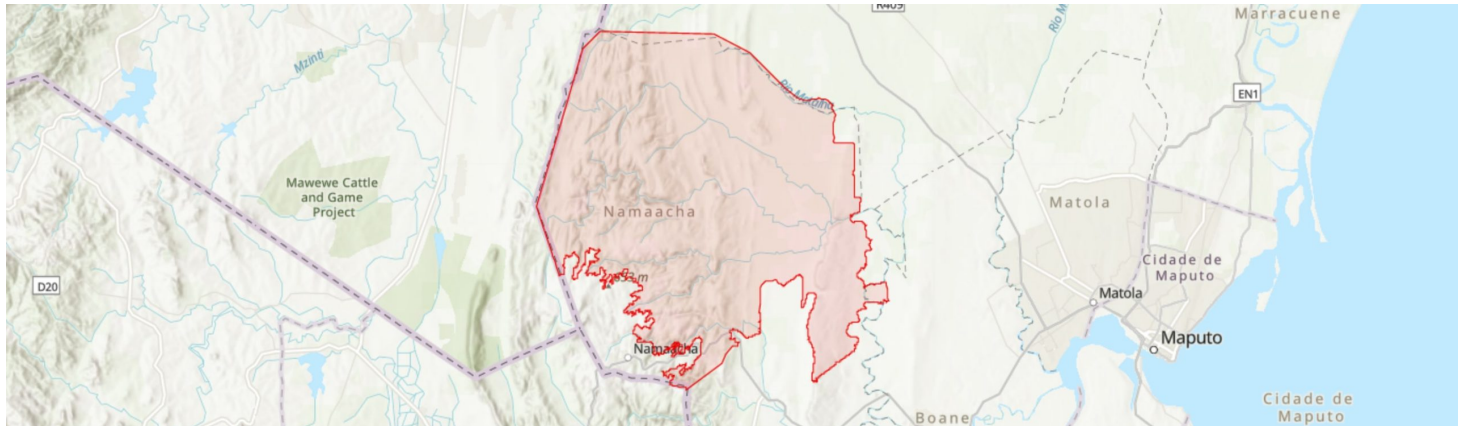


# Namaacha

MOZTIPA006



Country: **Mozambique**

Administrative region: **Maputo (Province)**

Central co-ordinates: **-25.84061 N, 32.11057 E**

Area: **854km<sup>2</sup>**

## Qualifying IPA criteria

A(i), A(iv)

## IPA assessment rationale

Namaacha qualifies as an IPA under criteria A. The undulated landscape with sharp cuesta ridges, gorges, cliffs and plains, is home to eight species of conservation concern which trigger criterion A(i): *Encephalartos umbeluziensis* (EN), *Ceropegia aloicola* (EN), *Warburgia salutaris* (EN) and *Barleria oxyphylla* (VU). Overall, there are six endemic and near-endemic species that qualify under criterion B(ii) species, with two of these species, *Asparagus radiatus* and *Jatropha latifolia* var. *subglandulosa*, highly range restricted and triggering criterion A(iv).

## Site description

The Namaacha Important Plant Area (IPA) lies in Namaacha District, Maputo Province, Mozambique, next to the border with Eswatini to the south-west and South Africa to the west. It forms the eastern part of the Lebombo Mountains which fall within the Maputaland Centre of Endemism where a high number of endemic plants are known to occur (van Wyk 1996). Maputaland is a centre of endemism (CoE) within the Maputaland-Pondoland-Albany global biodiversity hotspot (CEPF 2010). An analysis by Darbyshire et al. (2019) has treated the Lebombo Mountains as a potential sub-centre of the Maputaland CoE with 17 Mozambican endemic and near-endemic species restricted to this cross border sub-CoE. The

boundaries of this IPA were primarily delineated to encompass the majority of known records of IPA trigger species within this region and were subsequently refined using Google Earth Engine (Gorelick et al. 2017) to identify and exclude degraded areas.

This IPA covers 854 km<sup>2</sup>, encompassing a montane landscape ranging from 40 to 550 m in elevation, supporting a mosaic of forest on rocky slopes and cliffs together with arid woodland and rock outcrops. There are several springs including Bobo, Chambadejovo, Maxibobo, Movene, Gumbe and Impaputo that cascade down the rocks, particularly during rainy season between October and March. The Bobo River, situated in the northern part of the site, flows into the Major River which, in turn, is a tributary of the important Incomati River. In the central part of the proposed area, three rivers - Chambadejovo, Maxibobo and Gumbe - flow into the Movene River, a tributary of the Umbelúzi, another major river in this region. The Impamputo River runs through the southernmost section of the proposed site into the Pequenos Lebombo dam which provides the main water supply for Maputo city. The Namaacha District is famous for its waterfalls, attracting tourists to this part of Maputo Province.

