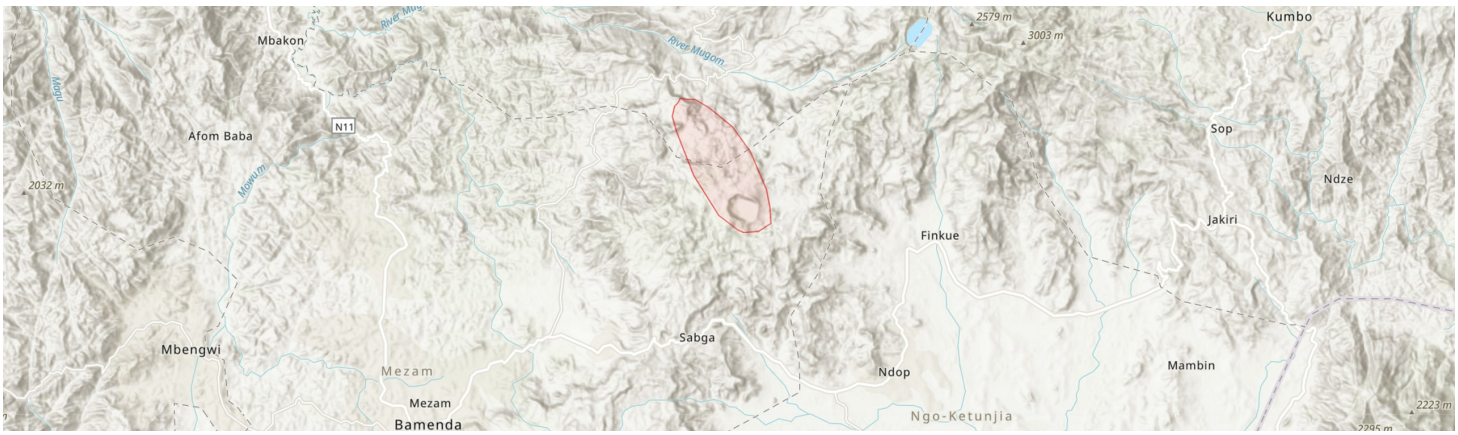
Available from https://tipas.kew.org/site/mbi-crater-lake/
[Accessed 16 June 2026]

Mbi Crater Lake

Foleshele Lake (Test version)

CMNTIPA017



Country: **Cameroon**
Administrative region: **Northwest (Region)**
Central co-ordinates: **6.08970 N, 10.34880 E**
Area: **32.5km²**

Qualifying IPA criteria

A(i)

IPA assessment rationale

Mbi crater lake qualifies as a potential IPA under criterion A(i) due the abundant presence of the globally endangered Kniphofia reflexa and the occurrence of Eugenia gilgi (CR), Justicia teloensis (VU) and Stachys psdeudohumifusa subsp. saxeri. Afrocarum imbricatum is also found at the site and nowhere else in Cameroon.

Site description

Mbi Crater lake is located northeast of the city of Bamenda in Belo subdivision of Boyo division, Northwest Region, Cameroon. The crater lake is a faunal reserve surrounded by land owned by the private Elba ranch and Ndawara plantation. Beyond this, to the west, the Mbingo baptist church and hospital owns the Mbingo forest, an area of approximately 4 km. It is unclear where the boundary of the Mbingo forest and the Elba ranch is located but there is an extensive area of partially forested land between the hospital and the lake (BirdLife International, 2000). To the north, a ridge of continuous high land also connects the site with Lake Oku and the Kilim Ijim reserve, although this bridge of land appears to be grassland and pasture, with buildings spreading up the slopes.

