Loma Mountains SIETIPA03



Country: Sierra Leone Administrative region: Northern (Province) Central co-ordinates: 9.16597 N, -11.11700 E Area: 994km²

Qualifying IPA criteria

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

IPA assessment rationale

The Loma Mountains qualify as an IPA under criterion A(i), as this area supports a important populations of 34 globally threatened species, as well as criterion A(iii) for one unassessed highly range restricted species and criterion B(ii) as it contains the entire global population of five highly range restricted species. This site also triggers criterion C(i) as it contains one of the five best national examples of 5 globally threatened habitats.

Site description

The Loma Mountains IPA is located in the Koinadugu District of the Northern Province of Sierra Leone. The Loma Mountains rise sharply above the surrounding plateau to a height of 1945 m asl at Mt Bintumani, the highest peak in West Africa west of Mt Cameroon (4070 m asl). Many streams descend the steep mountain slopes and culminate in one of three major rivers; the Bafi, Moni and Manasayi. This IPA encapsulates the Loma Mountains National Park and extends beyond this conservation area to include the Hunting Forest Reserve and intact surrounding forest (Protected Planet 2024).

Botanical significance

The diverse habitats present at the IPA support a range of plant species, including at least thirty-four threatened and nine endemics species to Sierra Leone, four of which are globally unique to the Loma Mountains. This site is highly diverse with a recorded total of 1,576 vascular plant species and notable diversity in Fabaceae, Poaceae and Orchidaceae (Jaeger 1983). This IPA belongs to the Loma-Man Highlands phytogeographic region which lies south of the Fouta Djalon Highland region in Guinea.

This site is a high conservation priority as it contains four globally irreplaceable and unique plant species: Bidens sierra-leonensis (Asteraceae), Ledermanniella jaegeri (Podostemaceae), Loxodera strigosa (Poaceae) and Scleria monticola (Cyperaceae). Despite being range restricted, there are no currently known threats to these taxa, therefore they have been assessed as Least Concern. A targeted survey to assess the conservation status of these species is recommended. In particular, the rheophytic herb Ledermanniella jaegeri has not been recorded since the type collection, made in 1965. Inselberg habitats are centers for endemism at the site. Speciation is enhanced by these habitats as they frequently occur as isolated monoliths and are characterized by extreme environmental conditions (i.e. edaphic dryness, high degrees of insolation). The steep cliffs associated with granite inselbergs provide habitat for endemic species Afrotrilepis jaegeri (LC) and Dryopteris amblyodonta (EN), while submontane grassland is habitat for Baccharoides nimbaensis (EN), Gladiolus leonensis (EN), Loudetia jaegeriana (NE) and Vernonia jaegeri (EN). There is also notable diversity of carnivorous plants within Droseraceae and Lentibulariaceae at the site.

There are dubious records of Guinea endemics Clematis kakoulimensis (CR, Jaeger #P.8854) and Cyanotis lourensis (EN, Cole 1974) from this site, however due to identification uncertainty they have been left out of this assessment.

Habitat and geology

This IPA falls within the Guinean Montane Forests ecoregion (Dinerstein et al. 2017). The vegetation of the Loma Mountains is comprised of a rich matrix of submontane forest and montane grassland punctuated by granite inselbergs. This gradually transitions into lowland evergreen forest at c.500 m asl or gallery forest along drainage lines. The Loma Mountains contains five habitats that are rare and globally threatened in West Africa: Lowaltitude evergreen forest and gallery forest, Submontane forest (500+ m), Submontane grassland (mainly 1000+ m), waterfalls with endemic Podostemaceae and Granite inselbergs. Notably, this site has the largest intact area of submontane forest and inselbergs in the country, as well as significant areas of lowland forest, albeit disturbed.

Closed forests at the base of the mountains are not continuous, and are largely secondary at various stages of succession, from farmbush and thicket to mature evergreen and semi-deciduous forest. The forest on the western side of the highlands is particularly dense, as it is the side that faces the monsoonal front, while the eastern side of the mountains are drier due to the desiccating effect of the northeasterly Saharan winds (Jager 1947b, Cole 1968). Fruit trees like citrus (exotic) and Cola spp. are common in secondary forest (Cole 1968) and trees such as Tectona grandis (Teak, exotic), Mangifera indica (Mango, exotic) and Heritiera utilis (Niangon) have been planted throughout the site to demarcate the national park boundary (Forestry Division 2012).

Gallery forests along drainage lines are characterised by a diverse canopy; the more common tree species are Amphimas pterocarpoides, Bombax buonopozense, Canarium schweinfurthii, Cola lateritia var. maclaudii, Entandrophragma utile, Parinari excelsa, Piptadeniastrum africanum, Uapaca togoensis and Uapaca guineensis (Cole 1968). At higher altitudes woody species are largely limited to high altitude gallery forest where Parinari excelsa, Polyscias fulva, Homalium smythei and Ficus saussureana (Jaeger 1966) are common.

