Project Update: August 2022

During this first phase of the second Rufford Small Grant, we introduced the project objectives, proposed activities and informed the locals of their responsibilities throughout the project cycle.

Figure 1: The three-target species earmarked for seed collection within the Ngutwa-Nzaui area. (A, Euphorbia friesiorum (A. Hassl.) S. Carter with mature and ready to collect fruits. B- Pavetta teitana K. Schum individual with a mixture of mature fruits (black) and those near maturity (green); and C-Thunbergia napperae Mwachala, Malombe & Vollesen with a good load of fruits ready for collection.

Before seed collection, the team conducted a reconnaissance to determine the number of sub-populations with mature seeds for collection. We undertook the collection exercise within the villages of Ngutwa (lowest elevation), Nzaui (highest elevation) and Kathuma (mid-elevation) within the study area. The collection effort was undertaken weekly to ensure that the mature/ripe fruits were collected before being lost either through natural dehiscence or herbivory (especially birds).

Figure 2: Seed collection exercise in the earmarked sites within the Ngutwa-Nzaui area.

Most of the *Pavetta teitana* individuals had a mixture of near maturity and fully mature fruits, and therefore the selective collection of the fully mature fruits was mainly through hand picking. This necessitated repeat collection after seven days to ensure minimal loss of fruits.

The collected fruits for each species were loosely put in khaki bags, labelled inside and outside and stored separately. The fruits were thinly spread (one seed/fruit) in ambient conditions to ensure appropriate fruit drying and achievement of peak maturity.

Establishment of Non-mist propagation system

Since the propagation of the three-target species could not be fully undertaken within the propagation system established during the 1st Rufford Small Grant, the project team established two additional ones with the help of the local community.

We adopted a Training of Trainers (ToTs) model with the hope that the trained locals will extend the acquired knowledge, skills and attitude to other community members. In constructing the external wooden frame (4 x 7 m), we made use of locally available materials that are cheap to acquire within the locality. To avoid the unnecessary cutting down of trees, we made use of dry logs that were strong enough for construction.

Figure 3: Establishment of a non-mist propagation system

Figure 4: Installation of 75% black shade-net around the external wooden frame

The 75% shade factor of the net was appropriate for propagating the target species as it blocks 75% of light intensity and allow only 25% of light intensity to pass through to the growing seedlings. The remaining months (August-October) are the hottest (dry season) within the study area and thus formed the source of motivation for the choice of the net. Also, a shade net with a high degree of stabilisation was appropriate to prevent degradation by the sun.

Further, the shade net was chosen to protect the seedlings from excessive water loss and heat since the study area is relatively dry. As the moisture is retained, the seedlings are expected to grow vigorously. It also serves to protect herbivory by animals (insects and birds) that feed on any green-growing matter during the dry period.

During the establishment of a non-mist propagation system, some locals were identified and trained with the hope that they extend the knowledge to other members of the local community. They were also trained on seed collection as they are vital in collecting seeds/fruits for the target species within the earmarked subpopulations within their locality.

Figure 5: Construction of the sowing beds. A and B, lining the sowing bed with a polythene sheeting; C, fully lined bed; D, a sowing bed filled with sun-dried river sand.

Figure 6: Training of Trainers

Figure 7: Solarization of the potting soil

Since the soil was acquired from the forest, we disinfected it through passive solar heating for 30 days to reduce soil-borne pathogens, including fungal, bacterial and nematode pathogens, weeds and certain insects. Further, in case of any thermotolerant pest that might be deeply distributed in the soil, we integrated other management approaches such as using fungicides and insecticides. The soil was churned weekly to ensure all soil-borne pathogens, including the deep seated ones, were killed.

Figure 8: Potted soil awaiting germinated seedlings

The solarised soil was potted and left out in the sun awaiting transplantation of the germinated seedlings.