



SPECIALIST REPORT

**Ecological Assessment:
Proposed 60-sleeper lodge on the Lion Farm located on Ekland
Safaris, near Louis Trichardt, Limpopo Province**

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Specialist declaration

I, Danie van der Walt, declare that -

- I act as an independent specialist in this application;
- I have performed the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity;
- I have expertise in conducting the specialist report relevant to this application, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the relevant environmental legislation, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in this project;
- I undertake to disclose to the applicant and the authorities all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this report are true and correct.

L.D. VAN DER WALT

Date: 2018-08-25

EXECUTIVE SUMMARY

The applicant wish to establish a new safari lodge area of approximately 2Ha for eco-tourism purposes on a total of approximately 2320Ha. This area includes the farms Bekaf 650MS (340Ha), Juliana 647MS (1060Ha) and portion 1 of the farm Coen Britz 646MS (920Ha), Mopane Local Municipality. Afrika Enviro & Biology was appointed by the Environmental Practitioner to conduct a biodiversity assessment in order to provide information. Three alternative sites were assessed and compared in order to make recommendations regarding the establishment of a tourism lodge on any one site.

The vegetation communities and habitats identified in the previous section have the following site related sensitivity ratings allocated according to the qualitative system explained:

Community / Habitat	Ecological Importance/Biodiversity Value	Sensitivity Rating
Site Reference	Terrestrial and Riparian Communities	
Mixed woodland and plains	Although this term is wide it best describes the vegetation found on the plains. This community can be classified to lower levels but this would put an unnecessarily difficulty factor to cross reference the document. This woodland is well represented across the larger study and provides important habitat to fauna associated with the plains.	<i>Medium</i>
Present: Site 1 Site 2 Site 3		
Androstachys closed woodland and rocky outcrops	Unique community restricted to the rock outcrops, the trees are slow growing and very durable. This woodland community as well as the rocky substrate provides micro-habitat to a wide range of fauna (Site 1 and Site 3). The large outcrops will provide macro-habitat to an even wider range of fauna (Site 2).	<i>Very high</i>
Present: Site 1 Site 2		
Riparian woodland and watercourses	This woodland, although poorly developed provides important hydrological and ecological functions. Fauna associated with thickets will use this as refuge and it serves as an ecological corridor.	<i>High</i>
Present: Site 3		

The single most important impact on biodiversity as consequence of transforming virgin land to agriculture is the loss of vegetation and loss and fragmentation of natural habitats and consequently the loss of fauna.

The mobility of most animals will ensure that they can adapt or relocate if disturbed by the proposed activity. The potential impacts of the proposed activity will be limited to the extent of the site footprint only (which will be <2Ha). By method of selecting the most ecologically acceptable alternative site (which will have the least loss and fragmentation of habitat as consequence) along with mitigation measures it is unlikely that animals will be significantly affected during any phase of the activity.

The site assessments disqualify Site 2 as a viable alternative at this stage due to the significance of individual and cumulative impacts related to its ecology and biology. It is recommended that either alternative Site 1 or Site 3 be considered for this project as the potential impacts can be efficiently mitigated to an acceptable level and within the extent will be localized to the site footprints. Site specific recommendations and mitigation measures that must be implemented are discussed in and are also included with additional measures within the impact assessment table.

This report concludes that although the study area is located in a regionally sensitive biodiversity zone, the proposed eco-tourism development can be pursued from a biological and ecological perspective. However, this is on condition that the recommendations and mitigation measures included with this report is followed. Although this assessment was conducted during the dry winter season, which is not ideal for vegetation studies, the authors are confident that sufficient data were collected to make objective and site related conclusions and recommendations. Any omissions that may have occurred or additional investigations can be included with a pre-development screening if required by the authorities.

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1. Introduction

1.1 Background and objectives

The applicant wish to establish a new safari lodge area of approximately 2Ha for eco-tourism purposes on a total of approximately 2320Ha. This area includes the farms Bekaf 650MS (340Ha), Juliana 647MS (1060Ha) and portion 1 of the farm Coen Britz 646MS (920Ha), Mopane Local Municipality. Afrika Enviro & Biology was appointed by the Environmental Practitioner to conduct a biodiversity assessment in order to provide information. The terms are as follows:

- Biodiversity and habitat assessment of three alternative sites;
- Sensitivity and habitat delineation;
- Recommendations.

The site was investigated on 2018-08-21/22.

1.2 Specialist report requirements

With reference to Appendix 6 of the EIA regulations (2014) the specialist declaration is included on page 2 of this report and details and the specialist's curriculum vitae are included with Appendix 1.

2. Methods and Reporting

2.1 Assumptions, uncertainties and limitations

The results and recommendations of the report are based on the actual site status. Assumptions that are made and uncertainties that are encountered are indicated in the report (where applicable). As indicated under the relevant sections in the report consultation of authorities' data bases forms part of this report. However, the scope of work for this specialist report does not include public participation.

The results of this assessment report are based on a single late winter site visit and accompanying desktop assessment. Due to the arid climate and very dry winter, the vegetation is deciduous, with only a few tree species retaining leaves during winter. The herbaceous layer is absent during this dry season, which limits the effectiveness of the vegetation assessment of the herbaceous component. However, the authors are confident that the results obtained by the present study are of sufficient significance to make conclusions and recommendations regarding the alternatives that were investigated. Furthermore, the herbaceous layer of the relevant vegetation units are not well developed with relatively few endemic or threatened species as is explained further on in the text. This omission can be filled at a later stage before commencement of activities - in case that the project is authorized.

The faunal survey was not a comprehensive specialist survey but rather an overview of the available habitats and their potential to be utilized by fauna. No nocturnal surveys were conducted. However, it should be understood that any fauna assessment is subjective as animals move around constantly and the chances to actually record any one species during within the short timeframe of a site assessment can be regarded to be low, if not to be unlikely. For this purpose a

detailed desktop assessment cross-referenced with an assessment of the available habitats for fauna is a much more effective method of determining the potential fauna assemblage of any particular site. In contrast, in order to determine the potential presence of one or more specific taxa the most efficient method would be to conduct intensive site investigations.

2.2 General

The author relied on aerial images and ortho photos to remotely assess the site before the actual on site investigation in order to get familiarized with the different features and vegetation communities (habitats) present within the affected areas. The information thus gathered was used for selecting survey sites and to identify possible sensitive areas. Problematic, as well as potential sensitive areas were identified during the site assessment and these were thoroughly investigated as explained in the following two sections. All literature and other references used to support findings and to assist in making conclusions are listed.

2.3 Vegetation & habitats

Floral diversity was determined by completing survey transects and sample sites along all the different habitats within the physiographic zones represented in the study area (Deal *et al.* 1989a). In order to attain scientifically reliable results, obviously distinct vegetation communities were surveyed by selecting representative sites in each homogenous unit (Mathews *et al.* 1992). The vegetation units of Mucina & Rutherford (2006) are used as reference but where necessary communities are described according to a unit's diagnostic floral features and/or topographical setting or other biophysical features (or a combination of several descriptive features). By combining the available literature with the survey results, stratification of vegetation communities was possible.

The survey transects and sites in the affected areas were also intensively searched for important species and the potential for Red Data Listed (RDL) and other important species were established and cross referenced with PRECIS Data for the relevant quarter degree grid/s as obtained from the SANBI data base (POSA). The aim was to identify distinct vegetation types and to establish their integrity and representation in the study area. The vegetation communities/habitats are described in section 4, and the POSA list of expected flora for this grid is included with Appendix 4 of this report.

2.4 Terrestrial Fauna

The fauna investigation is based on a desktop study verified by cross reference with available habitats of the study area, so as to establish the faunal potential of a particular site. Selected survey sites were well searched for fauna and habitats were identified during the vegetation surveys so as to establish the faunal potential of a particular area. By method of elimination (based on available habitats and the taxon's biology and known distribution), lists of faunal representation for the study area was assembled.

2.5 Watercourse classification & delineation

It is important to differentiate between wetlands and riparian habitats. Riparian zones are not wetlands, however, depending on the ecosystem structure; wetlands can also be classified as riparian zones if they are located in this zone (e.g. valley bottom wetlands). Although these distinct ecosystems will be interactive where they occur in close proximity it is important not to confuse their hydrology and ecofunctions. For these reasons the results are reported in separate sections under specific headings.

These delineations are performed according to “*A practical field procedure for identification and delineation of wetlands and riparian areas*” as amended and published by the Department of Water Affairs and Forestry (2005); (Henceforth referred to as DWAF Guidelines (2005)). Aerial photographs and land surveys were used to determine the different features and potential wetland and riparian areas of the study area. Vegetation diversity and assemblages were determined by completing survey transects along all the different vegetation communities identified in the riparian areas.

2.6 Ecological importance and sensitivity rating of habitats

By considering the results of all the above investigations, the authors allocate a qualitative sensitivity rating to the habitats that were identified, based upon its ecological importance and biodiversity value. A qualitative method was chosen at the first stage of assessment instead of a quantitative method in order to simplify the procedure of assessment.

In order to simplify the decision making process, a scale of *Low, Medium, High* and *Very High* is used, based upon biodiversity value and ecological functions (Table 1). This method is used as a first level of expressing the sensitivity of a specific component and is not used in comparative assessments of alternatives where a quantitative approach will be more appropriate. Wetland sensitivity is measured only on its maintenance of biodiversity function at this basic level of assessment.

Table 1.1 Criteria used for sensitivity rating of habitats

Ecological Importance/Biodiversity Value	Sensitivity Rating
Terrestrial and Riparian Communities	
Natural communities (habitats and ecosystems) that are regarded as pristine or largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged and the community is regarded as very important for the maintenance of biodiversity and rare and important taxa are present (e.g. occurrence of RDL, Endemic and/or Protected species). The local area is an important ecological support area and any external impacts will have a significant negative effect on its status.	<i>Very High</i>
Natural communities (habitats and ecosystems) which are regarded as ecologically important and sensitive and important for the maintenance of biodiversity. It may be linked to other important communities and provide an important refuge/corridor for biodiversity (fauna and flora). This rating can also be allocated due to the presence of one or more unique qualities (e.g. occurrence of RDL, Endemic and/or Protected species). The presence of unnatural impacts is low and can be managed.	<i>High</i>
Natural communities which have a limited ecological function and a limited function for maintaining biodiversity. This may be due to homogenous habitat conditions and/or the	<i>Medium</i>

negative effects of external impacts. External impacts can be managed and mitigated to reduce the significance of their magnitude.	
Communities which have been significantly modified or transformed with the result that little or no natural flora and habitats remain intact. Ecological importance as well as biodiversity value is low. External impacts will not have a significant impact on its status.	Low

This method is used as a first level of expressing the sensitivity of a specific component and is not used in comparative assessments of alternatives where a quantitative approach will be more appropriate. Furthermore, it should be noted that the above method is used only at this (first) level for the sensitivity rating of wetlands in this report. A wetland ecological status and integrity assessment is based on quantitative variables and is not covered under the terms and scope of work for this report and this report is not intended to replace or contradict the findings and recommendations of specialist wetland assessments completed for this land.

