

## Assessment of plant biodiversity in the over grazed marginal lands of Kovilpatti

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**Key words :** thatching grass-*Ophiuros exaltatus*, *Prosopis juliflora*, biodiversity, goat grazing

**Introduction** The study area is located in the outskirts of Kovilpatti (9° N 78°E), Thoothukudi district, Tamilnadu, India and many farmers have abandoned their semi arid marginal dry lands due to drought, marginal yield and the change in their life style. The abandoned marginal lands were utilized for goat grazing and herbal collection. The conservation of plant biodiversity is uncertain in the marginal lands by over grazing, and human activities.

**Materials and methods** Two study areas were selected. Both the study sites were adjacent to each other with similar soil and environmental condition. Site A (90 ha) which was abandoned since 2004. Site B (110 ha) was abandoned since 2001. About 10 numbers of permanent quadrates (4 meter wide and 25 meters long) were marked randomly in each study sites during December 2006. The rainfall falling was observed above the annual median during the months of October and November. The highest number of species was noted during November, December and January. The frequency density of plant species in the quadrates was analyzed. The data obtained during December 2006 was taken for this study.

**Results and discussion** The study assessed the impacts raised by the over grazing of goats and human activity on the plant biodiversity. Some 34 species of plants were identified in the study areas (Table 1).

**Table 1** shows the species density in the study area (\* unpalatable species) (\*\* Medicinal plants)

Plant species	Density		Plant species	Density		Plant species	Density	
	Site A	Site B		Site A	Site B		Site A	Site B
<i>Abutilon indicum</i> **	20.5	12.7	<i>Gloriosa superba</i> **	0.1	0	<i>Scilla hyacinthiana</i>	0.2	0
<i>Aerva lanata</i> **	5.5	1.2	<i>Hibiscus micranthus</i>	20.5	9.7	<i>Tragia canabina</i> **	0.1	0
<i>Anesomeles indica</i> **	0.2	0.2	<i>Indigofera tinctoria</i>	0.2	0	<i>Trichodesma indicum</i> **	0.1	0
<i>Aristida depressa</i>	17.9	18.4	<i>Jatropha gossypifolia</i>	0.5	0.2	<i>Triumfetta rhomboidea</i>	24.2	11.6
<i>Barlaria cuspidata</i>	0.2	0.2	<i>Leucas aspera</i> **	0.5	0	<i>Vicoa indica</i>	0	0
<i>Biophytum sensitivum</i>	1	0	<i>Melothria species</i>	0.1	0	Shrubs		
<i>Caraluma pauciflora</i>	0.1	0	<i>Mullugo nudicaulis</i>	0.3	0	<i>Acacia arabica</i>	3	2
<i>Cissus quadrangularis</i> **	0.1	0.1	<i>Ocimum sanctum</i> **	1.2	0	<i>Cassia auriculata</i>	1	0.2
<i>Cleome monophylla</i>	0.7	0.2	<i>Percularia daemea</i>	0.1	0	<i>Morinda tinctoria</i>	1	1.9
<i>Cleome viscosa</i>	1.2	0.7	<i>Phyllanthus niruri</i> **	0.1	0	<i>Prosopis juliflora</i> *	1	7
<i>Enicostema species</i> **	1.2	0	<i>P. maderaspatensis</i>	0.1	0.1	<i>Zizypus species</i>	0.4	0.3
<i>Evolvulus alsinoides</i>	0.1	0.1	<i>Ophiuros exaltatus</i> *	9.6	28.5			

In site A, the tree species— *Acacia arabica*, and herbs like *Triumfetta rhomboidea* and *Hibiscus micranthus* were dominant than the other species. The thatching grass *Ophiuros exaltatus* and *Prosopis juliflora* showed emergence in the site A along with other dominant species. *Acacia arabica* and *Hibiscus micranthus* showed a decrement in distribution in site B. Thatching grass—*Ophiuros exaltatus*, herb—*Triumfetta rhomboidea* and the hedge bush-*Prosopis juliflora* were dominant and other species were scanty in the site B. The goats are capable of penetrating the thickets of the study site and able to forage 95% of plant species in the sites. Palatable species are lesser in density in site B than A. The establishment of unpalatable plant species was evident in site B. The loss of biodiversity and the lost plant species has not been recognized immediately (Abel et al. 1998). The dominant grass *Ophiuros exaltatus* was unpalatable and avoided by goats. The sticky seeds of *Triumfetta rhomboidea* were dispersed elsewhere by sticking through goat's body. *Prosopis* seed pods were consumed by goats and seeds are dispersed through guano pellets of the goats. Understanding the biodiversity of plant communities is essential to sound land management (Burrows 1998). Regulated goat grazing and herbal collection may help the biodiversity management of marginal lands. Further studies are continued.

### References

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