

Animal Species Compliance Statement

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

Erf 3991, Hartenbos near Mossel Bay in the Western Cape Province



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Terrestrial Animal Species Compliance Statement Report for Erf 3991, Hartenbos near Mossel Bay in the Western Cape Province

29 September 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 biodiversity", 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 Wynand Vlok (Pr.Sci.Nat.)	<ul style="list-style-type: none">• PhD Zoology• SACNASP Reg. no. 400109/95 (Zoological Science, Botanical Science)

Areas of specialisation:

- Environmental Impact Assessments (EIA's)
- Environmental Management Plans (EMP's)
- Aquatic environment and its associated biodiversity
- Terrestrial biodiversity

Professional affiliation:

- South African Society of Aquatic Scientists (SASAqS)
- Registered at the "The South African Council for Natural Scientific Professions" (SACNASP – registered as a "Professional Natural Scientist: Registration number - 400109/95)
- SACNASP – as Chairperson for the Professional Advisory Committee (Aquatic)

Employment history:

- BioAssets (owner of Consultancy CC) - 1/01/2007 - current
- University of Limpopo (formerly University of the North)
 - Senior lecturer: Department of Zoology/Biology (1/10/1996 – 31/12/2006)
 - Lecturer: Department of Physiology (1/1/1994 - 30/9/1996)
- Manager of a citrus farm (1992 – 1993)
- Technikon RSA (1989 – 1991) - Lecturer: Nature Conservation

Declaration of independence:

David Hoare Consulting (Pty) Ltd in an independent consultant and hereby declare 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 undertake 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 present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



29 September 2022

Wynand Vlok

Date

TERMS OF REFERENCE

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

The specialist study is required to follow the published Protocols, provided in full below for the assessment of impacts on Terrestrial Biodiversity, on Animal Species, and on Plant Species. Note that the Protocols require determination of the level of sensitivity, which then determines the level of assessment required, either a full assessment, or a Compliance Statement.

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.

INTRODUCTION

Site location

The site is Erf 991 Hartenbos near Mossel Bay to the east of the N2 national road near to the Hartenbos Interchange. Refer to Figure 1 below for the general location.

The site is accessed from Beach East Boulevard that branches from the R102 road (Louis Fourie Road) that connects Mossel Bay to Groot Brakrivier along the coast (Figure 2). The railway line is the western boundary of the site and property boundaries the remaining boundaries (Figure 2). The site is currently vacant land, whereas all surrounding areas are developed.

The scope of this report is the entire property, although parts are planned to be omitted from the development. The entire site is 89045.1 m².