3. Background Information

3.1 Biophysical description of the study area

The study area is located to the north of the Soutpansberg, approximately 40km north of the town Louis Trichardt by road (N1). The landscape is comprised of the plains to the north of the Soutpansberg Mountains with prominent rock outcrops (hills) and ridges in areas. Ephemeral drainage lines are present and draining occurs in a northerly direction.

The climate is semi-arid and influenced by the mountain range that is orientated east to west. The mountain range acts as a barrier between the Indian Ocean south-eastern maritime climate and the northern continental climate influences. Rainfall during the summer months (October and March) is 300 to 400 mm with very dry winters from May to August. Summers are very hot and temperatures range from 0.9 – 39.9 °C and the area is generally frost free. Climate is affected by the wind patterns from mountains. Wind effects erosion, desertification and air warming

3.2 Ecology & biodiversity

On a national level, the study area is situated within the savannah biome, and is classified by Acocks (1953) as Sourish Mixed Bushveld (A19) and Mixed Bushveld (A18). Classified on a local scale and according to a more detailed system (Mucina & Rutherford, 2006) these areas are classified as *Musina Mopane Bushveld* (SVmp 1) on the plains and *Limpopo Ridge Bushveld* (SVmp 2) on the scattered ridges and outcrops. Both of these units have a *Least Threatened* conservation status and are poorly protected. Distribution included with Appendix 2 and short descriptions of these vegetation units underneath:

Musina Mopane Bushveld

The Musina Mopane Bushveld is characterized by undulating to very irregular plains with some hills at an altitude of around 600m. On areas with deep sandy soils, the *Kirkia acuminata* (White Syringa) is one of the dominant tree species along with *Colospermum mopane* (Mopane), *Combretum apiculatum* (Red Bushwillow) and

Grewia spp. (Raisin bushes). The herbaceous layer is poorly developed, especially where mopane occurs in dense stands. This vegetation type is classified as poorly protected and “Least threatened” with 2% statutorily conserved in the Mapungubwe National Park, as well as the Nzhelele, Nwanedi, Musina and Honnet Nature Reserves. About 3% is transformed, mainly by cultivation, and soil erosion is moderate to high. The conservation target is 19%.

The geology consists mainly of gneisses and meta-sediments of the Beit Bridge Complex, with variable soils from deep red/brown clays to deep, freely drained sandy soils, to shallower types including skeletal Glenrosa and Mispah soil forms.

Important vegetation include trees such as *Colospermum mopane* (Mopane), *Adansonia digitata* (Baobab), *Acacia nigrescens* (Knob thorn), *Combretum apiculatum* (Red Bushwillow), *Acacia senegal* var. *leiorhachis* (Slender Three-hook Thorn) and *Commiphora mollis* (Velvet Corkwood). Conspicuous small trees and shrubs include *Grewia bicolor* (White Raisin), *Grewia flava* (Velvet Raisin), *Boscia foetida* subsp. *rehmanniana* (Stink Shepherd’s tree) and *Terminalia prunioides*. (Lowveld cluster-leaf).

Limpopo Ridge Bushveld

This vegetation type covers the irregular hills and ridges of much of the area in the vicinity of the Limpopo River. The altitude varies from 300 m to 700 m in the east, with some hills reaching 1 000 m in the west. The vegetation structure is moderately open savannah with a poorly developed ground layer. *Kirkia acuminata* (White Syringa) is prominent on many of the ridges along with *Adansonia digitata* (Baobab). On shallow calcareous gravel and calcium-silicate soils, the shrub *Catophractes alexandri* is dominant. Areas of sandstone of the Clarens Formation are prominent in places such as Mapungubwe National Park. Although not as prominent as at Mapungubwe National Park, sandstone ridges also occur in the study area.

Important vegetation include the *Adansonia digitata* (Baobab), *Sclerocarya birrea* (Marula), *Colospermum mopane* (Mopane), *Commiphora glandulosa* (Tall Common Corkwood), *Terminalia prunioides* (Lowveld cluster-leaf), *Boscia albitrunca* (Shepherd’s tree) and various wild figs (*Ficus spp.*).

This vegetation type is classified as moderately protected and “Least Threatened”, with some 18% statutorily conserved in the Kruger and Mapungubwe National Parks. Only about 1% is transformed, mainly by cultivation and mining. The conservation target is 19%.

3.3 Important environments

It is a well-known fact that the Soutpansberg and immediate surrounds is a centre of plant endemism. According to the map provided by Van Wyk & Smith (2001) the study area is situated within the boundaries of this centre, although it is not within the core area of the mountain range. Several studies in the Soutpansberg mountain area indicated its importance with regard to biodiversity, endemic plant species and also some red data species. Vegetation surveys in the area indicated that the area has

an outstanding diversity of plant species, with 2500-3000 plant species recorded from the area. This resulted in the recognition of the Soutpansberg Centre of Endemism (Van Wyk & Smith 2001). The conservation value of the centre lies in its unique ability to house a wide variety of floristic elements from the surrounding floristic regions (Hahn, 2002). Not only is the diversity of plant species in this area high, but the diversity in ecosystems is equally high, as indicated by Mostert (2006). For example: The Kruger National Park which covers 2 million hectares contains about 380 tree species. The Soutpansberg which covers about 2000 hectares has 321 tree species (Hahn 2002).

Due to the unique and untransformed natural state of large areas in this region there are several protected areas in this region, ranging from private nature reserves to provincial and national protected areas.

The Vhembe Biosphere Reserve (VBR) includes the high biodiversity of the northern part of the Kruger National Park, the Mapungubwe National Park and World Heritage site, several Provincial Nature Reserves, two recognized centers of biodiversity and endemism (the Soutpansberg and Blouberg) and the Makgabeng Plateau with more than 1000 rock art sites. The geomorphology is extremely variable ranging from flat plains through hills to steep mountain sides. Three biomes namely savanna, grassland, and forest, four bioregions and twenty four different vegetation types are included. It is also a favourite destination for ecotourism, cultural tourism and hunting amongst both local and international visitors. The study area falls within the boundary of the VBR and within the buffer zone but not in the core zone of the VBR.

3.4 Limpopo Conservation Plan

The Limpopo Conservation Plan (LCP) is a systematic conservation plan adopted by the Province (LEDET, 2013). According to this plan, the total study area is defined as *Critical Biodiversity Area-2 (CBA-2)*; (Appendix 2). The LCP handbook gives the following management objectives for CBA-2:

Best Design Selected Sites: Areas selected to meet biodiversity pattern and/or ecological process targets. Alternative sites may be available to meet targets.

Objectives: Maintain in a natural state with limited or no biodiversity loss.

Recommendations: Avoid conversion of agricultural land to more intensive land uses, which may have a negative impact on threatened species or ecological processes.

Compatible Land Use: Current agricultural practices including arable agriculture, intensive and extensive animal production, as well as game and ecotourism operations, so long as there are managed in a way to ensure populations of threatened species are maintained and the ecological processes which support them are not impacted.

Incompatible land use: Urban land uses including residential. More intensive agricultural production than is currently undertaken on site.

4. Vegetation & habitat report and general biophysical descriptions

Three alternative sites were assessed and compared in order to make recommendations regarding the establishment of a tourism lodge on any one site. The sites are projected on Google imagery in Figure 1 and in more detail in Figures 2.1; 2.2 and 2.3. Illustrations of site features are given with the text.

4.1 Habitats & vegetation assessment

i) **Site 1** (22°47'17.71"S / 29°54'32.59"E); Extent 5.64Ha; Elevation 680-700m

This site is located on the southern section of study area (Figure 1) and is easily accessible via an existing vehicle track (Figure 2.1). The site is located on the westernmost section of the prominent series of sandstone outcrops. Several outcrops are present, surrounding a small valley with access via the opening to the north from where access is gained. The activity site will be on the valley floor in-between the surrounding outcrops and on the plain to the north of the opening.



Site 1 is located in-between low lying sandstone outcrops forming a horseshoe shape around the valley in the middle. Due to the supply of run-off water during rain showers *Acacia burkei* thickets have formed at the foot of the outcrops.

The vegetation structure on the valley floor can be described as mixed woodland although *Acacia burkei* forms prominent thickets at the foot of the outcrops where runoff water would be plentiful. Grasses present are *Aristida congesta*, *Brachiara deflexa* and *Fingerhuthia africana*. Shrubs and climbers are presented *Dichrostachys cinerea*, *Grewia flavescens*, *Terminalia prunioides*, *Boscia foetida* subsp. *rehmanniana* and *Acacia burkei*. Medium sized trees include *Gardenia volkensii*, *Sclerocarya birrea*, *Balanites*, *Boscia albitrunca*, *Strychnos spinosa* and *Combretum apiculatum*. Of interest is the presence of a single large specimen of the camel thorn, *Acacia erioloba*. This would be the easternmost recording of this species in its distribution range.



Mixed woodland comprising a diversity of shrubs and trees on the valley plain.



Single large specimen of *Acacia erioloba*



Small-medium sized *Colospermum mopane* becomes dominant in the open area to the north of the outcrops.

Small-medium sized *Colospermum mopane* becomes dominant in the open area (illustrated above) to the north of outcrops, also present in this section is *Terminalia sericea*, *Combretum imberbe*, *Philenoptera violacea* and *Combretum apiculatum*.

The sandstone outcrops are not very tall and are easily accessible on foot. The lack of soil substrate and very hot temperatures limits the floral diversity and most taxa present here are specialist xerophytes. Grass and forbs are very sparse and only *Aristida spp* and *Indigofera* were recorded. *Croton gratissimus* and *Hexabolous monopetalus* shrubs are present where soil is present on the outcrops. *Ficus abutifolia* (rock growing specialist) individuals are randomly sited. The shrub and tree component is dominated by the Lebombo ironwood, *Androstachys johnsonii*, which forms dense stands in places (*Androstachys* closed woodland), evidently some very old specimens are present (>300 years) as was calculated by our vegetation specialist.



