Ramsar Information Sheet

Published on 25 January 2024

South Africa

De Berg Nature Reserve

Designation date	2 February 2024
Site number	2532
Coordinates	25°12'42"S 30°08'48"E
Area	1 265,45 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

De Berg Nature Reserve (DBNR), is located along the headwaters of the Dwars River in the Olifants River basin, approximately 20 kilometers north of the town of Dullstroom in Mpumalanga. Situated in one of South Africa's highest rainfall areas known as the Mpumalanga Drakensberg Strategic Water Source Area (Le Maitre et al. 2018), at an elevation of just over 2300masl, and contains the highest altitude wetlands in Mpumalanga. DBNR represents numerous valley bottom, seep wetlands and mountain streams, with 10 waterfalls and represent some of the most pristine and habitat diverse watercourses in the South African grassland biome. The wetlands that occur here are from marginal sheetrock seep wetlands, to permanently saturated peat wetlands (mires). Over 70 wetlands occur on the reserve and covers an area of approximately 185.2 ha (or 14.5%). They play a very important hydrological function since sponges of important river systems occur here, including the headwaters of the Groot Dwars River as well as a number of its tributaries. The DBNR is a biodiversity hotspot due to its exceptionally high species richness and falls within the, Lydenburg and Sekhukhune Centre of plant endemism and support two vulnerable vegetation types, the Steenkampsberg and Sekhukhune Montane Grassland Communities. The catchments occurring within the Reserve is classified as a Critical Biodiversity Area (MBSP 2014) (Lötter et al., 2014) and as a National Freshwater Ecosystem Priority Area (NFEPA). In total 878 indigenous plant species, 42 plant Species of Conservation Concern, 30 of these plant species are also threatened and near threatened. Five new species were also identified on the DBNR, one of these has so far been described (Bulbine decastroi), the other four (Ledebouria spp) are currently being described, Ledebouria sp. nov. 'altipaludosus' ined. (De Castro & Brits, 2022a). Mires also contain the carnivorous Drosera sp. and Urticularia spp. So far 641 vertebrate, 18 frog species, 71 reptile species, 432 bird species and a 120 mammal species were identified, 82 mammals are Species of Conservation Concern. Species often observed are, Leopard, Black-footed cat and Southern mountain reedbuck, Thirty three bird Species of Conservation Concern occur on the DBNR, species often observed are, African Finfoot, African Grass-owl, African Marsh Harrier, Black Harrier, Blue Crane and Grey Crowned Crane. There is a confirmed breeding colony of Southern Bald Ibis on the cliffs of DBNR.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency: Mpumalanga Tourism and Parks Agency and Northam Platinum

Postal address:
31 Jansen street
Lydenburg
South Africa
1120

P/Bag X20097
Lydenburg
South Africa
1120

National Ramsar Administrative Authority

Institution/agency: Department of Forestry, Fisheries and the Environment

Postal address:
Private Bag X447,
PRETORIA,
0001

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

From year: 2020

To year: 2023

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish): De Berg Nature Reserve

Unofficial name (optional): Davel Private Nature Reserve

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<3 file(s) uploaded>

Former maps: 0

Boundaries description

The 1265.45 Hectare Ramsar site occurs 20km north of the town of Dullstroom, within the De Berg Nature Reserve (also known as the Davel private Nature Reserve) and its boundary follows that of the Reserve. The reserve was declared as a Nature Reserve in 1965, affording this area the highest level of protection in South African law. The reserve consists of portion Re & 2 of the farm De Berg (71JT) and the farm Triangle (72 JT). DBNR is situated in the northern parts of the Mpumalanga Province between Roossenekal and Lydenburg (at 30,137024”E - 25,204928°S) and is situated directly to the north of the Verloren Valei Nature Reserve (another Ramsar site). DBNR is owned by the Buttonshope Conservancy Trust and managed as conservation area. There are two dams on the property, both in the upper reaches of the Groot Dwars River. Surrounding land use (downstream of the site) consists of farming (cattle grazing) and mining activities (platinum and chrome mining). Plans for the expansion of the DBNR are currently underway to include properties to the south which will then link DBNR with Verloren Valei Nature Reserve and form a very important corridor between these two Ramsar sites.

2.2.2 - General location

a) In which large administrative region does the site lie? Mpumalanga Province of South Africa

b) What is the nearest town or population centre? Dullstroom

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): 1265.45

Area, in hectares (ha) as calculated from GIS boundaries: 1270.611

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Freshwater Ecoregions of the World (FEOW)	Southern Temperate Highveld

Other biogeographic regionalisation scheme

Preliminary Level II River Ecoregion Classification System for South Africa: The De Berg Nature Reserve (DBNR) is situated in the Eastern Bankenveld, an Ecoregion 9.02 classification (In: Kleynhans, CJ, Thirion, C and Moolman, J (2005). A Level I River Ecoregion classification System for South Africa, Lesotho and Swaziland. Report No. N/0000/00/REQ0104.Resource Quality Services, Department of Water Affairs and Forestry, Pretoria, South Africa.)

DBNR also falls within the Steenkampsberg Plateau Biogeographical Region within the Steenkampsberg Grasslands vegetation type (South African National Biodiversity Institute. 2018. The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors)) and at a smaller scale, falls within the Dullstroom Plateau Grasslands, a Threatened Ecosystem within South Africa which has been identified as being in need of protection (Republic of South Africa, Government Notice No. 1002 in Government Gazette 34809 of 9 December 2011).

