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[Accessed 16 June 2026]

Txitonga Mountains

Montanhas de Txitonga (Test version)

MOZTIPA020

Country: **Mozambique**
Administrative region: **Niassa (Province)**
Central co-ordinates: **-11.78280 N, 35.06750 E**
Area: **741km²**

Qualifying IPA criteria

A(iii), C(iii)

IPA assessment rationale

The Txitonga Mountains qualify as an Important Plant Area under sub-criterion C(iii), the site has significant areas of montane grassland, a restricted and nationally threatened habitat. While montane scrubland is also present at this site, and may well also be of conservation importance, it is difficult to spatially define and cannot be assessed at this time. The presence of Hartliella sp. nov., a highly restricted endemic, also triggers sub-criterion A(iii) for this site. It is highly likely that, as more botanical collection and research is conducted on the flora of this site, more threatened and endemic species will be recorded.

Site description

The Txitonga Mountains lie in the northwest of Lago district in Niassa Province. The mountains extend south from the southern end of the Kipengere Range in Tanzania and form part of the eastern escarpment of the East African rift. These mountains are isolated from the other highland areas in Niassa province - the broad Lichinga plateau area and outlying Mount Mecula and Mount Yao. They are therefore likely to support a distinct biodiversity for Mozambique, closely allied to that in southwest Tanzania. Mount Txitonga (or Chitonga) is the highest peak in the range at ca. 1848 m elevation. The IPA extends south from the Tanzanian border and includes a core zone of montane habitat over 1200 m elevation situated within a larger buffer zone of foothills extending towards the Messinge river plain to the east and the shore of Lake Niassa to the west. The IPA is within the Lake Niassa Reserve, also a Ramsar site, that includes both Lake Niassa and the adjacent terrestrial zone (Ramsar 2011).

Botanical significance

A significant area of montane habitat can be found in the Txitonga Mountains including montane grassland, a restricted and threatened habitat of Mozambique. There is also montane scrubland present within this IPA, which may also be of national conservation importance; however, this habitat type is difficult to define spatially, and so further research would be required.
The site is not well-studied botanically and several possible plant species new to science were recorded during an expedition in 2019 (Osborne et al. 2019). These include a species of Streptocarpus allied to S. michelmorei but apparently unmatched, a potentially new species of Bothriocline, and a small rosette herb, Hartliella sp. nov. The latter genus is, interestingly, an indicator of metal-rich soils and the genus as a whole was previously known only from the Katanga region of D.R. Congo, and northern Zambia. Hartliella sp. nov. is highly localized, known only from a single location where it was locally common. As Hartliella sp. nov. occupies a range of less than 100 km2 and is yet to be assessed for the IUCN Red List, it triggers A(iii) of the IPA sub-criteria. This species may well be assessed as Critically Endangered in future as habitat is being lost through mining.
A number of other interesting taxa were collected during the 2019 expedition, including several records new to Mozambique - Barleria holstii (LC), Erica woodii Leptoderris brachyptera (LC), Polygala gossweileri and Protea micans subsp. trichophylla - and two records

of species not previous collected in northern Mozambique - Plectranthus kapatensis and Vernonia holstii. With further investigation, many more notable plant species are likely to be collected within this IPA.

Habitat and geology

The Txitonga Mountains are dominated by metasedimentary rocks, predominantly meta-greywacke, meta-sandstone and schists, the Txitonga geological group also hosts the Niassa Gold Belt the presence of which has motivated goldmining within the IPA (Bingen et al. 2007). Soils have not been fully categorised; however, the presence of Hartliella potentially indicates metal-rich soils. The site experiences average annual precipitation of around 1,312 mm on the slopes and 1,330 mm on the higher ridges, with the vast majority falling during the wet season between November and April. Temperatures average at 21°C on the escarpments and 17.8°C on the upper ridges (Lötter et al. 2021).

The vegetation on the foothills and slopes of the mountains is predominantly woodland with narrow strips of moist gallery forest growing along deep stream gullies. At higher altitudes a more open montane savannah, montane scrubland and montane grassland occur. The site is underexplored botanically and the habitat information below was gathered during an expedition into the mountains in 2019 (Osborne et al. 2019).