Androstachys johnsonii shrubs and trees (left) forms thickets on the outcrops and several specimens of *Ficus abutifolia* are present too (right).

No Red Data Listed fauna or flora was recorded. The rock outcrops will provide micro-habitat for several species of specialist fauna and it can be expected that especially reptiles and small mammals will find their niche underneath loose rocks and in the cracks and fissures present. E.g. a Klipspringer latrine is present on the outcrops, indicating that this rock specialist is present.



An exceptionally old specimen of *Androstachys johnsonii*



The outcrops provide micro-habitat for specialist fauna such as reptiles, mammals, birds and invertebrates

ii) **Site 2** (22°47'22.37"S / 29°55'58.00"E); Extent 5.70Ha; Elevation 760- 840m

This site is situated on the crest of the highest rocky outcrop (Figure 2.2) located further to the east of Site 1 (Figure 1). This outcrop has a relatively high elevation with steep wooded slopes. Access by motorized vehicle to the crest is not possible and is difficult on foot as the slope become very steep with vertical cliffs on the southern side.

The northern slope consist of mixed woodland, dominated by *Acacia burkei* (shrubs and trees) and other species present are *Acacia nigrescens*, *Lannea discolor*, *Sclerocarya birrea*, *Combretum apiculatum*, *Boscia albitrunca* and *Commiphora africana*.



Acacia spp thicket is typical on the lower slope



Commiphora africana is present on the middle slope

The higher slope and crest consists of sandstone in various stages of erosion. The formation is irregular and the vegetation is dominated by *Androstachys johnsonii* which forms almost homogenous closed woodland (*Androstachys* closed woodland). Few other species are present, these being *Boscia foetida* subsp. *rehmanniana*, *Euclea crispa* and *Brachylaena huillensis*. Large individual specimens of *Commiphora marlothii* are distinctive and conspicuous due to its outstanding yellow-green bark.



Androstachys johnsonii forms almost homogenous closed woodland on the higher slope and crest.

No Red Data Listed fauna or flora was recorded. The rocky outcrop and sandstone features will provide micro-habitat for specialist fauna as well and it can be expected that especially reptiles and small mammals will find their niche underneath loose rocks and in the cracks and fissures present. The remains of an old leopard kill were observed on the crest.



Large specimens of *Commiphora marlothii* are distinctive in this woodland.

iii) **Site 3** (22°45'57.50"S / 29°56'09.70"E); Extent 5.7Ha; Elevation 700m

This site is situated on the central northern plain of the study area (Figure 2.3) to the north of Site 1 and Site 2 (Figure 1). Accessibility is via an existing vehicle track. Sandy soil dominates and several species of grasses is present, characterized by sweet palatable species e.g. *Panicum coloratum*, *Stipagrostis uniplumis*, *Schmidtia pappophoroides*, *Brachiara deflexa* and *Urochloa mosambicensis*. Forb: *Indigofera bainesii*.

Vegetation structure represents mixed woodland, dominated by *Terminalia prunioides* shrubs and small trees in association with *Colospermum mopane*, *Acacia tortillis*, *Acacia nigrescens*, *Lannea discolor*, *Boscia albitrunca* and *Ximenea americana*. A single small specimen of *Adansonia digitata* was recorded.



Terminalia prunioides and *Colospermum mopane* dominated veld



Boscia albitrunca is commonly present



Small *Adansonia digitata* on site

A shallow drainage basin with a poorly defined drainage line is located in the central section of this site. This can be classified as a first order watercourse although it is definitely ephemeral in nature. The channel is poorly defined, 1-2m across and very shallow (0.3m). The bed and banks has a soil composition and flow is from south to north). Although no obligate riparian vegetation is present, the availability of water is indicated by the lush vegetation and larger sizes of trees present in this area (E.g. *Colospermum mopane* and *Acacia nigrescens*) as well as the presence of the grass *Panicum deustum*. A delineation of this watercourse, based on these vegetation indicators (associated with the channel) is projected in Figure 2.3.



A shallow drainage basin with a poorly defined drainage line is located in the central section of this site.

4.2 Sensitive environments in proximity of the alternative sites

i) Site 1

A small, protected drainage basin is formed within the outcrops to the south of Site 1. It appears that surface water run-off is directed to this basin where water collects in periodically in a pool where fauna can use the water when it is available. No clearly defined watercourses or drainage lines are discernable that leads towards it but this area cannot be isolated or changes made to the characteristics of the water supply.



The basin and pool where water may collect after rain events which is important for use by fauna

ii) **Site 2**

No other sensitive environments other than the riparian woodland and watercourse on site are present.

iii) **Site 3**

This site is centrally located on the highest outcrop / hillside present in the local area. The higher slope and crest harbours a unique plant community (*Androstachys johnsonii* woodland) and fauna habitat presented on and around this hillside include, rocky areas, well wooded slopes and crest, steep southern facing cliffs all of which will provide habitat to a wide range of fauna (including several sensitive species).



The central outcrops have a high elevation and the slope is very steep as well. Note the Soutpansberg Range on the horizon in the right-hand photograph.

4.3 Sensitivity of vegetation communities and associated habitats

The vegetation communities and habitats identified in the previous section have the following site related sensitivity ratings allocated according to the qualitative system explained in Section 2.6 (Table 1.2):

Table 1.2 Sensitivity analyses of plant communities and associated habitat

Community / Habitat	Ecological Importance/Biodiversity Value	Sensitivity Rating
Site Reference	Terrestrial and Riparian Communities	
Mixed woodland and plains	Although this term is wide it best describes the vegetation found on the plains. This community can be classified to lower levels but this would put an unnecessary difficulty factor to cross reference the document. This woodland is well represented across the larger study and provides important habitat to fauna associated with the plains.	<i>Medium</i>
Present: Site 1 Site 2 Site 3		
Androstachys closed woodland and rocky outcrops	Unique community restricted to the rock outcrops, the trees are slow growing and very durable. This woodland community as well as the rocky substrate provides micro-habitat to a wide range of fauna (Site 1 and Site 3). The large outcrops will provide macro-habitat to an even wider range of fauna (Site 2).	<i>Very high</i>
Present: Site 1 Site 2		
Riparian woodland and watercourses	This woodland, although poorly developed provides important hydrological and ecological functions. Fauna associated with thickets will use this as refuge and it serves as an ecological corridor.	<i>High</i>
Present: Site 3		

4.4 Occurrence of important flora species

Conservation-important, naturally occurring species can be categorized according to specific features that are important, usually due to rarity, habitat specificity, medicinal value, ecological value, endemism, over-exploitation, economic value or a combination of these.

The core of the Soutpansberg Centre of Endemism is associated with the rocky areas within the Soutpansberg Mountains, with approximately 3000 vascular plant species and one endemic genus. Approximately 1.5% of the species recorded within the Soutpansberg Centre of Endemism are considered endemic/near-endemic species/intraspecific taxa. The study area is not situated in the core area of this centre and the vegetation units do not include the units associated with high occurrence of endemism. However, the possibility of endemic species being present was investigated.

Species of conservation importance are either categorized as Red Data Listed species (RDL species), according to specific scientifically researched criteria and administered by the South African National Biodiversity Institute (SANBI), or as Protected Trees and Plants by the National Forests Act and the provincial nature conservation legislation. The National List for Red Data flora is the most updated and applicable reference for vegetation conservation. Applicable legislation that protect flora in South Africa and Limpopo Province are the National Environmental Management Biodiversity Act of 2004 (NEMBA), the National Forests Act of 1998 (NFA) and the Limpopo Environmental Management Act of 2003 (LEMA). A list of

important flora (Endemic and Red Data Listed) which has potential to be present in the study area (none were recorded) are included with Table 2.1 and protected flora that was recorded on the sites are presented in Table 2.2.

Table 2.1 National RDL species potential for the relevant quarter degree grid

Name	Status	Distribution & Habitat	Potential presence
<i>Adenia gummifera</i> var. <i>gummifera</i>	Declining	Widespread, forests, natural bushveld	High Closed woodland on rocky outcrops
<i>Aloe angelica</i>	Least Concern Endemic	Soutpansberg and Blouberg Bushveld, on drier regions of the mountain.	Unlikely Expected on foothills to south
<i>Ceropegia cimiciodora</i>	VU	Soutpansberg Mountain Bushveld region	Probable in larger study area
<i>Combretum vendae</i>	Least concern Endemic	Soutpansberg to Blouberg. Acidic sandy soils, savanna	Unlikely Expected on foothills to south
<i>Elaeodendron transvaalense</i>	NT	Widespread, savanna, bushveld	Probable in larger study area
<i>Huernia nouhuysii</i>	VU Endemic	Wyllie's Poort to Vivo Soutpansberg Mountain Bushveld	Probable in larger study area
<i>Justicia montis-salinarum</i>	Rare Endemic	Western Soutpansberg Mountains and northern foothills of eastern Blouberg. Dry, extremely rocky areas in sandy soils in rock crevices on lower, north-facing slopes, restricted to quartzite.	Probable in larger study area (Limited to quartzite)
<i>Pavonia dentata</i>	Least concern Endemic	Endemic	Probable in larger study area
<i>Rhus magalismontana</i> <i>subsp. coddii</i>	Least concern Endemic	Soutpansberg region	High Closed woodland on rocky outcrops
<i>Sansevieria hallii</i>	Least concern Near-Endemic	Confined to southeastern Zimbabwe and the northeastern corner of the Limpopo Limpopo Ridge Bushveld	High Closed woodland on rocky outcrops
<i>Merwillia plumbea</i>	NT	Widespread in eastern half of SA	High Exposed areas on rocky outcrops

Table 2.2 Protected flora recorded in the study area

Scientific Name	RDL Status	Regulating Act	Recorded on Site
<i>Sclerocarya birrea</i>	Not listed	LEMA; NFA	1;2;3
<i>Philenoptera violacea</i>	Not listed	MNCA; NFA	1;3
<i>Acacia erioloba</i>	Not listed	LEMA; NFA	1
<i>Balanites maughamii</i>	Not listed	MNCA;	1;3
<i>Adansonia digitata</i>	Not listed	LEMA; NFAA;	3
<i>Boscia albitrunca</i>	Not listed	NFA	1;2;3
<i>Combretum imberbe</i>	Not listed	NFA	1

Also of conservation importance is the occurrence of alien invasive species and weeds. Such species are listed in the Conservation of Agricultural Resources Act of 1983 (CARA) and has to be controlled by the landowner. No alien invasive vegetation was recorded on any of the sites or in the local study area.