DBNR also falls within an identified National Freshwater Ecosystem Priority Area (NFEPA), the Natural Wetlands: Mesic Highveld Grassland Group 4 of the NFEPA Wetlands Map (In: Nel J.L. et al. 2011. Atlas of Freshwater Ecosystem Priority Areas in South Africa: Maps to support sustainable development of water resources. WRC Report No.TT 500/11, Water Research Commission, Pretoria).

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 wetlands on De Berg Nature Reserve occurs within one of South Africa's highest rainfall regions, known as the Mpumalanga Drakensberg Strategic Water Source Area (Le Maitre et al. 2018) and at an elevation of just over 2300masl are the highest altitude wetlands in Mpumalanga. They play a very important hydrological function since sponges of important river systems occur here. The headwaters of the Groot Dwars Rivers as well as a number of its tributaries (including Everest Stream and a tributary of the Klip River) occur within the De Berg Nature Reserve. These upper catchment streams also play an important role in sustaining the lower river reaches, contributing to the flows of the Olifants River catchment, one of South Africa's most utilized River Systems, which flows into Mozambique just after joining the Limpopo River. The exceptionally high quality of water which is maintained by these wetlands, is of particular significance for the Olifants river catchment, much of which has been modified by surrounding land uses. It not only plays an important dilution function, but also provides the necessary water quality for maintaining highly sensitive endemic aquatic species (De Castro & Brits, 2022b)
Other ecosystem services provided	The De Berg Nature Reserve Ramsar Site is a biodiversity hotspot due to its exceptionally high species richness. It falls within vegetation types of namely Sekhukhune Montane grassland, Steenkampsberg Montane Grassland and Northern Afrotemperate Forest. It also lies on the ecotone between the savanna and grassland biomes and falls in two Centres of plant endemism, the Sekhukhune Centre of plant endemism and the Lydenburg Centre of Plant Endemism. The catchments occurring within the Reserve are classified as Critical Biodiversity Areas and Ecological Support Areas (MBSP 2014) (Lötter et al., 2014) and are also classified as National Freshwater Ecosystem Priority Areas (NFEPA). The wetlands of the de Berg Nature Reserve provide a number of other ecosystem services including carbon sequestration (due to the presence of peat), and education and research opportunities.
Other reasons	De Berg Nature Reserve represents numerous valley bottom, seep wetlands and mountain streams and represent some of the most pristine and habitat diverse watercourses in the South African grassland biome. The wetlands that occur here are from marginal sheetrock seep wetlands with shallow soils, lithophytes and hygrophytes, to permanently saturated peat wetlands (mires) with obligate hydrophytes that include forbs, grasses, mosses and sedges. Over 70 wetlands occur on the reserve and covers an area of approximately 185.2 ha (or 14.5% of the study area) and vary in size from 1ha to 14ha. Sheetrock seeps wetlands, which are rare in the Steenkampsberg Plateau, are inconspicuous and marginal wetland systems, located on both noritic and quartzitic rock sheets that range from bare areas to pockets of deeper soil, often with signs of organic enrichment. The Reserve also has over 10 waterfalls of varying heights, with the highest being around 30m. These waterfalls are located in pockets of thick afro-temperate forests. Recorded peat wetlands in the area occur in the Central Highlands Peatland Ecoregion (Grundling et al., 2017) and form part of a group of peatlands associated with the Steenkampsberg Plateau where the majority of peatlands in the Central Highlands Peatland Ecoregion are concentrated, with artesian springs being common in some of these peatlands. It can be estimated that the mire at De Berg, which has a peat thickness of close to 1 m, has an inferred peat age of approximately 2 500 years (Grobler 2023).

☑ Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information

The wetlands on De Berg Nature Reserve (DBNR) support numerous threatened, critically endangered and vulnerable species of fauna and flora. A total of 878 indigenous plant species and infraspecific taxa were recorded during a recent survey, this includes 42 plant species of conservation concern, 30 of the plant species of conservation concern are also threatened and near threatened. This comprise 15% of the 200 threatened and near threatened species known to occur within the Mpumalanga Province in an area less than 0.03% the size of the province. Five new species were also identified on the DBNR, one of these has so far been described (Bulbine decastroi), the other four (Ledebouria spp) are currently being described. Ledebouria sp. nov. 'altipaludosus' ined. (De Castro & Brits, 2022a). Mires also contain the carnivorous Drosera sp. and Urticularia spp. As far as terrestrial vertebrate species are concerned, 641 species were identified. This includes 18 frog species, 71 reptile species, 432 bird species, and 120 mammal species, 82 of these are species of conservation concern.

