

Animal Theme Compliance Statement

prepared in accordance with the
*"Protocol for the Specialist Assessment and minimum report content
requirements for environmental impacts on Terrestrial Animal Species"*

Paarde Valley PV2 to Vetlaagte MTS Grid Connection Project near
De Aar in Northern Cape Province



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Animal Theme Compliance Statement Report for the proposed Paarde Valley PV2 to Vetlaagte MTS Grid Connection Project near De Aar in Northern Cape Province

For: Paarde Valley PV2 (Pty) Ltd

5 July 2022

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SPECIALIST DETAILS & DECLARATION

This report has been prepared in accordance with the "Protocol for the specialist assessment and minimum report content requirements for environmental impacts on **terrestrial animal species**", as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020. It has been prepared independently of influence or prejudice by any parties.

The details of Specialists are as follows –

Table 1: Details of Specialist

Specialist	Qualification and accreditation
Dr David Hoare	PhD Pr.Sci.Nat. 400221/05 (Ecological Science, Botanical Science)

Details of Author:

Dr David Hoare

PhD (Botany) – Nelson Mandela Metropolitan University, Port Elizabeth

Main areas of specialisation

- Vegetation and general ecology (grasslands, savanna, Albany thicket, fynbos, coastal systems, wetlands).
- Plant biodiversity and threatened plant species specialist.
- Alien plant identification and control / management plans.
- Remote sensing, analysis and mapping of vegetation.
- Specialist consultant for environmental management projects.

Professional Natural Scientist, South African Council for Natural Scientific Professions, Reg. no. 400221/05 (Ecology, Botany)

Member, International Association of Vegetation Scientists (IAVS)

Member, Ecological Society of America (ESA)

Member, International Association for Impact Assessment (IAIA)

Member, Herpetological Association of Africa (HAA)

Employment history

- 1 December 2004 – present, Director, David Hoare Consulting (Pty) Ltd. Consultant, specialist consultant contracted to various companies and organisations.
- 1 January 2009 – 30 June 2009, Lecturer, University of Pretoria, Botany Dept.
- 1 January 2013 – 30 June 2013, Lecturer, University of Pretoria, Botany Dept.
- 1 February 1998 – 30 November 2004, Researcher, Agricultural Research Council, Range and Forage Institute, Private Bag X05, Lynn East, 0039. Duties: project management, general vegetation ecology, remote sensing image processing.

Declaration of independence:

David Hoare Consulting (Pty) Ltd in an independent consultant and hereby declares that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by David Hoare Consulting (Pty) Ltd is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

David Hoare Consulting (Pty) Ltd undertakes to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to David Hoare Consulting (Pty) Ltd by the client and in addition to information obtained during the course of this study, David Hoare Consulting (Pty) Ltd presents the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



Dr David Hoare

5 July 2022

Date

TERMS OF REFERENCE

PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL ANIMAL SPECIES

This site sensitivity assessment follows the requirements of The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020.

General information

1.1 An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “**very high**” or “**high**” sensitivity for terrestrial animal species, must submit a **Terrestrial Animal Species Specialist Assessment Report**.

1.2 An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “**medium** sensitivity” for terrestrial animal species, must submit either a **Terrestrial Animal Species Specialist Assessment Report** or a **Terrestrial Animal Species Compliance Statement**, depending on the outcome of a site inspection undertaken in accordance with paragraph 4.

1.3 An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “**low**” sensitivity for terrestrial animal species, must submit a **Terrestrial Animal Species Compliance Statement**.

1.4 Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” or “high” for terrestrial animal species sensitivity on the screening tool, and it is found to be of a “low” sensitivity, then a **Terrestrial Animal Species Compliance Statement** must be submitted.

1.5 Where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” terrestrial animal species sensitivity and it is found to be of a “very high” or “high” terrestrial animal species sensitivity, a **Terrestrial Animal Species Specialist Assessment** must be conducted.

1.6 If any part of the development falls within an area of confirmed “very high” or “high” sensitivity, the assessment and reporting requirements prescribed for the “very high” or “high” sensitivity, apply to the entire development footprint. Development footprint in the context of this protocol, means the area on which the proposed development will take place and includes the area that will be disturbed or impacted.

1.7 The **Terrestrial Animal Species Specialist Assessment** and the **Terrestrial Animal Species Compliance Statement** must be undertaken within the study area.

1.8 Where the nature of the activity is not expected to have an impact on species of conservation concern (SCC) beyond the boundary of the preferred site, the study area means the proposed development footprint within the preferred site.

1.9 Where the nature of the activity is expected to have an impact on SCC beyond boundary of the preferred site, the project areas of influence (PAOI) must be determined by the specialist in accordance with Species Environmental Assessment Guideline, and the study area must include the PAOI, as determined.

Terrestrial Animal Species Specialist Assessment

2.1 The assessment must be undertaken by a specialist registered with the South African Council for Natural Scientific Professions (SACNASP), within a field of practice relevant to the taxonomic groups ("taxa") for which the assessment is being undertaken.

2.2 The assessment must be undertaken in accordance with the Species Environmental Assessment Guideline and must:

2.2.1 Identify the SCC which were found, observed or are likely to occur within the study area;

2.2.2 provide evidence (photographs) of each SCC found or observed within the study area, which must be disseminated by the specialist to a recognized online database facility immediately after the site inspection has been performed (prior to preparing the report contemplated in paragraph 3);

2.2.3 identify the distribution, location, viability and detailed description of population size of the SCC identified within the study area;

2.2.4 identify the nature and the extent of the potential impact of the proposed development to the population of the SCC located within the study area;

2.2.5 determine the importance of the conservation of the population of the SCC identified within the study area, based on information available in national and international databases including the IUCN Red List of Threatened Species, South African Red List of Species, and/or other relevant databases;

2.2.6 determine the potential impact of the proposed development on the habitat of the SCC located within the study area;

2.2.7 include a review of relevant literature on the population size of the SCC, the conservation interventions as well as any national or provincial species management plans for the SCC. This review must provide information on the need to conserve the SCC and indicate whether the development is compliant with the applicable species management plans and if not, a motivation for the deviation;

2.2.8 identify any dynamic ecological processes occurring within the broader landscape, that might be disrupted by the development and result in negative impact on the identified SCC, for example, fires in fire-prone systems;

2.2.9 identify any potential impact on ecological connectivity in relation to the broader landscape, resulting in impacts on the identified SCC and its long term viability;

2.2.10 determine buffer distances as per the Species Environmental Assessment Guidelines used for the population of each SCC; and

2.2.11 discuss the presence or likelihood of additional SCC including threatened species not identified by the screening tool, Data Deficient or Near Threatened Species, as well as any undescribed species, or roosting and breeding or foraging areas used by migratory species where these species show significant congregations, occurring in the vicinity; and

2.2.12 identify any alternative development footprints within the preferred development site which would be of "low" or "medium" sensitivity as identified by the screening tool and verified through the site sensitivity verification.