The boundary between lowland and submontane forest is gradual and not easily defined, however in West Africa the 500 m contour is usually used to delineate these two communities (Couch et al. 2019). Submontane forest has a lower stature than lowland forest which usually diminishes with increased altitude, decreased soil depth and increased exposure to winds. There is a high abundance of epiphytes present within this vegetation type, including bryophytes and vascular species such as orchids. The species composition of submontane forest includes a small number of lowland species which become more frequent at higher altitude, such as Parinari excelsa which is characteristic and subdominant in submontane forest at this site.

At higher altitudes (~1200 m) the treeline abruptly ends and there is a distinct transition into submontane meadows that are interspersed with outcropping inselberg domes. These inselbergs often look desolate in the dry season, however in the wet season they are covered in vegetation of high diversity. Microtopography greatly impacts species distributions, with cracks, domes, flat depressions, rock pools occurring in a mosaic across the site. There are up to nine microhabitats present on inselbergs in West Africa (Porembski et al. 1994) and similarly submontane grasslands vary considerably with substrate depth and altitude. In the high-altitude grasslands on plateaus of c. 1600 m several plant assembelages can be distinguished, including Loudetia kagerensis (Poaceae) and Cyperus margaritaceus on shallow stony soil and the group of Hyparrhenia diplandra on deeper soil with little or no concretion (Jaeger 1954). Rocky grassland supports orophytes such as Eriosema spicatum subsp. collinum, Phyllanthus alpestris, Stomatanthes africanus, Euphorbia depauperata, Thesium tenuissimum, Baccharoides nimbaensis and Vernonia jaegeri (Cole 1974). Grasslands experience annual fires during the dry season, thus support resprouting plant species such as Gladiolus spp. and caespitose grasses that have protected vegetative shoots (Jaeger 1967). Annual fires are important in maintaining communities of threatened plant species in submontante grassland elsewhere in the Loma-Man highlands (Couch et al. 2019).

The geology of the Loma Mountains is characterised by Precambrian dolerite, gneiss, schist, quartzite and granite which outcrop in various inselberg peaks. Soil composition varies across the site, with the slopes generally leached while the valleys and swamps are relatively fertile (Forestry Division 2012).

Conservation issues

The intensity of human activities varies across the site. Within the IPA there are three land use categories: a National Park, a Hunting Forest Reserve, and a mosaic of forest and cleared areas on private land. Along the margins of remnant forest and outside of conservation areas, clearing poses a threat to native vegetation. This threat does not extend far into the mountainous regions as significant portions are inaccessible due to a challenging topography and limited road network. Remote submontane areas are the only known habitat of four endemic plant species, all of which are currently listed as Least Concern. Species with such limited ranges are vulnerable to stochastic events, thus they should be carefully monitored to ensure that populations are stable. Fire has been recorded across the IPA, particularly in high-altitude fire-adapted grasslands (Jager 1967). In the lower altitude forests, anthropogenic fires linked to slash-and-burn agricultural practices particularly threaten native vegetation that is not adapted to high frequency fire (i.e moist closed canopy forest). Wildfire damage to forests may drive fire-mediated transitions to derived savannas, expanding the areas of this fire prone vegetation (FAO 2020). The IPA is utilized for non-timber forest products (NTFP) and hunting, though these activities are considered to have minimal impact on vegetation at the site (Forestry Division 2012). Some small-scale logging by resident communities occurs within the IPA. The timber is used for subsistence as well as sold on local markets (Forestry Division 2012).

Mining is a major threat to inselberg habitats, especially those located at low altitude and near roads. They are formed of granite, which forms an important component of concrete when crushed, and used for large infrastructure and construction projects such as buildings, for dam walls, and for road construction (Couch et al. 2019). In 2009 Diamas Resources Ltd held an exclusive prospecting license that at the time represented the largest area given for exploration in the country and included the entirety of the National Park (Forestry Division 2012), however this company was dissolved in 2023 (UK Gov 2024). There are currently no active commercial or artisanal mining licenses in the IPA (GoSL 2024).

Site assessor(s)