☑ Criterion 3 : Biological diversity

Justification

The DBNR supports over 1519 plant and animal species, 3% (47) of these are endemic to the region. The wetlands play a major role in maintaining the genetic and ecological diversity of the Dullstroom Plateau Grasslands, especially since they support many Red Data, protected and/or endemic species. The reserve is mountainous with a significant difference in elevation over a distance of 2 km, ranging from approximately 1755 masl at the lowest point to 2332 masl at the highest point, which is also the highest point in the Mpumalanga Province. The large difference in elevation range is one of the main reasons for the high diversity in plant communities (De Castro & Brits, 2022a). De Berg falls within the Lydenburg Centre of plant endemism as well as the Sekhukhune Centre of plant endemism. The larger portion of the reserve supports the Steenkampsberg Montane Grassland Community and a small portion to the west supports the Sekhukhune Montane Grassland. There are 42 plant species of conservation concern recorded within the study area, including the Endangered Bulbine decastroi, Morella microbracteata, Ledebouria sp. nov. 'altipaludosus' ined. and the Near Threatened Watsonia bella (De Castro & Brits, 2022a). Mires also contain interesting obligate hydrophytes, such as a carnivorous Drosera sp. and Urticularia spp. that are adapted to grow and thrive in nutrient poor (oligotrophic) environments, which is common in undisturbed mires and peatlands (Rydin and Jeglum, 2006). The wetlands also provide suitable breeding habitat for amphibians and macro invertebrates. 18 species of frogs occur on the reserve. Numerous mammal species, including a number of species of conservation concern such as Leopard, Black-footed cat, Southern mountain reedbuck, Common molerat, and Hewitt's red rock rabbit occur at the site. Sixteen reptile species can be found, including four species of conservation concern, such as the Spotted dwarf gecko, Southern African rock python, Sekhukhune flat lizard and Common crag lizard. Thirty three species of birds of conservation concern occur on the reserve, species observed since 2021 were; African Finfoot, African Grass-owl, African Marsh Harrier , African White-backed Vulture, Black Harrier, Blue Crane, Denham's Bustard and Grey Crowned Crane.
Fifty-nine (59) diatom species were identified at five sampling sites assessed in the Reserve during February 2022. Four of the five sites were characterized by high biological water quality reflecting near pristine conditions. Endemic species with a preference for high biological water quality were observed. These species are scarce and have only been observed in the upper reaches of high altitude streams or the upper reaches near the origins of streams where anthropogenic activity is limited (Kotze, 2022).

☑ Criterion 4 : Support during critical life cycle stage or in adverse conditions

Optional text box to provide further information

The high altitude wetlands, which includes streams and waterfalls are preferred breeding habitat for the vulnerable Southern Bald Ibis. Flocks of up to 30 birds were observed roosting on the cliffs above Ibis falls (De Castro, pers comm, 2021) and four pairs were observed breeding, with chicks and eggs on the nest (Kruger & Marais, pers comm, 2023) in DBNR, although a small population, smaller populations were recorded throughout South Africa (Colyn et al 2020). This was the first breeding record of this colony of Southern Bald Ibis and further monitoring of this breeding colony over the long term is required to determine the size of this colony. The breeding season within South Africa is August to December and multiple chicks can hatch at a given nest site (Colyn et al 2020). A total of 47 macroinvertebrate families were sampled in the valley-bottom wetlands and seeps and mountain streams within the DBNR between 2020 and 2022. This reflects a relatively high diversity of aquatic macroinvertebrate families and is a reflection of highly diverse aquatic habitats as well as areas with very good water quality. Five taxa/groups with a high requirement for unmodified water quality was sampled in the study area, namely Blepharoceridae (Net-winged midges), Notonemouridae (Stoneflies), Perlidae (Stoneflies), Baetidae (Small minnow flies) and Pyralidae (Aquatic caterpillars) A further eleven (11) taxa with a moderate requirement for unmodified water quality (such as Psephenidae (Water pennies). The presence of these intolerant taxa at specific sites indicates excellent water quality in the DBNR (De Castro, 2022b).
Fifty-nine diatom species were identified at the five sampling sites assessed in DBNR. Four of the five sites were characterized by high biological water quality reflecting near pristine conditions, while the remaining site was rated as having moderate biological water quality. Endemic species with a preference for high biological water quality were observed. These species, based on the experience of the diatomologist, are scarce and have only been observed in the upper reaches of high altitude streams or the upper reaches near the origins of streams where anthropogenic activity is limited.

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 / MAGNOLIOPSIDA	*Alepidea cordifolia*	☑	☐	☐		☐	South African National Biodiversity Institute Red Data List - Endangered	
TRACHEOPHYTA / LILIOPSIDA	*Aloe challisii*	☑	☑	☐		☐	South African National Biodiversity Institute Red Data List - Vulnerable	Endemic to SA - Mpumalanga
TRACHEOPHYTA / LILIOPSIDA	*Aloe modesta*	☑	☑	☐		☐	South African National Biodiversity Institute Red Data List - Vulnerable	Protected species, Rare and Endemic to SA - Kwazulu-Natal, Mpumalanga
TRACHEOPHYTA / LILIOPSIDA	*Aloe reitzii*	☑	☑	☐		☐	South African National Biodiversity Institute Red Data List - Vulnerable	Endemic to SA - Kwazulu-Natal
TRACHEOPHYTA / MAGNOLIOPSIDA	*Ceropegia stellata*	☐	☑	☐		☐		Rare, Endemic to SA - Mpumalanga
TRACHEOPHYTA / MAGNOLIOPSIDA	*Ceropegia zebrina insigniflora*	☐	☑	☐		☐		Endemic to SA - Limpopo and Mpumalanga
TRACHEOPHYTA / MAGNOLIOPSIDA	*Crassula setulosa*	☑	☐	☐	VU	☐	South African South African National Biodiversity Institute Red Data List - Vulnerable	
TRACHEOPHYTA / LILIOPSIDA	*Dioscorea sylvatica*	☑	☐	☐	VU	☐	South African National Biodiversity Institute Red Data List - Vulnerable	
TRACHEOPHYTA / LILIOPSIDA	*Disa alticola*	☑	☑	☐	VU	☐	South African National Biodiversity Institute Red Data List - Vulnerable	Protected species, Endemic to SA - Mpumalanga

