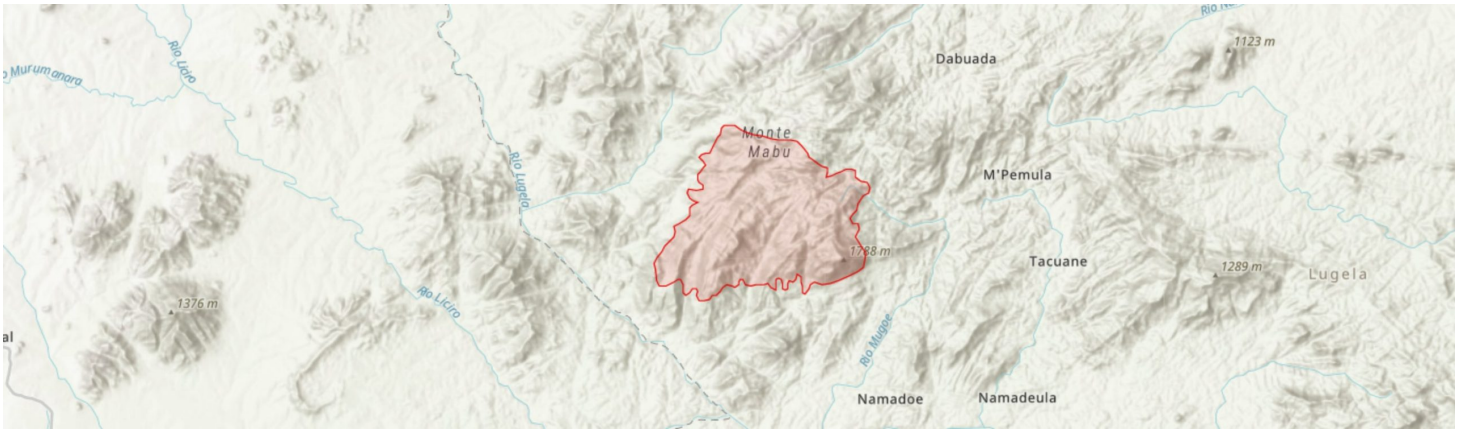
# Mount Mabu

Monte Mabu (Test version)

**MOZTIPA012**




Country: **Mozambique**
Administrative region: **Zambézia (Province)**
Central co-ordinates: **-16.27430 N, 36.35680 E**
Area: **75km²**

## Qualifying IPA criteria

A(i), C(iii)

## IPA assessment rationale

Mount Mabu qualifies as an IPA under criterion A(i) as it contains important populations of three globally Endangered species and two globally Vulnerable species. Mabu is considered likely to be the global stronghold for all these species in view of the excellent habitat quality at this site and the high levels of threat at their other known localities. In addition, it contains a nationally important population of the widespread but globally Vulnerable Afromontane species Prunus africanus which is exploited in parts of its range for its medicinal bark. Mabu also qualifies under criterion C(iii) on the basis of containing the largest extent of continuous Medium Altitude Moist Forest in Mozambique. It also contains a smaller extents of Montane Moist Forest, but this site is not considered to meet the thresholds for that habitats under criterion C(iii).
To date, 10 of the priority species under criterion B(ii) have been found at Mount Mabu, equating to 2% of the national B(ii) species list, and so falling below the 3% threshold for this sub-criterion. However, this figure is likely to rise as further surveys of this site are conducted in the future.

## Site description

The Mount Mabu IPA covers an area of 75 km2 in Lugela District of central Zambézia Province. It is located ca. 120 km to the southwest of Mount Namuli and 80 km east-southeast of Mount Mulanje in Malawi. The site is rather isolated, the nearest town being Lugela, ca. 45 km to the east. Mabu is one of a series of inselbergs and massifs that form a broad archipelago-like chain running from southern Malawi through Zambézia and Nampula Provinces of northern Mozambique, which have together been proposed as the Mulanje-Namuli-Ribáuè Centre of Plant Endemism (Darbyshire et al. 2019a). This site was the focus of significant publicity in the late 2000s when a series of biodiversity surveys revealed the biological importance of its forests; it is sometimes labelled the "Google Forest" as it was identified from Google Earth imagery as a key site of potentially high biodiversity importance during a review of key montane sites in northern Mozambique.

