

Impacts of oil palm on forest products and implications for the management of remaining forest fragments



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Summary

Kalangala forests are acknowledged as biodiversity rich, with 45 restricted range and 3 regional endemic species. Checklists generated in field assessments include 114 species of trees and shrubs, 89 birds, 6 mammals, 122 butterflies and 38 moths. In addition to conservation and other ecological values, forests provide socio-economic benefits for local livelihoods through environmental services, such as from tourism, fuelwood, rattan, round wood and timber. Deforestation has led to the loss of more than half of all forest cover in Kalangala with significant negative impacts on ecological and social landscape functions, and the risks are likely to be extended as oil palm plantation are scaled out to the Buvuma islands (Nsamba-Gayiiya

and Kamusiime, 2015). Although considerable efforts to engage stakeholders have now been made, partners were not engaged enough initially, nor proactive in anticipating and responding to concerns. As such, forest loss is of particular concern, but reliable and current data is lacking on the conservation status of Kalangala ecosystems that would enable stakeholders to manage the often-conflicting needs of development and conservation promptly and proactively. This assessment therefore recommends that long term monitoring is essential for land use planning that includes small-scale forest enterprises and sustainable financing strategies to maximize ecological and social benefits from oil palm in landscapes such as those in Kalangala and Buvuma.

Current status of forest products

Fuelwood

Wood fuel is used in all sectors of the economy, and more importantly, close to 100% of rural households and 98% of urban households use biomass energy for cooking (MEMD, 2014). The commercial value of fuelwood on the Ssesse islands (the Kalangala landscape) also includes charcoal and firewood for smoking fish and brick making (Manyindo, 2003). With the forest cover lost for oil palm, getting firewood has become a problem as wood is ever-further away or because of management restrictions in protected areas such as forest reserves. The new ferry has also increased the trade in charcoal to the mainland, aided by the rise in demand due to the government's decision to raise electricity tariffs in 2001, and large areas of forest are being cleared for this purpose (Mununuzi, 2002).

Tourism

In the Integrated Tourism Master Plan, the Ssesse Islands were categorised Grade B, an area of exceptional scenic attraction (MTWA, 1993). Many islands contain undisturbed forests with swampy margins, a paradise for birds, butterflies, monkeys, snakes and a favoured habitat for the sitatunga antelope though numbers have been seriously reduced by poaching (KDLG, 2005). But due to limited tourist facilities, many Ssesse islands are only visited by local people and campers. The white sandy beaches and the beautiful environment enhance the islands potential for tourism with boat cruises, beach recreation, water sports, sport fishing in the world's second largest freshwater lake, bird watching, primate viewing, butterfly watching, forest trekking, cultural tourism and community tourism. Adventure-based tourism thrives on the conservation of wildlife and its habitat, whereas the establishment of oil palm plantations in the Kalangala landscape has led to the loss of biodiversity. The inability of the government to provide sufficient resources to develop the sector, and the failure of the communities to play a significantly proactive role in protecting natural and cultural resources exacerbates the situation.

Timber

The timber industry was the second most important economic activity on the islands and could employ up to 1500 people (KDLG, 2005). Pit sawing started in late 1980s, and commercial timber trees include *Uapaca guineensis* (Mukusu), *Lovoa trichilioides* (Nkoba), *Maesopsis eminii* (Musizi) and *Cordia africana* (Mukebu), sold as round wood for local boat and furniture-making or exported to the mainland. Exploitation occurs in both protected and unprotected forest estates, with Mugoye and Towa the major productive reserves (Manyindo, 2003), whereas others such as Nkose have been virtually depleted of tree cover due to uncontrolled exploitation.

Rattan

The single African species of this climbing palm, *Calamus deerratus*, is widely distributed in the understory of lowland and sub-montane areas, in swamp and riparian forests and in open areas where it forms dense thickets (Sunderland, 2012). Stems are harvested as a source of rattan cane, used for manufacturing furniture and baskets, and for house construction, mostly from Masindi, Mukono, Mpigi and Hoima districts (Hassan and Mungatana, 2013). But as production declined in these districts, Ssesse island forests began to attract attention, where rattan provides a real opportunity for supporting sustainable development alongside forest conservation, though high demand is likely to impact the handicraft industry due to shortages created by over-harvesting, but loss of habitat through logging and conversion of forest to agricultural products including oil palm represents the major threat to this species (WWF, 2001).