The woodland that covers the mountain slopes and foothills of the Txitonga Mountains is extensive, supporting a high diversity of trees, shrubs, herbs and grasses. There is also much local variation in the woodland vegetation across the landscape. A large part of the woodland is miombo, dominated by Brachystegia spiciformis and B. boehmii. Uapaca kirkiana is also among the dominant species, in places forming dense, monospecific stands. Uapaca nitida, Faurea rochetiana, Parinari curatellifolia, Diplorhynchus condylocarpon, Monotes engleri and Pericopsis angolensis are frequent, while locally common shrubs include Droogmansia pteropus and Cryptosepalum maraviense.

Deep stream gullies are frequent and conspicuous on satellite imagery (Google Earth 2020). The stream gullies support humid gallery forest and a very different flora from the wooded hillsides. Brachystegia tamarindoides subsp. microphylla is dominant on the upper level of the gallery forest, growing with Burkea africana and reaching a canopy height to ca. 25 m. At the bottom of the stream gullies, Breonadia salicina and stilt-rooted Uapaca lissopyrena are common, growing with Treculia africana, Erythrophleum suaveolens and Bridelia micrantha. The understorey includes Erythroxylum emarginatum and abundant lianas. Shaded rocks along the streams support moisture-loving species including ferns and Streptocarpus sp.

At higher altitudes the woodland becomes more open in places and the canopy lower, grading into montane savannah grassland and scrubland with rocky outcrops. Woody species are sparse in the savanna and include Uapaca kirkiana, Faurea rochetiana, Protea spp., Erica sp., Psorospermum febrifugum and Myrica pilulifera, mostly to less than 3 m tall. Along the mountain ridge, the low shrubs Kotschya strigosa and Cryptosepalum maraviense are common. The montane grassland is mostly short, to ca. 50 cm in height and rich in dwarf shrubs, herbs and geophytes.

Conservation issues

The Txitonga Mountains fall within Lake Niassa Partial Reserve and Ramsar site. Although there has been some monitoring of deforestation in the area by WWF (WWF 2011), much of the focus of these conservation areas is, on the freshwater rather than montane ecosystems.

Environmental disturbance from gold mining is extensive and ongoing leaving areas of broken rock, deeply eroded fissures, silted rivers and mercury pollution. The mining is legal, licensed through the community mining association. Water is channelled to mining sites over long distances to facilitate the mining process and the water channels are maintained over many years. The risk of mercury pollution to the local people is recognised in Tulo Calanda, to the east of the mountains, where water is piped to the village from a clean site unaffected by the mining. Despite being within the Lake Niassa Reserve, a partial reserve, there appears to be no control over the use of mercury (Osborne et al. 2019).

Across most of Mozambique the expansion of subsistence ‘machamba’ agriculture is the main cause of habitat loss. In the Txitonga Mountains this is not the case and there is very little cultivation. Here gold mining is more profitable than agriculture and is driving the local economy. The Txitonga Mountains support large areas of valuable natural vegetation. However, gold mining is taking place at multiple sites in the mountains causing habitat loss locally, wider disturbance to the hydrology and environmental pollution (Osborne et al. 2019). The ongoing expansion of gold mining sites poses both a current and future threat to the vegetation.

In addition to the direct impacts of gold mining, the presence of gold miners in the mountains has led to an increased frequency of uncontrolled wildfires that poses a serious threat to the vegetation. Fires are set both intentionally for hunting and unintentionally from cooking fires. Monitoring uncontrolled burning makes up a large proportion of the work of the local government Environmental Officers (Fiscais) and more resources are needed to control this activity (Osborne et al. 2019).

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
Hartliella sp. nov. J. Osborne 1711	A(iii)	✓	✓	✓	✓	–	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
Shrubland - Subtropical/Tropical High Altitude Shrubland	–	Major
Grassland - Subtropical/Tropical High Altitude Grassland	–	Major
Forest - Subtropical/Tropical Moist Montane Forest	–	Minor
Wetlands (inland) - Permanent Rivers, Streams, Creeks [includes waterfalls]	–	Minor

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	–	Major
Extractive industry	–	Major

Threats

THREAT	SEVERITY	TIMING
Energy production & mining - Mining & quarrying	High	Ongoing - trend unknown
Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity	High	Ongoing - trend unknown
Pollution - Industrial & military effluents - Seepage from mining	Unknown	Ongoing - trend unknown

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Lake Niassa	Partial Reserve	protected/conservation area encompasses IPA	941

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Lake Niassa	Ramsar	protected/conservation area encompasses IPA	941

Management type

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

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