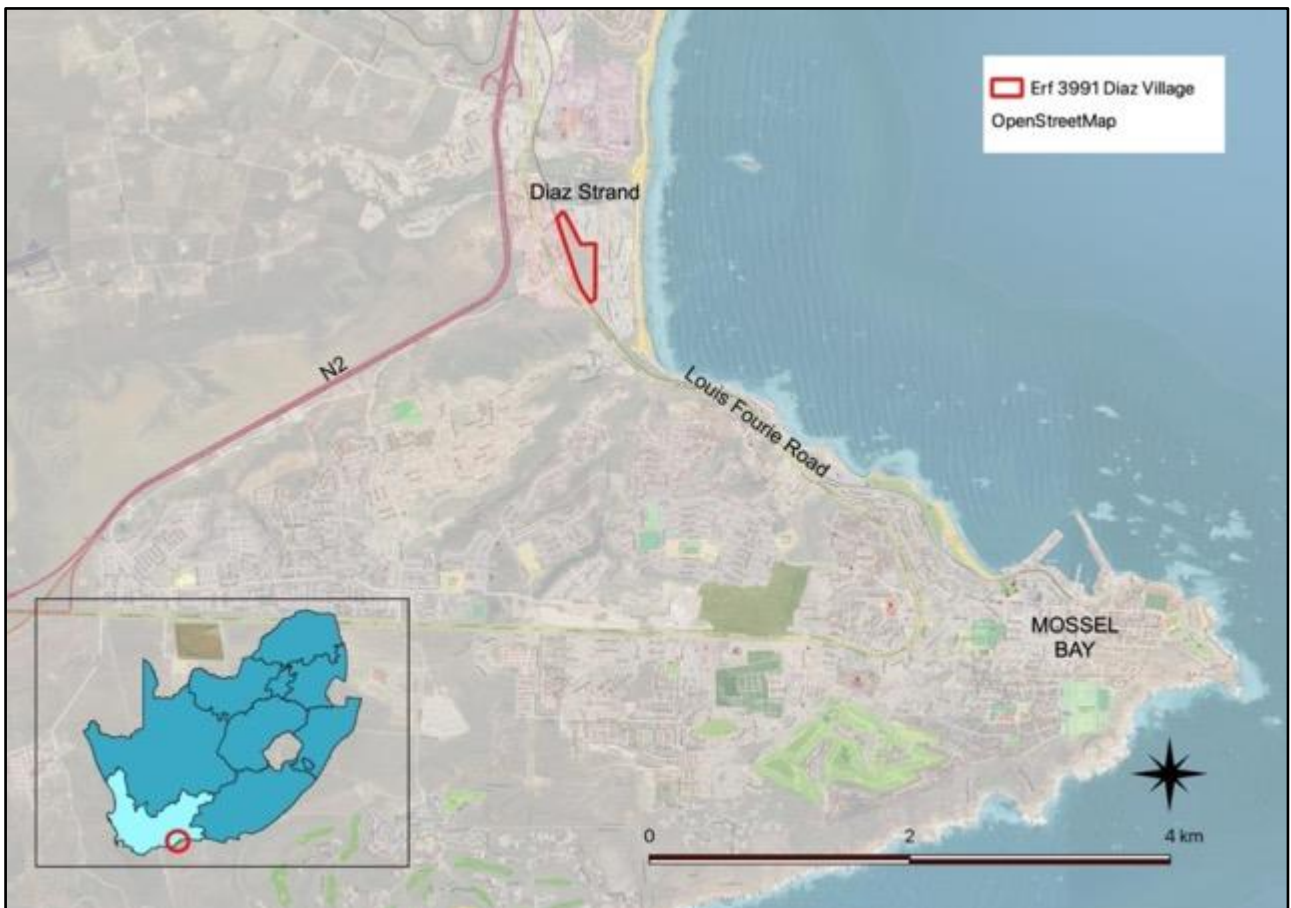


Figure 1: Location of the site.



Figure 2: Aerial image of the site and surrounding areas.

Identified Theme Sensitivities

A sensitivity screening report from the DEA Online Screening Tool was requested in the application category: Transformation of land | Indigenous vegetation. The DEA Screening Tool report for the area, dated 02/11/2021, indicates the following sensitivities (see Figure 3):

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

Animal Species theme

Sensitivity features are indicated as follows:

Sensitivity	Feature(s)
High	Aves - <i>Circus ranivorus</i>
High	Aves - <i>Bradypterus sylvaticus</i>
Medium	Invertebrate - <i>Aneuryphymus montanus</i>
Medium	Insecta - <i>Aloeides thyra orientis</i>
Medium	Mammalia - <i>Acinonyx jubatus</i>
Medium	Sensitive species 7

