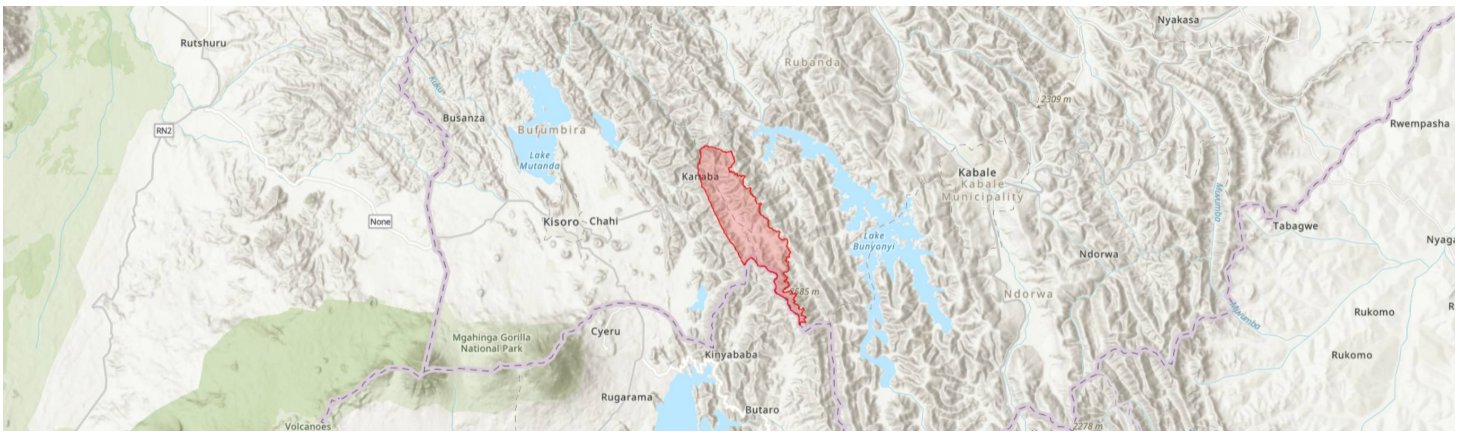
Echuya

Echuya Central Forest Reserve/Muchuya or Behungi Swamp (Test version)

UGATIPA10



Country: **Uganda**
Administrative region: **Western (Region)**
Central co-ordinates: **-1.28474 N, 29.81995 E**
Area: **36km²**

Qualifying IPA criteria

A(i), B(iii)

IPA assessment rationale

Echuya CFR qualifies as an IPA under sub-criterion A(i), with three trigger species: Kniphofia bequaertii (EN), Bothriocline ruwenzoriensis (VU) and Swertia adolfi-friderici (VU). This site is also of note as the only national locality, and globally only one of two localities, from which the subspecies Silene kigesiensis subsp. kigesiensis is known. Echuya CFR also triggers sub-criterion B(iii) for significant richness in useful plant species, encompassing 4% (43 spp.) of the national checklist.

Site description

Echuya Central Forest Reserve (CFR) is located in the Rukiga Highlands of southwestern Uganda and borders Rwanda in the south. The site is 5 km west of Lake Bunyonyi and 13 km east of Mgahinga Gorilla National Park and falls within Kisoro and Rubanda districts. At the centre of the site is Muchuya Swamp, a permanent alpine swamp, while the Kabale-Kisoro road runs through the reserve to the north of this swamp. This site is important for four globally threatened plant species but is under pressure from timber, bamboo extraction, and agricultural encroachment. Additionally, it is a site of great cultural importance to the Bahutu, Bakiga and Batwa, as it is considered the home of the indigenous Batwa people. Because of this, there are many culturally important locations throughout the CFR for spiritual ceremonies and worship.