Phylum	Scientific name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
TRACHEOPHYTA / LILIOPSIDA	*Disa maculomarronina*	☐	☑	☐		☐		Endemic to SA, Mpumalanga and KwaZulu-Natal
TRACHEOPHYTA / LILIOPSIDA	*Eucomis vandermerwei*	☑	☑	☐	VU	☐	South African National Biodiversity Institute Red Data List - Vulnerable	Protected species, Endemic to SA - Limpopo, Mpumalanga
TRACHEOPHYTA / LILIOPSIDA	*Gladiolus calcaratus*	☐	☑	☐		☐		Endemic to SA - Mpumalanga
TRACHEOPHYTA / MAGNOLIOPSIDA	*Graderia linearifolia*	☑	☑	☐		☐	South African National Biodiversity Institute Red Data List - Vulnerable	Endemic to SA - Mpumalanga
TRACHEOPHYTA / LILIOPSIDA	*Habenaria barbertoni*	☐	☑	☐		☐		Endemic to SA - Gauteng, Mpumalanga
TRACHEOPHYTA / MAGNOLIOPSIDA	*Helichrysum ephelos*	☐	☑	☐		☐		Rare and Endemic to SA - Eastern Cape, Kwazulu Natal, Mpumalanga
TRACHEOPHYTA / MAGNOLIOPSIDA	*Jamesbrittenia macrantha*	☐	☑	☐		☐		Endemic to SA - Limpopo, Mpumalanga
TRACHEOPHYTA / LILIOPSIDA	*Kniphofia fluviatilis*	☐	☑	☐		☐		Endemic to SA - Eastern Cape, Free State, Kwazulu-Natal, Mpumalanga
TRACHEOPHYTA / MAGNOLIOPSIDA	*Lydenburgia cassinoides*	☐	☑	☐		☐		Endemic to SA - Limpopo and Mpumalanga
TRACHEOPHYTA / MAGNOLIOPSIDA	*Morella microbracteata*	☑	☐	☐		☐	South African National Biodiversity Institute Red Data List - Endangered	
TRACHEOPHYTA / LILIOPSIDA	*Resnova megaphylla*	☑	☐	☐	VU	☐	South African National Biodiversity Institute Red Data List - Vulnerable	
TRACHEOPHYTA / LILIOPSIDA	*Stenoglottis fimbriata*	☐	☑	☐		☐		Endemic to SA - Eastern Cape, Kwazulu Natal
TRACHEOPHYTA / LILIOPSIDA	*Watsonia occulta*	☐	☑	☐		☐		Endemic to SA - Mpumalanga
TRACHEOPHYTA / LILIOPSIDA	*Zantedeschia pentlandii*	☑	☑	☐	VU	☐	South African National Biodiversity Institute Red Data List - Vulnerable	Endemic to SA - Limpopo, Mpumalanga

Clean Stream Biological Services was appointed by Buttonshope Conservancy Trust to compile a biodiversity management plan the De Berg Nature Reserve. This study was conducted during 2021 and 2022 and focused on the area's biodiversity conservation importance. During this study 878 indigenous taxa were recorded, it also confirmed the presence of 42 plant species of conservation concern (SCC) of which 17 were recorded within the study area for the first time. The 30 Threatened and Near Threatened plant taxa thus far recorded within the study area comprise 15% of the 200 Threatened and Near Threatened species known to occur within the Mpumalanga Province (MTPA database) in an area that comprises only 0.03% of the province. The study confirmed the presence of 1 new plant species; Bulbine decastroi (https://phytotaxa.mapress.com/pt/article/view/phytotaxa.587.1.8) ; as well as 4 potentially new species:
- Ledebouria sp. nov. ‘altipaludosus’ ined.
- Ledebouria sp. nov. ‘noritica’ ined.
- Ledebouria sp. nov. ‘purpurea’ ined.
- Ledebouria sp. nov. ‘steenkampsbergensis’ ined.

The conservation status of South African plants was obtained SANBI. Red List of South African Plants, at http://redlist.sanbi.org.

