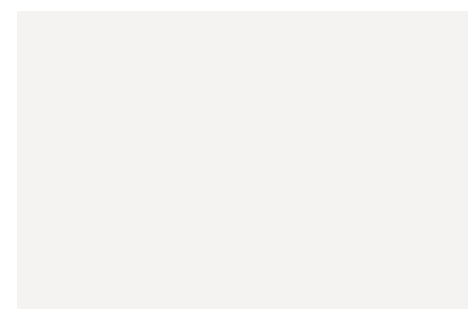


Upper-Seli-Rokel River

SIETIPA23



Country: **Sierra Leone**

Administrative region: **Northern (Province)**

Central co-ordinates: **9.32000 N, -11.58000 E**

Area: **34.6km²**

Qualifying IPA criteria

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

IPA assessment rationale

The Upper-Seli-Rokel River IPA rapids are rich in Podostemaceae species and contain the only existing site globally for *Ledermanniella yiben* (CR), which would be permanently submerged with the construction of the proposed Yiben hydroelectric reservoir, triggering criterion A(iv). In addition, this IPA also meets criterion A (i) due to the presence of 26 globally threatened plant taxa in Sierra Leone. This site contains a >3% of species of high conservation importance, thus triggering criterion B(ii). It's also triggering criterion C(iii) due to the nationally threatened freshwater waterfalls that supports endemic Podostemaceae species, for which Sierra Leone is the hotspot for such endemism.

Site description

The Upper-Seli Rokel River IPA is situated along the Rokel-Seli River in the Northern Province of Sierra Leone. It is the largest river in Sierra Leone. The IPA is upstream of the large dam near Bumbuna, and upstream of the reservoir of this dam. The IPA is located a few km north of the northernmost hills of the Sula Mountains, and north of Lake Sonfon, between the villages Yiben and Bandala. The town of Fadugu is located about 12 km northwest of the IPA. The Upper Rokel-Seli River IPA is characterized by low hills with farmland, fallow land, secondary forest patches, with gallery forest along the river, as well as river rapids. The plant species composition of the gallery forest vegetation along muddy sections of the river, is different from rocky sections of the river. A dam and reservoir are planned to be constructed, which would flood most of the IPA.

Botanical significance

The rapids in the Upper Seli-Rokel River IPA are rich in Podostemaceae species, which are freshwater aquatic plants occurring on rocky bedrock usually with fast-flowing water. The IPA is the only known site for *Ledermanniella yiben* and also the best site for *Ledermanniella aloides* in Sierra Leone.

The gallery and forest patches supports several globally threatened species, such as critically endangered *Vepris laurifolia*, endangered species including *Cola angustifolia*, *Eremospatha dransfieldii*, *Gilbertiodendron tonkolili*, *Stylochaeton pilosum*, *Tessmannia*

baikiaeoides, and Placodiscus pseudostipularis. Vulnerable species in this area include Copaifera salikounda, Cryptosepalum tetraphyllum, Milicia regia, Guibourtia leonensis, Afzelia africana, Landolphia macrantha, Aulacocalyx divergens, Anopyxis klaineana, Strychnos melastomatoides, Khaya grandifoliola, Anubias gracilis, Brachystegia leonensis, Homalium smythei, Garcinia kola, Neolemonniera clatandrifolia, and Dialium pobeguini.

In addition, this site also contains several near-threatened plant taxa, including Albizia ferruginea, Mitragyna stipulosa, Nauclea diderrichii, Trichoscypha longifolia, Gilbertiodendron limba, Irvingia gabonensis, and Karima scarcesii. Two new taxa records, Psychotria abouabouensis and Ancistrorhynchus akeassiae, both native to West Africa, were made from this IPA for the first time in Sierra Leone.

Habitat and geology

The Upper-Seli-Rokel River IPA is located in the Seli-Rokel River watershed. The IPA consists of mosaic vegetation types. A gallery forest of typically 50-meter-wide strips along rivers and streams is found within this IPA. It also consists of scattered closed-canopy rainforests with trees up to 25 m high, which is an important habitat for many priority biodiversity species. Savannas generally thrive on well-drained soil, along with grasslands with tall elephant grass in this IPA.

Due to the IPA's topography, most of the grasslands and swamp areas are converted into peanuts and rice fields. The river channel exhibits a moderately steep structure, characterised by cobble-bed or a mixed bedrock-cobble-bed channel with plain-bed, pool-riffle or pool-rapid reach types that are of similar length.

The average annual rainfall in the area is between 1750 and 3000 mm. The temperature in this region is between 18°C and 38°C (Ministry of Water Resources, 2015; Hijmans et al., 2012; Wilson et al., 2018). The IPA's climate is tropical monsoon climate of typical wet and dry seasons (Wilson et al., 2018).

Conservation issues

This IPA is currently the only known site for Ledermannia yiben, occurring in a part of a single river rapid, covering approximately 250 m². This species is critically endangered and will be permanently flooded by the Yiben reservoir (Cheek et al., 2017; Tatum-Hume et al., 2019). Despite several attempts by the Yiben dam project to implement mitigation measures such as translocation and additional searches for natural populations, these efforts have proven ineffective.

