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Nicobari Tribe of the Car Nicobar Island: Keeping in Pace with Time

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ABSTRACT Tropical rain forests worldwide are home to millions of tribal population belonging to diverse communities. During last few decades population pressure and migration of settlers in tribal areas for developmental needs have currently threaten the existence of the aboriginals. Most of the ethnobotanical knowledge in India is concentrated in remote tribal areas. The use of plant species in sustainably with nature lies hidden with native people, living in vicinity with nature.

INTRODUCTION

Since the dawn of civilization, the tribals have been living in the rainforests, have acquired knowledge and gained skills to enjoy and use the treasure and maintain their sustainable existence. Kothari and Bhatt (1998) in their study have revealed the change in man-environment relationship during the course of development and have illustrated how local communities protect landscapes, ecosystems and species traditionally. Deb and Malhotra (1997) in an exploratory study have examined correlation between social organizations of the tribes from biodiversity conservation point of view. System of knowledge and development in present times have enabled indigenous peoples to adapt to introduced societies, cultures and technologies and the economic consequences are shrinkage of tribal habitat and over exploitation of natural resources (Morphy, 1983). Blending information obtained from various sources such as vegetation maps, remote sensing imagery, and other archival material provides a picture of the state and extent of resource loss over time. Information on deforestation and land-use change can be integrated with data on distribution of biodiversity and existing information on soils, topography, climate, etc. to obtain a comprehensive picture of the region.

Present study has been carried in the Car Nicobar Island during November 2002-January 2003 while carrying out *JaiVigyan* Science and Technology Mission on "Biodiversity Charactersation at Landscape Level in Andaman and Nicobar Islands". The Car Nicobar Island is a place of enchanting beauty with a historic past as we could surpass the remnants of Japanese attack in the form of tankers and bunkers. The Island serves as administrative head quarter for the Nicobar group. The Car Nicobar lay quite dissociated from other islands of the group in the Arabian Sea lying between 92° 42' to 92° 50' E longitude and 9° 72 to 9°152 N latitude. It is commonly referred as "Coral Island" or "Coconut Island". It is fringed by coconut trees all around the coast (Fig. 1). The highest point attains only 60 m. Climate is tropical with the total annual rainfall of about 400 mm. The average temperature lies more or less between 20-30°C respectively. The main inhabitants are the *Nicobarese*, the aboriginal tribal belonging to the Malayan race and treasuring enormous knowledge awaiting to be explored and utilized. Das (1982) has quoted that Nicobarese have racial mixture with the natives of South East Asia. These people have yellow brown skin, straight hair and medium stature, almost semi-civilized, live in good dwellings, cultivate food products and posses domesticated animals (Kloss, 1903). The present study aims to explore the ecofriendly relationship of the tribe with surrounding environment. It also attempts to study the plant diversity around a biologically and socially sustainable traditional Nicobari hut. The place had undergone levels of transformation in last few decades in terms of develop-ment activities for tribal upliftment.

The Island altogether has fifteen villages and the main ones include Kakana, Malacca, Arong, Kimos, Lapati, Perka and Passa. The most followed religion is Christianity. Before Bristish-

