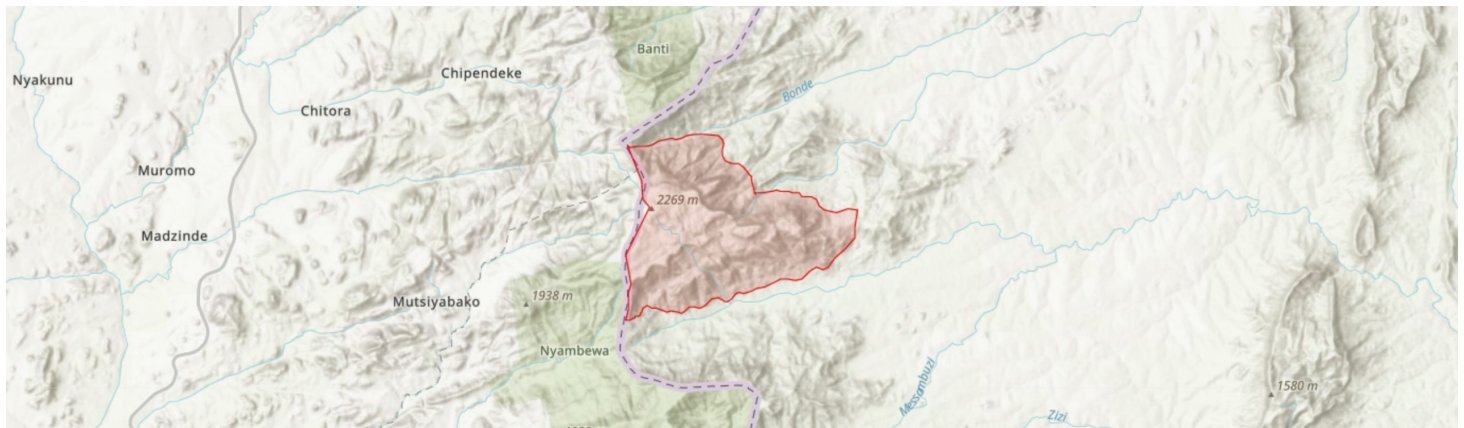


Tsetserra

MOZTIPA007



Country: **Mozambique**
 Administrative region: **Manica (Province)**
 Central co-ordinates: **-19.39326 N, 32.79879 E**
 Area: **77km²**

Qualifying IPA criteria

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

IPA assessment rationale

Tsetserra qualifies as an Important Plant Area under all three criteria. Under criterion A(i), the site supports populations of fourteen globally threatened plant species that are inferred to meet the population threshold; the globally threatened *Prunus africana* is also recorded here but it is not clear if this species meets any of the criterion A(i) thresholds at this site. In addition, four potentially threatened endemics occur here, one being highly restricted (having range of 100 km² but

Site description

Tsetserra (or Tsetsera) is a montane plateau in the Manica Highlands to the north of the Chimanimani Mountains, in

Sussendenga District of Manica Province. It is situated ca. 70 km to the WSW of Chimoio town. It forms part of a cross-border plateau extending into Mozambique from Zimbabwe's Manicaland Province, where it is known as Himalaya. In Mozambique, the plateau reaches an elevation of over 2,200 m and has a history of use during the colonial period. The ruins of several buildings remain along with remnants of pine plantations. There is access via a single road that runs up onto the plateau from the east. The site includes both the montane plateau and the steep, forested slopes below. It lies within the buffer zone of the Chimanimani National Park, also known as the Chimanimani Trans-Frontier Conservation Area (TFCA).

Botanical significance

Tsetserra is a highly important site for plant diversity and endemism in Mozambique, being an important component of the Chimanimani-Nyanga (Sub-) Centre of Plant Endemism [CoE] (Darbyshire et al. 2019). It supports nationally significant areas of montane grassland and scrubland on the plateau and montane moist forest on the slopes below, which are highly restricted habitats in Mozambique. Four plant species are only known from this site: the rhizomatous perennial grass *Digitaria fuscopilosa* (DD), the herbs *Phyllanthus manicaensis* (VU) and *Phyllanthus tsetserrae* (CR) and the subshrub *Pterocephalus centennii* (CR). Two further taxa, *Euphorbia depauperata* var. *tsetserrensis* and *Geranium exellii* (EN) are endemic to the Tsetserra-Himalaya plateau. Further globally

Endangered species that occur here include the herb *Dierama inyangense*, for which this is the only known site in Mozambique, and the shrub *Myrica* (formerly *Morella*) *chimanimaniana* at its only known site away from the Chimanimani Mountains (Osborne & Matimele 2018). Overall, the site supports important populations of 15 species that are globally threatened and many range-restricted species of the Chimanimani-Nyanga CoE. A majority of these taxa occur in the plateau grasslands, scrublands and upper forest margins. However, a number of range-restricted montane forest species are also noteworthy, including the woody Rubiaceae taxa *Pavetta comostyla* var. *inyangensis*, *Pavetta umtalensis* (LC) and *Tricalysia ignota*, as well as the recently described forest climber *Vincetoxicum monticulum* which is likely to be globally threatened (Darbyshire et al. 2019; Goyder et al. 2020).

