Jungle Fowl under Schedule II, Part II of Wildlife (Protection) Act, 1972 as amended upto 2003. Further Green Munia (Family : Estrildidae) is an endemic to Central India and which is also recorded from Melghat.

15) Reptiles : Systematic list of Reptiles prepared after sightings and few collection of specimens yielded a total of 54 species. This includes Loricata (Crocodylia), 1 sp., Testudines (Chelonia) 4 sp., Squamata (Lacertilia) (Lizards), 22 species; Serpents (Ophidia) snakes, 27 species.

16) Mammalia : Mammals are represented by 9 Orders, 28 Families and 53 Genera. A total of 80 species/sub species are recorded from Melghat Tiger Reserve. Out of these 80 species, 52 find themselves in various schedules of Indian Wildlife (Protection) Act as amended in September, 2002 (Pradhan and Ramakrishna, 2004).

CENSUS OF TIGER AND PANTHERS

Initiated with about 32 Tigers in 1974 the Tiger Reserve has seen increased number. In the recent census (2003) carried out in Melghat Tiger Project section wise number of Tigers & Panthers are available which are given below and data for other species is presented in Table 2 :

Section	Males	Females	Cubs	Sub Adults
Paratwada 1				
Tigers	11	18	5	2
Panthers	11	21	3	
Paratwada 2				
Tigers	16	12	2	2+1
Panthers	14	15	1	9
Akot				
Tigers	4	1		
Panthers	4			
Total				
Tigers	31	31	7	4
Panthers	29	37	4	11

Table - 2

Sl. No.	Name of the Species	Year																	
		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
1.	Tiger	81	81	77	77	77	72	-	-	71	72	73	68	ENC	ENC	74	74	74	
2.	Leopard	-	-	-	-	-	-	-	-	72	67	79	72	ENC	ENC	75	78	78	
3.	Gaur	-	749	742	1068	1165	1494	1553	ENC	2138	1512	1755	3349	ENC	1174	956	1120	1080	
4.	Sambar	-	734	769	1068	1165	1494	1553	ENC	2703	2504	1718	3589	ENC	2171	913	1416	965	
5.	Nilgai	-	47	125	130	154	119	102	ENC	132	285	232	131	ENC	07	97	59	120	
6.	Cheetal	-	86	256	159	180	-	265	ENC	644	612	315	1163	ENC	352	242	325	474	
7.	Barking Deer	-	567	552	732	635	811	895	ENC	1627	1191	1302	2132	ENC	1601	699	1032	865	
8.	Wild Boar	-	553	881	1012	1072	1303	1614	ENC	3350	2278	1966	3803	ENC	3229	1816	2976	1551	
9.	Langur	-	-	-	-	-	-	-	-	3089	7950	8780	7084	ENC	5752	3764	3909	5320	
10.	Sloth Bear	-	-	-	-	-	-	-	-	145	200	187	211	ENC	196	187	108	340	
11.	Wild Dog	-	-	-	-	-	-	-	-	-	-	-	121	ENC	192	222	239	435	
12.	Chowsinga	-	55	-	106	107	123	59	-	-	-	-	-	-	-	-	-	-	
13.	Monkey	-	2708	3064	3461	3730	-	3956	ENC	-	-	-	-	-	-	-	-	-	
		<i>Source</i> : Anonymous, 1992									<i>Source</i> : Conserver of Forest & Field Director, Project Tiger Melghat, Amaravati.								

ENC = CENSUS EXCERCISE NOT CARRIED OUT.

LIST OF SPECIES

- Phylum MOLLUSCA
 Class GASTROPODA
 Subclass PROSOBRANCHIA
 Order MESOGASTROPODA
 Family VIVIPARIDAE
 Subfamily BELLAMYINAE
1. *Bellamyia bengalensis f. typica* (Lamarck)
 2. *B. bengalensis f. doliaris* (Gould)
 Family PILIDAE
 3. *Pila globosa* (Swainson)
 4. *P. virens* (Lamarck)*
 Family THIARIDAE
 Subfamily THIARINAE
 5. *Thiara (Thiara) scabra* (Mueller)*
 6. *Thiara (Tarebia) lineata* (Gray)*
 7. *T. (Melanoides) tuberculata* (Muller)
 Subfamily PALUDOMINAE
 8. *Paludomus obesus* (Philippi)
 Order BASOMMATOPHORA
 Family LYMNAEIDAE
 9. *Lymnaea (Pseudosuccinea) acuminata* (Lamarck)
 10. *L. (P) luteola* (Lamarck)
 11. *L. (P) luteola f. australis* Annandale and Rao
 Family ANCYLIDAE
 12. *Ferrissia verruca* (Benson)*
 Family PLANORBICDAE
 13. *Indoplanorbis exustus* (Deshayes)
 14. *Gyraulus convexisculus* (Hutton)
 Class BIVOLVIA
 Order UNIONOIDA
 Family UNIONIDAE
 Subfamily UNIONINAE
 15. *Lamellidens consobrinus* Lea
 16. *L. marginalis* (Lamarck)

Family AMBLEMIDAE

17. *Parreysia (P) favidens* (Benson)*
18. *P. (P) annandalaei* Preston
19. *P. (P) corrugata* (Mueller)
20. *P. (P) corrugata laevirostris* Benson
21. *P. (P) cylindrica* Annandale and Prashad*
22. *P. (Rodiatula) caerulea*

Order VENEROIDA

Family CORBICULIDAE

23. *Corbicula striatella* Deshayes

Phylum ARTHROPODA

Class CRUSTACEA

Subclass BRANCHIOPODA

Superorder DIPLOSTRACA

Order CLADOCERA

Suborder EUCLADOCERA

Superfamily (a) SIDOIDEA

Family (I) SIDIDAE

1. *Latonopsis australis* Sars
2. *Diaphanosoma senegalensis* Gauthier
3. *D. sarsi* Richard
4. *D. excisum* Sars

Superfamily (b) CHYDOROIDAE

Family (II) DAPHNIIDAE

5. *Ceriodaphnia cornuta* Sars
6. *Daphnia lumholtzi* Sars
7. *Simocephalus vetulus* (O.F. Muller)
8. *S. serrulatus* (Koch)
9. *Scapholeberis kingi* Sars

Family (III) MONIDAE

10. *Moina micrura* Kurz

Family (IV) MACROTHRICIDAE

11. *Macrothrix spinosa* King
12. *Echinisca triserialis* (Brady)
13. *Ilyocryptus spinifer* Herrick

Family (V) CHYDORIDAE

14. *Pleuroxus aduncus* (Jurine)
15. *Chydorus ventricosus* Daday
16. *C. reticulatus* Daday
17. *C. eurynotus brehmi* (Biswas)
18. *Dunhevedia crassa* King
19. *Pseudochydorus globosus* (Baird)

Subfamily ALONINAE

20. *Alona davidi punctata* (Daday)
21. *A. costata* Sars
22. *A. pulchella* King
23. *A. rectangula* Sars
24. *Leydigia ciliata melghatensis* ssp. nov.
25. *Biapertura affinis* (Leydig)
26. *B. verrucosa* (Sars)
27. *B. karua* (King)
28. *Euryalona orientalis* (Daday)
29. *Ephemeroporus barroisi* (Richard)

Order SCORPIONIDA

Family BUTHIDAE

Subfamily BUTHINAE

1. *Mesobuthus tamulus tamulus* (Fabr.)
2. *Lychas (Endotrichus) laevifrons* (Pocock)
3. *Stenochirus politus* Pocock

Subfamily CENTRURINAE

4. *Isometrus (Reddyanus) acanthurus* Pocock
5. *I. (R.) isadensis* Tikader and Bastawade
6. *I. (R.) rigidulus* Pocock

Family ISCHNURIDAE

Subfamily ISCHNURINAE

7. *Hormurus nigristernis* Pocock

Family SCORPIONIDAE

Subfamily SCORPIONINAE

8. *Heterometrus (Chersonesometrus) fulvipes* (Koch)

Order SOLIFUGI
Family GALEODIDAE

1. *Galeodes indicus* Pocock

Order ARANEAE
Family ARANEIDAE (= ARGIOPIDAE)

1. *Nephila maculata* (Fabr.)
2. *Neoscona mokerjei* Tikader and Bal
3. *Neoscona theis* (Walck.)
4. *Neoscona laglaizei* (Simon)
5. *Leucauge decorata* (Blackw.)

Family LYCOSIDAE

6. *Hippasa olivacea* (Thorell)
7. *Arctosa himalayensis* Tikader and Malhotra
8. *Lycosa lambai* Tikader and Malhotra
9. *Arctosa* sp.
10. *Evippa* sp.

Family TETRAGNATHIDAE

11. *Tetragnatha mandibulata* Walckenaer

Family ERESIDAE

12. *Stegodyphus mirandus* Pocock

Family PHOLCIDAE

13. *Pholcus phalangioides* (Fuesslin)

Family THERIDIIDAE

14. *Theridion indica* Tikader

Family PALPIMANIDAE

15. *Palpimanus vultuosus* Simon

Family OONOPIDAE

16. *melghaticus* (Proposed, *Triaeris* new species)

Family CLUBIONIDAE

17. *Oedignatha* sp.

Family HETEROPIDAE (= SPARASSIDAE)

18. *Heteropoda/Olios* sp.

19. *Spariolenus* sp.

20. *Hersilia* sp. Family **HERSILIDAE**
21. *Scytodes* sp. Family **SCYTODIDAE**
22. *Xysticus* sp. Family **THOMISIDAE**
23. *Nodocion* sp. Family **GNAPHOSIDAE**
24. *Oxyopes* sp. Family **OXYOPIDAE**
25. *Salticus* sp. Family **SALTICIDAE**

Superphylum **ARTHROPODA**
 Phylum **UNIRAMIA**
 Subphylum **MYRIAPODA**
 Class **CHILOPODA**
 Subclass **EPIMORPHA**
 Order **SCOLOPENDROMORPHA**
 Family **SCOLOPENDRIDAE**
 Subfamily **SCOLOPENDRINAE**
 Tribe **Scolopendrini**

1. *Scolopendra amazonica* (Bucherl)
2. *Scolopendra morsitans* Linnaeus
3. *Scolopendra hardwickei* Newport
4. *Scolopendra mirabilis* (Porat)
5. *Cormocephalus nigrificatus* Verhoeff.
6. *Cormocephalus westwoodi* (Newport)
7. *Cormocephalus nudipes* Jangi & Dass
8. *Cormocephalus pilosus* Jangi

Tribe **Asanadini**

9. *Asanada indica* Jangi & Dass
10. *Asanada sokotrana* Pocock
11. *Asanada brevicornis* Meinert

Subfamily OTOSTIGMINAE

Tribe **Otostigmini**

12. *Rhysida nuda subnuda* Jangi
13. *Rhysida neocrassispina* Jangi & Dass
14. *Rhysida longipes longipes* (Newport)

Family CRYPTOPIDAE

15. *Cryptops orientalis* Jangi

Order ORTHOPTERA

Suborder ENSIFERA

Family TETTIGONIDAE

Subfamily PHANEROPTERINAE

1. *Letana intermedia* Ingrisch
2. *Letana* sp.
3. *Elimaea (Orthelimaea) securigera* Brunner
4. *Himertula kinneari* (Uvarov)
5. *Ducetia japonica* (Thunberg)
6. *Isopersa pedunculata* Brunner

Subfamily CONOCEPHALINAE

7. *Coenocephalus maculatus* (Le Guillou)

Subfamily LISTROSCOLIDANAE

8. *Euxhexacentrus annulicornis* (Stål)
9. *Mecapoda elongata* (Linn.)