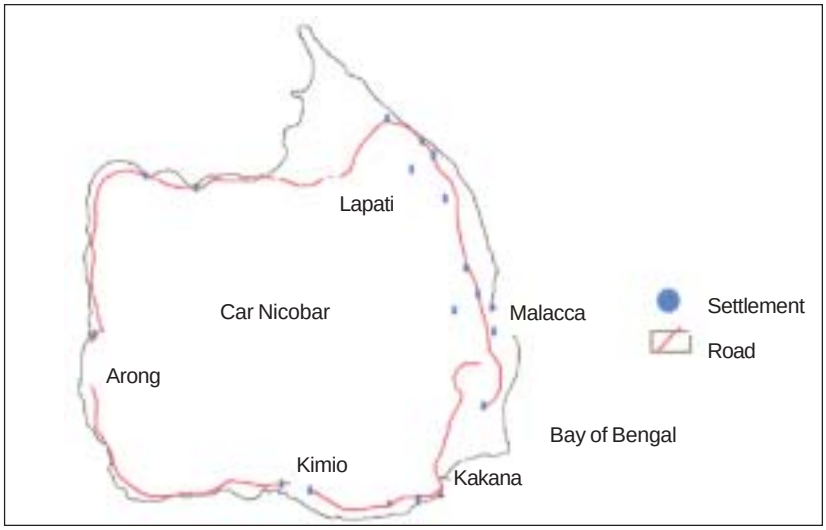

Fig.1. Location map with five major settlements

ers took possession of the Islands in 1869, it was under European occupation, since than custom of having a village chief or captain is maintained. He looks after the administration in each settlement. The team interacted with the local people in general to be acquainted with their traditional and cultural aspect and to study the harmonious bond these islanders have established with nature. A Nicobari hut was surveyed for the floristic diversity growing in vicinity and the encountered species were categorized. A distinctive Nicobari setup was a surrounded from all sides by small huts with a community center known as 'Elpanam', the place for feast and general meetings in the cente. An iron instrument called '*dao'* is a common implement used for day-to-day use viz. house building and canoe making whereas an iron hook for fishing. A wooden bow is also used for hunting purposes (Fig. 2).

The population of Nicobarese in Car Nicobar during the year 1886 was recorded, as 3500 .It was highest among all the Islands in the group. As per 1902 census, it was recorded as 3451 predicting that during those years the population has remained fairly stationary (Kloss, 1903). As per 1999 census the total of 30,000 Nicobarese are scattered in twelve inhabited Islands (Table1) and about 60 % (19,336) are concentrated in this 127 sq km area of Car Nicobar (Anon, 1999). Lately the Nicobarese have acquired some knowledge about growing fruits and leafy vegetables. Rice cultivation was tried in Car Nicobar but failed (Roy and Choudhury, 2000).

Since last few decades, people have inculcated the liking for tea. Tobacco and betel is used by every men, women and also children for chewing and smoking. The natives are expert basket makers and trade was carried out since previous times using barter system. The area is also quite prone to earthquakes as evident from the major shakes recorded in 1847 and 1881 causing extensive damage to the Island (Kloss, 1903). The *Nicobari* language differs in different islands viz. Kamorta, Katchal and Teressa and Car Nicobar however the groups can interact with each other.

After the overview of the island, we saw coconut trees raised by the Nicobarese dominating the landscape besides evergreen forest. On visiting a village named Arong, headed by Captain Samuel Aple, we were greeted with hospitality, though communication was a bit difficult but they showed willingness to help. Each village had its own social setup (school, community hall, play ground). A traditional Nicobari hut (Fig. 3) is a conical wooden structure with a beehive shape, lifted from the ground and designed in a way to allow proper ventilation spreading in around 100-500 sq m, roofed with bamboo and floored with *Barringtonia speciosa, Eugenia javanica* and

Fig. 2. A Nicobari from Perka village - Car Nicobar with traditional wooden bow

Fig. 3. A tradtional Nicobari Hut

Table 1: Population status of Nicobarese in different Islands of the group

Years	*1901*	*1911*	*1921*	*1951*	*1971*	*1981*	*1991*	*1999*
Population of Nicobarese	6501	8818	9481	12009	17874	21,172	26,142	30,000

Source: Roy and Choudhury (2000)

Calophyllum inophyllum poles. Nicobari settlements are mostly concentrated near the coast as fishing is commonly practiced. The region appears quite attractive and blended with nature and surrounded by plant species of daily use. The dominant layer was formed by Coconut (*Cocos nucifera)* followed by Areacnut (*Areca catechu*) and Banana (*Musa paradisiaca*). Apart from that Nicobari aloo (*Tacca leontopetaloides*), Papita (*Carica papaya*) and *Citrus* species (other than herbaceous life forms) dominated the second layer (Table 2). Ornamental plants like *Croton* were planted around the hut to enhance its beauty. For ages, the tribe practices coconut oil extraction in an autochthonic manner, which is also their main source of economy. They also practice the canoe making (using *Callophylum inophyllum*, *Sterculia alata*) in order to facilitate transport to different places. The narcotic property of *Barringtonia speciosa* is made use for fish poisioning. The relationship the tribe shares with the environment and its impact has been depicted in figure 4.

