Project Interim Report 1

Project Title

Mapping rare and endangered species distribution of a protected area in Bangladesh under future climate scenario: Implications for Conservation Planning

Project Site

Rema-Kalenga Wildlife Sanctuary, Bangladesh (GPS location: $24^{0}06'-24^{0}14'$ N & $91^{0}34'-91^{0}41'$ E)

Project Reference No: 15263-1

March, 2015

Project Leader

Jiban Chandra Deb

PhD Candidate

School of Geography, Planning and Environmental Management,

Room: 416E, Chamberlain building

The University of Queensland,

St Lucia, Brisbane, QLD 4072, Australia.

Project Title

Mapping rare and endangered species distribution of a protected area in Bangladesh under future climate scenario: Implications for Conservation Planning

Summary

Bangladesh is one of the top ten nations mostly vulnerable to climate change impacts in the short and long term. The total forest cover of Bangladesh is decreasing at an alarming rate and the biodiversity of the forest is under serious threat due to changing climate. Biologists have already found evidence that a wide variety of species are responding to the changing climate by altering their phenology and geographical distributions. Therefore, in addition to providing sustainable management of the ecosystems and habitats of the forests, effective conservation strategies are needed to mitigate the impacts of changing climate on vegetation. In order to assess the distributions of trees in the protected areas under future climate scenario, mapping tree species distribution is essential. Therefore, the aim of the project is to produce, critically assess and understand predictive distributive maps of rare and endangered tree species in a protected area of Bangladesh in order to set guidelines for conservation planning for the next 50 years.

Objectives

The specific objectives of the project are:

- I. Analysing tree diversity of the study area in order to find out the rare and endangered tree species distribution.
- II. Modelling the distribution of target species under future climate scenarios for conservation planning

Study site

The study site of this project is Rema-Kalenga Wildlife Sanctuary (24°6′ and 24°14′ N and 91°34′ and 91°41′E) which covers an area of about 1795.54 ha (Figure 1). The civil administration of this forest is Chunarughat Upazilla of Habiganj district, Bangladesh. The soils of the area vary from clay loam on level ground to sandy loam on hilly ground. The moist tropical climate of this area is generally characterized by a period of high precipitation from April to September and relatively dry period from November to March. The temperature of this forest varies on an average from 24.9°C to 33.2°C throughout the year. The average

monthly rainfall varies from 7.3 mm to 456.8 mm throughout the year. The humidity is high throughout the year, with monthly average humidity varying from 71.5% to 87.5% throughout the year.



Landsat Etm+ image from around 2000 Composite Bands: R(7) G(4) B(2) Rema Kalenga Wildlife Sanctuary



Figure 1: Map of Rema Kalenga Wildlife Sanctuary

The ongoing project activities

We have finished the fieldwork of the project in Bangladesh. We found 77 tree species belonging to 34 families in the Rema-Kalenga Wildlife Sanctuary. We have also collected the climate data from Bangladesh Meteorological Department. We are now identifying the rare and endangered tree species in order to model the distribution of those species under future climate scenarios.

Some Pictures of the fieldwork



Entrance gate

Plot measurement





GPS location reading

Height measurement





DBH measurement

Soil sample collection



Fruits of *Terminalia citrina* (rare species)



Fieldwork Team

The next step of the project

We are now analysing both the species occurrence and climate data for modelling species distribution. We will produce the predictive distribution maps of the rare and endangered tree species of the study site.