Mount Mulanje Biosphere Reserve

ENABLING ALTERNATIVE LIVELIHOOD OPPORTUNITIES IN A LANDSCAPE WHERE CONVERSION OF LAND TO FARMLAND IS A DRIVER OF DEGRADATION

WHERE: MOUNT MULANJE BIOSPHERE RESERVE, MALAWI
AREA OF RESTORATION SITE: 500 HECTARES
HABITAT TYPES: MIOMBO WOODLANDS (REGION OF TROPICAL GRASSLANDS, SAVANNAS AND SHRUBLANDS)
PROJECT LEAD: BOTANIC GARDENS CONSERVATION INTERNATIONAL (BGCI)

HOW IS THE USE OF WILD SPECIES SUPPORTING THE GOALS OF THIS RESTORATION PROJECT?

In this area, there is a scarcity of available farmland to sustain a growing rural population, elevated unemployment rates and persistent poverty. Local communities therefore heavily depend on mountain resources to bridge the gap in their livelihoods. Deforestation and ecosystem degradation in and around the reserve can be directly attributed to human activities, despite its legislative protection, with overexploitation for fuelwood and conversion of land to farmland, the main drivers of degradation.

With financial support from the UK's Darwin Initiative, a collaborative project has been developed to develop sustainable livelihoods options from native plants and fungi from Mount Mulanje Biosphere Reserve as alternatives to current practices that damage mountain ecosystems, reducing biodiversity and livelihood opportunities.

The project's primary focus is the development and strengthening of forest management plans for the co-management blocks which are under development. This involves the creation of by-laws, and the formulation of a resource management plan designed for the sustainable harvest of NTFPs, to be overseen by a Forest Block Committee composed of members of various Village Natural Resource Management Committees. The ultimate goal is to facilitate responsible harvesting and commercialisation of resources from both restored and natural Miombo forest blocks, fostering long-term ecological sustainability.

This project aims to reintroduce and replenish populations of economically valuable species that have been hitherto over-exploited and develop new sustainable management practices for these species. It has also identified other non-timber forest products with the potential for sustainable use and is working to identify suitable markets for these species with the establishment of a social enterprise.

Two ethnobotanical studies conducted in collaboration between Mount Mulanje Conservation Trust, BGCI and the University of Kent have been used to help target native useful plants for inclusion in the project restoration, rehabilitation, and business development strategies. One study looked across the mountain and at all uses of as many species as possible, whilst the second investigated specific fuelwood species use in target community areas. Species were prioritised based on their importance to local communities. All of them are already overexploited in the wild and are being depleted, so require new sustainable management practices, development of growing skills and dissemination of local knowledge.

For target native fuelwood species, an initial list of about fifteen fuelwood species was produced from these studies. A subsequent literature review on their positive fuelwood characteristics (e.g. growth speed, calorific value, coppice regrowth and nitrogen fixation) narrowed the list to eight that are being mapped and monitored across the landscape. These have been propagated for planting

Participatory Mapping to identify intervention sites at the co-management blocks in Mount Mulanje

ENHANCING LANDSCAPE RESTORATION WITH SUSTAINABLE USE OF WILD SPECIES

in agroforestry areas. They include valuable timber trees specifically targeted for charcoal production. Among them is the East African Afrormosia *Pericopsis angolensis*, African Beech *Faurea saligna* and the Pod Mahogany *Afzelia quanzensis*. Like most Miombo species, these respond well to coppicing and can recover over a 10-15 year cycle, making them good candidates for sustainable production of charcoal production. Among them, the Pod Mahogany is grown by a few community members, but the knowledge and growing practices are not currently widespread.