The reconnaissance of the Island revealed its landscape pattern and facilitated onscreen

Table 2: Some economically important species of day-to-day use observed growing near a Nicobari hut

Species	*Family*	*Common Name*	*Habit*	*Use*
Cocos nucifera L.	Arecaceae	Coconut	Tree	Oil extraction, food, fibre used for making baskets, medicinal properties
Areca catechu L.	Arecaceae	Arecanut	Tree	Leaves chewed, source of Ayurvedic drug "Puga"
Tacca leontopetaloides (L.) Kuntze	Taccaceae	Nicobari Aloo	Herb	Source of Starch, highly medicinal
Colocasia esculenta (L.) Schott.	Araceae	Colocasia	Herb	Good source of starch, used as vegetable, leaves source of Vitamin A& C, seeds have medicinal value
Azadirachta indica A. Juss.	Meliaceae	Neem	Tree	An introduced evergreen tree of highly medicinal value
Dracaena angustifolia Roxb.	Agavaceae	Haldi patti	Herb	Fruits consumed by the tribals, Leaves are highly medicinal

Table 3: Vegetation classes mapped and its equivalent in Champion and Seth (1968) classification in Nicobar Islands

Satellite based vegetation cover types mapped	*Vegetation types as per Champion & Seth (1968)*	*Species composition*
Evergreen forest	Andaman Tropical Evergreen Forests *(Dipterocarpus*) (1A/C2)	*Acronychia pedunculata, Morus macroura, Mussaenda microphylla, Xanthophyllum vitellinum, Tylophora indica, Terminalia procera, Knema andamanica, Macaranga triloba, Semecarpus kurzii, Aporusa villosa, Artocarpus chama, Astragalus homesus, Randia pulcharrima, Teysmanniodendron pteropodum, Terminalia citrina*
Mangrove	Mangrove (4B\TS1)	*Rhizophora mucronata,Bruguiera gymnorhiza, Heritiera littoralis, Lumnitzera coccinea, Xylocarpus granatum*
Upland Grasslands	-	*Trema orientalis, Ziziphus oenoplia, Carex cruciata, Cassia mimosoides, Dicranopteris linearis, Rhynchospora wightiana, Scolopia spinosa, Ipomoea gracilis, Eulophia nicobarica*

delineation of major vegetation cover classes (Table 3) using satellite data (IRS-IC LISS III). Stratified random sapling approach has been followed to assess species diversity and a total of 121 species belonging to varied habits were encountered (Table 4.) The center portion of the island had evergreen and mixed evergreen forest. Adding to the diversity are mangrove patches restricted to the swampy areas around the creeks, dominated by *Rhizophora*, *Bruguiera* and *Lumnitzera* species. The species recorded from the region have high medicinal properties put to use by the tribals. Profuse growth of canes and climbers was observed in the evergreen forest (mostly having 40-60 percent canopy density), swampy areas and muddy ground are home to crabs. Pure formation of *Bruguiera* community exists in proximity of Perka viilage.

The land use pattern of the Island depicts the distribution of major vegetation cover classes (Fig.5, Table 5). Three major ecosystem groupings are observed in the region: the terrestrial one is dominated by evergreen forest (80% area of the total land area is under moderately dense evergreen forest). At low altitude mixed evergreen forest is dominated by *Artocarpus gomeziana, Terminalia cattapa* and *T. bialata*. *Imperata cylindrica, Saccharum spontaneum, Heteropogon contortus* are few species observed in the upland grasslands. A broad band of the coconut (10.48 %) surrounds all shores forming the next dominant landuse class. In the present study however the interface mangroves has been found to occupy only 0.6 % of the total area .

