Project Update: June 2023

Our project accounts for accomplishment of five milestones that addresses education, research and training needs in creation of long-term strategic directions for natural resources and measurable conservation results. In this quarter, we are able to initiate three key activities which are reported in detail hereafter.

ACTIVITY ONE: Capacity building of field assistants

The project is a range level assessment of social and ecology featuring the conservation of endangered primate Gee golden langur in mountainous landscape. Assistance from the citizen scientist particularly the field foresters and literate farmers is must to increase the area coverage and gather all season data at same time of the year. Research capacity building is a continuous process. In this quarter, 20 field foresters were trained in how to gather biophysical, ecological and social data. As an inter-observer reliability test, together, we collected the data for a week, so that everyone records the same.

Figure 1. Field foresters (eastern part) of the project sites attended 3-day workshop and 10 days field work in their respective range office.

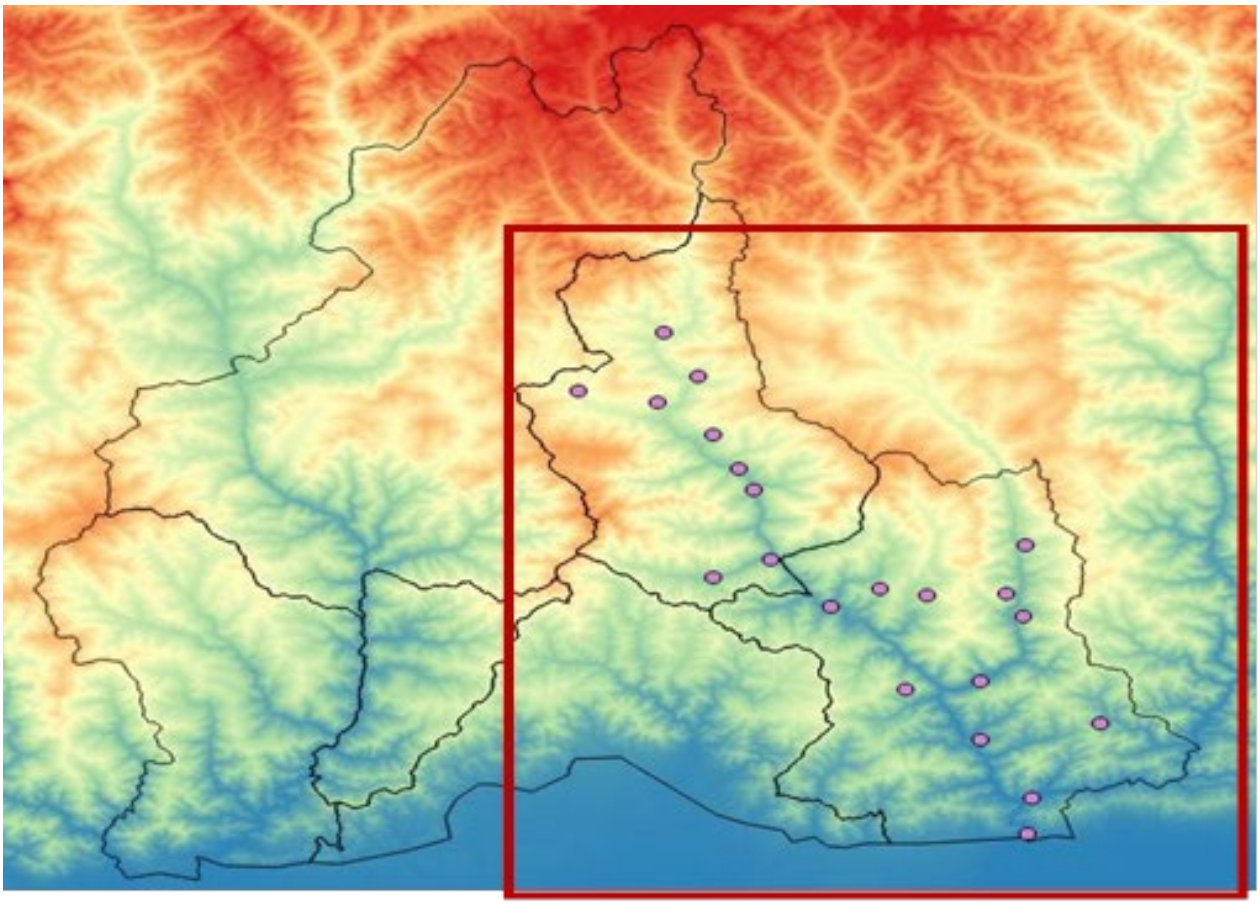

Figure 2. Map illustrating the location of field offices.