Biodiversity

The value of Ssesse Islands forests in provision of environmental services is indispensable. Analyses of biodiversity in Uganda have as such relied on either the National Biomass Study map with 13 landscape categories (MWLE, 2003) or the earlier analysis by Langdale-Brown et al. (1964) which determined 22 vegetation types and 96 subtypes in Uganda, though most vegetation has been modified by cultivation of oil palm, and many of these vegetation types have been significantly reduced in quality and range over time. The islands were surveyed in 1993 as part of a national forest biodiversity inventory, and although some species were poorly sampled in relation to the 64 other forests visited. Bennun et al. (1996) estimated that 187 of Uganda's 1007 bird species are forests specialists, and many are closely associated with only one particular forest type. Ssesse island forest reserves were ranked in the top 10-15% for the conservation of trees, shrubs and small mammals. Davenport et al. (1996) identified a total of 45 restricted range species, and three species that are endemic to Lake Victoria islands, including the tree *Lasianthus sesseensis* (also Polhill, et al., 1954), the small mammal *Pelomys isseli*, and a rare butterfly *Acraea simulate* (also D'Abbrera, 1980) along with two closely related species *Thermoniphys togara bugalla*, and *Acraea epaea angustifaciata*. Biodiversity in the Kalangala landscape provides biological resources to the benefit of local communities, including food, medicinal resources, wood products, ornamental plants, recreation and tourism, and cultural values. But most remaining natural areas are found only where they are protected from encroachment and other disturbances in officially designated protected areas or areas of protected private/public land.

Implications for forest management

There is increasing fuel wood scarcity, so people having to walk further to collect adequate quantities, and more pressure on remaining forests. This is exaggerated by the increased population and a construction boom with private houses, schools, health units and commercial buildings being built, with demands for timber but also for fuel for the increase in brick-making, resulting in higher prices and more illegal fuelwood extraction. And due to the conversion of so much forest to oil palm plantations and unsustainable timber harvesting and over exploitation of residual forests, there is less timber and a reduced supply of rattan.

Ecotourism is an important tool for sustainable development, and is a growing niche within the larger national tourism industry that should be promoted. But there are fewer tourists now as a result of cutting down large forest areas that has destroyed the habitats for birds. Bugala Island will never be the same again. It is the diversity that lures tourists to Kalangala and it would have been better if nature remained undisturbed.

Biodiversity loss puts Kalangala communities at risk, although little was known about species richness and diversity on the Ssesse islands before current developments. Extensive changes in land use led to the destruction of ecological niches for various species including herbal medicines, grass for thatching, food, firewood, round wood, firewood, rattan, and tourism. And findings form a good basis for promoting of landscape restoration on the Ssesse and Buvuma islands based on experiences in northern Uganda.

The Government of Uganda, through the Ministry of Water and Environment in partnership with the International Union for Conservation of Nature (IUCN) with technical support of the World Resources Institute (WRI) and other government agencies conducted a study to comprehensively assess the potential for forest landscape restoration in Uganda. The study identified sites in the different landscapes of the country where degraded land is located, determining the size of degraded land and the most optimal restoration options or interventions (MWE, 2016).

Recommendations

Although oil palm development is delivering socio-economic benefits on Bugala island, the challenge is how to ensure that the development does not adversely affect the environment. Up to date and reliable information on the conservation status of Ssesse island ecosystems and wildlife populations, as well as for the Buvuma islands, is key to helping local authorities to manage conflicting

development and conservation needs promptly and proactively, ensuring returns from investments without compromising sustainability. In order to do, the following recommendations are put forward.

1. Conduct a full biodiversity inventory for the Ssesse islands, and a detailed baseline biodiversity inventory for the Buvuma Islands before any oil palm plantations are established.
2. Organize regular environmental and sustainable development monitoring, with potential implementing partners including, Makerere University and the National Forest Authority amongst others.
3. Implement a formal land use planning procedure, based on experiences from the Ssesse Islands, to reduce ill-considered land use conversion and encourage optimal utilization of land resources in Buvuma Islands.
4. Promote small scale forest enterprises for income generation across both Kalangala and Buvuma landscapes, typically being rural, household-based businesses using limited technology, skills and capital investment. These can include rattan cane-based, timber or charcoal industries.
5. Community conservation components of protected area management programs in frontline communities are reinforced across both Kalangala and Buvuma districts. There has to be an increased support for Collaborative Natural Resources Management and community forest interventions.
6. Establish a sustainable conservation financing strategy to ensure that programmes in Kalangala and Buvuma have the resources to support payments for environmental services, carbon trading, and ecotourism.
7. Implement forest landscape restoration programmes in support of national targets in Uganda's Vision 2040, National Development Plans (I & II) and the National Forestry Plan (to 2022).
8. Improve infrastructure to boost tourism in Kalangala, including the building of roads, water supplies and accommodation.

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