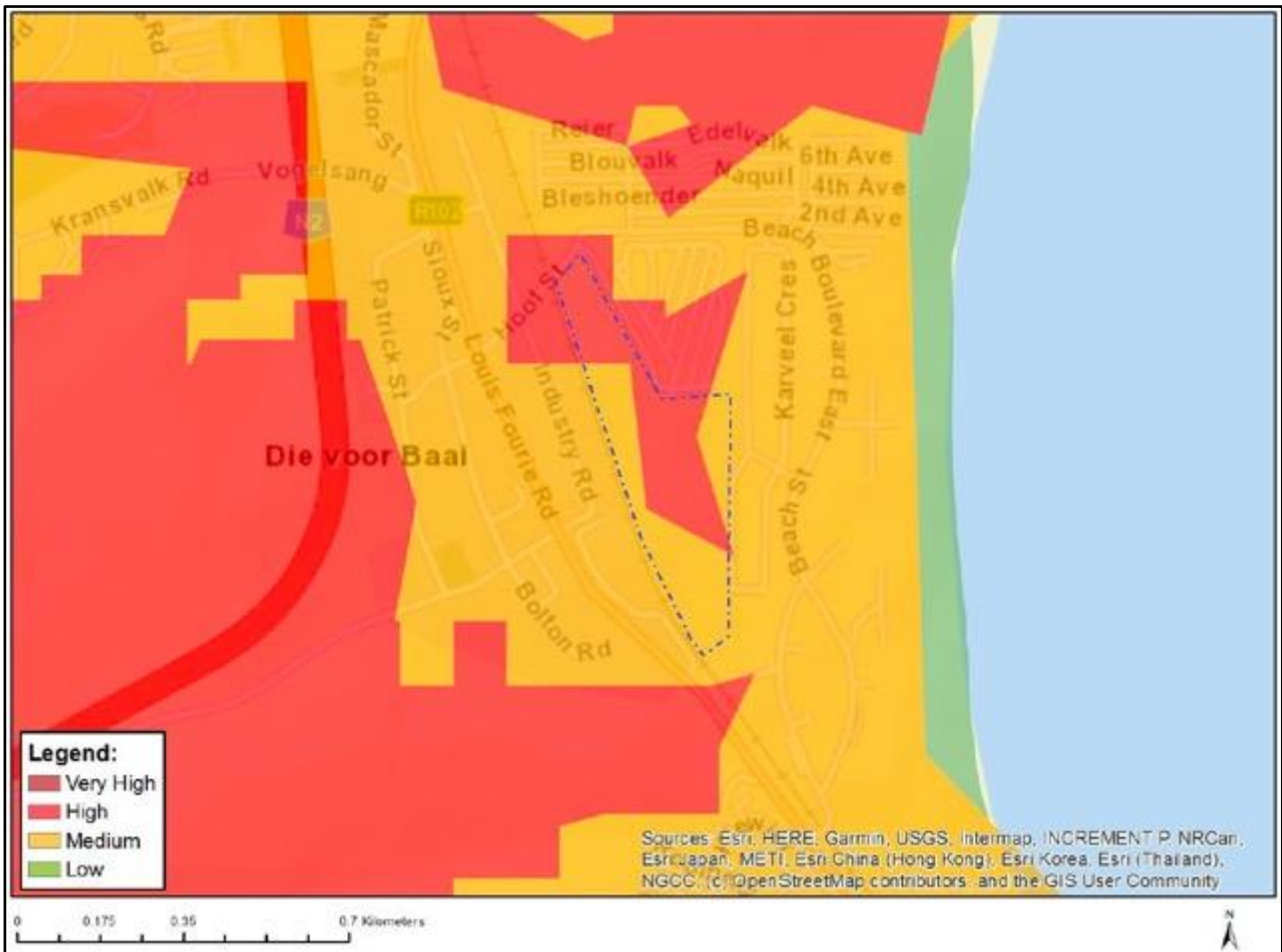


Figure 3: Map of relative animal species theme sensitivity.

ASSESSMENT METHODOLOGY

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

Project Area of Influence (PAOI)

The proposal is to develop the site for residential purposes. This will include stands for free-standing houses, duplexes, and apartments (Figure 4). Anticipated impacts will mostly occur during the construction phase. These impacts are not expected to extend beyond the boundaries of the study area. The PAOI is therefore treated here as the development footprint within which direct impacts will occur (Figure 4).



Figure 4: Proposed development.

Survey timing

The study commenced as a desktop-study followed by site-specific field study on 21 November 2021. The site is within the Fynbos Biome with an all-year rainfall season with a slight dip in early winter (Figure 5). A more accurate indication of rainfall seasonality, which drives most ecological processes, is shown in Figure 6, which shows that Mossel Bay has peak rainfall from August to November, with another smaller peak in March to April. The timing of the survey in November is therefore ideal in terms of assessing the habitat of the site. The overall condition of the vegetation was possible to be determined with a high degree of confidence.

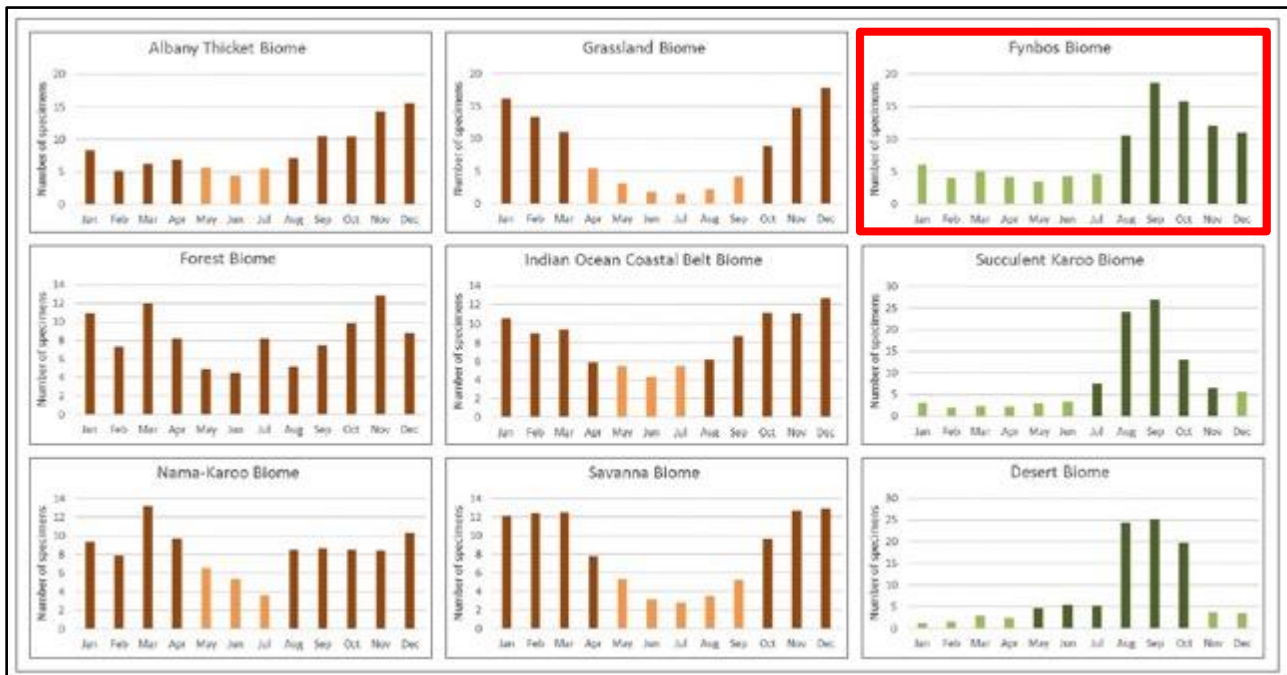


Figure 5: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines). The site is within the Fynbos Biome.

