

# Bugoma Central Forest Reserve

## UGATIPA6

Country: **Uganda**

Administrative region: **Western (Region)**

Central co-ordinates: **1.26000 N, 30.97000 E**

Area: **402.43km<sup>2</sup>**

### Qualifying IPA criteria

A(i), C(iii)

### IPA assessment rationale

Bugoma CFR qualifies as an IPA under criterion A(i) as it supports globally important populations of four taxa including the Endangered *Chlorophytum hirsutum* and three Vulnerable taxa (*Ancistrorhynchus tenuicaulis*, *Fuirena pubescens* var. *abbreviata*, *Mimusops bagshawei*), and a nationally important population of the timber tree *Leplaea cedrata*. Biodiversity survey data from the 1990s record for a number of additional globally threatened species that may well also meet A(i) thresholds but these observation records require confirmation. Finally, this IPA also qualifies under C(iii), triggered by the presence of Critically Endangered habitat Lake Victoria drier peripheral semi-evergreen Guineo-Congolian rainforest.

### Site description

The Bugoma Central Forest Reserve (CFR) is located in Kikuube District of Western Region, Uganda, and occupies an area of over 400 km<sup>2</sup> on the top of the rift escarpment to the east of southern Lake Albert. The reserve lies to the west of the Hoima-Kyenjojo road and is bounded in the south by the Nkusi River which drains into Lake Albert. Together with Budongo CFR, it represents one of two major forest blocks along the escarpment in an otherwise heavily transformed landscape and so it is of high importance for protecting the remaining biodiversity of the northern Albertine Rift.

### Botanical significance

Although impacted by encroachment and disturbance in some areas, Bugoma CFR remains one of the most extensive tracts of mid-elevation forest in East Africa (Davenport et al. 1996). It is important for a number of range-restricted and globally threatened species for which this site can be considered a stronghold. The extensive forest areas are important for two globally Vulnerable species: the large forest tree *Mimusops bagshawei* and the rare epiphytic orchid, *Ancistrorhynchus tenuicaulis*. For the latter of these species, Bugoma is one of only two known sites nationally, the other being

Ishasha Gorge in Bwindi Impenetrable National Park. The Endangered herb *Chlorophytum hirsutum*, an Albertine Rift endemic only described in 2000, is recorded from forest margins and adjacent open habitats. That species was last recorded in Bugoma in 1905, but it has not been actively searched for since and suitable habitat remains widespread at the site. The reserve is also the only site within the Ugandan IPA network for the globally Vulnerable *Fuirena pubescens* var. *abbreviata*, an endemic variety to Uganda which occurs in moist open areas such as lake margins; as such, suitable habitat for this species is limited at Bugoma.

Surveys of the tree and shrub species in Bugoma were conducted in 1993 and, supplemented by historical records, 257 species were recorded (Lwanga in Davenport et al. 1996). These surveys recorded several additional globally threatened species at the site but without specimens for verification, notably *Balsamocitrus dawei* (EN and endemic to Uganda), *Aeglopsis eggelingii* (VU), *Cnestis mildbraedii* (VU) and *Rinorea beniensis* (VU). These surveys and earlier records also highlight the importance of Bugoma for a number of timber tree species that are globally threatened or near-threatened by over-exploitation. These include several members of the Meliaceae (mahogany) family: *Leplaea cedrata* (VU), for which Bugoma is considered one of the most important sites nationally, *Khaya anthotheca* (VU), *Turraeanthus africanus* (VU) and three species of *Entandrophragma* (two VU). Lwanga (in Davenport et al. 1996) also recorded a number of nationally range-restricted woody species in Bugoma CFR including *Osodendron* (formerly *Cathormion*) *altissimum* and *Dialium excelsum*, but none of these are globally threatened.

Based on survey data for birds, mammals, Lepidoptera and trees, Bugoma CFR ranks as the eleventh most species-rich site, the fifteenth highest for rarity value and the twelfth highest for overall biodiversity importance within the Ugandan Forest Reserve network (Howard et al. 2000). However, much of this was based on faunal data and there is likely still much to discover botanically at this site, particularly with regard to herbaceous and undershrub species. The forests of Bugoma are noted to be considerably richer for tree species than in surrounding corridor forests (Plumptre et al. 2010).

The forest habitat itself is of conservation importance. Categorised as Lake Victoria drier peripheral semi-evergreen Guineo-Congolian rainforest, this habitat is Critically Endangered nationally is predicted to have previously been widespread in western Uganda, although it is now largely limited to protected areas. Bugoma is one of the five best sites for this habitat nationally.

## Habitat and geology

The primary habitat of Bugoma is medium-altitude moist semi-deciduous forest (Davenport et al. 1996; medium-elevation deciduous forest in Langdale-Brown et al. 1964). Approximately half of the forest area is dominated by *Cynometra alexandri* (ironwood), whilst nearly 40% is "mixed forest" and the remainder is degraded or regenerating forest (Davenport et al. 1996). The forest blocks are separated by extensive areas of *Hyparrhenia*, *Pennisetum* and *Cymbopogon* grasslands that occupy ca. 18% of the reserve area (Davenport et al. 1996). An area of the western portion of the site has recently been given over to large-scale commercial sugarcane plantation following a land dispute (Okiror 2020; see Conservation issues).

The soils are mostly deep tropical red earths often lateritic. The site experiences two rainfall peaks in April to May and September to November, with annual rainfall being 1,100 – 1,350 mm (BirdLife International 2023).

