

Agoro-Agu Central Forest Reserve

UGATIPA14

Country: **Uganda**

Administrative region: **Northern (Region)**

Central co-ordinates: **3.80194 N, 32.90806 E**

Area: **265km²**

Qualifying IPA criteria

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

IPA assessment rationale

Agoro-Agu CFR qualifies as an IPA under criterion A(i) as it contains globally important populations of four threatened species: *Cyperus acholiensis* (CR), known only from this site, *Pentas purseglovei* (EN) and *Sporobolus scitulus* (EN) at their only known Ugandan sites, and *Aloe macleayi* (EN). It also contains a nationally important population of *Ocotea kenyensis* (VU) and is likely to also be a nationally important site for *Cordyla richardii* (VU), but this requires confirmation. The presence of the Imatong-Agoro-Emogadung Mountains endemics *Euphorbia depauperata* var. *laevigata* and *Rhynchosia tricuspidata* subsp. *imatongensis* trigger IPA criterion A(iv). Agoro-Agu also qualifies under criterion B(ii) as it contains populations of seven trigger taxa, thus exceeding the 3% threshold. Finally, this site triggers criterion C(iii) as one of the five best sites nationally for the Vulnerable habitat type, Afromontane undifferentiated forest, encompassing over 10% of the national resource.

Site description

Agoro-Agu Central Forest Reserve (CFR) covers an area of 265 km² in Lamwo District of Acholi subregion in Northern Uganda, ca. 50 km to the north of Kitgum town. The northern boundary of the reserve follows the international border with South Sudan for ca. 45 km. The terrain is hilly to mountainous, contiguous with the extensive Imatong Mountain range of South Sudan. Elevation ranges from ca. 1,070 – 2,812 m and the highest point is Mt Lomwaga, the peak of which lies on the international border in the east of the reserve. The reserve is drained by the Okura River in the East and Aringa River in the West-Central section. Habitats are characterised by extensive areas of woodland and wooded grassland at lower altitudes give way to dry montane forest at higher elevations. A small area of ungazetted, farmed land (ca. 15.5 km²), located in the centre of the reserve along the Aringa valley, is also excluded from this IPA.

Botanical significance

Agoro-Agu CFR is an important site for a number of rare and threatened plant species that are restricted to the hilly and mountainous terrain of the Uganda-South Sudan border region. Firstly, this site is the only known locality globally for *Cyperus acholiensis* (CR), recorded from Lotuturu in 1963 (M.P.H. Kertland #111), an area close to the southern boundary of the Reserve. Field surveys to rediscover this species are urgently needed, particularly as there is evidence from satellite imagery of agricultural encroachment into the Reserve around Lotuturu (Google Earth Pro 2023) which may threaten habitat for this species. Secondly, Agoro-Agu is one of the few known Ugandan localities for *Aloe macleayi* (EN) at, where it was found at Ulongo Rock in 2009 at an elevation of 1,250 m on rock outcrops in the lower grassland belt of the mountains (Cole & Forrest 2015); the population here is small and so rather vulnerable to disturbance. Outside of Uganda, this aloe is known only from the Imatong Mountains of South Sudan, where it is considered to be threatened (Cole & Forrest 2017). Thirdly, the reserve is also the only known Ugandan site for *Pentas purseglovei* (EN), a species of montane grassland and savanna again restricted to the Imatong-Agoro Mountains. Fourthly, the scarce montane perennial grass *Sporobolus scitulus* (EN), is recorded from the Uganda side of Mt Lomwaga (J.W. Eggeling #5042, 1942). This species is otherwise known only from the Kenyan side of Mt Elgon, with a dubious record from the Selous Reserve in Tanzania. Other endemics from the Imatong-Agoro-Emogadung Mountain group known at this site are the infraspecific taxa *Euphorbia depauperata* var. *laevicarpa* and *Rhynchosia tricuspidata* subsp. *imatongensis* (Friis & Vollesen 1998). These taxa have not yet been assessed for the IUCN Red List but are potentially threatened in light of habitat conversion in parts of their ranges.

