Habitat Ecology, distribution and mobilizing community-conservation of "Mwanamphepo": Focus on *Cissus aristolochiifolia* (VU) and *Ampelocissus africana* var *migeodii* (CR EN) in Mulanje Mountain

Fig 1: Image of the team in Forest guards(both far ends), Traditional Birth Attendant, Herbarium plant identifier(Blue worksuit)

Overview

This trip was conducted from the 20th to 24th November, 2025, the main objective of the field exercise was to conduct Forest Inventory and engagement with community leaders. During this time, four(4) villages were visited where the representative leaders i.e Village Natural Resource Committees(VNRCs), Traditional Birth Attendants(TBA) and Traditional Healers(THs) of each village were engaged for establishment of community gardens of "Mwanamphepo" species. Dialogues with the Government officials were done during this visit, the District Commisioner granted commission and permission and the District Forest

Officer endorsed the field research in Mulanje, we included the Mulanje Forestry officers under the Department of Forestry in the assessment. In October, the species were included in National Red Data List for Malawi's non-endemics assessment.

Methodology

An image of the whole Forest reserve was generated using ArcGIS inorder to establish nested plots. The Forest inventory was conducted through randomly selected nested plots of 20m and 10m radius(this was adjusted from the initial plan of 15m and 30m eadius), the villages were access points to higher elevation of/into the Mulanje Forest Reserve. The plots that were physically inaccessible were replaced by points from sites advised by the community member on the team. Ten(10) sampling points were collectively recorded using the Garmin eTrex 10 from 07:00am to 16:00 for four(4) days.

The field team consisted of a driver, Herbarium technician, forest guard and a community member well-versed in identifying medicinal plants assigned by the traditional authorities from each nearby village block. The team trailed through the forest to the plots identifying all the "Mwanamphepo" species in each plot while focusing on the focal species. The Herbarium Technician on-site matched the locally identified plants to their scientific names using Herbarium records, known morphological features and smell. The species that were recorded were only those where atleast two(2) community leaders conversant with traditional medicine identify the species as "Mwanamphepo".

Texture-by-feel method was used to identify soil type in the field at each location where the "Mwanamphepo" species are identified by the community members. Other habitat identifications were identified i.e dominant vegetation type and elevation. Anthropogenic activities observed from the sampling points were recorded. These were some elements captured to understand habitat ecology in this timeframe.

Dialogues with the District Commissioner, the District Forest Officer and the chairperson for the National Red Data List were conducted during this period. Semi-structured key informant interviews were done with representatives of the Traditional Healers, Village Natural Resource Committees, Traditional Birth Attendants. Two (2) community gardens that were set up by a volunteer Traditional Healer and Traditional Birth Attendant and were visited - one undergoing preparation(i.e clearing the land, setting up propagation station etc) and the other with propagated and germinated species as shown below

Observations

Five(5) of seven(7) species that were propagated in the garden were successful including *Ampelocissus africana*, however, only four(4) species were at an age capable of identifying i.e the description of the species by the individuals that propagated the plants were tallied to the anatomy of the leaves. This shows that the species do not have rigid habitat requirements. These species were propagated using stem cuttings and wood ash. Although the planted species was *Ampelocissus africana*(main species) and not it's focal variety, this shows the cultivation

potential and receptivity of the concept of home gardens for the focal species. This activity follows the COM-B approach for behaviour change presenting the Capability Opportunity and Motivation for conservation of the species(West & Michie, 2021). Community gardens can serve as a form of ex-situ conservation, income generating opportunity hence significantly lowering rates of depletion of the resource in its native habitat(Okigbo et al., 2008; Willy et al., 2023)

Fig. 3: Image showing four(4) germinated "Mwanamphepo" Elephantorrhiza goetzi, Dolichos kilimandscharicus, Cissus integrifolia and Ampelocissus obtusata

Fig. 4: Images of interviews with representative community leaders Traditional Birth Attendant(Left), Traditional Healer(Centre) and Village Natural Resource Committes(Right)

In addition to establishing com munity gardens, further engagements were made via key informant interviews. Unlike prior interviews that interrogated on their knowledge on derivatives/ all species of “Mwanamphepo” and their uses, this involved specifically asking their knowledge of the focal species. This was done by showing them herbarium preserved specimens of the species, online sourced images from GBIF, INaturalist and verbal description of the species. It was observed that individuals and community leaders in villages of the Southern-side of Mulanje(closer to Mozambique) were more familiar with *Cissus aristolochiifolia* and those in villages in the Northern side of Mulanje were more familiar with *Ampelocissus africana*.