## Botanical significance

Despite this section of the Lebombos having been overlooked botanically, the main botanical significance of the Namaacha IPA are the undisturbed forest patches along the rocky slopes and rivers, together with the succulent species that occur in the rock outcrops, including *Aloe* and *Euphorbia* species. This IPA is home to species of conservation concern including the cycad *Encephalartos umbeluziensis* (EN), a species restricted to the Lebombo Mountains (particularly along the Umbeluzi River) that is threatened by ongoing illegal removal of plants and habitat loss. *Ceropegia aloicola* (EN) is also threatened as a result of habitat degradation, this species is only known from this IPA. *Barleria oxyphylla* (VU globally but assessed as nationally EN for South Africa), a range restricted

species, is threatened due to habitat loss and degradation (von Staden & Lötter 2018).

*Adenium swazicum*, assessed as Vulnerable for the Red List of South African Plants, is also threatened due to habitat loss and collecting for medicinal and ornamental uses (Lötter & von Staden 2018). The IPA supports the largest subpopulation of *Adenium swazicum* throughout the species' known distribution in southern Mozambique (H. Matimele, pers. obs). Additional species of very narrow distribution include *Jatropha latifolia* var. *subeglandulosa*, an endemic to Mozambique, and *Tragia glabrata* var. *hispida* also an endemic species known only from Maputo Province, southern Mozambique. *Cyphostemma barbosae*, a Lebombo endemic, also occurs within the IPA.

Namaacha also contains a number of species endemic to Maputaland CoE, in the broad sense, of high conservation value including *Asparagus radiatus*, *Australluma ubomboensis* and *Blepharis swaziensis*. Woodlands in the area contain *Acacia swazica*, *Caesalpinia rostrata* and *Erythroxylum delagoense* which, although not endemic, are only known from the southern region within Mozambique (Burrows et al. 2018). Several plant species are valued by people as sources of income, nutrition, medicines and for aesthetic uses. Useful species include: *Warburgia salutaris* (EN, harvested for medicinal uses) (Senkoro et al. 2019, 2020), *Androstachys johnsonii* (widely used in construction and fencing of large areas for livestock), *Acacia swazica* (used for charcoal), *Sclerocarya birrea* (used to make a traditional beverage and also provides edible nuts), and *Adenium swazicum* (medicinal and ornamental uses).

---

## Habitat and geology

Vegetation in the Namaacha-North IPA is variable depending on the vicinity to a water course and elevation. The eastern area of the IPA falls within the foothill section of the Lebombo Mountains with elevations as low as 30 m along the Movene River. Under the landcover classification system of Smith et al. (2008), the dominant vegetation of the IPA is Lebombo woodland. The tree height ranges between 4 and 8 m, with *Acacia* and *Combretum* species being dominant in some sections. Species found include *Acacia swazica*, *A. exuvialis*, *A. burkei*, *A. caffra*, *A. davyi*, *A. nigrescens* and *A. senegal* var. *rostrata*, together with *Combretum apiculatum*, *C. molle*, *C. zeyheri*, *Lannea discolor*, *Pterocarpus rotundifolius*, *Sclerocarya birrea* and *Terminalia phanerophlebia*. There are also rock outcrops dominated by succulent species such as *Euphorbia cooperi*, *Cussonia natalensis* and *Aloe* spp. The river margins and the cliffs are dominated by forests and thickets with various species including cycads, *Asparagus* spp., and economically important species such as *Androstachys johnsonii*, which is valued for its timber. Along the Movene River to the east at lower altitudes, there are alluvial zones with riverine forests or woodland, typically with tree species such as *Acacia xanthophloea* and *Ficus sycomorus*. Geological studies of the IPA site are limited, but the Lebombo Mountains are composed of a sequence of volcanic rocks - basaltic lavas and rhyolitic flows - from the Jurassic period about 180 to 179

million years ago (du Randt 2018). These rocks lie on horizontal Karoo supergroup sedimentary rocks to the west and overlain by Cretaceous to recent sediments to the east. Rhyolite, a resistant rock, is arranged in an alternating manner with basalt, a more readily eroded rock, resulting in a series of parallel sharp ridges with a gentle slope on one side separated by plains or water courses. The whole of the Lebombo Mountains area is relatively low with the highest peak being no more than 800 m elevation (du Randt 2018). Within the IPA the average elevation is about 270 m, with the highest elevation of 630 m.