The plant diversity of Tsetserra has only been partially explored to date and further rare and threatened species may be found by future expeditions. One currently undescribed species is noted from this site: *Sericanthe* sp. A (Nyanga taxon) of Flora Zambesiaca (Bridson & Verdcourt 2003) which occurs on rock outcrops on the edges of forest.

Habitat and geology

The high-altitude plateau at Tsetserra is underlain by red sandy clay soils derived from schist bedrock. Surficial geology is Precambrian in age. The plateau is dominated by montane grassland and shrubland vegetation with occasional rocky outcrops and poorly drained areas that increase the plant diversity. The grasslands support a varied flora with many herbs and geophytes. Frequent shrubby species include *Helichrysum* spp., with *Hypericum revolutum* also plentiful and *Erica hexandra* occasional.

On the slopes below the plateau there are large areas of intact evergreen montane moist forest with stream gullies and rocky areas on the slopes providing habitat diversity. The forest above 1,600 m is of the Central Montane Forest vegetation unit of Lötter et al. (in prep.). The forest composition at Tsetserra has not been fully inventoried to date. A forest plot surveyed at 1,794 m elevation (J. Osborne et al., unpubl. data 2018) recorded *Macaranga mellifera* and *Vepris bachmannii* as the dominant species, with trees of *Kiggelaria africana*, *Tabernaemontana stapfiana* and *Erythroxylum emarginatum* also recorded. Other tree species noted to be of importance during recent surveys and/or by past botanical collectors include *Aphloia theiformis*, *Myrsine* (formerly *Rapanea*) *melanophloeos*, *Pittosporum viridiflorum*, *Podocarpus milanjanus*, *Rauvolfia caffra* and *Syzygium afromontanum*. Common components of the understory include *Peddiea africana*, *Psychotria zombamontana* and *Dracaena* sp. *Halleria lucida*, *Nuxia congesta* and *Polyscias fulva* are amongst the species of forest margins and clearings. The ground layer is dominated by pteridophytes, with *Selaginella kraussiana* often abundant. Stream gullies support populations of *Ensete ventricosum*, an important food plant in Ethiopia. *Strelitzia caudata* is noted from rocky slopes (J. Osborne et al., pers. obs.).

Conservation issues

Tsetserra falls within the extensive buffer zone of the Chimanimani National Park and TFCA, and both the core and buffer zones of this protected area having recently been designated as the large Parque Nacional de Chimanimani Key Biodiversity Area. The TFCA buffer zone is not considered to be well protected or managed for biodiversity at present and Tsetserra faces a number of ongoing and potential future threats. The vegetation on the plateau is highly disturbed in places. Invasive *Pinus patula*, a Mexican pine species planted commercially for timber from the 1950s, is regenerating across large areas. Some previous efforts have been made to clear areas of pine plantation here, and Ghiurghi et al. (2010) noted the positive recolonisation by *Chironia gratissima*, a range-restricted herb, in areas where pine had been cleared, but this clearance does not appear to be ongoing. Around the derelict buildings there are *Eucalyptus* trees and several non-native ornamental species including *Fuchsia* and *Hydrangea*. Cattle and goat grazing are heavily impacting some areas and the invasive European weed species *Hypochaeris radicata* is abundant. Previous fire events were evident during field surveys on the plateau in 2018 (Osborne & Matimele 2018) and it is possible that increased fire frequency may also be impacting the grassland and scrubland vegetation, although data on fire frequency and management are not available at present. Despite these high levels of disturbance, there are good examples of montane grassland and shrubland habitat remaining.

In a management plan for the Chimanimani National Reserve, Ghiurghi et al. (2010) note that the sandy-clay soil and the isolation of the Tsetserra Plateau grasslands provide a unique potential for disease-free seed-potato production and that plans were being developed by the Ministry for Agriculture and Rural Development to use ca. 50 ha of the current grassland. They added that if this were to take place, agriculture on the slopes would need to be forbidden to maintain the isolation, thereby having a positive impact on conservation of vegetation on the slopes. While no evidence of cultivation was observed during fieldwork on Tsetserra in 2018 (J. Osborne et al., pers. obs.) and the proposed area was small, seed-potato production remains a potential future threat to the grassland habitat on the plateau. Commercial farming was previously established on Tsetserra prior to Mozambican independence (Timberlake et al. 2016a), and Ghiurghi et al. (2010) describe the site as having been heavily transformed in the past by human intervention.

