Identification of carnivore species using genetic tools and assess human-wildlife coexistence in the Balpakram Landscape, Meghalaya-India.

Summary

This project aims to indentify carnivore species using genetic tools and understand people's perception on overall wildlife conservation focusing on carnivore community to suggest future management strategies in the Balpakram landscape. Carnivores are difficult to study because of their rarity and elusive behavior. A recent camera-trapping project has yielded photos of several carnivore species in the Balpakram Landscape. However, considering that camera-trapping is time and cost-intensive and does not yield additional ecological information, under the aegis of the project, it intends to validate a more cost-effective and non-invasive method in order to document the species and encourage wider application of this method. Hence, we aim to use faecal matter to identify the species through genetic analysis and investigate their diets. Coupled with people's perception using questionnaire survey, it will foster community-based carnivore conservation program in the landscape. This interim report updates some of the key activities progressed in last six months:

Key progress

- J More than 8+ forest camps set up to walk on trails.
- J 47 grids covering more than 188 sq km to collect scat from the landscape
- \downarrow 203+ units of scat collected.
- J 71+ households surveyed in 12 villages to understand community's perspective on wildlife.

Project site:

The proposed study area is called the Balpakram landscape and is located in the South Garo Hills district of the state of Meghalaya, North-east India. It is a heterogeneous landscape (25"080–25"230N; 90"370–90"580E) that comprises a mosaic of Protected Areas (PAs), Reserve Forests (RFs) and Community Forests (CFs) areas under slash-and-burn shifting cultivation (locally known as *jhum*), monoculture plantations of cashew (*Anacardium occidentale*), rubber (*Hevea brasiliensis*) and areca palm (*Areca catechu*), and human habitations. The Balpakram Landscape is approximately 600 km². PAs and RFs in the landscape occupy 276 km² and include the Balpakram National Park (220 km2), the Siju Wildlife Sanctuary (6 km²), and the Baghmara Reserve Forest (44 km²) and the Rewak Reserve Forest (6 km²). The mosaic of secondary growth of CFs and *Jhum* occupy roughly 100 km² and remaining are human settlement and orchard. Altitude ranges between 50 and 1,023 m asl. Both primary and secondary stands of Tropical Moist Evergreen Forest, Tropical Semi-evergreen Forest and Tropical Moist Deciduous Forest, as defined by Champion & Seth (1968), occur here, as do grasslands, shola and riparian forests and degraded land (Kumar & Rao 1985). The terrain is hilly with deep gorges and limestone formations (Wanniang & Thiek 2007).

Component wise progress:

More than 8 forest camps have been set up to do the sampling while rest of the trails were conducted in and around forest areas walking from base camp, Baghmara.

So far, I covered more than 47 grids covering 188+ sq km to undertake sign surveys and scat collection in last six months. Sampling has been completed in the western part of the landscape including forest trails in national park and community forests, central part and eastern portion of the landscape covering part of the national park, Siju wildlife sanctuary as well as community-owned forests. I already covered most parts of the Baghmara reserve forest, Balpakram national park, the community forests of Rongcheng, Gongrot and Chimitap villages including few *jhum* (slash and burn) patches.

A total of 203+ units of scat have been collected from the study site with an addition of a location of large cat species distribution to the existing camera trapping report.

Collection and reviewing of secondary data from forest department has been completed. The compilation data is in progress and it is expected to over in next a couple of months.

People's perception survey: under the aegis of the project, I covered more than 71+ households covering 12 villages to understand community's perspective carnivore conservation and their interaction (whatever way in positive or negative) in the landscape. The data collecting is expected to be completed by July 2016. Most of the households covered under this survey are reside on close periphery of forest patches, national park, and sanctuary or reserve forests.

Analysis: it will be initiated in May 2016.

During our field survey, we have come across some of the key issues -

- ♀ Rampant logging and loping trees inside the national park.
- ℽ Numerous human induced forest fire incidents reported.
- ℽ Instances of hunting of prey species of carnivore are reported.
- ♀ Use of dynamite or other associate chemical for fishing in streams, wari (pools), etc.
- ♀ Increased grazing pressure in national park and other forests of the landscape.

Annexure# 1: Method used-

Sign Survey in each grid, preexisting trails and stream areas will be walked to get direct or indirect evidences of animal presence in the study area. Signs such as pugmark, scrape, track, scent stations, scat/droppings were recorded. Other parameters such as terrain type, slope, elevation, vegetation type, habitat type, distance to nearest village, road, water source and sign of cattles were also recorded for the locations.

Scat Collection: Scats will be collected opportunistically as well as systematically while walking in the animal trails. GPS location, date of collection and physical feature and the morphometry of the faecal matter is taken on site. The shape, size, diameter, length, colour and content of the samples will be determined using the standard guides and past studies and supplementary evidences in the form of tracks, scrapes, size.

Human Carnivore interaction: In order to assess the awareness of local people regarding the carnivore diversity of the area and to compare it with camera trap results local interviews and informal discussions will be carried out. Following activities are being carried out:

- Reviewing human carnivore conflict cases available with the forest department, BNP division.
- Interviews and questionnaire surveys using pre-designed datasheets with the villagers in combination to the preliminary reports on carnivore sightings in villages.

Annexure# 2: few photographs on project activities-

FIELD WORKS ARE IN PROGRESS TO UNDERTAKE SIGN SURVEY AND SCAT COLLECTIONS-



SURVEY TO UNDERSTAND COMMUNITY PERCEPTION ON WILDLIFE CONSERVATION-



FEW ISSUES OBSERVED-



forest fire

Grazing