## Botanical significance

Of primary botanical importance at Mount Mabu is the presence of extensive areas of intact moist forest, estimated to cover 78.8 km2. The large majority of this forest (ca. 53 km2) is at elevations of 950 – 1,400 m and it is posited that Mabu holds the largest continuous tract of medium altitude moist forest in southern Africa (Bayliss et al. 2014). It also contains a smaller area (ca. 10 km2) of montane moist forest. Together, these forests support a varied flora with a number of rare and threatened species. To date, only one potential endemic species has been discovered, an as yet undescribed species of Vepris related to V. trichocarpa which is locally common in the forests at 980 – 1600 m. However, Mabu is also considered to be the most important locality globally for a number of range-restricted and threatened forest species including Helixanthera schizocalyx (EN), Pavetta gurueensis (VU) and Polysphaeria harrisii (EN), all of which are globally threatened (Darbyshire et al. 2019b). It is also a critical site for the scarce Afromontane forest tree Faurea racemosa (EN), a species that is exploited for its timber elsewhere in

its range, but is a major component of the montane forest canopy at Mabu where it is considered to be secure (Darbyshire et al. 2018). A second canopy species of conservation importance here is Maranthes goetzeniana (NT) which is fairly common at elevations up to 1,400 m (Dowsett-Lemaire & Dowsett 2009).
The site is also notable for several outlier populations of plant species. Species previously thought to be endemic to Mount Mulanje have recently been discovered here, notably the rock-dwelling taxa Senecio peltophorus (LC) and Streptocarpus milanjianus (VU), the former also now known from Mount Namuli. Cryptostephanus vansonii (LC) is otherwise known only from the Chimanimani-Nyanga Mountains on the Mozambique-Zimbabwe border. Several other taxa have their southern limit at Mabu, such as Justicia asystasioides and Crotonogynopsis australis, the latter otherwise known only from the Udzungwa and Mahenge Mountains of southern Tanzania. A similar situation is noted in the fauna of Mabu (Bayliss et al. 2014). Other nationally rare species recorded here include the bamboo, Oreobambos buchwaldii otherwise known in Mozambique only from Moribane Forest Reserve in the Chimanimani foothills, and the diminutive orchid Polystachya songaniensis otherwise known only from Mulanje and Zomba in Malawi and the Ribáuè Massif in Nampula Province; the Mozambique populations of this latter species may prove to be a distinct subspecies (A. Schuiteman, pers. comm. 2018).
During botanical surveys on the mountain in 2008, 249 plant species were recorded (Timberlake et al. 2012). However, only a small portion of the site on the eastern side has so far been surveyed botanically and there is a high likelihood that further discoveries of rare and potentially new species will be made if future surveys are conducted, particularly targeting other portions of the site.

## Habitat and geology

Mount Mabu is a granitic massif, formed from an igneous intrusion of granite-syenite of the Namarroi Group (ca. 1,100 – 850 mya), surrounded by migmatites of the same series (Instituto Nacional de Geológia 1987; Timberlake et al. 2012). The massif is intersected by a series of steep valleys. Most of the site is densely forested, but with small areas of exposed granitic outcrops on the higher peaks. Climate data are not available for the massif, but limited data from the nearby Madal tea estates at ca. 400 m elevation record a high mean annual rainfall of 2,119 mm, with the main rainy season from November to March. Mean annual temperature was 23.7C and always exceeding 20C; the occurrence of frost on the mountain is likely to be rare (Timberlake et al. 2012).
Detailed accounts of the vegetation and species assemblages of Mount Mabu are provided by Dowsett-Lemaire & Dowsett (2009) and Timberlake et al. (2012) and are summarized here. The lower slopes, primarily below 1,000 m but rising to higher elevations on the drier northern side, are low diversity woodlands dominated by Pterocarpus angolensis lower down and Syzygium cordatum as elevation rises. The understorey of this transitional woodland is dominated by Aframomum sp. with some patches of the bamboo Oxytenanthera abyssinca. Some small areas of lowland forest occur, particularly along streams, where Albizia adianthifolia can dominate together with Macaranga capensis. The medium altitude (950 – 1,400 m) moist forests are tall, with the canopy up to 40 – 45 (– 50) m tall, frequently comprising trees of Cryptocarya liebertiana, Drypetes gerrardii, Gambeya (formerly Chrysophyllum) gorongosana, Maranthes goetzeniana, Newtonia buchananii and Strombosia scheffleri, the lattermost often being dominant. The substrata are diverse, with frequent small trees including Drypetes natalensis, Pavetta gurueensis, Rawsonia lucida, Rinorea ferruginea and Synsepalum muelleri. Lianas are numerous, with Millettia lasiantha particularly common. At higher elevations (1,350 – 1,650 m), an Afromontane forest with a canopy of up to 25 m tall dominates. Newtonia buchananii drops out above 1,400 m, whilst Albizia adianthifolia is replaced by A. gummifera. Common tree species including Olea capensis and Podocarpus milanjianus, with Aphloia theiformis, Faurea racemosa, Macaranga capensis, Myrsine (formerly Rapanea) melanophloeos, Prunus africana and Syzygium afromontanum at higher elevations. Exposed granite-migmatite slopes and peaks support a lithophytic flora dominated by Coleochloa setifera. Patches of montane shrubland are frequent towards the peaks, where Aeollanthus buchnerianus, Aeschynomene nodulosa, Kotschya recurvifolia and Tetradenia riparia are among the common shrubs and Myrsine melanophloeos is frequent as a small tree.
Much of the habitat is intact and undisturbed. However, there are areas of abandoned tea plantations on the south-eastern slopes of the mountain which are in the process of converting to secondary woodland and forest, with Albizia adianthifolia as a common overtopping tree (Dowsett-Lemaire & Dowsett 2009). There are areas of subsistence mashamba agriculture in this area.

