

Gobene

MOZTIPA043

Country: **Mozambique**

Administrative region: **Zambézia (Province)**

Central co-ordinates: **-17.40830 N, 37.70030 E**

Area: **118km²**

Qualifying IPA criteria

A(i)

IPA assessment rationale

The remnant coastal forest / thicket patches of Gobene qualify as an IPA under criterion A(i), as the site contains globally important - though much diminished - populations of *Brachystegia oblonga* (CR), *Scorodophloeus torrei* (EN) and, potentially, of *Pavetta dianeeae* (EN). It is also the only known site globally for *Huberantha mossambicensis* (CR), but this species was last seen in the late 1960s and there are concerns that it may now be extinct.

The site was important in the past for being one of the southernmost localities for coastal dry forest of the proposed Rovuma CoE. However, given the extensive destruction of the coastal forest habitat at this site, it does not meet any of the thresholds under criterion C.

Site description

The Gobene IPA is located in Maganja da Costa District of Zambézia Province, ca. 100 km to the northeast of the port of Quelimane, in the coastal lowlands between the towns of Maganja (Olinga) to the northwest and Bajone and Pebane to the east. The vast majority of this heavily populated coastal zone between Quelimane and Pebane has been transformed for settlement, smallholder agriculture and commercial plantations and only small remnants of the natural vegetation remain, often under severe threat. Gobene was formerly an extensive forest area on fixed linear dunes in the coastal lowlands to the south and southeast of Olinga, but it is now reduced to tiny fragments. This is potentially the most severely threatened of the IPAs identified in Mozambique and the remaining biodiversity value of this site is likely to be lost imminently unless urgent conservation action is taken.

Botanical significance

The coastal semi-deciduous forest on sand dunes at this site is - or at least was formerly - of global importance primarily for the presence of a number of rare and threatened species which are

endemic to Mozambique. The tree *Brachystegia oblonga* (CR) is known only from this site and from the Moma area, where it was considered to be possibly extinct (Alves et al. 2014), although a few individuals have since been found at Pilivili on the Moma Titanium Minerals Mine owned by Kenmare Resources plc (A. Massingue, pers. comm.). Gobene is considered to be the most important known site for this species globally, but the population here is under pressure and fewer than 50 individuals were recorded in 2011 (Alves et al. 2014). Secondly, the tree or shrub *Scorodophloeus torrei* (EN) is known from only four subpopulations along a 600 km stretch of coastline in Nampula and Zambézia Provinces, including Gobene. This species is now rare at Gobene and it was recorded as being heavily cut for firewood there in 2011 (J. Burrows #12503; Darbyshire & Rokni 2020). Thirdly, Gobene is the only known locality globally for the shrub or liana *Huberantha mossambicensis* (CR), which is only known from five collections by A.R. da Torre and M.F. Correia between 1966 and 1968. Attempts to relocate this species in preparation for the publication "Trees and Shrubs of Mozambique" were unsuccessful (Burrows et al. 2018), hence this species has not been seen in over 50 years and is possibly extinct. Finally, the shrublet *Pavetta dianeeae* (EN) has been recorded from Gobene and is known elsewhere only from the Matibane Forest Reserve [MOZTIPA005]. The current abundance of this species at Gobene is unknown.

Several other species of note have been recorded from this site. These include the undescribed species *Pyrostria* sp. A which is known from only a single collection (Torre & Correia #17041), and variety A of *Empogona coriacea*, which is recorded only from the Angoche and Gobene areas (Bridson & Verdcourt 2003, as *Tricalysia sonderiana* var. A). Other interesting species include the Mozambique endemics *Euphorbia bougheyi* (LC) and *Dracaena* (*Sansevieria*) *subspicata* (not evaluated, but probably LC).

Habitat and geology

The original vegetation of the Gobene Forest has not been documented in detail. However, the plant diversity of the forest was surveyed by A.R. da Torre and M.F. Correia between 1966 and 1968. Dominant species recorded on their collection labels included *Hymenaea verrucosa*, *Terminalia* (formerly *Pteleopsis*) *myrtifolia*, *Craibia* sp. (recorded as *C. gazensis*, but almost certainly referring to *C. zimmermannii*), *Brachystegia oblonga*, *Scorodophloeus torrei* (recorded as *Cynometra* sp.), *Albizia* sp. and *Mimusops* sp. (e.g. Torre & Correia #14601, 17041; Vollesen 1980). They also noted an abundance of lianas. This assemblage conforms to a semi-deciduous coastal forest of the proposed Rovuma Centre of Plant Endemism (CoE), for which Gobene is one of the most southerly localities (Darbyshire et al. 2019). The forests occur on a series of

fixed linear dune systems (chenier dunes) with coarse, sandy soils. As with other areas of coastal forest in Mozambique, it is likely to have been interspersed with miombo woodland, which continues to dominate in undisturbed areas away from the coastal lowlands in Maganja da Costa District. Between the dunes, there are low-lying alluvial flats with coastal creeks running through them and associated swamps and seasonal marshlands; these are mainly open and herbaceous but with some mangroves along the larger coastal channels.

The original extent of the forest is not known but it is likely to have been extensive given that Torre & Correia recorded collecting localities within the forest between 35 and 50 km from Maganja (Olinga).