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	*Amblysomus robustus*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☐	☐	Red List of Mammals of South Africa, Swaziland and Lesotho - Vulnerable	Endemic to SA. Occurs in montane grasslands in Moist Sandy Highveld Grassland
CHORDATA / AMPHIBIA	*Amietia delalandii*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to Southern Africa
CHORDATA / AMPHIBIA	*Amietia fuscigula*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to South Africa
CHORDATA / REPTILIA	*Cordylus vittifer*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to Southern Africa
CHORDATA / MAMMALIA	*Felis nigripes*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☐	Red List of Mammals of South Africa, Lesotho and Swaziland - Vulnerable	Endemic to Southern Africa
CHORDATA / MAMMALIA	*Manis temminckii*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	South Africa National Biodiversity Institute Red Data List - Vulnerable	
CHORDATA / MAMMALIA	*Mystromys albicaudatus*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	Red List of Mammals of South Africa, Swaziland and Lesotho - Vulnerable	
CHORDATA / MAMMALIA	*Ourebia ourebi*	☑	☐	☐	☐	☐	☐	☐	☐				LC	☐	☐	South Africa National Biodiversity Institute Red Data List - Endangered	
CHORDATA / MAMMALIA	*Panthera pardus*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☑	☐	Red List of Mammals of South Africa, Swaziland and Lesotho - Vulnerable	
CHORDATA / REPTILIA	*Pedioplanis lineoocellata*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to Southern Africa
CHORDATA / MAMMALIA	*Pelea capreolus*	☐	☐	☐	☐	☑	☐	☐	☐				NT	☐	☐		Endemic to SA
CHORDATA / REPTILIA	*Platysaurus orientalis*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to SA - Mpumalanga, Limpopo
CHORDATA / MAMMALIA	*Pronolagus saundersiae*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to Southern Africa
CHORDATA / MAMMALIA	*Redunca fulvorufula fulvorufula*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐	Red List of Mammals of South Africa, Swaziland and Lesotho - Endangered	
CHORDATA / MAMMALIA	*Rhinolophus cohenae*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	Red List of Mammals of South Africa, Swaziland and Lesotho - Vulnerable	
CHORDATA / REPTILIA	*Smaug vandami*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to SA - Limpopo, Mpumalanga
CHORDATA / AMPHIBIA	*Strongylopus fasciatus*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to Southern Africa
Birds																	
CHORDATA / AVES	*Anthus brachyurus*	☑	☐	☐	☐	☐	☐	☐	☐				LC	☐	☐	Red List Birdlife South Africa, Vulnerable in SA	
CHORDATA / AVES	*Anthus chloris*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☐	☐	Red List Birdlife South Africa - Vulnerable	Endemic in SA - Upland Grasslands
CHORDATA / AVES	*Aquila rapax*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	Red List Birdlife South Africa - Endangered	
CHORDATA / AVES	*Balearica regulorum*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐	Red List Birdlife South Africa - Endangered	

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								
CHORDATA / AVES	*Bugeranus carunculatus*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐	Red List Birdlife South Africa - Critically Endangered	
CHORDATA / AVES	*Ciconia nigra*	☑	☐	☐	☐	☐	☐	☐	☐					☐	☐	Red List Birdlife South Africa - Vulnerable	
CHORDATA / AVES	*Circus maurus*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐	Red List Birdlife South Africa - Endangered	
CHORDATA / AVES	*Circus ranivorus*	☑	☐	☐	☐	☐	☐	☐	☐					☐	☐	Red List Birdlife South Africa - Endangered	
CHORDATA / AVES	*Eupodotis senegalensis*	☑	☐	☐	☐	☐	☐	☐	☐				LC	☐	☐	Red List Birdlife South Africa - Vulnerable	
CHORDATA / AVES	*Falco biarmicus biarmicus*	☑	☐	☐	☐	☐	☐	☐	☐					☐	☐	South African National Biodiversity Institute Red Data List - Vulnerable	
CHORDATA / AVES	*Geocolaptes olivaceus*	☐	☐	☐	☐	☑	☐	☐	☐					☐	☐		Endemic to SA
CHORDATA / AVES	*Geronticus calvus*	☑	☑	☐	☐	☑	☐	☐	☐				VU	☐	☐	Red List Birdlife South Africa - Vulnerable	Endemic to SA. Site forms an important breeding habitat.
CHORDATA / AVES	*Gyps africanus*	☑	☐	☐	☐	☐	☐	☐	☐				CR	☐	☑	Red List Birdlife South Africa - Critically Endangered	
CHORDATA / AVES	*Gyps coprotheres*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☑	Red List Birdlife South Africa - Endangered	
CHORDATA / AVES	*Heteromirafra ruddi*	☑	☐	☐	☐	☑	☐	☐	☐				EN	☐	☐	Red List Birdlife South Africa - Endangered	Endemic to SA - High altitude grasslands of Eastern South Africa
CHORDATA / AVES	*Mirafra cheniana*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Endemic to Southern Africa
CHORDATA / AVES	*Monticola explorator*	☐	☐	☐	☐	☑	☐	☐	☐				NT	☐	☐		Endemic to SA
CHORDATA / AVES	*Mycteria ibis*	☑	☐	☐	☐	☐	☐	☐	☐				LC	☐	☐	Red List Birdlife South Africa - Endangered	
CHORDATA / AVES	*Neotis denhami*	☑	☐	☐	☐	☐	☐	☐	☐				NT	☐	☐	Red List Birdlife South Africa - Vulnerable	
CHORDATA / AVES	*Podica senegalensis*	☑	☐	☐	☐	☐	☐	☐	☐					☐	☐	Red List Birdlife South Africa - Vulnerable	
CHORDATA / AVES	*Polemaetus bellicosus*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐	Red List Birdlife South Africa - Endangered	
CHORDATA / AVES	*Promerops gurneyi*	☐	☐	☐	☐	☑	☐	☐	☐				NT	☐	☐		Endemic to Southern Africa
CHORDATA / AVES	*Sagittarius serpentarius*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐	Red List Birdlife South Africa - Vulnerable	
CHORDATA / AVES	*Stephanoaetus coronatus*	☑	☐	☐	☐	☐	☐	☐	☐					☐	☐	Red List Birdlife South Africa - Vulnerable	

1) Percentage of the total biogeographic population at the site

The conservation status of South African animals were obtained from:
Taylor M.R., Peacock F., Wanless R.M. The 2015 Eskom Red Data Book of Birds https://www.birdlife.org.za/wp-content/uploads/2021/02/RDBB-Final-copy.pdf
SANBI. Red List of South African Animals, at http://speciesstatus.sanbi.org

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
Steenkampsberg Montane Grassland	☐	This plant communities comprising this unit are representative of typical Steenkampsberg Montane Grassland this vegetation type covers ca. 59.8% of the DBNR.	

