Project Update: April 2015
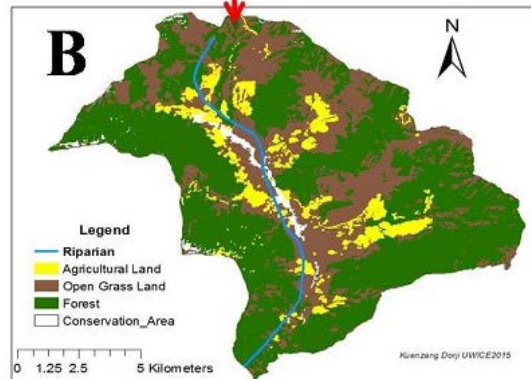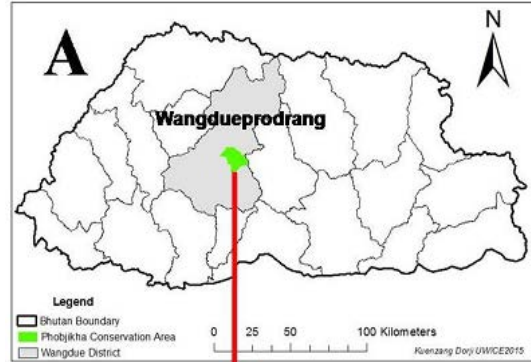
The project to assess the species diversity and prepare checklist of small mammals (focus on terrestrial small mammals) in high altitude wetland of Phobjikha, Wangdiprodrang was commenced from February 1, 2015 to March 31, 2015. Phobjikha Conservation Area is defined by seven land use types (forest, agriculture, shrubs, marsh, meadow, and water bodies. However, for this research, habitat were classified into four major habitat types (forest, agricultural land, open grass land and riparian). Sixteen transect lines of 300 metres were held with 80 Sherman traps (20 traps in each transects) baited with mixture of peanut butter, oat, apple and puffed rice. Sherman traps were used to capture mice, squirrels, mouse, and rat; for shrews, pit fall traps at an interval of 60 meters were deployed. The traps were baited with flour dough mixed with canned fish. Slices carrot were also provided to increase moisture content and reduce mortality.

A. Wangdiprodrang District and Phobjikha Conservation Area. B. Four Habitat Types (Forest, agricultural land, riparian and open grassland).

C. Rattus rattus captured in Agricultural land and riparian.

To avoid high immigration and sampled close population, trapping exercise were conducted within 60 days and for three consecutive nights in each transect. The traps were checked twice daily (morning before dawn and afternoon before dusk) to document both diurnal and nocturnal species of small mammals. The traps were re-baited for next trap night. All capture individual were identified to species, sex, weighed with Pesola scale (300g). Morphometric measurements (tail length, body length, ear length and toe length) of each individual were recorded. Individuals were marked with marker pen or ear punch/tail nips and release at their point of capture after processing.

Key environmental variables like aspect, slope, microhabitat (shrubs, piled stone, down log and grasses) were recorded. Ground cover of each trapping site was visually quantified to assess the correlation between cover percent and distribution
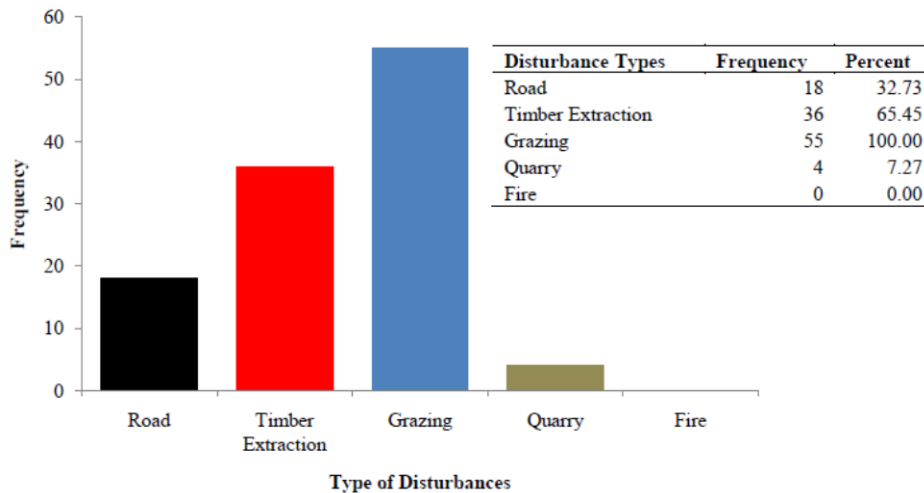
and abundance of small mammals. The trees were enumerated by laying 10 m X 10m plot and undergrowth and ground cover by laying 1m x 1m plot.

Small mammals across the globe were threatened by both anthropogenic and natural disturbances. To access the disturbance faced by the small mammals in Phobjikha, the human activity like grazing, timber extraction, road and fire were recorded. In addition, the degree of disturbance (low, medium and high) was also assessed.

Results

A total of 80 individuals of small mammals were captured from 16 transects in 960 trap nights. Four species that includes Pigmmy Shrew (*Sorex minutus*), Sikkim Vole (*Macrotus sikimensis*), Himalayan White Bellied Rat (*Niviventer niviventer*), and Common House Rat (*Rattus rattus*) were recorded. Diversity varied with habitat type, being highest in the agriculture field and lowest in the open grass. However, the forest habitat is high in term of species richness. The conifer species *Pinus walliachina, Tsuga dumosa, Abies densa, Larix griffithiana* are dominated species in forest habitat. The understory is made by species like *Rhododendron spp, Cotanester spp*, *Yushania macrophylla*. Leaf litter, Mosses and fern dominated the ground cover.

The survival of small mammals both in forest and open grassland were threatened by free grazing. Timber extraction, leaf litter, fencing poles and firewood collection from the forest have further threatened their survival.

Disturbance Types	Frequency	Percent
Road	18	32.73
Timber Extraction	36	65.45
Grazing	55	100.00
Quarry	4	7.27
Fire	0	0.00

Training of Research Assistants

With the aim to expedite the field data collection for winter month, 25 trainee rangers of College of Natural Resources were trained on survey protocol, census techniques and skills on

animal handling and safety issues- prevention of virus like Hantavirus. The training was conducted to make a group of young forest rangers a Trainer of Trainee (ToT) to share their experience and knowledge to a larger audience and inculcate interest in small mammals conservation work.

A. Morphometric measurement of captured animal by trainees.

Instructor briefing trainees on how and where to set the traps.

A week long training has imparted general wildlife concepts, survey techniques, animal identification and handling, data collection, DNA sample collection, application of spatial information to study small mammals, use of field equipment and instruments, data organization, simple data analysis and report writing. The course content was delivered through two learning approaches: practical and theory session. Of 7 days, 5 days are completely allotted for practical purpose after two days of theoretical session in class room and GIS lab.

ANNEXURES

Top Left: A. *Sorex minutus.* **Top Right:** B. *Niviventer.* **Bottom:** C. *Macrotus sikimensis*

Left: Trapping setting in snow. **Right:** Agricultural Land

Left: Open Grassland. **Right:** Fir and Juniper Forest

Trainee of College of Natural Resources who were trained as Research Assistant for Small Mammals Survey

Riparian