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Short Communication

EXOTIC SPECIES AS A THREAT TO BIODIVERSITY: A LESSON FROM DIGHA COAST, WEST BENGAL

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Coastal environments, one of the highly valued ecosystems all over the globe, are threatened everywhere. And Digha, a dune-based coastal town in West Bengal important for tourism is no exception. This environment is under severe threats due many natural and man-made problems. Among these, coastal erosion, deforestation, pollution and rapid urbanization are destroying the town's natural landscape (Bhakat, 2001; 2002). As a result, the coastal vegetation including some isolated patches of mangroves is fast changing in this region. Moreover, several fast growing exotic species are being planted to afforest the area. Additionally, due to habitat disturbances, many exotic weeds which were sporadic earlier in the dune systems are colonizing the coast. This paper is preliminary attempt to study the exotic invasion of Digha coast by various alien plant species. The aim of the report is to document the exotics and their probable effects on the local environment including the coastal flora. The background of thin investigation is based on the premise that most alien/exotic species exhort harmful effect, through their growth-suppressing properties including chemical-mediated inhibitory actions (allelopathy), are therefore, a threat to local biodiversity (Cronk and Futter, 1995; Williamsons, 1996 and Bhakat and Maiti 2003).

The present study covering the different micro-habitats of Digha coast reveals thirteen (13) exotic invaders (Table 1). These alien plants have settled so well that they appear to be of natural component of the native coastal flora. The spread of these species has resulted in the suppression of much of the coastal plant populations particularly of *Pandanus* (Keya) and *Ipomoea biloba* (Chhagal Khuri). Among these invaders, *Eupatorium*, *Lantana*, *Mikania*, *Parthenium* and *Prosopis* seem very invasive and aggressive which can also be realized by the fact that they have virtually displaced some of the local flora with their monospecific stands. Therefore, there is an urgent need of such studies in other ecosystems too.

Table 1: Exotic plants of Digha coast

	Species	Habit	Place of Origin	Area(s) Invaded	Notes
1.	*Alternanthera philoxeroides*	H	South America	Aquatic and semi-aquatic; inter-dunal slacks	Seed set is rare; vigorous below-surface growth of shoots displaces biodiversity of water-edges; allelopathic in nature
2.	*Cassia occidentalis*	H	South America	Periphery of Dunes and inter-dural areas	Allelopathic in nature; forms monospecific stands; drives local flora and soil fauna
3.	*Croton bonplandaniaum*	H	South America	Periphery of Dunes and inter-dural areas	Allelopathic; a poor colonizer
4.	*Eichhornia crassipes*	H	South America	Aquatic and semi-aquatic; inter-dunal slacks	Vegetatively produced floating plants forming dense mats lead to displacement of aquatic vegetation.
5.	*Eupatorium odoratum*	S	North and South America	Inter-dunal areas; coast margins	Allelopathic; early maturity; high fecundity; grows aggressively and displaces dune flora.
6.	*Hyptis suaveolens*	S	South America	Inter-dunal areas; coast margins	Allelopathic and odorous plant; inhibits co-existing dune flora and drives soil fauna.
7.	*Ipomoea carnea*	S	Tropical America	Inter-dunal areas; along margins of slacks	Grows vigorously; drives out other coastal plants.
8.	*Lantana camara*	S	Central and South America	Inter-dunes; coast margin; atop disturbed dunes	Produce dense thickets; allelopathic property increases competitive ability over local flora.
9.	*Melaleuca leucadendron*	T	Australia	Road side; along inter-dunes	High allelopathic property; stem, leaf and bark aromatic; inhibits under-storey vegetation
10.	*Mikania scandens*	C	Tropical America	Road-side; disturbed dunes; gaps of fragmented vegetation	High fecundity; vigorous growth during monsoon; climbs atop small trees, shrubs and *Pandanus* plants, reducing their growths.
11.	*Parthenium hysterophorus*	H	South America	Road-side; disturbed dunes; inter-dunal summits	Very aggressive weed with high reproductive potential; produces allelopathic chemicals which suppress other species of the vicinity; hazard to public and environmental health.
12.	*Prosopis juliflora*	T	Medico	Dunes; coast margin	Allelopathic tree; multiplies easily; drives ground flora.
13.	*Synedrella nodiflora*	H	West Indies	Road-sides; inter-dunes; between *Pandanus* hedges	Shade-loving plant; foms monospecific stands; allelopathic; pushes neighbouring herbs to displacement.

H – Herb, S – Shrub, T – Tree, C – Climber

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