2.3 The findings of the assessment must be written up in a **Terrestrial Animal Species Specialist Assessment Report**.

Terrestrial Animal Species Specialist Assessment Report

3.1 This report must include as a minimum the following information:

3.1.1 contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;

3.1.2 a signed statement of independence by the specialist;

3.1.3 a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;

3.1.4 a description of the methodology used to undertake the site sensitivity verification and impact assessment and site inspection, including equipment and modelling used where relevant;

3.1.5 a description of the mean density of observations/number of samples sites per unit area of site inspection observations;

3.1.6 a description of the assumptions made and any uncertainties or gaps in knowledge or data;

3.1.7 details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;

3.1.8 the online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;

3.1.9 the location of areas not suitable for development and to be avoided during construction where relevant;

3.1.10 a discussion on the cumulative impacts;

3.1.11 impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);

3.1.12 a reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not, of the development related to the specific theme considered, and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and

3.1.13 a motivation must be provided if there were any development footprints identified as per paragraph 2.2.12 above that were identified as having "low" or "medium" terrestrial animal species sensitivity and were not considered appropriate.

3.2 A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

Terrestrial Animal Species Compliance Statement

5.1 The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Zoological Science or Ecological Science).

5.2 The compliance statement must:

5.2.1 be applicable within the study area;

5.2.2 confirm that the study area is of "low" sensitivity for terrestrial animal species; and

5.2.3 indicate whether or not the proposed development will have any impact on SCC.

5.3 The compliance statement must contain, as a minimum, the following information:

5.3.1 contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;

5.3.2 a signed statement of independence by the specialist;

5.3.3 a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;

5.3.4 a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;

5.3.5 the mean density of observations/ number of samples sites per unit area;

5.3.6 where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMP;

5.3.7 a description of the assumptions made and any uncertainties or gaps in knowledge or data;

5.3.8 any conditions to which the compliance statement is subjected.

A signed copy of the Terrestrial Animal Species Compliance Statement must be appended to the Basic Assessment Report or the Environmental Impact Assessment Report.

INTRODUCTION

Proposed project

Paarde Valley PV2 (Pty) Ltd (hereafter referred to as the Applicant) proposes the construction of a 132 kV, double circuit, overhead powerline (OHPL) grid connection from the authorised on-site substation and switching station at Paarde Valley PV2 to Vetlaagte Main Transmission Station (MTS) (which is currently undergoing its own EA application process). The OHPL is proposed to be approximately 12.7 km in length, and is located in the Strategic Transmission Central Corridor . A 200 m corridor (100 m of each side of the line) is assessed here. The final OHPL servitude will be registered as 31 m but during the design development process a corridor of 200 meters is required to allow for minor tower position adjustments. The exact pylon locations will be determined by the outcome of the specialist's investigations, and engineering considerations. On average there will be 4 - 5 towers per km, so that the route will consist of an approximately 40 towers. The teams constructing the OHPL often use cranes and these will fit into an area with a maximum radius of approximately 30 m around the base of each tower, with the final footprint being relatively small. The line will have a capacity of 132kV and will make use of either steel monopole or steel lattice structure in line with Eskom required specifications.

A monopole self-supporting structure has a maximum base of 5 m in diameter above the ground. In some situations the structures have stays. These would fall into the area with a maximum radius of 30 meters, but the stays themselves are hardly exposed at ground level, with only small steel rods protruding from the ground. Lattice towers have a bigger footprint as each has four legs that are a maximum of 15 m apart so that the final footprint would be approximately 15 m x 15 m. The height of either pylon structure will be up to 32 m.

The project will also include the switching station component of the authorised Paarde Valley PV2 on-site substation, with an approximate footprint area of 100 m x 100m, and a feeder bay at the Vetlaagte MTS with a capacity of 132 kV, as this needs to be handed over to Eskom with the grid connection self-build works once constructed.

In summary, the infrastructure associated with the proposed Grid Connection works for the Paarde Valley PV2 project (and to be handed back to Eskom following construction), includes the following:

- A 132kV, double circuit Overhead Power Line (OHPL) from the Switching Station connecting to the proposed Vetlaagte Main Transmission Substation (MTS)
- 132kV Feeder bay at the Vetlaagte MTS
- On-site Switching Station (SwS), adjacent to the authorised IPP 132 kV substation. (approximately 100 m x 100 m combined)

The technical details include:

Overhead Powerline:

- Height of pylons Up to 32m
- Type of poles/ pylons to be used. Double Circuit configuration. The alternatives under consideration and to be assessed include Steel lattice or Monopole structures in line with Eskom required specifications
- Transmission line capacity 132kV
- OHPL Service Road (to lie within the OHPL servitude)
 - Length of OHPL service road(s) – Twin tracked service road following line route
 - Width of OHPL service road(s) 6 m
- Switching Station:
 - Footprint of approximately 50 m – 100 m x 100 m adjacent to IPP Substation
 - Area occupied by buildings (Control building, relay room, generator, storage warehouse, water tanks, ablutions) +-1.0 Hectares

- Switching Station Access Road (separate access servitude from the nearest public road to the Switching Station yard)
 - Compacted gravel
 - Length of access road: +- 2.34 km
 - Width of access road: 8 m .
- Security fencing height: 2.4 m
- Type of fencing: Eskom palisade fencing + chainlink fencing for temporary works
- Capacity of on-site switching station 132kv

The OHPL and Switching station are required to connect the Paarde Valley PV2 Solar farm to the Eskom National Grid. The route selected follows boundary lines and / or existing OHPL routes so as to limit disruption to current farming activities as much as possible.

Site location and details

The proposed infrastructure is just to the north, north-east and east of the town of De Aar in the Northern Cape Province, within the quarter degree grid 3024CA (Figure 1).

