



# TIGER PAPER

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*Featuring*

# FOREST NEWS

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## TIGERPAPER



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**Cover:** Black-shouldered kite (*Elanus caeruleus*) feeding behavior  
**Photo:** Hussain Bux Bhaagat

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# STUDY ON THE STATUS AND VARIOUS USES OF INVASIVE ALIEN PLANT SPECIES IN AND AROUND SATCHARI NATIONAL PARK, SYLHET, BANGLADESH

by Sharif Ahmed Mukul, Mohammad Belal Uddin and Mashiur Rahman Tito

## Introduction

During past two decades Invasive Alien Species (IAS) have gained wider recognition by scientists for their severe ecological and economical impacts worldwide, and have been identified as one of the greatest threats to native ecosystems, habitats and species. In fact, such species are introduced for their rapid growth, efficient dispersal capabilities, large reproductive output and tolerance to a broad range of environmental condition (Campbell, 2005). Although it is has been widely believed that such characters of IAS frequently threaten the native biodiversity, still there are some contradictions in the definition and the use of the term IAS, and not all of these species are harmful (Wittenberg and Cock, 2001). Recently, Dr. Parvez Harris, a Bangladeshi scientist, observed that the powder obtained from the dried root of water hyacinth, one of the major IAS of Bangladesh and other countries of the tropics, can considerably reduce the arsenic contaminants from water and render it unobjectionable for human drinking. Bangladesh is thought to have more than 300 alien species, some with invasive natures which grow either wildly or are widely cultivated throughout the country (Hossain and Pasha, 2001). Among them, most of the herbs and shrubs were introduced during the British colonial period for their aesthetic value and most of the timber species were introduced in the country from the late eighties to early nineties to meet the country's rapidly growing demand for timber. A number of studies have been conducted on the ecological and economical impacts of IAS at both national and regional levels, but very few studies have focused on their use and role to local livelihoods. Our study

attempts to demonstrate the status and various uses of these so-called invasive alien plant species in and around Satchari National Park, located in the northeastern hilly regions of Bangladesh.

## The study area

Satchari National Park is one of the newest among the eighteen protected areas of Bangladesh. The area of the park is about 243 ha and is comprised of the Raghunandan Hills Reserve Forests (RF) within the Satchari Range. The park is situated nearly 130 km northeast of Dhaka and is located in Chunarughat Upazila (administrative unit) of Habigonj District.

The southern part of the park is bordered by India; other adjacent areas are covered by tea estates, rubber, agar plantations and paddy fields. Although this forest classically belongs to the evergreen type, the large-scale conversion of the indigenous forest cover to plantations has changed its forest type entity (Choudhury *et al.*, 2004). Now only 200 ha have natural forest; the rest is secondary-raised forest. It is also one of the last habitats of Hoolock gibbons (*Bunopithecus hoolock*) and the rare bird species Hooded Pitta (*Pitta sordida*), in the country.

The topography of the Satchari area is undulating with slopes and hillocks, ranging from 10 to 50 m in elevation. The climate is tropical in general. The total annual average rainfall is 4,162 mm. A number of small, sandy-bedded streams drain the forest during the rainy season. The maximum and minimum temperature of the area is 32°C and 12°C respectively. The relative humidity fluctuates between 74% to 90%.