The soils in the Namaacha IPA site are derived from rhyolite and basalt and are relatively fertile with high clay contents (du Randt 2018). Red soils dominate the site, but black clays with alluvium are also present to the east on the plains. Subsistence farming is common in the vicinity of human settlement areas, particularly in the southwest near Namaacha village and the areas near Namaacha waterfall. The climate is tropical humid with two main seasons including a dry and cold season ranging from April to September, followed by a wet, hot and rainy season from October to March.

---

## Conservation issues

The IPA is not under any sort of formal conservation as it falls entirely outside of the existing network of conservation areas in the country. However, it forms part of the proposed Goba conservancy, which is part of a wider regional initiative, the Lubombo Conservancy–Goba, which is a “Trans-frontier Conservation Area” from eSwatini to Mozambique and South Africa (Üllenberg et al. 2014, 2015).

Threats to biodiversity within this IPA are well-understood. In the past, the area was heavily impacted by charcoal production and, although at present none of the IPA trigger species are targeted for charcoal production, the impact of associated habitat destruction on the vegetation and wider biodiversity is expected to cause significant declines in species numbers. Charcoal production here consists of cutting thick woody stems and clearing areas for piling and burning of the stems. Areas that have been cleared for charcoal kilns then become the entry point for invasive plants including *Agave sisalana*, *Lantana camara*, *Opuntia ficus-indica*, and *Zinnia peruviana*. This is particularly prominent in the western Macuacua area and in the northern Livevene area (H. Matimele, pers. obs.). However, regulations imposed by Government, coupled with scarcity of accessible suitable species for charcoal-making, have reduced much of this production.

A further threat of particular concern is cattle grazing. Field observation suggests there has been a considerable increase over the last 15 years in the number of areas grazed by livestock. Moreover, hunting of animals such as Bushpig has been reported, together with harvesting of medicinal plants to fulfil basic livelihoods, but also as a source of income for communities in the area. In the Matsequenha area in the east, one of the largest military bases for RENAMO soldiers was located. With the peace agreement achieved in 1992, some communities turned to charcoal production and subsistence farming. Other members of communities have

been employed in the livestock industry which has expanded considerably since the peace agreement.

In the Bemassango area, in the northern section of the IPA, Mike Persson has a concession for cattle production. He has employed members of local communities, thus providing them with some income to cover the cost of food, health and education for children. This generation of income has in turn relieved some level of pressure on the natural vegetation. Persson has also shown his willingness to turn the cattle farm into a biodiversity conservation-oriented business with emphasis on ecotourism. In addition, there is a private Namaacha Zoo located in the south-west of the IPA, which has become a tourist attraction for people in the nearby cities and towns.

Inclusion of this IPA in Mozambique's network of conservation areas would not only be greatly beneficial for biodiversity but could also be an opportunity to promote sustainable livelihoods in local communities. Most of the remnants of native forest and woodland are confined to cliffs, gorges and other sites with limited access. The IPA has a relatively high number of rivers together with cliffs, hence, the extent of natural areas in good condition is large. Some of the larger rivers in the region such as the Incomati and Umbeluzi have their tributaries within this IPA. Apart from the plant species triggering IPA, this site is home to *Platysaurus lebomboensis* (Lebombo Flat Lizard), an endemic Lizard only known from the Lebombo Mountains. This section of the Lebombo Mountains, particularly in the Matsequenha area to the northeast, forms one of the best sites for flora and fauna species such as *Asparagus radiatus*, *Pyrenacantha kaurabassana*, *Adenium swazicum*, *Warburgia salutaris*, and the Lebombo Flat Lizard.

Based on the site's biodiversity features, this IPA would have the greatest benefit if it were conserved under the Protection, Conservation and Sustainable use of Biological Diversity Act (Decree No. 16/2014 of the 20th of June). Because it is located near the capital city Maputo (75 km away), there is high potential for ecotourism. Also, because there are communities residing in the area, this IPA could potentially be protected under one of the Conservation Areas of Sustainable Use categories, which permit integrated management allowing some level of harvest in accordance with the limits to be set by the management authority. Those categories include for example Sanctuary, Area of Environmental Protection (APA), or Community Conservation Area.