5. Terrestrial Fauna Report

The fauna investigation was not a comprehensive specialist survey but rather an overview of the available habitats and their potential to be utilized by fauna listed in the checklists prepared by a literature study. This is motivated by the fact that the activity sites are relatively small in size (2Ha) and the possibility of taking a good representative sample of all the fauna present at one time will give very poor results. It is much more objective to cross-reference the available habitat with the potential fauna that may be present to make conclusions. However, the sites were investigated along with the vegetation study to record fauna that is actually present as well as field signs of fauna present.

5.1 Frogs

Frogs will utilize the aquatic and terrestrial habitats on all the alternatives, for several reasons, including breeding purposes. No sensitive habitats essential for the survival of frogs will be directly affected. Twenty six frog species' range of distribution includes the study area, one of these have Red Data status (Minter et al 2004); (Appendix 4). This is the Northern Forest Rain Frog (*Breviceps silvestris*). However, this species is localized to the Soutpansberg to the south of the study site and is not expected to be present on site. There are one species which are protected under the National Environmental Management: Biodiversity Act 2007, under the Threatened and Protected Species Rating, the African Bull Frog (*Pyxicephalus edulis*).

All the natural habitats on the property will be utilized by amphibians. Frogs are rather sensitive to pollution and ecological imbalances, thus the presence of frogs indicates that the habitats where they were recorded are healthy and of good ecological integrity. The potential impacts of the proposed activity will be limited to the extent of the site footprint only (which will be <2Ha). By method of selecting the most ecologically acceptable alternative site along with mitigation measures it is unlikely that frogs will be significantly affected during any phase of the activity. Micro habitat that is particularly important for frogs will be the drainage basin near to Site 1 and the riparian woodland and watercourse on Site 3. These micro-habitats can be successfully protected from development activities.

5.2 Reptiles

According to the South African Reptile Conservation Assessment (SARCA); (Bates et al. 2014) approximately 120 species of reptiles can potentially occur in the larger study area. The terrestrial and arboreal habitats present in the larger study area will provide habitat for a diverse group of important reptiles that are considered endemic or are Red Data Listed (Appendix 4). Several Endemic and Near Endemic species can be expected (Table 3.1).

Table 3.1 Important reptiles of the study area (Bates et al, 2014).

Scientific Name	Common Name	Endemic	Status	Potential presence
<i>Crocodylus niloticus</i>	Nile Crocodile	Widespread throughout Africa. In the Atlas region it is distributed from the Zinkwazi River south of the Tugela River in Kwazulu-Natal.	Vulnerable A2ac	Resident in dam
<i>Afroedura transvaalica</i>	Zimbabwe Flat Gecko (Transvaal Flat Gecko)	Endemic to southern Africa, the southernmost of which is contiguous with northern Limpopo Province.	Least Concern	High
<i>Lygodactylus nigropunctatus incognitus</i>	Cryptic Dwarf Gecko	An Ultra –endemic restricted to the summit of the Soutpansberg.	Data Deficient	Low
<i>Lygodactylus ocellatus soutpan-bergensis</i>	Soutpansberg dwarf gecko	Endemic to the summit region of the Soutpansberg , Limpopo, South Africa	Near Threatened	Low
<i>Chirindia langi occidentalis</i>	Soutpansberg worm lizard	Endemic to the low-lying areas of the Soutpansberg in northern Limpopo.	Vulnerable B1ab(iii)	High
<i>Vhembelacerta rupicola</i>	Soutpansberg Rock Lizard	Endemic to Limpopo, South Africa. Occurs widely throughout the Soutpansberg Range	Near Threatened	High
<i>Smaug warreni depressus</i>	Flat Girdled Lizard	Endemic to Limpopo Province, South Africa, where it occurs along the Soutpansberg Range and on smaller ridges between this range and Woodbush in the south.	Least Concern	Low
<i>Platysaurus intermedius parvus</i>	Blouberg Flat Lizard	Endemic to the Blouberg range in Limpopo Province South Africa.	Least Concern	Low
<i>Platysaurus minor</i>	Waterberg Flat Lizard	Endemic to the western half of Limpopo, South Africa where it occurs throughout the Waterberg range, extending into the foothills of the Blouberg range to the north.	Least Concern	Low
<i>Platysaurus relictus</i>	Soutpansberg Flat Lizard	Endemic to the Soutpansberg Range in Limpopo Province, South Africa. Within the Soutpansberg, it is most common on northern slopes where there is less rainfall and more exposed rock.	Least Concern	High
<i>Acontias richardi</i>	Richard's Legless Skink	Endemic to northern Limpopo Province, where it is highly restricted to the Soutpansberg district.	Near Threatened	Low
<i>Scelotes limpopoensis albiventris</i>	White-Bellied Dwarf Burrowing Skink	A South African endemic with an extremely limited range, from just west of the Blouberg Nature Reserve to Langjan Nature Reserve and vicinity in the Soutpansberg district of Limpopo Province.	Near Threatened	Low
<i>Xenocalamus transvaalensis</i>	Speckled Quill-Snouted Snake	Endemic to southern Africa. Found in two disjunct populations: one reaching from Mapelane, north- eastern KwaZulu-Natal, into southern Mozambique; and the other located in northern Limpopo and possibly extreme eastern Botswana.	Least Concern	High
<i>Amblyodipsias microphthalmia nigra</i>	Soutpansberg Purple-Glossed Snake	Endemic to Limpopo Province. It's distribution is centred in the Soutpansberg area, from where it extends eastwards to the Pafuri region of the Kruger National Park.	Least Concern	High

All natural habitats will be utilized by reptiles on this property. The potential impacts of the proposed activity will be limited to the extent of the site footprint only (which will be <2Ha). By method of selecting the most ecologically acceptable alternative site along with mitigation measures it is unlikely that reptiles will be significantly affected during any phase of the activity. Micro-habitat that is particularly important

for reptiles will be the rocky outcrops at Site 1 and Site 2. Where this habitat is present on Site it can be successfully protected from development activities. Development on Site 2 will have significant impacts on the natural habitat associated with reptiles. Furthermore, the topography and geology on Site 2 will necessitate the use of explosive blasting during construction. Reptiles are extremely sensitive to blasting and this method will lead to a loss of reptiles.

5.3 Birds

The literature review indicates that a diverse group of birds may utilize the area (Appendix 4). More than 400 species' range of distribution falls within the study area and are supported by the available habitats. Due to the topography and habitat types present in the study area, the expected birds will vary from common savannah species to more specialized raptors and vultures. A total of 19 Red Data Listed species are included for the study area several of which have a high potential of being residents (Table 3.2).

Table 3.2 Red Data Listed and Endemic birds that may be present in the study area (Taylor M.R. et al, 2015).

Scientific name Common name (p Roberts)	Habitat requirements	National Red data Status (Endemism)	Potential presence
<i>Aegyptius tracheliotos</i> Lappetfaced vulture (p491)	Open woodland in arid and semi-arid regions. <i>Acacia</i> , <i>Boscia</i> , <i>Terminalia</i> .	EN	Occasional visitor
<i>Aquila rapax</i> Tawny eagle (p529)	Woodlands, lightly wooded areas: needs trees.	EN	High
<i>Aquila verreauxii</i> Verreauxs' / Blackeagle	Nests on cliffs and rock outcrops. Feeds mainly on Rock Hyrax	VU	High Resident
<i>Bucorcvus leadbeateri</i> Southern ground hornbill (p158)	Grassland, savanna, woodland. From higher than 2000m in grassland with patches of forests and gorges to lowland <i>Mopane</i> woodland.	VU	Occasional visitor
<i>Ciconia nigra</i> Black stork (p626)	Shallow water: streams, rivers, marshes, floodplains, coastal estuaries, large and small dams; dry land. Cliffs for breeding.	VU	Low
<i>Ephippiorhynchus senegalensis</i> Saddlebilled stork (p625)	Large rivers in open savanna, marshes, lake shores and flood plains.	EN	Low
<i>Falco biarmicus</i> Lanner Falcon (p556)	Open grassland and cleared woodland habitats. Cliff-nester, also in old nests in trees.	VU	High
<i>Gorsachius leuconotus</i> White-backed night heron	Along rivers in low-lying high rainfall areas.	VU	Low
<i>Gyps africanus</i> Whitebacked vulture (p488)	Drier woodlands, mopane, arid Kalahari; tall trees for roosting and nesting.	EN	Occasional visitor
<i>Gyps coprotheres</i> Cape Vulture (p489)	Both open country (grasslands) and woodland. Reliant on tall cliffs for breeding and roosting. Wanders widely.	EN	Visitor
<i>Leptoptilos crumeniferus</i> Marabou stork (p626)	Terrestrial and aquatic habitats, excluding desert and forests.	NT	Visitor
<i>Macheiramphus alcinus</i> Bat Hawk	Eastern Lowveld. Associated with evergreen forests and low lying woodland. Often nests in Baobab trees.	EN	High
<i>Mycteria ibis</i> Yellowbilled stork (p617)	Dams, large marshes, swamps, estuaries, margins of lakes and rivers, seasonal wetlands.	EN	Low
<i>Necrosyrtes monachus</i> Hooded vulture (p486)	Mesic savanna. Well-developed woodlands with tall trees, e.g. Mopane, Jackal berry and Nyala tree.	CR	Occasional visitor
<i>Nettapus auritus</i> Pygmy Goose (p99)	Inland wetlands, mainly in savanna, clear water and drifting vegetation especially water lily's.	VU	Low
<i>Pododica senegalensis</i> African finfoot (p314)	Forest and woodland areas: Streams and rivers lined with reeds, overhanging trees and shrubs. Avoids stagnant and fast flowing water. Perennial watercourses, clear water.	VU	Low
<i>Polemaetus bellicosus</i> Martial Eagle (p538)	Open grassland and scrub. Large trees for nests. Wide range of vegetation types: deserts, densely wooded and forested areas.	EN	High
<i>Sagittarius serpentarius</i>	Open country: Savanna, open woodland, grassland and dwarf	VU	High

Secretary bird (p542)	shrubland.		
<i>Stephanoaetus coronatus</i> Crowned eagle (p541)	Forests and plantations, dense woodland. Forested gorges in grassland.	NT	Low
<i>Terathopius ecaudatus</i> Bateleur	Lowland and plains savannah	VU	Visitor

Abbreviations as follows: CR=critically endangered; EN=endangered; VU=vulnerable; T=threatened; NT=near threatened; LC=least concern; DD=data deficient. Endemic status (SA = South Africa; Sthrn A = Southern Africa):

Table 3.2 indicates that the assemblage of important birds consist mostly of Vultures, Raptors and Storks. Some of these may well be resident in the larger study area and many will be frequent or occasional visitors. The large trees on the study sites were specifically investigated for the presence of large bird nests (Raptors, Vultures and Storks) but none were found on or near Site 1 and 3. The woodland and topography of Site 2 makes it ideal habitat for a wide range of more specialist birds, including several RDL birds. For example, a pair of Verreaux's eagle is thought to be breeding on the north facing cliffs and will feed on Rock hyrax found on this outcrop. Any significant negative impacts on this outcrop will likely have as consequence that these birds will vacate this area as result of habitat fragmentation and constant human presence.