The topography of the study site is gentle to flat. There is a non-perennial stream close to the Paarde Valley PV2 substation site (approximately 200 m away to the north-east of the substation site, at it's closest point), and the ground rises from there eastwards. The elevation on site varies from 1240 to 1336 m above sea level.

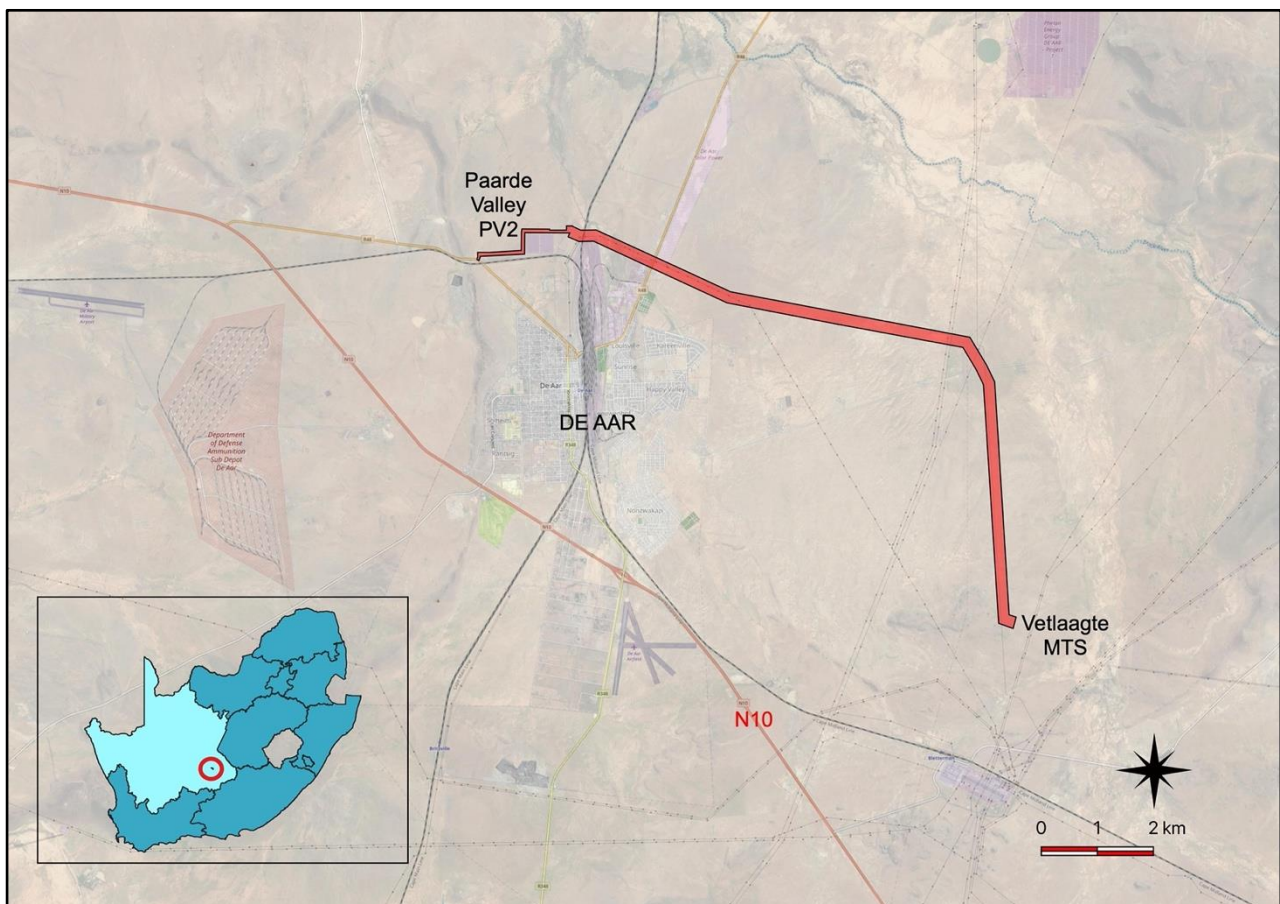


Figure 1: Location of the site adjacent to De Aar.

Most of the site consists of natural vegetation. The exception is a gravel road crossing the alignment corridor to the north of the Vetlaagte MTS, and a railway line very close to the Paarde Valley PV2.

In accordance with GN 320 and GN 1150 (20 March 2020) of the NEMA EIA Regulations of 2014 (as amended), prior to commencing with a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (i.e., Screening Tool). David Hoare Consulting, as the Ecological specialist, have been commissioned to verify the sensitivity of the site under these specialist protocols.

The scope of this report is the 200 m wide corridor, the boundary of which is shown in Figure 2.

