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Short Communication

WEED PLANT (*PROSOPIS JULIFLOLRA*) THREATS TO THE BIODIVERSITY OF PIROTAN ISLAND - GULF OF KACHCHH MARINE NATIONAL PARK, INDIA

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ABSTRACT: The Gulf of Kachchh, India's first Marine National Park preserves a diverse marine flora and fauna. During a survey, a forest weed plant, *Prosopic juliflora* found invaded among the natural mangrove vegetations of the Pirotan Island. Density of the weed plant quantified is 2.40 plants/Km.^{2} across the Island. Probable impacts of this weed plant is discussed with the recommendation to remove the plant to conserve the island and its biodiversity.

Key words: Weed plant, Biodiversity, National park, India

INTRODUCTION

The Gulf of Kachchh is an inlet of the Arabian Sea along the north-west coast of India. During 1982, a core area of 110 km^2 of the Gulf was declared as India's first Marine National Park (MNP) under the provisions of the Wildlife (protection) Act, 1972 of India to preserve a diverse marine flora and fauna including endemic species. This MNP encompasses 42 islands, most of them surrounded by coral reefs and mangrove vegetations [1]. The mangroves consist mainly of species belonging to *Rhizophora*, *Avicennia* and *Ceriops*. Over the last many decades, a number of Invasive Species or weed plants have been introduced in to the reserve areas of India, without realizing the consequences knowingly or unknowingly [5]. Weeds are plants (not necessarily alien) that grow in sites where they are not wanted and which have detectable economic or environmental impact or both [2]. These invasive plants are a subset of naturalized plants that produce reproductive offspring, often in very large numbers and can expand their zone of occupancy in quick succession, spread over large tracts, and endanger the natural elements of flora and bring about abrupt changes in floristic composition. Such a weed plant threat was observed in the Pirotan Island of Gulf of Kachchh MNP during the field visits. Present communication describes the possible impact of this weed plant to the biodiversity of the Island and recommends effort to remove these plants.

MATERIALS AND METHODS

Pirotan Island (22°35'59.53"N; 69°57'19.86"E) is one of the best known islands in the Gulf. This Island has an area of 3 Km^2 consists of mangroves and low-tide beaches (Fig. 1). Estimation of weed plant population was done following 10X 10m quadrat (Weaver, 1918). The formula used for calculating the population size is

$$N = (A/a) \times n$$

Where: N= the estimated total pupulation size
A= the total study area
a= the area of one quadrat
n= the mean number of organisms/quadrat

RESULT

The weed plant among the natural vegetations of the Pirotan Island observed during the present study is *Prosopic juliflora*. It is a shrub or small thorn tree and is called as 'Gando baval' in Gujarati, 'Angaraji babul' in Hindi and 'Karu velamaram or Odai maram' in Tamil.

Number of individual *Prosopic* plant per 100 m^2 and the mean number of the plant per quadrat is given in the table 1. The result of the quantifying assessment of the Island's floral composition reveals the density of the plant is 2.40 plants/$Km.^2$ across the Island.

Table-1: Number of individual *Prosopic* plant per 100 m^2

Quadrat No.	Number of Individual *Prosopic* plant/**100m^2**	Mean number of organisms/quadrat
1	1	0.01
2	0	0
3	3	0.03
4	0	0
5	1	0.01
6	0	0
7	1	0.01
8	0	0
9	2	0.02
10	0	0

DISCUSSION

The invasion of natural communities, particularly conservation areas, by introduced plants constitutes one of the most serious threats to biodiversity and has been shown to profoundly alter ecosystem structure and function and aesthetic value of many habitats around the world [4]. Major Forest Invasive Species of Indian forests are *Lantana camara, Parthenium* sp., *Eupatorium glandulosum, Ulex europaeus, Acacia mearnsii, Mikania micrantha, M. micrantha, Prosopic juliflora* and *Euphorbia royleana.* In invasive weeds infested areas, species richness and density of native species severely affected [3]. It has become an invasive weed in several countries where it was introduced. *Prosopis* was introduced in India during the 1870s to meet the fuel wood demand [6]. This plant has been one of the major forest weed in India. It is hard and expensive to remove as the plant can regenerate from the roots. It also takes over pastoral lands and uses scarce water. Livestock which consume excessive amount of the seed pods are poisoned [7]. These plants pose a lot of management problem and adversely affect the productivity besides incurring heavy costs in preventive and damage control measures. It is generally very difficult to distinguish between native and exotic species, as they grow intermixed. It may destroy the mangroves and other native vegetations of the island by its faster reproductive capacity and adaptability. Mangroves are playing a key role in maintaining the landscape of the island by growing the periphery of the island and protect the shore from wave erosion, heavy storms and cyclones. Moreover this Island is inhabited by a number of water birds like Grey heron, large egret, water darter and wild animals like golden jackal (*Canis aureus*), jungle cat, rats and viper snake. If the situation persist, this weed plant extent its territory by replacing the mangrove plants. If mangroves destroy from the island, entire Island and its flora and fauna may be destroyed slowly. So it is the urgent need of the hour to protect island's flora and fauna by uprooting this plant. Same kind of conservation effort to remove the forest weed plants such as this *Prosopis* from the natural forest area has been under implementation in Tamil Nadu Reserve Forest areas through TBGP (Tamil Nadu Biodiversity Greening Project). Fortunately as of now, less density (2.40 plants/$Km.^2$) of plants only found in the Pirotan Island. So it is very easy, if the concerned authority would take necessary steps immediately to remove this weed plants.

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