

Project Update: October 2019

Forest Disturbance Survey – Second phase

Introduction

In this project activity we extended the range of the ecological habitat survey in order to gain a comprehensive overview of the habitat conditions. We targeted to explore further vegetation cover and habitat conditions particularly at the central and north-eastern zone of the coastal forest reserve. We also assessed the forest floor which is a critical ecological habitat for the endangered Sokoke bird. We recorded all information related to forest vegetation alterations, modifications, and rate of forest exploitation using standard forest survey methods.

Forest reserve vegetation cover

Prior to ground survey, we performed forest vegetation classification using remote sensing satellite imagery analysis for years 2008 and 2018 in order to assess overall forest reserve vegetation cover changes, non-forest cover, forest gaps as well as deforestation incidences during the last 10 years. We obtained satellite images from the United States Geological Survey (USGS) Earth Explorer satellite imagery archive. We selected Landsat-5-TM and Landsat-8-OLI for November 2008 and October 2018 respectively. These dry seasons were selected purposeful in order to reduce the effect of seasonality and cloud cover. Two land cover classes were developed, forest and non-forest. Forest class was defined as a continuous stand of trees with no evidence of farming, settlement or lager gaps. Everything else was defined as non-forest including but not limited to grassland, open land, agricultural fields and infrastructure. Overall, we found that 3749 ha (12.2%) of the reserve were deforested during the period of 10 years from 2008 to 2018 (Figure 1).

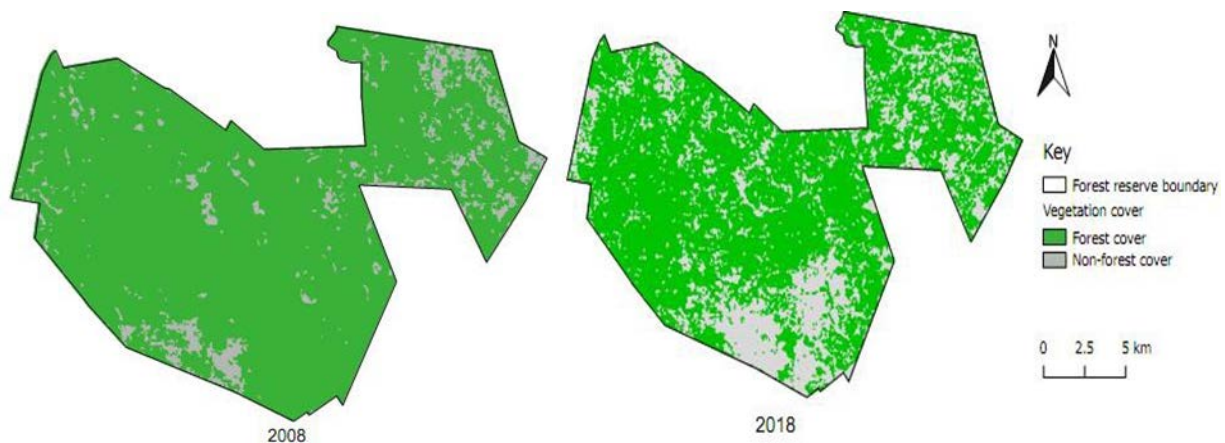


Figure 1: Forest vegetation cover maps for year 2008 and 2018

Ground vegetation survey

We extended forest vegetation survey further into the central and northern regions of the forest based on previous survey and satellite imagery analysis. This survey was done in order to gain comprehensive overview and understanding of the forest conditions, type and intensity of disturbances. We used methods similar to previous survey, where a total of nine tagged line transects were established 900 m from each other and sample plots of 50 x 30 m were laid at 400 m distance along tagged transects (Figure 2).