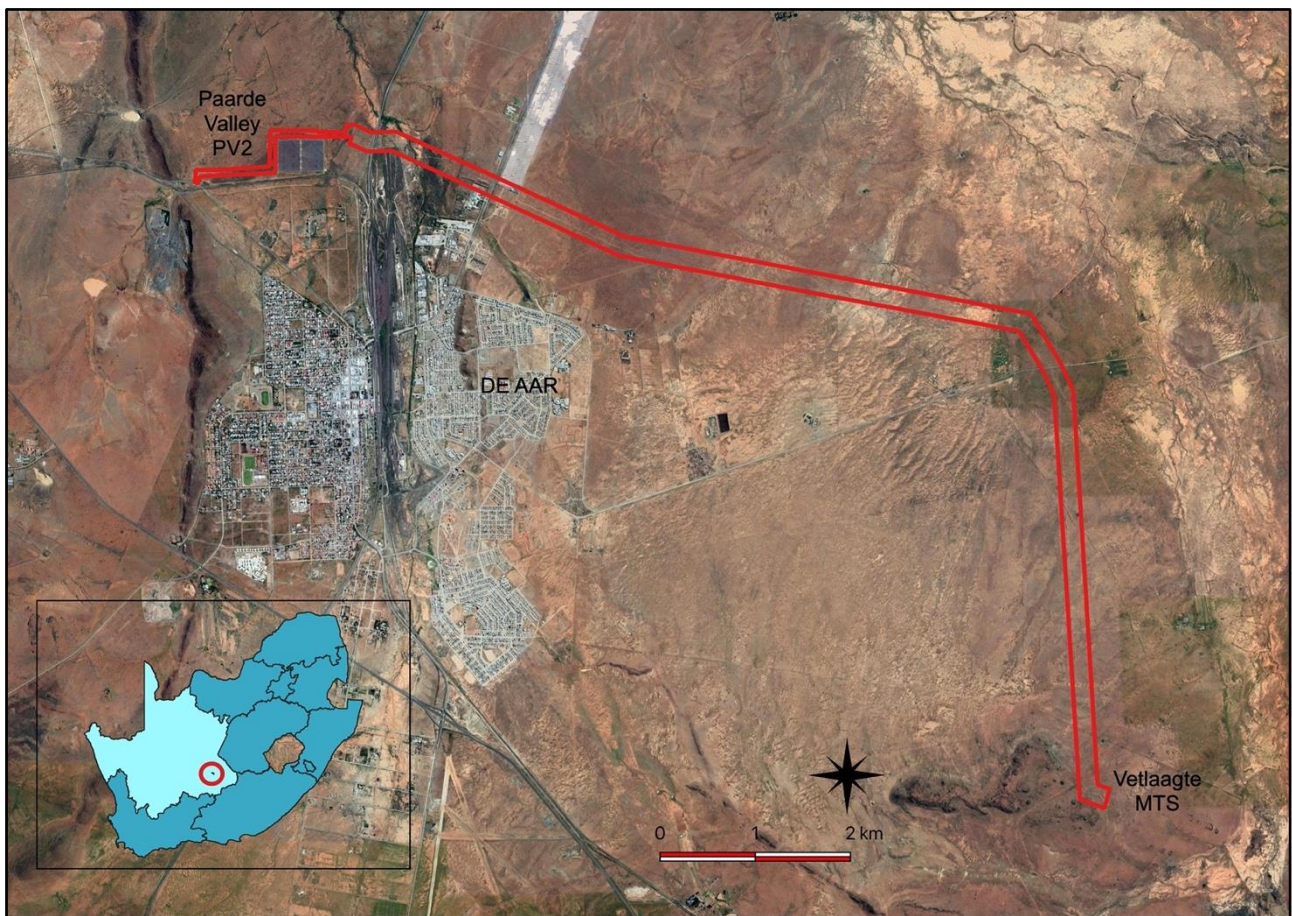


Figure 2: Aerial image of the corridor.

Identified Theme Sensitivities

A sensitivity screening report from the DEA Online Screening Tool was requested in the application category: Utilities Infrastructure | Electricity | Distribution and Transmission | Powerline. The DEA Screening Tool report for the area, dated 13/06/2022, indicates the following ecological sensitivities:

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Animal Species Theme		X		

Animal theme

Sensitivity features are indicated as follows:

Sensitivity	Feature(s)
High	Aves-Neotis ludwigii
High	Aves-Falco biarmicus
High	Aves-Aquila rapax
Low	Subject to confirmation
Medium	Aves-Aquila rapax
Medium	Aves-Neotis ludwigii

In accordance with GN 320 and GN 1150 (20 March 2020) of the NEMA EIA Regulations of 2014 (as amended), prior to commencing with a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (i.e., Screening Tool). This Site Sensitivity Verification concluded that the site has **LOW** sensitivity for the Terrestrial Animal Species theme (excluding the taxon Aves which is investigated in a separate assessment by an avian species specialist) on the basis that no SCC were found on site and that the site is not suitable habitat for a SCC.

Note that a Near Threatened species was observed on site (*Psammobates tentorius*), but this falls outside the definition of SCC in the *Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species*, which is defined as follows:

SCC listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as **Critically Endangered, Endangered or Vulnerable** according to the IUCN Red List 3.1. Categories and Criteria and under the national category of **Rare**.

SITE SENSITIVITY VERIFICATION METHODOLOGY

The detailed methodology followed as well as the sources of data and information used as part of this assessment is described below.

Survey timing

The study commenced as a desktop-study followed by a site-specific field study on 4 and 5 March 2022. The site is within the Nama-Karoo Biome. The ideal survey time in this biome is March (Figure 3). The climate is arid to semi-arid. Rainfall occurs from November to March, but peaks in mid- to late summer (February / March). Mean annual rainfall is 275 mm per year. There had been relatively good recent rainfalls prior to the field survey. The timing of the survey in early summer is therefore optimal in terms of assessing the habitat of the site. Many animal species are active during peak vegetation growth periods, which is when the optimal forage and breeding opportunities exist. Outside of these optimal vegetation growth periods, animals either hibernate or migrate to where better resources are available. The overall condition of the vegetation as habitat for animals was possible to be determined with a high degree of confidence. Various depressions were water-filled, providing an indication of amphibian diversity on site.