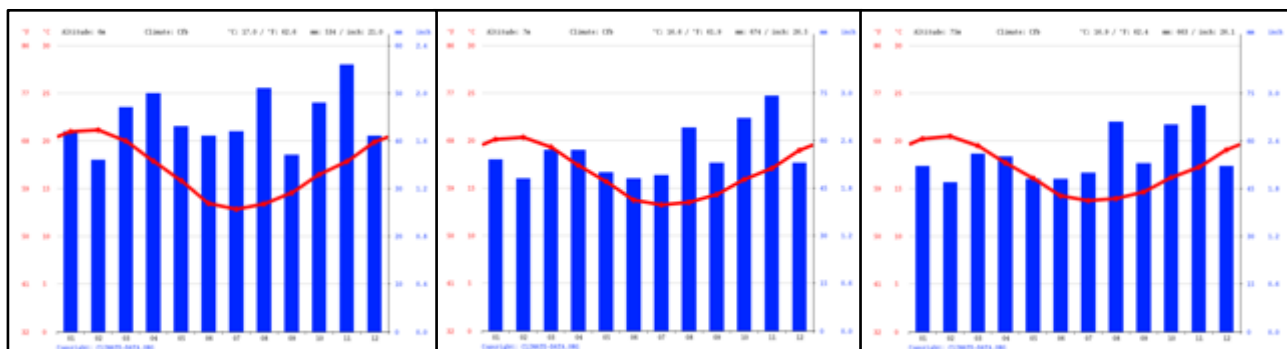


Figure 6: Climate diagrams showing monthly rainfall for Mossel Bay (left), Knysna (centre) and Plettenberg Bay (right).

Field survey approach

The study commenced as a desktop-study followed by a site-specific field study. During the field survey of habitats on site, the entire site was assessed on foot. 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. Meander surveys were undertaken with no time restrictions - the objective was to comprehensively examine all natural areas. A hand-held Garmin GPSMap 64s was used to record a track within which observations were made (Figure 7). Digital photographs were taken of features and habitats on site, as well as of all 7 animal species that were seen. All 7 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. This included historical imagery that may show information not visible in any single dated image. 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.



Figure 7: GPS track log of areas walked in the course of undertaking this assessment.

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.
- Appendix 2 is a summary (for the QDS3422AA) of amphibians, mammals and reptiles that may occur on the study site.

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

Historical disturbance on site

A 1957 aerial photograph shows the entire site to be in a natural state at that date. By 1974 this had changed and clearing occurred in the southern two-thirds of the site. A 1989 aerial photograph of the site (Figure 10) shows that the southern two-thirds of the site were cleared, but that the northern section was still natural. By 1991, an additional strip was cleared into the northern section, leaving the pattern that is currently in place. The patterns of clearing on site appear to be related to the general development of the surrounding areas.



Figure 8: Historical aerial photo of the site, dated 6 June 1989.

Natural habitats on site

Based on a detailed field survey to verify conditions on site, it was determined that, with the exception of some bands of dune thicket, only secondary habitat remains on site (Figure 11). A series of photographs are provided below that give various views on site (Figures 12 - 15). The habitat assessment is important for understanding the suitability of habitat on site for various animal species of concern, which usually have very specific habitat requirements.



Figure 9: Map of habitats on site.

Dune Thicket

There is a strip of dune thicket running down the western boundary of the site, parallel to the railway line. It is dominated entirely by milkwoods, *Sideroxylon inerme* (protected tree species), which form a continuous narrow canopy. These trees were mostly of a significant size that suggests that they have been there for many decades at least and indicates that this is a naturally occurring area of vegetation.

There is also a wider band of the trees in the northern part of the site, along the eastern boundary. This is more structurally diverse, with areas of closed canopy and other more open areas. This area has a wider diversity of woody tree and shrub species, including *Aloe arborescens*, *A. maculata*, *Asparagus aethiopicus*, *Azima tetraantha*, *Brachylaena discolor*, *Brunsvigia orientalis*, *Capparis sepriaria*, *Carissa bispinosa*, *Cussonia thyrsoflora*, *Euclea racemosa*, *Euphorbia mauritanica*, *Grewia occidentalis*, *Gymnosporia buxifolia*, *Lauridia tetragona*, *Olea europaea* subsp. *cuspidata*,

Putterlickia pyracantha, *Rhoicissus digitata*, *Schotia afra*, *Searsia glauca*, *Searsia pterota*, and *Tarchonanthus littoralis*.

