

Floral Biodiversity

More than 769 naturalised plant species are listed in the Flora of Melghat belonging to about 400 genera representing 97 families. It includes 90 tree species, 66 shrub species, 316 herb species, 56 climbers, 23 sedges and 99 grass species. The flora shows a combination of floristic elements from Western Ghat and Satpura, with many endemic species. Some of the Himalayan plant species like *Preistylus constrictus* are also reported here. The rare plants include *Convolvulus flavus*, *Utricularia Striatula*, *Drosera indica* and many species of orchids like *Vanda tessellata* and *Aerides maculosum*. Ethnobotanical account from MTR is provided by Khaire and Giri (1992) which contains information on 215 plants being used as medicine by local people. These contain 64 trees, 27 shrubs, 29 climbers, 2 grasses and one bamboo. Quite surprisingly, there are enough evidences of presence of even temperate flora in the Reserve which are found in East and North East India, Himalayas, Jammu, Kashmir and Hills of Uttar Pradesh. *Peristylus constrictus*, *Apium graveolens*, *Morchella conica*, *Geranium mascatense*, *Senecio chrysanthemoides* are such examples. Species with extremely restricted distribution, *Achyranthes coynei* or the species *Ceropegia oculata* which is endemic to Maharashtra and is also endangered are speaking examples of the rich and varied habitat this Reserve provides to a variety of plant species. The forests also provide niche to insectivorous plant species like *Drosera indica*, rare species like *Sruithia bigemia*, medicinally important plants like *Habenaria* and *Senecio* spp. A varied and interesting orchid flora also inhabits forests of this Reserve.

The illustrative examples of Melghat Flora are as under.

Temperate species: *Geranium Mascatense*, *Senecio chrysanthemoides*, *Peristylus constrictus*, *Apiu graveolens*.

Endemic species: *Achyranthes coynei*, *Ceropegia oculata* Aquatic species. *Ceratophyllum demersum*, *Hydrilla vorticillata*, *Aeschynomene indica*, *Sesbania bispinosa*, *Smithia canferta*.

Orchids: *Vanda tessellata*, *Aerides Macculosum*, *Habenaria grandifloriformis*, *H. roxburghii*, *H. plantaginea*.

Rare species: *Convolvulus flavus*, *Utricularia Sstriatula*, *Drosera indica*.

Wild Fauna Habitats

The area of Melghat being thickly forested and less populated, harbors myriad of faunal components. The common Langur, Rhesus monkey, Gaur, Tiger, Panther, Jungle Cat, Hyaena, Jackal, Fox, Wild dogs, Sloth bear, Ratel, Wild pig, Hare, Porcupine, Mongoose, Otter, Sambar, Chital, Barking deer, Blue bull, Four horned antelope are common in Melghat Forests. The ranges of major faunal species like Tiger, Leopard, Wild dogs, Hyena, Sloth bear and habitat utilization maps for major herbivores like Gaur, Sambar, Barking deer, Chital and Sloth bear .

Evaluation Of Habitats

The ocular data about habitat availability and their evaluation indicates that the major tract of the Critical Tiger Habitat area is a good habitat for major mammalian and avian population. The presence of 25 (2 under rehabilitation) villages puts lot of biotic pressure. The trend indicates deterioration of habitat near villages and calls for immediate restorative steps in the areas in the vicinity of villages in the form of eco-development programmes for eco-restoration. The biotic pressure gives rises to more fires, more compactness of soil, lesser proportion of palatable species and more weeds occurrence.

Range Of Wildlife And Past Studies Of Fauna.

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 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 Forest Department personnel has brought in encouraging results. Today, there exists no human settlement in the National Park area.

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 year 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 were 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* (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 scrofa, cristatus* wanger; chital, *Axix axis axis* (Erxeleben); sambar, *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, *Antilope 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, crustacean, arachnida, centipedes, chilopoda, insects etc.

Melghat was declared as the Tiger Reserve in the year 1974 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 here. 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 and 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 inventories available fauna in Melghat Tiger Reserve and to collect samples for their confirmed identification, Western Regional Station, Pune of the Zoological Survey of India, conducted faunistic Survey of Melghat Tiger Project area during the year 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. The faunal diversity (Number of species and higher taxonomic categories) is mentioned in Table 1. Results of these studies has been 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 Reptillia-** Dr. M.S. Pradhan; **Aves-** Dr. A.S. Mahabal; **Amphibia-** S. S. Kamble; **Pisces and Centipeds-** Dr. B.E. Yadav; **Lepidoptera-** Dr. R.M. Sharma and Shri C. Radhakrishnan; **Orthoptera-** Dr. P.P. Kulkarni and Dr. M.S. Shishodia; **Homoptera : Aphidoidea-** Dr. P.P. Kulkarni; **Diptera : Cecidomyiidae-** Dr. R. M. Sharma; **Odonata-** Dr. P.P. Kulkarni and Dr. M. Prasad ; **Aquatic Hemiptera-** Dr. G. Thirumalai and Dr. R.M. Sharma; **Arachnida : Scorpionida, Araneae and Sloifugi-** Dr. D.B. Bastawade; **Cladocera-** Dr. P.D. Rane; **Mollusca-**Dr. S.G. Patil. A summery 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 of fauna of Melghat by the Zoological Survey of India (In press).

1) Cladocera (Crustacea) : As many as 29 species of Cladocera : Custacea 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 subordinates viz. Gastropoda and Bivalvia spread over 11 genera are recorded.

3) Scolopendra (Centipedes) : Previous record from Melghat Tiger Reserve and adjoining are amounts to 5 species. However a total of 15 species (including 5 mentioned earlier) are reported in the present studies.

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. *Galeodius 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 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 amphibian 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 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. Further Green Munia (Family: Estrildidae) is an endemic to Central India and 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.

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 mention in various schedules of Wildlife (Protection) Act (Pradhan and Ramakrishna, 2004).

Table-1: Composition of fauna of Melghat Tiger Reserve (Surveys by Z.S.I., W.R.S., Pune)

Sr. No.	Name of the Group	Order	Families	Genera	Species/ Sub Species	New Records for Melghat	Species/ Sub Species
1	Cladocera	1	5	19	29	29	1
2	Mollusca- Fresh Water	1	9	11	23	23	-
3	Scolopendra Arachnida	1	1	5	15	10	-
4	Araneae	1	16	26	14	14	-
5	Scorpions	1	3	6	8	8	-
6	Soilfugida Insecta	1	1	1	1	1	-
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	-	-