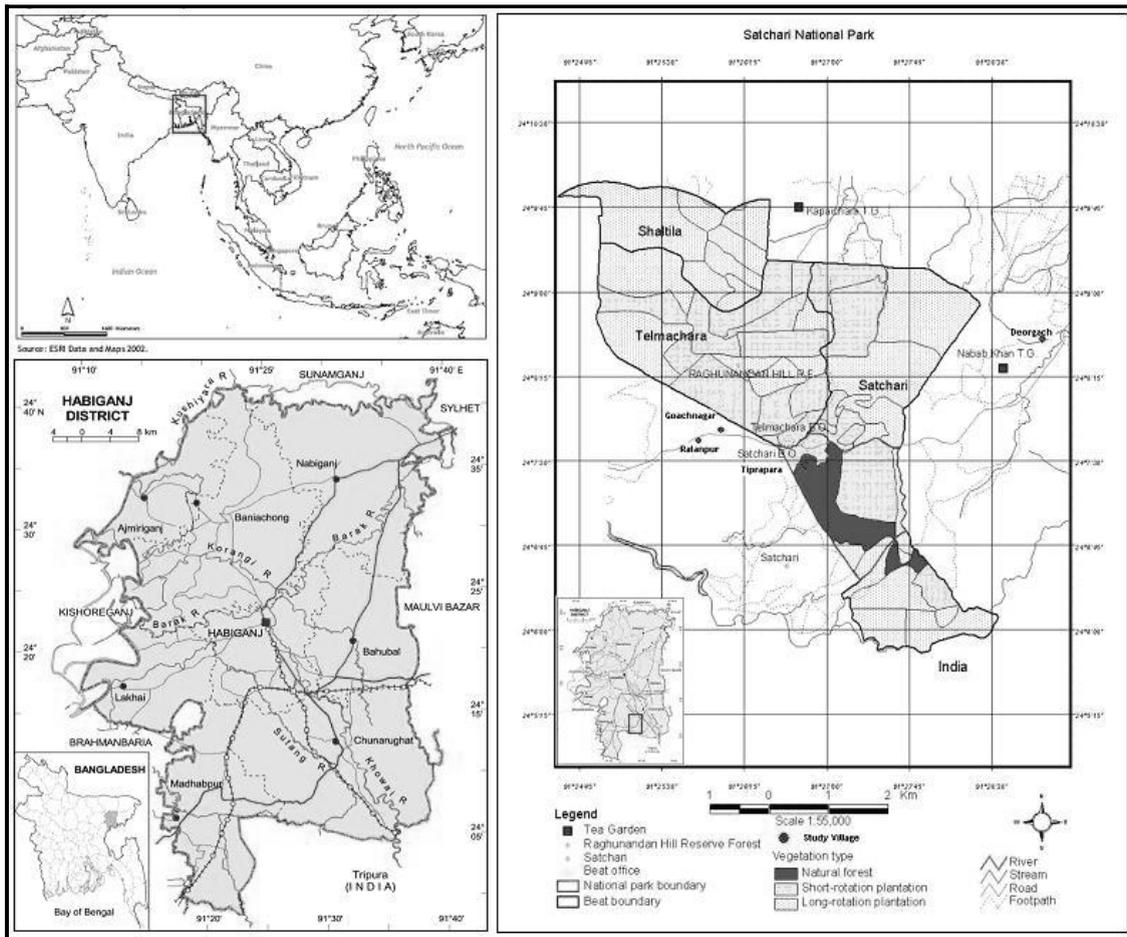


Figure 1. Location map of the study area

## Methodology

The data for this paper was collected during a course of intensive field visits undertaken to Satchari during February to June, 2006. During the course of the field visits the authors surveyed a number of sample plots in and around the national park boundary to identify the IAS plants available in the locality. Specimens and photographs of unfamiliar species were also collected. Some group discussions were also arranged with the local inhabitants to learn the various uses of the identified species in the Satchari area.

Several authors (e.g. Barua *et al.*, 2003; Islam *et al.*, 2003; and Hossain and Pasha, 2001) have studied various aspects of IAS in Bangladesh; to classify a plant species as an invasive alien species the authors have followed the available literature.

## Results and discussion

### *Invasive alien plant species of Satchari*

During our intensive field survey we recorded a total of 19 alien species belonging to 12 different families; 15 of them were found to have been reported as IAS from various literature. Species were mostly found to belong to the Family Fabaceae (26%), followed by the Family Asteraceae (11%), Meliaceae (11%) and Verbenaceae (11%). Most of the recorded species were trees (47%), followed by some herbs, shrubs and others. Most of the species were found growing in natural forest (i.e. in the national park and adjacent reserved forest), while rest were found along roadsides, in waste and fallow lands, tea gardens and agricultural fields.

### Peoples' use and perception of various IAPS

We have documented twelve diverse uses of the identified species in and around Satchari National Park. However, most of the species were found to be of multipurpose use. For example, water

hyacinth is considered as one of the 100 worst IAS of the world (Lowe *et al.*, 2000), but is used by the local people for 3 different purposes. The majority of identified species were found to be used for fuel, followed by timber production, medicinal or curative uses, fodder, and many others.



