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
*Abutilon indicum***	20 5	12 7	*Gloriosa superba***	0 1	0	*Scilla hyacinthiana*	0 2	0
*Aerva lantana***	5 5	1 2	*Hibiscus micranthus*	20 5	9 7	*Tragia canabina***	0 1	0
*Anesomeles indica***	0 2	0 2	*Indigofera tinctoria*	0 2	0	*Trichodesma indicum***	0 1	0
Aristida depressa	17 9	18 4	*Jatropa gossipifolia*	0 5	0 2	*Triumfetta rhomboidea*	24 2	11 6
Barlaria cuspidata	0 2	0 2	*Leucas aspera***	0 5	0	*Vicoa indica*	0	0
Biophytum sensitivum	1	0	*Melotheria species*	0 1	0	*Shrubs*		
Caraluma pauciflora	0 1	0	*Mullugo nudicaulis*	0 3	0	*Acacia arabica*	3	2
*Cissus qudrangularis***	0 1	0 1	*Ocimum sanctum***	1 2	0	*Cassia auriculata*	1	0 2
Cleome monophylla	0 7	0 2	*Percularia daemea*	0 1	0	*Morinda tinctoria*	1	1 9
Cleome viscosa	1 2	0 7	*Phyllanthus nirurii***	0 1	0	*Prosopis juliflora**	1	7
*Enicostema species***	1 2	0	*P . maderaspatensis*	0 1	0 1	*Zizypus species*	0 4	0 3
Evolvulus alsinoides	0 1	0 1	*Ophiuros exaltatus**	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 .

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