Table 4: Species distribution in different habits

Habit	*Total number of species encountered*
Tree	32
Shrubs	11
Herbs	20
Orchids	7
Climber	49

Table 5: Distribution of major vegetation cover / land use classes in Car Nicobar

Vegetation types	*Area (sq km)*	*% Area*
Forest area	102.45	82.59
Mangrove	0.74	0.59
Grassland	1.93	1.55
Coconut	13	10.48
Settlement	5.92	4.78

The ecological formations is totally dependent on soil properties. The soil analysis (sample collected from the forest adjoining Perka village, Car Nicobar) revealed high content of sand and clay hindering the growth of agricultural crops The soil is poor in organic and carbon content, which in turn do not support rich micro flora, required to enrich soil fertility (Table 6). However, the inorganic content of the soil is moderately good, but owing to the imbalance between the two (organic and inorganic) does not satisfy the nutrient requirements for crop growth. The sandy soil with high percentage of clay however is appropriate for the growth of coconuts.

Table 6: Soil properties in Car Nicobar

Properties	*Value*
% Calcium and Magnesium	13.6
% Magnesium	5.0
% Sodium	17. 0
% Clay	30.8
% Sand	25.2
pH	6.43
Electronic conductivity	0.6
% Organic matter	0.94
% Organic carbon	0.55

As observed agricultural is not practiced by the Nicobaris and they depend on forest and sea resources for survival. The basic requirement of food and vegetables is fulfilled through weekly ship-trips.

DISCUSSION

The landscape pattern in Car Nicobar Island was found to be quite sustainable. The nearby forest fulfills cane (*Calamus* sp) and Bamboo (*Bambusa* sp) requirement. Coconut (*Cocos nucifera*) known as '*Octa*' in their language forms an important component in daily life without which life cannot be visualized. It is valued socially and economically as a keystone resource species of the tribal community. Coconut oil extracted using indigenous methods is used for self-consumption and trade. Areca nut also has prominent importance as edible nut, and is used as a masticator (Dagar, 1999). It can possibly be quoted that the coconut plantation and other plant species in vicinity of *Nicobari* settlements have both subsistence and commercial functions. Kloss (1903) has also enlisted articles like rice, sugar, iron, matches,

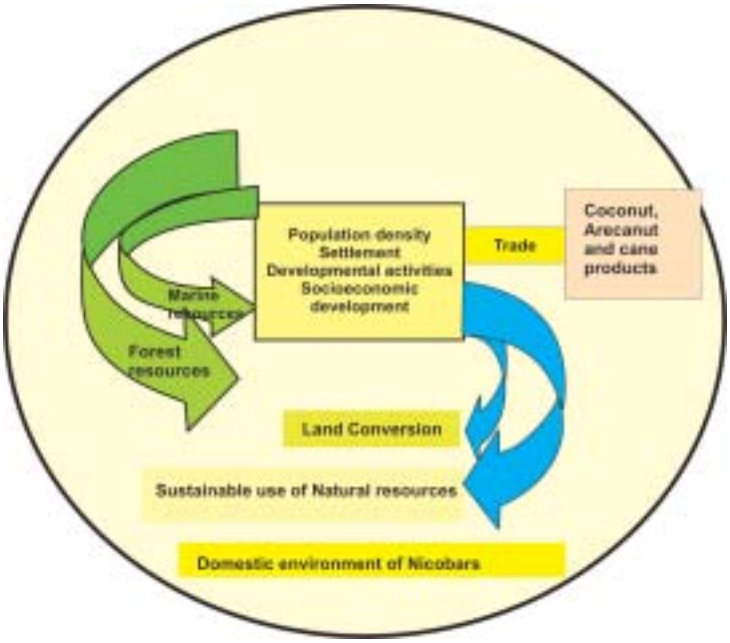

Fig. 4. Depicting the eco-friendly relationship of Nicobarse with the surrounding environment