This habitat is marginally suitable for the **Knysna Warbler** (*Bradypterus sylvaticus*), but due to it being isolated and fragmented, it is **unlikely that they would occur there**, or, if they did occur there, unlikely that they would be resident.

This habitat is also theoretically suited to a **sensitive small antelope** species. There are several records of the species in areas around George, and one from near Groot Brakrivier, all within thicket or forest areas, but **not near to the current site**. The dune thicket on site is **fragmented and disconnected**, as well as surrounded with high density and high impact activities all around, therefore it is **highly unlikely to occur there**. No evidence, such as droppings, were seen on site.

Disturbed areas and secondary vegetation

Most of the vegetation on site is in previously cleared areas, where there has also been significant dumping of rubble in large mounds. The vegetation composition is therefore either considered as secondary, or dominated by weeds. Plant species occurring in these areas include *Carpobrotus deliciosus*, *C. edulis*, *Cynodon dactylon*, *Ehrharta calycina*, *Eragrostis curvula*, *Felicia muricata*, *Leonotis ocymifolia*, *Malva arborea*, *Mesembryanthemum aitonis*, *Oncosiphon pilulifer*, *Osteospermum moniliferum*, *Pelargonium peltatum* and *Plantago lanceolata*, as well as the exotic species, *Lolium perenne**, *Ricinus communis** (NEMBA Category 1b), *Schinus terebinthifolia** (NEMBA Category 3 in WC), *Acacia cyclops** (NEMBA Category 1b) and *Solanum linnaeanum**.

This habitat is not suitable for any of the animal species flagged for the site.



Figure 10: Band of thicket along western boundary.



Figure 11: Mixed thicket in northern part of site.



Figure 13: General view of secondary vegetation on site.



Figure 12: Areas on site dominated by alien invasive *Acacia cyclops*.

Animal species flagged for the study area

According to the National Web-Based Environmental Screening Tool (DFFE), a small number of animal species have been flagged as of concern for the current project (see previous section of this report). These are all species that require specific habitat conditions to inhabit the site.

***Circus ranivorus* (African marsh harrier)**

Endangered

Widespread but sparsely distributed throughout central, eastern and southern Africa, only absent from areas of lower rainfall (<300 mm p.a.). It is dependent on permanent wetlands for breeding, feeding and roosting. The main threat to this species is loss and degradation of wetlands.

There are estuarine wetlands associated with the Klein Brakrivier but not on site or nearby. **The proposed development is located well away from these habitats.**

***Hydroprogne caspia* (Caspian Tern)**

Vulnerable

Has a cosmopolitan but scattered distribution. It is found in sheltered sea coasts, estuaries, inlets, bays, harbours, coastal lagoons, saltmarshes and salt pans, also occurring inland on fresh or saline wetlands including large lakes, inland seas, large rivers, creeks, floodlands, reservoirs and sewage ponds. When breeding the species shows a preference for nesting on sandy, shell-strewn or shingle beaches, sand-dunes, flat rock-surfaces, sheltered reefs or islands with sparse vegetation and flat or gently sloping margins surrounded by clear, shallow, undisturbed waters. It has been observed several times at Hartenbos Lagoon. However, **no suitable habitat occurs on site and the species is unlikely to occur there.**

***Bradypterus sylvaticus* (Knysna warbler)**

Vulnerable

Has a restricted and fragmented distribution in four areas of Eastern and Western Cape. One sub-population occurs in the Garden Route between Tsitsikamma and Stilbaai. It occurs along the edges of Afrotemperate forests and in thick, tangled vegetation along the banks of watercourses or drainage lines in forest patches in the Fynbos Biome (Taylor et al. 2015). Population decline is attributed to clearance of habitat for developments, agriculture and silviculture, leading to a decrease in the amount of available habitat, as well as the quality (Taylor et al. 2015).

Marginally suitable habitat occurs on site, although the thicket areas on site are **fragmented and not connected to other suitable habitat areas**. The species is **unlikely to occur permanently (nesting) on site**.

***Aloeides thyra orientis* (Red Copper Butterfly)**

Endangered

Endemic to the southern coastal regions of the Western Cape Province, from Witsand to Gouritsmond in the west and to the Brenton Peninsula near Knysna in the east. It is found in coastal fynbos on flat sandy ground (either naturally occurring or from anthropogenic disturbances such as footpaths or unsurfaced track) between 40 m to 240 m above sea level. There are six known locations, none of which are anywhere near to the current site. Due to **lack of suitable fynbos habitat**, it is **unlikely that it occurs on site**.