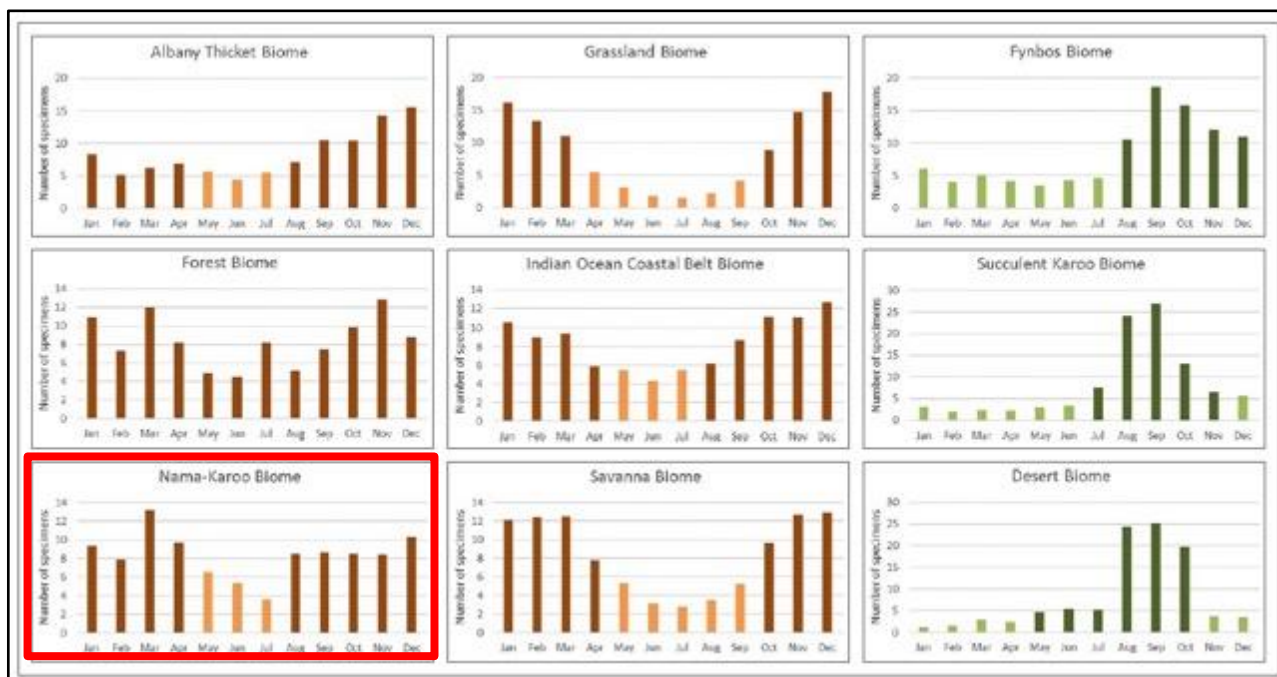


Figure 3: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines). The site is within the Nama Karoo Biome.

Field survey approach

Field surveys included both meander searches of general areas, and active searching in habitats that were considered to be suitable for specific groups or species. During the field survey, the entire corridor was assessed on foot. A hand-held Garmin GPSMap 64s was used to record a track within which observations were made. Digital photographs were taken of features and habitats on site, as well as of all animal species that were seen. All animal species recorded were uploaded to the iNaturalist website (<https://www.inaturalist.org>) and are accessible by viewing the observations for the site (use the Explore menu, zoom and pan until the desired study area is within the browser window, click the button "Redo search in map", and all observations for that area will be shown and listed).

Aerial imagery from Google Earth was used to identify and assess habitats on site. Patterns identified from satellite imagery were verified on the ground. Digital photographs were taken at locations where features of interest were observed. During the field survey, particular attention was paid to ensuring that all habitat variability was covered physically on the ground.

Digital photographs were taken of features of interest that were seen on site, as well as of habitat in different parts of the site.

Sources of information

Fauna

- Lists of animal species that have a geographical range that includes the study area were obtained from literature sources (Bates et al., 2014 for reptiles, du Preez & Carruthers 2009 for frogs, Mills & Hes 1997 and Friedmann and Daly, 2004 for mammals). This was supplemented with information from the Animal Demography Unit website (adu.uct.ac.za) and literature searches for specific animals, where necessary.

Limitations

The following assumptions, limitations, uncertainties are listed regarding the assessment of the site:

- The assessment is based on a single site visit. The current study is based on an extensive site visit as well as a desktop study of the available information. The time spent on site was adequate for understanding general patterns across affected areas.
- Compiling the list of species that could potentially occur on site is limited by the paucity of collection records for the area. The list of animal species that could potentially occur on site was therefore taken from a wider area and from literature sources that may include species that do not occur on site and may miss species that do occur on site. In order to compile a comprehensive site-specific list of the biota on site, studies would be required that would include different seasons, be undertaken over a number of years and include extensive sampling. Due to legislated time constraints for environmental authorisation processes, this is not possible.
- Rare and threatened animal species are, by their nature, usually very difficult to locate and can be easily missed.

OUTCOME OF THE ASSESSMENT

Habitats found on site

Plains

This is the widespread plains vegetation of the area around De Aar and occupies most of the area within the corridor (Figure 4). It is generally found on loamy soils with relatively low rock cover. The vegetation consists mostly of low dwarf shrubs, along with various grasses, especially after recent rainfall. It is relatively species poor, and is uniform across wide areas. There are some areas that are slightly raised relative to the general lowland plains, and have shallow rocky soils. They often occur on low rises, as well as forming a gradient to hills. The vegetation has many more dwarf shrubs and less grass than the lowland plains, and there is a higher species richness and more diverse local composition.

The plains are the most widespread habitat in the study area and support a variety of animal species, characteristically including the following mammals: *Raphicerus campestris* (Steenbok), *Antidorcas marsupialis* (Springbok), *Lepus saxatilis* (Scrub hare), *Lepus capensis* (Cape hare), *Geosciurus inauris* (Cape Ground Squirrel), *Suricata suricatta* (Suricate), *Cynictis penicillata* (Yellow mongoose), *Herpestes pulverulentus* (Cape grey mongoose), *Hystrix africaeaustralis* (Porcupine), *Cryptomys hottentotus* (Common mole rat), *Phacocoercus africanus* (Common warthog), *Ictonyx striatus* (Striped polecat), *Proteles cristatus* (Aardwolf), *Oryzctopus afer* (Aardvark), *Lupulella mesomelas* (Black-backed jackal), and *Caracal caracal* (Caracal), the following reptiles: *Stigmochelys pardalis*