Botanical significance

The Mbi crater itself harbours nine globally threatened taxa, including the Critically Endangered tree Eugenia gilgii recorded from the narrow wooded slopes forming the perimeter of the lake, and the Endangered "Red Hot Poker" species, Kniphofia reflexa which occurs in great abundance at this small site (Cheek et al., 2000). These species were recorded during a brief visit by botanists from the Cameroon National Herbarium, MINEF and RBG Kew; this is believed to be the only recorded botanical surveying effort at the lake.
Kniphofia reflexa is endemic to Cameroon and represents a northwesterly outlier from the rest of the genus. It is only known from two or three other nearby sites where it is less abundant (Cheek et al., 2000).
Afrocarum imbricatum (Berula imbricata) is recorded as the only known occurrence of the species in Cameroon (Cheek et al., 2000).
Polystachya bamendae (EN) is recorded from high forest between the lake and Mbingo and is only known from one other collection

100 km away (Simo-Droissart et al., 2020). An unidentified Gladiolus sp. might also represent an additional undescribed globally threatened and locally endemic species (Cheek et al., 2000). More threatened species may well be present since only limited collecting has taken place at the site at a time when few species were flowering or fruiting (Cheek et al., 2000).
The Cameroon botanist Martin Etuge who collected specimens from the lake (including Justicia telloensis and Kniphofia reflexa) and who helped discover and describe many new taxa from this area and elsewhere in the country, sadly died at Mbingo hospital in 2020 after a struggle with cancer.

Habitat and geology

The Bamenda highlands, where the site is located, have a two-season monsoon climate with a distinct wet season between March and October when heavy rains come from the west. Average precipitation in nearby Bamenda, 1,000 m lower in altitude, is 2,145 mm per annum, with a peak in September of 383 mm (Climate-Data.org, 2020). Mean annual temperature at Bamenda is 21.5 °C, with monthly means varying only slightly between the peak at the beginning of the rainy season of 23 °C and a low of 20.5 °C at the height of the rains in August and September. However, at the altitude of the site itself temperatures do not exceed 18 °C and frost is possible although very rare (Suchel, 1988, cited by Lezine et al., 2019). Mist is also common at this altitude (Lezine et al., 2019).
The crater lake is at approximately 2,015 m altitude, with the rim rising steeply to the level of the plateau at c. 2,200m to the west but only c.15 m above the crater surface on the east side where the land subsequently drops away towards Lake Bamendjing and the Central Plateau.
In this area Tertiary volcanic basalts and trachytes overlay the pre-Cambrian Basement complex strata, with the land surface at this altitude part of the High Lava Plateau (Cheek et al., 2000). Soils of the High Lava Plateau are uniformly ferralitic clay soils, derived from Tertiary era rocks but with high organic content owing to the slow pace of decomposition at this altitude. However, the crater itself likely differs from surrounding soils. At nearby Bambuili lake (at similar altitude), the lake sediment is entirely organic, with higher decomposed content in the upper meters (Lezine et al., 2019).
Water exits the crater on the east side through a swampy river, irrigating the neighbouring Ndawara ranch and tea estate. Agwafo et al. (2016) indicate several other streams flowing from around the lake in different directions but these must arise from the rim rather than within the crater itself.
The crater, which is completely flat and lacking trees or shrubs, appears to be partly permanent swamp and partly seasonally inundated grassland, vegetated by tussock forming sedges and grasses up to 0.8–1.5 m high, with Afrocarum imbricatum dominant and Rhytachne rottboelloides forming the largest tussocks (Agwafo et al., 2016; Cheek et al., 2000). Other tussock species include Fuirena stricta subsp. chlorocarpa, Xyris congensis and X. rehmannii, while Andropogon lacunosus, Scleria achtenii, Leersia hexandra, Sacciolepis chevalieri, Cyperus dichrostachys, Oldenlandia lancifolia, Polygonum cf. strigosum, Conyza clarenceana, Helichrysum forskahlii and Xyria capensis are also present. A thin strip of forest on the escarpment surrounds most of the lake, thickest on the western side; this habitat is characterised by the montane woodland genus Gnidia (BirdLife International, 2020).