Table 1. Number of participants from each division and range/beat offices.

Division	**Range/Beat Office**	**No. Of participants**
Zhemgang	Buli	1
Zhemgang	Shingkhar	1
Zhemgang	Khomshar	1
Zhemgang	Digala	1
Zhemgang	Tingtigbi	1
Zhemgang	Gozhing	1
Zhemgang	Bjoka	1
Zhemgang	Pangbang	1
Zhemgang	Tali	1
Royal Manas National Park	Gomphu	1
Royal Manas National Park	Tingtigbi	1
Royal Manas National Park	Manas	1
Royal Manas National Park	Phangkhar	1
Jigme Singye Wangchuk National Park	Langthel	1

Jigme Singye Wangchuk National Park	Nabji	1
Jigme Singye Wangchuk National Park	Tingtigbi	1
Jigme Singye Wangchuk National Park	Chendebji	1
Bumthang	Langthel	1
Bumthang	Drakteng	1
Bumthang	Nubi	1

ACTVITY TWO: Gather biophysical, ecological and social data.
For modelling, GPS location with other environmental and social attributes is vital to run the model that would infer the human-golden langur spatial and temporal relationship. Six major variables are selected to measure the socio-ecology of Gee golden langur as follows:

Table 2. Environmental and social variables selected for the measurement.

Measurements	**Quantity**	**Supplementary Information**
Langurs eco ethology	300+ GPS locations	Group structure and composition
Socioecology model	100+ GPS locations	Sleep sites, dietary ecology and threats
Human-primates' interactions	200+ respondent interview	Livelihood activities inside and outside primate habitats
Langur geophagy	30+ minerals site located	Soil sample to understand the nutrient content is collected
Langur phylogeny	31 fecal sample collected	GPS location, habitat types and age of the fecal
Natural History	50 photos of different individual	Habitat types, species and association with other species

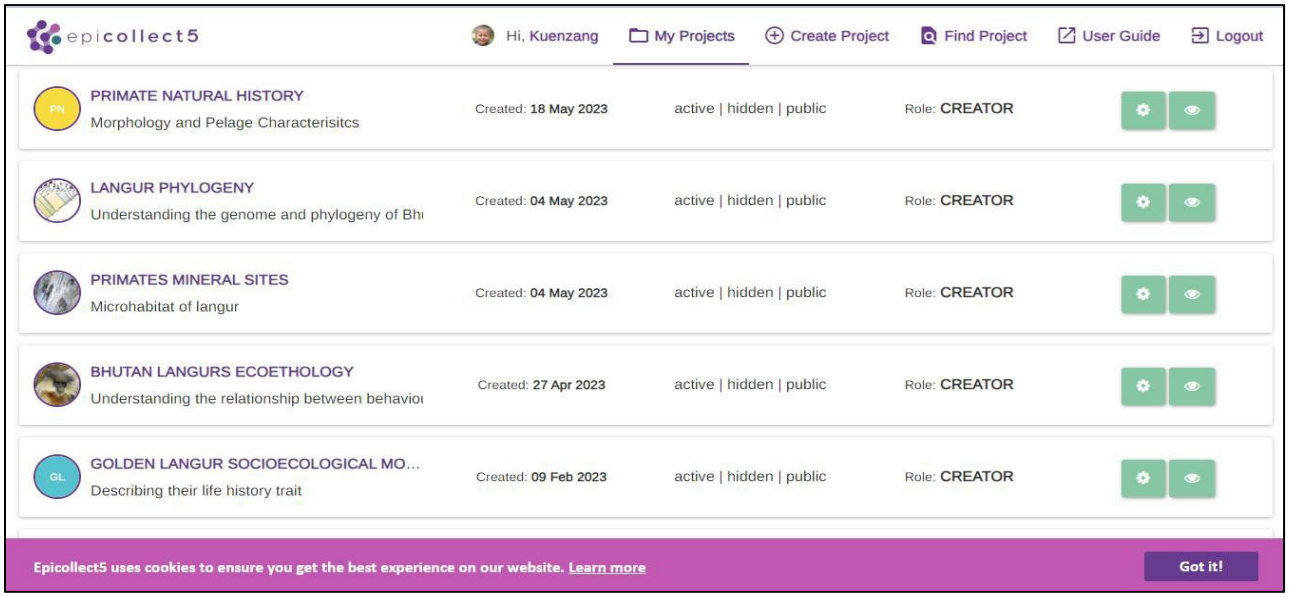

Figure 3. The projects (data collection form) created using online gathering free apps-epicollect5. This is part of the citizen science approach.