Of national importance, the montane forests here are one of only two known localities in Uganda for *Ocotea kenyensis* (VU). The savanna tree *Cordyla richardii* (VU), a species of woodland on rocky hills in South Sudan and northern Uganda, has been recorded several times in the vicinity of Agoro village and is likely to occur in the lower elevation, eastern part of the reserve. Further survey work is required to confirm this as it was not recorded in the biodiversity survey of the CFR (Davenport & Howard 1996). *Encephalartos septentrionalis* (NT), a localised cycad species, and *Lovoa swynnertonii* (NT), a scarce forest tree, are also recorded in this survey. However, the record of *Allanblackia kimbiliensis* (EN) by Davenport & Howard (1996) is considered likely to be an error, as this species is otherwise restricted to the Albertine Rift and eastern D. R. Congo (Kalema & Beentje 2012).

The reserve is currently under-explored botanically, particularly for

its non-woody flora, and so further species of interest are likely to come to light in the future. For example, *Craterostigma sudanicum* (EN) is also likely to occur as it is known from the South Sudan side of the Imatong Mountains, but in Uganda it has so far only been recorded from Paimol, ca. 90 km to the southeast of Agoro-Agu. Darbyshire et al. (2015) record 10 further endemics of the Imatong Mountains that are so far recorded only from South Sudan but some of which may also extend into Agoro-Agu, such as *Bidens chippii*, *Bidens isostigmatoides* and *Bothriocline imatongensis* in the Asteraceae family, and the grass *Festuca sudanensis*.

Based on survey data for birds, mammals, lepidoptera and trees, Agoro-Agu ranked as the nineteenth most species-rich site within the Ugandan forest reserve network, but did not rank within the top twenty sites for rarity value or overall biodiversity importance (Howard et al. 2000).

This site is important for nationally Vulnerable habitat Afromontane undifferentiated forest. Around 13% of the national resource is present within this IPA, triggering sub-criterion C(iii).

Habitat and geology

Langdale-Brown et al. (1964) classify the vegetation of Agoro-Agu as a mosaic of Dry Combretum Savanna (within their Combretum-Acacia-Themeda subcategory) and Dry Montane Forest (*Juniperus-Podocarpus* subcategory, although the present of *Juniperus procera* requires confirmation; Friis & Vollesen 1998, 2005), with some areas of Dry Acacia Savanna (*Acacia-Hyparrhenia-Themeda* subcategory) in the lower lying east part of the reserve. Okullo et al. (2021) conducted a transect survey of the CFR to assess tree composition and diversity. Their results concurred with the mosaic nature of the vegetation. The extensive Combretum woodlands are dominated *Combretum molle*, *Acacia (Vachellia) hockii*, *Grewia mollis* and *Terminalia glaucescens*, the lattermost particularly in degraded areas. Species assemblages are associated with slope position, with *Albizia grandibracteata* and *Pleurostyliia africana* becoming key components in valley bottom woodland-dry forest mosaics. At high elevations, the reserve supports small patches of Afromontane forest which, together with the more extensive areas of this forest in the Imatong Mountains of South Sudan, represents an isolated outlier of this habitat type. While most of this habitat is on the South Sudanese side of these mountains, this habitat type is rare in Uganda and so Agoro-Agu represents one of the best sites nationally for this threatened habitat type. Important species include *Podocarpus milanjanianus* and *Hagenia abyssinica*. Areas of montane grassland and wooded grassland, and exposed rock faces with a lithophytic flora, are also noted. In total, 254 tree and shrub species have been recorded from the Reserve, although it is noted that this is likely to be incomplete (Davenport & Howard 1996). Friis & Vollesen (2005) provide a detailed description of the vegetation types, their constituent species and biogeographic associations across the Imatong and adjacent mountain ranges in South Sudan. However, information on the vegetation of the Ugandan side of the border is

much more limited.

The climate of the site is highly seasonal, with the main rains occurring from late March or early April until late October to November with peaks in April and August; total rainfall ranges from 800 – 1000 mm, increasing with elevation and from east to west. The underlying geology is granitic and extensively folded (Okullo et al. 2021).

Conservation issues

Agoro-Agu was established as a protected area in 1937 and gazetted as a CFR in 1948. It is contiguous with the Imatong Forest Reserve in South Sudan (Okullo et al. 2021). The site is not included in the current KBA network of Uganda.

During the colonial administration, the CFR was subject to controlled tree felling and to some introduction of exotic timbers (Friis & Vollesen 2005). More recently, the reserve has been extensively encroached, particularly at lower elevations and on gentler slopes in the south and east of the reserve, with significant areas of farmland (particularly wheat and barley production), settlement and associated activities including felling of trees for fuelwood and timber (Zake et al. 2016; Okullo et al. 2021). This has been exacerbated by poor boundary demarcation and by limited staff capacity for the National Forestry Authority (NFA) to conduct effective monitoring and surveillance of the reserve (Zake et al. 2016). Dry season burning in the woodland and wooded grasslands may also have a negative impact on the vegetation, especially in transitions to thicker woodland and forest (Friis & Vollesen 2005).