No other populations of this plant occurring elsewhere, and the only successful translocation site is located upstream along the same river (Lebbie, 2018; Tatum-Hume et al., 2019). This River Rokel river basin, where this IPA is located, serves as a hotspot for fish diversity

and endemism, with about 72 freshwater fish, of which 17 are endemic to this river (Kanu et al., 2022; Payne, 2018; Paugy et al., 2003).

Currently, this IPA lacks formal management, despite formerly designated as the country's only RAMZAR site. Consequently, it faces several threats, including deforestation, urbanisation, and infrastructural development (such as dams). Additionally, socioeconomic activities such as farming, cattle rearing (mostly nomadic herding), artisanal gold and industrial iron ore mining, sand quarrying, biofuel production, and fishing further add to these threats (Mansaray and Barrie, 2016; Wilson et al., 2018; Kanu et al., 2022).

Site assessor(s)

Fanny Massally, Royal Botanic Gardens, Kew

Date of first assessment:

27th Feb 2026

Reviewed by:

Xander van der Burgt, The Royal Botanic Gardens Kew

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>Ledermanniella yiben</i>	A(i), A(iv)	✓	✓	✓	✓	—	Scarce
<i>Ledermanniella aloides</i> (Engl.) C.Cusset	A(i)	✓	✓	✓	—	—	Frequent
<i>Tessmannia baikiaeoides</i>	A(i)	✓	✓	✓	—	—	Frequent
<i>Copaifera salikounda</i> Heckel	A(i)	—	—	—	—	—	Abundant
<i>Cryptosepalum tetraphyllum</i> (Hook.f.) Benth.	A(i)	—	—	—	—	—	Occasional
<i>Milicia regia</i> (A.Chev.) C.C.Berg	A(i)	—	—	—	—	—	Frequent
<i>Guibourtia leonensis</i> J. Léonard	A(i)	—	—	—	—	—	Common
<i>Eremospatha dransfieldii</i> Sunderl.	A(i)	✓	✓	✓	—	—	Common
<i>Vepris laurifolia</i>	A(i)	✓	✓	✓	—	—	Scarce
<i>Afzelia africana</i> Sm. ex Pers.	A(i)	—	—	—	—	—	Common
<i>Landolphia macrantha</i> (K.Schum.) Pichon	A(i)	✓	✓	✓	—	—	Common
<i>Anopyxis klaineana</i> (Pierre) Engl.	A(i)	—	—	—	—	—	Occasional
<i>Cola angustifolia</i> K.Schum.	A(i)	—	—	—	—	—	Occasional
<i>Stylochaeton pilosum</i> Bogner	A(i)	✓	✓	✓	—	—	Scarce
<i>Strychnos melastomatoides</i> Gilg.	A(i)	✓	✓	✓	—	—	Scarce
<i>Khaya grandifoliola</i> C.DC.	A(i)	—	—	—	—	—	Occasional
<i>Placodiscus pseudostipularis</i> Radlk.	A(i)	—	—	—	—	—	Scarce
<i>Anubias gracilis</i> A.Chev. ex Hutch.	A(i)	—	—	—	—	—	Occasional

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>Brachystegia leonensis</i> Hutch. & Burt Davy	A(i)	—	—	—	—	—	Scarce
<i>Gilbertiodendron tonkolili</i> Burgt & Estrella	A(i)	✓	✓	✓	—	—	Occasional
<i>Homalium smythei</i> Hutch. & Dalziel	A(i)	—	—	—	—	—	Occasional
<i>Garcinia kola</i> Heckel	A(i)	—	—	—	—	—	Scarce
<i>Neolemonniera clitrifolia</i> A.Chev.	A(i)	—	—	—	—	—	Occasional
<i>Dialium pobeguini</i> Pellegr.	A(i)	—	—	—	—	—	Scarce
<i>Aulacocalyx divergens</i> (Hutch. & Dalziel) Keay	A(i)	✓	✓	✓	—	—	Scarce

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
Waterfalls with endemic Podostemaceae	C(i)	✓	—	✓	

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Wetlands (inland) - Permanent Rivers, Streams, Creeks [includes waterfalls]	50	Major
Forest - Subtropical/Tropical Moist Lowland Forest	20	Minor
Savanna - Moist Savanna	20	Minor
Grassland - Subtropical/Tropical Dry Lowland Grassland	10	Minor

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Agriculture (aquatic)	—	Major
Extractive industry	—	Major
Agriculture (arable)	—	Major

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Agriculture (pastoral)	—	Unknown
Residential / urban development	—	Major

Threats

THREAT	SEVERITY	TIMING
Agriculture & aquaculture - Marine & freshwater aquaculture - Subsistence/artisinal aquaculture		Ongoing - stable
Natural system modifications - Dams & water management/use - Large dams		Ongoing - stable
Energy production & mining - Mining & quarrying		Ongoing - increasing

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
No management plan in place		—	—

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