



Ramsar Information Sheet

Published on 22 March 2021

South Africa Ingula Nature Reserve



Designation date	1 March 2021
Site number	2446
Coordinates	28°15'25"S 29°34'18"E
Area	8 084,00 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

The Ingula Pumped Storage Scheme (IPSS), and the property associated with it, is situated on the boundary of the Free State and KwaZulu-Natal Provinces, straddling the escarpment of the Low Berg, South Africa. Eskom Holdings initiated an Environmental Impact Assessment (EIA) for the IPSS in early 1998, culminating in the then Minister of Environmental Affairs and Tourism authorising the scheme in December 2002. Construction of the scheme was initiated in mid-2005. One of the recommendations of the specialist studies during the EIA, subsequently captured into the Record of Decision, was the need to purchase additional land surrounding the IPSS and to apply for the proclamation of the land associated with the IPSS as a Nature Reserve, in order to secure the biodiversity value of the site. Presence of threatened habitats – wetlands, scarp forests, grasslands. The value of these key habitats for threatened species:

- Protection of under-represented (in the current protected area network) high-altitude grasslands, and the relatively large size of the property in the grassland biome.
- Extensive grassland and wetland habitat (and its good condition) on the property, considering the poor protection status nationally.
- Presence of significant areas of Scarp Forest, being listed as a “threatened ecosystem” by SANBI and protected through this initiative.
- Maintenance of escarpment forest connectivity along the escarpment corridor. The diversity of habitats (habitat heterogeneity).
- The presence of key threatened fauna and flora species that require protection.
- The site is registered as an Internationally Important Bird Area (IBA no.: SA043 - Bedford / Chatsworth).

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency	Eskom Holdings SOC Ltd
Postal address	PO BOX 1091, Johannesburg, 2000, South Africa

National Ramsar Administrative Authority

Institution/agency	Department of Environment, Forestry and Fisheries
Postal address	Department of Environmental Affairs Office of the DDG: Biodiversity & Conservation 473 Steve Biko (Old Beatrix Street), Arcadia PRETORIA 0083 GF-Block-C1-25

2.1.2 - Period of collection of data and information used to compile the RIS

From year	2004
To year	2020

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Ingula Nature Reserve
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2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<1 file(s) uploaded>

Former maps	0
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Boundaries description

The Ingula Nature Reserve is situated along the northern-most part of the Drakensberg mountain range. The crest of the escarpment is known as an orographic barrier with high rainfall on the seaside, and a rain shadow inland. The boundaries of the Ingula Nature Reserve are determined by the property owned by Eskom Holdings SOC Ltd and declared under the National Environmental Management Act, Act 57 of 2003 as a Nature Reserve. The properties involved in the declaration of the Ingula Nature Reserve include 8 properties in Free State and 5 properties in KwaZulu-Natal, with a total of 8084 hectares.

2.2.2 - General location

a) In which large administrative region does the site lie?	KwaZulu- Natal and Free State Province
b) What is the nearest town or population centre?	Ladysmith

2.2.3 - For wetlands on national boundaries only

- a) Does the wetland extend onto the territory of one or more other countries? Yes No
- b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes No

2.2.4 - Area of the Site

Official area, in hectares (ha):	8084
Area, in hectares (ha) as calculated from GIS boundaries	8097.126

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Udvardy's Biogeographical Provinces	Tropical and subtropical grasslands, savanna and shrublands.

Other biogeographic regionalisation scheme

WWF Terrestrial Ecoregions

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided	The Ingula Nature Reserves sits on the continental watershed, with the upper Wilge Catchment draining into the Atlantic Ocean and the lower Thukela Catchment draining into the Indian Ocean. The site falls within a South African Strategic Water Source Area and a National Freshwater Ecosystem Priority Area.
Other ecosystem services provided	The site provides habitat for a number of threatened species, more specifically waterbirds.
Other reasons	The site is made up of hillslope wetlands (representative), pans/depressions (rare) and floodplains (representative).

- Criterion 2 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification	More than 341 species of birds have been recorded on the Ingula Nature Reserve, including a number of priority species - White-winged Flufftail (<i>Sarothrura ayresi</i>), Blue Crane (<i>Anthropoides paradisues</i>), Grey Crowned Crane (<i>Balearica regulorum</i>), Wattled Crane (<i>Bugeranus carunculatus</i>), Secretary Bird (<i>Sagittarius serpentarius</i>), Martial Eagle (<i>Polemaetus bellicosus</i>) and the Southern Bald Ibis (<i>Geronticus calvus</i>). Additionally a rare plant species can be found African Weed Orchid (<i>Disa tysonii</i>).
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3.2 - Plant species whose presence relates to the international importance of the site

