

A Geographical study of Flora in Sariska Tiger Reserve

Abstract

Sariska Tiger Reserve is situated in sub-tropical zone having 881 sq kms area. Altitude of this region is 300 to 727 metres above mean sea level. The region is rich in floral diversity. A total number of 404 indigenous naturalized plant species belonging to 272 genera under 87 families are met at Sariska Tiger Project. 90 species of monocots, 308 of Dicots, 02 of Gymnosperms, 04 of Pteridophytes are met in this area.

Dhok (*Anogeissus pendula*) is the dominant species covering over 90% of the total vegetation composition. Salar, Govakhair, Khair, Ber, Jamun, Gular, Neem, Peepal, Lisora, Aam, Siris, Semal, Gurjan etc. are big tree species in the top canopy. The middle canopy comprises of small trees and shrubs like Kair, Thor, Nagphani, Panwar, Adusa, Jhari Ber, Dhatura, Aak, Harshringar, Neeljhojhr, Santhi etc. Ground flora comprises grasses, herbs and sedges. There is no permanent big lake inside the Sariska Tiger Reserve so the aquatic vegetation is poor. The Tiger Reserve is surrounded by areas with high population density of human beings and their cattle. Frequent droughts and population pressure make the forest highly vulnerable to biotic misbalances. Hence it is imperative to conserve the rich floral diversity of the forest.

Keywords: Tiger Reserve, Floral Diversity, Indigenous Naturalized Plant Species, Gerena, Families, Monocots, Dicots, Gymnosperms, Pteridophytes, Canopy, Acquetic Vegetation Etc.

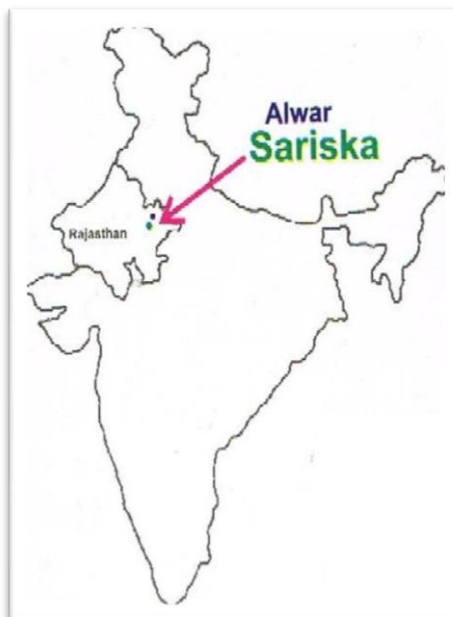
Introduction

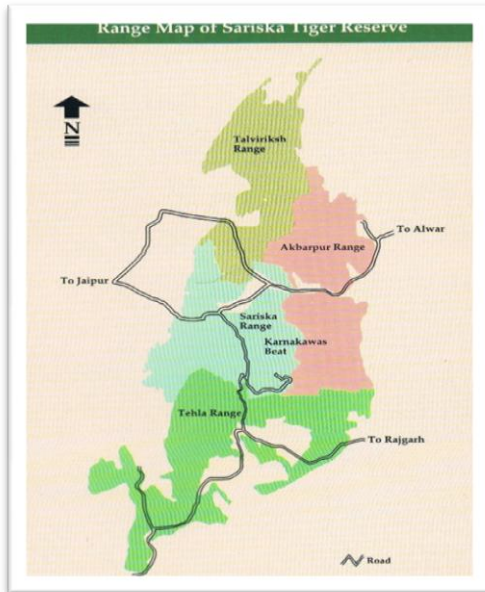
A hunting reserve in the days of British Raj, during the reign of Maharaja of Alwar, Sariska was an abode of British Royalty, viceroys and functionaries of the government. There were shooting blocks kept for big game hunting, as a part of the management of the area. There was a separate Shikarkhana and Shikar Paltan to control and Project the area from Poaching. Shooting was permitted till 1955. After independence Sariska was declared as a Wild Life Reserve on 07th November 1955 under the protection Act, 1951. Sariska was included in the list of the Tiger Reserves by Government of India in 1978 as the 11th Tiger Reserve. In 1982 as an area 400.14 Sq. Kms had been preliminarily notified as 'Sariska National Park'.¹



Ved Prakash Yadav

Lecturer,
Deptt.of Geography,
B.S.R. Govt. Arts College,
Alwar, Rajasthan





(Source : Conservator of Forests & Field Director, Project Tiger, Sarika, H.Q. Alwar)

Sariska Tiger Reserve is surrounded by reserve forest areas, and areas with high population density of human beings and their cattle. Frequent droughts and population pressure make the forest highly vulnerable to biotic imbalances. Hence it is imperative to conserve the rich bio-diversity of the forest.