Assessed 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
Anubias gracilis A.Chev. ex Hutch.	A(i)	~	~	~	_	~	
Baccharoides nimbaensis (C.D.Adams) Isawumi, El- Ghazaly & B.Nord.	A(i)	~	~	~	-	-	
Bothriocline fruticosa (C.D.Adams) Lisowski ex D.J.N.Hind	A(i)	~	~	~	_	_	
Coleus lyratus (A.Chev.) Roberty	A(i)	\checkmark	~	~	-	-	
Coleus pobeguinii Hutch. & Dalziel	A(i)	~	~	~	_	-	
Copaifera salikounda Heckel	A(i)	-	-	~	-	-	
Dissotis leonensis Hutch. & Dalziel	A(i)	~	~	~	-	_	
Dissotis pobeguinii Hutch. & Dalziel	A(i)	-	~	~	-	-	
Droogmansia chevalieri (Harms) Hutch. & Dalziel	A(i)	-	-	~	-	-	
Dryopteris amblyodonta J.P.Roux	A(i)	~	~	~	-	-	
Entandrophragma utile (Dawe & Sprague) Sprague	A(i)	-	-	-	-	~	
Eriocaulon cryptocephalum S.M.Phillips & Mesterházy	A(i)	~	~	~	-	-	
Eugenia pobeguinii Aubrév.	A(i)	~	-	~	-	-	
Gladiolus leonensis Marais	A(i)	~	~	~	_	-	
Habenaria jaegeri Summerh.	A(i)	~	~	~	_	-	
Hibiscus fabiana Cheek	A(i)	~	~	~	-	-	

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
Homalium smythei Hutch. & Dalziel	A(i)	-	~	~	-	-	
Isoglossa dispersa I.Darbysh. & L.J.Pearce	A(i)	~	~	~	_	_	
Kotschya lutea (Portères) Hepper	A(i)	~	~	~	-	-	
Loudetia jaegeriana A.Camus	A(iii)	~	~	~	_	_	
Mesanthemum jaegeri JacqFél.	A(i)	~	~	~	-	_	
Millettia warneckei Harms	A(i)	_	_	~	-	-	
Psychotria samoritourei Cheek	A(i)	~	~	~	_	_	
Rhytachne glabra (Gledhill) Clayton	A(i)	~	~	~	_	_	
Rinorea djalonensis A.Chev.	A(i)	~	~	~	_	_	
Rytigynia Ieonensis Robyns	A(i)	~	~	~	-	_	
Schizachyrium djalonicum JacqFél.	A(i)	~	~	~	-	-	
Schizachyrium Iomaense A.Camus	A(i)	~	~	~	_	_	
Shirakiopsis aubrevillei (Beille)Esser	A(i)	-	-	~	_	_	
Utricularia macrocheilos (P.Taylor) P.Taylor	A(i)	~	~	~	-	-	
Utricularia tetraloba P.Taylor	A(i)	-	~	~	-	-	
Vernonia jaegeri C.D.Adams	A(i)	~	~	~	-	-	
Xyris festucifolia Hepper	A(i)	-	~	~	-	-	
Xysmalobium samoritourei Goyder	A(i)	~	~	~	-	-	

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
Eriosema spicatum subsp. collinum (Hepper) J.K.Morton ex Verdc.	A(i)	~	~	~	_	_	
Hypolytrum cacuminum Nelmes	A(i)	~	~	~	_	-	
Acalypha guineensis J.K. Morton & G.A.Lavin	A(i)	~	~	~	_	_	
Pavetta platycalyx Bremek.	A(i)	~	~	~	_	-	

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
Submontane grassland	C(i)	~	\checkmark	~	
Submontane forest	C(i)	~	\checkmark	\checkmark	
Low-altitude evergreen forest and gallery forest	C(i)	~	\checkmark	\checkmark	
Waterfalls with endemic Podostemaceae	C(i)	~	\checkmark	\checkmark	
Granite inselbergs	C(i)	\checkmark	\checkmark	\checkmark	

General site habitats

GENERAL SITE HABITAT	PERCENT COVERAGE	IMPORTANCE
Forest - Subtropical/Tropical Moist Lowland Forest	-	
Forest - Subtropical/Tropical Moist Montane Forest	-	
Grassland - Subtropical/Tropical High Altitude Grassland	-	
Wetlands (inland) - Permanent Rivers, Streams, Creeks [includes waterfalls]	-	
Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers, Streams, Creeks	-	
Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools [under 8 ha]	-	
Rocky Areas - Rocky Areas [e.g. inland cliffs, mountain peaks]	-	

Land use types

LAND USE TYPE	PERCENT COVERAGE	IMPORTANCE
Nature conservation	-	Major
Agriculture (arable)	_	Minor
Harvesting of wild resources	_	Minor

Threats

THREAT	SEVERITY	TIMING
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Protected areas

PROTECTED AREA NAME	PROTECTED AREA TYPE	RELATIONSHIP WITH IPA	AREAL OVERLAP
Loma Mountains	National Park	IPA encompasses protected/conservation area	-
Loma Mountains Alikalia	Forest Reserve (production)	IPA encompasses protected/conservation area	-

Conservation designation

DESIGNATION NAME	PROTECTED AREA	RELATIONSHIP WITH IPA	AREAL OVERLAP
Loma Mountains Non-hunting Forest Reserve	Important Bird Area	IPA encompasses protected/conservation area	_

Management type

MANAGEMENT TYPE	DESCRIPTION	YEAR STARTED	YEAR FINISHED
Protected Area management plan in place	Loma Mountains National Park Management Plan. No recent management plan has been found.	2013	2017

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