Phylum	Scientific name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
Plantae								
TRACHEOPHYTA/ LILIOPSIDA	<i>Disa tysonii</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Sanbi Red Data List	Rare

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
		2	4	6	9	3	5	7	8								
Others																	
CHORDATA/MAMMALIA	<i>Aonyx capensis</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/MAMMALIA	<i>Panthera pardus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/MAMMALIA	<i>Pelea capreolus</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>		
Birds																	
CHORDATA/AVES	<i>Balearica regulorum</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	<i>Bugeranus carunculatus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	<i>Circus maurus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	<i>Geronticus calvus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	<i>Gypaetus barbatus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	<i>Gyps africanus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
CHORDATA/AVES	<i>Gyps coprotheres</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
CHORDATA/AVES	<i>Heteromirafra ruddi</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	<i>Polemaetus bellicosus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	<i>Sagittarius serpentarius</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/AVES	<i>Sarothrura ayresi</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	240	2015	1	CR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

1) Percentage of the total biogeographic population at the site

3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Temperate Grassy Wetlands	<input checked="" type="checkbox"/>		Vulnerable
Eastern Free State Sandy Grassland	<input checked="" type="checkbox"/>	The grassland represents major indigenous Free State vegetation types.	Endangered
Basotho Montane Shrubland	<input checked="" type="checkbox"/>		Vulnerable
Northern KwaZulu-Natal Moist Grassland	<input checked="" type="checkbox"/>		Vulnerable
Eastern Temperate Freshwater Wetlands	<input checked="" type="checkbox"/>		Vulnerable

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

The Ingula Nature Reserve is situated along the northern-most part of the Drakensberg mountain range, known for its extreme weather. The crest of the escarpment is known as an orographic barrier with high rainfall on the seaside, and a rain shadow inland. The area is characterized by summer rainfall, temperate summers and very cold winters. The rainfall season stretches from September to April with a mean annual rainfall ranging from 800 mm to 1000 mm. Summers are cool with the possibility of thunderstorms; winters are cold with occasional snow. The Ingula Nature Reserve lies between 1260m and 1900m above sea level. It is underlain by rock formations representing the upper part of the Karoo Sequence in South Africa which is interrupted by dolerite dykes and sills. The lower site is characterised by open, wide, flat valleys through which flows a deeply incised meandering drainage line. Much of the area consists of a dry grassy plain part of which has been planted and irrigated under irrigation. The upper site on the other hand consists of relatively flat grassy plains, interspersed with extensive wetlands. The upper and lower sites are separated by a 600m high escarpment consisting of a number of mudstone spurs (of the Ecca and Beaufort groups), covered with Afrotemperate forests. The upper and lower sites are separated by the escarpment that was initially located along the coastline at the time of the break-up of the Gondwanaland super-continent between 160 and 120 million years ago. Erosion has driven it inland to its present position. As it receded so vast erosion surfaces were formed simultaneously above and below the escarpment. Remnants of the oldest of these, the African surface, form the lower interfluvies at elevations of around 1750 – 1800 m in the vicinity of the upper site. The lower site lies within the upper part of the Ladysmith Basin, formed by ongoing erosion along headwater tributaries of the Tugela River. In this area, all vestiges of the African surface have been removed by erosion, and the landscape is characterised by frequent dolerite koppies and relatively thin soil mantles, except in the high rainfall zone in close proximity to the escarpment. Around the upper site, local relief is about 100m. Low, flat topped koppies and spurs characterize the landscape and have resulted from the strong structural influence of flat-lying strata of the Karoo Supergroup, particularly the Rooinek Sandstone. Locally, streams have incised through the sandstone to depths of up to 50m, forming small waterfalls and narrow valleys along the Wilge River.

4.2 - What wetland type(s) are in the site?

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Flowing water >> M: Permanent rivers/ streams/ creeks	Hillslope wetlands	2	975	Representative
Fresh water > Marshes on inorganic soils >> Tp: Permanent freshwater marshes/ pools	Pans/Depressions	3	383	Rare
Fresh water > Marshes on peat soils >> U: Permanent Non-forested peatlands	Floodplains	1	1287	Representative

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/LILIOPSIDA	<i>Disa cornuta</i>	
TRACHEOPHYTA/LILIOPSIDA	<i>Disa uniflora</i>	Endemic
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Protea caffra</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Protea dracomontana</i>	Endemic

Invasive alien plant species

Phylum	Scientific name	Impacts
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Acacia mearnsii</i>	Actual (minor impacts)

Optional text box to provide further information

Currently under a full removal and eradication plan.