Subfamily PSEUDOPHYLLINAE

10. *Sathrophyllia femorata* (Fabricius)

Superfamily GRYLLOIDEA

Family GRYLLIDAE

11. *Grullus* sp.

Family OECANTHIDAE

12. *Oecanthus indicus* Saussure

Family TRTRIGIDAE

Subfamily SCELIMENAE

13. *Euscelimena herpago* (Serville)

Subfamily TETRIGINAE

14. *Pseudoparatettix histricus* (Stål)
15. *Hedotettix cristergus* Hancock
16. *Ergetettix dorsiferus* (Walker)

- Order ODONATA
 Suborder ZYGOPTERA
 Superfamily COENAGRIONOIDEA
 Family COENAGRIONIDAE
 Subfamily PSEUDAGRIONINAE
1. *Pseudagrion decorum* (Rambur)
 2. *Pseudagrion microcephalum* (Rambur)
 3. *Pseudagrion rubriceps rubriceps* Selys
 Subfamily ISCHNURINAE
 4. *Enallagma parvum* Selys
 5. *Ischnura aurora aurora* (Brauer)
 Family PLATYCNEMIDIDAE
 Subfamily PLATYCNEMIDINAE
 6. *Copera marginipes* (Ramb.)
 Family PROTONEURIDAE
 Subfamily DISPARONEURINAE
 7. *Disparoneura quadrimaculata* (Ramb.)
 Superfamily LESTOIDEA
 Family LESTIDAE
 Subfamily LESTINAE
 8. *Lestes viridula* Rambur
 Suborder ANISOPTERA
 Superfamily AESHNOIDEA
 Family GOMPHIDAE
 Subfamily ONYCHOGOMPHINAE
 9. *Paragomphus lineatus* (Selys)
 Family AESHNIDAE
 Subfamily AESHNINAE
 10. *Gynacantha bayadera* Selys
 Superfamily LIBELLULOIDEA
 Family LIBELLULIDAE
 Subfamily LIBELLULINAE
 11. *Orthetrum glaucum* (Brauer)
 12. *Orthetrum pruinosum neglectum* (Rambur)
 13. *Orthetrum sabina sabina* (Drury)
 14. *Orthetrum taeniolatum* (Schn.)
 15. *Potamarcha congener* (Rambur)

Suborder CAELIFERA

Family PYRGOMORPHIDAE

- 17.
- Atractomorpha crenulata*
- (Fabricius)

Family ACRIDIDAE

Subfamily ACRIDINAE

- 18.
- Acrida exaltata*
- (Walker)

- 19.
- Acrida indica*
- Dirsh

- 20.
- Gonista*
- sp.

- 21.
- Ceracris nigricornis nigricornis*
- Walker

Subfamily GOMPHOCERINAE

- 22.
- Aulacobothrus*
- sp.

Subfamily OEDIPODINAE

- 23.
- Aoilopus thalassinus tamulus*
- (Fabricius)

- 24.
- Oedalius abruptus*
- (Thunberg)

- 25.
- Oedalius nigrofasciatus*
- Sauss.

- 26.
- Gastrimargus africanus africanus*
- (Saussure)

- 27.
- Trilophida annulata*
- (Thunburg)

Subfamily HEMIACRIDINAE

- 28.
- Hieroglyphus concolor*
- (Walker)

- 29.
- Hieroglyphus indicus*
- Mason

- 30.
- Parahieroglyphus bilineatus*
- (Boliver)

Subfamily COPTRACRIDINAE

- 31.
- Eucoptacra saturata*
- (Walker)

Subfamily CALLIPTAMINAE

- 32.
- Caloptenopsis glaucopsis glaucopsis*
- (Walker)

Subfamily CATANTOPINAE

- 33.
- Catantops pinguis innotabilis*
- (Walker)

- 34.
- Xenocatantops karnyi*
- (Kirby)

- 35.
- Stenocatantops splendens*
- (Thunberg)

Subfamily EYPREPOCNEMIDINAE

- 36.
- Choroedocus illustris*
- (Walker)

- 37.
- Tyloptropidius varicornis*
- (Walker)

Subfamily CYRTACANTHACRIDINAE

- 38.
- Pachyacris vinosa*
- (Walker)

Subfamily SYMPETRINAE

16. *Brachythemis contaminata* (Fabr.)
17. *Bradinopyga geminata* (Rambur)
18. *Crocothemis servilia servilia* (Drury)
19. *Diplacodes trivialis* (Rambur)
20. *Neurothemis intermedia intermedia* (Rambur)

Subfamily TRITHEMISTINAE

21. *Trithemis aurora* (Burmeister)
22. *Trithemis festiva* (Rambur)
23. *Trithemis kirbyi kirbyi* Selys

Subfamily TRAMEINAE

24. *Pantala flavescens* (Fabr.)

Order HEMIPTERA

Suborder HETEROPTERA

Infraorder NEPOMORPHA

Family NOTONECTIDAE

Subfamily ANISOPINAE

1. *Anisops cavifrons* Brooks
2. *Anisops nigrolineatus* Lundblad

Subfamily NOTONECTINAE

Tribe Notonectini

3. *Enithares ciliata* (Fabricius)
4. *Enithares triangularis* (Guerin-Meneville)

Family NEPIDAE

Subfamily RANATRINAE

Tribe Ranatrini

5. *Ranatra elongata* Fabricius
6. *Ranatra filiformis* Fabricius
7. *Ranatra varipes varipes* Stal

Subfamily NEPINAE

Tribe Nepini

8. *Laccotrephes griseus* (Guerin-Meneville)
9. *Laccotrephes ruber* (Linnaeus)

Family BELOSTOMATIDAE

Subfamily LETHOCERINAE

10. *Lethocerus indicus* (Lepeletier & Serville)

- Subfamily BELOSTOMATINAE
11. *Diplonychus rusticus* (Fabricius)
- Family NAUCORIDAE
Subfamily LACCOCORINAE Stal
12. *Helecoris breviceps* Montandon
13. *Helecoris obliquatus* (Spinola)
- Family CORIXIDAE
Subfamily CORIXINAE
Tribe **Corixini**
14. *Sigàra graveleyi* (Hutchinson)
- Subfamily MICRONECTINAE
15. *Micronecta scutellaris scutellaris* (Stal)
- Infraorder GERROMORPHA
Family GERRIDAE
Subfamily CYLINDROSTETHINAE
16. *Cylindrostethus productus* (Spinola)
- Subfamily EOTRECHINAE
17. *Onychotrechus rhexenor* Kirkaldy
- Subfamily GERRINAE
18. *Limnogonus (Limnogonus) nitidus* (Mayr)
19. *Limnometra fluviorum* (Fabricius)
- Order HOMOPTERA
Superfamily APHIDOIDEA
Family APHIDIDAE
Subfamily APHIDINAE
Tribe **Aphidini**
Subtribe **Aphidina**
1. *Aphis craccivora* Koch
2. *Aphis gossypii* Glover
3. *Aphis nerii* Boyer de Fonscombe
4. *Rhopalosiphum maidis* (Fitch.)
- Tribe **Macrocephini**
5. *Uroleucon (Uromelan) comopsitae* (Theo.)
6. *Lipaphis erysimi* (Kalt.)
7. *Myzus persicae* (Sulzwr)
8. *Brevicoryne brassicae* (Linnaeus)

Order **DIPTERA**
 Suborder NEMATOCERA
 Superfamily MYCETOPHYLOIDEA
 Family CECIDOMYIIDAE
 Subfamily CECIDOMYIINAE
 Supertribe **Oligotrophidi**

1. *Dasineura psoraleae* Sharma

Supertribe **Lasiopteridi**

2. *Lasioptera achyranthesae* Sharma
3. *Lasioptera bothriochloae* Rao & Sharma
4. *Lasioptera bryoniae* Schiner
5. *Lasioptera cephalandrae* Mani
6. *Lasioptera nenuae* (Grover)
7. *Lasioptera tomentosae* (Grover)
8. *Lasioptera* sp.

Supertribe **Asphondyliidi**

9. *Asphondylia tectonae* Mani

Supertribe **Cecidomyiidi**

10. *Contarinia eragrostidis* Felt
11. *Contarinia orientalis* (Rao & Sharma)
12. *Horidiplosis mathuri* Mani
13. *Odinadiplosis odinae* Mani
14. *Procontarinia matteina* Kieffer & Cecconi
15. *Punarnavomyia boerhaaviaefoliae* (Mani)

Order **LEPIDOPTERA**
 Suborder RHOPALOCERA
 Super family PAPILIONOIDEA
 Family PAPILIONIDAE
 Subfamily PAPILIONINAE
 Tribe **Leptocircini**

1. *Pathysa nomius* Esper.
2. *Papilio demoleus* Linn.
3. *Papilio polytes* Linn.

Tribe **Troidini**

4. *Pachliopta aristolochiae* (Fab.)

Family PIERIDAE
 Subfamily PIERINAE
 Tribe Pierini

5. *Belenois aurota* (Fab.)
6. *Cepora nerissa* (Fab.)
7. *Delias eucharis* (Drury)
8. *Appias albina* Boisduval

Tribe Colotini

9. *Hebomoia glaucippe* Linn.
10. *Pareronia valeria* Cramer

Subfamily COLIADINAE

11. *Catopsilia pomona* (Fab.)
12. *Terias brigitta* (Stall)
13. *Terias hecabe* (Linn.)
14. *Terias laeta* Boisduval

Family DANAIDAE
 Subfamily DANAINAE

15. *Danaus chrysippus* Linn.
16. *Danaus genutia* (Cramer)
17. *Parantica aglea* Stoll
18. *Tirumala limniace* (Cramer)

Subfamily EUPLOEINAE

19. *Euploea core* Cramer

Family SATYRIDAE
 Subfamily SATYRINAE
 Tribe Melanitini

20. *Melanitis leda* (Linn.)

