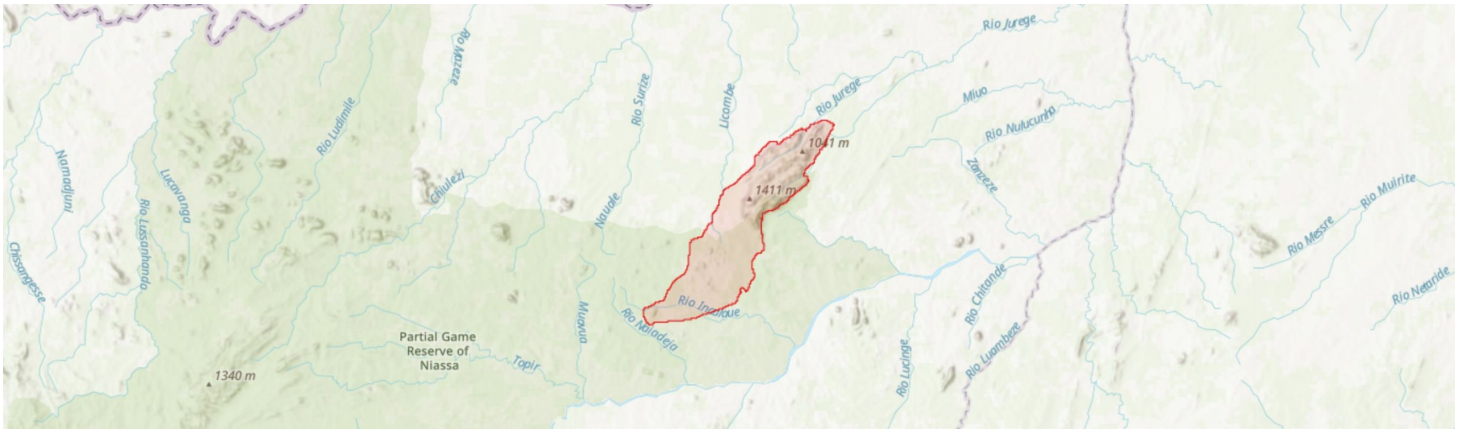
Available from https://tipas.kew.org/site/serra-mecula-and-mbatamila/
[Accessed 16 June 2026]

Serra Mecula and Mbatamila

Serra Mecula e Mbatamila (Test version)

MOZTIPA046



Country: **Mozambique**
Administrative region: **Niassa (Province)**
Central co-ordinates: **-12.09954 N, 37.62293 E**
Area: **626km²**

Qualifying IPA criteria

A(i)

IPA assessment rationale

Serra Mecula and Mbatamila qualifies as an Important Plant Area under criterion A(i) due to the presence of the globally Vulnerable species Justicia attenuifolia. While this species only occurs on the Mbatatmila area, Serra Mecula is included within this IPA as it is strongly suspected that the habitats in this area host more species of conservation importance. With further research, further trigger species will likely be uncovered, providing the potential to separate the lowland and montane areas as separate IPAs.
Mid-altitude forest, a habitat of conservation importance in Mozambique, is present on Serra Mecula. However, with only 136 ha of this forest type in this IPA, none of the necessary thresholds for triggering sub-criterion C(iii) are met.
Overall, only two endemic species are currently known from this IPA, although it is highly likely more will be recorded with further research.

Site description

Serra Mecula and Mbatamila Important Plant Area falls within Mecula District of Niassa Province. The entire site is encompassed by Niassa Special Reserve and the inselberg itself, peaking at 1,442 m, is the highest point within this 42,000 km2 protected area. To the south, this site covers the smaller inselbergs around Mbatamila, with the southernmost point around 16 km north of the Lugenda River. The Mataca-Mecula road bisects this site, while the 535 road from Marrupa and the Mecula-Naulala road run along the eastern boundary. Along these latter two roads are a number of residential areas, notably the district centre, Mecula town, at the south-eastern foot of the Serra Mecula.
Serra Mecula is unique in that it represents the only area of montane forest within Niassa Reserve (Spottiswoode et al. 2016). In addition, the inselbergs around Mbatamila host a number of rare and threatened species, while the dambos within this IPA require further investigation but are also likely to host range restricted species (Timberlake et al. 2004). Many of the habitats of the IPA are largely intact and, despite limited botanical collecting within this site, are thought to be of great botanical interest and warrant further study. Given the contrast between these habitats, the site could be divided into separate montane and lowland IPAs, with scope to also alter the boundaries of each and produce more ecosystem-focused IPAs. However, at this time, data for the site is limited and so they cannot currently be separated and still qualify as IPAs in their own right.