---

## Site assessor(s)

Hermenegildo Matimele, Instituto de Investigação Agrária de Moçambique

Jo Osborne, Royal Botanic Gardens, Kew

Clayton Langa, Agricultural Research Institute of Mozambique (IIAM)

---

## 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>Encephalartos umbeluziensis</i> R.A.Dyer	A(i)	✓	✓	✓	—	—	Unknown
<i>Ceropegia aloicola</i> M.G.Gilbert	A(i)	✓	✓	✓	✓	—	Unknown
<i>Barleria oxyphylla</i> Lindau	A(i)	✓	✓	✓	—	—	Unknown
<i>Asparagus radiatus</i> Sebsebe	A(iv)	✓	✓	✓	—	—	Unknown
<i>Jatropha latifolia</i> Pax var. <i>subeglandulosa</i> Radcl.-Sm.	A(iv)	✓	✓	✓	—	—	Unknown
<i>Warburgia salutaris</i> (G.Bertol.) Chiov.	A(i)	—	✓	✓	—	—	Occasional

## 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
---------	--------------------------	---------------------------	----------------------------	------------------------------	------------------------

## General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Savanna - Moist Savanna	—	Major
Forest - Subtropical/Tropical Moist Lowland Forest	—	Minor
Rocky Areas - Rocky Areas [e.g. inland cliffs, mountain peaks]	—	Major
Artificial - Terrestrial - Pastureland	—	Minor

## Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Tourism / Recreation	—	Minor
Harvesting of wild resources	—	Minor
Agriculture (pastoral)	—	Minor

## Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Livestock farming & ranching - Agro-industry grazing, ranching or farming	Low	Ongoing - stable
Agriculture & aquaculture - Livestock farming & ranching - Small-holder grazing, ranching or farming	Medium	Ongoing - increasing
Biological resource use - Logging & wood harvesting - Unintentional effects: subsistence/small scale (species being assessed is not the target) [harvest]	Medium	Ongoing - declining
Biological resource use - Gathering terrestrial plants	Medium	Ongoing - trend unknown
Residential & commercial development - Tourism & recreation areas	Low	Ongoing - trend unknown

## Management type

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

## Bibliography

Darbyshire, I., Timberlake, J., Osborne, J., Rokni, S., Matimele, H., Langa, C., Datizua, C., de Sousa, C., Alves, T., Massingue, A., Hadj-Hammou, J., Dhanda, S., Shah, T. & Wursten, B. 2019. **The endemic plants of Mozambique: diversity and conservation status.** *PhytoKeys*, Vol 136, page(s) 45-96

CEPF (Critical Ecosystem Partnership Fund) 2010. **Ecosystem Profile Maputaland-Pondoland-Albany Biodiversity Hotspot.**

Smith R.J., Easton J., Nhancale B.A., Armstrong A.J., Culverwell J., Dlamini S.D., Goodman P.S., Löffler L., Matthews W.S., Monadjem A., Mulqueeny C.M., Ngwenya P., Ntumi C.P., Soto B. & Leader-Williams N. 2008. **Designing a Transfrontier Conservation Landscape for the Maputaland Centre of Endemism Using Biodiversity, Economic and Threat Data.** *Biological Conservation*, Vol 141, page(s) 2127-2138

van Wyk, A.E. 1996. **Biodiversity of the Maputaland Centre.** *The Biodiversity of African Plants* (pub. Kluwer Academic Publishers), page(s) 198-207

du Randt, F. 2018. **The Sand Forest of Maputaland.**

Senkoro, A., Shackleton, C., Voeks, R. & Ribeiro, A. 2019. **Uses, knowledge, and Management of the Threatened Pepper-Bark Tree (*Warburgia salutaris*) in southern Mozambique.** *Economic Botany*, Vol 73, page(s) 304-324

Senkoro, A., Talhinas, P., Simões, F., Batista Santos, P., Shackleton, C., Voeks, R., Marques, I. & Ribeiro Barros, A. 2020. **The genetic legacy of fragmentation and overexploitation in the threatened**

**medicinal African pepper bark tree, *Warburgia salutaris*.** *Scientific Reports*, Vol 10, page(s) 19725

Üllenberg, A., Buchberger, C., Meindl, K., Rupp, L., Springsguth, M. & Straube, B. 2014. **Evaluating cross-borders natural resource management projects: Mhlumeni Goba community tourism and conservation initiative Lubombo Conservancy – Goba TFCA.** *Unpublished Report.*

Üllenberg, A., Buchberger, C., Meindl, K., Rupp, L., Springsguth, M. & Straube, B. 2015. **Evaluating cross-borders natural resource management projects: Community-based tourism development and fire management in conservation areas of the SADC region.** *Unpublished reports.*

Lötter, M. & von Staden, L. 2018. ***Adenium swazicum* Stapf.** *National Assessment: Red List of South African Plants version 2020.1.*

von Staden, L. & Lötter, M. 2018. ***Barleria oxyphylla* Lindau.** *National Assessment: Red List of South African Plants version 2020.1.*