Floristic Composition and Distribution Pattern of Tree Species at Mewar Campus in Rajasthan, India

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Abstract: The present study aimed was characterized the floristic diversity and distribution pattern of plant communities at Mewar campus in Rajasthan. In the present study an attempt has been to ascertain the current status of plant species which provide major forest products and minor forest product also. The study site was categorized in five plant communities viz., Timber tree species, Ornamental tree species, Fruit yielding tree species, shrub species and medicinal plants. A total 1685 individuals were recorded in the study which belonged to thirty-six tree species in fourteen families. Maximum diversity of plant community was found of timber tree species (96.99 percent) which followed by medicinal plants (90.37 percent) in this study. The dominant tree species was Bauhinia variegata which belonged to fabaceae family. During the study, maximal tree species were belonged to fabaceae (52.36 percent), apocynaceae (52.72 percent), rutaceae (19.63 percent), and myrtaceae, arecaceae (13.09 percent each) and minimal tree species which occurred under following families meliaceae, rubiaceae, moringaceae, moraceae and proteaceae (6.54 percent each) respectively.

Keywords: Tree species; Family; Community; Diversity

1. Introduction

The Mewar hills of Rajasthan harbor vast diversity of vegetation. It includes subtropical evergreen forests of Boswellia serrata, Dendrocalamus strictus and Tectona grandis. These forests are inhabited by the major tribes of the state, viz. Bhils, Garasias, Damors, and Kathodias. These tribes are the custodians of local indigenous knowledge. The surrounding plants from an integral part of their culture and the information about plants gets passed on from generation to generation through oral folk-lore although many times kept secret.

In Rajasthan, the hilly topography in Aravalli mountain ranges provides a wide variety of microhabitats which support rich biodiversity of plant species. However, many tropical forests are under great anthropogenic pressure and require management intervention to maintain the overall biodiversity, productivity and sustainability. Understanding species diversity and distribution patterns is important for helping managers evaluate the complexity and resources of these forests[1].

The tropical dry deciduous forest in Rajasthan has a dense layer of herbaceous vegetation during the rainy season which plays an important role in nutrient conservation and as a source of food for herbivores. Anthropogenic disturbances have adversely affected the composition of herbaceous vegetation; it is, therefore, imperative to conserve the herbaceous vegetation of these forests. Recently some efforts have been made to understand the plant community structure of the Sariska Tiger Project [2,3].

2. Materials and Methods

The study was carried out from Mewar University Campus Chittorgarh Rajasthan, India. The University campus is situated in the vicinity of the scenic Aravali ranges, and it is spread over sprawling 30 acres at Gangrar of Chittorgarh District (Rajasthan), just 18 km away from the city of Chittorgarh. There are three distinct seasons in a year; winter (November to February), summer (March to mid June), and a rainy season (mid June to October). The climate is tropical with a maximum of 43.3 °C and a minimum of 28.8 °C during summers. The average annual rainfall is 61 cm occurring during June to September. Personal observation were carried out surrounding the campus by the visiting the selected study sites. The study was conducted in five different plant communities viz., Timber tree species, Ornamental tree species, Fruit yielding tree species, shrub species and medicinal plants. The survey has been done within following month’s viz., march, april, may, june and july 2019.

3. Result and Discussion

Table 1: Diversity of regenerated tree species at mewar university

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Tree species</th>
<th>Common name</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Azadirachta indica</td>
<td>Neem</td>
<td>Meliaceae</td>
</tr>
<tr>
<td>2.</td>
<td>Anogeissus latifolia</td>
<td>Kadamba</td>
<td>Rubiaceae</td>
</tr>
<tr>
<td>3.</td>
<td>Moringa oleifera</td>
<td>Drum Stick</td>
<td>Moringaceae</td>
</tr>
<tr>
<td>4.</td>
<td>Ficus religiosa</td>
<td>Peepal</td>
<td>Moraceae</td>
</tr>
<tr>
<td>5.</td>
<td>Artocarpus heterophyllus</td>
<td>Jackfruit</td>
<td>Fabaceae</td>
</tr>
<tr>
<td>6.</td>
<td>Terminalia arjuna</td>
<td>Arjun</td>
<td>Combretaceae</td>
</tr>
<tr>
<td>7.</td>
<td>Polyalthia longifolia</td>
<td>Ashapala</td>
<td>Annonaceae</td>
</tr>
<tr>
<td>8.</td>
<td>Elaeocarpus ganitrus</td>
<td>Rudrax</td>
<td>Elaeocarpaceae</td>
</tr>
<tr>
<td>9.</td>
<td>Roystonea regia</td>
<td>Royal Palms</td>
<td>Arecaceae</td>
</tr>
</tbody>
</table>

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This graph indicated the percentage of different families at the fabaceae family (52.36 per cent) which followed by meliaceae (46.93 per cent) and annonaceae (32.51 per cent) and the minimum number of tree species were recorded from apocynaceae (3.96 per cent), moraceae (4.75 per cent), and rubiaceae (6.34 per cent).

**Timber tree species:** In this community, the maximum number of tree species were recorded from fabaceae (116.56 per cent) which followed by meliaceae (68.98 per cent) and annonaceae (32.51 per cent) and the minimum number of tree species were recorded from apocynaceae (3.96 per cent), moraceae (4.75 per cent), and rubiaceae (6.34 per cent).

**Ornamental tree species:** In this plant community, total 346 tree species were reported from 6 different families. The highest tree species were recorded from fabaceae (195.6 per cent) and
apocynaceae (64.5 per cent) while the least species were reported from proteaceae (4.16 per cent), which followed by arecaceae (15.06 per cent) respectively.

**Fruit yielding tree species:** - The highly tree species were found in fruit yielding community from euphorbiaceae (122.26 per cent) and myrtaceae (78.11 per cent) whereas, minimum tree species were found from rosaceae (23.77 per cent) which followed by rhamnaceae (27.16 per cent).

**Shrub species:** - The extremely tree species were evident from apocynaceae (106.23 per cent) and rosaceae (96.06 per cent) while least number of tree species were found from lythraceae, cupressaceae (12.31 per cent) and rutaceae (21.23 per cent).

**Medicinal plants:** - In this plant community, total 423 tree species were reported from different families. The maximum number of tree species were reported from lamiaceae (57.02 per cent) which followed by apocynaceae (52.76 per cent). The minimum number of tree species were recorded from combretaceae (6.8 per cent) which followed by menispermaceae (9.36 per cent) respectively.

### 4. Conclusion

In this present survey, we were examined the total 1685 tree species which belonged to 36 families. The most abundant family was fabaceae (52.36 per cent) whereas, apocynaceae (19.63 per cent) was as co-dominant family. A total 454 individuals tree species were recorded from timber tree species, 346 tree species from ornamental tree species, 106 species from fruit yielding community, 356 tree species from shrub community and 423 tree species were observed from medicinal plant community. The highest species richness was found at timber tree community. In all five plant communities, the highest percentage was found of timber tree species (96.99 per cent) which followed by medicinal Plants (90.37 per cent) and the minimum percentage were reported of fruit yielding tree species (22.64 per cent) which followed by ornamental tree species (73.92 per cent) respectively.
Figure 7: Distribution structure of different plant communities

References