An initial list of ten native edible plants and numerous fungi species was also produced from site surveys. From these, four indigenous fruit trees have been prioritised for sustainable utilisation, commercialisation and potential FairWild certification in the future. The species were selected through a multi-stakeholder selection workshop in 2023 and subsequent work to assess feasibility. They include the Sugar Plum (local name Masuku) *Uapaca kirkiana*, the Governor's Plum (local name Nthema) *Flacourtia indica*, the Granite Mangosteen *Garcinia buchananii* Baker and the Mbola Plum (local name Maula) *Parinari curatellifolia*. One group of mushroom species (Chanterelles) has also been selected due to its economic value and innovation potential for sustainable use, and for its association with marketable miombo fruit species such as Sugar Plum *Uapaca kirkiana*. All these non-timber forest products were selected based on their potential for local livelihood improvement, taking into account resource availability and abundance; preference of the local communities; market demand at the local, national, and international level; as well as their potential for value addition opportunities.

STRATEGIES TO SUPPORT SUSTAINABILITY

This project aspires to assist approximately 1,200 families (6,000 to 7,000 people) in shifting away from unsustainable use of forest resources for their incomes. This is supported by MMCT establishing a social enterprise (Inde-Mulanje Ltd.), which will generate income for cooperative members, trained Collecting Groups and Forest Block Committees by exploring new market opportunities for the sustainable use of native plants, encompassing both wild and non-wild harvested species. This initiative is expected to directly employ approximately 35 individuals, including harvesters, social surveyors, local resource assessment teams, area managers, and seed collectors. Special attention is given to empowering vulnerable women's groups, encouraging the formation of production groups for papermaking and locally handcrafted products such as soaps, oils, polishes, creams, and candles based on locally-sourced aromatic plants and beeswax.

A beekeeping programme is implemented in parallel by WeForest, and is also expected to emerge as a substantial source of future incomes. At present, beekeeping groups have successfully set up over 400 beehives, which are now awaiting occupation during the swarming season. Once occupied, it typically takes about a year for the beehives to produce sufficient honey before the harvest can be carried out. Wild fruit and mushroom collecting Groups from each co-management village have also been registered and trained in the sustainable harvesting of target fruit and fungi. Agroforestry activities in degraded farmlands are promoted by WeForest, which focuses on engaging local communities through workshops with community leaders for the selection of species to be planted each year. Information on available species and various agroforestry practices is provided to communities, allowing them to make choices based on their preferences. Such decisions include the types of species to plant and specific agroforestry methods, such as intercropping or boundary planting.

Sustainable use of Miombo species holds the potential for long-term livelihood benefits. These benefits span domestic consumption, including firewood, production of fruits and mushrooms, as well as the prospect of commercialising these resources through the social enterprise once it becomes operational.

As a long-term goal, the project aspires to achieve FairWild certification, aiming to ensure equitable compensation for harvesters and contributions to a premium fund dedicated to social development. Initial market research has been undertaken to identify the potential sales channels for wild resources prioritised for commercial development. Storage (e.g. fridges and freezers) and processing machinery (e.g. an industrial dryer) have been procured, and test products have been sold to local shops and restaurants and promoted at farmers markets (which enable higher profits), with a positive interest in future orders.

While still in the early days, successful implementation of this sustainable use strategy is expected to generate long-term benefits to a range of beneficiaries, including wild fruit and fungi harvesters, co-operative members, employees of the social enterprise and Forest Block Committees who are tasked with the protection of the forest. Initial short-term gains have already been observed, including the trial purchase of specified amounts of fruits for initial testing and product development. However, the international market is not well-acquainted with Miombo species, and certain regulatory authorisations (i.e. novel food authorisation in the EU) may need to be in place for some potential market opportunities to be realised.

Beyond the anticipated financial gains, participants also draw benefits from training and capacity building. This relates to the generation and dissemination of new knowledge on seedling propagation and planting, managing and monitoring of the restoration sites, as well as sustainable harvesting methods, post-harvest handling and product processing. The value chain development process also involves training on important considerations with regards to sustainable business structures, accounting and evidencing processes that need to be in place for auditing for the FairWild certification.

Funded by the UK Government through Darwin Initiative.

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Pod Mahogany - *Afzelia quanzensis*

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