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Plant Diversity of the Sacred Forest Kamadgiri Mountains

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Abstract:

Sacred forests are areas of virgin forest with rich diversity, which have been preserved by the local people for centuries because of their cultural and religious beliefs and taboos that deities reside in them and protect the villagers from various disasters. Each sacred grove has its own legends, tales and myths which are an integral part of the sacred grove. An unbreakable link between present society and the past in terms of biodiversity, culture, religious and ethnic heritage exists in the sacred groves. Sacred groves are spread around the world, and diverse cultures recognize them in different ways and have different rules to protect them. Sacred groves are found in many parts of India such as the Western Ghats, Central India, Northeast India, etc., especially where indigenous communities live. These are known by different names given by the ethnic people. Sacred groves serve as an ideal center for biodiversity conservation. Many endangered plants in the forest are still well preserved in some sacred groves. It has been observed that many medicinal plants which are not found in the wild are in abundance in the sacred forests. Furthermore, rare, endangered, threatened and endemic species are often concentrated in sacred forests. Sacredness, religious beliefs and taboos play an important role in promoting sustainable use and conservation of the flora of the region. However, with the passage of time, there have been considerable changes in the extent of sacred forests, their vegetation structure, people's perception of them, and religious beliefs and taboos. Therefore, a holistic understanding of the present status, structure and function of sacred forests is essential to assess their ecological role and formulate strategies for their conservation.

This research article is mainly based on the diversity of trees present in the Kamadgiri sacred forest. Various species of trees are found in the Kamadgiri mountain present in the penance

place of Shri Ram. Majorly 5 types of tree species have been identified during the study. Chitrakoot is one of the famous pilgrimage centers of Hindus in India and is surrounded by the lush green hills of the legendary Vindhyachal mountain range. Chitrakoot is also known for its beautiful mountain ranges, historical caves, perennial waterfalls and diverse flora and fauna. Therefore, Chitrakoot has been a sacred place of worship for sages since ancient times. There is abundance of trees in the upper part of the mountain whereas their number is less in the lower part. And both types of trees (small and big) were found in the middle reaches of the valley. In the mountain, the frequency of Anogenysus pendula was found to be highest and the frequency of Ficus racemosa was found to be the lowest.

Key words: Diversity, Species Richness, Frequency, Density, Abundance.

Introduction: Chitrakoot was very rich in biodiversity during the Ramayana period. The great saints Valmiki and Goswami Tulsidas have presented comprehensive descriptions of biodiversity in their texts Ramayana and Ramcharitmanas respectively. According to Valmiki Ramayana, Chitrakoot is a beautiful and sacred place where a variety of herbs, shrubs, trees and creepers are available. The richness of flora and fauna of Chitrakoot is described in four chapters of Ramayana.

Valmiki has also mentioned the names of many trees found on Kamadgiri in Ramayana. These are Am (Mangifera indica), Jamun (Syzygium cumini). Asana (Lagerstroema parviflora). Lodh (Symplocos racemosa). Chironji (Buchania lanzan), Jackfruit (Artocarpus).

Kamadgiri, Chitrakoot, is a place of major religious importance. The hill, which is surrounded by a series of temples along its base and is today revered as a sacred incarnation of Rama. Bharat Milap Temple is situated here. Devotees circumambulate the sacred hill to seek boon or blessings.

According to Agbo and Sokpon (1997), a sacred forest is an area that is worshiped and dedicated to the cultural expression of a certain community. Sacred forests are managed informally (Boraia et al., 2003), as Gbaguidí (1998) has emphasized, a forest, a tree, a plant, an animal may be inhabited by spirits. Access to sacred forests is restricted. Due to this fact, venerating a forest is a traditional way of conserving natural resources. Most sacred forests are small, with the area often ranging between 0.5 hectares and 20 hectares (Juhe-Buelton, 2005).

Our survival depends on biological diversity. Apart from fulfilling our physical needs, it also provides essential services. It is the cornerstone of our culture and civilization and guarantees the sustainability of our ecosystems. Genetic diversity is a component of biodiversity, which is also our strongest protection against environmental changes.

