Research Paper

Volume : 3 | Issue : 12 | December 2014 • ISSN No 2277 - 8179

Status of Biodiversity of Sariska tiger resreve in Aravallis with emphasis on uncommon plants

Environmental Science

KEYWORDS : Biodiversity, Sariska tiger reserve, Uncommon plant species

Anil Kumar Dular

Department of Environmental Science ,Maharaja Ganga Singh University, N.H 15,Jaisalmer Road, Bikaner,Rajasthan ,india

ABSTRACT

The Sariska tiger reseve in Aravallis has its own importance and specific characteristics endowed with unique biodiversity. In the present study an attempt has been made to ascertain the current status of the uncommon plant species in different parts of all possible study area. Attention is focused on one of the important reserve forest of state of Rajasthan with pace of their endemism and facing number of challenges in this reserve. In present study emphasize on taxonomic richness; within each taxon; the communities, and landscape occupied, out of which number of species are not so common by their occurrence, distribution and abundance in this reserve was observed. Several studies so far conducted in Aravallis like Nair and Nathawath1957, Mathur and Saxena1968, Dennis etal1977, Sharma 1978, 1983, Parmar1985, Rogers1988, 1990, 1991, Mathur1991, Khan1995, Singh 1999.which supported checklist of plant diversity in this natural reserve besides this in other region studies like Zuidema etal.1996, Phillips1997 and Joshi etal2000 throw the light of such cause condition relationship in depletion of several species progressively by anthropogenic factors.

Material and methods:

Personal observations were taken in the field by visiting the study area and its different landforms. It was a great help that the field staff of Sariska Tiger Reserve, Department of Forest, Government of Rajasthan was associated always in the field. Plant samples (leaf, flower etc.) were brought to Indira Gandhi Centre for Human Ecology, Environmental and Population Studies, herbarium sheets for important species were prepared and help and cooperation was sought from the "Herbarium" of Department of Botany, University of Rajasthan, Jaipur for finding out the not so common species of plants in the study area. Extensive field studies with help of quadrates, density, and abundance have been estimated, simultaneously interview based on questionnaire by local dwellers also followed.

Introduction:

According to the Champion and Seth (1968) the forest of Aravalli region fall under the broad category of Tropical Dry forests. Study area the "Sariska Tiger reserve" (74°14´ to 76° 34´ N and 25° 5´ to 27° 3´ E) is situated in the Aravalli hill range and lies in the semi-arid part of Rajasthan (Rodgers and Panwar, 1988). It became a wild life sanctuary in 1955 and Tiger reserve in 1982. According to Department of Forest, Government of Rajasthan the total area of the Sariska Tiger Reserve is 866 sq.km, of which 302.2 sq. km. is buffer zone and 497.8 sq.km is core zone. Sariska core zone is comprised of three isolated; pockets: Core-I (273.8 sq.km), II (126.5 sq.km.) and III (97.5 sq.km). The status of the Core I has been notified as a National park in 1982. Sariska is undulating to hilly and has numerous narrow valleys. Kiraska and Kankwari plateau and two large lakes Mansarovar and Somsagar. Silisad lake is situated just along the north eastern boundary of the reserve. The altitude of Sariska varies from 540 to 777 meters. The vegetation of Sariska correspond to Northern tropical dry deciduous forests (sub group 5 B; 5/E I and 5/E2) and Northern tropical thorn forest (Sub Group 6 B) (Champion and Seth,1968). The forest being scattered and sparse over a large area on various geological and soil formation and vary greatly in composition. Sariska is very rich in biodiversity with wide spectrum of flora and ample of wild life. The main economically valuable species are dhok (*Anogeissus pendula*) salar (*Boswellia serrata*), khair (*Acacia catechu*), bamboos (*Dendrocalamus strictus*), dhak (*Butea monosperma*), kair (*Cappais decidua*), ber (*Zizyphus mauritiana*) with having lot of ground flora comprised of shrubs, herbs, grasses and sedges etc. *Anogeissus pendula* is the dominant tree species, covering over 90 percent area of the forests. *Boswellia serrata* and *Lannea coromandelica* grow on rocks and dry slopes. *Acacia catechu* is common in valleys, where *Dendrocalamus strictus* is extremely limited and are found along well drained reaches of the streams and moist and cooler parts of the hills. The trees are generally slow growing an attain poor height. *Albizia lebbeck, Diospyros melanoxylon, Syzygium cumini, Tamarindus indica* and *Ficus* spp. which are found in moist localities attain large size both in crown grows gregariously, where valleys fan out. and becoming flat and wide.On the basis of their composition. The forests of Sariska Tiger Reserve can be classified as follows (i):*Anogeissus pendula* forest (ii) *Boswellia serrata* forest (iii) *Acacia catechu* forest and(iv)Miscellaneous type of forests which can further be divided into three categories namely (a)*Butea monosperma* forest(b)Forests along nallahs(c)Scrub forest.

