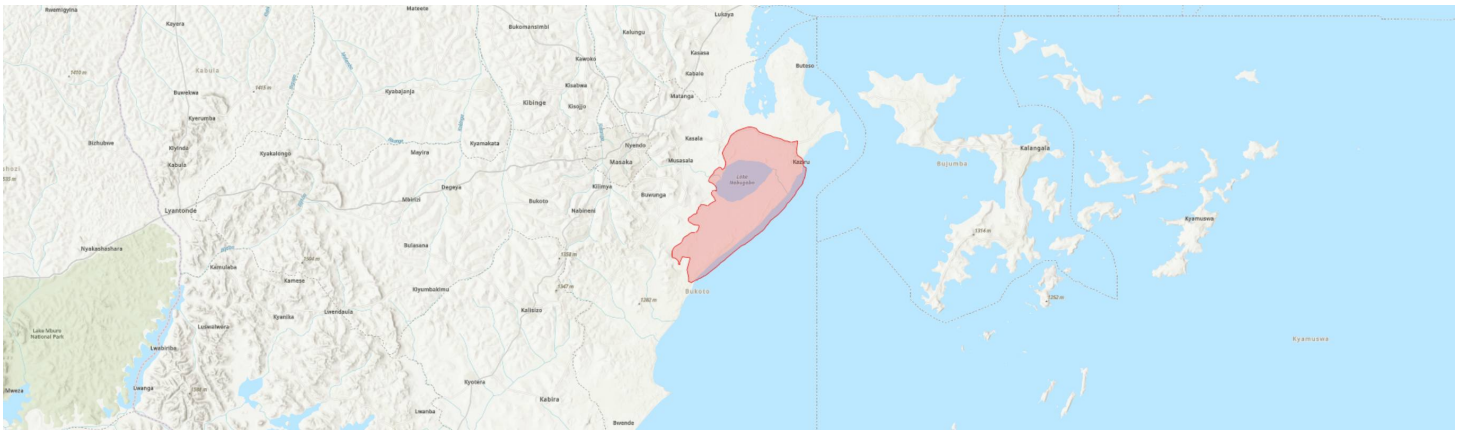
Available from https://tipas.kew.org/site/nabugabo-wetland/
[Accessed 1 June 2025]

Nabugabo Wetland

UGATIPA24



Country: **Uganda**
Administrative region: **Central (Region)**
Central co-ordinates: **-0.40018 N, 31.88889 E**
Area: **219km²**

Qualifying IPA criteria

A(i), C(iii)

IPA assessment rationale

Nabugabo qualifies as an Important Plant Area under criterion A; sub-criterion A(i) is triggered by the presence of one Critically Endangered species (Senecio navagabensis), five Endangered species (Agelanthus entebbensis, Emilia cryptantha, Oldenlandia duemmeri, Vernonia tinctosetosa and Xyris ednae) and one Vulnerable species (Englerina schubotziana). Both Senecio navabagensis and Xyris ednae are endemic to Nabugabo, not known from anywhere else in the world. It also qualifies under criterion B(ii) as it is among the top 13 richest sites for endemic taxa.

The site is also one of the five best freshwater marshes nationally. This habitat is nationally Vulnerable and has been heavily exploited elsewhere in Uganda, therefore conservation of the freshwater marshes at this site is of national importance.

Site description

The Nabugabo Important Plant Area (IPA) covers an area of 219 km2 and is situated about 100 km southwest of Kampala in Central Uganda, Floristic region U4, on the western shores of Lake Victoria in Masaka district. Lake Nabugabo is separated from Lake Victoria by Lwamunda wetland and a sand bar c. 2 km wide (Ramsar Site Information Service 2024) of 4,000 (Johnsson et al. 2000, Danley et al. 2012) or even possibly 5,000 (Stager et al. 2005) years in age. The altitude ranges from 1,135 to 1,185 m asl. The Nabugabo IPA overlaps with the Lake Nabugabo wetland system Ramsar site (Ramsar Sites Information Service 2024; MWE 2017).

Nabugabo IPA is a mosaic of habitats with vegetation comprising both wet and dry grasslands. This site was surveyed in 2023 as part of fieldwork for the Uganda TIPAs project.

Botanical significance

Nabugabo IPA was found to have the highest biodiversity ranking of the 93 wetland sites surveyed by the Uganda Wetland Biodiversity Study of 1996 based on plants, dragonflies, birds and fish (MWE 1996; Mafabi 2003). This IPA is botanically important, being home to a diverse flora of not less than 304 species of vascular plants reported (Kalema 2005a, 2005b). It has a number of plants that are rare, making it unique and has an appreciable complementarity to the other wetland ecosystems in Uganda (Kalema 2005b).

