

Executive Summary

Biological diversity is that immense variety and richness of living forms on this planet, which is undoubtedly declining at an undesirable pace with no chance of replenishment. Global assessment estimates the total number of species between 13 to 14 million. About 6.5 million species are found on land and 2.2 million (about 25% of the total) dwell in the ocean depths (UNEP, 2011). Biodiversity exists on earth in eight broad realms with 193 bio-geographical provinces. About 2/3rd of the estimated 2,60,00 species of the higher plants in the world occur in the tropical forests of South America, Africa, Madagascar and Tropical Asia. Human-induced changes on the global environment have triggered the extinction of many life forms resulting into widespread alterations in the distribution of organisms all over the world.

There is a need to assess the magnitude and trend of loss in biodiversity on earth. But before that, it is most important to know the current status of biodiversity at national as well as regional level.

Lying at the junction of Afro-tropical, Euro-Asian and the Indo-Malayan bio-geographic realms, India is a country of vast biodiversity in the world, it has diverse bio-geographic and climatic conditions ranging from cold and high Himalayas in the north to the hot and humid peninsula in the south; from extremely wet north-eastern green forest to the extremely dry north-western arid desert. India's biological diversity is one of the most significant in the world. Approximately 46,500 species of plants have been recorded so far. About 17,732 species of flowering plants have been reported so far, as many as 33 % of the flowering plants & 18% of all plants found here are believed to be endemic.

According to Botanical Survey of India, plant wealth records about 3,869 species for Maharashtra state. About 694 taxa of plants are endemic to India occur in Maharashtra, of which 157 taxa are found only in Maharashtra. A good number of wild relatives of cultivated plants, endemics, rare and threatened plant species occur in the state. The entire state constitutes an important source for germplasm.

It is an accepted fact that the knowledge of the floristic and faunal composition of any place is an essential prerequisite for the study of various ecosystems and for preservation and conservation of natural resources. This necessitates a worker in the taxonomic field to assess and evaluate from time to time the biodiversity elements of the region.

At Tansa, the inventory was carried out to ascertain the plant species present in the given area and to locate the RET species present in the Sanctuary. This will enable the management to take effective steps to provide protection to species of conservational concern

For vegetational elements, survey was carried out for site selection, identification of forest types, size of the area and species availability in consultation with the forest department. Terrain and vegetation types was studied and stratified. Belt Transect of dimension 1km x 10m has been laid in the entire study area in rugged hills, flats and hilltops for quantitative assessment of the plants. Regular field surveys were undertaken, in all seasons, to cover selected areas. Transects and quadrats of different sizes were laid for trees, shrubs, climbers

and herbaceous plants depending upon their micro and macro habitats. Random Sampling was carried out for Trees (10 x 10m), Shrubs & climbers (5 x 5m) and herbs (1m x 1m). GPS coordinates were taken for each quadrat. The collected data was analysed for occurrence, frequency and dominance in terms of habit and family.

Checklist surveys was employed primarily to confirm the presence of butterflies

Distance sampling technique was used to record the avian fauna

335 species of plants have been recorded in the study area and its surrounds. Of all the species recorded in the study area, two species viz *Tectona grandis* and *Terminalia crenulata* were dominant throughout the study area. 44 species were common, 37 species were infrequent, and 55 species were occasional in the area. 3 species were common in as well as infrequent, 34 species were common as well as occasional, 30 species were infrequent as well as occasional whereas 18 species were common, infrequent as well as occasional in different quadrats in the study areas. Of all the species recorded 95 are trees, 38 are shrubs, 145 are herbs, 41 are climbers, 6 are epiphytes, 7 are grasses and 3 are other habit forms represented by a twiner, creeper and palm 1 each respectively. Maximum number of species belongs to Fabaceae that is represented by 32 species, followed by Asteraceae at 24, Acanthaceae at 20, Rubiaceae at 15, Orchidaceae at 13, Euphorbiaceae 12, Caesalpinnaceae and Malvaceae by 10 each. Most of the families are represented by 1 species only.

A rare tree *Erinocarpus nimmonii* was observed during the survey. It has been classified as Rare (R) in the Red Data Book of Indian Plantsⁱ. Two species viz *Cyathocline purpurea* and *Zizyphus rugosa* are endemic to Maharashtra.ⁱⁱ Further there are 4 Vulnerable species viz *Aerides maculosum*, *Barleria pratensis*, *Dendrobium barbatulum* and *Habenaria longicorniculata* and 8 Lower risk species viz *Amorphophallus commutatus*, *Carvia callosa*, *Cynarospermum asperrimum*, *Ensete superbum*, *Exacum lawii*, *Habenaria grandifloriformis* *Haplanthodes tentaculatus* and *Haplanthodes verticillatus*

A total of 127 species of birds belonging to 52 families were recorded in the study area. This includes the critically endangered Forest Owlet '*Athene blewitti*'.

46 species of butterfly belonging to 6 families were recorded in the study area.

ⁱ Nayar, M. P. & A. R. K.Sastry (1987-88) Red Data Book of Indian Plants, Botanical Survey of India, Calcutta.

ⁱⁱ <http://maharashtrabiodiversityboard.gov.in/maharashtra-at-a-glance/ret-taxa/list-of-endemic-plant-species-from-maharashtra/>