

## Project Update: June 2018

**Brief description:** Maswa Game Reserve is an ecologically important area on the west side of the two major world heritage sites (Serengeti National Park and Ngorongoro Conservation Area) in Tanzania. The field observation study was conducted in Maswa Game Reserve between 13<sup>th</sup> March and 10<sup>th</sup> April 2018 that involved assessment of encroached sites, soil sample collection and setting of soil seed bank experiment as well as semi structured interview with ethnic groups in and around Maswa Game Reserve.

Maswa Game Reserve open areas/grasslands have been serious encroached mainly by *Acacia drepanolobium* and few sites by *Acacia seyals*. Nine encroached sites were visited and or identified during this study includ; Mbuga tatu, Sakasaka plains, Mpakani area, Gala plains, Simba kali, Zena, Leopard block, Wayne road/plain and Sununu. Outside Maswa Game Reserve encroachment of woody plant seems not to be problem by the local community, except for few livestock keepers who own hundreds of cattle. During this study we visited four villages surrounding Maswa Game Reserve, the villages include Sakasaka, Sapa, Ungulu (Nghungulu) and Irindwa.

**Identification of the encroaching species:** *Acacia drepanolobium* is the serious encroacher species in Maswa Game Reserve. The species was named in vernacular language by tribal groups i.e. Sukuma, Maasai and Wagogo found inside and outside Maswa Game Reserve as follows;

- I. Sukuma; Marula
- II. Maasai; Uluwai
- III. Wagogo; Mboribori

**Field survey/observation;** A total of 192 10 ×10 m plots, each including a smaller plot (1×1 m), were laid within 48 transects located in six sites in Maswa Game Reserve. Within each (10×10 m) plot trees were counted and about a 1 kg soil sample were collected for soil seed bank analysis. In the 1×1 m plots, herbaceous plants were identified and recorded. Further measures to add more plots are being considered at the time.

**Soil seed bank analysis;** Soil sample collected from surveyed sites were planted in small bags 10 cm high and 7 cm in diameter. The experiment is currently monitored by two field assistant at Maswa Game Reserve. A replication of the soil seed bank experiment has been made at Nelson Mandela Institution of Science and Technology.

**Semi-structured interview;** Three main groups were interviewed regarding woody plant encroachment in Maswa Game Reserve. The first one was ant poaching team including Maswa Game officers and Friedkins Conservation Fund Patrol team; second group composed of local community working inside Maswa Game Reserve in tourism related activities and lastly is the livestock keepers outside Maswa Game Reserve. Interview timetable for the groups was as follows

S/N	Group	Number of people involved/Represented during interview	Date	Time
1	Tanzania Game Tracker safaris (workers)	8	15/03/2018	0825
	Friedkin Conservation Fund Anti-Poaching Team	7	16/03/2018	1135
	Livestock keeper 1	9	17/03/2018	1037
	Livestock keeper 2	7	17/03/2018	1124
	Livestock keeper 3	8	17/03/2018	1217
	Livestock keeper 4	24	17/03/2018	1244
	Livestock keeper 5	5	16/03/2018	1631
	Livestock keeper 6	6	16/03/2018	1520
	Livestock keeper 7	7	17/03/2018	1317
	Livestock keeper 7	9	17/03/2018	1416

### On-going activities

1. Seed collection from *Acacia drepanolobium*.
2. Rainfall experiment.



*Acacia drepanolobium* which has been browsed by African elephant (*Loxodonta Africana*). Contrary to scientific publication by Goheen experimented in 2010, Kenya.







Left: *Acacia drepanolobium* which has been browsed by African Elephant, and some fell down. Right: Establishment of a (10 × 10m) plot for assessing *Acacia drepanolobium* encroachment intensity.



Left: Established (10 × 10m) plot for assessing encroachment intensity. Right: Established (1×1m) plot for herbaceous assessment.



Left: Established (1×1m) plot for herbaceous assessment. Right: Planted soil from encroached site, Germination experiment for analysis of soil seed bank.





Left: Planted soil from encroached site, Germination experiment for analysis of soil seed bank. Right: Labelled soil bag used for germination experiment.



Left: A cage where the experiment has been placed to keep it away from rainfall interference. Right: A small cage to keep the soil bag away from herbivore interference.



Left: A small cage to keep the soil bag away from herbivore interference. Right: *Acacia drepanolobium* sapling growing out of Elephant dung. This is important observation in this research, as it indicates the role of mega herbivores in dispersing *Acacia drepanolobium* seeds and or facilitating its growth.





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Acacia drepanolobium sapling, around the sapling we observed soil texture of dead organic matter i.e. decaying herbivore dung. Which indicate particular sapling grew from the herbivore dung.