Optional text box to provide further information

The wetlands on De Berg Nature Reserve (DBNR) falls within the Steenkampsberg Montane Grassland and support numerous threatened, critically endangered and vulnerable species of fauna and flora. A total of 878 indigenous plant species and infraspecific taxa were recorded during a recent survey, this includes 42 plant species of conservation concern, 30 of the plant species of conservation concern are also threatened and near threatened. This comprise 15% of the 200 threatened and near threatened species known to occur within the Mpumalanga Province in an area less than 0.03% the size of the province. Five new species were also identified on the DBNR, one of these has so far been described (Bulbine decastroi), the other four (Ledebouria spp) are currently being described. Ledebouria sp. nov. ‘altipaludosus’ ined. (De Castro & Brits, 2022a). Mires also contain the carnivorous Drosera sp. and Urticularia spp. As far as terrestrial vertebrate species are concerned, 641 species were identified. This includes 18 frog species, 71 reptile species, 432 bird species, and 120 mammal species, 82 of these are species of conservation concern.

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

4.1 - Ecological character

De Berg Nature Reserve represents numerous valley bottom, seep wetlands and mountain streams with over 10 waterfalls and represent some of the most pristine and habitat diverse watercourses in the South African grassland biome. The wetlands that occur here are high altitude (montane) wetlands, located in the Steenkampsberg Mountain Range at an elevation of between 1750masl and 2300masl. They vary from marginal sheetrock seep wetlands with shallow soils, lithophytes and hygrophytes, to permanently saturated peat wetlands (mires) with obligate hydrophytes that include forbs, grasses, mosses and sedges. Sheetrock seep wetlands, which are rare in the Steenkampsberg Plateau, are inconspicuous and marginal wetland systems, located on both noritic and quartzite rock sheets that range from bare areas to pockets of deeper soil, often with signs of organic enrichment. The wetlands on the reserve make up 14.5% of the area (185.2ha) and vary in size from 1 to 14 ha. The DBNR, located in the headwaters of the Groot Dwars River, features a summer rainfall regime, with annual precipitation varying from 720 - 1095mm from 2018-2023. It is therefore a high rain fall area. Much of the rainfall occurs during thunderstorms between October and January. In July 2023, snow fell on the study area (Marius Kruger, pers. comm). The main geological features on which De Berg is situated are the Bushveld Igneous Complex and the Transvaal Sequence. The soils overlying the ultramafic geology are predominantly flat, rocky and clayey. Glenrosa and Mispah soils are common. It is characterized by minimal sediment movement due to high altitude, rocky subsoil and shallow soils. Daily temperature ranges from a minimum of -2.6°C in winter to a maximum of 26.6°C in summer, with an average of 11.6°C and vary considerably with altitudinal gradients. The DBNR provides a variety of ecosystem services such as regulation of groundwater recharge, regulation and storage of flood water and the regulation of intense rainfall events. Erosion regulation of the energy environment to reduce the risk of erosion through the presence of dense vegetation that protects soils. The site provides essential habitat for a high percentage of plant species of conservation concern in Mpumalanga, and plays a role in knowledge systems and research.

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	Headwater streams and waterfalls	2		Representative
Fresh water > Marshes on inorganic soils >> Tp: Permanent freshwater marshes/ pools	Valley bottoms and seep wetlands	1	185.2	Representative
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils	Seasonal sheetrock wetlands	3		Rare
Fresh water > Marshes on peat soils >> U: Permanent Non-forested peatlands	Peatlands	4		Rare
Fresh water > Marshes on inorganic or peat soils >> Va: Montane wetlands	High altitude wetlands (sheetrock valley bottoms and seeps)	2	185.2	Representative

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type
6: Water storage areas/Reservoirs	De Berg Dam	4	0.5

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/LILIOPSIDA	*Bulbine capitata*	Endemic to Southern Africa, medicinal plant

4.3.2 - Animal species

<no data available>

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
H: Highland	H: Highland (-)

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 1750

a) Maximum elevation above sea level (in metres): 2330

- 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.

The majority of the reserve drains into the headwaters of the Groot Dwars River in drainage region B41G. A small portion on the southern part of the reserve drains into the Klip River, a tributary of the Klein Dwars River. The Klein Dwars river joins the Groot Dwars River just before its confluence with the Steelpoort river, a tributary the Olifants River.

4.4.3 - Soil

- Mineral ☑
- 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 ◉

Please provide further information on the soil (optional)

The main geological features on which De Berg is situated are the Bushveld Igneous Complex and the Transvaal Sequence. The geology of approximately 31% of the study area consists of well exposed ultramafic rocks of the Rustenburg Layered Suite of the Bushveld Igneous Complex. The soils overlying ultramafic geology are predominantly shallow, rocky, and clayey. Glenrosa and Mispah soil forms are common. Rocky areas without soil (exposed sheetrock or rock 'balds') are common on steep slopes (Siebert et al. 2001 & Siebert 2002c).
The geology of approximately 69% of the study area forms part of the Transvaal Sequence. The soils on the Transvaal Sequence are largely freely drained, dystrophic, sandy soils or sandy loams. Peat substrates are present in valley-bottom wetlands and in hillslope seeps, predominantly on the high-lying plateau (De Castro & Brits, 2021a, 2022a).