Tribe Mycalesini

21. *Mycalesis mineus* (Linn.)
22. *Mycalesis perseus* Fab.

Tribe Ypthimini

23. *Ypthima huebneri* Kirby

Family NYMPHALIDAE
 Subfamily BIBLIDINAE

24. *Ariadne ariadne* Linn.

Tribe Argynnini

25. *Phalanta phalantha* (Drury)

- Subfamily NYMPHALINAE
Tribe **Vanessidi**
26. *Cynthia cardui* Linn.
27. *Precis iphita* Cramer
28. *Junonia almana* Linn.
29. *Junonia hierta* Linn.
30. *Junonia lemonias* Linn.
31. *Junonia orithya* Linn.
- Tribe **Hypolimini**
32. *Hypolimnas bolina* (Linn.)
33. *Hypolimnas misippus* (Linn.)
- Subfamily LIMENITIDINAE
Tribe **Neptini**
34. *Neptis hylas* (Linn.)
- Tribe **Limenitidini**
35. *Moduza procris* (Cramer)
- Tribe **Euthaliini**
36. *Symphaedra nais* (Forster)
- Subfamily ACRAEINAE
37. *Acraea terpsicore* (Linn.)
- Family RIODINIDAE
Subfamily RIODININAE
38. *Abisara echerius* (Stoll)
- Family LYCAENIDAE
Subfamily POLYOMMATINAE
Tribe **Polyommatini**
39. *Catochrysops strabo* (Fab.)
40. *Lampides boeticus* (Linn.)
41. *Pseudozizeeria maha* (Kollar)
42. *Euchrysops cnejus* (Fab.)
43. *Chilades laius* Stoll
- Suborder GRYPOCERA
Family HESPERIIDAE
Subfamily COELIADINAE
44. *Hasora badra* (Moore)
- Subfamily HESPERIINAE
45. *Telicota ancilla* Mabille

- Phylum **CHORDATA**
 Class **PISCES**
 Subclass **ACTINOPTERYGII**
 Infraclass **TELEOSTEI**
 Superorder **ELOPOMORPHA**
 Order **ANGUILLIFORMES**
 Suborder **ANGUILLOIDEI**
 Family **ANGUILLIDAE**
1. *Anguilla bengalensis* (Gray)
 - Superorder **CLUPEOMORPHA**
 - Order **CLUPEIFORMES**
 - Family **CLUPEIDAE**
 - Subfamily **DOROSOMATINAE**
 2. *Goniolosa manmina* (Ham-Buch.)
 - Superorder **OSTEOGLOSSOMORPHA**
 - Order **OSTEOGLOSSIFORMES**
 - Family **NOTOPTERIDAE**
 3. *Chitala chitala* (Ham-Buch.)
 4. *Notopterus notopterus* (Pallas)
 - Superorder **OSTARIOPHYSI**
 - Order **CYPRINIFORMES**
 - Family **CYPRINIDAE**
 - Subfamily **CULTRINAE**
 5. *Chela dadiburjori* (Menon)
 6. *Chela laubuca* (Ham-Buch.)
 7. *Salmostoma bacaila* (Ham-Buch.)
 8. *Salmostoma boopis* (Day)
 9. *Salmostoma clupeoides* (Bloch)
 10. *Salmostoma novacula* (Valenciennes)
 11. *Salmostoma untrahi* (Day)
 - Subfamily **RASBORINAE**
 12. *Amblypharyngodon mola* (Ham-Buch.)
 13. *Aspidoparia morar* (Ham-Buch.)
 14. *Barilius barna* (Ham-Buch.)
 15. *Barilius bendelisis* (Ham-Buch.)
 16. *Barilius gatensis* (Valenciennes)
 17. *Barilius vagra* (Ham-Buch.)

18. *Danio rerio* (Ham-Buch.)
19. *Danio aequipinnatus* (McClelland)
20. *Danio devario* (Ham-Buch.)
21. *Esomus danricus* (Ham-Buch.)
22. *Parluciosoma daniconius* (Ham-Buch.)

Subfamily CYPRININAE

23. *Thynnichthys sandkhol* (Sykes)
24. *Neolissolcheilus hexagonolepis* (McClelland)
25. *Tor khudree* (Sykes)
26. *Tor tor* (Ham-Buch.)
27. *Osteobrama cotio cotio* (Ham-Buch.)
28. *Osteobrama vigorsii* (Sykes)
29. *Puntius amphibius* (Val.)
30. *Puntius chola* (Ham-Buch.)
31. *Puntius conchoni* (Ham-Buch.)
32. *Puntius sophore* (Ham-Buch.)
33. *Puntius ticto* (Ham-Buch.)
34. *Barbodes carnaticus* (Jerdon)
35. *Barbodes sarana sarana* (Ham-Buch.)
36. *Hypselobarbus curmuca* (Ham-Buch.)
37. *Catla catla* (Ham-Buch.)
38. *Cirrhinus cirrhosa* (Bloch)
39. *Cirrhinus mrigala* (Ham-Buch.)
40. *Cirrhinus reba* (Ham-Buch.)
41. *Labeo bata* (Ham-Buch.)
42. *Labeo boggut* (Sykes)
43. *Labeo calbasu* (Ham-Buch.)
44. *Labeo gonius* (Ham-Buch.)
45. *Labeo potail* (Sykes)
46. *Labeo fimbriatus* (Bloch)
47. *Labeo rohita* (Ham-Buch.)

Subfamily GARRINAE

48. *Garra mullya* (Sykes)
49. *Garra gotyla gotyla* (Gray)
50. *Crossocheilus latius latius* (Ham-Buch.)

Family BALITORIDAE

Subfamily NOEMACHEILINAE

51. *Noemacheilus botia* (Ham-Buch.)
52. *Noemacheilus d. denisoni* Day
53. *Noemacheilus elongatus* (Hora)

54. *Noemacheilus evezardi* Day
 55. *Noemacheilus keralensis* (Rita & Nalbant)
 56. *Noemacheilus multifasciatus* Day
- Family COBITIDAE
 Subfamily COBITINAE
57. *Lepidocephalus guntea* (Ham-Buch.)
 58. *Lepidocephalus thermalis* (Val.)
- Order SILURIFORMES
 Family BAGRIDAE
59. *Rita pavementata* (Valenciennes)
 60. *Rita chrysea* Day
 61. *Aorichthys aor* (Ham-Buch.)
 62. *Aorichthys seenghala* (Sykes)
 63. *Mystus bleekeri* (Day)
 64. *Mystus cavasius* (Ham-Buch)
 65. *Mystus oculatus* (Valenciennes)
 66. *Mystus vittatus* (Bloch)
- Family SILURIDAE
67. *Ompok bimaculatus* (Bloch)
 68. *Wallago attu* (Schneider)
- Family SCHILBEIDAE
 Subfamily AILINAE
69. *Ailia coila* (Ham-Buch.)
- Subfamily SCHILBEINAE
70. *Clupisoma garua* (Ham-Buch.)
 71. *Eutropiichthys gongwaree* (Sykes)
 72. *Eutropiichthys vacha* (Ham-Buch.)
 73. *Proeutropiichthys taakree* (Sykes)
 74. *Pseudotropius atherinoides* (Bloch)
 75. *Silonia childreni* (Sykes)
 76. *Silonia silondia* (Ham-Buch.)
- Family PANGASIIDAE
77. *Pangasius pangasius* (Ham-Buch.)
- Family SISORIDAE
78. *Bagarius bagarius* (Ham-Buch.)

- Family CLARIIDAE
79. *Clarias batrachus* (Linn.)
- Family HETEROPNEUSTIDAE
80. *Heteropneustes fossilis* (Bloch)
- Order ATHERINIFORMES
- Family BELONIDAE
81. *Xenentodon cancila* (Ham-Buch.)
- Series PERCOMORPHA
- Suborder PERCOIDEI
- Order PERCIFORMES
- Family AMBASSIDAE
82. *Chanda nama* (Ham-Buch.)
83. *Pseudambasis ranga* (Ham-Buch.)
84. *Pseudambasis baculis* (Ham-Buch.)
- Family NANDIDAE
- Subfamily NANDINAE
85. *Nandus nandus* (Ham-Buch.)
- Subfamily BADINAE
86. *Badis badis* (Ham-Buch.)
- Family MUGILIDAE
87. *Rhinomugil corsula* (Ham-Buch.)
- Suborder GOBIOIDEI
- Family GOBIIDAE
88. *Glossogobius giuris* (Ham-Buch.)
- Family CHANNIDAE
89. *Channa orientalis* (Bloch & Schneider)
90. *Channa punctatus* (Bloch)
91. *Channa striatus* (Bloch)
92. *Channa marulius* (Ham-Buch.)
93. *Channa stewartii* (Playfair)
- Order SYNBRANCHIFORMES
- Family MASTACEMBELIDAE
94. *Macrognathus arai* (Bloch & Schneider)
95. *Mastacembelus a. armatus* (Lacepede)
96. *Mastacembelus punctatus* (Ham-Buch.)

Phylum **CHORDATA**
 Class **AMPHIBIA**
 Order ANURA
 Family BUFONIDAE

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

Family MICROHYLIDAE

3. *Microhyla ornata* (Dum. & Bibr.)

Family RANIDAE

4. *Hoplobatrachus tigerinus* (Daudin)
5. *Euphlyctis cyanophlyctis* (Schn.)
6. *Limnonectes limnocharis* (Gravenhorst.)
7. *Sphaerotheca breviceps* (Schn.)

