

Project Update: April 2023

## 1.0 Mapping and Characterization of *Alalili* systems

About 33 villages were surveyed and 119 *Alalili* systems were identified across four land uses defined as game-controlled areas (GCA), wildlife management areas (WMA), Ngorongoro Conservation Area (NCA) and village lands. This study has identified two main types of *Alalili* enclosures in the Maasai pastoral communities of Arusha and Manyara regions named as private and communal systems. The two types of *Alalili* are spatially distributed in the study area featured with different land uses (Fig.1).

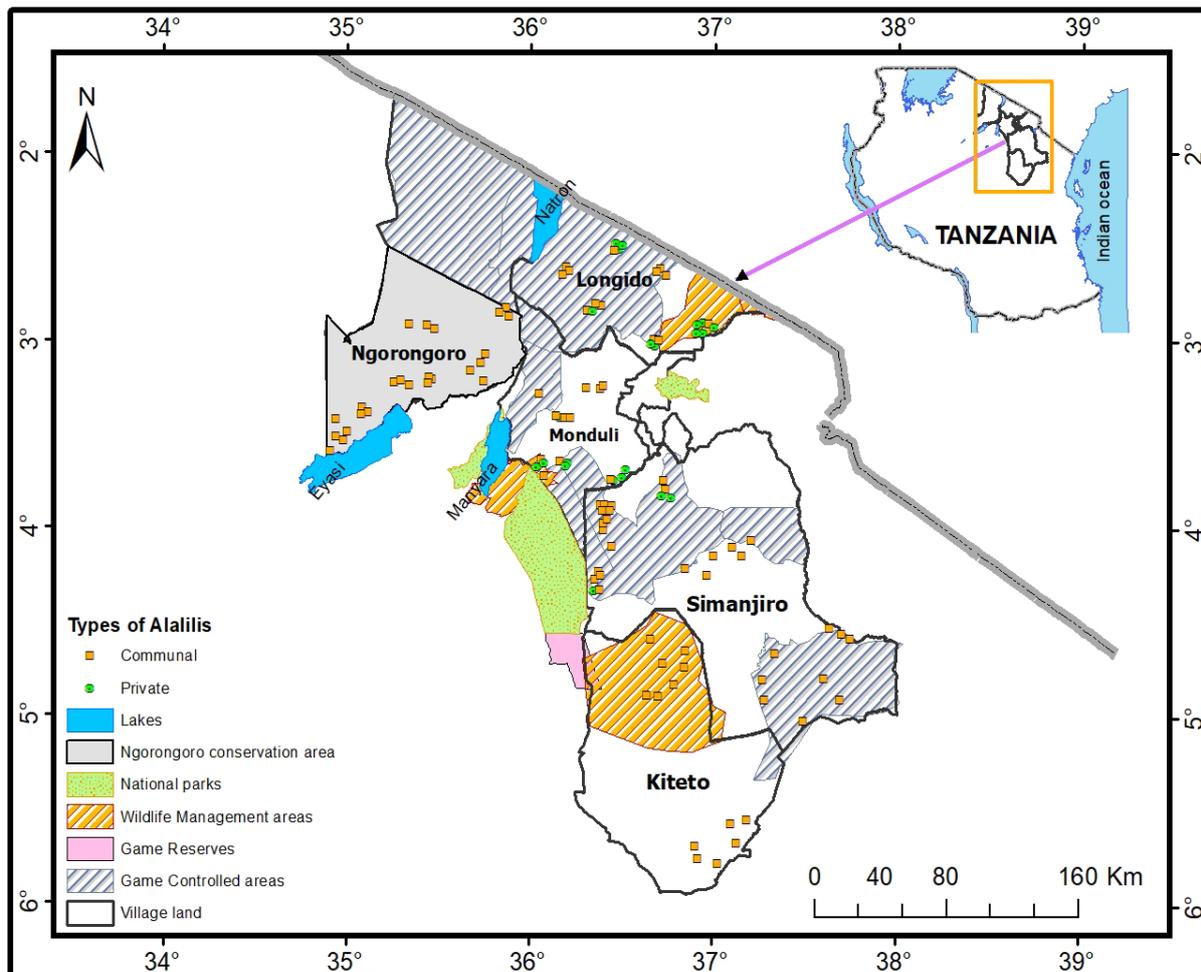


Figure 1: Distribution of *Alalili* systems across land uses. © Elkana Hezron (2023).