***Sensitive species 5* (small antelope)**

Vulnerable

Found in a variety of forested and wooded habitats, including primary and secondary forests, gallery forests, dry forest patches, coastal scrub, farmland and regenerating forest (Venter et al. 2016). Within South Africa, they occur mainly within scarp and coastal forests, thickets or dense coastal bush (Skinner & Chimimba 2005), although they can occupy modified habitats. They frequent forest

glades and open areas but need dense underbrush to rest or take cover. They are selective foragers which mainly feed on fruit, dicots and a small percentage of monocots (Venter et al. 2016). It is diurnal, but secretive and cautious. Home ranges are about 0.4 - 0.8 ha. Populations are declining due to loss of habitat, as well as hunting and poaching. In the Tsitsikamma National Park, animal numbers are lower than in other parts of its range, attributed to low frequency of occurrence of tree species palatable to the animal, which results in low food availability (Hanekom & Wilson 1991).

There are several records of the species in areas around George, and one from near Groot Brakrivier, all within thicket or forest areas, but not near to the current site. **Fragmented and disconnected** thicket occurs on site and it **could conceivably occur there, although this is unlikely since no evidence, such as droppings or spoor, were observed during the site inspection.**

***Aneuryphymus montanus* (Yellow-winged Agile Grasshopper)**

Vulnerable B2ab(iii,v)

Only known from six localities in the Cape region (Brown 1960). The species is associated almost exclusively with fynbos vegetation, although extending geographically towards East London, where it has been collected "amongst partly burnt stands of evergreen sclerophyll in rocky foothills" (Brown 1960). It prefers south-facing cool slopes (Kinvig 2005). It is a medium-sized, robust, active geophilous insect which readily flies off when disturbed and is easily distinguished in flight by the pale lemon base of the hind wing (Brown 1960).

Published descriptions suggest that it is not often seen but, when observed, occurs in obvious numbers. **No grasshoppers** were noted during the site inspection that matched the description of this species. If it occurred in the area it would be **found within fynbos, which does not occur on site.** It is therefore **highly unlikely that it would occur on site.**

It is therefore verified that the Animal Species Theme has LOW sensitivity for the site.

SITE ECOLOGICAL IMPORTANCE

The Species Environmental Assessment Guidelines require that a Site Ecological Importance (SEI) is calculated for each habitat on site, and provides methodology for making this calculation. The SEI is assessed separately for each biodiversity theme and is assessed below specifically for the Terrestrial Animal Species theme.

As per the Species Environmental Assessment Guidelines, Site Ecological Importance (SEI) is calculated as a function of the Biodiversity Importance (BI) of the receptor and its resilience to impacts ($SEI = BI + RR$). The Biodiversity Importance (BI) in turn is a function of Conservation Importance (CI) and Functional Integrity (FI), i.e. $BI = CI + FI$.

An assessment of habitats on site is provided below (Table 3) specifically for the Animal Species Theme.

Table 3: Site ecological importance for habitats found on site

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
Dune Thicket	Low No confirmed or highly likely populations of SCC.	Very low No habitat connectivity except for flying species or flora with wind-dispersed seeds.	Very high Species that have a very high likelihood of returning to a site once the disturbance or impact has been removed (only common and vagrant species currently occur)	Very low (BI = Very Low)
Degraded & secondary vegetation	Very low No natural habitat remaining.	Very low No habitat connectivity except for flying species or flora with wind-dispersed seeds.	Very high Species that have a very high likelihood of returning to a site once the disturbance or impact has been removed (only common and vagrant species currently occur)	Very low (BI = Very low)

Guidelines for development activities within different importance levels are given in the Table below (Table 4).

Table 42: Guidelines for interpreting SEI in the context of the proposed development activities

Site ecological importance	Interpretation in relation to proposed development activities
Very high	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/ not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities
Very low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

Summary of site sensitivity

The only remaining natural habitat on site is the band of milkwood trees along the railway line that mark the western boundary of the site, as well as the larger band in the northern part of the site, which consists of a more mixed area of thicket. All other vegetation on site is secondary or disturbed and does not qualify as original natural vegetation. Based on the "Site Ecological Importance" assessment, all areas on site are mapped as having **VERY LOW sensitivity** (Figure 16) for the Terrestrial Animal Species Theme.



Figure 14: Animal species theme sensitivity for the site.

CONCLUSION

Desktop information, field data collection and mapping from aerial imagery provides the following verifications of patterns for various themes:

1. Most of the site consists of secondary and/ or degraded areas, including areas heavily invaded by alien invasive shrubs. There is a band of dune thicket running down the western boundary of the site and a wider band of dune thicket in the north-eastern part of the site.
2. The habitat on site is **isolated and internally fragmented**. There is **no habitat connectivity to other natural areas** and is therefore **not accessible to most animal species** except those that are able to migrate across modified landscapes with a very busy road network. The site therefore has been assessed as having **very low sensitivity in terms of the Animal Species Theme**.
3. The site is **not considered to be good habitat** for any of the **animal species flagged** for the site. The most valuable animal habitat on site is probably the dune thicket, but due to fragmentation and isolation is unlikely to be important for any species of concern. Nevertheless, there is **no development activity proposed in the remaining dune thicket areas**.
4. The proposed development is entirely within areas mapped as degraded / secondary that have **very low faunal value and sensitivity**. The development is therefore supported.

