JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

FLORISTIC DIVERSITY OF NARSINGHGARH WILDLIFE SANCTUARY, RAJGARH DISTRICT, MADHYA PRADESH, INDIA

Trivedi Anubha, Vyas Sanjay

Department of Microbiology, Govt. Holkar (Model Autonomous) Science College, Indore (M.P.), India

ABSTRACT

The present paper is aimed to study the floristic diversity of Narsinghgarh Wildlife Sanctuary of Rajgarh district situated of Madhya Pradesh, India. A total of 500 species belonging to 285 genera and 67 families were recorded. Among these, families, *Papilionaceae, Poaceae, Asteraceae, Acanthaceae, Euphorbiaceae* were most dominant families. Of these, Ficus and Ipomoea are largest genera, represented by 9 species, followed by Euphorbia (7) and Indigofera (7). 300 plant species have been recorded and categorized with their uses and 30 medicinal plants were documented for the cure of different diseases by the traditional people of the study area. The present study is probably first of its kind where the description of plants has been supplemented by photographs, illustrations and herbarium of the species reported from the Narsinghgarh Wildlife Sanctuary. Besides, the time-consuming process of correct identification of plant species can be minimized, if such flora is easily available at the nearest reference point. Therefore, such kind of flora is the need of time, today and in future.

KEY WORDS: Floristic diversity, Conservation, Narsinghgarh Wildlife Sanctuary, Rajgarh, Madhya Pradesh.

INTRODUCTION

Biological diversity or biodiversity refers to all forms of life, including all species, genetic variations within species and all ecosystems that contain and sustain those diverse forms of life. Many definitions of biodiversity have been proposed in decades from conservation point of view. According to Conservation on Biological diversity (CBD,1991) Biological diversity' means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

India has rich and varied heritage of biodiversity, encompassing a wide spectrum of habitats from tropical rain forest to alpine vegetation and from temperate forest to coastal vegetation, as well as coastal wetlands. (Joseph, 2006). Many essential elements of biodiversity conservation require sustained commitment, but will not show immediate results. Policies, institutions, laws and attitude of people, do not change overnight; expanding human capacity, carrying out first-grade research and conducting biodiversity inventories take time and money but may have no immediate pay-off. They create the larger context in which enduring change can take hold and emergency measures have at least a hope of success.

The earth summit in Rio de Janerio, in 1992 was called for an urgent necessity to conserve biological diversity of the world. It was felt that there is an alarming trend of forests getting transformed in agro-industries. Natural forests are depleting at a very fast rate. Thus, to protect and conserve the remaining biodiversity, the ministry of Environment and Forest declared certain protected areas. Biodiversity at all its level, as genetic, species and as intact ecosystems, can be best preserved in situ by setting aside an adequate representation of wilderness as protected areas (Rana *et al* 2007). These should consist of a network of National parks and Wildlife Sanctuaries with each distinctive ecosystem included in the

network. Such a network would preserve the total diversity of life of a region. The Biogeographic unit of Madhya Pradesh is one of the richest units. There are several protected areas in the state, which have been regarded as fairly large, in terms of area as well as the vegetation cover. Kanha National Park of Madhya Pradesh is one of the best managed National Parks of the country. The state has 9 National Parks and 25 Wildlife Sanctuaries covering an area of 10,814.76 km, constituting 3.51% of the total geographical area. There are 5 Tiger Reserves too. Narsinghgarh Wildlife Sanctuary is one of the Wildlife Sanctuaries of the state which is selected for the present treatise. Systematic botany is the field of science that provides for the organisms (a) scientific names (b) description of specific features (c) identification of the taxa (d) assignment to a particular classification system (e) preservation of collected specimen (f) information about their distributions (g) tracing the evolutionary history (h) their adaptations in that particular environment. The floristic diversity of Narsinghgarh Wildlife Sanctuary has not been taken up earlier. The exhaustive plant exploration in such areas of the Rajgarh district whose floristic wealth was not explored earlier, therefore, would definitely result in better understanding of taxonomic status, recent nomenclatural updates, taxonomic clarifications of the existing Angiospermic flora and conservation of its Phyto diversity.

MATERIAL AND METHODS

1. Study Area –

The Narsinghgarh Wildlife Sanctuary (hence after referred as Sanctuary) is situated in Rajgarh district of Madhya Pradesh. It is located on eastern border of Malwa in Rajgarh district between Parallels of latitudes 23^0 55' to 23^0 40' North and meridians of longitudes 77^0 2' to 77^0 10' East.

2. Floristic studies

1. Extensive and intensive field surveys were carried out two years from Jan 2018 to March 2020 in all the Forest of the Sanctuary, to identify the Angiospermic plant species.

2. Photographs help to a greater extent for identifying plant species, so the snaps of plant representatives found in the Sanctuary, were taken at flowering and fruiting stages.

3. Illustrations were drawn from fresh plant specimens.

4. The plants were identified either by their diagnostic characters in published Floras or by the help of subject experts. These identifications were then confirmed by consulting types and protologues from Herbarium specimens available at Botanical Survey of India, Central Region, Allahabad, National Botanical Research Institute, Lucknow and Grass and Fodder Research Institute, Jhansi.

