# Quiterajo

**MOZTIPA021**


Country: **Mozambique**
Administrative region: **Cabo Delgado (Province)**
Central co-ordinates: **-11.76450 N, 40.39660 E**
Area: **129km²**

## Qualifying IPA criteria

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

## IPA assessment rationale

Quiterajo meets all three of the criteria to qualify as an IPA. Under criterion A(i), it holds nationally and, in most cases, internationally important populations of over 30 globally threatened plant species, 11 of which are assessed as Endangered and three which are Critically Endangered: Memecylon aenigmaticum, Warneckea albiflora and W. cordiformis which are all endemic to this site. Other globally threatened species are likely to be added to this list when a full Red List for the region is finalised and when the potentially new species are delimited. The site contains at least 21 qualifying species under criterion B(ii) and hence exceeds the 3% threshold for this criterion. It also holds nationally important areas of Rovuma coastal dry forest, a nationally (and almost certainly globally) threatened habitat, and Quiterajo is considered to be one of the five best sites nationally for this habitat, hence it qualifies under criterion C(iii).

## Site description

The Quiterajo IPA covers an area of 129 km2 inland from the coastal village of Quiterajo in Macomia District of Cabo Delgado Province. It lies to the west of highway 247, ca. 45 km south of the port of Mocimboa da Praia. The site primarily covers dry forest and dense woodland that occupy a low plateau (mainly 90-150 m a.s.l.) to the south of the floodplain of the Messalo River. The main, eastern, block of the IPA contains the ca. 31 km2 Namacubi Forest, sometimes referred to as "The Banana" Forest because of its shape. Also included are the forests and woodlands around and west of Lake Macungue which are separated from Namacubi by floodplain grasslands, open palm savanna and seasonal wetlands, and the Namparamnera Forest to the south of Namacubi. These forests are home to a rich flora including many globally rare and threatened species, and this site must be considered an urgent priority for conservation action. Indeed, the Namacubi Forest is of such high botanical importance that the major publication on the Trees and Shrubs of Mozambique (Burrows et al. 2018) was dedicated to this site in the hope that it would promote international recognition and formal conservation of this unique site.
This IPA could be expanded in the future to include the heavily wooded and forested areas of the Sakaje Plateau to the southwest of the current site. To our knowledge, this area has not yet been botanised, but the vegetation is largely intact and looks similar in composition to some of the important patches of woody vegetation at Quiterajo. This would add an extra c. 200 km2 to the IPA, or the Sakaje Plateau could be recognised as a separate IPA.

## Botanical significance

Quiterajo was listed as one of four "high priority" sites for the conservation of coastal dry forest in northeast Mozambique (Timberlake et al. 2010). This site contains globally important examples of intact dry forest of the proposed Rovuma Centre of Plant Endemism (CoE), a threatened habitat type known for its high rates of local endemism and high species turnover between patches (Timberlake et al. 2010, 2011; Burrows & Timberlake 2011; Darbyshire et al. 2019). The c. 31 km2 Namacubi Forest is dominated by Guibourtia schliebenii, a globally Vulnerable species for which this is believed to be one of the most important sites. It contains a significant number of species not known elsewhere in

Mozambique, many of which are rare and/or threatened Rovuma CoE endemics, such as Drypetes sclerophylla (EN), Omphalea mansfeldiana (EN) and Xylopia tenuipetala (EN). The lattermost of these is a Mozambican endemic for which this is the most important site globally. The aroid Stylochaeton tortispathum (VU) is currently considered to be endemic to Namacubi. The diversity of woody Melastomataceae is particularly impressive; Namacubi contains two endemic species, Warneckea albiflora (CR) and Warneckea cordiformis (CR), as well as being the only Mozambican site for Memecylon rovumense (EN), otherwise known from three sites in southeast Tanzania, and the prime locality for the Mozambican endemic species Memecylon torrei (EN). The adjacent Namparamnera Forest is the only known locality for Memecylon aenigmaticum (CR). The sacred forest west of Lake Macungue is dominated by Micklethwaitia carvalhoi, a globally Vulnerable Mozambican endemic species and genus, with c. 5,000 individuals present in an area of approximately 1 km2. Whilst the surrounding floodplain grasslands and seasonal wetlands are of lesser botanical importance, this is the only Mozambican site for the rare labiate herb Orthosiphon scedastophyllus (CR), otherwise known from Tendaguru in Tanzania.

Several undescribed taxa are known from Quiterajo, some of which are potentially further endemic species. These include a new Asparagus sp. currently under description by S.M. and J.E. Burrows (to be named Asparagus inopinatus); a possible new species of succulent Euphorbia allied to E. ambroseae; a species of Vepris also known from one site in Zambézia Province; Deinbollia sp. A of Burrows et al. (2018); and several members of the coffee (Rubiaceae) family: a Coffea sp.; two species of Pyrostria currently under description; Tarenna sp. 53 of Degreef (2006), also known from the Rondo Plateau in Tanzania and Mueda Plateau [MOZTIPA025]; and Rytigynia sp. M of Burrows et al. (2018).