Conservation issues

The lake is small (370 ha; Topa et al., 2009) and isolated, surrounded by a large ranch. Grazing from the ranch appears to have partly encroached on the crater which is managed as a faunal reserve (Cratère de Mbi) but is difficult for local authorities to access (Birdlife International, 2020). Trampling by livestock could also potentially threaten some species (Cheek et al 2000). The changed vegetation of the surrounding landscape could potentially affect the crater habitat by influencing the microclimate, and through pollution, sedimentation and nutrient leaching from the cultivated area (Agwafo et al., 2016).
The extent and regularity of inundation of this damp or partially flooded habitat is likely critical to the survival of some of the species. The only outlet from the crater flows through the ranch which might seek to manage this flow for irrigation. Climate change could also lead to drying of the swamp habitat.
Discussions between various state and non state actors regarding upgrading of the conservation status of the site have been halted by the conflict in the region since 2016 (K. Tah, 2021, pers. comm. 18 October).
The nearby Mbingo forest is included as an additional area of forest worth preserving together with the site. This forest is apparently owned by the Mbingo baptist church and hospital who support its conservation but have limited power to achieve this. Cheek et al. (2000) describe the Mbingo "Back Valley" forest as the only block of remaining forest below 1,800 m approaching 1 km2 in size in the Bamenda Highlands. The globally threatened Pentarrhinum ledermannii is recorded there (Cheek, 2014). The owners of the ranch which surrounds the lake and separates the forest from it are also reportedly sympathetic to conservation of the crater habitat (Cheek et al., 2000). Corridors connecting the lake, the forest and the Kilum-Ijim protected area (with native tree planting where necessary) should be considered through collaboration with these parties and with local organisations such as ANCO and ERUDEF which have successfully implemented reforestation schemes elsewhere.

Site assessor(s)

Bruce Murphy, Royal Botanic Gardens, Kew

Ben Pollard,

Martin Cheek, Royal Botanic Gardens Kew

Kenneth Tah, COMAID (formerly ANCO)

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
Eugenia gilgii Engl. & Brehme	A(i)	✓	–	–	–	–	
Kniphofia reflexa Hutch. ex Codd	A(i)	✓	✓	✓	–	–	Abundant
Justicia telloensis Hedrén	A(i)	✓	✓	✓	–	–	
Stachys pseudohumifusa subsp. saxeri	A(i)	✓	✓	–	–	–	
Khaya ivorensis A.Chev.	A(i)	–	–	–	–	✓	
Prunus africana (Hook.f.) Kalkman	A(i)	–	–	–	–	✓	
Entandrophragma cylindricum (Sprague) Sprague	A(i)	–	–	–	–	✓	
Pentarrhinum ledermannii (Schlechter) Goyder & Liede	A(i)	–	–	✓	–	–	
Polystachya bamendae Szlach., Baranow & Mytnik	A(i), A(iii)	✓	✓	✓	–	–	
Diaphananthe bueae (Schltr.) Schltr.	A(i)	✓	–	✓	–	–	

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
Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands [generally over 8 ha]	90	
Forest - Subtropical/Tropical Moist Montane Forest	10	

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	100	Minor
Harvesting of wild resources	100	Minor

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Annual & perennial non-timber crops - Agro-industry farming	Low	Future - inferred threat
Agriculture & aquaculture - Livestock farming & ranching - Agro-industry grazing, ranching or farming	Medium	Ongoing - trend unknown
Natural system modifications - Dams & water management/use - Abstraction of surface water (agricultural use)	Low	Future - inferred threat
Pollution - Agricultural & forestry effluents - Soil erosion, sedimentation	Unknown	Future - inferred threat
Pollution - Agricultural & forestry effluents - Nutrient loads	Unknown	Future - inferred threat
Climate change & severe weather - Droughts	Unknown	Future - inferred threat

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Mbi Crater faunal reserve	Local / Regional Nature Reserve	protected/conservation area matches IPA	100

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Mbi Crater Faunal Reserve - Mbingo forest	Important Bird Area	protected/conservation area matches IPA	25
Mbi Crater Faunal Reserve - Mbingo forest	Key Biodiversity Area	protected/conservation area matches IPA	—

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
No management plan in place	Unknown if there is one.	—	—

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