Biodiversity, one of the essential characteristics of nature, holds enormous economic potential. It supports farming, cattle raising, maintaining forests and fisheries, and serves as the foundation of a strategic biotechnology sector. Although biological diversity accounts for the natural processes and products produced by ecosystems and species that support other life forms.

The relationship between biodiversity and human well-being remains opaque, despite the fact that nature-based solutions are well established to solve our most pressing concerns such as climate change, water scarcity, agricultural intensification and health.

Objective:

• Study of frequency, density, abundance of trees found in Kamdagiri Mountain.

• Study of plant diversity and species richness of Kamadgiri Mountain.

Study Area:

Apart from being a religious and sacred place, Kamadgiri mountain is also an important center of faith. Kamadgiri Mountain is situated in Chitrakoot district of Uttar Pradesh at 25.170038 latitude and 80.833454 longitude in the north direction and in Satna district of Madhya Pradesh at 25.167766 latitude and 80.854112 longitude in the east. It is believed here that Lord Shri Ram has spent most of his life in exile. Due to which abundance of human activity is found on special occasions like Amavasya, Purnima, Makar Sankranti, Sharad Purnima etc.

Experiment Methods:

Keeping in mind the mountainous and terrestrial conditions, human influences and variation of trees, quadrat method was selected to extract diversity. The frequency, density and abundance of trees in Kamdagiri Mountains have been calculated using the following formulas:

- **Frequency** $= \frac{Totalnumberofquadratsinwhichplantspeciesisoccured}{Totalnumberofquadratsthathavebeenstudied} \times 100$
- **Density** $= \frac{Totalnumberofplantspecies}{Totalnumberofquadratsthathavebeenstudied}$
- **Abundance** $= \frac{Totalnumberofplantspecies}{totalnumberofquadratsinwhichtheplantspeciesarepresent}$
- **Species richness:** metrics of species richness provide an immediate and understandable expression of diversity. The Margalef and Menhinich indices are mentioned when discussing species richness indicators. These indices create a relationship between the number of individuals and the larger area of the sampling unit. The value of the index increases with the number of species recorded. Direct calculation of the Margalef index, which has been used effectively in academic papers.

  Margalef richness index (R)=)= $\frac{S-1}{InN}$

  (Where, R = Margalef index, S = total number of species, N = abundance)

- **Shannon Diversity Index:** The most commonly used indices based on information theory. These metrics are based on the idea that the information contained in a code can be quantified in a manner similar to the diversity or information found in natural systems. The Shannon and Wiener index function was developed by Shannon and Wiener.

Shannon Diversity Index(H') = $-\sum_i \left(\frac{n_i}{N} - \left(\frac{n_i}{N}\right)\right)$

(Where, H'= Shannon index, ni= proportion of species in a community, N = number of abundant species)

Results and discussion:

In the context of trees, the species richness was 0.66 ml which shows high diversity and the diversity index was observed to be 0.36 (Table-2). In the study conducted, Anogesicus pendula (frequency = 100%, density = 40.4, abundance = 40.4) was found highest and Scheichera oleosa (abundance = 1) and Ficus racemosa (abundance = 1) were found least in Kamdagiri Mountains (Table 1).

Table -1. Frequency, density and abundance of trees in Kamtanath Mountain.