Family RHACOPHORIDAE

8. *Polypedates maculatus* (Gray)

Phylum **CHORDATA**
 Class **REPTILIA**
 Order LORICATA (CROCODILIA)
 Family CROCODYLIDAE

1. Marsh Crocodile : *Crocodylus palustris* Lesson

Order TESTUDINES (CHELONIA)

Suborder CRYPTODIRA

Family EMYDIDAE

2. Indian snail eating turtle : *Melanochelys trijuga trijuga* (Schweigger)

Family TESTUDINIDAE

3. Star Tortoise or Indian starred Tortoise : *Geochelone elegans* (Schoepff)

Family TRIONYCHIDAE

4. Southern flap-shelled turtle : *Lissemys punctata granosa* (Schoepff)

5. Peninsular or Deccan Soft-shelled turtle : *Trionyx leithi* Gray

Order SQUAMATA

Suborder SAURIA (LACERTILIA)

Family GEKKONIDAE

6. Spotted House Gecko : *Hemidactylus brooki* Gray

7. Square spotted Gecko : *Hemidactylus gracilis* Blanford

8. Reticulated Gecko : *Hemidactylus reticulatus* Beddome
9. Ticticky House Gecko : *Hemidactylus frenatus* Schlegel
10. Common Bark Gecko : *Hemidactylus leschenaulti* Dumeril & Bibron
11. Rock Gecko or Dark spotted Giant Gecko : *Hemidactylus maculatus* Dumeril & Bibron
12. Yellow bellied house Gecko : *Hemidactylus flaviviridis* Ruppell

Family EUBLEPHARIDAE

13. Desert Fat tailed Gecko : *Eublepharis macularius* (Blyth)

Family AGAMIDAE

14. Indian fan throated lizard : *Sitana ponticeriana* Cuvier.
15. Indian garden lizard : *Calotes versicolor* (Daudin)
16. Forest Calotes or Matheran olive-Brown calotes : *Calotes rouxi* Dum. & Bibr.
17. Common Indian rock lizard : *Psammophilus blanfordanus* (Stoliczka)

Family LACERTIDAE

18. Punjab snake eyed lacerta, Jerdon's snake eye : *Ophisops jerdoni* Blyth

Family CHAMAELIONIDAE

19. Indian chameleon : *Chamaeleo zeylanicus* Laurenti

Family SCINCIDAE

20. Bronzy-olive skink : *Mabuya innotata* (Blanford)
21. Little skink, Bronzy : Grass skink *Mabuya macularia* (Blyth)
22. Common Indian skink, Common skink, Brahminy skink : *Mabuya carinata* (Schneider)
23. Beddom's South Indian skink, Common skink, Brahminy skink : *Mabuya beddomii* (Jerdon)
24. Five striped skink : *Mabuya trivittata* (Hardwicke & Gray)
25. Dotted Garden skink, Snake skink : *Riopa punctata* (Linnaeus)
26. Malabar dotted skink : *Riopa guentheri* (Peters)

Family VARANIDAE

27. Common Indian monitor, Monitor lizard, Indian monitor : *Varanus bengalensis* (Daudin)

Suborder SERPENTES (OPHIDIA)

Family TYPHLOPIDAE

28. Common Blind snake, Worm snake : *Ramphotyphlops braminus* (Daudin)
29. Diard's Blind snake : *Typhlops diardi* Schlegel
30. Beaked Blind snake : *Typhlops acutus* (Dum. & Bibr.)

Family BOIDAE

31. Indian rock python : *Python m. molurus* (Linnaeus)
32. Indian Sand Boa, John's sand boa, Red Sand boa, Black Earth boa, Stump-tailed sand boa : *Eryx johni johni* (Russell)
33. Russell's sand Boa, Russell's Earth Boa : *Eryx conicus* (Schneider)

Family COLUBRIDAE

34. Trinket Snake, Common Trinket Snake : *Elaphe helena* (Daudin)
35. Indian rat Snake, Dhaman : *Ptyas mucosus* (Linnaeus)
36. Banded racer, Fasciolated rat snake : *Argyrogena fasciolatus* (Shaw)
37. Common green whip snake, Common vine snake : *Ahaetulla nasutus* Lacep.
38. Streaked kukri snake, Russell's, variegated kukri snake : *Oligodon taeniolatus* (Jerdon)
39. Russel's kukri snake, common kukri snake : *Oligodon arnensis* (Shaw)
40. Wall's yellow-spotted wolf snake : *Lycodon flavomaculatus* Wall
41. Common wolf snake : *Lycodon aulicus* (Linn.)
42. Shaw's wolf snake : *Lycodon striatus* (Shaw)
43. Green keelback snake : *Macropisthodon plumbicolor* (Cantor)
44. Checkered keelback snake : *Xenochrophis piscator* (Schneider)
45. Striped keelback, buff stripped keelback : *Amphiesma stolata* (Linnaeus)
46. Indian Gamma or cat snake : *Boiga trigonata* (Schneider)
47. Indian sand snake, condanarous sand snake : *Psammophis condanarus* (Merrem)
48. Sand snake : *Psammophis longifrons* Boulenger

Family ELAPIDAE

49. Common Indian Krait : *Bungarus caeruleus* (Schneider)
50. Slender coral snake : *Callophis melanurus* (Shaw)
51. Indian Cobra : *Naja naja* (Linnaeus)

Family VIPERIDAE

52. Russell's viper : *Vipera russelli* (Shaw)
53. Saw-scaled viper : *Echis carinatus* (Schneider)
54. Bamboo Pit viper : *Trimeresurus gramineus* (Shaw)

Class AVES

Order PODICIPEDIFORMES

Family PODICIPEDIDAE

1. *Tachybaptus ruficollis* (Pallas) Little Grebe or Dabchick

Order CICONIIFORMES

Family ARDEIDAE

2. *Egretta garzetta* (Linnaeus) Little Egret
3. *Ardea cinerea* Linnaeus Grey Heron
4. *Casmerodius albus* (Linnaeus) Eastern Large Egret
5. *Mesophayx intermedia* (Wagler) Smaller or Median Egret
6. *Bubulcus ibis* (Linnaeus) Cattle Egret
7. *Ardeola grayii* (Sykes) Indian Pond Heron
8. *Butorides striatus* (Linnaeus) Little Green Heron

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| 9. <i>Nycticorax nycticorax</i> (Linnaeus) | Black-Crowned Night-Heron |
| 10. <i>Ixobrychus sinensis</i> (Gmelin) | Yellow Bittern |
| 11. <i>Ixobrychus cinnamomeus</i> (Gmelin) | Chestnut Bittern |

Family CICONIDAE

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| 12. <i>Mycteria leucocephala</i> Pennant | Painted Stork |
| 13. <i>Ciconia nigra</i> (Linnaeus) | Black Stork |
| 14. <i>Ciconia episcopus</i> (Boddaert) | White-necked Stork |
| 15. <i>Ciconia ciconia</i> (Linnaeus) | White Stork |

Family THRESKIORNITHIDAE

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| 16. <i>Threskiornis melanocephalus</i> (Latham) | Oriental White Ibis |
| 17. <i>Pseudibis papillosa</i> (Temminck) | Indian Black Ibis |

Order ANSERIFORMES

Family ANATIDAE

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| 18. <i>Dendrocygna javanica</i> (Horsfield) | Lesser Whistling Duck |
| 19. <i>Tadorna ferruginea</i> (Pallas) | Brahminy Shelduck |
| 20. <i>Anas strepera</i> Linnaeus | Gadwall |
| 21. <i>Anas poecilorhyncha</i> J.R. Forester | Spot-billed Duck |
| 22. <i>Anas clypeata</i> Linnaeus | Northern Shoveller |
| 23. <i>Anas acuta</i> Linnaeus | Northern Pintail |
| 24. <i>Anas querquedula</i> Linnaeus | Garganey or Bluewing Teal |
| 25. <i>Anas crecca</i> Linnaeus | Common Teal |

Order FALCONIFORMES

Family ACCIPITRIDAE

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| 26. <i>Pernis ptilorhynchus</i> (Temminck) | Oriental Honey-Buzzard |
| 27. <i>Elanus caeruleus</i> (Desfontaines) | Black-shouldered Kite |
| 28. <i>Milvus migrans</i> (Boddaert) | Black Kite |
| 29. <i>Haliastur indus</i> (Boddaert) | Brahminy Kite |
| 30. <i>Neophron percnopterus</i> (Linnaeus) | Indian Scavenger Vulture |
| 31. <i>Gyps bengalensis</i> (Gmelin) | Indian White-backed Vulture |
| 32. <i>Gyps indicus</i> (Scopoli) | Indian Long-billed Vulture |
| 33. <i>Sarcogyps calvus</i> (Scopoli) | Black or King Vulture |
| 34. <i>Circaetus gallicus</i> (Gmelin) | Short-toed Snake Eagle |
| 35. <i>Spilornis cheela</i> (Latham) | Crested Serpent-Eagle |
| 36. <i>Circus macrourus</i> (S.G. Gmelin) | Pale Harrier |
| 37. <i>Accipiter trivirgatus indicus</i> (Temminck) | Crested Goshawk |
| 38. <i>Accipiter badius dussumieri</i> (Gmelin) | Indian Shikra |
| 39. <i>Accipiter nisus</i> (Linnaeus) | Eurasian Sparrow-Hawk |
| 40. <i>Butastur teesa</i> (Franklin) | White-eyed Buzzard-Eagle |
| 41. <i>Ictinaetus malayensis</i> (Temminck) | Black Eagle |

42. *Aquila rapax* (Temminck) Tawny Eagle
 43. *Hieraaetus fasciatus* (Vieillot) Bonelli's or Slender Hawk-Eagle
 44. *Spizaetus cirrhatus* (Gmelin) Changeable Hawk-Eagle

Family PANDIONIDAE

45. *Pandion haliaetus* (Linnaeus) Osprey

Family FALCONIDAE

46. *Falco naumanni* Fleischer Lesser Kestrel
 47. *Falco tinnunculus* Linnaeus Common Kestrel
 48. *Falco chicquera* Daudin Red-headed Merlin
 49. *Falco subbuteo* Linnaeus Eurasian Hobby
 50. *Falco jugger* J.E. Gray Laggar Falcon (Laggar)
 51. *Falco peregrinus* Tunstall Peregrine Falcon

Order GALLIFORMES

Family PHASIANIDAE

52. *Francolinus pictus* (Jardine & Selby) Painted Francolin
 53. *Francolinus pondicerianus* (Gmelin) Grey Francolin
 54. *Coturnix coturnix* (Linnaeus) Common Quail
 55. *Coturnix coromandelica* (Gmelin) Black-breasted Quail
 56. *Perdicula asiatica* (Latham) Jungle Bush-Quail
 57. *Perdicula argoondah* (Sykes) Deccan Rock Bush-Quail
 58. *Perdicula erythrorhyncha* (Sykes) Northern Painted Bush-Quail
 59. *Galloperdix spadicea* (Gmelin) Red Spurfowl
 60. *Galloperdix lunulata* (Valenciennes) Painted Spurfowl
 61. *Gallus sonneratii* Temminck Grey Junglefowl
 62. *Pavo cristatus* (Linnaeus) Indian Peafowl