The mobility of most birds will ensure that they can adapt or relocate if disturbed by the proposed activity. The potential impacts of the proposed activity will be limited to the extent of the site footprint only (which will be <2Ha). By method of selecting the most ecologically acceptable alternative site (which will have the least loss and fragmentation of habitat as consequence) along with mitigation measures it is unlikely that birds will be significantly affected during any phase of the activity.

5.4 Mammals

Several species of small to medium sized mammals will utilize the natural habitats in the study area (Appendix 4). The large size of the combined properties (>2000Ha) makes it ideal for use as a game ranch and conservation area. This is the present land use and the following species of larger mammals are known to be present or have been re-introduced: Duiker (15), Steenbok (15), Klipspringer (15), Impala (300), Kudu (100), Roan antelope (6), Sable antelope (11), Nyala (48), Bushbuck (unknown), Waterbuck (40), Giraffe (1), Hippo (6), Lion (22), Leopard (unknown), Brown Hyaena (4), Spotted Hyaena (2), Black-backed jackal (10), African Civet (5), Genet (unknown), Pangolin (unknown), Aardvark (unknown), Aardwolf (unknown), Baboon (unknown), Vervet monkey (unknown), Rock Hyrax (unknown). The lions are not "canned" in small camps but are free roaming and fending for themselves in a camp >1000Ha. Furthermore, the importance of ecological connectivity is illustrated by the fact that a nomadic group of Cheetah and a group of African Wild dogs visits the property on an annual routine. Twenty-one mammals categorized as Red Data may be found in the larger study area (Table 3.3).

Table 3.3 Endemic and Red Data Listed mammals of the study area (Child et al, 2016)

Name	Distribution / Endemic / Range Description	Regional Status 2016	IUCN Status	Potential presence
<i>Hippopotamus amphibius</i> Hippopotamus	Large rivers, lakes and artificial waterbodies.	Least Concern	Vulnerable	Present
<i>Hippotragus equinus</i> Roan Antelope	The Roan Antelope formerly occurred very widely in the savanna woodlands and grasslands of sub-Saharan Africa.	Endangered	Least Concern	Present
<i>Hippotragus niger niger</i> Sable Antelope	The Sable Antelope occurs in savannah woodlands in southeastern Africa, with an isolated population (Giant Sable, <i>H. n. varians</i>) in Angola.	Vulnerable	Least Concern	Present
<i>Hyaena brunnea</i> Brown Hyaena	This species is endemic to southern Africa with a marginal extension into the arid parts of southwestern Angola, southeastern Botswana, and the northern and western Cape regions of the RSA.	Near Threatened	Near Threatened	Present
<i>Crocuta crocuta</i> Spotted Hyaena	Spotted Hyaenas are relatively widely distributed in Africa, south of the Sahara. Their current distribution is patchy, especially in West and Central Africa, with populations often concentrated in protected areas.	Near Threatened	Least Concern	Present
<i>Leptailurus serval</i> Serval cat	The Serval occurs widely through sub-Saharan Africa, with the exception of tropical rainforest and the Saharan desert (Nowell and Jackson 1996). North of the Sahara, there are few records from Morocco	Near Threatened	Least Concern	High
<i>Acinonyx jubatus</i> Cheetah	Cheetahs have disappeared from vast tracts of their historic range. In Africa they are now known to persist in only 10% of their historic range (IUCN SSC 2007a, b, 2012, in prep.), while their distribution in Asia is limited to the central deserts of Iran.	Vulnerable	Vulnerable	Occasional nomadic visitors
<i>Panthera pardus</i> Leopard	In South Africa, Leopards are found along the boundaries with Namibia, Botswana, Zimbabwe and Mozambique with dense populations located in the Limpopo region.	Vulnerable	Vulnerable A2cd	Present
<i>Lycaon pictus</i> African Wild Dog	Historical data indicate that African Wild Dogs were formerly distributed throughout sub-Saharan Africa, from desert (Lhotse 1946) to mountain summits (Thesiger 1970)	Endangered	Endangered	Occasional nomadic visitors
<i>Panthera leo</i> Lion	Lions are found in most countries of sub-Saharan Africa.	Least Concern	Vulnerable	Present
<i>Cloeotis percivali</i> Short-eared Trident Bat	Percival's trident bat is largely confined to southern Africa.	Endangered	Least Concern	High
<i>Nycteris woodi</i> Wood's Slit-faced Bat	Endemic Edge of range. It occurs in the extreme northern areas of Limpopo (Limpopo valley) in the Great Limpopo Transfrontier Park and Greater Mapungubwe Transfrontier Conservation Area.	Near Threatened	Least Concern	Probable
<i>Pipistrellus anchietae</i> Anchieta's Pipistrelle	It could be more widespread in southern Africa than is currently understood (Skinner and Chimimba 2005).	Near Threatened	Least Concern	Probable
<i>Rhinolophus blasii</i> Peak-saddle Horseshoe Bat	The Peak-saddle Horseshoe Bat has a large range in the Palaearctic and the Afrotropics	Near Threatened	Least Concern 2016	High
<i>Rhinolophus swinnyi</i> Swinny's Horseshoe Bat	This bat has been recorded from the eastern parts of South Africa, much of Zimbabwe, and northwestern Mozambique.	Vulnerable	Least Concern	High
<i>Miniopterus schreibersii</i> Schreibers' Long-fingered Bat	Occurs throughout South Africa.	Near Threatened		High
<i>Atelerix frontalis</i> Southern African Hedgehog	Southern African Hedgehogs range from southwestern Angola in the west, through northwestern and central Namibia, eastern Botswana, much of South Africa and western Zimbabwe.	Near Threatened	Least Concern	Probable
<i>Crociodura maquassiensis</i> Maquassie Musk Shrew	This is a rare species, recorded only from disparate localities in Zimbabwe, Mantenga Falls in the middleveld region of Swaziland (Monadjem 1998), Limpopo (Motlateng and Blouberg, and more recently in the Soutpansberg Mountains.	Vulnerable	Least Concern	Unlikely

<i>Crocidura mariquensis</i> Swamp Musk Shrew	This widely but patchily distributed species. It occurs in wetlands and waterlogged grasslands.	Near Threatened	Least Concern	Unlikely
<i>Aethomys ineptus</i> Tete Veld Rat	Endemic Near (possibly endemic) This species is probably restricted to the savannahs of South Africa and Swaziland	Least Concern	Least Concern	High
Giant Rat				Probable
<i>Dendromus nyikae</i> Nyika African Climbing Mouse	Endemic Edge of range. This species occurs widely but patchily throughout southern Africa.	Least Concern	Data Deficient	Probable
<i>Smutsia temminckii</i> Ground Pangolin	This species is the most widespread of the African pangolin species.	Vulnerable	Vulnerable	High

Seven RDL species are confirmed to be present, two more species are confirmed to be nomadic visitors and a further seven species has a high likelihood of being present (Table 3.3).

The mobility of most mammals will ensure that they can adapt or relocate if disturbed by the proposed activity. The potential impacts of the proposed activity will be limited to the extent of the site footprint only (which will be <2Ha). By method of selecting the most ecologically acceptable alternative site (which will have the least loss and fragmentation of habitat as consequence) along with mitigation measures it is unlikely that mammals will be significantly affected during any phase of the activity.

5.5 Invertebrate Report

Potentially, the natural habitats on site will offer refuge to all invertebrate groups with the available habitats on site. This consists of a large number of species for which field searches are too extensive to be accommodated for the present study (Picker *et al.* 2002). Invertebrates fill a very important role in the food chain and overall ecology of any ecosystem. The large scale loss of any group of invertebrates can have detrimental effects on the functioning of an ecosystem. As this project activities will be much localized to less than 2Ha footprint it is not anticipated that any group of invertebrate will be significantly affected, given that recommendations and mitigation measures are followed.

The habitats present have the potential to support approximately 275 species of butterflies. Cross-referenced larval host plants and prey items, a total of approximately 175 species may be present at one time or another. Due to the dynamic mobility of butterflies, any of these species has the potential to be present at a given time, although variable conditions will be a limiting factor. No Red Data Listed species are expected in the study area. These include butterflies, several species is highly endemic and their distribution very localized to the Soutpansberg area and northern part of the Limpopo Province (Appendix 3). Three species have a slight possibility to be present within the study area (Table 3.4). However, the habitat present is not ideal to support these and it is unlikely that any of these are present. It is not anticipated that butterflies will be significantly affected by the proposed activity as long as adequate mitigation measures are followed.

Table 3.4 Important butterflies that were assessed (Mecenero et al,2013).

