Strengthening Conservation Measures of Greater One-horned Rhino in Orang National Park, Assam, India

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The overall goal of this project is to provide GPS devise to all the forest camps of Orang NP and train the forest staff on handling handheld GPSs for monitoring of rhino and other wild animals.

This project also aims to generate a GIS based spatial database on rhino monitoring in Orang NP at regular interval and to generate a socioeconomic database of the fringe villages of Orang NP.

It intends to prepare land use map of the fringe villages across the park using satellite imagery and also to assess the changes in land use pattern during a course of 30 years using historical and current satellite imagery.

Project Background

Though the Greater One horned rhino (Rhinoceros unicornis) is considered as vulnerable by IUCN but still it is in high risk for its survival in Assam because of severe threats from poachers, wildlife traficing, fragmentation and degradation of its habitat in past couple of decades.

Assam is one of the last strongholds of the Indian rhino. Orang National Park, with an area of 78.8 sq. km. is an important rhino bearing area having 64 wild rhinos as estimated by Assam Forest Department in 2009. The rhino population in Orang National Park is fluctuating from 35 rhinos in the year 1972 to 97 rhinos in the year 1991 and which is again reduced to 64 rhinos in the 2009.

This fluctuation of rhino population in Orang National Park is mainly due to the severe intesity of poaching in comparison to other rhino bearing areas of Assam. From 1983 to 2009, 122 rhinos were poached in Orang National Park. During the period from 2006 to 2009 approximately 30 rhinos were poached in the park.

The major factors attributable to the increased poaching are lack of awareness among the local stakeholders about the need to conserve rhinos, unscientific monitoring system of rhino and lack of socio-economic database of the fringe villages of the park.

Objectives

This proposed project intends to achieve the following objectives.

- Provide GPS (Global Positioning System) device to the forest camps of Orang NP
- Training and capacity building of forest staff on handling GPS, GIS and rhino monitoring techniques.
- Mass awareness along the fringe villages of the park through postering.
- Identification of landuse pattern and land use changes of the fringe villages over a period of 30 years.
- Generate a socio-economic database of the fringe villages and spatial representation of collected information in the form of maps.

Creation of Village Database

Preparation of village maps in and around Orang National Park was one of the major objectives of the current project.

A GIS based database of villages at 10km buffer zone of Orang National Park is under process and 75% of the work is already completed. After completion of the map a socio-economic survey will be done in the villages to understand the socio-economic condition of the villagers.

The final village map with socio-economic attributes will be quite useful for the forest department for protection and management of rhino and its habitat in Orang National Park.

Land Use change assessment in the fringe villages of Orang National Park

Land use change assessment in the fringe villages of Orang National Park is a major objective of the current project.

Satellite imageries of 1987, 1999 and 2010 were used to estimate the land cover change at 10km buffer of Orang National Park. The land use status of the fringe areas of Orang National Park for the years 1987 and 1999 are completed and the 2010 is under process. For the years 1987 and 1999 Result shows that agricultural land in the fringe areas has increased from 42.78% to 46.08% during the period from 1987 to 1999. Interestingly the agriplantation and settlement area

of the fringe villages has decreased from 14.93% to 12.00% from 1987 to 1999. The causes of this decrease will be identified during the socio-economic data collection period.

Aquatic vegetation has also decreased from 43.72 km^2 in the year 1987 to 16.2 km^2 in the year 1999. Similarly forest areas have also decreased from 8.35 km^2 in the year 1987 to 5.56 km^2 in the year 1999. The marshy and swampy areas has also decreased from 30.08 km^2 to 11.03km^2 during the period of 1987 to 1999.

The sandy areas in and around the Orang National Park has increased from 109.37 km^2 to 154.52 km^2 during the period from 1987 to 1999. Tea gardens of the fringe villages have increased from 14.4 km^2 in the year 1987 to 17.07 km^2 in the year 1999.

Water body of the fringe villages of the park has decreased from 114.46 km^2 to 112.77km^2 during the period from 1987 to 1999. The land use change in the fringe villages is shown in the figure 2, 3 and table 2.

Poster Generation

A poster for mass awareness in the fringe villages of Orang National Park has been developed.

Mass awareness campaign will be done during the period from June to August, 2011.

Congratulations!

Principal Investigator Mr. Pranjit Kumar Sarma, Ph.D. has since advised us that he has been awarded Ph.D. degree by North Eastern Hill University, Shillong, Meghalaya, INDIA for his thesis "Habitat Suitability for Rhino (Rhinoceros unicornis) and its utilization pattern in Rajiv Gandhi Orang National Park, Assam, India."

Land use change in the fringe areas of Orang National Park

Class Name	1987	1999
Agriculture land	324.24	349.22
Agriplantation & Settlement	113.13	91.38
Aquatic Vegetation	43.72	16.2
Forest Area	8.35	5.56
Marshy & Swampy Area	30.08	11.03
Sandy Area	109.37	154.52
Tea Garden	14.4	17.07
Water Body	114.46	112.77
Total	757.75	757.75