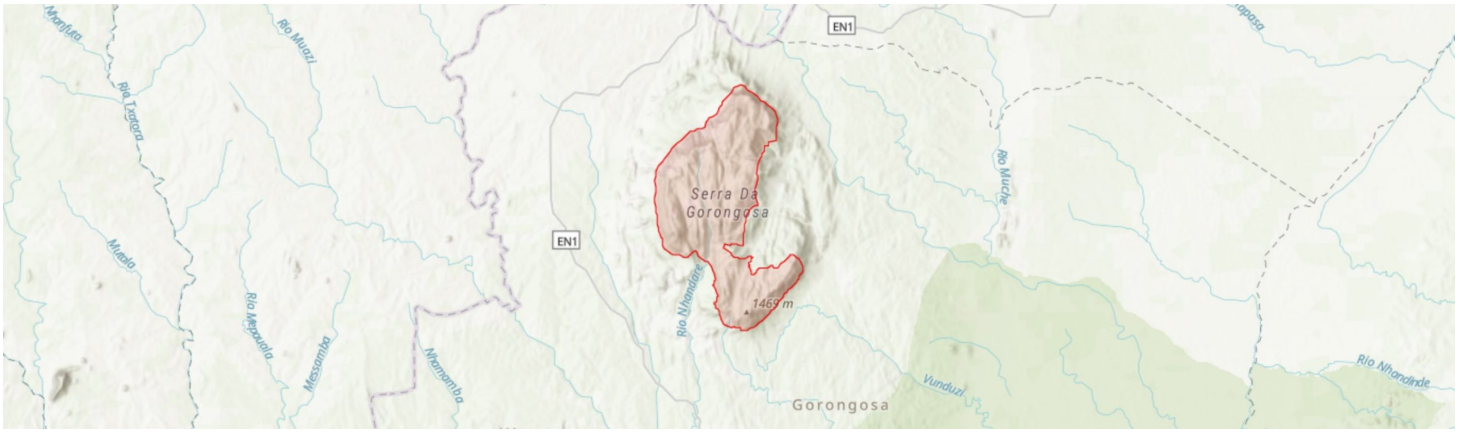
Mount Gorongosa

Monte Gorongosa (Test version)

MOZTIPA002



Country: **Mozambique**
Administrative region: **Sofala (Province)**
Central co-ordinates: **-18.39833 N, 34.08556 E**
Area: **216km²**

Qualifying IPA criteria

A(i), B(ii), C(iii)

IPA assessment rationale

Mount Gorongosa qualifies as an IPA under all three criteria. Under IPA criterion A(i), it contains ten globally threatened plant species, four of which are only represented at this site within the Mozambique IPA network, including two that are endemic to this massif: Impatiens wuerstenii (VU) and Streptocarpus brachynema (EN). It qualifies under IPA criterion B as it supports just over 3% (16 species) of the national list of priority species under criterion B(ii). As noted above, this massif is under-botanised and further surveys are likely to yield further endemic and range-restricted species and so the number of criterion B(ii) at this site is likely to increase as well as having further threatened species. This site also qualifies under IPA criterion C(iii) as it supports approximately 80 km2 of moist evergreen forest, with both Medium Altitude and Montane Forest assemblages, both of which are threatened and highly range-restricted in Mozambique. It also holds extensive areas of Montane Grassland. It is considered to be one of the five best sites nationally for these habitats.

Site description

Mount Gorongosa is an isolated massif in Gorongosa District of Sofala Province in central Mozambique, approximately 180 km inland from the Indian Ocean coastline. It rises from ca. 400-450 m elevation at the base to over 1,850 m at the summit. There are three main peaks, the highest of which is Mount Gogogo in the southwest of the massif at 1,863 m elevation. Between the peaks is an extensive upland area with three main river valleys and with a varied, undulating terrain, sometimes referred to as the "plateau". Mount Gorongosa has extensively forested slopes, whilst the summit comprises a mosaic of montane grassland, bushland and rock outcrops with forest patches in gulleys and sheltered areas; the lower slopes previously supported extensive miombo woodlands but have now been heavily denuded of woody vegetation. This site is considered to be an outlier of the proposed Chimanimani-Nyanga Centre of Plant Endemism (Darbyshire et al. 2019a).