Scientific Name	Habitat and Ecology	Distribution / Endemic / Range Description	Regional Status 2016	IUCN Status
<i>Coenyrta rufiplaga</i> Sekhukhune Shadefly	Wooded savanna at the base hill and mountains, in flatlands or on forest edges. Found at higher altitudes than its congeners. Central Bushveld; Mesic Highveld Grassland.	South Africa (limpopo) Endemic to the Atlas region; form the Waterberg near Thabazimbi in the west to the Wolkberg and as far as Ohrigstad in the east.		LC
<i>Anthene crawshayi juanita</i> Juanita's Hairtail	Riverine woodland Granite Lowveld	South Africa (limpopo) Endemic to the Atlas region; north of Ohrigstad,		CR
<i>Anthene minima</i> Little Hairtail	South Africa restricted to arid savanna and dry areas. Lowveld; Central Bushveld	South Africa (KwaZulu-Natal, Limpopo, Mpumalanga) and Swaziland:		LC

6. Impact assessment and recommendations

6.1 Site assessments and recommendations

The literature research clearly indicates that the larger regional area (including the study area) can be considered to be a sensitive natural environment. This is affirmed by the numerous conservation areas and the biosphere reserve that were proclaimed in order to conserve and protect the unique biophysical features of the region. The site investigations indicate that all three the alternative sites are located in an almost virgin environment within the larger context of the region. It is therefore essential that these alternatives are objectively assessed in order to make recommendations with regards to the proposed activity.

The activity will entail the construction of a 60 sleeper safari lodge aimed at high income eco-tourism. To achieve this, the following activities are associated with the project:

Planning phase

- 1) Identify and specialist investigation of alternative sites.
- 2) Determine the most suitable site/s upon specialist recommendations.
- 3) Identify limitations (landscape, topography, ecology) and measures in order to mitigate the potential impact on the environment.
- 4) Prepare design by incorporating the abovementioned limitations, mitigation measures and specialist recommendations.

Pre-construction phase

- 5) Demarcate construction footprint as well as sensitive areas and buffer zones.
- 6) Conduct any necessary specialist inputs that may be required (e.g. Search for important vegetation and fauna that must be relocated before construction.

Construction phase

- 7) Site preparation and vegetation clearing.
- 8) Earthmoving and establishing platforms, cut and fill where necessary.
- 9) Excavation of trenches for foundations and service infrastructure.

10) Construction of facilities (mixing and applying concrete, bricks, etc.)

Rehabilitation

- 11) Site clean-up
- 12) Levelling and landscaping

Operational & maintenance

- 13) Occupation
- 14) Human and motorized traffic
- 15) Maintenance of roads, buildings and infrastructure.

By using the abovementioned list of activities as guideline the specialist can assess the potential impacts and consequences for each alternative site and make recommendations. The alternative site conditions and potential impacts are discussed in the following sections:

Site 1

This site is described in section 4.1 and it is visually attractive with impressive surroundings.

Attributes:

- It is located nearest to the entrance and main existing lodge area.
- It is easily accessible via existing vehicle track.
- Eskom power is located nearby
- The valley area is level (disregarding the outcrops)

Physical limitations:

- Rock outcrops will have construction constraints
- Provision of sewer system will have to be well engineered

Ecological limitations:

- The outcrops and nearby drainage basin are sensitive features
- Several protected species of trees are present on the valley floor

Potential impacts and consequences:

1.1) Loss and fragmentation of habitat

Site clearing will lead to the loss and fragmentation of habitat. This impact has a high significance if it is not mitigated. A consequence of this impact is loss of fauna as their living space is compromised. With mitigation the significance can be reduced to low. Mitigation is considered bearing in mind that the valley floor woodland is well represented in the surrounding local area as well and the impact consequence will be highly localized. The *Androstachys* rocky woodland on the other hand is unique to these outcrops. By employing the following mitigation measures only the mixed woodland will be fragmented and the consequence on site is also addressed:

- Limit the development footprint to the mixed woodland on the valley floor.
- Conserve the *Androstachys* rocky woodland and rocky outcrops by way of a buffer zone.

- Conserve as much as possible of the natural vegetation within the development footprint.
- The buffer line on the outer edge of the *Acacia* thickets at the foot of the outcrops.
- Employ an alien invasive management plan to ensure that invasive vegetation does not establish on site or the surrounding area.
- Use only locally available indigenous flora for landscaping purposes.

1.2) Loss of vegetation

Site clearing will lead to the loss of indigenous vegetation. This impact has a high significance if it is not mitigated. With mitigation the significance can be reduced to medium – low. Mitigation is considered bearing in mind that the mixed woodland on the valley floor is well represented in the surrounding local area as well and the impact consequence will be highly localized. The rocky woodland on the other hand is unique to these outcrops. The same mitigation measures give above will also serve this objective.

1.3) Loss of important flora communities and individuals

Site clearing will lead to the loss of important flora communities and individuals. This may include prominent stands of trees (e.g. rocky woodland) or individual trees (e.g. protected trees) or herbaceous plants that have not yet been identified.

The following mitigation measures are proposed:

- Include all the above mentioned measures.
- The single *Acacia erioloba* specimen must be conserved *in situ* with a buffer as large as its crown.
- Conserve as many as possible protected trees within the development footprint.
- The destruction or relocation of protected trees must be consulted with DAFF from whom permission must be obtained.
- The potential presence of important herbaceous plants must be investigated by a specialist (during their growth period) before construction and if present these must be managed or relocated per the specialist's recommendation.

1.4) Loss of fauna

Site clearing will lead to the loss of fauna individuals. As most fauna are quite mobile and will be able to move away from the development area once activities commence, some taxa may not be able to do this. E.g. this will include slow moving and fossorial species (Scorpions, spiders, reptiles) and arboreal taxa (small mammals, reptiles) and nesting birds. The following mitigation measures are proposed:

- The potential loss of fauna and their habitat can be mitigated by employing the measures given under heading 1.1. Subsequently only a small area of habitat will be lost (limited to the development footprint) which will not have a significant impact on the distribution and assemblage of fauna in the local area.
- The potential presence of fauna that may be present on the development footprint must be investigated by a specialist before construction and if

present these must be managed or relocated per the specialist's recommendation.

- Additional non-site specific measures for the management of fauna during the construction and operational phases are given in Table 5.

1.5) Ecological connectivity

Connectivity with the drainage basin immediately to the south of the site must be designed and managed in such a manner to ensure ecological connectivity. This has more relevance to the hydrology and simply requires that surface water run-off from the development site may not be impeded or diverted from its natural flow patterns towards this basin. Erosion control measures may be used if necessary.

- No development activities allowed within the drainage basin.

Site 2

This site is described in section 4.1 and it is visually attractive with impressive surroundings and an exceptional view from the crest in all directions.

Ecological attributes:

- Aesthetic view.

Physical limitations:

- Rock outcrops will have construction constraints.
- Very uncompromising topography
- Steep slopes.
- Irregular surface area of crest.
- Provision of all services infrastructure will have to be well engineered
- Electricity connection is not available nearby.
- Inaccessibility.

Ecological limitations:

- The outcrops and surrounds are sensitive features.
- Construction will lead to major cutting into the slope to construct an access road and major earthmoving (including cut-and-fill) on the crest to create a development platform.

Potential ecological impacts and consequences:

2.1) Loss and fragmentation of habitat

The site is located right in the middle and on the highest outcrop which consist of *Androstachys* rocky woodland. Furthermore, this outcrop provides micro-habitat for a wide diversity of fauna. Road construction and site clearing will lead to a significant loss and fragmentation of habitat. This impact has a high significance and sufficient mitigation to manage this impact to a sufficient level. It is recommended that an alternative site is considered.

2.2) Loss of vegetation

Road construction and site clearing will lead to a significant loss of indigenous vegetation. This impact has a high significance if it is not mitigated. In view of the

uncompromising topography it is anticipated that construction activities will stretch far beyond the actual development footprint which will lead to an unacceptable large loss of vegetation and which cannot be mitigated effectively. It is recommended that an alternative site is considered.

2.3) **Loss of important flora communities and individuals**

Site clearing will lead to the loss of important flora communities and individuals. This may include prominent stands of trees (e.g. *Androstachys* rocky woodland) or individual trees (e.g. large *Androstachys* individuals) or herbaceous plants that have not yet been identified. This impact will be significant and mitigation is not possible. It is recommended that an alternative site is considered.

2.4) **Loss of fauna**

Site clearing will lead to the loss of fauna individuals. This site specifically provides macro and micro habitat for a wide range of fauna. The potential fragmentation of habitat and constant presence of humans during the operational phase will discourage sensitive species to use the general area of this site. E.g. Black Eagles may well be present and breeding on the south facing cliffs. Proceeding with the activities will ultimately lead to the loss of these as they will not adapt to the constant presence of humans, as will other sensitive fauna. This impact will be significant and mitigation is not possible. It is recommended that an alternative site is considered.

2.5) **Ecological connectivity**

The fragmentation of habitat that will occur with the construction phase of the project will also have an effect on the ecological functions of the local area. Mitigation is not possible. It is recommended that an alternative site is considered.

Site 3

This site is described in section 4.1 and it is visually attractive with impressive surroundings.

Attributes:

- It is easily accessible via existing vehicle track.
- The area is relatively level

Physical limitations:

- The site is located relatively far away from existing main lodge and infrastructure.
- Eskom power is not located nearby
- Provision of sewer system will have to be well engineered

Ecological limitations:

- The drainage area is a sensitive feature
- Several protected species of trees are present on the footprint.

Potential impacts and consequences:

3.1) Loss and fragmentation of habitat

Site clearing will lead to the loss and fragmentation of habitat. This impact has a high significance if it is not mitigated. With mitigation the significance can be reduced to low. Mitigation is considered bearing in mind that the mixed woodland is well represented in the surrounding local area as well and the impact consequence will be highly localized. By employing the following mitigation measures only the mixed woodland will be fragmented and the consequence on site is also addressed:

- Limit the development footprint to the mixed woodland on the plain to either side of the drainage line.
- Conserve as much as possible of the natural vegetation within the development footprint.
- Conserve the drainage line by way of a buffer zone.
- The buffer line will be on the outer edge of the *Mopane* thicket alongside the drainage line.
- Employ an alien invasive management plan to ensure that invasive vegetation does not establish on site or the surrounding area.
- Use only locally available indigenous flora for landscaping purposes.

3.2) Loss of vegetation

Site clearing will lead to the loss of indigenous vegetation. This impact has a high significance if it is not mitigated. With mitigation the significance can be reduced to medium – low. Mitigation is considered bearing in mind that the mixed woodland is well represented in the surrounding local area as well and the impact consequence will be highly localized. The same mitigation measures give above will also serve this objective.

3.3) Loss of important flora communities and individuals

Site clearing will lead to the loss of important flora communities and individuals. This may include prominent stands of trees (e.g. *Mopane* thicket) or individual trees (e.g. protected trees) or herbaceous plants that have not yet been identified.