Botanical significance

Serra Mecula has received only limited botanical study to date, and further investigation is required at this site. A full inventory is recommended as observations made on preliminary visits suggest that the flora on this mountain, particularly in the montane forests, is of great botanical interest (J. Burrows, pers. comm. 2021).
Serra Mecula is unique in hosting the only montane forest and montane shrubland across Niassa Reserve, while neighbouring Mount Yao does not reach the necessary altitudes for hosting these habitat types. Compared to other mountains of Mozambique, however, the area of this montane forest is relatively limited, covering only 1.36 km2, (Spottiswoode et al. 2016). Instead, much of

the forested areas of the mountain are riverine and not montane. Timberlake et al. (2004) propose that the montane forests of Serra Mecula display greater similarity to those of the Manica Highlands, which run along the Mozambique-Zimbabwe border, than to the closer Mulanje-Namuli-Ribaue arc of mountains. However, more research is required to support this hypothesis.
In terms of interesting species on the mountain itself, two endemics have so far been recorded- Baphia massaiensis subsp. gomesii, and Rotheca luembensis subsp. niassensis, both limited only to northern Mozambique. The former taxon, B. massaiensis subsp. gomesii, has also been recorded around Mbatamila. An uncertain record of Pavetta gurueensis (Burrows #11225), a globally Vulnerable species, from the slopes of Serra Mecula would represent a range extension of a species otherwise limited to northern Zambezia province. However, it is not possible to determine the species with certainty from the collection made and so further investigation should be undertaken to establish which species of Pavetta occurs within this IPA.
A small number of interesting species are known from the Mbatamila area, in the southern portion of this IPA, including the globally Vulnerable species, Justicia attenuifolia, recorded from the open miombo woodland surrounding the granite outcrops. This species is known from only four locations across northern Mozambique and southern Tanzania, with this location at Mbatamila representing the only population within a protected area (Luke et al. 2015). Barleria mutabalis, a species also limited to southern Tanzania and northern Mozambique, occurs on Serra Mecula with the collection on this inselberg representing the first record for Mozambique (Darbyshire 2009), although B. mutabalis has since been collected on nearby Mount Yao.
The dambos that occur in grassland between Serra Mecula and Mbatamila are not currently known to be home to rare of threatened species, however, it is likely that ground orchids, many of which are limited in their distributions, are present here (Timberlake et al. 2004) and so there may be additional range restricted endemics in this IPA. As little is currently known about the flora of these wetlands, the area of this habitat included in this IPA is limited, however, if further investigation finds areas adjacent to be of conservation importance, these should be included within the IPA network in some form.