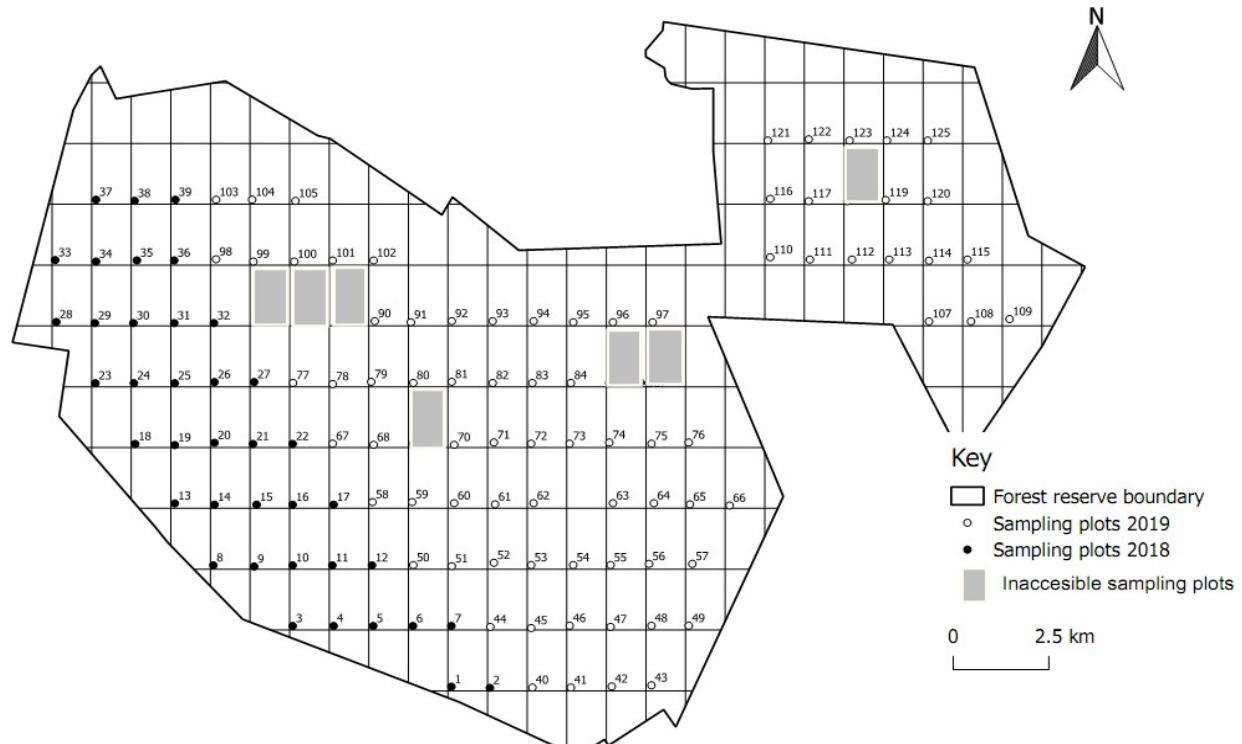


Figure 2: Map of Ruvu-coastal forest reserve indicating vegetation sampling plots during first round survey (2018) and second round survey in 2019.

During the second phase of forest survey which took place from June to September 2019, the survey team looked at a total of 78 vegetation sample plots of which seven were not accessible (Figure 2). During our survey we noted continual degradation of the forest reserve directed on a remaining intact forest caused mainly by human activities. We recorded a total of 357 disturbance incidents in total along all 13 transects. The most disturbed area being the southern site of the forest and north-east region. Similar to previous survey, tree cutting events were observed at highest frequency rate than all others. In 31 plots, we observed piles of chopped native trees and poles either preparing for charcoal burning or to be transported for commercial firewood (figure 3).



Figure 3: Bunches of harvested native trees in central and northern regions of Ruvu-south forest reserve



Figure 4: Project leader (left) and forest officers on the remnants of charcoal burning during forest survey



Figure 5: Burning charcoal kiln (left) and camping site (right) in the north eastern region of Ruvu-south coastal forest reserve.

While the forest reserve looks healthy and closed at the boundary and forest edge, we noted that most disturbance activities are directed inside the forest reserve. Interviewed village leaders reported that encroachers and raiders strategically invade inside the forest in order to avoid earlier detection. We recorded several remains of camping sites (Figure 5).

Overall, observations from current and previous survey concludes that Ruvu-south forest reserve is continuing to deteriorate at moderate rate. This is contributed by inadequate capacity to manage the forest reserve in terms of funds, personnel resources and equipment compared to big threat towards illegal harvesting pressure. Furthermore, its proximity (about 45 km) to Dar es Salaam, the largest commercial city in Tanzania, Dar es Salaam increases resources exploitation pressure such as charcoal burning, poles, timber, and fuel wood.

Brachystegia woodland and other forest vegetation cover which supports endemic and endangered species such Sokoke pipit (*Anthus sokokensis*), *Anthreptes neglectus*, *Circaetus fasciolatus*, ground thrush (*Zoothera guttata*) and the critically endangered species of spiny-throated reed frog are also degrading. From our observations. In order to ensure long term conservation of Ruvu south coastal forest, we recommend for purposeful and immediate forest restoration and rehabilitation program in order to re-instate ecological processes, functioning and biodiversity levels.

Way forward

The scheduled activity after forest survey is to conduct capacity building for village leaders. We have already conducted needs assessment and prepared learning materials. Capacity building for Natural Resources Committee members from four villages namely Boko, Mpiji, Soga and Kipangege is under way. Capacity building programme will be run until the end of November 2019 and the report will be provided.