The following mitigation measures are proposed:

- Include all the above mentioned measures.
- The single *Adansonia digitata* specimen must be conserved *in situ* with a 10m radius buffer around the trunk.
- Conserve as many as possible protected trees within the development footprint.
- The destruction or relocation of protected trees must be consulted with DAFF from whom permission must be obtained.
- The potential presence of important herbaceous plants must be investigated by a specialist (during their growth period) before construction and if present these must be managed or relocated per the specialist's recommendation.

3.4) Loss of fauna

Site clearing will lead to the loss of fauna individuals. As most fauna are quite mobile and will be able to move away from the development area once activities commence, some taxa may not be able to do this. E.g. this will include slow moving and fossorial

species (Scorpions, spiders, reptiles) and arboreal taxa (small mammals, reptiles) and nesting birds. The following mitigation measures are proposed:

- The potential loss of fauna and their habitat can be mitigated by employing the measures given under heading 3.1. Subsequently only a small area of habitat will be lost (limited to the development footprint) which will not have a significant impact on the distribution and assemblage of fauna in the local area.
- The potential presence of fauna that may be present on the development footprint must be investigated by a specialist before construction and if present these must be managed or relocated per the specialist's recommendation.
- Additional non-site specific measures for the management of fauna during the construction and operational phases are given in Table 4.

3.5) Ecological connectivity

The vegetation on the banks of the drainage line may not be disturbed and the hydrology of the drainage line may not be altered. This will require that surface water run-off from the development site may not be impeded or diverted from its natural flow patterns towards and within the drainage line. Erosion control measures may be used if necessary.

- Conserve the drainage line by way of a buffer zone.
- The buffer line will be on the outer edge of the *Mopane* thicket alongside the drainage line.

6.2 Impact Assessment and Recommendations

The single most important impact on biodiversity as consequence of transforming virgin land to agriculture is the loss of vegetation and loss and fragmentation of natural habitats and consequently the loss of fauna.

The mobility of most animals will ensure that they can adapt or relocate if disturbed by the proposed activity. The potential impacts of the proposed activity will be limited to the extent of the site footprint only (which will be <2Ha). By method of selecting the most ecologically acceptable alternative site (which will have the least loss and fragmentation of habitat as consequence) along with mitigation measures it is unlikely that animals will be significantly affected during any phase of the activity.

The site assessments disqualify Site 2 as a viable alternative at this stage due to the significance of cumulative impacts related to its ecology and biology. It is recommended that either alternative Site 1 or Site 3 be considered for this project as the potential impacts can be efficiently mitigated to an acceptable level and within the extent will be localized to the site footprints. The impact assessment table (Table 4) on the following page includes a detailed assessment of potential impacts related to Site 1 and Site 3 and includes additional measures to mitigate the significance of potential impacts. The following method of assessment of impacts was used:

- The *nature* of the impact entails a description of the cause of the impact, what will be affected and how it will be affected;

- The *extent* refers to the area where the impact will be significant e.g. on site, local area, regional, provincial, national or international;
- The *duration* refers to the lifetime of the impact:
 - Short term: 0-5 years
 - Medium term: 5-15 years
 - Long term: >15 years
 - Permanent
- The *probability* describes the likelihood of the impact occurring during the duration:
 - Improbable (Low likelihood)
 - Probable (Distinct possibility)
 - Highly Probable (Most likely)
 - Definite (Impact to occur regardless of any preventative measures)
- The *significance* is determined by analyzing the above subjects and is assessed as low, medium or high.

7. Conclusion

This report concludes that although the study area is located in a regionally sensitive biodiversity zone, the proposed eco-tourism development can be pursued from a biological and ecological perspective. However, this is on condition that the recommendations and mitigation measures included with this report is followed. Although this assessment was conducted during the dry winter season, which is not ideal for vegetation studies, the authors are confident that sufficient data were collected to make objective and site related conclusions and recommendations. Any omissions that may have occurred or additional investigations can be included with a pre-development screening if required by the authorities.

The site assessments disqualify Site 2 as a viable alternative at this stage due to the significance of individual and cumulative impacts related to its ecology and biology. It is recommended that either alternative Site 1 or Site 3 be considered for this project as the potential impacts can be efficiently mitigated to an acceptable level and within the extent will be localized to the site footprints. Site specific recommendations and mitigation measures that must be implemented are discussed in section 6.1 and are also included with additional measures within Table 4.

8. References

- Acocks, J. P. H. 1988. Veld types of South Africa. Botanical Research Unit. 146p.
- Alexander, G. & Marais, J. 2007. A guide to the reptiles of southern Africa. Struik Publishers. 408 pp.
- Animal Demographic Unit (ADU). 2010. Reptile Atlas - Southern African reptile conservation assessment. Department of Zoology, University of Cape Town.
- Taylor M.R. et al, 2015. The 2015 Eskom Red Data Book of birds of South Africa, Lesotho and Swaziland. BirdLife South Africa, Johannesburg.
- Bates, M.F., Branch, W.R., Bauer, A.M., Burger, M., Marais, J., Alexander, G.J. & De Villiers, M.S. 2014. Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland. Suricata 1. SANBI, Pretoria.
- Branch, B. 1988. Field guide to the snakes and other reptiles of Southern Africa. Struik Publishers, Cape Town. 328 pp.
- Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The 2016 Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa
- Department of Water Affairs and Forestry. 2005. A practical field procedure for identification and delineation of wetland and riparian areas. DWAF, Pretoria
- Du Preez, L. & Carruthers, V. 2009. A complete guide to the frogs of Southern Africa. Struik Nature, Cape Town.
- Ferrar, A.A. & Lötter, M.C. 2007. Mpumalanga Biodiversity Conservation Plan Handbook. Mpumalanga Tourism & Parks Agency, Nelspruit.
- Gibbons, G., Maclean, G. 1997. Roberts' Multimedia: Birds of Southern Africa. Southern African Birding cc.
- Harrison, J.A., Allan, D.G., Underhill, M., Herremans, M., Tree, A.J., Parker, V. & Brown, C.J. 1997. The atlas of Southern African Birds. Volume 1: Non-passerines. Avian Demography Unit. Birdlife SA. Pp 786.
- Harrison, J.A., Allan, D.G., Underhill, M., Herremans, M., Tree, A.J., Parker, V. & Brown, C.J. 1997. The atlas of Southern African Birds. Volume 2: Passerines. Avian Demography Unit. Birdlife SA. Pp 786.
- IUCN Red List of Threatened Species. 2018 (This document is regularly updated: the current version is version 13 (March 2017)) The IUCN Red List of Threatened Species is compiled and produced by the IUCN Species Programme based on

contributions from a network of thousands of scientific experts around the world. These include members of the IUCN Species Survival Commission Specialist Groups, IUCN Red List Partners, and many others, including experts from universities, museums, research institutes and non-governmental organizations. Website: www.iucn.org/redlist

Limpopo Environmental Management Act 2003

Mackenzie G.C. & Roundtree. 2007. Draft riparian delineation methods prepared for the Department of Water Affairs and Forestry, Version 1.

Mecenero S, Ball JB, Edge DA, Hamer ML, Henning GA, Krüger MA, Pringle EL, Terblanche RF and Williams. 2013. Conservation Assessment of Butterflies of South Africa, Lesotho and Swaziland: Red List and Atlas.

Minter, L.R., M. Burger, J. A. Harrison, H.H. Braack, P.J. Bishop, & Kloepfer, D. eds. 2004. *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series #9. Smithsonian Institution, Washington, DC.

Mucina, L. & Rutherford, M.C. (eds.) 2006. *Vegetation of South Africa, Lesotho & Swaziland*, Sterlizia 19. South African National Biodiversity Institute, Pretoria.

National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEMBA). 2007. Species Listing Schedule A and B amended.

Nel, J.L., K.M. Murray, A.M. Maherry, C.P. Petersen, D.J. Roux, A. Driver, L. Hill, H. Van Deventer, N. Funke, E.R. Swartz, L.B. Smith-Adao, N. Mbona, L. Downsborough, S. Nienaber. 2011. Technical Report for the National Freshwater Ecosystem Priority Areas project. WRC Report No. 1801/2/11.

Pooley, E. (Editor). 1998. *A Field Guide To the Wild Flowers of Kwazulu Natal and the Eastern Region*. Natal Floral Publications Trust, Durban. Pp 630

Rouget M., Reyers B., Jonas Z., Desmet P., Driver A., Maze K., Egoh B., & Cowling R.M. 2004. Technical Report Volume 1: Terrestrial Component. In: *South African National Biodiversity Assessment 2004: Priorities for biodiversity conservation in South Africa*. Pretoria. SANBI.

Schmidt, E., Lotter, M., McClelland, W. 2002. *Trees and shrubs of Mpumalanga and the Kruger National Park*. Jacana, Jhb.

SKINNER, J.D. & CHIMIMBA, C.T. 2005. *The mammals of the Southern African subregion*. London: Cambridge University press.

Van Oudtshoorn F.P. 1991. *Gids tot Grasse van Suid-Afrika*. Briza, PTA. Pp 301.

Appendixes

APPENDIX 1: SPECIALIST DETAILS

CURRICULUM VITAE
Louis Daniel van der Walt

1. Background Information

1.1 Personal Details

Name: Louis Daniël van der Walt (Danie).
I.D. No. 6805305147080
Residential address: 01 Tambotie Street, Kingsview, White River.
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Fax: 086 603 8875
Email: danie.aeb@gmail.com
Marital status: Married
Date of Birth: 1968-05-30
Nationality: Republic of South Africa.

1.2 Secondary Education

Senior certificate examination at Linden Hoërskool, Johannesburg, 1985.

1.3 Tertiary Education

Completed the following degrees at the Rand Afrikaans University:

- **B.Sc. (Biol. Sciences)**, 1989: Majoring in Zoology and Botany.
- **B.Sc. Honoribus (Zoology)**, 1990: Subjects including Ichthyology & Aquaculture, Ecology, Physiology, Genetics, Entomology & Parasitology, Nematology, Evolution and Philosophy.
- **M.Sc. (Zoology) cum laude**, 1993. Title of script: An evaluation of the allozyme variation as well as the effect of cryopreservation of semen on the genetic selection of the African catfish (*Clarias gariepinus*).

Certified copies of these degrees and the abstract of the M.Sc. script are included with Appendix A.