## Habitat and geology

The low plateau above the Messalo floodplain, capped by dry forest, is composed of iron-rich sandstones of the Mikindani Formation of mid-Neogene origin (c. 10 – 15 mya). This rock gives rise to a coarsely sandy well-drained red soil. A 50 x 50 m plot surveyed in the Namacubi Forest (Timberlake et al. 2010) revealed that 50 – 60% of the canopy is dominated by Guibourtia schliebenii. Other common species in the canopy and subcanopy include Manilkara discolor, Rinorea angustifolia, Terminalia myrtifolia, Xylopia tenuipetala and a range of woody Melastomataceae, notably Memecylon torrei, Warneckea cordiformis and W. sansibarica. Lannea antiscorbutica and Vitex carvalhi are important emergent trees. Timberlake et al. (2010) estimate a richness of c. 50 – 60 woody species per ha. The geology underlying the Micklethwaitia-dominated dry forest west of Lake Macungue is not known but it may differ from that of Namacubi given that it has a very different species assemblage.

The forests have a strong deciduous element and significant numbers of sclerophyllous species. This is in response to the regional climate, which has a prolonged dry season from May to November/December, with a single rainy season December to April; annual rainfall is approximately 1,000 mm/yr.

Miombo woodland is frequent, particularly on the lower slopes away from the Mikindani sandstone. It is dominated by widespread species including Brachystegia spiciformis, Julbernardia globiflora and the heavily exploited Afzelia quanzensis, as well as the more range-restricted species Berlinia orientalis (Timberlake et al. 2010).

The surrounding floodplains and gentle depressions are underlain by more recent Quaternary deposits and alluvial soils. These areas support open floodplain grassland and savanna, with dominant grasses including Panicum coloratum, Pennisetum polystachion in disturbed areas, and Hyparrhenia spp., and trees including Acacia seyal, A. sieberiana, Faidherbia albida, Kigelia africana and the palms Hyphaene compressa, Phoenix reclinata and occasional Borassus aethiopum together with seasonal wetlands (Timberlake et al. 2014). These latter areas are of lesser importance for plants but provide critical habitat for other wildlife including elephants.

## Conservation issues

There is no formal conservation or biodiversity management in place at Quiterajo. The eastern portion of the site, including Namacubi Forest, was previously included within the c. 300 km2 Messalo Wilderness Area of the Maluane Conservancy (or Cabo Delgado Biodiversity and Tourism Project), a privately run tourism concession. Much of the management focus of this concession was on controlling illegal poaching, and conserving the elephant population on the Messalo floodplain, but there were also efforts to prevent illegal logging in the forests. However, activity within this concession appears to have diminished since 2012, with the Maluane Conservancy focusing more on Vamizi Island to the north (see MOZTIPA017).

The greatest threat posed to this site is from the steady immigration into northeast Cabo Delgado since the end of the post-independence civil war from the 1990s onwards. This has resulted in expansion of settlement and subsistence agriculture, increased logging of woody species for construction and charcoal and the increased frequency of wildfires set intentionally for habitat clearance and hunting (Timberlake et al. 2010). Illegal commercial logging for export is also an ongoing problem. Timberlake et al. (2014) estimate a c. 10% reduction in forest cover at Namacubi between 1999 and 2013, and encroachment into the southern portion of the forest in particular is clearly evident on satellite imagery (Google Earth 2021). A significant threat arose in the mid-2010s from the proposed construction of a new road from Mocimboa da Praia to Pemba associated with oil and gas industrial activity which would have run through the Namacubi Forest. Thankfully, this project did not proceed, and the threat appears to have abated. Current petroleum industry activity is focused on offshore liquefied natural gas (LNG) extraction further north on the Cabo Delgado coast and the impact south of Mocimboa da Praia is low at present. A violent insurgency in this region since 2017 has disrupted much of this development and has resulted in significant population displacement away from many of the local villages. However, repopulation is likely to follow any abatement of these security concerns in the future. And, should the

new access road again be contemplated, the resulting influx of ribbon development and associated environmental degradation would severely threaten the existence of Namacubi Forest (J.E. Burrows, pers. comm.).
In view of its irreplaceability, formal protection of this globally important site and active management to prevent further encroachment or illegal logging should be considered a national conservation priority.