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 groundwater	☑	No change
Water inputs from precipitation	☑	No change

Water destination

Presence?	
To downstream catchment	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 DBNR is situated in the headwaters of the Groot Dwars River catchment (in quaternary drainage region B41G) in a very high rainfall area in South Africa, at around 650mm/a. Approximately 6.06million liters/24 hours of clean water exits the reserve to flow into the catchment of the Groot Dwars River.

(ECD) Connectivity of surface waters and of groundwater	Groundwater forms an essential part of the sites hydrology and are key for maintaining the wetlands during the dry season.
(ECD) Stratification and mixing regime	unknown

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
- [x] Sediment regime is highly variable, either seasonally or inter-annually
- [ ] Sediment regime unknown

Please provide further information on sediment (optional):

Minimal movement of sediment because of high altitude, rocky substate and shallow soils. Its is thus minimal erosion at the site.

4.4.6 - Water pH

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

Please provide further information on pH (optional):

pH ranges between 7.8 and 9.0 (Clean stream Biological Services, 2022a).

4.4.7 - Water salinity

- [x] 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

Please provide further information on salinity (optional):

Very low salinity prevails in the rivers and wetlands of the DBNR, ranging between 1.4 and 8.6 mS/m (Clean stream Biological Services, 2022a).

4.4.8 - Dissolved or suspended nutrients in water

- [ ] Eutrophic
- [ ] Mesotrophic
- [x] Oligotrophic
- [ ] Dystrophic
- [ ] Unknown

Please provide further information on dissolved or suspended nutrients (optional):

The water on the DBNR is deficient of plant nutrients there is however an abundance of dissolved oxygen in the water (Clean stream Biological Services, 2022a).

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	High

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	High

Other ecosystem service(s) not included above:

Local climate change regulation of the local microclimate. Water regulation of flows of surface water during high and low flows. Regulation of recharge of groundwater. Regulation and storage of flood water, regulation of intense rainfall events. Erosion regulation of energy environment to reduce risk of erosion, presence of dense vegetation protecting soils. Water purification cleaning of water, improvement of water quality, deposition of silts, trapping of contaminants and pollutant. Soil formation deposition of sediment, accumulation of organic matter. Nutrient cycling nutrients present from internal cycling of plant material, inputs of nutrients from floodwaters, presence of fauna to recycling nutrients. Provision of habitat of locally important habitats and species, presence of species and habitats of conservation concern. Carbon sequestration

Within the site: 10

Outside the site: 1000

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

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 ☐

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 ☐

<no data available>

4.6 - Ecological processes

<no data available>

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

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Foundation/non-governmental organization/trust	☑	☑
Other types of private/individual owner(s)	☐	☑

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

De Berg Nature Reserve is located on land owned by the Buttonshope Conservancy Trust and is managed by the land management department of Booysendal Platinum, in partnership with the Mpumalanga Tourism and Parks Agency (MTPA). The Buttonshope Conservancy Trust was established in 2011 and consist of trustees from Northam platinum, MTPA and academics and specialists in the field. The main purpose of the trust is to manage the conservation efforts of Booysendal platinum and assist with the acquisition of additional land for offset and conservation purposes. Some neighboring properties are owned and managed by the Buttonshope Trust and Booysendal Platinum as conservation areas. Properties owned by the trust may in future be included into the De Berg Nature Reserve and Ramsar Site.

5.1.2 - Management authority

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

Land Mangement Department of Booysendal Platinum in partnership with Mpumalanga Tourism and Parks Agency (MTPA)

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

Dr. Marius Kruger (Booysendal Platinum) and Mr. Hannes Marias (MTPA)

Postal address:

PostNet suite #199
P/Bag X20097
Lydenburg
South Africa
1120

Mpumalanga Tourism and Parks Agency
31 Jansen Street
Lydenburg
South Africa
1120

E-mail address: marius.kruger@norplats.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
Tourism and recreation areas	Low impact	Low impact	☐	☑

Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Mining and quarrying	Low impact	Low impact	☐	☑

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Roads and railroads	Low impact	Low impact	☑	☐

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fire and fire suppression	Low impact	Medium impact	☑	☑

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	☑	☑

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Nature reserve	De Berg Nature Reserve	https://dffeportal.environment.gov.za/portal/apps/webappviewer/index.html?id=7e27f116dd194c1f9d446dacc76fe483	whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Other non-statutory designation	Steenkamsberg Key Biodiversity Area	https://www.keybiodiversityareas.org/sites/search	partly

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	Proposed
Hydrology management/restoration	Proposed

Species

Measures	Status
Threatened/rare species management programmes	Partially implemented

Human Activities

Measures	Status
Regulation/management of recreational activities	Implemented
Research	Proposed
Communication, education, and participation and awareness activities	Proposed

5.2.5 - Management planning

Is there a site-specific management plan for the site? In preparation

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:

In terms of the CEPA projects a joint a multipurpose facility is planned in future on Verloren Valei. This facility will be a collaborative effort from Middelpunt, Verloren Valei and De berg Nature Reserves and Ramsar Sites.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No, but a plan is being prepared

Further information

A rehabilitation plan is currently being developed in a collaborative effort between MTPA and DFFE.