Botanical significance

Mount Gorongosa supports two endemic plant species, both of

which are considered to be threatened: Impatiens wuerstenii (VU) and Streptocarpus brachynema (EN). A currently undescribed species of Justicia - Justicia sp. B of Flora Zambesiaca (EN) - is known with certainty only from the forests of Mount Gorongosa but is tentatively also recorded from Mount Namuli. Several other globally threatened plant species are recorded from this site, including Aloe rhodesiana (VU) and Rhinacanthus submontanus (VU) for which Mount Gorongosa is the only known site in Mozambique.
The mountain has phytogeographical links with the Chimanimani-Nyanga (Manica) Highlands that run along the Zimbabwe-Mozambique border over 100 km to the west, and it supports outlier populations of several Chimanimani-Nyanga endemics, including Cineraria pulchra, Cynorkis anisoloba (LC), Euphorbia citrina, Jamesbrittenia carvalhoi (LC), Lysimachia gracilipes, Pavetta comostyla subsp. comostyla var. inyangensis, Pelargonium mossambicense, Polystachya subumbellata (LC), Protea caffra subsp. gazensis, Tephrosia montana and Vernonia calvoana subsp. meridionalis. Some of these, such as the two orchid species, have large and important populations on Gorongosa. A number of these species have not yet been evaluated on the IUCN Red List and may well prove to be globally threatened - these include the recently described twining herb Vincetoxicum monticolum, known only from Bvumba in Zimbabwe and Tsetserra and Gorongosa in Mozambique (Goyder et al. 2020).
A botanical survey of the mountain in 2007 recorded 605 species of vascular plant at elevations of 700 m and above (Müller et al. 2012), which is significantly smaller than the flora of some other montane areas of southern tropical Africa, but the authors note that this list is likely to increase significantly when further surveys are conducted in different seasons. It is highly likely that additions to the plant list will include further outlier populations of Chimanimani-Nyanga highland endemics and/or additional new, endemic species.
Mount Gorongosa is also important for its extensive montane and sub-montane forests (but see Conservation Issues) and for the areas of rocky montane grassland and shrubland on the summit plateau, two habitats that are highly restricted in Mozambique and support rare and threatened species.

Habitat and geology

The Mount Gorongosa massif mainly comprises Late Jurassic granites but with intrusions of gabbro on the western and southern sides. The gabbros form gentle-sloped, undulating terrain whereas the granite forms steeper slopes, with some extensive sheer faces and much exposed rock. The rainfall pattern at lower altitudes is markedly seasonal with peak rainfall in the austral summer (December-March) derived from moist air from the Indian Ocean, and with a prolonged dry season. However, orographic rainfall and mists at higher elevations maintain more constant moisture availability year-round (Müller et al. 2012).
The lower, seasonally dry slopes would originally have supported extensive areas of Brachystegia-dominated miombo woodland with forest confined to river valleys and gulleys, but much of this habitat has now been transformed to farmland.
The dominant habitat on the upper slopes with higher rainfall and mist is moist evergreen forest. The forest composition is variable, with three main altitudinal belts recognisable - these are documented in detail by Müller et al. (2012), from which the following summary is derived. Montane forest (over 1,600 m) is characterised by the dominance of Syzygium afromontanum, with Aphloia theiformis, Macaranga mellifera, Maesa lanceolata, Olea capensis subsp. hochstetteri, Podocarpus milanjianus and Myrsine melanophloeos also important to co-dominant. Mixed Submontane Forest (1,300-1,600 m) is typically dominated by Craibia brevicaudata, with several of the monane forest species also common, together with Cassipourea malosana, Gambeya gorungosana and Strombosia scheffleri. Medium-altitude Forest (900-1,300 m) is characterised by the presence of Newtonia buchananii, often as the dominant species, with other frequent species including Albizia gummifera, Drypetes gerrardii, Ficus spp. and Trichilia dregeana, as well as several species of the submontane forest.
At altitudes of over 1,700 m, montane grassland is extensive which supports a rich grassland and geophytic flora. Rocky slopes can support areas of shrubland and wooded grassland, sometimes dominated by Erica hexandra and Widdringtonia nodiflora.