The field occurrence points were congruent with the observation from the interviews, it is possible that they were familiar with one than the other because one was more abundant than the other within their locality, this can also be interpreted conversely.

Fig. 5: Images of the species identified as “Mwanamphepo” by the community representatives(from left), Rhoicissus tridentata, Crinum mucowanii and Cyphostemma buchannanii.

There is over twenty-one(21) species referred to as “Mwanamphepo” most of which are found in Mulanje Mountain, only eleven(11) species were identified during the inventory in this season(rainy season) additional to the focal species, other species included; *Cyphostemma buchananii, Elephantorrhiza goetzei, Vigna vexillata, Adenia gummifera, Ampelocissus obtusata, Cissus intergrifolia, Ampelocissus africana, Rhoicissus tridantata and crinum macowanii*.

It is important to note that all the above species have been documented to have some medicinal value for reproductive issues(Belem-Kabré et al., 2024; Okigbo et al., 2008; Razão et al., 2024). Hence, this could partially cement why these species are known as “Mwanamphepo” and are locally used to induce labour in this area. Most have not been tested for specific uterotonic properties including the focal species . However, *Rhoicissus tridentata* and *Adenia gummifera* are the only identified species that have undergone phytochemical screening and have been identified as containing uterotonic properties(Brookes & Katsoulis, 2006; Gruber & O’Brien, 2011; Maroyi, 2020). This is important information that will be relayed to the community leaders along with the information on harmful impacts associated with using the untested species inorder to divert their focus from the focal species that have a threatened conservation status.

Rhoicissus tridentata, Elephantorrhiza goetzei, Ampelocissus africana, Vigna vexillata, and *Adenia gummifera* are under the Least Concern category on IUCN Redlist. However, the

A.gummifera is on a watch list due to heavy medicinal trade pressure, *V. vexillata's* variety var. *dolichonema* is flagged as critically endangered and *C. mucowannii's* population is declining. Despite the documented importance in published articles and other regional and national sites, data on the rest of the species is not available on the IUCN.

Fig. 6: Images of individuals trailing to the during the forest inventory with the assigned community member and a Herbarium plant identifier.

Fig. 7: Images the focal species of the study- Cissus aristolochiifolia (VU) and Ampelocissus Africana identified in the sampling plots.

The dominant vegetation where *Ampelocissus africana* was found was in shrubs of *Brachystegia* woodland with some traces of it found in customary fields with most of these occurrence points along the slopes of Mount Mulanje. One(1) record of *Ampelocissus africana var migeodii* was recorded on the slopes in a maize field with patches of *Brachstegia*.

However, *Cissus aristolochiifolia* was mainly found in customary land(i.e farmland) and most abundant in *Pinus patula* plantation, it is not clear whether there is an association between the species and *Pinus patula*.

Other observations during the field were; the soil type of the two(2) focal species was red sandy loam soils in all locations, the soil samples were collected for further soil type identification all the occurrence points were identified at attitudes of 700m- 900m.

Fig. 8: Images signs of anthropogenic pressure and unsustainable harvesting of the species

Two(2) of the locations where the locals spotted the species were noticed to have dug holes, some locals were seen with fresh roots of some "Mwanamphepo" species. This observation in the field tallies with the observations made from market assessments earlier in the project. These threats highlight an implied major issue at the nexus health and conservation. The implication is that unsustainable overharvesting could imply overconsumption of this umbrella of plants where conservation status of most of them is unknown and have not undergone phytochemical screening for the specific purpose of inducing labour.

Considerations and recommendations

In addition to unsustainable harvesting, these focal species being spotted on low attitude, some in customary land, and on the lower slopes of the mountain escalates their threat. This shows it is key to create refugia zones for the species. This is also being addressed by this project, through community gardens.

Although, most of the listed species have been studied to be used for sexual/reproductive issues, however, there are only two(2) species documented that have uterotonic(labour-inducing) properties. Therefore, phytochemical screening of the focal species and other species under this umbrella is vital.

Despite the medicinal value and the consumption demands of these species are high and yet most of them have not been assessed by the Red data list teams in Malawi nor the IUCN. Therefore, this shows that it is key to conduct and include the species in the national redlisting assessment of the species.

Plans

The Forest Inventory will be replicated in the Cool-Dry Season(May-August) and the Warm-dry(September- October) season in order to properly capture more information regarding the focal species' seasonality, habits and their distribution throughout the season.

There will be focus group discussions and Training of Trainers on how to identify the species that have undergone phytochemical screening for uterotonic properties i.e *Rhoicissus tridentata* and *Adenia gummifera*.

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