Botanical significance

There are three threatened species known from Echuya CFR. One of these species, Kniphofia bequaertii, is an Endangered herbaceous perennial known only from this site, the Virunga Mountains and the Mahali Mountains in Tanzania. K. bequaertii has previously been recorded as common in boggy valleys (Snowden #1514), very common in “water meadow” areas (Eggeling #961) and “moderately common” in bamboo forest (Tothilll #2745). There has not been a collected specimen of this species since 1948. However, 2021 transect surveys by Bitariho & Babaasa (2022) record K. thompsonii – this is more likely to be a misidentification of K. bequaertii, as K. thompsonii is only known from eastern Uganda, on Mount Elgon and Mount Kadam, and is not associated with waterlogged habitats like those of this site (Whitehouse 2002). Additional survey work, including the collection of voucher specimens, is needed to confirm its continued presence at this site.
Swertia adolfii-friderici is another herbaceous species associated with high-altitude wetland habitats. Assessed as Vulnerable, this species is an Albertine Rift endemic and is threatened at several sites by habitat loss, including through agricultural expansion and peat extraction (Fischer et al. 2019). This species is only known from a single collection at this site (Eggeling #1054), which was likely made in the early 1930s, given Eggeling’s collecting history. A second Vulnerable species, Bothriocline ruwenzoriensis, is a shrub from montane forest and woodland in the Albertine Rift and southeastern D.R. Congo. The last record of this species is from 1995 from bamboo forest (Friedberg & Yarom #17)
Silene (Lychnis) kigesiensis subsp. kigesiensis has been assessed as Least Concern, but remains of conservation importance as a subspecies that is known only from this site and Nyungwe Forest in

Rwanda. The habitat of this taxon at Echuya has been described as ditches in swamps (Thomas #1062; Burtt #2932). At least three collections have been made at this site and, given this species' highly restricted range, Echuya represents an important opportunity to conserve this subspecies globally.
Alongside rare and threatened species, this IPA also encompasses a significant richness in useful plant species. Many of these species have reported medicinal properties such as Dracaena afromontana, Piper capense, Hagenia abyssinica and Zanthoxylum asiaticum. Echuya triggers IPA criterion B(iii) with 43 useful plant taxa known from the IPA, totalling 4% of the national checklist. The site is the 14th richest site for useful plants in the IPA network.

Davenport et al (1999) also found several plants within Echuya that are range-restricted in Uganda. Some of these range-restricted species not found in any other forest within Uganda, include Choristylis rhamnoides, Crotalaria mildbraedii, Hypericum lanceolatum, Lobelia mildbraedii, and Lobelia stuhlmannii.

Habitat and geology

Surveys by Nature Uganda (2015) found that Echuya is dominated by broadleaf trees associated with secondary forest, most commonly Macaranga kilimandscharica, followed by Psychotria mahonii and Neoboutonia macrocalyx, with some areas of bamboo forest, consisting of Oldeania alpina (Davenport et al. 1996, Nature Uganda 2015, Hafashimana, pers. comm. 2024). The site is described by Langdale Brown et al. (1964) as Hagenia-Myrsine (Rapanea) Moist Montane Forest and Arundinaria (Oldeania) alpina Montane Bamboo. The formermost forest species, Hagenia abyssinica and Myrsine (Rapanea) melanophloeos, have been reported as occasional at these sites in more recent studies (Bitariho & Babaasa 2022; Davenport et al. 1996). Much of the broadleaf forest is located on the higher ground above the swamp, while mixed bamboo forests occur adjacent to swamp areas. In the centre of the reserve is Muchuya Swamp, a permanent, high-altitude swamp dominated by Carex and giant Lobelia spp. (Bitariho & Babaasa 2022).

The site's geology is predominantly phyllites and shales, with some quartz, quartzite, and granitic outcrops of the Karagwe-Ankole System. Soils are moderate to highly acidic humic red loams (Nature Uganda 2015).

Conservation issues

Echuya is thought to be dominated by secondary forest (Nature Uganda 2015). The bamboo forests at this site are thought to be a pre-climax, successional stage that arose over 2,000 years ago associated with anthropogenic influences in the area (Taylor 1992). At the time Echuya was first gazetted as a forest reserve in 1939, the site was dominated by bamboo, however, stands of hardwood trees have replaced bamboo stands over the last 70 years possibly due to the exclusion of fire, herbivores and human activity (Banana & Tweheyo 2001).

While major disturbances may have declined over recent decades, surveys of the IPA by Nature Uganda found that over half of sites sampled showed signs of human activity. The site is the only source for bamboo in the Kigezi area, while livestock grazing has also been observed, particularly in the reserve edges, and in recent years agricultural encroachment has also been noted (Bitariho & Babaasa 2022). This encroachment appears to be in the northeast of the site, in the section along the Kabale-Kisoro road, and seems to be mostly limited to areas that were previously wheat and Barley trial plots/ sites, later replaced with pine plantation forest; although some broadleaf forest also appears to be impacted (Google Earth 2023). Nature Uganda (2015) recommend that there should be greater efforts to exclude these activities from the Strict Nature Reserve within the CFR while other forest activities, such as bamboo extraction, should be regulated as recommended within the reserve management plan.