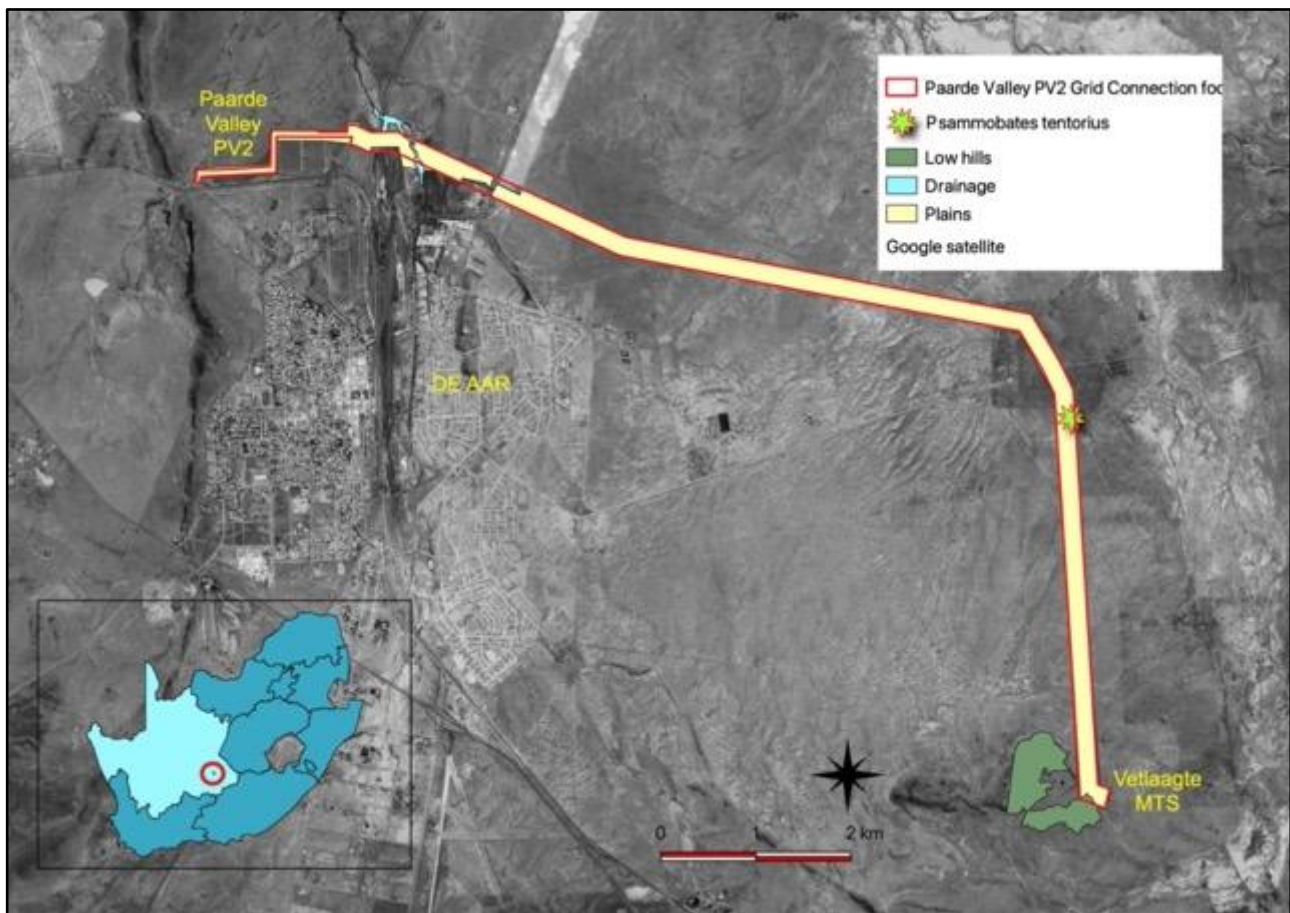


Figure 4: Habitats within the corridor.

(Leopard tortoise), *Bitis arietens* (Puffadder), *Naja nivea* (Cape cobra), *Psammophylax rhombeatus* (Rhombic skaapesteker), *Psammobates tentorius* (Karoo tent tortoise), *Pedioplanis namaquensis* (Namaqua sand lizard).

Low hills

There are a small number of low hills at the southern end of the study area (Figure 4) that have a steeper topography than the surrounding plains, are more rocky, and include various amounts of scattered rock and outcrops. The vegetation is much more diverse than the surrounding plains and includes a higher diversity of woody shrubs.

Many of the species characteristic of the plains take refuge in the low hills, but there are also species most commonly found only in the hills, such as *Pronolagus saundersiae* (Hewitts red rock rabbit), *Atelerix frontalis* (Hedgehog), *Elephantulus rupestris* (Western rock elephant shrew), *Macroscelides proboscideus* (Round-eared elephant shrew), *Trachylepis sulcata* (Western rock skink), *Varanus albigularis* (Rock monitor)

Drainage

In the general De Aar area, the drainage areas include a variety of valley bottoms that are sometimes channelled and sometimes not, depending on the size. There is one of these that crosses the corridor near to the northern end (Figure 4). The margins generally grade into the surrounding karoo vegetation. The bottom is either bare soil or hollows that become waterlogged during rainfall. There are a number of built structures to hold back drainage, either for creating waterbodies or for erosion control. In places are well-defined channels in which recognisable wetland vegetation occurs. There are also local shallow depressions, as well as artificial waterholes, where wetland-like conditions exist.

These habitats are habitat for a number of animals, including the following amphibians: *Amietia poyntoni* (Poynton's river frog), *Breviceps adspersus* (Common rain frog), *Cacosternum boettgeri* (Common caco), *Poyntonophrynus vertebralis* (Southern pygmy toad), *Pyxicephalus adspersus* (African bullfrog), *Tomopterna tandyi* (Tandy's sand frog), and *Vandijkophrynus garipeensis* (Karoo toad). In addition, drainage areas are important migration corridors because they provide shrub vegetation cover and a low point in the landscape through which animals can move. They often also have soil moisture conditions that support vegetation growth even when surrounding plains are dry from drought conditions, which means that they provide a food supply when there is nothing else available in the landscape.



Figure 5: View of plains vegetation in central part of corridor.



Figure 6: View of corridor along northern part of site.



Figure 7: North-western end of corridor.



Figure 8: Hill with rock outcrops.



Figure 9: Vegetation within hills showing scattered rock piles.



Figure 10: Typical view of plains at southern end of corridor.

Animal species that are flagged for the site

Other than bird species, which are assessed in a separate specialist study, there are no animal species flagged for the site in the DEA Online Screening Tool output. A specialist avifaunal assessment forms a separate component of the environmental assessment application and birds in general are not discussed here.

Other animal species of concern that may occur on site

One Near Threatened reptile species was found on site, the Tent Tortoise (*Psammobates tentorius*). The individual tortoise was found near the north-eastern end of the study area under the existing power line, within the proposed corridor for this BA process. This species has a wide distribution in South Africa from south-east of Graaff-Reinet to southern Namibia. The current observation is near to the north-eastern edge of the known distribution range. The main general threats to the species include primarily general habitat degradation and loss. The loss of habitat due to the proposed project will not have a significant impact on the overall availability of habitat for this species.

Other listed animal species that could possibly occur in the study area (based on geographical distribution - see Appendix 1) are mostly small carnivores, including Black-footed Cat (Vulnerable) and Brown Hyena (Near Threatened), both mobile species that will move away from any human disturbance. The White-tailed Rat, listed as Vulnerable, and Mountain Reedbuck, listed as Endangered, have also been recently recorded near to De Aar.