Order GRUIFORMES

Family TURNICIDAE

63. *Turnix sylvatica* (Desfontaines) Small Buttonquail
 64. *Turnix tanki* Blyth Yellow-Legged Buttonquail
 65. *Turnix suscitator* (Gmelin) Common Buttonquail

Family GRUIDAE

66. *Grus virgo* (Linnaeus) Demoiselle Crane

Family RALLIDAE

67. *Amurornis phoenicurus* (Pennant) White-breasted Waterhen

Order CHARADRIIFORMES

Family CHARADRIIDAE

68. *Charadrius dubius* Scopoli Little Ringed Plover
 69. *Vanellus malabaricus* (Boddaert) Yellow-wattled Lapwing

70. *Vanellus duvaucelii* (Lesson) River Lapwing
 71. *Vanellus indicus* (Boddaert) Red-wattled Lapwing

Family SCOLOPACIDAE

72. *Gallinago stenuru* (Bonaparte) Pintail Snipe
 73. *Gallinago gallinago* (Linnaeus) Common or Fantail Snipe
 74. *Tringa totanus* (Linnaeus) Common Redshank
 75. *Tringa nebularia* (Gunner) Common Greenshank
 76. *Tringa ochropus* Linnaeus Green Sandpiper
 77. *Tringa glareola* Linnaeus Wood or Spotted Sandpiper
 78. *Actitis hypoleucos* Linnaeus Common Sandpiper

Family RECURVIROSTRIDAE

79. *Himantopus himantopus* (Linnaeus) Black-winged Stilt

Family BURHINIDAE

80. *Burhinus oedicephalus* (Linnaeus) Indian Stone-Curlew
 81. *Esacus recurvirostris* (Cuvier) Great Stone-Plover

Family GLARIOLIDAE

82. *Glareola lactea* Temminck Small Pratincole

Order COLUMBIFORMES

Family PTEROCLIDIDAE

83. *Pterocles exustus* Temminck Chestnut-bellied Sandgrouse
 84. *Pterocles indicus* (Gmelin) Painted Sandgrouse

Family COLUMBIDAE

85. *Columba livia* Gmelin Blue Rock Pigeon
 86. *Streptopelia orientalis* (Latham) Oriental Turtle Dove
 87. *Streptopelia senegalensis* (Linnaeus) Little Brown Dove
 88. *Streptopelia chinensis* (Scopoli) Indian Spotted Dove
 89. *Streptopelia tranquebarica* (Hermann) Red Collared-Dove
 90. *Streptopelia decaocta* (Frisvaldszky) Eurasian Collared-Dove
 91. *Treron phoenicoptera* (Latham) Yellow-legged Green-Pigeon

Order PSITTACIFORMES

Family PSITTACIDAE

92. *Psittacula eupatria* (Linnaeus) Alexandrine Parakeet
 93. *Psittacula krameri* (Scopoli) Rose-ringed Parakeet
 94. *Psittacula cyanocephala* (Linnaeus) Plum-headed Parakeet

Order CUCULIFORMES

Family CUCULIDAE

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| 95. | <i>Clamator jacobinus</i> (Boddaert) | Pied Crested Cuckoo |
| 96. | <i>Hierococcyx varius</i> (Vahl) | Hawk-Cuckoo |
| 97. | <i>Cuculus micropterus</i> Gould | Indian Cuckoo |
| 98. | <i>Cuculus canorus</i> Linnaeus | Common Cuckoo |
| 99. | <i>Cuculus poliocephalus</i> Latham | Lesser Cuckoo |
| 100. | <i>Cacomantis sonneratti</i> (Latham) | Banded Bay Cuckoo |
| 101. | <i>Cacomantis passerinus</i> (Vahl) | Indian Plaintive Cuckoo |
| 102. | <i>Surniculus lugubris</i> (Horsfield) | Indian Drongo-Cuckoo |
| 103. | <i>Eudynamys scolopacea</i> (Linnaeus) | Asian Koel |
| 104. | <i>Phaenicophaeus viridirostris</i> (Jerdon) | Green-billed Malkoha |
| 105. | <i>Phaenicophaeus leschenaultii</i> (Lesson) | Sirkeer Malkoha |
| 106. | <i>Centropus sinensis</i> (Stephens) | Greater Coucal |

Order STRIGIFORMES

Family TYTONIDAE

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| 107. | <i>Tyto alba</i> (Scopoli) | Indian Barn Owl |
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Family STRIGIDAE

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| 108. | <i>Otus sunia</i> (Hodgson) | Oriental Scops-Owl |
| 109. | <i>Otus bakkamoena</i> Pennant | Collared Scops-Owl |
| 110. | <i>Bubo bubo</i> (Linnaeus) | Eurasian Eagle-Owl |
| 111. | <i>Bubo coromandus</i> (Latham) | Dusky Eagle-Owl |
| 112. | <i>Ketupa zeylonensis</i> (Gmelin) | Brown Fish-Owl |
| 113. | <i>Strix ocellata</i> (Lesson) | Mottled Wood-Owl |
| 114. | <i>Strix leptogrammica</i> Temminck | Brown Wood-Owl |
| 115. | <i>Glauoidium radiatum</i> (Tickell) | Jungle Owlet |
| 116. | <i>Athene brama</i> (Temminck) | Spotted Owlet |
| 117. | <i>Athene (=Heteroglaux) blewitti</i> Hume | Forest Owlet |
| 118. | <i>Ninox scutulata</i> (Raffles) | Indian Brown Hawk-Owl |
| 119. | <i>Asio flammeus</i> (Pontoppidan) | Short-eared Owl |

Order CAPRIMULGIFORMES

Family CAPRIMULGIDAE

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| 120. | <i>Caprimulgus indicus</i> Latham | Indian Jungle Nightjar |
| 121. | <i>Caprimulgus asiaticus</i> Latham | Common Indian Nightjar |
| 122. | <i>Caprimulgus affinis</i> Horsfield | Franklin's or Allied Nightjar |

Order APODIFORMES

Family APODIDAE

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|------|--------------------------------------|-------------------------------|
| 123. | <i>Zoonavena sylvatica</i> (Tickell) | White-rumped Needletail-Swift |
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124. *Tachymarptis melba* (Linnaeus) Indian Alpine Swift
 125. *Apus affinis* (J.E. Gray) Indian House Swift
- Family HEMIPROCINIDAE
126. *Hemiprocne coronata* (Tickell) Crested Tree-Swift
- Order CORACIIFORMES
 Family ALCEDINIDAE
127. *Alcedo atthis* (Linnaeus) Indian Small Blue Kingfisher
 128. *Halcyon capensis* (Linnaeus) Stork-billed Kingfisher
 129. *Halcyon smyrnensis* (Linnaeus) White-breasted Kingfisher
 130. *Halcyon pileata* (Boddaert) Black-capped Kingfisher
 131. *Ceryle rudis* (Linnaeus) Lesser Pied Kingfisher
- Family MEROPIDAE
132. *Nyctornis athertoni* (Jerdine & Selby) Blue-bearded Bee-eater
 133. *Merops orientalis* Latham Small Bee-eater
 134. *Merops philippinus* Linnaeus Blue-tailed Bee-eater
- Family CORACIIDAE
135. *Coracias benghalensis* (Linnaeus) Indian Roller or Blue Jay
- Family UPUPIDAE
136. *Upupa epops* Linnaeus Common Hoopoe
- Family BUCEROTIDAE
137. *Ocyrceros birostris* (Scopoli) Indian Grey Hornbill
- Order PICIFORMES
 Family CAPITONIDAE
138. *Megalaima zeylanica* (Gmelin) Brown-headed Barbet
 139. *Megalaima haemacephala* (P.L.S. Muller) Crimson-breasted Barbet or Coppersmith
- Family PICIDAE
140. *Dendrocopos nanus* (Vigors) Brown-capped Pigmy Woodpecker
 141. *Dendrocopos mahrattensis* (Latham) Yellow-fronted Pied or Mahratta Woodpecker
 142. *Dryocopus javensis* (Horsfield) Great Black Woodpecker
 143. *Picus xanthopygaeus* (J.E. Gray & G.R. Gray) Little Scaly-bellied Green Woodpecker
 144. *Dinopium bengalense* (Linnaeus) Lesser Golden-backed Woodpecker
 145. *Chrysocolaptes festivus* (Boddaert) Black-shouldered Woodpecker
 146. *Hemicircus canente* (Lesson) Heart-spotted Woodpecker
- Order PASSERIFORMES
 Family PITTIDAE
147. *Pitta brachyura* (Linnaeus) Indian Pitta

Family ALAUDIDAE

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| 148. | <i>Mirafra erythroptera</i> Blyth | Red-winged Bush-Lark |
| 149. | <i>Eremopterix grisea</i> (Scopoli) | Ashy-Crowned Sparrow-Lark |
| 150. | <i>Ammomanes phoenicurus</i> (Franklin) | Southern Rufous-tailed Finch-Lark |
| 151. | <i>Calandrell brachydactyla</i> (Leisler) | Greater Short-toed Lark |
| 152. | <i>Galerida deva</i> (Sykes) | Deccan or Sykes's Crested Lark |
| 153. | <i>Alauda gulgula</i> Franklin | Indian Small Skylark |

Family HIRUNDINIDAE

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|------|----------------------------------|-------------------------|
| 154. | <i>Hirundo rupestris</i> Scopoli | Eurasian Crag Martin |
| 155. | <i>Hirundo concolor</i> Sykes | Dusky Crag-Martin |
| 156. | <i>Hirundo rustica</i> Linnaeus | Common Swallow |
| 157. | <i>Hirundo smithii</i> Leach | Wire-tailed Swallow |
| 158. | <i>Hirundo daurica</i> Linnaeus | Red-rumped Swallow |
| 159. | <i>Hirundo fluvicola</i> Blyth | Streak-throated Swallow |

Family MOTACILLIDAE

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| 160. | <i>Motacilla alba</i> Linnaeus | Indian White Wagtail |
| 161. | <i>Motacilla maderaspatensis</i> Gmelin | Large Pied Wagtail |
| 162. | <i>Motacilla citreola</i> Pallas | Citrine Wagtail |
| 163. | <i>Motacilla cinerea</i> Tunstall | Grey Wagtail |
| 164. | <i>Anthus rufulus</i> Vieillot | Paddyfield Pipit |
| 165. | <i>Anthus hodgsoni</i> Richmond | Oriental Tree Pipit |