In 2018 the National Forestry Authority (NFA) undertook an understorey clearance of 3.6 km2 of bamboo forest, equivalent to 11% of Echuya CFR, removing all tree saplings, vines, shrubs and lianas. The clearance was undertaken to promote bamboo growth, as supply was observed to be depleted in the local area (Bitariho & Babaasa 2022). The species richness of shrubs, lianas, vines and herbaceous plants in Echuya CFR has declined between 2015 and 2021, with this clearance thought to be the leading cause (Bitariho & Babaasa 2022).

As the rare and threatened species known from this site were collected in the decades where the bamboo forest continued to dominate, it is unclear what this reversion back to broadleaf forest has on these populations. Kniphofia bequaertii, for instance, was noted to be "moderately common in bamboo forest" (Tothill #2745) when collected in 1938, although this species is also known to be common in inundated grasslands from this site (Eggeling #961), so it is perhaps not too impacted by this habitat change. Detailed habitat information is absent for the other IPA trigger species and, therefore, further research is needed to establish which habitats these species are associated with and the impact of changing habitats at Echuya CFR.

Nature Uganda has been collaborating with partners to enhance biodiversity conservation and support sustainable livelihoods around Echuya. Working with the Royal Society for the Protection of Birds (RSPB) in the 2000s, Nature Uganda undertook conservation actions including the development of Collaborative Forest Management agreements between local communities and the NFA, planting of 240,000 tree seedlings and 5,500 bamboo rhizomes outside the forest by communities and provision of training in sustainable, organic agriculture (RSPB 2023). More recently, Nature Uganda worked with communities and local government to develop by-laws for the conservation of water and soil in Echuya, including an accompanying radio awareness campaign about the importance of water and soil conservation for climate resilience (Birdlife

International 2015). Despite these conservation initiatives, some of the threats to this site remain, while signs of anthropogenic influence increased between 2015 and 2021 (Bitariho & Babaasa 2022).

Echuya has been recognised as a Key Biodiversity Area as the site hosts globally important populations of two threatened mammals, Endangered narrow-headed shrew (Crocidura stenocephala) and Vulnerable Delany's swamp mouse (Delanymys brooksi), and the Endangered bird species, Grauer's Rush Warbler (Bradypterus graueri) (Plumptre et al. 2019). The site is also recognised as an IBA with 152 species known from Echuya (RSPB 2023).

Site assessor(s)

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Date of first assessment:
1st Nov 2024

Reviewed 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
Bothriocline ruwenzoriensis (S.Moore) C.Jeffrey	A(i)	✓	✓	✓	–	–	Unknown
Kniphofia bequaertii De Wild.	A(i)	✓	✓	✓	–	–	Common
Swertia adolfi-friderici Mildbr. & Gilg	A(i)	✓	✓	✓	–	–	Unknown
Prunus africana (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

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Swamp Forest	1	Minor
Forest - Subtropical/Tropical Moist Montane Forest	86	Major
Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands [generally over 8 ha]	13	Major

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	100	Major
Agriculture (arable)	–	Unknown
Agriculture (pastoral)	–	Unknown
Tourism / Recreation	–	Minor
Forestry	–	Minor
Harvesting of wild resources	–	Minor

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	Low	Ongoing - increasing
Agriculture & aquaculture - Livestock farming & ranching - Small-holder grazing, ranching or farming	Low	Ongoing - trend unknown
Biological resource use - Logging & wood harvesting	Low	Ongoing - trend unknown
Natural system modifications - Other ecosystem modifications	Medium	Past, not likely to return
Biological resource use - Logging & wood harvesting - Unintentional effects: large scale (species being assessed is not the target) [harvest]	Medium	Ongoing - trend unknown
Biological resource use - Gathering terrestrial plants - Unintentional effects (species being assessed is not the target)	Medium	Ongoing - trend unknown

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Echuya Central Forest Reserve	Forest Reserve (conservation)	protected/conservation area matches IPA	36

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Echuya Central Forest Reserve	Important Bird Area	protected/conservation area matches IPA	36
Echuya Central Forest Reserve	Key Biodiversity Area	protected/conservation area matches IPA	36

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Protected Area management plan in place	This is the initial management plan that broadly aims to protect the site for both its ecosystem services as well as for its intrinsic value. Namely, it highlights the goal of preventing soil erosion and preservation of water through protecting vegetation and enabling the use of bamboo by local people.	1956	1966
Sustainable Forestry management in place	Forest management plan for the adjacent community livelihood working circle	2016	2026
Sustainable Forestry management in place	Mandates use and protection of a portion of the forest by 95 households in Kanaba sub-county in Kisoro districts	2023	2033

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