intended with the research to come up with a sustainable development and conservation activities for elephants

ONE-HORNED RHINOCEROS CONSERVATION IN MANAS TIGER RESERVE, INDIA

Pranjal Bezbarua [1,2], Arundhati Bezbarua[2], Prasanna Boruah[3], Chandra Kanta Baruah[2]

[1]Grasshopper, Madhyam Khanda, Assam, India
[2]Botany Department Gauhati University, Assam, India
[3]Assam Remote Sensing Application Centre, Assam, India
pbezbarua@yahoo.co.in

The Indian one horned rhinoceros, having a global population of 2400 in the year 2005 has been facing increasing threat from organized poaching and habitat loss. In Assam the threat ranges from local elimination from different protected areas including Manas Tiger Reserve, stochastic risk in Kaziranga National Park and Pabitora Wildlife Sanctuary, increasing man-rhino conflict; continuing poaching in the all three rhino exiting areas having a population about 2000 animal. Therefore, forest department, Assam with support of all stakeholders designed a programme Indian Rhino Vision-2020 that focused overall increasing security and rhino translocation to increase the population from 2000 to 3000 by 2020 which will be distributed in six protected areas. Being a partner to this mega programme, we started a specific programme in Manas tiger reserve, a former rhino habitat selected for first translocation.

The programme aims to study the habitat suitability of the one horned rhinoceros in Manas tiger reserve to facilitate translocation, to rehabilitate ex-poachers turned conservation workers and forest dependent of the area and conservation education and capacity building in fringe villages of the reserve. Remote sensing technique and GIS was used to generate maps considering all ground information like former rhino habitat in grassland and forests communities of Manas, aquatic bodies, topography, different anthropogenic factors namely past and present poaching threats, encroachment, weed invasion, grazing pressure from domestic cattle, burning intensity; awareness level in fringe villages, departmental infrastructure etc. The information helped in preparation the final map on rhino habitat suitability indicating most suitable (122 sq. km.), suitable (240.80 sq. km.), less suitable (125.57 sq. km.) and unsuitable zone (31.29 sq. km.) in Manas tiger reserve. The most suitable area can be increased to 220 sq. km. by minimizing the poaching threat and law and order problem near zero level. Currently the suitable area without poaching threat is covering 201.25 sq km. followed by less suitable 69.38 sq. km. and unsuitable as 28.95 sq. km. Secondly, the rehabilitation programme for families of conservation volunteers (that included hardcore surrendered ex-poachers) and forest dependents were started with introduction of capacity building and in kind support on alternative livelihood options on agro and veterinary products.

The result was gradual behavior change in terms of growing interest and confidence building which helped in achieving 50-70 percent success amongst different groups in next phases and replication. We voluntarily helped local NGOs in their ecotourism and 1370 pound was raised to supply ration for 80 conservation volunteers patrolling the Manas tiger reserve during critical period. We also promoted school education for the children (vulnerable to become future poachers) of poor conservation volunteers and forest dependents. Increase of awareness and capacity building on rhino

conservation was initiated by preparing a conservation leaflet in local language which was used in all conservation meetings and distributed amongst all local stakeholders.

GIS ANALYSIS OF ASIAN ELEPHANT RANGING PATTERN IN MANAS NATIONAL PARK, INDIA SUGGESTED LANDSCAPE LEVEL CONSERVATION ACTION IN INDO-BHUTAN LANDSCAPE

Bhrigu Prasad Saikia[1], P.K.Saikia[2]

[1] Research Scholar, Centre for Animal Ecology and Wildlife Biology Lab., Department of Zoology, Gauhati University, Assam, India
[2] Associate Professor, Centre for Animal Ecology and Wildlife Biology Lab., Department of Zoology, Gauhati University, Assam, India
bhrigusaikia7@gmail.com

The endangered(IUCN) and schedule-I (WPA,1972) Asian elephant ranging pattern in the Manas National Park(MNP) , India is not known which ranges in the foot hills region of the eastern Himalaya between Bhutan and India also to the fringe villages in the southern boundary of MNP creating conflict with human. Hence this was found necessary to evaluate the ranging pattern in MNP and adjoining areas of the Indo-Bhutan landscape.

Data on Asian Elephant ranging pattern in Manas National Park were collected using Individual identification, recording GPS location of sighting during field work from 2006-2009. Home ranges estimation were done by 100% Minimum Convex Polygon method using GPS Locations of identified elephant sighting in GIS (Arc View) for creating home-range polygons.

Asian elephant seasonal home-ranges along with annual home range, annual core home range were evaluated. All the home range polygons of tracked elephant falls both side of India and Bhutan political boundary. Some of the tracked Asian elephants (both males and females) were seen maintain small or small to medium-sized home ranges throughout the year. Asian elephant home ranges in Manas National Park were oriented in east-west, and more compatible with the idea of habitat existence and availability of grassland in the Park and mineral licking sites inside the Bhutan. This was found that tracked elephant spent time regularly visiting the natural salt licking sites in the Bhutan. All the tracked elephant home ranges covers several movement tracks covering area both in India and Bhutan. But large breeding bulls frequently switched between the southern boundary of Manas National Park. There is distinct difference between the size of home range of Male and Female Asian elephant.

The home range estimation results clearly shows difference between the home range size of male and female and this difference is for the reason that breeding bulls ranges larger area in search of estrous female and takes more risk in entering fringe village area. Annual home range is lesser than exact habitat area in the Indo Bhutan landscape showing, they are not devoid of quality habitat. Again size of core home range area is very small. Most of the elephants were found to be residential inside MNP but visited mineral licking sites, water source, habitats regularly inside the Bhutan. Home range of Bulls falls into the fringe village areas of MNP as their prime target is to raid crops. However those elephants whose home range polygon falls more in Bhutan habitat compared to other were found to contribute less towards human elephant