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APPENDICES:

Appendix 1: A summary list of animals (mammals, amphibians and reptiles) from the QDS 3422AA within which the study area is found. The marine mammals and reptiles were excluded from the assessment, as the habitat is not directly affected by this development.

Amphibians			
Bufo	<i>Sclerophrys capensis</i>	Raucous Toad	Least Concern
Bufo	<i>Vandijkophrynus angusticeps</i>	Sand Toad	Least Concern
Hyperoliidae	<i>Hyperolius marmoratus</i>	Painted Reed Frog	Least Concern
Hyperoliidae	<i>Hyperolius marmoratus verrucosus</i>	Painted Reed Frog (subsp. verrucosus)	Least Concern
Pipidae	<i>Xenopus laevis</i>	Common Platanna	Least Concern
Pyxicephalidae	<i>Amietia fuscigula</i>	Cape River Frog	Least Concern
Pyxicephalidae	<i>Cacosternum boettgeri</i>	Common Caco	Least Concern
Pyxicephalidae	<i>Cacosternum nanum</i>	Bronze Caco	Least Concern
Pyxicephalidae	<i>Strongylopus fasciatus</i>	Striped Stream Frog	Least Concern
Pyxicephalidae	<i>Strongylopus grayii</i>	Clicking Stream Frog	Least Concern
Pyxicephalidae	<i>Tomopterna delalandii</i>	Cape Sand Frog	Least Concern
Mammals			
Bathyergidae	<i>Bathyergus suillus</i>	Cape Dune Mole-rat	Least Concern
Bovidae	<i>Damaliscus pygargus pygargus</i>	Bontebok	Vulnerable
Bovidae	<i>Philantomba monticola</i>	Blue Duiker	Vulnerable
Bovidae	<i>Raphicerus melanotis</i>	Cape Grysbok	Least Concern
Bovidae	<i>Taurotragus oryx</i>	Common Eland	Least Concern
Bovidae	<i>Tragelaphus scriptus</i>	Bushbuck	Least Concern
Canidae	<i>Canis mesomelas</i>	Black-backed Jackal	Least Concern
Canidae	<i>Otocyon megalotis</i>	Bat-eared Fox	Least Concern
Canidae	<i>Vulpes chama</i>	Cape Fox	Least Concern
Cercopithecidae	<i>Papio ursinus</i>	Chacma Baboon	Least Concern
Delphinidae	<i>Delphinus delphis</i>	Short-beaked Common Dolphin	Least Concern
Elephantidae	<i>Loxodonta africana</i>	African Bush Elephant	Vulnerable
Felidae	<i>Caracal caracal</i>	Caracal	Least Concern
Felidae	<i>Felis silvestris</i>	Wildcat	Least Concern
Felidae	<i>Panthera pardus</i>	Leopard	Vulnerable
Herpestidae	<i>Atilax paludinosus</i>	Marsh Mongoose	Least Concern
Herpestidae	<i>Herpestes pulverulentus</i>	Cape Gray Mongoose	Least Concern
Herpestidae	<i>Herpestes sanguineus</i>	Slender Mongoose	Least Concern
Hyaenidae	<i>Proteles cristata</i>	Aardwolf	Least Concern
Hystricidae	<i>Hystrix africae australis</i>	Cape Porcupine	Least Concern
Muridae	<i>Gerbilliscus afra</i>	Cape Gerbil	Least Concern
Muridae	<i>Otomys irroratus</i>	Southern African Vlei Rat	Least Concern
Muridae	<i>Rattus norvegicus</i>	Brown Rat	Least Concern
Muridae	<i>Rattus rattus</i>	Roof Rat	Least Concern
Muridae	<i>Rhabdomys pumilio</i>	Xeric Four-striped Grass Rat	Least Concern