The site was also impacted by the prolonged conflict between the Lord's Resistance Army (LRA) and Ugandan government forces, from the late 1980s to mid-2000s, which resulted in mass-upheaval of communities in northern Uganda, with many internally displaced person (IDP) camps being established (Gorsevski et al. 2012). Using remote sensing data, Gorsevski et al. (2012) found that forest loss was nevertheless rather minimal during the peak conflict period and that forest cover rebounded rapidly following the reduction in IDP camps as the conflict abated, such that there was a net forest gain of over 0.5% in the period 2003-2010, concentrated in the west of the reserve. However, more recent resettlement in the vicinity of Agoro-Agu has led to further encroachment (Omoding et al. 2020). Okullo et al. (2021) record significantly lower tree species richness in the degraded parts of the reserve relative to intact areas.

The wider Agoro-Agu landscape (an area covering 16 CFRs including Agoro-Agu itself) was selected for participation in the "pro-Poor Reducing Emissions from Deforestation and Forest Degradation" REDD+ pilot scheme in Uganda, concluding in 2017. As part of this scheme, the NGO Environmental Alert worked with communities adjacent to Agoro-Agu to develop collaborative forest management and promote sustainable use practices (Zake et al. 2016). Subsequently, the revised Agoro-Agu Landscape CFRs Management

Plan adopted a participatory “landscape plan” approach, bringing together key stakeholders including civil society organisations alongside the NFA, to identify shared goals and equitable benefits and to resolve land-use conflicts (Omoding et al. 2020).

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>Aloe macleayi</i> <i>Reynolds</i>	A(i)	✓	✓	✓	—	—	Scarce
<i>Cordyla richardii</i> <i>Planch. ex Milne-Redh.</i>	A(i)	—	—	—	—	—	Unknown
<i>Cyperus acholiensis</i> <i>Larridon</i>	A(i)	✓	✓	✓	✓	—	Unknown
<i>Euphorbia depauperata</i> <i>Hochst. ex A.Rich.</i> <i>var. laevicarpa</i> <i>Fris & Vollesen</i>	A(iv)	✓	✓	✓	—	—	Unknown
<i>Ocotea kenyensis</i> <i>(Chiov.) Robyns & R.Wilczek</i>	A(i)	—	✓	✓	—	✓	Frequent
<i>Pentas purseglovei</i> <i>Verdc.</i>	A(i)	✓	✓	✓	—	—	Unknown
<i>Prunus africana</i> <i>(Hook.f.) Kalkman</i>	A(i)	—	—	—	—	✓	Unknown
<i>Rhynchosia tricuspidata</i> <i>Baker f. subsp. imatongensis</i> <i>Verdc.</i>	A(iv)	✓	✓	✓	—	—	Unknown
<i>Khaya grandifoliola</i> <i>C.DC.</i>	A(i)	—	—	—	—	✓	Unknown
<i>Vitellaria paradoxa</i> <i>C.F.Gaertn.</i>	A(i)	—	—	—	—	✓	Unknown
<i>Sporobolus scitulus</i> <i>Clayton</i>	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
Afromontane dry forest (VU)	C(iii)				31.1

General site habitats

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

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	—	Major
Agriculture (arable)	—	Major
Agriculture (pastoral)	—	Major
Harvesting of wild resources	—	Major

Threats

THREAT	SEVERITY	TIMING
Human intrusions & disturbance - War, civil unrest & military exercises	Medium	Past, not likely to return
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	High	Ongoing - trend unknown
Agriculture & aquaculture - Livestock farming & ranching - Small-holder grazing, ranching or farming	High	Ongoing - trend unknown
Biological resource use - Gathering terrestrial plants	Low	Ongoing - trend unknown
Biological resource use - Logging & wood harvesting	Medium	Ongoing - trend unknown

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Agoro-Agu Central Forest Reserve	Forest Reserve (conservation)	protected/conservation area matches IPA	265

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Site management plan in place	National Forestry Authority (2018). Revised Forest Management Plan for Agoro-Agu Sector Central Forest Reserves for the Period: 1st July 2018–30th June 2028. Kampala, Uganda.	2018	2028

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