**Figure 1.** Some common IA plant species of Satchari (clockwise: lantana; oil palm; siam weed and water hyacinth)

Our study also revealed that the majority of the identified tree species in the locality were introduced to meet the increasing demand for timber. Most of the weeds, both aquatic and terrestrial, and shrubs are reported to have been in the locality for a long period of time. Although the people of the Satchari area not conversant with the term IAS, they prefer such species of timber for their fast-growing nature. However, during our survey they reported 5 species as being very harmful to the local ecosystem, another 6 species that were moderately harmful, and 4 species that were less or least harmful.

### Conclusions and recommendations

It is true that the so-called invasive alien species have some negative impacts on local ecosystems, but not all of them are harmful or useless. Besides, of the many alien species in the country, their uses and impact on local ecosystems have yet to be identified. Therefore, a national programme must be initiated to distinguish the harmful from the harmless species and to identify the use and impacts of the former and latter. The Government should be cautious in introducing alien species in plantation programmes and should establish clear

**Table 1. Various alien plant species (invasive) found in and around the national park area**

Botanical name	Common name	Local name	Suspected origin	Habit	Occurrence*	Level of invasion+	Uses
<i>Acacia auriculiformis</i>	Acacia	Akashmoni	Australia	Tree	***	+	Ti, Fu, N
<i>Acacia mangium</i>	Mangium	Mangium	Australia	Tree	**	+	Ti, Fu, N
<i>Albizia odoratissima</i>	Ceylon Rosewood	Siris	-	Tree	**	?	Ti, Fu, Sh
<i>Alternanthera philoxeroides</i>	Alligator weed	Helench	South America	Terrestrial /aquatic herb	**	++	Fm
<i>Eichhornia crassipes</i>	Water hyacinth	Kachuripana	South America	Aquatic weed	***	+++	Fod, Fe, Oth
<i>Elaeis guineensis</i>	African oil palm	Oil palm	North America	Palm	***	+++	Fa
<i>Eucalyptus camaldulensis</i>	Eucalyptus	Eucalyptus	Australia	Tree	**	++	Ti, Fu
<i>Chromolaena odorata</i>	Siam weed	Uzaru lata	North America	Shrub	***	+++	M
<i>Imperata cylindrica</i>	Cogon grass	Chan	North America	Perennial weed	***	+++	Th, Fod, Fu
<i>Ipomoea aquatica</i>	Morning glory	Kalmi	Tropical Africa	Herb	**	++	Fm, Fod
<i>Lantana camara</i>	Lantana	Lanthan	South to Central America	Shrub	***	++	M, O
<i>Leucaena leucocephala</i>	Horse tamarind	Ipil-ipil	Northern to Central America	Tree	*	+	Fod, Ti, Fu
<i>Mikania scandens</i>	Mile-a-minute weed	Assam lata	South-Central America	Climber	***	+++	M
<i>Mimosa pudica</i>	Giant mimosa	Lazzabati	Central and South America	Herb	***	++	M
<i>Pinus elliottii</i>	Pine	Jhau	Caribbean	Tree	*	+	Fu
<i>Salvinia molesta</i>	Salvinia	Topapana	Brazil	Aquatic weed	**	++	Fe
<i>Swietenia macrophylla</i>	Mahogany	Mahogani	Central and South America	Tree	***	?	Ti, Fu
<i>Swietenia mahagoni</i>	True mahogany	Mahogani	North America	Tree	***	?	Ti, Fu
<i>Tectona grandis</i>	Teak	Shegun	Myanmar	Tree	***	?	Ti, Fu

**Key notes:**

Occurrence\*: \* - rarely found, \*\* - fairly found, \*\*\* - commonly found.

Level of invasion+: based on peoples perceptions; + - low impact, ++ - moderate and +++ - high level of invasion.

Uses: Fod- fodder, Fu- fuel, Fm- food for men, Ti- timber, Fe- organic fertilizer, M- medicinal, N- soil amelioration through nitrogen fixation, Th- thatching O- ornamental, Sh- shade provider, Fa- food for animal, Oth- others.

and effective quarantine regulations for alien (invasive) species. In addition, a standard and comprehensible procedure for the introduction and monitoring of alien species is necessary.

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