## Conservation issues

Although not formally protected at present, Mount Mabu is currently in the process of being established as a conservation area. The Mount Mabu Conservation Project, led by Flora and Fauna International and Justiça Ambiental and supported by CEPF, ran between 2013 and 2016 with the aim to establish community-based conservation efforts and education as steps towards establishing a Community Conservation Area (CCA), and to delineate areas for forest conservation and ecotourism; a draft management plan was developed as part of this work (CEPF 2021). A consortium of conservation organisations has now been tasked with establishing the protected area and implementing a revised management plan, under the PROMOVE Biodiversidade project (Biofund 2021).
Significant threats at Mount Mabu are minimal, in part because of the relative inaccessibility of most of the forest due to the steep rocky terrain, and in part because of the small human population in the vicinity of this site (Bayliss et al. 2014). The spiritual significance of the site for local communities has also contributed to its protection. of A number of low-level or potential threats to the biodiversity and ecological integrity of Mabu have been noted by Timberlake et al. (2012). These include potential expansion of agriculture into the lower parts of medium altitude forest if the local

human population increases; increased frequency of fires burning right up to the forest boundary which may inhibit forest regeneration at the margins; a slight danger of logging for timber, particularly in the surrounding moist woodland and in lower-elevation parts of the forest; and the unsustainable level of bush meat hunting in the forest by the local population. Some recent (post-2010) encroachment into the forest on the southwestern slopes is observable on satellite imagery available via Google Earth Pro (2021).
In addition to its significance for plants, Mount Mabu is an important site for a range of faunal groups. Surveys in the 2000s revealed several new species of reptiles and butterflies, such as the bush viper Atheris mabuensis (EN), known only from Mabu and Namuli, and the endemic Mount Mabu Pygmy Chameleon (Rhampholeon maspictus, NT). The avifauna is particularly important and Mount Mabu is an Important Bird Area (BirdLife International 2021), with seven globally threatened or near-threatened species recorded including the Namuli Apalis (Apalis lynesi, EN), previously thought to be endemic to Mount Namuli (Dowsett-Lemaire & Dowsett 2009). The spectacle of butterfly hill-topping can be observed on the summit of Mabu in October and November (Timberlake et al. 2012; Bayliss et al. 2014). This site has recently been designated as a Key Biodiversity Area (WCS et al. 2021).

## Site assessor(s)

Iain Darbyshire, Royal Botanic Gardens, Kew

## 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 |
|---|---|---|---|---|---|---|---|
| *Sclerochiton hirsutus Vollesen* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Helixanthera schizocalyx T.Harris, I.Darbysh. & Polhill* | A(i) | ✓ | ✓ | ✓ | – | – | Occasional |
| *Pavetta gurueensis Bridson* | A(i) | ✓ | ✓ | ✓ | – | – | Common |
| *Polysphaeria harrisii I.Darbysh. & C.Langa* | A(i) | ✓ | ✓ | ✓ | – | – | Common |
| *Faurea racemosa Farmar* | A(i) | ✓ | ✓ | ✓ | – | ✓ | Frequent |
| *Streptocarpus milanjianus Hilliard & B.L.Burtt* | A(i) | ✓ | ✓ | ✓ | – | – | Scarce |
| *Prunus africana (Hook.f.) Kalkman* | A(i) | – | ✓ | ✓ | – | ✓ | Frequent |

## 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) | – | | | 52.7 |
| Montane Moist Forest >1600 m | C(iii) | – | – | – | 10.1 |

## General site habitats

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

## Land use types

| LAND USE TYPE | PERCENT COVERAGE | IMPORTANCE |
|---|---|---|
| Harvesting of wild resources | – | Minor |
| Agriculture (arable) | – | Minor |

## Threats

| THREAT | SEVERITY | TIMING |
|---|---|---|
| Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming | Low | Ongoing - trend unknown |
| Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity | Low | Ongoing - trend unknown |
| Biological resource use - Hunting & collecting terrestrial animals | Low | Ongoing - trend unknown |

## Conservation designation

| DESIGNATION NAME | PROTECTED AREA | RELATIONSHIP WITH IPA | AREAL OVERLAP |
|---|---|---|---|
| Mount Mabu | Important Bird Area | IPA encompasses protected/conservation area | – |
| Mount Mabu | Key Biodiversity Area | IPA encompasses protected/conservation area | – |

## Management type

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

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