Family CAMPEPHAGIDAE

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| 166. | <i>Coracina macei</i> (Lesson) | Indian Large Cuckoo-Shrike |
| 167. | <i>Coracina melanoptera</i> (Ruppell) | Peninsular Black-headed Cuckoo-Shrike |
| 168. | <i>Pericrocotus cinnamomeus</i> (Linnaeus) | Southern Small Minivet |
| 169. | <i>Pericrocotus erythropygius</i> (Jerdon) | White-bellied Minivet |
| 170. | <i>Pericrocotus flammeus</i> (Forster) | Peninsular Indian Scarlet Minivet |
| 171. | <i>Hemipus picatus</i> (Sykes) | Black-backed Pied Flycatcher-Shrike |
| 172. | <i>Tephrodornis pondicerianus</i> (Gmelin) | Indian Wood Shrike |

Family PYCNONOTIDAE

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|------|--------------------------------------|-------------------------------|
| 173. | <i>Pycnonotus jocosus</i> (Linnaeus) | Southern Red-whiskered Bulbul |
| 174. | <i>Pycnonotus cafer</i> (Linnaeus) | Red-vented Bulbul |
| 175. | <i>Pycnonotus luteolus</i> (Lesson) | White-browed Bulbul |

Family IRENIDAE

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|------|--|---------------------|
| 176. | <i>Aegithina tiphia</i> (Linnaeus) | Central Common Iora |
| 177. | <i>Chloropsis cochinchinensis</i> (Gmelin) | Jerdon's Chloropsis |

Family LANIIDAE

- | | | |
|------|-------------------------------------|----------------------|
| 178. | <i>Lanius cristatus</i> Linnaeus | Brown Shrike |
| 179. | <i>Lanius vittatus</i> Valenciennes | Bay-backed Shrike |
| 180. | <i>Lanius schach</i> Linnaeus | Rufous-backed Shrike |
| 181. | <i>Lanius meridionalis</i> Temminck | Southern Grey Shrike |

Family MUSCICAPIDAE

Subfamily TURDINAE

- | | | |
|------|--|--------------------------|
| 182. | <i>Monticola cinclorhynchus</i> (Vigors) | Blue-headed Rock-Thrush |
| 183. | <i>Monticola solitarius</i> (Linnaeus) | Indian Blue Rock-Thrush |
| 184. | <i>Myiophonus horsfieldii</i> (Vigors) | Malabar Whistling-Thrush |
| 185. | <i>Zoothera citrina</i> (Latham) | Orange-headed Thrush |
| 186. | <i>Turdus merula</i> Linnaeus | Eurasian Blackbird |
| 187. | <i>Luscinia sevecica</i> (Linnaeus) | Bluethroat |
| 188. | <i>Copsychus saularis</i> (Linnaeus) | Oriental Magpie Robin |
| 189. | <i>Saxicoloides fulicata</i> (Linnaeus) | Deccan Black Robin |
| 190. | <i>Phoenicurus ochruros</i> (Gmelin) | Eastern Black Redstart |
| 191. | <i>Saxicola torquata</i> (Linnaeus) | Common Stone Chat |
| 192. | <i>Saxicola caprata</i> (Linnaeus) | Pied Bushchat |

Subfamily TIMALIINAE

- | | | |
|------|--|----------------------------|
| 193. | <i>Pellorneum ruficeps</i> Swainson | Peninsular Spotted Babbler |
| 194. | <i>Pomatorhinus horsefieldii</i> Sykes | Deccan Scimitar-Babbler |
| 195. | <i>Dumetia hyperythra</i> (Franklin) | Rufous-bellied Babbler |
| 196. | <i>Chrysomma sinense</i> (Gmelin) | Yellow-eyed Babbler |
| 197. | <i>Turdoides caudatus</i> (Dumont) | Common Babbler |
| 198. | <i>Turdoides malcolmi</i> (Sykes) | Large Grey Babbler |
| 199. | <i>Turdoides striatus</i> (Dumont) | Peninsular Jungle Babbler |
| 200. | <i>Alcippe poiocephala</i> (Jerdon) | Quaker Tit-Babbler |

Subfamily SYLVIINAE

- | | | |
|------|--|--------------------------|
| 201. | <i>Cisticola juncidis</i> (Rafinesque) | Streaked Fantail-Warbler |
| 202. | <i>Prinia buchanani</i> Blyth | Rufous-fronted Prinia |
| 203. | <i>Prinia hodgsonii</i> Blyth | Franklin's Prinia |
| 204. | <i>Prinia sylvatica</i> Jerdon | Jungle Prinia |
| 205. | <i>Prinia socialis</i> Sykes | Ashy Prinia |
| 206. | <i>Prinia inornata</i> Sykes | Plain Prinia |
| 207. | <i>Orthotomus sutorius</i> (Pennant) | Indian Tailor Bird |
| 208. | <i>Phylloscopus affinis</i> (Tickell) | Tickell's Warbler |
| 209. | <i>Seicercus whistleri</i> Ticchurst | Whistler's Flycatcher |
| 210. | <i>Megalurus palustris</i> Horsfield | Striated Marsh-Warbler |
| 211. | <i>Sylvia hortensis</i> (Gmelin) | Eastern Orphean Warbler |

- Subfamily MUSCICAPINAE
212. *Ficedula parva* (Bechstein) Red-throated Flycatcher
 213. *Ficedula supercilialis* (Jerdon) Ultramarine Flycatcher
 214. *Eumyias thalassina* (Swainson) Verditer Flycatcher
 215. *Cyornis tickelliae* Blyth Tickell's Blue-Flycatcher
 216. *Culicicapa ceylonensis* (Swainson) Grey-headed Flycatcher
- Subfamily MONARCHINAE
217. *Terpsiphone paradisi* (Linnaeus) Asian Paradise Flycatcher
 218. *Hypothymis azurea* (Boddaert) Indian Black-naped Monarch-Flycatcher
- Subfamily RHIPIDURINAE
219. *Rhipidura albicollis* (Vieillot) White-throated Fantail-Flycatcher
 220. *Rhipidura aureola* Lesson Northern White-browed Fantail-Flycatcher
- Family REMIZIDAE
221. *Cephalopyrus flammiceps* (Burton) Fire-capped Tit
- Family PARIDAE
222. *Parus major* Linnaeus Great Tit
 223. *Parus xanthogenys* Vigors Black-lored Yellow Tit
- Family SITTIDAE
224. *Sitta castanea* Lesson Peninsular Chestnut-bellied Nuthatch
 225. *Sitta frontalis* Swainson Velvet-fronted Nuthatch
- Family CERTHIDAE
226. *Salpornis spilonotus* (Franklin) Spotted Creeper
- Family DICAETIDAE
227. *Dicaeum agile* (Tickell) Indian Thick-billed Flowerpecker
 228. *Dicaeum erythrorhynchos* Latham Tickell's Flower-pecker
- Family NECTARINIIDAE
229. *Nectarinia zeylonica* (Linnaeus) Indian Purplerumped Sunbird
 230. *Nectarinia asiatica* (Latham) Indian Purple Sunbird
- Family ZOSTEROPIDAE
231. *Zosterops palpebrosa* (Temminck) Oriental White-eye
- Family EMBERIZIDAE
- Subfamily EMBERIZINAE
232. *Melophus lathami* (Gray) Crested Bunting
 233. *Emberiza buchanani* (Blyth) Grey-necked Bunting
 234. *Emberiza melanocephala* Scopoli Black-headed Bunting
 235. *Emberiza bruniceps* Brandt Red-headed Bunting

- Family FRINGILLIDAE
236. *Carpodacus erythrinus* (Pallas) Common Rosefinch
- Family ESTRILDIDAE
237. *Amandava amandava* (Linnaeus) Red Munia or Avadavat
 238. *Amandava formosa* (Latham) Green Munia
 239. *Lonchura malabarica* (Linnaeus) White-throated Munia
 240. *Lonchura striata* (Linnaeus) White-rumped Munia
 241. *Lonchura punctulata* (Linnaeus) Indian Spotted Munia
- Family PASSERIDAE
 Subfamily PASSERINAE
242. *Passer domesticus* (Linnaeus) Indian House Sparrow
 243. *Petronia xanthocollis* (Burton) Yellow-throated Sparrow
- Subfamily PLOCEINAE
244. *Ploceus manyar* (Horsfield) Indian Streaked Wever
 245. *Ploceus philippinus* (Linnaeus) Baya Wever
- Family STURNIDAE
246. *Sturnus malabaricus* (Gmelin) Grey-headed Starling
 247. *Sturnus pagodarum* (Gmelin) Brahminy Starling
 248. *Sturnus roseus* (Linnaeus) Rosy Starling or Rosy Pastor
 249. *Sturnus contra* Linnaeus Asian Pied Starling
 250. *Acridotheres tristis* (Linnaeus) Common Myna
 251. *Acridotheres ginginianus* (Latham) Bank Myna
 252. *Acridotheres fuscus* (Wagler) Southern Jungle Myna
- Family ORIOLIDAE
253. *Oriolus oriolus* (Linnaeus) Eurasian Golden Oriole
 254. *Oriolus xanthornus* (Linnaeus) Black-headed Oriole
- Family DICRURIDAE
255. *Dicrurus macrocercus* Vieillot Black Drongo
 256. *Dicrurus leucophaeus* Vieillot Indian Ashy Drongo
 257. *Dicrurus caerulescens* (Linnaeus) White-bellied Drongo
 258. *Dicrurus paradiseus* (Linnaeus) Greater Racket-tailed Drongo
- Family ARTAMIDAE
259. *Artamus fuscus* Vieillot Ashy Woodswallow
- Family CORVIDAE
260. *Dendrocitta vagabunda* (Latham) Indian Tree Pie
 261. *Corvus splendens* Vieillot House Crow
 262. *Corvus macrorhynchos* Wagler Jungle Crow

Phylum **CHORDATA**
 Class **MAMMALIA**
 Order **INSECTIVORA**
 Family **SORICIDAE**
 Subfamily **CROCIDURINAE**

1. Savi's Pygmy Shrew : *Suncus etruscus* (Savi)
2. House shrew : *Suncus murinus murinus* (Linn.)
3. Anderson's shrew : *Suncus stoliczkanus* (Anderson)

Order **SCANDENTIA**
 Family **TUPAIIDAE**
 Subfamily **TUPAIINAE**

4. Indian/Madras Tree Shrew : *Anathana ellioti ellioti* (Waterhouse)

Order **CHIROPTERA**
 Suborder **MEGACHIROPTERA**
 Family **PTEROPODIDAE**
 Subfamily **PTEROPODINAE**