5.2.7 - Monitoring implemented or proposed

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

Water quality and water regime monitoring implemented biannually. Southern Bald Ibis breeding colony and crane species monitored on a monthly basis.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

CLEAN STREAM BIOLOGICAL SERVICES(CSBS)2022a. Northam Booysendal Platinum/Buttonshope Trust: Aquatic Biodiversity Study (compiled as part of Baseline BMP study for the proposed De Berg Private Nature Reserve). Report number: CSBS/DBPNR/2022/A
CLEAN STREAM BIOLOGICAL SERVICES(CSBS)2022b. Northam Booysendal Platinum/Buttonshope Trust: Baseline Biodiversity Management Plan (BMP): De Berg Private Nature Reserve 2022. Report number: BMP/DBPNR/2022.V4
COLYN, ROBIN & HENDERSON, CATHERINE & ALTWEGG, RES & SMIT-ROBINSON, HANNELINE(2020). Habitat transformation and climate change: Implications for the distribution, population status, and colony extinction of Southern Bald Ibis (Geronticus calvus) in southern Africa. The Condor. 122. 1-17. 10.1093/condor/duz064
DE CASTRO & BRITS(2021a). Botanical biodiversity baseline report for 12 950ha Northam Booysendal Mine Surface Rights Area. Report to Clean Stream Biological Services, Buttonshope Trust and Northam Booysendal Platinum Mine
DE CASTRO & BRITS(2022a). Botanical biodiversity survey report for 2 127ha De Berg Private Nature Reserve (Roossenekal, Mpumalanga Province). Report to Clean Stream Biological Services and Buttonshope Trust
DE CASTRO & BRITS(2022b). Wetland Biodiversity Management Plan for the proposed De Berg Private Nature Reserve (DBPNR) (Mpumalanga Province). Report to Clean Stream Biological Services and Buttonshope Trust
GRUNDLING P, GRUNDLING AT & PRETORIUS L(2017). South African Peatlands: Ecohydrological Characteristics and Socio-economic Value. Research Report No.2346/1/17, Water Research Commission, Pretoria, South Africa
LE MAITRE D, SEYLER H, HOLLAND M, SMITH-ADAO L, NEL J, MAHERRY A, WITTHÜSER K(2018). Identification, delineation and importance of the strategic water source areas of South Africa, Lesotho and Swaziland for surface water and groundwater. Report no, TT 743/1/18, Water Research Commission, Pretoria
LÖTTER, M(2019). The Lydenburg Centre of Plant Endemism and it's Conservation. MTPA Scientific Services presentation to the 2019 National Orchid Conference
MTPA(2014). Mpumalanga Biodiversity Sector Plan Handbook. Compiled by Lötter M.C., Cadman, M.J. & Lechmere-Oertel R.G. Mpumalanga Tourism & Parks Agency, Mbombela (Nelspruit)
RYDIN, H & JEGLUM, JK(2006). The Biology of Peatlands. Oxford University Press, England
SANBI. Red List of South African Plants, at http://redlist.sanbi.org
SANBI. Red List of South African Animals, at http://speciesstatus.sanbi.org
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SIEBERT SJ, VAN WYK AE & BREDENKAMP GJ(2002c). Vegetation ecology of Sekhukhuneland, South Africa: Combretum hereroense–Grewia vernicosa Open Mountain Bushveld. South African Journal of Botany 68: 475–496
TAYLOR MR, PEACOCK F, WANLESS RM. The 2015 Eskom Red Data Book of Birds https://www.birdlife.org.za/wp-content/uploads/2021/02/RDBB-Final-copy.pdf

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
<no file available>

vi. other published literature
<9 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:


Ibis falls on the catchment of Everest tributary of the Groot Dwars River (*Marius Kruger, 02-02-2023*)


Bulbine decastroi in full bloom in a wetland on DBNR (*Marius Kruger, 02-11-2021*)


Newly found plant, Bulbine decastroi, associated with wetlands (*Marius Kruger, 02-11-2021*)


Groot Dwars River falls on the upper reaches of the Groot Dwars River (*Marius Kruger, 03-02-2021*)


Picturesque view of Sekhukhuneland from Steenkampberg Mountane grassland (*Marius Kruger, 08-12-2022*)

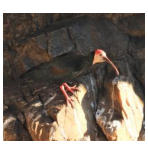

Aloe Modesta, the only sweetly scented aloe in Africa, found on DBNR (*Marius Kruger, 16-11-2022*)


Bright yellow inflorescence of Bulbine decastroi (*Marius Kruger, 02-11-2021*)


High altitude sheetrock seep wetland found on DBNR (*Marius Kruger, 20-10-2021*)

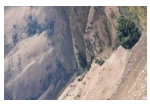

Newly found, undescribed Ledebouria sp. nov. 'noritica' ined. found on Sheetrock wetland habitat on norite on DBNR (*Marius Kruger, 19-11-2020*)


Disa alticola a plant species of conservation concern with a vulnerable status found at DBNR (*Marius Kruger, 24-11-2022*)


Breeding colony of Southern Bald Ibis at Ibis falls on DBNR (*Marius Kruger, 04-10-2023*)


Southern Bald ibis chick on nest as well as an egg in an adjacent nest at the breeding colony on Ibis falls (*Marius Kruger, 04-10-2023*)

Bulbine decastroi with spectacular inflorescence (*Marius Kruger, 02-11-2021*)



Patches of Afromontane Forest (*Jackie Jay, 02-08-2023*)

Numerous hillslope seep wetlands occur at DBNR (*Jackie Jay, 02-08-2023*)

Clear waters of the upland rivers at DBNR (*Jackie Jay, 02-08-2023*)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation 2024-02-02