Conservation issues

In 2010, Mount Gorongosa was incorporated into the Gorongosa National Park, one of Mozambique's flagship protected areas. Prior to this, the mountain had not been formally protected. The lower slopes (below 1,100 m and particularly below 700 m) have been settled extensively and most of the natural vegetation - miombo woodlands and lowland forest - has long since been cleared. In recent decades, there has been an increasing threat to the moist forests on the mid-slopes due to encroachment of small-scale subsistence and cash-crop agriculture, using burning to clear the forest. This is particularly impacting the western slopes of the mountain which have experienced severe losses (see Müller et al. 2012, figure 19). This loss has continued at an increased rate in the past 10 years, with particular problems during the conflict between the government and the Renamo opposition which flared up in 2014-2015. Renamo forces used the mountain as their base and resultant fighting on the mountain led to burning of large areas of forest that have subsequently been cleared and used for cultivation. Such clearance has led to the loss, for example, of the forest patch within which Justicia sp. B has previously been recorded on Gorongosa (Darbyshire et al. 2019b), and has also led to the loss of the globally southern-most population of Brachystephanus africanus (B. Wursten, pers. obs.).
The upper slopes are considered to be a sacred site by some local communities and so afforded some protection, but recent satellite images show that even on top of the plateau and in the inner valleys the forests are now fragmented where they were still near-pristine in 2007 when the last vegetation surveys were carried out. Increased frequency of fire is also a concern, and this may penetrate more of

the high plateau as the forest fragmentation continues.
It is hoped that its inclusion within this flagship National Park - and its ambitious conservation, scientific research and education programmes under the umbrella of the Gorongosa Restoration Project - will result in long term protection and rehabilitation of Mount Gorongosa. As part of these efforts, an agroforestry scheme has recently been launched with shade-cropping of arabica coffee, intercropped with native trees such as Albizia adianthifolia, Khaya anthotheca and Millettia stuhlmannii, to help reforest some of the lower slopes whilst also providing a significant source of income for local communities, through the sale of “Gorongosa Coffee” to national and international markets.
Gorongosa National Park is also an Important Bird Area (Birdlife 2021), with Mount Gorongosa being cited as of highest importance within the IBA because it supports rare forest species such as the Chirinda Apalis (Apalis chirindensis, LC), Plain-backed Sunbird (Anthreptes reichenowi, NT) and Swynnerton's Robin (Swynnertonia swynnertoni, VU), as well as having a disjunct population of Green-headed Oriole (Oriolus chlorocephalus). The pygymy chameleon Rhampholeon gorongosae (EN) is endemic to the mountain; this, together with Streptocarpus brachynema, would qualify the mountain as an Alliance for Zero Extinction site. This site is included within the vast Gorongosa-Marromeu Key Biodiversity Area.

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
Streptocarpus brachynema Hilliard & B.L.Burtt	A(i)	✓	✓	✓	✓	–	Occasional
Impatiens wuerstenii S.B.Janssens & Dessein	A(i)	✓	✓	✓	✓	–	Frequent
Justicia sp. A of F.Z.	A(i)	✓	✓	✓	–	–	Scarce
Aloe rhodesiana Rendle	A(i)	✓	✓	✓	–	–	Frequent
Rhinacanthus submontanus T.Harris & I.Darbysh.	A(i)	✓	✓	✓	–	–	Unknown
Allophylus chirindensis Baker f.	A(i)	✓	✓	✓	–	–	Unknown
Khaya anthotheca C.DC.	A(i)	–	✓	✓	–	✓	Occasional
Dioscorea sylvatica Eckl.	A(i)	–	✓	✓	–	–	Unknown
Ocotea kenyensis (Chiov.) Robyns & R.Wilczek	A(i)	–	✓	✓	–	✓	Scarce
Tannodia swynnertonii (S.Moore) Prain	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
Montane Moist Forest >1600 m	C(iii)	–	✓	✓	9
Medium Altitude Moist Forest 900-1400 m	C(iii)	–	✓	✓	71
Montane Grassland	C(iii)	–	–	✓	

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Montane Forest	—	Major
Grassland - Subtropical/Tropical High Altitude Grassland	—	Major
Rocky Areas	—	Major
Savanna - Moist Savanna	—	Minor
Shrubland - Subtropical/Tropical High Altitude Shrubland	—	Major
Artificial - Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest	—	Major
Artificial - Terrestrial - Arable Land	—	Major

Land use types

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

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	High	Ongoing - increasing
Agriculture & aquaculture - Annual & perennial non-timber crops - Shifting agriculture	High	Ongoing - increasing
Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity	Medium	Ongoing - increasing

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Gorongosa National Park	National Park	protected/conservation area encompasses IPA	—

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Gorongosa Mountain and National Park	Important Bird Area	protected/conservation area encompasses IPA	—
Gorongosa-Marromeu	Key Biodiversity Area	protected/conservation area encompasses IPA	—

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Protected Area management plan in place	Gorongosa Mountain is being incorporated into the Gorongosa Restoration Project.	–	–

Bibliography

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