5. Fulvous fruit bat : *Rousettus l. leschenaulti* (Desmarest)
6. Indian Flying Fox : *Pteropus giganteus giganteus* (Brunnich)
7. Short-nosed fruit bat : *Cynopterus sphinx sphinx* (Vahl)

Family **RHINOPOMATIDAE**

8. Mouse-tailed bat : *Rhinopoma hardwickei* Gray

Family **EMBALLONURIDAE**

9. Black-bearded tomb bat : *Taphozous m. melanopogon* Temminck
10. Long-winged tomb bat/Long-armed Sheath-tailed Bat : *Taphozous l. longimanus* Hardwicke
11. Naked-rumped tomb bat : *Taphozous (Liponycteris) nudiventris* Cretzschmar
12. Pouch bearing bat : *Saccolaimus saccolaimus* (Temminck)

Family **MEGADERMATIDAE**

13. Lesser false vampire bat : *Megaderma spasma horsfieldii* Blyth
14. Indian false vampire bat : *Megaderma l. lyra* Geoffroy

Family **RHINOLOPHIDAE**

15. Woolly or Great Eastern Horseshoe bat : *Rhinolophus luctus* Temminck
16. Rufous/Roux's Horseshoe bat : *Rhinolophus rouxii rouxii* Temminck

Family **HIPPOSIDERIDAE**

17. Dusky Leaf-nosed bat : *Hipposideros ater ater* Templeton
18. Fulvous Leaf-nosed bat : *Hipposideros fulvus fulvus* Gray
19. Cantor's Leaf-nosed bat : *Hipposideros galeritus brachyotus* (Dobson)
20. Kelaart's Leaf-nosed bat : *Hipposideros lankadiva indus* (Andersen)
21. Schneider's Leaf-nosed bat : *Hipposideros speoris speoris* (Schneider)

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

22. Asiatic Lesser Yellow House bat : *Scotophilus kuhlii kuhlii* Leach
 23. Asiatic Greater Yellow House bat : *Scotophilus heathi heathi* (Horsfield)
 24. Pipistrelle bat : *Pipistrellus ceylonicus indicus* (Dobson)
 25. Coromandel Pipistrelle, Indian Pipistrelle, Little Indian bat : *Pipistrellus coromandra coromandra* (Gray)
 26. Least Pipistrelle, Indian Pygmy Pipistrelle, Indian Pygmy bat : *Pipistrellus tenuis mimus* Wroughton
 27. Dormer's bat : *Pipistrellus d. dormeri* (Dobson)

Subfamily MINIOPTERINAE

28. Schreiber's Long-fingered bat : *Miniopterus schreibersi fuliginosus* (Hodgson)

Family MOLOSSIDAE

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

Order PRIMATES

Family CERCOPTHICIDAE

Subfamily CERCOPTHICINAE

31. Rhesus Macaque : *Macaca mulatta mulatta* (Zimmermann)

Subfamily COLOBINAE

32. Common or Hanuman Langur : *Semnopithecus entellus entellus* (Dufresne)

Order PHOLIDOTA

Family MANIDAE

33. Indian Pangolin : *Manis crassicaudata* Gray

Order CARNIVORA

Family CANIDAE

34. Indian Wolf : *Canis lupus pallipes* Sykes
 35. Asiatic Jackal, Golden Jackal, Jackal : *Canis aureus* Linn
 36. Indian Wild Dog, Dhole : *Cuon alpinus* (Pallas)
 37. Bengal Fox : *Vulpes bengalensis* (Shaw)

Family URSIDAE

Subfamily URSINAE

38. Sloth bear : *Melursus ursinus* (Shaw)

Family MUSTELIDAE

Subfamily MELLIVORINAE

39. Ratel or Honey Badger : *Mellivora capensis* (Schreber)

Subfamily LUTRINAE

40. Smooth-coated Indian Otter/Smooth Indian Otter : *Lutragale perspicillata* (Geoffroy)

- Family VIVERRIDAE
Subfamily VIVERRINAE
41. Small Indian civet : *Viverricula indica indica* (Desmarest)
Subfamily PARADOXURINAE
42. Common Palm civet or Toddy cat : *Paradoxurus h. hermaphroditus* (Pallas)
Family HERPESTIDAE
Subfamily HERPESTINAE
43. Indian Grey Mongoose : *Herpestes edwardsii edwardsii* (Geoffroy)
44. Indian ruddy mongoose : *Herpestes smithii smithii* Gray
Family HYAENIDAE
Subfamily HYAENINAE
45. Striped Hyaena : *Hyaena hyaena hyaena* (Linn.)
Family FELIDAE
Subfamily FELINAE
46. India Desert Cat : *Felis silvestris ornata* Gray
47. India Jungle Cat : *Felis chaus affinis* Gray
48. Caracal : *Caracal caracal schmitzi* (Schreber)
49. Leopard Cat : *Prionailurus bengalensis bengalensis* (Kerr)
Subfamily PANTHERINAE
50. Leopard/Panther : *Panthera pardus fusca* (Meyer)
51. Royal Bengal Tiger/Tiger : *Panthera tigris tigris* (Linn.)
Order ARTIODACTYLA
Family SUIDAE
Subfamily SUINAE
52. Indian Wild Boar : *Sus scrofa cristatus* Wagner
Family TRAGULIDAE
53. Indian Chevrotain or Mouse Deer : *Moschiola meminna* (Erleben)
Family CERVIDAE
Subfamily CERVINAE
54. Spotted Deer Chital : *Axis axis axis* (Erleben)
55. Sambar : *Cervus unicolor niger* Blainville
Subfamily MUNTIACINAE
56. Indian Muntjac or Barking Deer : *Muntiacus muntjak aureus* (H. Smith)
Family BOVIDAE
Subfamily BOVINAE
57. Indian Gaur : *Bos gaurus* Smith
58. Blue Bull : *Boselaphus tragocamelus* (Pallas)
59. Four Horned Antelope : *Tetracerus quadricornis* (Blainville)

Subfamily ANTILOPINAE

60. Blackbuck or Indian Antelope : *Antilope cervicapra cervicapra* (Linn.)
 61. Indian Gazelle or Chinkara : *Gazella bennettii* (Sykes)

Order RODENTIA

Suborder SCIUROGNATHI

Family SCIURIDAE

Subfamily RATUFINAE

62. Indian Giant squirrel : *Ratufa indica centralis* Ryley

Subfamily FUNAMBULINAE

63. Indian three striped palm squirrel : *Funambulus palmarum robertsoni* Wroughton
 64. Indian five striped northern palm squirrel : *Funambulus pennanti* Wroughton

Family PTEROMYIDAE

65. Common giant flying squirrel : *Petaurista philippensis philippensis* (Elliot)

Family MURIDAE

Subfamily MURINAE

66. House Mouse : *Mus musculus castaneus* Waterhouse
 67. House Mouse : *Mus musculus homourus* Hodgson
 68. Little Indian Field Mouse : *Mus booduga booduga* (Gray)
 69. Wroughton's small spiny Mouse : *Mus phillipsi* Wroughton
 70. Indian Long-tailed Tree Mouse : *Vandeleuria oleracea oleracea* (Bennett)
 71. House Rat : *Rattus rattus rufescens* (Gray)
 72. White-bellied House Rat : *Rattus rattus narbadae* Hinton
 73. Soft-furred Metad : *Millardia meltada meltada* (Gray)
 74. Blanford's Rat : *Cremnomys blanfordi* (Thomas)
 75. Indian Bush Rat : *Golunda ellioti ellioti* Gray
 76. Indian Mole Rat : *Bandicota bengalensis bengalensis* (Gray)
 77. Large Bandicoot Rat : *Bandicota indica indica* (Bechstein)

Subfamily GERBILLINAE

78. Indian Antelope Rat : *Tatera indica indica* (Hardwicke)

Suborder HYSTRICOGNATHI

Family HYSTRICIDAE

79. Indian crested porcupine : *Hystrix indica* Kerr

Order LAGOMORPHA

Family LEPORIDAE

80. Indian black-naped hare or Indian Hare : *Lepus nigricollis nigricollis* Cuvier

SOCIO-ECONOMIC ASPECTS

The major forest produce is timber, bamboo, fodder grass, Tendu leaves, gum, firewood and flowers of Mohua (*Madhuca latifolia*), apart from collection of honey. In addition to teak (*Tectona grandis*), other plants yield timber for building material, wood for carts, plough, shafts, agricultural equipments, manufacture of wooden boxes, etc. Major trees used for this purpose are Shisham (*Delbergia latifolia*); Tiwas (*Ougenia dalbergioides*); Bija (*Pterocarpus marsupium*); Haldu (*Adina cordifolia*); Saj (*Terminalia tomentosa*); Dhawada (*Anogeissus latifolia*); Dhaman (*Grewia taliasfolia*); Semal (*Bombax malabaricum*); Kusum (*Schleichera trijuga*); Siwan (*Gmelina arborea*); Kalam (*Stephegyne parvifolia*); Landia (*Lagerstroemia parviflora*) and many others.

Flowers of Mohua (*Madhuca latifolia*) are used as human and cattle feed and for making country liquor. Tendu (*Diospyros melanoxylon*) leaves are used in manufacture of bidi. Fruits of this tree are edible and are consumed locally. Achar (*Buchanania lanzan*) seeds are used as dry fruits. Amla (*Emblica officinalis*) fruits are of great medicinal value and used in number of Ayurvedic preparations. Bhilwa (Biba) (*Semicarpus anacardium*) is used as marking nut oil. Amba (*Mangifera indica*) is the famous mango tree, fruits are regarded as King of all fruits. Babul (*Acacia arabica*) yields good quality edible gum. Other trees of importance are Bor (*Zizyphus jujuba*); Behada (*Terminalia belerica*); Palas (*Butea frondosa*), Khair (*Acacia catechu*); Jamun (*Engenia jambolana*); Hiwar (*Acacia leucophlôca*) and many others. Bamboos (*Dendrocalamus strictus*) form important component of flora. Many weeds like Tarota (*Cassipourea*); Aghada, Burrs (*Achyranthus aspera*); Lantana (*Lantana camara*) grow thick in undergrowth. Wild Climbers are also seen throughout the forest.

Another important entity is the fodder grasses. These fodder grasses serve food to the livestock of villages surrounding the Tiger Reserve and also to those, which exists in peripheral region. Good number of population is still holding cows and buffalos, which is their profession through generations. Milkmen and women, who are termed "Gawli" in local language inhabit this land since ages. The fort of "Gawilgad" near Chikhaldara is the remains of Gawali Dynisty. The milk is collected at many centers and is then processed locally or transported to nearest towns and cities. This profession provides means of livelihood for sizable population in Melghat. Overgrazing by domestic live stock pose problem for forest management in certain areas.