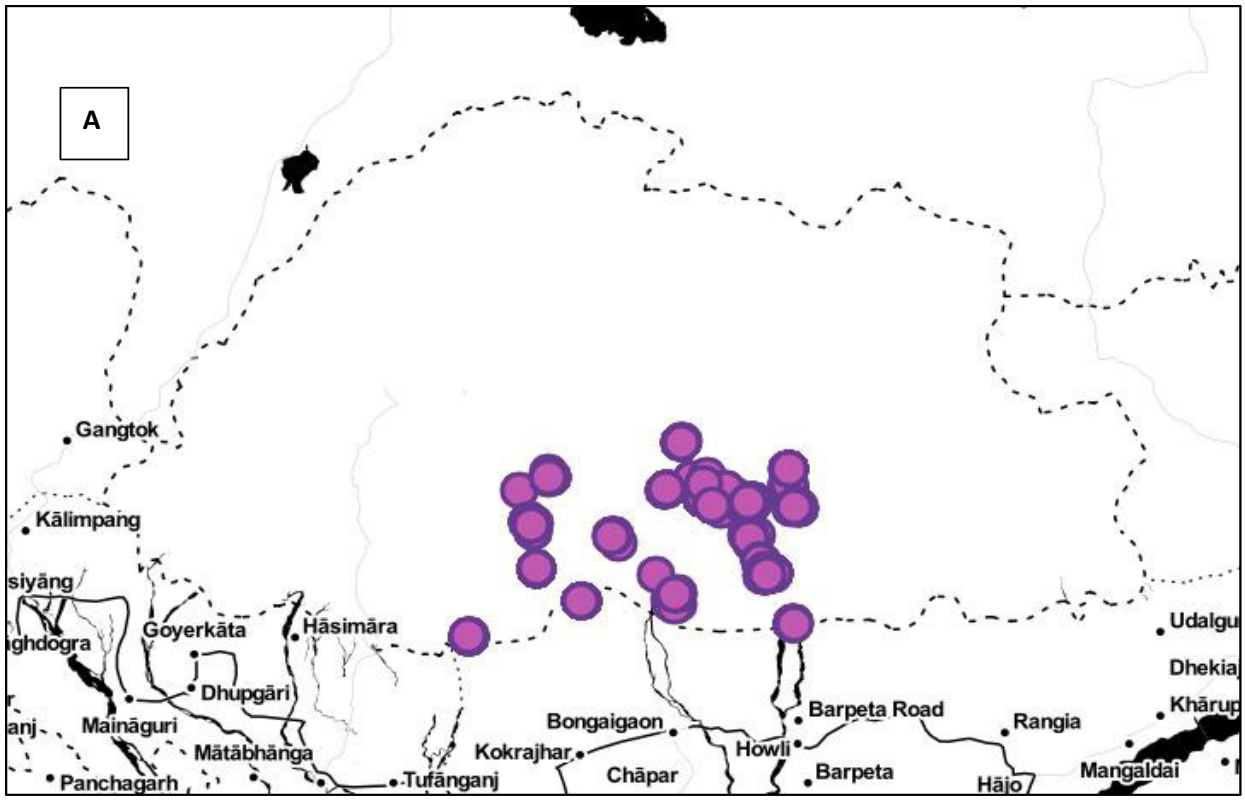

Figure 4. GPS locations of the langurs and its ecoethology(A); Collecting soil samples from mineral sites (B) and demonstrating field staff on how to collect fecal sample (C).

ACTIVITY THREE: Promotion of citizen science in rural areas through teachers

As teachers uphold the connection between education and daily life, further learning for one teacher is equivalent to training hundreds of students from the perspective of knowledge reach, 20 teachers (eight females and 12 males) from Trongsa, Zhemgang, Sarpang, Dagana, Tsirang and Wangduephrodrang districts were trained on how to apply geospatial technology as a tool to deliver geography and environmental science subject in the schools. This activity is critical approach to develop the capacity of citizen scientists and ensure the life-long learning opportunities for young minds in rural areas; instills the map cartography and data and image visualisation skills to facilitate easy understanding of lesson related to geography, environment and biodiversity.

Figure 5. Teacher participants from the project site. Participants will assist the project in promoting conservation conscience in schools through delivery of lessons using Geo-spatial technology.