Sariska Tiger Reserve is situated in the north-eastern part of Rajasthan between 27° 04'N to 27° 42'N latitude and 76° 14'E to 76° 33'E longitude having total area 881 sq.kms. Altitude of this region is 300 metres to 727 metres above mean sea level.²Mercury touches 48°C on some hot summer days, and the winter nights are cool, temperature goes down to 0°C at times. Average annual rainfall is 650mm. The bulk of the precipitation (above 90%) being in July to September from south west monsoon. The winter rain is infrequent during (December-February). Average rainy days in a year are 30.³

Hypothesis

Rich floral diversity of Sariska Tiger Reserve is under tremendous pressure of human and cattle population of surrounding villages.

Aim of the Study

To gain knowledge about floral diversity in Sariska and to attract attention of researchers towards it.

Methodology

Basic data and information collected from Sariska Tiger Reserve authorities, and from Forest & Wild Life Department. Interviews of local people and field investigation were also done.

The Sariska Tiger Reserve is rich in floral diversity. A total number of 404 indigenous naturalized plant species belonging to 272 genera under 87 families are met at Sariska Tiger Project. 90 species of monocots, 308 of Dicots, 02 of Gymnosperms, 04 of Pteridophytes are met in this area.⁴

Dhok (*Anogeissus pendula*) is the dominant species covering over 90% of the total vegetation

composition. The other forest species around Dhok in Sariska Valley and in the Tiger Reserve are:

Top Canopy

Top canopy constitutes the uppermost tier of entire system and mainly comprises of following species

Salar, Aonla, Binnas, Um, Gova Khair, Khair, Saijna, Dhak, Rohan, Mokha, Rohini, Ber, Jamun, Gular, Kabun, Khajoor, Hingot, Sevan, Arjun, Neem, Peepal, Bargad, Shisham, Bijasal, Dudhi, Senta, Bael, Raonjh, Lisora, Tamolia, Churel, Aam, Imli, Kaint, Siris, Semal, Gurjan, Tendu, Karaya, Gugal, Amaltas, Kalam, Bahera, Dhaora, Kakon, Barna.

Undergrowth or Middle Canopy

It comprises of small trees and shrubs etc. The constituents of middle canopy are

Kanther, Kair/Kareel, Chajeen, Gangan, Dansran Thor, Nagphani, Panwar, Adua, Aandhijhari, Jhari Ber, Arni, Marodphali, Agraadh Dhatura, Aak, Harshringhar, Negal, Neeljhohru, Santhi.

Ground Flora

It mainly comprises of grasses, sedges and herbs. Important ground flora is listed below
Sevan, Dharman, Doob, Lanpla, Karad, Suryala, Baru, Bamboo, Dab, Moouj, Kans, Imperata, Encha, Khas

Herbs

Tride, Chitrak, Vazardantia, Bokna, Vantulsi, Fer, Jojhru etc.

Aquatic/Marshy Vegetation

As there is no permanent or big lake inside the reserve, the aquatic vegetation is poor. In temporary ponds or nalahs, where rain water stagnates for a few months, aquatic species like *Hydrilla verticillata*, *Potamogeton crispus*, *P. Pectinatus*, *P.perfoliatus*, *Vallisnarira spiralis*, *Zanichella palustris* are common. Occasionally *Nymphodes cristum*, *Trapa bispinosa* and *Nelumbo nucifera* are also seen.