The IPA has two species of flowering plants not known elsewhere in the world, i.e., Xyris ednae (Xyridaceae) and Senecio navugabensis (Asteraceae). Senecio navugabensis is known only from the type collection from 1935 (Synge #1947). Known from the swamp edge, good habitat may still exist for this species. However, many threats to the site including grazing and associated burning, alongside tourism and its use for military training, have led to this species being assessed as Critically Endangered - Possibly Extinct (IUCN SSC EAPRLA 2013). This species was not observed during October 2023 TIPAs fieldwork at the site, but the only known specimen was collected in flower in April, and so the flowering period may be limited to earlier in the year.

Xyris ednae is an Endangered herb species with a range that extends from the western Lake Nabugabo shores toward Kitovu near

Masaka. The sites nearest Masaka are thought to be most threatened, with some populations likely lost (Beentje et al. 2019).

Alongside X. ednae, there are four other Endangered species known from this IPA. These include two herbaceous Asteraceae, Emilia cryptantha and Vernonia tinctosetosa. Emilia cryptantha is near-endemic, limited to swampy grassland in S Uganda and NW Tanzania. It is thought to have been extirpated from some areas, including Kabaka's Lake, Kampala (Gereau et al. 2016). This species was collected most recently in 2001 at Nabugabo (Kalema #1109, 1173); this IPA is therefore important for conservation of this Endangered species. Vernonia tinctosetosa is similarly near-endemic, known only from Nabugabo and NW Tanzania. Nabugabo IPA is one of the most important sites for another Endangered species, Oldenlandia duemmeri. This woody herb in the Rubiaceae is only known from seasonally wet grassland in Nabugabo and a few other localities in the Central region of Uganda and the east of Rwanda. During 2023 Uganda TIPAs fieldwork, O. duemmeri was observed to be common in the grassland on the northwestern shore of Lake Nabugabo. Agelanthus entebbensis (Loranthaceae), also Endangered, is a hemiparasitic forest shrub only known from western Kenya to Nabugabo.

One Vulnerable species, the parasitic Englerina schubotziana (Loranthaceae), is known from Nabugabo. This IPA is likely the easternmost locality for this species which is largely restricted to the Albertine Rift (Gereau et al. 2019).

A total of 10 species of plants are known exclusively from Nabugabo and nowhere else in Uganda (Lye and Namaganda 2005), viz: Andropogon eucomus subsp. huillensis (A. laxatus), Blyxa aubertii, Drosera burkeana, Eriochrysis pallida, Heteranthoecia guineensis, Sauvagesia africana, Tricanthecium (Panicum) brazzavillense, Utricularia benjaminiana, Wiesneria filifolia, and Xyris subtilis.

Seven other species occur in Nabugabo but with very few (three or fewer) extra localities elsewhere in the country. For instance, Brasenia schreberi was previously recorded from Kabaka's lake in Kampala and Namanve swamp in Mukono District and recently at Mabamba Bay wetland (M. Namaganda, pers. comm. 2025). As well, Nervilia petraea has also been recorded from near Masaka and Kabaka's lake in Kampala. Nymphoides indica is only known from Nabugabo and Kaku-Kiyanja wetland in Lyantonde district (M. Namaganda, pers. comm. 2025), and Syngonanthus wahlbergii is also known from Entebbe and Mabamba. Trichopteryx marungensis also occurs in Bukakata, which is very close to Nabugabo geographically, Utricularia pubescens is also recorded from Rakai, and Xyris angularis has also been recorded from Jubiya Central Forest Reserve. The Nabugabo IPA is the most important area for the conservation of carnivorous plants in Uganda (Kalema et al 2016); it has 13 of the 23 Ugandan species of carnivorous plants and 2.2% of the world's carnivorous plant diversity (Namaganda, 2005).

This site has a rich desmid flora (an order of green algae) with 108 taxa identified, 14 of which are mostly known only from the African continent (van Geest and Coesel 2012). Six of these desmids are newly described: Euastrum gemmatum var. quadrituberosum, Micrasterias stuhlmannii var. nabugabonum, Cosmarium nabugabonum, Xanthidium thomassonii, Staurodesmus eckertii var. africanus and Staurastrum capitulum var. foersteri.