5. Nomenclature was followed as per the recent International Code of Botanical Nomenclature (2000) and the recent monographic and revisionary works are also consulted for the nomenclature.

6. Classification system was followed as proposed by Bentham and Hooker, with some modification suggested by recent workers and accepted by Botanical Survey of India.

7. Herbarium specimens were prepared by following the method of Jain & Rao (1978).

OBSERVATION AND RESULTS

During the surveys, various sites of the Sanctuary were observed with reference to the life cycle pattern of plant species. The leaf fall and development of new vegetative plant parts, especially the leaves, flowers and fruits were recorded. The woody plants exhibited variation in flowering and fruiting pattern, while the herbaceous flora exhibited short life cycle usually completing in one season (Table-1).

Table 1: Tree species of the Sanctuary with their flowering period and time required for fruiting activity.

Name of Tree species Flowering period Fruiting duration (In months)	Name of Tree species Flowering period Fruiting duration (In months)	Name of Tree species Flowering period Fruiting duration (In months)
Holoptelia integrifolia	March-April	Less than 2
Anogeissus latifolia	March-June	3-4
Boswellia serrate	March-June	3-4
Lannea coromandelica	March-June	3-4
Ehretia laevis	September-December	3-4
Semecarpus ancardium	April-July	3-4
Cassia fistula	March-July	4-5
Pterospermum marsupium	June-October	4-5
Wrightia tinctoria	March-July	4-5
Dalbergia latifolia	October-March	5-6
Hardwickia binate	October-March	5-6
Kydia calycina	October-March	5-6
Terminalia chebula	March-August	5-6
Diospyros melanoxylon	March-September	6-7
Lagerstroemia parviflora	March-September	6-7

The reported Angiospermic flora in the Sanctuary revealed that 500 plant species belonging to 285 genera and 67 families were found. The ratio of number of plant species in Dicotyledonae to that in Monocotyledonae was recorded as 4.58: 1 for plant species and the same ratio was found 3.35: 1 for genera and for 3.64: 1 for families (Table-2).

Table 2: Floristic diversity of Angiosperms in the Sanctuary.

Angiosperm	Families	Genera	Species
Dicotyledons	55	200	363
Monocotyledons	12	85	137
Total	67	285	500
Ratio of Dicot:Monocot	4.58: 1	3.35: 1	3.64: 1

Ten dominant families with largest number of representatives were reported. The *Papilionaceae* was found as the largest family with representatives, followed by Poaceae , *Asteraceae, Acanthaceae* and *Euphorbiaceae* and so on (Table-3).

Table 3: Ten Dominant families with maximum number of plant species found in the Sanctuary.

S. No.	Families	Number of species
1	*Papilionaceae*	50
2	*Graminae*	40
3	*Euphorbiaceae*	26
4	*Rubiaceae*	23
5	*Moraceae*	19
6	*Poaceae*	16
7	*Asteraceae*	10
8	*Acanthaceae*	10
9	*Malvaceae*	10
10	*Caesalpiniaceae*	09

DISCUSSION AND CONCLUSION-

The result indicated that the Sanctuary is rich in its Angiospermic flora accounting for 500 plant species distributed in 285 genera and 67 families. The habit wise analysis revealed that there are trees, shrubs, climbers and herbs. The herbaceous flora dominates over trees shrubs and climbers. It is interesting to note that about 30 families are represented only by single genus, of which 15 are of woody plant species and rest herbaceous. In addition, 30 plant species are documented as ethnobotanically purpose. These plant species are used by tribes.

Conservation of Nature and Natural resources is by far the most challenging task for the policy planners and academicians in general and scientists in particular. Depletion of flora and fauna has acquired a serious magnitude. Every day large number of plant and animal species are facing the risk of extinction. There is a critical situation never faced before. The floristic diversity of Sanctuary is said to be very rich. However, for many decades, like-wise world's biological threat, this region has also many causes responsible for the loss of phytodiversity. Human population growth is the sole factor for the loss of natural resources. Reckless hacking and cutting of forests, forest fire, expansion of agricultural lands, construction of dams, roads, over exploration of natural habitats and over-grazing of forest areas have been defined as the main causes for the rapid loss of phytodiversity in the area. It has, therefore necessitated the present work to undertake an extensive study and assessment of the current status of floristic diversity in Narsinghgarh Wildlife Sanctuary. The present study is probably first of its kind where the description of plants has been supplemented by photographs, illustrations and herbarium of the species reported from the Narsinghgarh Wildlife Sanctuary. Moreover, this research work will give a complete account of the members of Angiospermic in the flora, morphological accounts, distribution status and conservation priorities for in situ conservation, relationship among taxa and ethno-botanical species found in the Sanctuary. Besides, the time-consuming process of correct identification of plant species can be minimized, if such flora is easily available at the nearest reference point. Therefore, such kind of flora is the need of time, today and in future.

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