Habitat and geology

Serra Mecula and Mbatamila IPA hosts a number of habitat types, likely due to the variable topology and range of altitudes- varying from 350 m, in a tributary of the Chiulezi river in the north-east of this site, to 1,442 m, at the peak of Serra Mecula. The site experiences seasonal rainfall, with a wet season running from November to April, and likely receives frequent mists at higher altitudes as have been described from the other mountain of Niassa Reserve, Mount Yao (Congdon & Bayliss 2013). Temperatures are largely stable, between 21.5°C in June and July to 28°C in November.
Although this site requires further research, a survey was undertaken of Niassa Reserve in 2003 by Timberlake et al. (2004), including both Serra Mecula and Mbatamila, with further botanical collecting taking place in 2009 on Serra Mecula (J. Burrows) and in 2013 around Mbatamila (T. Parker). The following habitat description is based on the 2003 surveys of Timberlake et al. (2004).
Serra Mecula inselberg hosts the most diverse range of habitats in Niassa Reserve. Vegetation on the outer mountain slopes is largely open miombo, with species including Brachystegia boehmii, B. utilis and B. bussei. On the western-facing slopes, this miombo appears particularly open, possibly because of the steeper incline, which may retain only thin soils (Google Inc. 2020). Within gullies, following deeply incised streams, areas of gallery forest are noted, featuring species such as Khaya anthotheca, Treculia africana and Uapaca lissopyrena. The latter, as a swamp forest species, is probably associated with areas of poor drainage similar to patches of swamp forest on Mount Yao (Congdon & Bayliss 2013).
At higher altitudes are small patches of mid-montane forest, occurring on a high-altitude plateau around 1,000 – 1,300 m elevation, and in gullies below the higher peaks. Each patch is around 1 – 5 ha in area, with a total of 136 ha (1.36 km2) on Serra Mecula (Spottiswoode et al. 2016). Forest patches are dominated by species such as Peddiea africana and Erythroxylum emarginatum while the understory commonly includes shrubs such as Carvalhao macrophylla and Rinorea ilicifolia.
Surrounding the peak, is a sparsely vegetated scrubby plateau. These areas are highly exposed and are populated by low shrubs, succulents and herbs, predominantly grasses. Dominant grasses are Melinis ambigua and Urochloa while the Asteraceae Helichrysum kirkii is also common in these areas. Succulents include Aloe mawii, Tetradenia riparia and Kalanchoe elizae, while shrubs are occasional and include species such as Searsia tenuinervis and Anthospermum whyteanum, both of which were observed to be scarce. It was suggested by Timberlake et al. (2003) the species composition of this exposed plateau also has similarities to similar exposed, moist montane habitat in Zimbabwe, although further research would be required to support this hypothesis.
On the southern and eastern slopes of the mountain, land has been cleared for agriculture. Disturbed areas are kept in a sub-climax grassland state of scattered shrubs and trees, predominantly Strychnos spinosa, maintained by frequent fires.
South of Serra Mecula, miombo woodland is interspersed with dambos. While the pools and wetlands here are seasonal (Nagy & Watters 2019), the grasslands in this area are a source of moisture year-round. The grass layer of the miombo is well-developed, although the species composition has not been documented. Similarly, the species associated with the dambos in this site are yet to be inventoried. It is thought that these dambos would be suitable habitat for ground orchids. None have thus far been collected, but it is likely that this is because collecting efforts have not coincided with their wet season flowering period.
Miombo species around Mbatamila are of the genera Brachystegia and Julbernardia, with B. spiciformis and B. boehmii noted as common. Endemic Baphia massaiensis subsp. gomesii can be found as a small tree within this miombo and, amongst the grassy understory, is the endemic woody herb, Justicia attenuifolia (VU). Streams within this area are bordered by a narrow strip of evergreen

trees including Syzygium guineese (likely S. guineese sensu stricto.) and S. cordatum. Soils are described as sandy.
Associated with the granite inselbergs around Mbatamila are two main habitats: exposed, sparse vegetation on the slopes and denser, sheltered vegetation within gullies or towards the foot of the slopes. The resurrection plant, Myrothamnus flabellifolius, and the sedge Coleochloa setifera are common on the slopes. There are also a number of succulents on these inselbergs, including Aloe mawii and Euphorbia cooperi. Woodland on the slopes and ledges has not yet been surveyed, however, aerial observations suggest they are populated by Brachystegia glaucescens, and it is also thought that habitat here would be suitable for cycads, although none have been recorded as yet.
The relatively sheltered gullies and foot slopes of the Mbatamila inselbergs have deeper, more nutrient-rich soils and so support denser woodland and forest vegetation. Species in these areas include trees such as Grewia forbesii, Ficus sur and Bombax rhodognaphalon with the small tree Grewia bicolor and herbs Celosia trigyna and Ruspolia decurrens in the understory. Where foot slopes transition into plane miombo, species composition is similar to that of the planes, with Brachystegia and Julbernardia miombo. However, as soils are deeper and more clay-rich in these areas, the trees grow to greater heights.