## Site assessor(s)

Assessed by:

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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 |
|---|---|---|---|---|---|---|---|
| *Hexalobus mossambicensis N.Robson* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Monanthotaxis trichantha (Diels) Verdc.* | A(i) | – | ✓ | ✓ | – | – | Unknown |
| *Xylopia tenuipetala D.M.Johnson & Goyder* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Stylochaeton euryphyllus Mildbr.* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Stylochaeton tortispathus Bogner & Haigh* | A(i) | ✓ | ✓ | ✓ | ✓ | – | Scarce |
| *Nectaropetalum carvalhoi Engl.* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Croton kilwae Radcl.-Sm.* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Acacia latispina J.E.Burrows & S.M.Burrows* | A(i) | ✓ | ✓ | ✓ | – | – | Occasional |
| *Berlinia orientalis Brenan* | A(i) | ✓ | ✓ | ✓ | – | – | Frequent |
| *Micklethwaitia carvalhoi (Harms) G.P.Lewis & Schrire* | A(i) | ✓ | ✓ | ✓ | – | ✓ | Frequent |
| *Orthosiphon scedastophyllus A.J.Paton* | A(iv) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Vitex carvalhi Gürke* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Vitex mossambicensis Gürke* | A(i) | ✓ | ✓ | ✓ | – | – | Frequent |
| *Grewia limae Wild* | A(i) | ✓ | ✓ | ✓ | – | – | Scarce |
| *Memecylon aenigmaticum R.D.Stone* | A(i) | ✓ | ✓ | ✓ | ✓ | – | Occasional |
| *Memecylon rovumense R.D.Stone & I.G.Mona* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |

| 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 |
|---|---|---|---|---|---|---|---|
| *Memecylon torrei A.Fern. & R.Fern.* | A(i) | ✓ | ✓ | ✓ | – | – | Common |
| *Warneckea albiflora R.D.Stone & N.P.Tenza* | A(i) | ✓ | ✓ | ✓ | ✓ | – | Unknown |
| *Warneckea cordiformis R.D.Stone* | A(i) | ✓ | ✓ | ✓ | ✓ | – | Frequent |
| *Chassalia colorata J.E.Burrows* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Leptactina papyrophloea Verdc.* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Oxyanthus strigosus Bridson & J.E.Burrows* | A(i) | ✓ | ✓ | ✓ | – | – | Scarce |
| *Pavetta lindina Bremek.* | A(i) | ✓ | ✓ | ✓ | – | – | Scarce |
| *Psydrax micans (Bullock) Bridson* | A(i) | – | – | ✓ | – | – | Unknown |
| *Tricalysia schliebenii Robbr.* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Tricalysia semidecidua Bridson* | A(i) | ✓ | ✓ | ✓ | – | – | Occasional |
| *Guibourtia schliebenii (Harms) J.Leonard* | A(i) | ✓ | ✓ | ✓ | – | – | Abundant |
| *Millettia impressa Harms subsp. goetzeana (Harms) J.B.Gillett* | A(i) | – | ✓ | ✓ | – | – | Unknown |
| *Premna schliebenii Werderm.* | A(i) | – | ✓ | ✓ | – | – | Unknown |
| *Sterculia schliebenii Mildbr.* | A(i) | – | ✓ | ✓ | – | – | Unknown |
| *Vismia pauciflora Milne-Redh.* | A(i) | ✓ | ✓ | ✓ | – | – | Unknown |
| *Drypetes sclerophylla Mildbr.* | A(i) | ✓ | ✓ | ✓ | – | – | Occasional |
| *Zanthoxylum lindense (Engl.) Kokwaro* | A(i) | ✓ | ✓ | ✓ | – | – | Scarce |
| *Vepris sansibarensis* | A(i) | – | ✓ | ✓ | – | – | Unknown |

| 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 |
|---|---|---|---|---|---|---|---|
| *(Engl.) Mziray* | | | | | | | |
| *Mildbraedia carpinifolia (Pax) Hutch.* | A(i) | – | ✓ | ✓ | – | – | Common |
| *Acacia latistipulata Harms* | A(i) | ✓ | ✓ | ✓ | – | – | Frequent |
| *Vismianthus punctatus Mildbr.* | A(i) | ✓ | ✓ | ✓ | – | – | Occasional |
| *Omphalea mansfeldiana Mildbr.* | A(i) | ✓ | ✓ | ✓ | – | – | Scarce |
| *Strychnos xylophylla Gilg* | A(i) | – | ✓ | ✓ | – | – | Scarce |

## 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 |
|---|---|---|---|---|---|
| Rovuma Coastal Dry Forest | C(iii) | – | ✓ | ✓ | 35 |
| Rovuma Micklethwaitia Coastal Dry Forest | C(iii) | – | – | ✓ | 1 |

## General site habitats

| GENERAL SITE HABITAT | PERCENT COVERAGE | IMPORTANCE |
|---|---|---|
| Forest - Subtropical/Tropical Dry Forest | – | Major |
| Savanna - Moist Savanna | – | Major |
| Shrubland - Subtropical/Tropical Moist Shrubland | – | Major |
| Grassland - Subtropical/Tropical Seasonally Wet/Flooded Lowland Grassland | – | 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 | Medium | Ongoing - trend unknown |
| Biological resource use - Gathering terrestrial plants | Medium | Ongoing - increasing |
| Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity | Medium | Ongoing - trend unknown |
| Transportation & service corridors - Roads & railroads | Unknown | Past, not likely to return |

## Conservation designation

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

## Management type

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

## Bibliography


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