Mustelidae	<i>Ictonyx striatus</i>	Striped Polecat	Least Concern
Mustelidae	<i>Mellivora capensis</i>	Honey Badger	Least Concern
Mustelidae	<i>Poecilogale albinucha</i>	African Striped Weasel	Near Threatened
Nesomyidae	<i>Dendromus melanotis</i>	Gray African Climbing Mouse	Least Concern
Nesomyidae	<i>Saccostomus campestris</i>	Southern African Pouched Mouse	Least Concern
Otariidae	<i>Arctocephalus pusillus</i>	Brown Fur Seal	Least Concern
Physeteridae	<i>Kogia breviceps</i>	Pygmy Sperm Whale	Data Deficient
Physeteridae	<i>Kogia sima</i>	Dwarf Sperm Whale	Data Deficient
Procaviidae	<i>Procavia capensis</i>	Cape Rock Hyrax	Least Concern
Soricidae	<i>Suncus infinitesimus</i>	Least Dwarf Shrew	Least Concern
Viverridae	<i>Genetta tigrina</i>	Cape Genet (Cape Large-spotted Genet)	Least Concern
Ziphiidae	<i>Mesoplodon densirostris</i>	Blainville's Beaked Whale	Data Deficient
Ziphiidae	<i>Mesoplodon grayi</i>	Gray's Beaked Whale	Data Deficient
Ziphiidae	<i>Mesoplodon mirus</i>	True's Beaked Whale	Data Deficient
Reptiles			
Agamidae	<i>Agama aculeata aculeata</i>	Common Ground Agama	Least Concern
Agamidae	<i>Agama atra</i>	Southern Rock Agama	Least Concern
Chamaeleonidae	<i>Chamaeleo namaquensis</i>	Namaqua Chameleon	Least Concern
Colubridae	<i>Crotaphopeltis hotamboeia</i>	Red-lipped Snake	Least Concern
Colubridae	<i>Dasypeltis scabra</i>	Rhombic Egg-eater	Least Concern
Colubridae	<i>Dipsina multimaculata</i>	Dwarf Beaked Snake	Least Concern
Colubridae	<i>Dispholidus typus typus</i>	Boomslang	Least Concern
Cordylidae	<i>Chamaesaura anguina anguina</i>	Cape Grass Lizard	Least Concern
Cordylidae	<i>Karusasaurus polyzonus</i>	Karoo Girdled Lizard	Least Concern
Elapidae	<i>Aspidelaps lubricus lubricus</i>	Coral Shield Cobra	Least Concern
Elapidae	<i>Naja nivea</i>	Cape Cobra	Least Concern
Gekkonidae	<i>Chondrodactylus angulifer</i>	Giant Ground Gecko	Least Concern
Gekkonidae	<i>Chondrodactylus bibronii</i>	Bibron's Gecko	Least Concern
Gekkonidae	<i>Goggia hewitti</i>	Hewitt's Pygmy Gecko	Least Concern
Gekkonidae	<i>Pachydactylus capensis</i>	Cape Gecko	Least Concern
Gekkonidae	<i>Pachydactylus geitje</i>	Ocellated Gecko	Least Concern
Gekkonidae	<i>Pachydactylus maculatus</i>	Spotted Gecko	Least Concern
Gekkonidae	<i>Pachydactylus mariquensis</i>	Marico Gecko	Least Concern
Gekkonidae	<i>Pachydactylus purcelli</i>	Purcell's Gecko	Least Concern
Lacertidae	<i>Nucras livida</i>	Karoo Sandveld Lizard	Least Concern
Lacertidae	<i>Pedioplanis laticeps</i>	Karoo Sand Lizard	Least Concern
Lacertidae	<i>Pedioplanis lineoocellata pulchella</i>	Common Sand Lizard	Least Concern
Lacertidae	<i>Pedioplanis namaquensis</i>	Namaqua Sand Lizard	Least Concern
Lamprophiidae	<i>Duberria lutrix lutrix</i>	South African Slug-eater	Least Concern
Lamprophiidae	<i>Homoroselaps lacteus</i>	Spotted Harlequin Snake	Least Concern
Lamprophiidae	<i>Lamprophis aurora</i>	Aurora House Snake	Least Concern
Lamprophiidae	<i>Lycodonomorphus rufulus</i>	Brown Water Snake	Least Concern
Lamprophiidae	<i>Psammophis notostictus</i>	Karoo Sand Snake	Least Concern
Lamprophiidae	<i>Psammophylax rhombeatus</i>	Spotted Grass Snake	Least Concern
Lamprophiidae	<i>Pseudaspis cana</i>	Mole Snake	Least Concern
Pelomedusidae	<i>Pelomedusa galeata</i>	South African Marsh Terrapin	Not evaluated

Scincidae	<i>Acontias meleagris</i>	Cape Legless Skink	Least Concern
Scincidae	<i>Trachylepis capensis</i>	Cape Skink	Least Concern
Scincidae	<i>Trachylepis homalocephala</i>	Red-sided Skink	Least Concern
Scincidae	<i>Trachylepis occidentalis</i>	Western Three-striped Skink	Least Concern
Scincidae	<i>Trachylepis sulcata sulcata</i>	Western Rock Skink	Least Concern
Testudinidae	<i>Chersina angulata</i>	Angulate Tortoise	Least Concern
Testudinidae	<i>Chersobius boulengeri</i>	Karoo Padloper	Least Concern
Testudinidae	<i>Psammobates tentorius</i>	Tent Tortoise	Least Concern
Testudinidae	<i>Psammobates tentorius verroxii</i>	Verrox's Tent Tortoise	Least Concern
Testudinidae	<i>Stigmochelys pardalis</i>	Leopard Tortoise	Least Concern
Typhlopidae	<i>Rhinotyphlops lalandei</i>	Delalande's Beaked Blind Snake	Least Concern
Varanidae	<i>Varanus albigularis albigularis</i>	Rock Monitor	Least Concern
Viperidae	<i>Bitis arietans arietans</i>	Puff Adder	Least Concern