Few other botanical collectors appear to have visited this site, although T.R. Sim studied the forests of Maganja da Costa more generally in 1908 and found extensive areas of intact forest (which included mature miombo assemblages) throughout the region with particularly well developed riverine forests, e.g. along the Raraga River (Sim 1909). It is not clear whether Sim actually visited the Gobene Forest, although he was the first to collect *Brachystegia oblonga*, at "Arenga" which he noted to be 20 miles inland from the coast. Most recently, the site was visited by J.E. and S.R. Burrows, in preparation for "Trees and Shrubs of Mozambique". They found the area to be much transformed. The only extant forest patch of note they recorded was that at -17.4063, 37.6969. Other small patches of woody vegetation are visible on Google Earth (2021) imagery, such as that at -17.3566, 37.7702, but some of these appear to be secondary and may not support the rare species; a more thorough survey of the IPA is required.

The climate at this site is highly seasonal with a prolonged dry season from April to November and a shorter hot wet season primarily from December to March or April; average annual rainfall at nearby Pebane is ca. 1,376 mm, whilst inland at Maganja (Olinga) it is ca. 1,307 mm (climatedata.eu). However, humidity remains high year-round at over 70%.

Conservation issues

The Gobene area is not protected and has suffered extensive losses of natural habitats. Coastal forest here has been largely replaced by cultivation of coconut, cashew, mango and other crops, while the establishment and expansion of scattered villages has also led to forest loss. Alves et al. (2014) indicate that habitat transformation in this area and northwards to Moma has occurred since 1940, with over 90% of suitable habitat for *Brachystegia oblonga* destroyed for coconut, cashew and mango cultivation. The extant areas of natural woody vegetation are small and fragmented, and the majority continue to decline in extent and quality. This includes the noteworthy forest patch at -17.4063, 37.6969, for which there is clear evidence from Google Earth Pro (2021) imagery of fragmentation since 1985.

A further ongoing threat is the continued exploitation of remaining patches of woody vegetation for firewood; J.E. & S.M. Burrows (#12502, 12503 & pers. comm.) reported evidence of cutting

damage to the remaining trees of both *Brachystegia oblonga* and *Scorodophloeus torrei*.

Without urgent conservation action to protect and allow regeneration within the remaining forest patches, the botanical importance of this site is likely to be lost within a matter of years. Given the high human population in this area, conservation actions are likely to require extensive community engagement and awareness-raising if they are to be successful. There is an urgent need to survey the site more thoroughly for its current botanical diversity, and to better understand the population sizes and recruitment of the rare and threatened species, including the rediscovery of *Huberantha mossambicensis* if it is not already too late for this single site endemic. It is also possible that less threatened sites for these species might be discovered through more extensive surveys of the central Mozambique coastal zone. One possible locality of interest is the chenier dune systems within the Zambesi River Delta which appear very similar in characteristics to the dunes at Gobene. These appear to be relatively undisturbed and could hold important populations of some of the threatened species noted above, but to our knowledge the delta dune systems have not been surveyed to date (J.E. Burrows, pers. comm. 2020). Although not currently included within Mozambique's Key Biodiversity Areas network, the continued presence of *Brachystegia oblonga* and *Scorodophloeus torrei*, and the possible presence of the entire global population of *Huberantha mossambicensis* (if it can be rediscovered) would qualify this site under KBA criteria A and B, and it would also qualify as an Alliance for Zero Extinction (AZE) site.

Site assessor(s)

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IPA criterion A species

SPECIES	QUALIFYING SUB-CRITERION	≥ 1% OF GLOBAL POPULATION	≥ 5% OF NATIONAL POPULATION	1 OF 5 BEST SITES NATIONALLY	ENTIRE GLOBAL POPULATION	SOCIO-ECONOMICALLY IMPORTANT	ABUNDANCE AT SITE
<i>Scorodophloeus torrei</i> Lock	A(i)	✓	✓	✓	—	—	Scarce
<i>Brachystegia oblonga</i> Sim	A(i)	✓	✓	✓	—	—	Scarce
<i>Huberantha mossambicensis</i> (Vollesen) Chaowasku	A(i)	✓	✓	✓	✓	—	Scarce
<i>Pavetta dianeae</i> J.E.Burrows & S.M.Burrows	A(i)	✓	—	—	—	—	Unknown
<i>Psydrax micans</i> (Bullock) Bridson	A(i)	—	—	—	—	—	Unknown

IPA criterion C qualifying habitats

HABITAT	QUALIFYING SUB-CRITERION	≥ 5% OF NATIONAL RESOURCE	≥ 10% OF NATIONAL RESOURCE	1 OF 5 BEST SITES NATIONALLY	AREAL COVERAGE AT SITE
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General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Dry Forest	—	Minor
Savanna - Moist Savanna	—	Minor
Artificial - Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest	—	Major
Artificial - Terrestrial - Plantations	—	Major
Artificial - Terrestrial - Arable Land	—	Major
Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools [under 8 ha]	—	Minor

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Agriculture (arable)	—	Major
Harvesting of wild resources	—	Major

Threats

THREAT	SEVERITY	TIMING
Residential & commercial development - Housing & urban areas	High	Ongoing - trend unknown
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	High	Ongoing - trend unknown
Agriculture & aquaculture - Wood & pulp plantations - Agro-industry plantations	High	Ongoing - trend unknown
Biological resource use - Logging & wood harvesting	High	Ongoing - trend unknown

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
No management plan in place		—	—

Bibliography

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