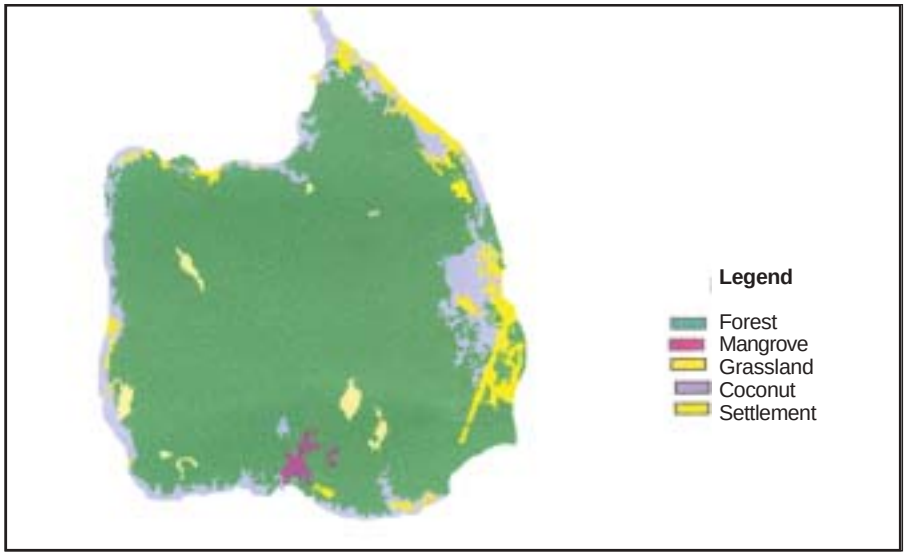

Fig. 5. Distribution of major vegetation cover / land use classes in Car Nicobar

red cotton, old clothes, oils, silver that were in great demand among the *Nicobarese* and that they exchanged them for coconuts, ambergris, areca nuts, bananas and other forest foods from Burmese and Arab traders. The subsistence economy of this hunting-gathering community is closely related to the ecology and they have been continuously moving toward path of social evolution keeping concordance with nature. They mainly survive on hunting, fishing,

domestication of pigs and slights attempts of horticulture.

Out of the the total six aboriginal tribes *(Jarawas, Sentinels , Great Andamanese, Onges, Shompens and Nicobares*e) of the Bay Islands, *Nicobarese* people have developed with time, got educated and simultaneously conserved their inherited wisdom and keeping their indigenous knowledge alive. Another point of interest that gathered our attention was the protection provided by villagers to the forest adjoining their area.

The study generates an outlook into role of the indigenous people in maintaining the region's biodiversity. The *Nicobari* tribes dispersed throughout the Nicobar Islands are ecologically savvy and consummate land-use planners, as they have been utilizing hundreds of wild plant species for food and medicinal purposes. These people designate different categories of forest around their villages, declare some off limits for orchards raising and wood collection. Further studies conducted in this respect (resource management) would give an insight and awareness for maintaining the treasure. The willingness of the *Nicobaris* has enabled them to acquire knowledge with time and has made them acquainted with the existing scenario.

Biodiversity has evolved with human culture so knowledge of indigenous tribe and resource use pattern has to be conserved before it is irretrievably lost. Further, studies on traditional methods of resource management provide an clear or deep perception into techniques for sustainable resource management. Generation of a compre-hensive database on biodiversity of tropical regions will serve useful in a long way. Land use and vegetation maps will serve as basic input for assessing the valuable biological resources of the region. Resource development based on scientific guidelines, multidisciplinary research and inventory can be utilized to assess the potential of knowledge in these core pockets.

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