

Community Structure of Lesser-Known Tree Species, *Dalbergia lanceolaria* L. f., in Tropical Deciduous Forest

Manojkumar S^{1*}, L.K. Behera¹, R.P. Gunaga¹, A.A. Mehta¹, Dileswar Nayak¹, H.N. Chhatrola² and S.M. Patel¹

¹College of Forestry, NAU, Navsari; ²NM College of Agriculture, Navsari – 396 450 Gujarat, India

*Email: manojksfcp@gmail.com

Keywords: *Dalbergia lanceolaria*, Lesser-Known Trees, Importance value index, vulnerable

1. Introduction

Dalbergia lanceolaria L. f. is one of the lesser known tree species distributed in deciduous forests. This species is used as minor timber for small constructions and different parts of plant are used in ayurvedic medicine. A recent IUCN assessment observed the declining population throughout the world and it is already reached 'vulnerable' category in Sri Lanka. The ecological structure of this species is scanty; therefore, the present study was undertaken to study the stand structure and natural regeneration of the species in the natural forest.

2. Material and methods

A study was carried out in the natural forests of northern most region of the Western Ghats, South Gujarat during 2021. Fifteen quadrates of 20 x 20 m were laid out randomly across the *Dalbergia lanceolaria* populations for stand structure. A regeneration plot of 1m x 1m were laid out around the selected trees (N=15) at different distances and directions from each tree to study the natural regeneration patterns in the studied population. Ecological parameters were estimated as per standard formulae.

3. Results and discussion

Composition of studied *D. lanceolaria* population showed that there were 20 different tree species (including *D. lanceolaria*) belonged to 13 families, 17 genera. Importance value index (IVI) recorded to be highest for *D. lanceolaria* (IVI-108.31), which occupied the upper storey of the deciduous forests.

Table 1. Phyto-sociological attributes of *Dalbergia lanceolaria* and its associated tree species

Sl. No.	Species/ Family	n	IVI	Sl. No.	Species/ Family	n	IVI
1	<i>Dalbergia lanceolaria</i> Fabaceae	37	108.31	11	<i>Madhuca longifolia</i> Sapotaceae	6	18.88
2	<i>Adina cordifolia</i> Rubiaceae	2	6.71	12	<i>Mangifera indica</i> Anacardiaceae	1	4.11
3	<i>Bahunia malbarica</i> Fabaceae	1	3.01	13	<i>Miliusa tomentosa</i> Annonaceae	5	15.81
4	<i>Butea monosperma</i> Fabaceae	5	11.91	14	<i>Ougeinia oojeinensis</i> Fabaceae	1	3.77
5	<i>Casearia</i> spp. Flacourtiaceae	2	4.25	15	<i>Schliechera oleosa</i> Sapindaceae	1	2.84
6	<i>Dalbergia latifolia</i> Fabaceae	6	14.14	16	<i>Spathodea roxburghii</i> Bignoniaceae	2	6.37
7	<i>Dalbergia paniculata</i> Fabaceae	1	3.51	17	<i>Tectona grandis</i> Lamiaceae	12	34.27
8	<i>Diospyrus melanoxylon</i> Ebenaceae	2	5.82	18	<i>Terminalia bellirica</i> Combretaceae	2	12.08
9	<i>Garuga pinnata</i> Bursaceae	6	16.22	19	<i>Terminalia tomentosa</i> Combretaceae	8	22.15
10	<i>Gmelina arborea</i> Lamiaceae	1	2.92	20	<i>Wrightia tinctoria</i> Apocynaceae	1	2.89

Further, this species is closely associated with *Tectona grandis* (IVI of 34.27), *Terminalia tomentosa* (IVI of 22.15), *Madhuca longifolia* (IVI of 18.88) and *Garuga pinnata* (IVI of 16.22). Distribution of this species in the studied population is found to be negatively skewed. Among recorded individuals, 48.65 % per cent of stems belonged to 160-190 cm girth class. It is also recorded that most of the individuals of *D. lanceolaria* are regenerated by root suckers. Natural regeneration count of *D. lanceolaria* was found to be poor and its distribution was more near the base (0.93 m^{-2}) at northern direction (0.67 m^{-2}). Information provided here may be useful for ecological studies and protection of this species.