Aside from species richness, Nabugabo IPA is a nationally important example of freshwater marsh habitat (VU). This habitat is important in the provision of ecosystem services (see Key Ecosystem Services) but is threatened nationally, particularly due to expanding agriculture (Wambede 2021; Richards et al. 2024). Nabugabo is one the most intact examples of this habitat nationally and therefore triggers sub-criterion C(iii) of the IPA criteria.

Habitat and geology

The wetland habitats comprise areas of open freshwater as well as both permanent and intermittent freshwater marshes and pools. These wetland habitats are predominantly of Miscanthidium (Miscanthus) violaceum, Loudetia phragmitoides, Eriochrysis brachypogon and Limnophyton obtusifolium marshes, with peaty bogs at the edges between marshes, and grasslands with Loudetia kagerensis, Andropogon canaliculatus, Hyparrhenia spp. and Eragrostis spp., are also common. Parinari curatellifolia forms occasional near-pure patchy stands on sandy soils in grassland. There are vast Sphagnum boggy swamps with frequent occurrence of Rhynchospora sp. and Eriocaulon schimperi.

There is a forest along the north-western shore and sandy beaches along the windward, eastern shoreline, with other smaller relics in other places. Common species in the forest are Xylopia aethiopica, Beilschmiedia ugandensis, Synsepalum cerasiferum (syn: Afrosersalisia cerasifera) and Raphia farinifera. Most of these forest patches are now degraded. The bar separating Nabugabo from Lake Victoria is dominated by Vossia cuspidata with Cyperus papyrus, Miscanthidum violaceum and some acidophilic Sphagnum (Stager et al. 2005). Along the bar, there are forest patches dotted in the interfaces between swamps and grasslands. These patches are variable in size and extent of degradation, some intact while others are severely degraded. Some are as small as only 40 m of radius. Common species in these patches include Xylopia aethiopica, Harungana madagscariensis, Beilschimiedia ugandensis, Pseudospondias microcarpa, Alchornea cordifolia, Phoenix reclinata, Bridelia micrantha and Macaranga schweinfurthii. There are also fringes of papyrus along the lake shoreline and swamp forest in others.

Most of Lake Victoria is surrounded by Precambrian bedrock (Johnson et al. 2000). The basement rock is comprised predominantly of granitic metamorphic rocks of the Archaean shield (MWE 2017). The predominant controls on the formation of the Lake Victoria Basin were tectonic uplift and associated rifting around the margins (Rach 1992). Nabugabo and the satellite lakes are natural

and are believed to have been originally a bay connected with Lake Victoria. Approximately 3,500 years ago, the lake level fell and the Nabugabo system became separated from Lake Victoria. Further loss of water separated the three lakes from Lake Victoria and left a thin sandbar in between.

The soils in Nabugabo IPA are generally modified by the parent rock through climatic conditions and land use activities. They are mostly ferrallitic and along the lakeshores hydromorphic. The majority of soils were developed from remnants of old lacustrine (lake) deposits. The top soils consist of traces of humus merging into yellow-brown or brown sandy loam or loamy sands to a depth of 3 to 5 ft. The soils are underlain by rounded quartz pebbles and, in some places, with a layer of murram and massive laterite (NARO 2015). The texture is variable from place to place ranging from red laterite, sandy loam and loam, and is in general not very productive. Annual rainfall total is about 1,150 mm in two seasons, March to May and September to December.

Conservation issues

Nabugabo was gazetted as a Ramsar Site in 2004 (MWE 2017). The Ramsar Site covers an extensive wetland system that is interconnected with Lake Victoria, the satellite lakes of Kayugi, Manywa and Kayanja/Birinzi, the Lwera flood plain and the lower catchment of River Katonga (MWE 2017).

Nabugabo is also an Important Bird Area (IBA) with important populations of the Papyrus Gonolek (Laniarius mufumbiri, NT) and the Shoebill (Balaeniceps rex, VU), both of which are Lake Victoria Basin Biome species (Byaruhanga et al. 2001). The two endemic plant species, Senecio navugabensis and Xyris ednae, also trigger a Key Biodiversity Area (KBA) (Plumptre et al. 2019).

As the human population of this area continues to grow and pressure on resources increases, a variety of land uses are now affecting the ecological systems in the area. Large investments have been established in the area including commercial farms, construction of recreational facilities, especially resorts at beaches (NatureUganda 2010), and large-scale extraction of wetland sand and clay. Observable threats to the conservation of biodiversity in this IPA include:
a) unsustainable tree felling for charcoal burning and timber in the forest patches
b) sand mining
c) grazing of cattle
d) burning of vegetation, often associated with refreshing pasture (NatureUganda 2010)
e) illegal fishing, which also puts pressure on plant resources as they are cut for smoking the fish
f) drainage of some areas for cultivation (NatureUganda 2010)
g) expanding recreation and tourism developments
h) alien invasive plants, notably Mimosa pigra and Lantana camara, posing a threat to native flora and habitat quality.