The Black-footed Cat (*Felis nigripes*), has been seen twice recently in the area between De Aar and Richmond. It is found throughout the interior of South Africa, extending into the thicket areas in the Eastern Cape. De Aar is near the centre of the distribution range of the species and there are numerous records in this general part of the country. The stronghold of the species is suspected to be in the central Karoo region where highest densities are reached (Wilson et al. 2016). They are therefore almost certain to occur in the general area that includes De Aar, although unlikely to occur in proximity to the town itself. They are probably not found close to human habitation due to the multitude of impacts by humans on their habitat and on individuals, including the fact that they are vulnerable to predation by domestic dogs.

The Mountain Reedbuck lives on grass-covered ridges and hillsides in broken rocky country and high-altitude grasslands often with some tree or bush cover. The observations near to De Aar were in the mountains. They will therefore not occur on the plains, where the current assessment area is located.

The White-tailed Rat is endemic to South Africa and Lesotho where it is found in grasslands and shrubby areas. It is widespread within South Africa but patchily distributed and occurs at low densities. It tends to inhabit burrows of meerkats and cracks in the soil during the day and venture out at night. There is only one observation on iNaturalist, which is halfway between De Aar and Richmond in habitat that is not typical of the described habitat for the species but falls within the type of habitat within the current assessment area. It is therefore possible that it could occur on site but, based on its patchy distribution, it is unlikely.

The sensitivity rating for the Animal Species Theme is for "SCC listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable according the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare."

CONCLUSIONS

The following conclusions can be made regarding the outcomes of the Terrestrial Animal Species Specialist Assessment on site:

1. The following two species were found on site but are unlikely to be significantly negatively affected by construction of the proposed powerline, switching station, access road and associated infrastructure:
 - a. One Near Threatened tortoise species, the Tent Tortoise (*Psammobates tentorius*) was found on site, as a single individual.
 - b. One small depression was found just to the south of the current alignment, in which the protected Giant Bullfrog was found. It is outside of the corridor and will not be affected by the project.
2. There are no confirmed records of any other animal species of conservation concern that are likely to occur on site. It is therefore confirmed that the study area is of "low" sensitivity for terrestrial animal species.

RECOMMENDATIONS

The following is recommended:

1. A pre-construction ecological walk-through survey should be conducted to confirm the absence of any SCC within the direct footprint of proposed infrastructure.

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APPENDICES:

Appendix 1: Checklist of animal species found on site or nearby (within 20 km).

Species	Category
REPTILES:	
<i>Acontias gracilicauda</i> (Thin-tailed Legless Skink)	
<i>Acontias occidentalis</i> (Okahandja Legless Skink)	
<i>Agama aculeata</i> (Ground Agama)	
<i>Bitis arietans</i> (Puffadder)	
<i>Chondrodactylus bibronii</i> (Bibron's Thick-toed Gecko)	
<i>Duberria lutrix</i> (Common Slug Eater)	
<i>Homopus femoralis</i> (Greater Padloper)	
<i>Karusasaurus polyzonus</i> (Karoo Girdled Lizard)	
<i>Lamprophis aurora</i> (Aurora House Snake)	
<i>Naja nivea</i> (Cape Cobra)	
<i>Nucras holubi</i> (Holub's Sandveld Lizard)	
<i>Pedioplanis namaquensis</i> (Namaqua Sand Lizard)	
<i>Psammobates tentorius</i> (Tent Tortoise)	NEAR THREATENED
<i>Psammophis leightoni</i> (Cape Sand Snake)	
<i>Psammophylax rhombeatus</i> (Rhombic Skaapsteker)	
<i>Stigmochelys pardalis</i> (Leopard Tortoise)	
<i>Trachylepis sulcata</i> (Western Rock Skink)	
<i>Varanus albigularis</i> (Rock Monitor)	
MAMMALS	
<i>Antidorcus marsupialis</i> (Springbok)	
<i>Atelerix frontalis</i> (Hedgehog)	PROTECTED
<i>Caracal caracal</i> (Caracal)	
<i>Connochaetes gnou</i> (Black Wildebeest)	
<i>Connochaetes taurinus</i> (Common Wildebeest)	
<i>Cryptomys hottentotus</i> (Common mole rat)	
<i>Cynictis penicillata</i> (Yellow Mongoose)	
<i>Elephantulus rupestris</i> (Western Rock Sengi)	
<i>Felis lybica</i> (African Wild Cat)	
<i>Felis nigripes</i> (Black-footed Cat)	VULNERABLE, PROTECTED
<i>Geosciurus inauris</i> (Cape Ground Squirrel)	
<i>Herpestes pulverulentus</i> (Cape Grey Mongoose)	
<i>Hippotragus niger</i> (Sable Antelope)	
<i>Hystrix africaeausstralis</i> (Porcupine)	
<i>Ictonyx striatus</i> (Striped Polecat)	
<i>Lepus capensis</i> (Cape Hare)	
<i>Lepus saxatilis</i> (Scrub Hare)	
<i>Lupulella mesomelas</i> (Black-backed Jackal)	
<i>Macroselides proboscideus</i> (Karoo Round-eared Sengi)	
<i>Mystromys albicaudatus</i> (White-tailed Rat)	VULNERABLE
<i>Orycteropus afer</i> (Aardvark)	
<i>Phacochoerus africanus</i> (Common Warthog)	
<i>Procavia capensis</i> (Dassie)	

Pronolagus saundersiae (Southern Red Rockrabbit)	
Proteles cristatus (Aardwolf)	
Raphicerus campestris (Steenbok)	
Redunca fulvorufula (Mountain Reedbuck)	ENDANGERED
Suricata suricatta (Meerkat)	
Vulpes chama (Cape Fox)	PROTECTED
AMPHIBIANS	
Amietia poyntoni (Poynton's River Frog)	
Breviceps adspersus (Common Rain Frog)	
Cacosternum boettgeri (Boettger's Dainty Frog)	
Tomopterna tandyi (Tandy's Sand Frog)	
Poyntonophrynus vertebralis (Pygmy Toad)	
Pyxicephalus adspersus (African Giant Bullfrog)	PROTECTED
Vandijkophrynus gariensis (Karoo Toad)	
INVERTEBRATES	
Locustana pardalina	
Acanthoplius sp.	
Hycleus burmeisteri	
Subfamily Coenosiinae	
Tribe Tylopsidini	
Scarabeus sp.	
Subfamily Asilinae	
Orthetrum caffrum	
Zonocerus elegans	
Family Lycosidae	
Genus Argiope	
Vanessa cardui	

Appendix 2: Animal species with a broad geographical distribution that includes the study area.