Alternanthes, sessilis, Ammania baccifera, Bacopa monnieri, Eclipta alba, Ludwigia perennis, Limnophila indica, Phygonum glabrum, P. Barbtum, anagallis aquntica are some of the common species found in marshy habitats around ponds, water courses and streams. *Typha angustata* is at times seen with these species. The populous growth of *Pondanus odoratissimus* has been noticed at Bhangarh.⁵

46 indigenous tree species have been identified in this forest. The tree layer of this forest is dominated by Dhok (*Anogeissus pendula*) and Salar (*Bosewellia Serrata*) on hill slopes and *Butea mono sperma* (Dhak), *Acacia leucopholea* (Ronjh) in the valleys and plateaus. The elevation and the aspect of hill slopes determine the presence of a large number of tree species in Sariska Forest. The aspect of hill slopes also affects the growth of plants. Moderate climate of north facing, and east facing slopes supported highest number of tree species i.e. 12 and 17 tree species respectively. However, the relatively hot climate of west facing and south facing slopes have only 10 and 4 tree species. Dhok and Salar exhibited high frequency of distribution on both the aspects. However, Salar exhibited 67 percent frequency of occurrence on the south facing slopes indicating its high requirement for light intensity.⁶

These observations suggest that spatial heterogeneity with respect to endaphic factors, temperature, relative humidity and available light intensity due to the elevation and aspect of hill slopes maintains rich tree species diversity in the undisturbed Slopka Forest of the Sariska Tiger Project.

Although Sariska has a rich tree diversity but there are several rare and threatened tree species which are represented only one or a few individual trees, such as *Anogeissus latifolia*, *Anogeissus acuminata*, *Crataeva norwala*, *Cordia vestita*, *Erythrina suberosa*, *Dalbergia pariculata*, *Gmelina arborea*, *Miliusa tomentosa*, *Hymenodictyon excelsum*, *Saymida fabribuga*, *Sterculia urens*, *Stereospermum colais*, *Bridelia squamosa* and *Terminalia*.⁷

Some other species of vegetation of Sariska are enlisted as endangered species, these are:

Arjun (*Terminalia arjuna*), Gugal (*Commiphora mukal*), Kadaya (*Sterculia urens*), Anwala (*Embellica officinalis*), Bahera (*Terminalia bellerica*), Barna (*Crataeva rechegiosa*).⁸

Human disturbance is also a responsible factor to determine the frequency occurrence of various species of plants. The highest number of tree species (17) were observed in the undisturbed Slopka forest on the east facing hill slope, 11 species on east facing, previously disturbed, and now protected, Kalighati Forest. The tree species decreased to 08 on the east facing hill slope of the partially disturbed Bharathari forest (buffer zone) and further decreased to 4 on the east facing slope of the highly disturbed Hajipur forest which is located outside the periphery of the Sariska Tiger Reserve.⁹ Most of the species were wiped out from disturbed Hajipur forest. Due to over grazing and lopping trees Hajipur forest may be attributed to almost negligible regeneration of tree species.

It's a matter of sorrow that some species of trees which have very high medicinal value are listed as endangered and some are as threatened species. It means these species are facing a very high risk of extinction in near future. This proves that human population is a highly adverse factor for the natural growth of the forest in this area.

Conclusion

On the basis of these observations it may be suggested that a rich floral diversity of Sariska Tiger Project is under tremendous pressure of surrounding villages with both human and cattle population.

The extremely hot and dry conditions for about nine months in a year, and frequent droughts further make it vulnerable to such disturbances. Hence, it should be protected through in-situ conservation.

References

1. Sariska Bringing the Glory Back (Folder) 2015: Conservator of Forests and Field Director, Project Tiger, Sariska, Alwar, P: 3.
2. Ibid, P: 12.
3. Status Paper (2014), Sariska Tiger Project, PP: 8-9.
4. Ibid, P: 15
5. Ibid, PP: 9-12.
6. Dr. A.S. Yadav (2006), Proceedings, UGC Sponsored National Conference – Tigerless Tiger Project Sariska, P: 51.
7. Gupta, S.K. and Yadav A.S. (2005), Population of Tree Species in Sariska Tiger Reserve: Effect of Hill Slopes and Human Disturbances, Bulletin of the National Institute of Ecology, PP: 37.
8. Status Paper (2014), Sariska Tiger Project, P:12.
9. Dr. A.S. Yadav (2006), Proceedings, UGC Sponsored National Conference – Tigerless Tiger Project Sariska, PP: 51-52.