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/REPTILIA	<i>Agama aculeata distantii</i>				Endemic
CHORDATA/MAMMALIA	<i>Amblysomus hottentotus</i>				Endemic
CHORDATA/REPTILIA	<i>Chamaesaura anguina</i>				Endemic
CHORDATA/MAMMALIA	<i>Damaliscus pygargus phillipsi</i>				Endemic
CHORDATA/MAMMALIA	<i>Genetta tigrina</i>				Endemic
CHORDATA/MAMMALIA	<i>Myosorex varius</i>				Endemic
CHORDATA/REPTILIA	<i>Pseudocordylus melanotus</i>				Endemic

Optional text box to provide further information

The Ingula Nature Reserve has 34 species of mammals recorded, including 11 carnivores, and 10 antelope species, including the Aardvark, Chacma Baboon, Blesbok, Bushbuck, Bushpig, Caracal, Dassie, Grey Duiker, Black-backed Jackal, Rough-haired Golden Mole, Large Grey Mongoose, Water Mongoose, Yellow Mongoose, Vervet Monkey, Oribi, Cape Springhare, Cape Clawless Otter, Striped Polecat, Porcupine, Common Reedbuck, Grey Rhebok, Mountain Reedbuck, Serval, African Wildcat and a number of small rodents. More than 341 species of birds have been recorded, including a number of priority species - White-winged Flufftail (*Sarothrura ayresi*), Eurasian Bittern (*Botaurus stellaris*), Blue Crane (*Anthropoides paradisues*), Grey Crowned Crane (*Balearica regulorum*), Wattled Crane (*Bugeranus carunculatus*), Denham's Bustard (*Neotis denhami*), Secretary Bird (*Sagittarius serpentarius*), African Grass Owl (*Tyto capensis*), Martial Eagle (*Polemaetus bellicosus*) and the Southern Bald Ibis (*Geronticus calvus*). The Ingula Nature Reserve also has 69 species of Butterflies recorded, and 29 species of reptiles including the Sungazer (also known as 'ouvolk' (*Smaug giganteus*) on adjoining properties that is endemic to the Grassland Biome).

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Aw: Tropical savanna (Winter dry season)

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- Entire river basin
- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

Wilge River; Klip River; Tugela River

4.4.3 - Soil

- Mneral
- Organic
- No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes No

4.4.4 - Water regime

Water permanence

Presence?	
Usually permanent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	
Water inputs from precipitation	<input type="checkbox"/>	No change
Water inputs from groundwater	<input type="checkbox"/>	No change
Water inputs from surface water	<input checked="" type="checkbox"/>	No change

Water destination

Presence?	
To downstream catchment	No change
Feeds groundwater	No change

Stability of water regime

Presence?	
Water levels largely stable	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

The site does contain two dams with fluctuating water regimes but standard release requirements as per the Water use license.

4.4.5 - Sediment regime

- Significant erosion of sediments occurs on the site
- Significant accretion or deposition of sediments occurs on the site
- Significant transportation of sediments occurs on or through the site
- Sediment regime is highly variable, either seasonally or inter-annually
- Sediment regime unknown

4.4.6 - Water pH

- Acid (pH<5.5)
- Circumneutral (pH: 5.5-7.4)
- Alkaline (pH>7.4)
- Unknown

4.4.7 - Water salinity

- Fresh (<0.5 g/l)
- Mixohaline (brackish)/Mixosaline (0.5-30 g/l)
- Euhaline/Eusaline (30-40 g/l)
- Hyperhaline/Hypersaline (>40 g/l)
- Unknown

4.4.8 - Dissolved or suspended nutrients in water

- Eutrophic
- Mesotrophic
- Oligotrophic
- Dystrophic
- Unknown

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the site itself. i) broadly similar ii) significantly different

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Fresh water	Drinking water for humans and/or livestock	Low
Wetland non-food products	Timber	Low
Wetland non-food products	Livestock fodder	Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	Medium
Recreation and tourism	Nature observation and nature-based tourism	Low
Spiritual and inspirational	Cultural heritage (historical and archaeological)	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Long-term monitoring site	High
Scientific and educational	Major scientific study site	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Medium

Within the site:

Outside the site:

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes No Unknown

Where economic studies or assessments of economic valuation have been undertaken at the site, it would be helpful to provide information on where the results of such studies may be located (e.g. website links, citation of published literature):

On site repository.

4.5.2 - Social and cultural values

- i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland
- ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland
- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples

Description if applicable

The wetland serves as a cattle grazing area for local communities, that requires management.

- iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland

4.6 - Ecological processes

(EOD) Pressures and trends concerning any of the above, and/or concerning ecosystem integrity

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
Public land (unspecified)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Commercial (company)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooperative/collective (e.g., farmers cooperative)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Other

Category	Within the Ramsar Site	In the surrounding area
Unspecified mixed ownership	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

Eskom Holdings owns and manages the property, the nature reserve and the proposed Ramsar site.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

Eskom Holdings SOC Ltd - Peaking Generation

Provide the name and/or title of the person or people with responsibility for the wetland:

Ingula Nature Reserve Manager; Ingula Generation Environmental Manager; Peaking General Manager

Postal address:

PO BOX 1091, Johannesburg, 2000, South Africa

E-mail address:

chettykc@eskom.co.za

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Unspecified development	Low impact	Low impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Water releases	Low impact	Low impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Livestock farming and ranching	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Renewable energy	Low impact	Low impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Hunting and collecting terrestrial animals	Low impact	Low impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fire and fire suppression	High impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dams and water management/use	Low impact	Low impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Habitat shifting and alteration	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Storms and flooding	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Please describe any other threats (optional):

The following key challenges have been identified:

- Combining conservation and construction activities
 - o Presence of construction activities (until completion), potential environmental impacts associated with construction, currently managed through a certified environmental management system (ISO14001).
 - o Major focus on ensuring rehabilitation standards meet the requirements of the nature reserve management.
- Ecological management –
 - o Fire Management - Historically the area has been burnt on an annual basis, and burning programmes are focused on producing early season nutrition for livestock. The burning programme will need to be revised to improve biodiversity.
 - o Erosion - Agricultural practices during the last century resulted in significant damage to soils, resulting in major erosion occurring on the property. There is in excess of 100km of G2 (gullies of significant size) and greater erosion, as well as many kilometres of footpaths requiring mitigation.
 - o Alien plant control - A large area of the property has been invaded by alien vegetation and will be rehabilitated.
- Social issues
 - o Once construction is finished there will be major unemployment in the district, and an increase of subsistence farming, with additional pressures on available natural resources in the district and on the reserve.
 - o Expectations of the local community for jobs is high, and there will be political demands to create employment.
 - o Some dwellers will remain on the property, and will need to be employed and be allowed limited farming activities.
- Sustainability
 - o The project will need to balance both the social and natural environments and ensure that all developments and activities are economically, socially and ecologically sustainable.
 - o Capacity needs to be developed in the local community to change existing subsistence agriculture practices to sustainable agricultural practices allowing the management of livestock while ensuring no unsustainable impacts occur on the property.

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Protected Area Nature Reserve	Ingula Nature Reserve	www.eskom.co.za	whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	INGULA IBA	birdlife.org.za	whole

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation

VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Catchment management initiatives/controls	Implemented
Improvement of water quality	Implemented
Faunal corridors/passage	Partially implemented
Hydrology management/restoration	Partially implemented
Soil management	Partially implemented

Species

Measures	Status
Threatened/rare species management programmes	Implemented
Reintroductions	Proposed
Control of invasive alien plants	Implemented

Human Activities

Measures	Status
Livestock management/exclusion (excluding fisheries)	Implemented
Communication, education, and participation and awareness activities	Implemented

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

A visitor's centre with facilities is available.

URL of site-related webpage (if relevant):

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Soil quality	Proposed
Plant community	Implemented
Plant species	Implemented
Animal community	Implemented
Animal species (please specify)	Implemented
Birds	Implemented

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Eskom Holdings SOC Ltd, 2017: INGULA NATURE RESERVE: Management Plan. Ingula Partnership.
Lombard, W. A., 1999: Environmental Impact Assessment report for the proposed Braamhoek Pumped Storage Scheme. Eskom Generation Group Volume 1 to 4.
Marnewick MD, Retief EF, Theron NT, Wright DR, Anderson TA. (2015). Important Bird and Biodiversity Areas of South Africa. BirdLife South Africa.
Mentis MT. (2006). Braamhoek Pumped Storage Scheme burning and grazing regimes. A report to Eskom Holdings, Johannesburg.
Mucina L, Rutherford MC. (eds). 2012. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.
Pienaar, C., Lloyd K., Walker, K., and Howes-Whitecross, W., 2021: BirdLife South Africa Annual Report 2020. Ingula Partnership.
Taylor MR, Peacock F, Wanless RM (eds). (2015). The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. BirdLife South Africa, Johannesburg, South Africa.
Wetland Consulting Services. 2006. Braamhoek Pumped Storage Scheme: baseline study of the wetlands. Environmental Impact Specialist Studies, Braamhoek Pumped Storage Scheme.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<1 file(s) uploaded>

vi. other published literature

<no file available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Thunderstorm approaching Ingula (Eskom Holdings SOC Ltd, 15-01-2012)



Ingula mountain range (Eskom Holdings SOC Ltd, 03-12-2012)



Bedford dam (Eskom Holdings SOC Ltd, 02-02-2016)



Ingula wetlands and wall (Eskom Holdings SOC Ltd, 02-02-2011)



Bedford wetland (Eskom Holdings SOC Ltd, 10-06-2013)



Escarpment forest (Eskom Holdings SOC Ltd, 12-04-2015)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation 2021-03-01