Notes:

1. Species of conservation concern are in red lettering.
2. Species protected according to the National Environmental Management: Biodiversity Act of 2004 (Act 10 of 2000) marked with "N"
3. Species listed in brackets are at edge of distribution range and probably don't occur in the area.

Mammals:

(Grant's rock mouse)
 Namaqua rock mouse
 Common mole-rat
 Short-tailed gerbil
 Hairy-footed gerbil
 Spectacled dormouse
 Porcupine
 Large-eared mouse
 Multimammate mouse
 (Vlei rat)
 Karoo bush rat
 (Brant's whistling rat)
 Springhare
 Striped mouse
 Highveld gerbil
 Cape ground squirrel

Mammals:

Artiodactyla

^PSpringbok
^NBlack wildebeest
^N^PBlack rhinoceros (*Diceros bicornis*)
 Klipspringer
^PSteenbok
^PCommon duiker
 Common eland

Rock hyrax

Carnivora

Black-backed jackal
 Caracal
^PYellow mongoose
^NBlack-footed cat **VU**
^PAfrican wild cat
 Small grey mongoose
^PSmall-spotted genet
^PStriped polecat
^PBat-eared fox
^N^PLeopard **VU**
 African weasel
^PAardwolf
^PSuricate

^N^PCape fox

Insectivora

^PReddish-grey musk shrew
^PTiny musk shrew

Lagomorpha

^PCape/Desert hare
^PScrub/Savannah hare
^PHewitt's red rock rabbit

Primata

Chacma baboon

Rodentia

^PNamaqua rock mouse
 Common mole-rat
^PShort-tailed gerbil
^PHairy-footed gerbil
^PSpectacled dormouse
^PPorcupine
^PLarge-eared mouse
^PMultimammate mouse
 Vlei rat
 Karoo bush rat
^PBrant's whistling rat
^PSpringhare
^PStriped mouse
^PHighveld gerbil
^PCape ground squirrel

Macroscelididae

Rock elephant shrew
 Smith's rock elephant shrew
^PBushveld sengi
^PWestern rock sengi
^PKaroo round-eared sengi

Orycteropodidae

^PAardvark

Reptiles:

Testudinidae

Marsh terrapin
 Karoo dwarf tortoise NT

Greater dwarf tortoise

^PLeopard tortoise

^PTent tortoise

Gekkonidae

^PBibron's gecko

^PCape gecko

^PCommon banded gecko

Golden spotted gecko

^PPurcell's gecko

Amphisbaenidae

Lacertidae

^PSpotted desert lizard

^PSpotted sandveld lizard

^PKaroo sandveld lizard

^PBurchell's sand lizard

^PKaroo sand lizard

^PSpotted sand lizard

^PCommon sand lizard

^PNamaqua sand lizard

Cordylidae

^PSouthern karusa lizard

^PKaroo crag lizard

Gerrhosauridae

Scincidae

^PCape skink

^PWestern three-striped skink

^PWestern rock skink

^PVariogated skink

Varanidae

^PSouthern rock monitor

^PNile monitor

Chamaelaeonidae

Agamidae

^PWestern ground agama

^PSouthern rock agama

Typhlopidae

Delelande's beaked blind snake

Leptotyphlopidae

Peter's thread snake?

Pythonidae

Viperidae

^PPuff adder

^PHorned adder

^PCommon house snake

Lamprophiidae

Aurora snake

Spotted rock snake

Dwarf beaked snake

Karoo sand snake

Fork-marked sand snake

Spotted grass snake

South African slug-eater

Sundevall's shovel-snout

Mole snake

Elapidae

^PCoral shield cobra

^PCape cobra

Colubridae

^PRed-lippee snake

Natricidae

Amphibians

^PGuttural toad

^PSouthern pygmy toad

^PKaroo toad

^PBubbling kassina

^PCommon platanna

^PBoettger's caco

^PCommon river frog

^PCape river frog

^{NP}Giant bullfrog

^PTremolo sand frog

^PTandy's sand frog

Appendix 3: Species protected under the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)

(as updated in R. 1187, 14 December 2007)

CRITICALLY ENDANGERED SPECIES

Reptilia

Loggerhead sea turtle
Leatherback sea turtle
Hawksbill sea turtle

Aves

Wattled crane
Blue swallow
Egyptian vulture
Cape parrot

Mammalia

Riverine rabbit
Rough-haired golden mole

ENDANGERED SPECIES

Reptilia

Green turtle
Giant girdled lizard
Olive ridley turtle
Geometric tortoise

Aves

Blue crane
Grey crowned crane
Saddle-billed stork
Bearded vulture
White-backed vulture
Cape vulture
Hooded vulture
Pink-backed pelican
Pel's fishing owl
Lappet-faced vulture

Mammalia

Robust golden mole
Tsessebe
Black rhinoceros
Mountain zebra
African wild dog
Gunning's golden mole
Oribi
Red squirrel
Four-toed elephant-shrew

VULNERABLE SPECIES

Aves

White-headed vulture
Tawny eagle
Kori bustard
Black stork
Southern banded snake eagle
Blue korhaan
Taita falcon
Lesser kestrel
Peregrine falcon
Bald ibis
Ludwig's bustard
Martial eagle
Bataleur
Grass owl

Mammalia

Cheetah
Samango monkey
Giant golden mole
Giant rat
Bontebok
Tree hyrax
Roan antelope
Pangolin
Juliana's golden mole
Suni
Large-eared free-tailed bat
Lion
Leopard
Blue duiker

PROTECTED SPECIES

Amphibia

Giant bullfrog
African bullfrog

Reptilia

Gaboon adder
Namaqua dwarf adder
Smith's dwarf chameleon
Armidillo girdled lizard
Nile crocodile
African rock python

Aves

Southern ground hornbill
African marsh harrier
Denham's bustard

Jackass penguin

Mammalia

Cape clawless otter

South African hedgehog

White rhinoceros

Black wildebeest

Spotted hyaena

Black-footed cat

Brown hyaena

Serval

African elephant

Spotted-necked otter

Honey badger

Sharpe's grysbok

Reedbuck

Cape fox