### 1.1 Communal *Alalili*

Communal *Alalili* enclosures are silvo-pastoral systems being owned and managed by a village or a village section for the purpose of providing fodder/forage to livestock during acute dry season featured with forage scarcity to livestock. Many of them are far from the settlement areas, usually out of the residential village land. They are found in the wilderness (either in high or low land), protected areas and are not fenced (bounded by a wall) (Fig. 2a), thus are utilized as shared grazing resources between livestock and wildlife (Fig. 2b).



**Figure 2:** (left) A communal Alalili (right) Wildlife and livestock grazing in communal Alalili. © Elkana Hezron (2022).

### 1.2 Private Alalili

Private *Alalili* enclosures are silvo-pastoral systems that are owned and managed by an individual family, household or a clan referred to as a *Boma* residing within a particular village. They are also not necessarily being owned by a household because some are privately owned by investors who aim at high producibility of livestock products and services (Fig. 3).



**Figure 3:** (left) A private Alalili confined with a fence (right) Field survey in a private Alalili. © Elkana Hezron (2022).

About 70% of *Alalili* systems face water scarcity being far from water ponds which are however temporary sources of water for livestock and the general community. Some few drilled wells and water ponds that also get drained in the acute dry season are distantly located from the *Alalili* systems (about 20 to 30 km walking distance). That being the case, herders tend to collect water with containers from these scarce resources and supply it to their livestock camped in the *Alalili* avoiding weakening of their herds due to long distance walking (Fig. 4).



**Figure 4:** (left) Temporary water ponds dug as water sources closer to Alalili systems (right) Herders gathered at a drilled well for water collection. © Elkana Hezron (2022).

## 2.0 Further analysis in progress

### 2.1 Fodder species composition

Fodder species were identified and counted with regard to three categories which are fodder trees, shrubs and herbaceous plants (forbs, herbs and grasses). The analyses are in final stages for report writing.



**Figure 5:** Identification of fodder species in Alalili systems @ Elkana Hezron (2022)

### 2.2 Spatial-temporal variation of Alalili systems

Size, elevation, age, soils and NDVI analyses are in progress to generate final results.

### 2.3 Assessing Ecological Values and Socio-Economic Significance of *Alalili* systems

Fodder potential to livestock and wildlife, peaceful co-existence and emerging conflicts were recorded (Figure 6). The analyses are being finalized for inclusion into a detailed report.



**Figure 6:** (left) Elephants found grazing in the Alalili (right) Attractive flowers for insect pollinator conservation in the Alalili. © Elkana Hezron (2022).

It has been realised that *Alalili* systems contributes to ecological functions by providing refuge to wildlife species and safer breeding sites for them to multiply outside the boundaries of protected area. It is regarded safer because, carnivores that can consume the new-borns and eggs are less dispersed into *Alalili* systems (Fig. 7).



**Figure 7:** Identified (left) Giraffe's breeding site in Alalili (right) Ostrich's breeding site in the Alalili. © Elkana Hezron (2022).

The socio-economic benefits of *Alalili* systems were identified and the conservation education was conducted in each district whereby beekeeping through VICOBA women groups were emphasized to reduce degradation of *Alalili* systems (Fig. 8)



**Figure 8:** (left) Alalili conservation training (right) Sample apiaries for beekeeping in the Alalili. © Elkana Hezron (2023)

Some illegal anthropogenic activities such as deforestation and charcoal burning for fuel wood were recorded and found to degrade *Alalili* systems while reducing fodder productivity in terms of quantities and qualities for grazing purposes (Fig. 9).



**Figure 8:** (left) Fuelwood harvesting in Alalili (right) Charcoal burning in the Alalili. © Elkana Hezron (2022).

### Remarks

The data collection process was extended beyond the timeframe with regard to dispersed *Alalili* systems across study area and measurement of the area coverage as per objective requirements (Fig 1). The analyses are progressively undertaken for final report generation.