Conservation issues

Serra Mecula and Mbatamila IPA is encompassed by the Niassa Special Reserve. The Mbatamila area falls within the Niassa Wilderness Area which, although not under active conservation management, does receive law enforcement support unlike much of the west of the reserve (Luwire Wildlife Conservancy 2019).
Serra Mecula contributes to tourism within Niassa Reserve, although overall visitor numbers are quite limited, with only 183 in 2013. The income raised through tourism could help incentivise and support conservation efforts within the reserve and, to this end, ANAC has promoted “nature-based tourism” in the reserve, drawing particular attention to Serra Mecula (ANAC 2018). However, management practices observed during the 2003 survey included the annual burning of secondary grassland and shrubland on the mountain to keep footpaths open, resulting in hectares of land burned and the reduction of forest patch sizes as the edges became degraded (Timberlake et al. 2004). Although this practice by rangers may have discontinued in the years since, there likely continues to be a threat of anthropogenic fire, particularly on the eastern slopes where fire has been used to subdue bees and allow the collection of honey (T. Alves, pers. comm. 2021).
Clearing of land on the southern and eastern slopes of Serra Mecula has been recorded since this area was occupied over a 100 years ago by the German Army during the First World War and expansion of cleared land has continued in recent years (Timberlake et al. 2004; World Resources Institute 2021). The soils within the reserve are known to be poor and rainfall low (Timberlake et al. 2004) and so land may be exhausted after few agricultural cycles. Although currently intact, the dambos to the south of Serra Mecula may also be under a high level of threat from agriculture due to the year-round moisture provided in these areas (Timberlake et al. 2004). The road running through the dambos makes the site particularly accessible and vulnerable to disturbance. Support for local people is required to develop sustainable agricultural practices, providing food security for communities while also ensuring that key habitats within this site are protected. There is also a threat of further development around Mbatamila, with an airstrip already located to the north-west of the inselbergs. The area should be more fully inventoried to allow careful consideration and planning of any further infrastructure development.
A number of interesting faunal species are also recorded from this site. One species of freshwater fish, Nothobranchius niassa (VU), is known only from Niassa Reserve, in the seasonal pools associated with the dambos. Before these pools are lost in the dry season, N. niassa lays eggs in the uppermost layer of substrate which then hatch in the subsequent rainy season (Nagy & Watters 2019). Much of this species’ range falls within this IPA and therefore the protection of the dambos here is of great importance in preventing the extinction of this species.
Interesting faunal taxa have also been recorded on Serra Mecula itself including two previously undescribed species of butterfly from the genus Baliochila (Congdon & Bayliss 2013). This inselberg is also of interest due to its avian taxa. A study by Spottiswoode et al. (2016) found that, while Serra Mecula hosts montane forests, these habitats are inhabited mostly by species associated with low to mid altitude riparian forest species. The only montane forest species recorded was Lemon Dove (Aplopelia larvata - LC). The authors suggests that the lack of montane avian taxa may be due to the remoteness of this mountain. This biogeographical pattern in bird species may parallel the suggestion by Timberlake et al. (2004) that there is greater botanical affinity between Serra Mecula and the Manica Highlands than the closer Mulanje-Namuli-Ribaue mountain arc. More research is recommended to elucidate these biogeographical patterns.

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
Justicia attenuifolia Vollesen	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
Medium Altitude Moist Forest 900-1400 m	C(iii)	–	–	–	1.36

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Montane Forest	–	Minor
Savanna - Moist Savanna	–	Major
Shrubland - Subtropical/Tropical High Altitude Shrubland	–	Minor
Grassland - Subtropical/Tropical Seasonally Wet/Flooded Lowland Grassland	–	Major
Forest - Subtropical/Tropical Moist Lowland Forest	–	Minor
Wetlands (inland) - Permanent Freshwater Marshes/Pools [under 8 ha]	–	Minor
Rocky Areas - Rocky Areas [e.g. inland cliffs, mountain peaks]	–	Minor

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	100	Major
Tourism / Recreation	–	Major
Agriculture (arable)	–	Minor

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	Medium	Ongoing - trend unknown
Transportation & service corridors - Roads & railroads	Low	Past, not likely to return

THREAT	SEVERITY	TIMING
Human intrusions & disturbance - Recreational activities	Low	Ongoing - trend unknown
Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity	Medium	Past, likely to return

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Niassa Special Reserve	National Reserve	protected/conservation area encompasses IPA	778

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Reserva Especial do Niassa	Key Biodiversity Area	protected/conservation area encompasses IPA	778

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Protected Area management plan in place	Management plan for Niassa Special Reserve in place, however, currently no conservation management for Mbatamila, only law enforcement support (Luwire Wildlife Conservancy 2019).	2016	–

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