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## Conservation issues

Bugoma CFR was gazetted in 1932 and has been exploited since 1942 as a source of commercial timber, with several sawmills established in the twentieth century, although it is noted to be rather poorly stocked with good timber (Davenport et al. 1996). Timber extraction remains active and is an ongoing threat to the integrity of the forest if not carefully managed.

In a study using remote sensing data for the 30-year period 1985 – 2014, Twongyirwe et al. (2015) recorded a forest cover expansion of 0.5% p.a. within Bugoma CFR, although with some evidence of localised encroachment and disturbance some of which may be attributable to managed forestry. However, significant forest losses from outside of the reserve boundary were recorded over the same time-period with an overall forest cover loss of 10.7% in the wider Northern Albertine Rift landscape (Murchison Falls NP to Bugoma), including corridors connecting Bugoma to other forest patches that have previously been noted as of importance for biodiversity (Plumptre et al. 2010). This has resulted in Bugoma Forest becoming more isolated, with little connectivity to other sizable forest areas. Expansion of small-scale farming and shifting cultivation are the major causes of forest losses around the reserve, and as these areas are exhausted the threat of encroachment into the reserve increases. This may be exacerbated by immigration into the area following the discovery of oil in the Lake Albert basin. Further, expansion of the Kyangwali refugee settlement site near the southwest portion of Bugoma in the late 2010s has also had an impact upon the reserve. The population of this site increased from ca. 37,000 in 2017 to over 128,000 by 2021, resulting in increased agricultural encroachment and tree cutting for firewood, charcoal and construction materials in the adjacent block of Bugoma CFR (Medius 2022).

Areas of commercial sugar and tea plantations and tobacco

cultivation are also recorded along some borders (BirdLife International 2023), and in 2020 a 900 ha portion of the Reserve was given over to sugarcane plantation, having been claimed by the kingdom of Bunyoro-Kitara as ancestral land and subsequently leased to the Hoima Sugar Company Ltd (Okiror 2020). The resultant destruction of a large forest area is clearly visible on satellite imagery (Google Earth Pro 2023).

Bugoma CFR is a Key Biodiversity Area, triggered by four faunal species - three mammals and one bird (Plumptre et al. 2017), including the highest recorded densities of the Endangered Nahan's Francolin (*Ptilopachus nahani*) in Uganda (BirdLife International 2023). Lepidoptera are also noted to be particularly diverse at Bugoma (Davenport et al. 1996).

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## 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
<i>Chlorophytum hirsutum</i> A.D.Poulsen & Nordal	A(i)	✓	✓	✓	—	—	Unknown
<i>Fuirena pubescens</i> (Poir.) Kunth var. <i>abbreviata</i> Lye	A(i)	✓	✓	✓	—	—	Unknown
<i>Mimusops bagshawei</i> S.Moore	A(i)	✓	✓	—	—	—	Unknown
<i>Ancistrohynchus tenuicaulis</i> Orchidaceae	A(i)	✓	✓	✓	—	—	Scarce
<i>Lepalaea cedrata</i> (A.Chev.) E.J.M.Koenen & J.J.de Wilde	A(i)	—	✓	✓	—	—	Unknown
<i>Prunus africana</i> (Hook.f.) Kalkman	A(i)	—	—	—	—	—	Unknown
<i>Khaya anthotheca</i> (Welw.) C.DC.	A(i)	—	—	—	—	—	Unknown
<i>Aeglopsis eggelingii</i> M.Taylor	A(i)	—	—	—	—	—	Unknown
<i>Balsamocitrus dawei</i> Stapf	A(i)	—	—	—	—	—	Unknown
<i>Entandrophragma cylindricum</i> (Sprague) Sprague	A(i)	—	—	—	—	—	Unknown
<i>Entandrophragma utile</i> (Dawe & Sprague) Sprague	A(i)	—	—	—	—	—	Unknown
<i>Turraeanthus africana</i> (Welw. ex C.DC.) Pellegr.	A(i)	—	—	—	—	—	Unknown
<i>Rinorea beniensis</i> Engl.	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
Lake Victoria drier peripheral semi-evergreen Guineo-Congolian rainforest (CR)	C(iii)		—		317

## General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Lowland Forest	—	Major
Savanna - Moist Savanna	—	Minor
Grassland - Subtropical/Tropical Dry Lowland Grassland	—	Minor
Artificial - Terrestrial - Subtropical/Tropical Heavily Degraded Former Forest	—	Minor
Artificial - Terrestrial - Arable Land	—	Minor

## Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	—	Major
Agriculture (arable)	—	Minor
Tourism / Recreation	—	Minor
Forestry	—	Major
Harvesting of wild resources	—	Minor

## Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Annual & perennial non-timber crops - Shifting agriculture	Medium	Ongoing - increasing
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	Medium	Ongoing - increasing
Agriculture & aquaculture - Annual & perennial non-timber crops - Agro-industry farming	Medium	Ongoing - increasing
Biological resource use - Gathering terrestrial plants	Low	Ongoing - increasing
Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity	Unknown	Ongoing - increasing
Biological resource use - Logging & wood harvesting	Medium	Ongoing - trend unknown

## Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Bugoma Central Forest Reserve	Forest Reserve (conservation)	protected/conservation area matches IPA	—

## Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Bugoma Forest Reserve	Key Biodiversity Area	protected/conservation area matches IPA	—
Bugoma Central Forest Reserve	Important Bird Area	protected/conservation area matches IPA	—

## Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Site management plan in place		—	—

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