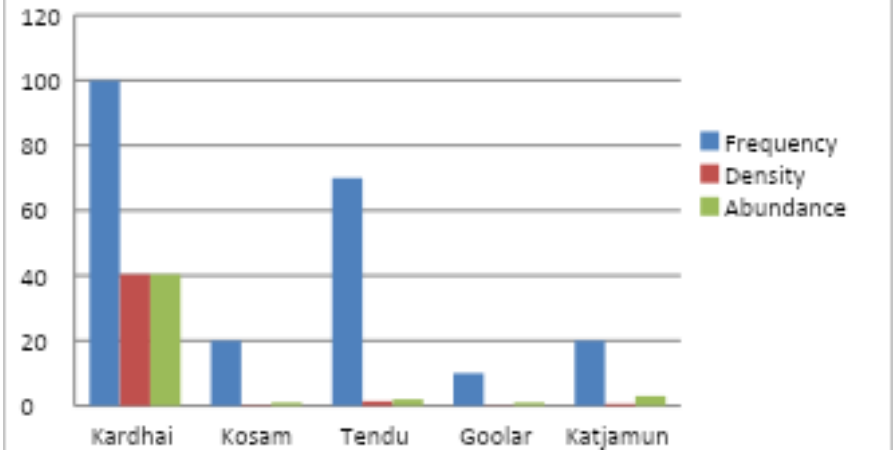
S. No.	**Botanical name of species**	**Local name of species**	**Total of species**	**Frequency**	**Density**	**Abundance**
1.	Anogesissus pendula	Kardhai	404	100	40.4	40.4
2.	Scheichera oleosa	Kosam	2	20	0.2	1
3.	Diospyros melanoxylon	Tendu	14	70	1.4	2
4.	Ficus racemosa	Goolar	1	10	0.1	1
5.	Syzgium heyneanum	Katjamun	6	20	0.6	3

Table -2. Diversity index and species richness index of trees in Kamtanath Mountain.

S.No.	**Diversity indices**	**Standard value**	**Index value**	**Inference**

1.	Species richness(margele)	0-8	0.66	High diversity
2.	Diversity index(shanon index)	1.5-3.5	0.36	Low diversity

Figure 1. Representing the diversity of Kamadgiri Mountains



Conclusion :

During the study, various types of plant species were found in Kamadgiri Mountains. Since Kamadgiri mountain is a religious and holy place. Therefore, human and other external activities (which harm diversity) are prohibited here. As a result, despite the diversity of trees here, there is no change in the diversity of Kamtanath mountain.

recommendation

It is impossible to protect natural resources permanently despite the harm caused by humans. As presented in the conceptual framework, poverty and nature conservation are closely linked, which is also the case in Kamdagiri. Therefore, if we intend to conserve sacred forests permanently, we must also work on poverty alleviation and explore alternatives to exploiting nature. By reducing people's dependence on natural resources, it is possible to limit poaching and unregulated extraction of wood.

In this study, environmental and social sciences were used to evaluate the sustainability of conservation by sacredness, or in other words, if sacredness can ensure the sustainable conservation of forests.

Reference:

1. Mayur Chandranshu Mishra (2023), Plant biodiversity inventory mapping of Chitrakoot forest range, Satna (M.P.)

2. Mayur Chandranshu Mishra, Ravindra Singh, Sadhna Chaurasia (2023), Plant diversity study of Nayagaon beet of Chitrakote forest range for forest ecosystem management 7(10)

3. Agbo, V. and N. Sokpon, (1997), Forêts Sacrés et Patrimoine Vitales au Benin, Harmonization Techniques Provisions, Université National du Benin, Project CRDI N°95-8170, Benin, 200p.

4. Boraiya, K.T., Vasudev R., Shonil A. Bhagwat and C.G. Kushalappa, (2003), Do informally managed sacred groves have greater richness and regeneration of medicinal plants than state-managed reserve forests? Current Science, Volume 84, Number 6, 804–808.

5. Juhe-Buelton, D. (2005), Enjeux économiques et socioux autours des bois sacrés et la conservation de la biodiversity aux Benin, Burkina Faso et Togo. Les actes de l'atelier in IFB: l'utilisation de l'biodiversity et locaux et dynamique. Paris, 68–72.

6. Altieri, M.A. (1999), Multifunctional Biodiversity in Latin American Traditional Agriculture, ILEIA Newsletter, page 14.

7. Brechin S.R., Wilshusen, P., A.R., Forwangler, C.L. And P.C. West, (2002), Beyond the square wheel: towards a more comprehensive understanding of biodiversity conservation as a social and political process. School of Natural Resources and Environment, University of Michigan, USA,