Melghat has been a center for tourism activities. With changing approach towards environment and its need for conservation, there has been significant change in the purpose of visiting tourists. Though most of the visitors desire to see tiger, many come to have stay in natural surroundings and others to study the animal and plant life. There has been good facility available at "Semadoh" for the tourists. Residential complex with few bungalows, a dormitory and guest house is available. A conducted tour by minibus to certain area of the Tiger Project is arranged on payment. There is a small "Interpretation Center" where few

stuffed specimens, photographs and literature are available informing important features of Melghat flora and fauna. With the restrictions on tourism and visitors large area of Melghat Tiger Reserve is still unapproachable to common tourists. Even then, there has been good number of visitors every year visiting the tiger Reserve.

LOCAL RESIDENTS (TRIBALS)

Area of Melghat had been inhabited by local tribals or Adivasis since ages. The hilly and forested terrain and poor facility for transport has still left many of the small villages and settlements away from modernization. Medical facilities, good roads, cemented houses, electricity and even education facilities are still wanting in remote areas. Mainly the tribes inhabiting the area are Korku, Gawli (Milkmen); Balai, Gond, Rathia, Nihal and others. These tribes have adopted the art of living with the nature. Their needs are limited, the traditions they follow are farm, dependence on forest produce is almost in totality and their food habits also vary greatly from the city dwellers. In the recent past, with more and more interaction with "civilized" people and extension of basic facilities, this population is contributing meaningfully in conservation of local fauna and flora. The results of which will be evident as the time passes by. Tribes face difficulty due to malnutrition and child death, particularly in rainy season. Govt. of Maharashtra has been implementing health and food program with special emphasis to fight malnutrition and child mortality in Melghat.

MANAGEMENT HAZARDS

Most serious damage to the forest habitat and wildlife in Melghat is caused by fires. These fires spread in summer season rapidly. The fire lines are usually drawn and cleared in every season to contain fire in restricted areas. However, this remains serious item to be tackled. Though it is difficult to ascertain exact cause of fire, human acts to clear patches to acquire forest produce can not be ignored.

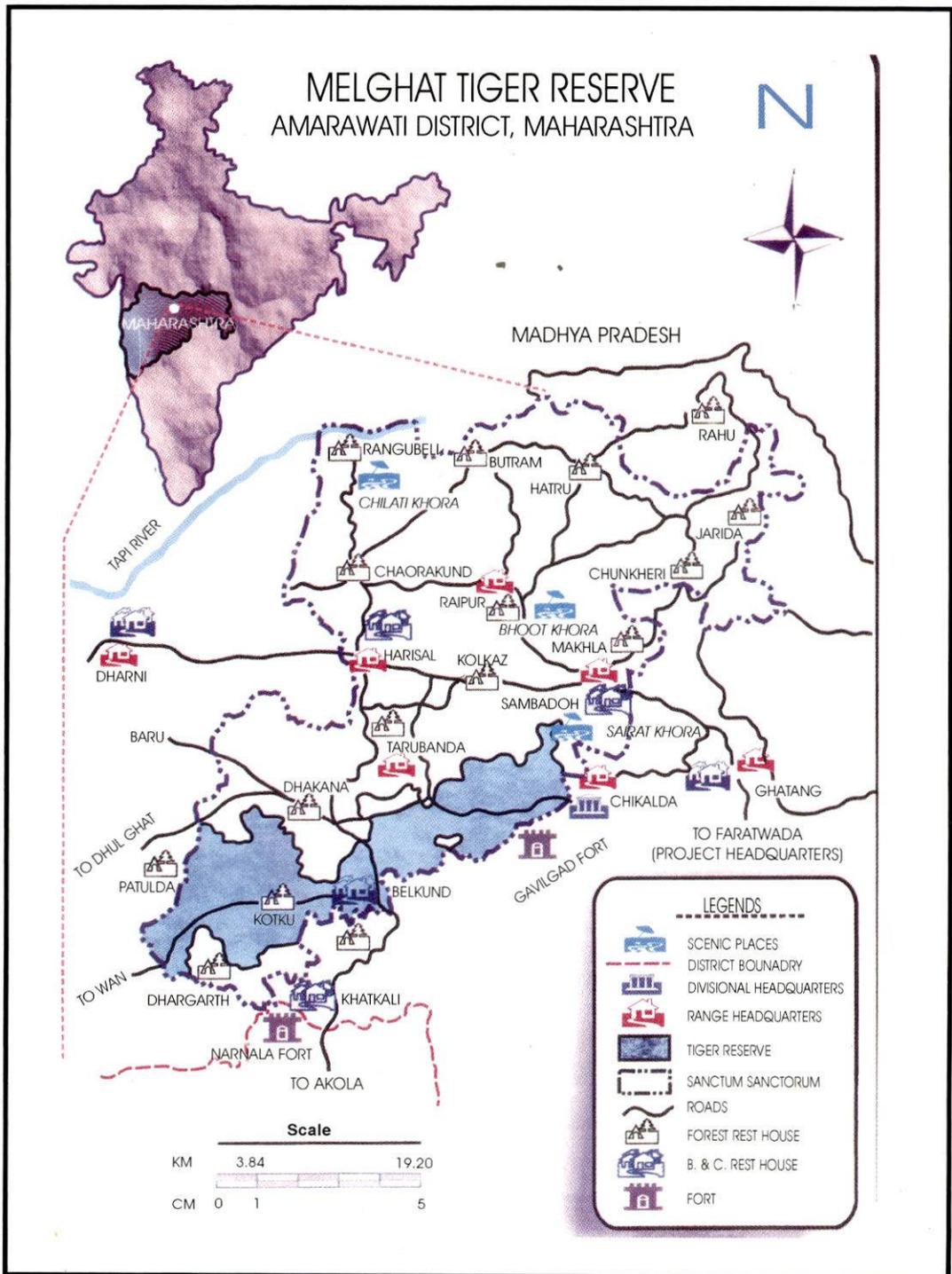
Grazing by domestic live stock is another matter of concern. Over grazing through protected areas, cutting of grasses and stocking of minor forest produce by residents of the villages in peripheral region are difficult to manage. At times, kill of domestic cattle by wild animal is also reported.

Local tribes wander through the area of Melghat Tiger Reserve to collect mohua flowers, tendu leaves, honey, edible fruits and some plants of medicinal value. Though rigorous check by forest personnel is prevailing, it is difficult to control vast area with available man power.

With the awareness to conserve our natural wealth and protection offered to wildlife, the instances of poaching are on decrease (Pradhan 1997). In very few cases, illicit killings in Melghat do occur, where culprits are immediately held and legal proceedings are initiated against them.

REFERENCES

- Anonymous 1992. Birds of the Melghat – Checklist. *In* : Two decades of Project Tiger, Melghat. 1973 – 1993. Past Present and Future, Eds. Gogate, M.G. Thosre, P.J. and Bhanubakode, S.B. *Pub. Publicity and Information Officer, Forest Dept., Maharashtra* : 1-191.
- Anonymous 1994. Birds of the Melghat : Checklist *Pub. Field Director, Project Tiger, Melghat, Paratwada*, Booklet : 1-24.
- Anonymous 1997. Melghat Olakh (In Marathi). *In* : *Melvyaghra Pub. Field Director, Project Tiger, Melghat*, 1(2) : 1-2.
- Bhogaonkar and Devankar 1999. Departmental Report on plants of Melghat : Melghat Tiger Project (Unpublished data).
- Champion, H.G., Seth, S.K. 1968. A revised survey of Forest types of India *Manager of publications, Delhi 6*, pp. xxv + 404. pl. 103 + 7 Maps.
- Dhore, M.A. and Joshi, P.A. 1988. Flora of Melghat Tiger Reserve. Tech. Series No. 1 *Pub. Director, Project Tiger Melghat, Paratwada*.
- Director, Zoological Survey of India (ed.) : 1993. Fauna of Tiger Reserves : An overview : *Zoological Survey of India, Calcutta* : 1-31+ 5 tables.
- Director, Zoological Survey of India (ed.) : *Fauna of Melghat Tiger Reserve, Conservation Area Series, 24* : 1-500.
- Giri, 1994. Melghatatil Aushodhopyogi Vanaspati (Medicinal Plants of Melghat) (in Marathi) Marathi Pustika, *Tantrik Patrika No. 5* (Technical Booklet No. 5) : 25; *Pub. Field Director, Project Tiger, Melghat*.
- Gujar, R.D. 1992. Fishes of Melghat. A preliminary survey Report. *In* : Two decades of Project Tiger Melghat (Past, present and Future) 1973-93 (ed. Gogate, M.G., Thosare, P.G. & Banubokade, S.B.) : 61-66.
- Kirpekar, C.S. 1994. Assement report : Project Tiger, Melghat : 1974-1994. *Vidarbha Natural History Study Centre, Nisarg Sewa Sangh Nagpur (Pub.)* : 1-88.
- Kulkarni, P.P., Prasad, M. and Talmale, S.S. 2002. New record of Damsel fly *Pseudagrion microcephalum* (Rambur) (Odonata : Coenagrionidae) *Bionotes*, 4(3) : 58.
- P. Setu Madhava Rao (ed.) : 1968. *Gazetter of India : Maharashtra State Gazetteers : Amravati District. Govt. of Maharashtra, Directorate of Govt. Printing, Stationary and publications* : 1-834 + 6 plates + xxiii.
- Patel, R.I. 1968. *Forest Flora of Melghat*. *Pub. Bishan Singh Mahendra Pal Singh, Dehradun* : 1-380.
- Pradhan, M.S. 1997. Illicit trade in Wildlife species, products and derivaties in Maharashtra State, *Rec. zool. Surv. India*, 96 : 195-210.
- Pradhan, M.S. and Ramakrishna 2004. Mammal species profile of melghat Tiger Reserve, Amravati District, Maharashtra State. *Tigerpaper*, 31(1) : 7-10.
- Sawarkar, V.B. 1988 : Bird survey of Melghat Tiger Project. *Cheetal*, 29(1) : 427.





A Panoramic view of Melghat Tiger Reserve



A Panoramic view of Melghat Tiger Reserve



Centipede
Scolopendra morsitans L. (Male)

Indian Cobra *Naja naja L.*



Crested Eagle On a tree

Indian Penfoul (males)





Painted Bat

Sambar
Cervus unicolor (male)



Tiger
Panthera tigris tigris