Project Update: April 2019

We continued with field data collection for the second month of the wet season (April 2019) as planned. During the field data, collection giraffe groups were observed opportunistically from dawn to dusk and forage data were recorded for 2 hours in each group using instantaneous scan sampling as described in the project proposal. Vegetation sampling was conducted immediately along the animal routes after completing behavioral forage observations.

Activities undertaken during forage behavioural observations includes searching for giraffe groups which were then followed for 2 hours each to obtain foraging observations. Foraging activities of the giraffes were recorded using instantaneous scan sampling at 10-minute intervals. In every scan, we recorded giraffe group size, sex, age class, plant species being fed, plant part, human activities in the area, vegetation types (grasslands, woodlands, wooded grasslands, and bushlands) as well as retaining the GPS coordinates for every record.

On the other hand point, random sampling was made to get an inventory of woody plant species for the entire study area. I worked together with botanist during vegetation sampling where we identified and quantified all the woody plant species encountered in vegetation plots. During the assessment of vegetation sampling, I was also accompanied by a ranger/village game scout (for security), a driver and a local field assistant. While in the field, unidentified woody plant specimens were pressed in a plant press made up of a ventilated wooden frame. Specimens were folded in newspapers then tightened using elastic string to absorb moisture content while maintaining the morphological integrity of the woody plant specimens for easy identification. Un-identified plant specimen were assigned a collection number (symbol) and record in a field notebook. When required we collected two/three specimens of one species especially in areas where leaves were not fleshy.

Preliminary Results

Soon after leaving the field, a simple data summarisation was made to get preliminary results for our work. Our initial results showed variations in giraffe group size where the average group size of giraffes was 5.62. Habitat changes in the area partly influenced by human activities. Some of the human activities recorded in the study area include photographic tourism, livestock keeping, crop cultivation, management activities, lodging and camping (private/public). Giraffe demonstrated strong habitat selection where many groups were mostly found in habitat composed of open woodland and shrublands (Figure1). Giraffes avoided typical woodland habitat composed of a large number of trees and very few shrubs. Despite the efforts employed to search for the groups in typical woodlands, none of the giraffe groups were found in these areas. We also compared habitat selection by giraffes between D. cinerea dominated and non-*D. cinerea* areas. The number of giraffe groups observed in *Dichrostachys cine*rea dominated land were comparatively high than that of non-*D. cinerea* habitats (Figure2). We further investigated food selection of giraffes in the study area and the most five selected forage species were *Dichrostachys cinerea*; *Acacia tortilis*, *Acacia mellifera*, *Acacia drepanolobium*, and *Acacia kirkii*. Our study also found that human threats Influx

from pastoralists and cultivation interfered with the ecosystem balance in Tarangire Manyara ecosystem. Some parts of the ecosystem were subjected to multiple land uses competing against conservation activities. During our study, we have come across such unplanned human activities indicating that the Tarangire Manyara savanna landscape is partly under poor rangeland management practices. Some of the cultivated farms owned by local people were found within protected areas (Randilen WMA) (Figure3). Randilen WMA demonstrates equitable sharing of rangeland resources where the area apportioned saves as protection lands as well as acting as rescue areas for local pastoralists in the period of droughts (Figure4). However, the number of cattle entering protected areas is always not kept under check. Moreover, there is a great need for behavioural change by the local communities. Considering Randilen WWA which is divided into two part; yellow zone (where cattle are allowed to graze) and green zone (sensitive area and strictly prohibited for grazing). Unfortunately, some cattle headers do not recognise the boundary. They sometimes cross the yellow zone and utilise resources in the so-called prohibited zone (green zone). Further information on resource use and rangeland management will be presented in the future reports.