Result and Discussion:

- A total number of 403 indigenous and naturalised plant species belonging to 271 genera under 86 families can be observed in Sariska Tiger Reserve. This also includes four species of Petriodophytes belonging to three genera and three families, and a species of Gymnosperm. Table (a) includes the number of families, genera and species, under Dictoyledons and Monocotyledons, Pteridophytes and Gymnosperm. Except for Poaceae (56 species) and Cyperaceae (17 species) the Monocotyledons are poorly represented. The remaining 16 species of Monocotyledons belong to 10 different families.

Table(a).Shows current status of vegetation in Sariska Tiger Reserve

	Families	Genera	Species
Angiosperm			
Monocotyledons	13	59	90
Dicotyledons	69	208	308
Total	82	267	398
Pteridophytes	3	3	4
Gymnosperm	1	1	1
Total	86	271	403

Table (b). List of the relatively uncommon species in Sariska Tiger Reserve

	Name of Species	Families
1.	Cocculus villosus Dc.	Menispermaceae
2.	Farsetia hamiltonii Royle	Cruciferae
3.	Cleome viscosa Linn.	Capparidaceae
4.	Cleome papillosa Steud.	Capparidaceae
5.	Polygala abyssinica Presh	Polygalaceae
6.	Portulaca quadrifida Linn.	Portulacaceae

7.	Portulaca oleracea Linn.	Portulacaceae
8.	Tamarix articulata Vahl	Tamariaceae
9.	Sida rhombifolia Linn.	Malavaceae
10.	Sida humilis Willd.	Malavaceae
11.	Malvastrum tricuspidatum A. Grey	Malavaceae
12.	Melhania tomentosa Stocks.	Sterculiaceae
13.	Grewia populifolia Vahl.	Tiliaceae
14.	Fagonia arabica Linn.	Zygophyllaceae
15.	Ailanthus excelsa Roxb.	Simaroubeceae
16.	Indigofera linifolia Retz.	Leguminosae
17.	Indigofera pentaphylla Linn.	Leguminosae
18.	Indigofera wightii Carab.	Leguminosae
19.	Tephrosia tenuis Vahl.	Leguminosae
20.	Smithia dichotoma Dalz.	Leguminosae
21.	Desmodium gangeticum Dc.	Leguminosae
22.	Cassia occidentalis Linn.	Leguminosae
23.	Dichrostachys cinerea W.&A.	Leguminosae
24.	Cucumis trigonus Roxb.	Cucurbitaceae
25.	Momordica diocia Roxb.	Cucurbitaceae
26.	Cephalandra indica Nand.	Cucurbitaceae
27.	Trianthema crystallina Vahl.	Ficoideae
28.	Opuntia dillenii Haw.	Cactaceae
29.	Oldenlandia corymbosa Linn.	Rubiaceae
30.	Ageratum conyzoides Linn.	Compositae
31.	Launea pinnatifida Cass.	Compositae
32.	Launea nudicaulis Less	Compositae
33.	Sonchus oleraceus Linn.	Compositae
34.	Sonchrus arvensis Linn.	Compositae
35.	Sonchrus asper Vill.	Compositae
36.	Blumea lacera Dc.	Compositae
37.	Veronia conyzoides Wight.	Compositae
38.	Lochnera pusilla Linn.	Apocynaceae
39.	Ceropegia tuberosa Roxb.	Asclepiadaceae
40.	Solanum xanthocarpum Ster.	Solanaceae
41.	Datura fastuso Linn.	Solanaceae
42.	Cuscuta reflexa Roth.	Convolvulaceae
43.	Ipomoea vitifolia Sweet.	Convolvulaceae
44.	Ipomoea turpethum Br.	Convolvulaceae
45.	Justicia heterocarpa T. Ander	Acanthaceae
46.	Elytraria crenata Vahl.	Acanthaceae
47.	Stachytarpheta indica Vahl.	Verbenaceae
48.	Leucas urticaefolia Br.	Labiatae
49.	Leucas ciliata Benth.	Labiatae
50.	Ocimum canum Linn.	Labiatae
51.	Aerua lanata Juss.	Amaranthaceae
52.	Phyllanthus nururi Linn.	Euphorbiaceae
53.	Acalypha ciliata Forsk.	Euphorbiaceae
54.	Holoptelea integrifolia Planch.	Urticaceae
55.	Fimbristylis squanosa Vahl.	Cyperaceae
56.	Scirpus maritimus Linn.	Cyperaceae