Along the roadside on the lower slopes to 1,500 m elevation there are scattered individuals of the invasive shrub *Vernonanthura polyanthes*, a plant from South America originally introduced into Mozambique as nectar source for bees. This shrub is a potential threat to the montane grassland and shrubland vegetation as it can form dense stands on disturbed ground (Timberlake et al. 2016b). On the slopes below the plateau, the montane forests are extensive and in good condition, with only low levels of disturbance. Local people with packs of donkeys follow tracks through the forest to cross the Zimbabwe border for trading and there is some hunting of wildlife within the forest (Osborne & Matimele 2018). Recently, plans have been mooted to cultivate coffee as a shade crop on the

forested slopes of Tsetserra as part of a habitat restoration plan for the Chimanimani TFCA under the draft “Plano de Restauração paisagem de Chimanimani” (C. de Sousa, pers. comm. 2021). Such a scheme would need to be carefully managed and focused on degraded forest areas in order to prevent damage to the intact forest ecosystem. Ghiurghi et al. (2010) report on some issues with increased wildfire frequency impacting the forest margins at this site, and they also noted some issues with clearance of forest from some slopes for agriculture. They recommended that land use agreements with the Tsetserra communities be treated as a priority for management of this site, with the ultimate aim to create a “Tsetserra Community Reserve” that includes both the montane forests and high plateau.

Site assessor(s)

Jo Osborne, Royal Botanic Gardens, Kew

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
<i>Pterocephalus centennii</i> M.J.Cannon	A(i)	✓	✓	✓	✓	—	Unknown
<i>Phyllanthus tsetserae</i> Brunel ex Radcl.-Sm.	A(i)	✓	✓	✓	✓	—	Unknown
<i>Geranium exellii</i> J.R.Laundon	A(i)	✓	✓	✓	—	—	Unknown
<i>Dierama inyangense</i> Hilliard	A(i)	✓	✓	✓	—	—	Unknown
<i>Myrica chimanimaniana</i> (Verdc. & Polhill) Christenh. & Byng	A(i)	✓	✓	✓	—	—	Unknown
<i>Schistostephium oxylobum</i> S.Moore	A(i)	✓	✓	✓	—	—	Unknown
<i>Crotalaria insignis</i> Polhill	A(i)	✓	✓	✓	—	—	Unknown
<i>Polygala zambesiaca</i> Paiva	A(i)	✓	✓	✓	—	—	Unknown
<i>Schizochilus lepidus</i> Summerh.	A(i)	✓	✓	✓	—	—	Unknown
<i>Phyllanthus manicaensis</i> Brunel ex Radcl.-Sm.	A(i)	✓	✓	✓	✓	—	Unknown
<i>Disa zimbabweensis</i> H.P.Linder	A(i)	✓	✓	✓	—	—	Unknown
<i>Helichrysum acervatum</i> S.Moore	A(iv)	✓	✓	✓	—	—	Unknown
<i>Lopholaena brickellioides</i> S.Moore	A(iv)	✓	✓	✓	—	—	Unknown
<i>Euphorbia depauperata</i> A.Rich. var. tsetserrensis S.Carter	A(iii)	✓	✓	✓	—	—	Unknown
<i>Tephrosia praecana</i> Brummitt	A(i)	✓	✓	✓	—	—	Unknown
<i>Gladiolus zimbabweensis</i>	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
<i>Goldblatt</i>							
<i>Helichrysum chasei</i> Wild	A(iv)	✓	✓	✓	–	–	Unknown
<i>Allophylus chirindensis</i> Baker f.	A(i)	–	✓	✓	–	–	Occasional
<i>Prunus africana</i> (Hook.f.) Kalkman	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)	–			11.5
Montane Grassland	C(iii)	–	–		
Medium Altitude Moist Forest 900-1400 m	C(iii)	–	–	–	

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Montane Forest	–	Major
Shrubland - Subtropical/Tropical High Altitude Shrubland	–	Major
Grassland - Subtropical/Tropical High Altitude Grassland	–	Major
Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands [generally over 8 ha]	–	Minor
Rocky Areas - Rocky Areas [e.g. inland cliffs, mountain peaks]	–	Major
Wetlands (inland) - Permanent Rivers, Streams, Creeks [includes waterfalls]	–	Minor

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Forestry	–	Major
Agriculture (pastoral)	–	Major

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Wood & pulp plantations - Agro-industry plantations	Low	Past, not likely to return
Agriculture & aquaculture - Livestock farming & ranching - Small-holder grazing, ranching or farming	Medium	Ongoing - stable
Agriculture & aquaculture - Annual & perennial non-timber crops - Agro-industry farming	Unknown	Future - inferred threat
Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity	Medium	Ongoing - trend unknown
Invasive & other problematic species, genes & diseases - Invasive non-native/alien species/diseases - Named species	High	Ongoing - trend unknown

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Chimanimani Mountains	Trans-Frontier Conservation Area (buffer zone)	protected/conservation area encompasses IPA	—

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Parque Nacional de Chimanimani	Key Biodiversity Area	protected/conservation area encompasses IPA	—

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Site management plan in place	Chimanimani National Reserve Management Plan	2010	—

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