In response to some of these challenges, the Ministry of Water and Environment (2017) in collaboration with the local governments of Masaka, Kalungu, Gomba, Mpigi, and Butambala districts, has developed the Lake Nabugabo wetland system Ramsar Site management plan 2017-2027. The plan envisions, ‘a well-managed Lake Nabugabo wetland system Ramsar site for people’s wellbeing and environment’.

Site assessor(s)

Assessed by:

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Date of first assessment:
13th Jan 2025

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
Emilia cryptantha C.Jeffrey	A(i)	✓	✓	✓	–	–	Unknown
Senecio navugabensis C.Jeffrey	A(i)	✓	✓	✓	✓	–	Scarce
Vernonia tinctosetosa C.Jeffrey	A(i)	✓	✓	✓	–	–	Unknown
Agelanthus entebbensis (Sprague) Polhill & Wiens	A(i)	✓	✓	✓	–	–	Unknown
Englerina schubotziana (Engl. & K.Krause) Polhill & Wiens	A(i)	✓	✓	✓	–	–	Unknown
Oldenlandia duemmeri S.Moore	A(i)	✓	✓	✓	–	–	Common
Xyris ednae Lock	A(i)	✓	✓	✓	–	–	Unknown
Baissea leontonori Dilst	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
Freshwater marshes (VU)	C(iii)	–	–	✓	94.8
Medium Altitude Evergreen Forest (VU)	C(iii)	–	–	–	3
Medium Altitude Semi-Deciduous Forest (EN)	C(iii)	–	–	–	17.5

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Lowland Forest	–	Minor
Grassland - Subtropical/Tropical Dry Lowland Grassland	–	Major
Grassland - Subtropical/Tropical Seasonally Wet/Flooded Lowland Grassland	–	Major
Wetlands (inland) - Permanent Rivers, Streams, Creeks [includes waterfalls]	–	Minor

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers, Streams, Creeks	—	Minor
Wetlands (inland) - Bogs, Marshes, Swamps, Fens, Peatlands [generally over 8 ha]	—	Major
Wetlands (inland) - Permanent Freshwater Lakes [over 8 ha]	—	Major
Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools [under 8 ha]	—	Minor
Wetlands (inland) - Permanent Freshwater Marshes/Pools [under 8 ha]	—	Major

Land use types

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

Threats

THREAT	SEVERITY	TIMING
Residential & commercial development - Tourism & recreation areas	Low	Ongoing - increasing
Agriculture & aquaculture - Annual & perennial non-timber crops - Small-holder farming	Low	Ongoing - increasing
Agriculture & aquaculture - Livestock farming & ranching - Small-holder grazing, ranching or farming	Medium	Ongoing - increasing
Transportation & service corridors - Roads & railroads	Medium	Ongoing - stable
Transportation & service corridors - Utility & service lines	Medium	Ongoing - increasing
Biological resource use - Hunting & collecting terrestrial animals	Low	Ongoing - increasing
Human intrusions & disturbance - Recreational activities	Low	Ongoing - increasing
Human intrusions & disturbance - War, civil unrest & military exercises	Low	Ongoing - stable
Natural system modifications - Fire & fire suppression - Increase in fire frequency/intensity	Low	Ongoing - stable
Invasive & other problematic species, genes & diseases - Invasive non-native/alien species/diseases	Low	Ongoing - increasing
Invasive & other problematic species, genes & diseases - Problematic native species/diseases	Low	Ongoing - stable
Biological resource use - Gathering terrestrial plants	Medium	Ongoing - increasing
Biological resource use - Logging & wood harvesting	Medium	Ongoing - increasing
Biological resource use - Fishing & harvesting aquatic resources	Medium	Ongoing - increasing

Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Lake Nabugabo wetland system	Ramsar site	protected/conservation area encompasses IPA	219
Kisasa	Forest Reserve (conservation)	IPA encompasses protected/conservation area	3
Manwa	Forest Reserve (conservation)	protected/conservation area overlaps with IPA	1

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Lake Nabugabo wetland system	Key Biodiversity Area	protected/conservation area matches IPA	–
Nabugabo wetland	Important Bird Area	protected/conservation area matches IPA	–

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Site management plan in place	Lake Nabugabo wetland system Ramsar site Management plan	2017	2027

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