Analysis of information collected on the basis of interview schedules and quadrate methods revealed that there are 56 plants species which were abundant earlier but now they are not so commonly occuring in Sariska Tiger Reserve. Table (b) includes a list of 56 plants species out of which one species each belongs to Menispermaceae, Cruciferae, Polygalaceae, Tamariaceae, Sterculiaceae, Tiliaceae, Zygophyllaceae, Simaroubaceae, Ficoidae, Cactaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Verbenaceae, Amaranthaceae and Utricaceae two species each belongs to Capparidaceae, Malvaceae, Cyperaceae, Portulacaceae, Solanaceae, Acanthaceae and Euphorbiaceae, three species each belongs to Cucurbitaceae, Convolvulaceae, Labiatae, eight species each belongs to Leguminosae and Compositae respectively.

Conclusion:

In this study emphasis was laid on the floral diversity in Sariska Tiger Reserve, during January, 2001 to March, 2004. This study revealed that biodiversity of the study area was affected due to anthropogenic activities. It provides an assessment of the key human factors and their relative roles in driving the destruction of biodiversity, which are likely to operate, not only in core zone but immediately surrounding buffer zone. Due to the human interference in reserve will lead to deterioration of so many species with their composition in different land form of reserve is affected diversity in irreversible manner.

Acknowledgement:

Author has deep sense of gratitude to his supervisor Director Indira Gandhi centre for Human Ecology and Population studies, University of Rajasthan, Jaipur for their able guidance during the research tenure and also thankful to Dept of forest, Government of Rajasthan and field director to Sariska and other staff members.

REFERENCE

Dennis, T.J., Billore, K.V. and Mishra, K.P., 1997. Pharmacognostic study on gum-oleo-resin of Boswellia serrata Roxb. Reprint Bulletin 1(3) : 353-360. | H.G. and Seth, S.K., 1968. A revised survey of the forest type of India. Government of India Press, Delhi, pp. 404. | Joshi, H.C., Arya, S.C. and Samant, S.S., 2000. Diversity, distribution and indigenous uses of plant species in Pindari area of Nanda Devi Biosphere Reserve-II. Indian Journal of Forestry 24(4) : 514-536. | Khan, T.I., 1995. Tropical deforestation and its consequences with reference to biodiversity in India. The Int. Jour. of Environmental Edu. And Iinformation 14(1) : 31-44. | Mathur, K.B.L. and Saxena, V.S., 1968. The working plan of Bharatpur forest division. Government of Rajasthan, Jaipur, no. F.8 (11) Rev. A/68. | Mathur, V.B., 1991. Ecological impacts of livestock grazing on wild ungulates in Sariska National Park, India, IVth Congress International de Terres de parcours, Montpellier, France. | Nair, N.C. and Nathawat, G.S., 1957. Vegetation of Harshnath, Aravalli hills. The Journal of the Bombay Natural History Society 54(2). | Parmar, P.J., 1985. A contribution to the flora of Sariska Tiger Reserve, Alwar District Rajasthan. Bull. Bot. Surv. India 27(1-4) : 29-40. | Phillip, G.L., 1997. The Changing ecology of tropical forests. Biodiversity and Conservation | 6 : 291-311. | Rodgers, W.A. and Panwar, H.S., 1988. Planing a wildlife protected area network in India Vol. I & II Wildlife Institute of Dehradun. | Rodgers, W.A., 1990. A preliminary ecological survey of Algual spring, Sariska Tiger Reserve, Rajasthan. Journal Bombay Natural. History Soc. 87(2) : 201-210. | Rodgers, W.A., 1991. A preliminary ecological survey of Algual spring, Sariska Tiger Reserve Rajasthan. J. Bombay Nat. Hist. Soc. 7 : 201-209. | Rodgers, W.A., 1991. The Management of protected area buffer zones for the maintenance of biodiversity. Int. J. Sustainable Development | Sharma,Shiv,1978. Studies in floral composition of Jaipur District, Rajasthan. Indian Forester 104(1) : 41-49. | Sharma, S., 1983. A contribution to the Botany of Ranthambore Tiger Reserve National park. Department of Environment, Government of India, New Delhi. | Zuidema, A. Pieter, Sayer A. Jeffrey and Dijkman, W., 1996. Forest fragmentation and biodiversity: the case for intermediate sized conservation areas. Environmental Conservation 23(4) : 290-297. |