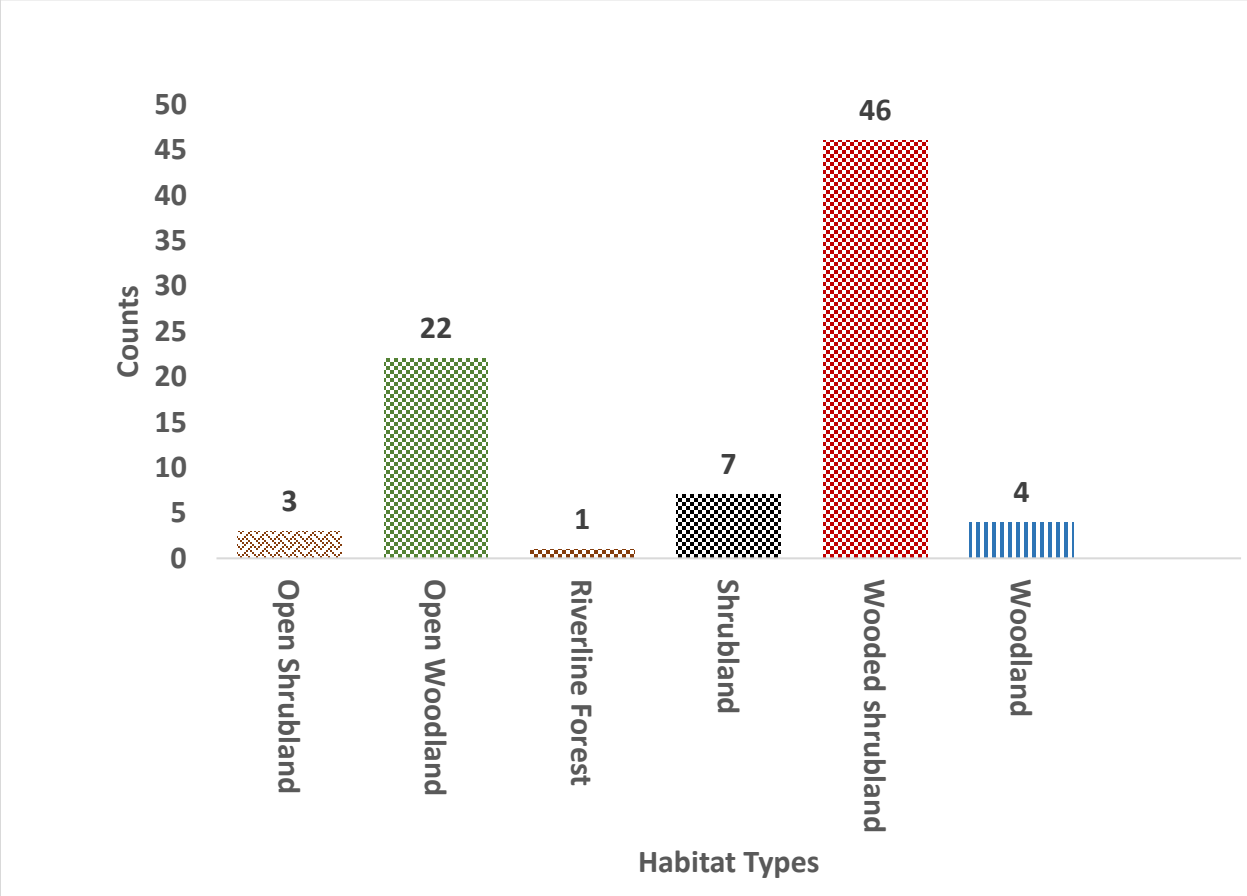

Figure1: Count of habitat type per vegetation transect

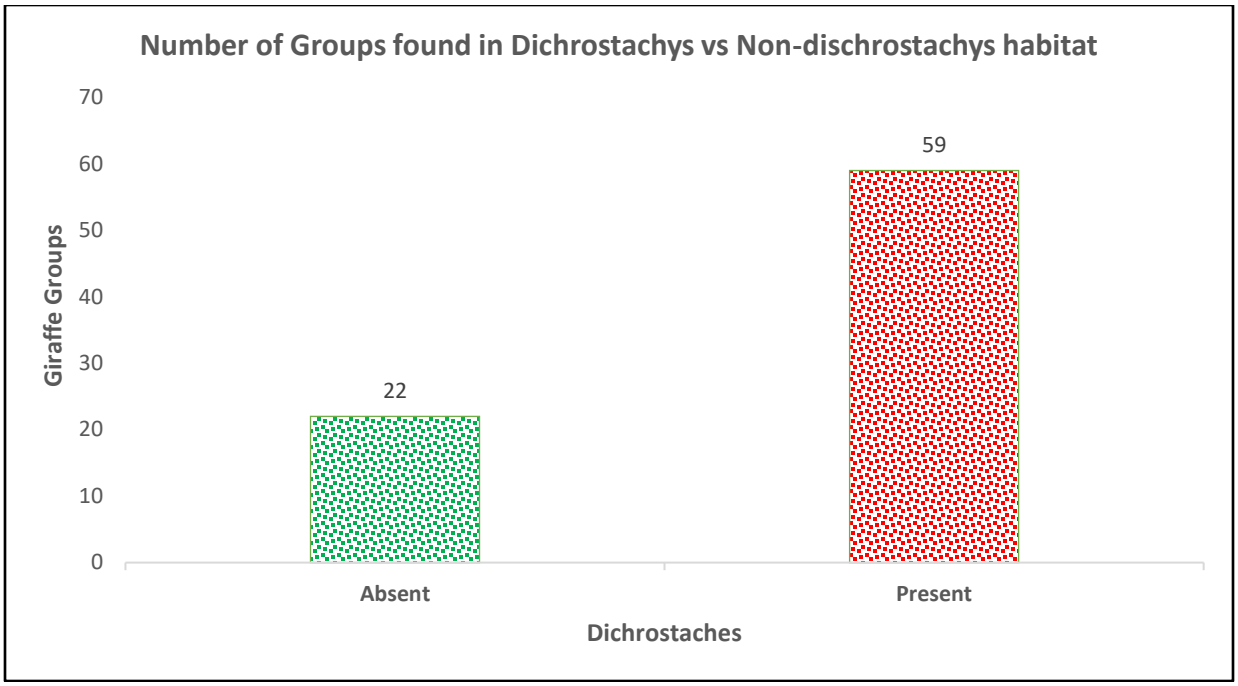

Figure2: Number of Giraffe groups found between Dichrostachys and Non- Dichrostachys dominated habitats.

Figure3: A group of Ostriches roaming in cultivated land within the protected area (Randilen WMA)

Figure4: Cattle herd grazing in the protected area during the drought period (Randilen WMA).

Figure5: Principal investigator, Matana Levi and three village game scouts for Manyara Ranch soon after getting out of the mud (the car starked in the muds)

Figure6: The principle investigator and field assistant (Erasto) taking an inventory of woody plant species in Tarangire National Park

Figure: Principle investigator (right), Botanist (mid) and my supervisor (Prof. Anna Treydte) (left) in field trip.

Figure: Livestock (sheep) grazing within protected area (Manyara Ranch)

Future Plan

Field data collection for the second phase; based on the planned project activities, in the second phase of field data collection, the same procedures will be repeated to obtain field data for the dry season in August/October.

Data analysis: The final data analysis will be made in October/November 2019 to be able interpret the overall study findings for presentations and publications.

Report Writing and Publication: The manuscript for the first paper is under construction and will be submitted in the near future. The final report of the study will be submitted in December 2019

Information dissemination and Conservation Education: So far, I have attended Rangeland Management Forum where I managed to meet with different stallholders including district land planners and managers and local community leaders from Arusha and Manyara Regions. I have also met in personal with managers of respective protected areas for the short briefing of our project. As per early plan, we will conduct seminars and meetings with stakeholders, in the meantime using social media campaign to communicate our research findings. Following the ending of field data collection we will provide conservation education to local community and managers and share with them the information regarding their area as prescribed in our research proposal.