1.4 Accredited Courses

I have successfully completed the following courses:

- Implementing integrated management systems (SHEQ): ISO9001, ISO14001 and OHSAS18001. Centre for Environmental Management, North-west University, Potchefstroom, October 30 – November 4, 2005.
- Wetland Training: Delineation, Functions and Rehabilitation of Wetlands. University of Pretoria, Rietvlei Nature Reserve, May, 2006.
- Environmental Impact Assessment (NEMA Regulations). Centre for Environmental Management, Northwest University, Potchefstroom, May, 2007.
- OHS Act and Regulations (Act 85 of 1993). Department of Labour, Gauteng, September, 2010.

1.5 Short Courses and Practical Workshops

- Fish Index Validation: Field Testing. DWAF Guidelines. Waterval-Boven. August 2006
- Short Course: Soil Classification and Wetland Delineation. Terrasoil Science. Nelspruit. February 2009.
- SASS5 Biomonitoring Course. Nepid Consultants. Sabie. March 2013.

1.6 Publications and contributions

During my tertiary education as well as my professional career, I have published several scientific reports and attended and contributed to various workshops and congresses. These are listed in Appendix B.

2. Previous Employment and Experience

Rand Afrikaans University, JHB

January 1990 - December 1993: Laboratory and field assistant.

1992: Aquarium and Technical assistant to Department of Zoology.

Duties included:

- Managing the zoology aquarium;
- Designing and construction of fish breeding and holding systems;
- Technical and field assistant to various research projects;
- Mentor to students in methods to collect and identify wild fish specimens and aquatic invertebrate specimens;

Silver Creek Aquaculture, Hazyview

January 1994 - May 1997: Biologist and manager of aquaculture, specializing in African Sharptooth Catfish, Tilapia and the large scale production of ornamental fish.

Duties included:

- Designing and construction of fish breeding and holding systems;
- Developing and maintenance of production systems and methods;
- Genetic selection of brood stock;
- Artificial and controlled propagation of fish;
- Managing of abattoir and fish processing;
- Marketing of fish products.

Aquaculture Consultant and Biologist

May 1997 – Present. In parallel with my present full time occupation, I also manage my own aquaculture business, specializing in ornamental fish, e.g. Goldfish, Japanese Koi and tropical fish.

Duties include:

- Designing and construction of fish breeding and holding systems;
- Developing and maintenance of production systems and methods;
- Genetic selection of brood stock;
- Artificial and controlled propagation of fish;
- Diagnoses and treatment of fish diseases;

3. Present Employment

3.1 Environmental Assessments

Since 2004, I am employed as an Environmental Assessment Practitioner and Environmental Scientist. Under this appointment my work description entails the execution of the environmental impact assessment process as prescribed by the present EIA regulations. My duties include scoping and public participation, authority consultations, interpretation of scientific studies, impact assessments, report writing, etc. The main goal that I attempt with

the EIA process is to investigate all the available alternatives and information in order to provide a basis for a manageable product or project that is environmentally sustainable and acceptable to all the stakeholders involved. Projects were completed under both ECA and NEMA regulations (Appendix C).

During five years of executing EIA's, I have covered many subjects, including ESKOM power lines and substations, communication towers, dam construction, township and industrial developments, abattoirs, subdivisions, filling stations, pipelines, borrow pits and roads, golf estates, country estates, etc. A list of EIA projects in which I was the leading agent is given in Appendix C. It should be noted that, in the capacity of Biologist I also completed the biodiversity assessment reports, if so required, for these EIA projects.

3.2 Biodiversity Consultations

As part of my graduate and post graduate studies I was trained to do biodiversity assessments and monitoring and I assisted in several such research projects at the R.A.U. I was also fortunate enough to assist Dr. Andrew Deacon (South African National Parks Board, KNP, Skukuza) on many occasions in biodiversity assessments and monitoring projects. This training and the experience that I have gained as biologist I presently utilize to do biodiversity studies in several fields of study (as listed below), mainly for environmental processes (e.g. EIA, EMPR, EMP processes). These assessments and studies are compiled for specific terms of reference, e.g. basic assessments, scoping assessments, monitoring or comprehensive specialist surveys. For these biodiversity assessments I am subcontracted as *Afrika Enviro & Biology* in order to combine the specialist biological consultations under a single entity. I rely on my training as biologist to ensure that the assessments are conducted according to standard scientific methods and procedures in order to be scientifically correct and can therefore be used as reference by co-scientists.

3.3 Present scope of work

By combining my professional abilities as Environmental Scientist and Biologist, I am experienced in compiling the following environmental reports:

- Biodiversity Assessments (Inclusive of the above scope of work);
- Environmental Impact Assessments;
- Environmental Management Plans;
- Rehabilitation Plans;
- Environmental Compliance Monitoring and Reporting.

Completed biodiversity and aquaculture reports are available on request.

4. Experience and attributes

4.1 Environmental Scientist and Biodiversity Consultant

I have completed EIA projects as well as biodiversity assessments in a diverse range of environments and natural habitats, including very sensitive areas that required intensive research and detailed assessments. A short elaboration is as follows:

Due to Mpumalanga's diverse natural resources and topographic features, this province has several very special areas of natural and biological importance. Areas such as these where I have been fortunate enough to do assessments include:

- The Eastern Escarpment, including centruns of floral endemism such as Steenkamps Berg (Machadodorp – Dullstroom); the Wolkberg centre: Barberton, Pilgrims Rest and Lydenburg and its surrounds as well as Sekhukhune Land;
- The general Lowveld region stretching from Hazyview - Nelspruit - Komatipoort;
- The general Highveld area stretching from Delmas in the west to Dullstroom and Belfast in the east;

My area of work also covers other provinces, including Gauteng-, Limpopo- and North West Province. I have a comprehensive data basis for all of the areas mentioned above and I also have an impressive library, including all the most recent literature, as well as rare and out of print literature, to aid in research. Where necessary, the assessments include consultations and the co-operation of the relevant conservation authorities and scientists.

It should be noted that my reports is accepted by Mpumalanga Parks and Tourism Agency, Limpopo Parks and Tourism, Mpumalanga Department of Agriculture and Land Affairs, National Department of Water Affairs and Environment (DWA) and the National Department of Environmental Affairs and Tourism.

The integrity of my reports has never been questioned by any stakeholder and the quality and content of work has always been complimented.

5. Referees

Prof. G.J. Steyn. University of Johannesburg. Tel. 083 633 4665

L. Human, ESKOM Distribution Northern Region, P.O. Box 36099, Menlo Park, 0102
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T. Dormehl, Dormehl Technology, PO Box 21103, Nelspruit, 1200
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Dr. A. R. Deacon, National Parks Board, Skukuza, Kruger National Park
Tel. (013) 735 4237

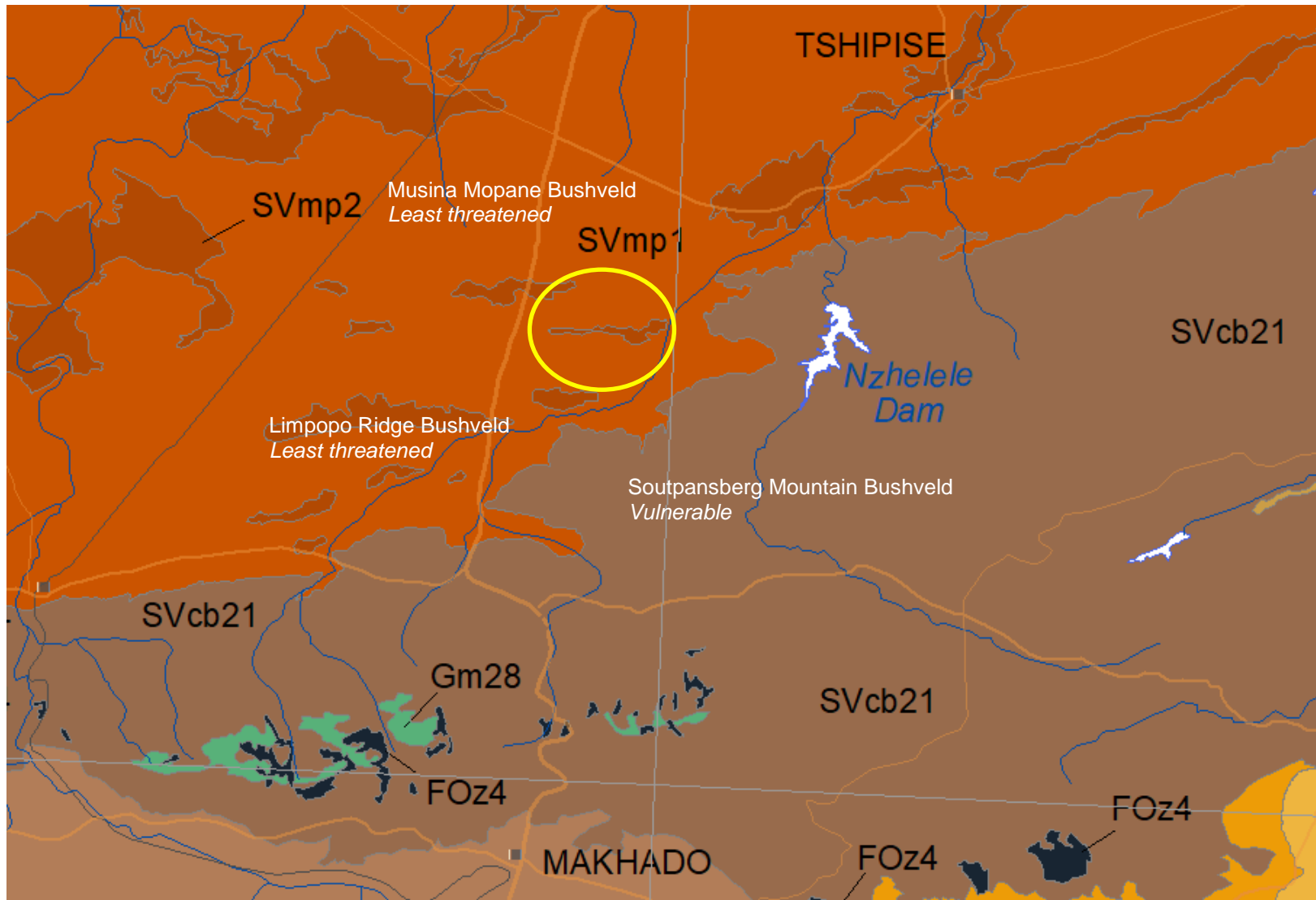
J. Fourie & Associates, Environmental Engineers, PO Box 431, Paardekraal,
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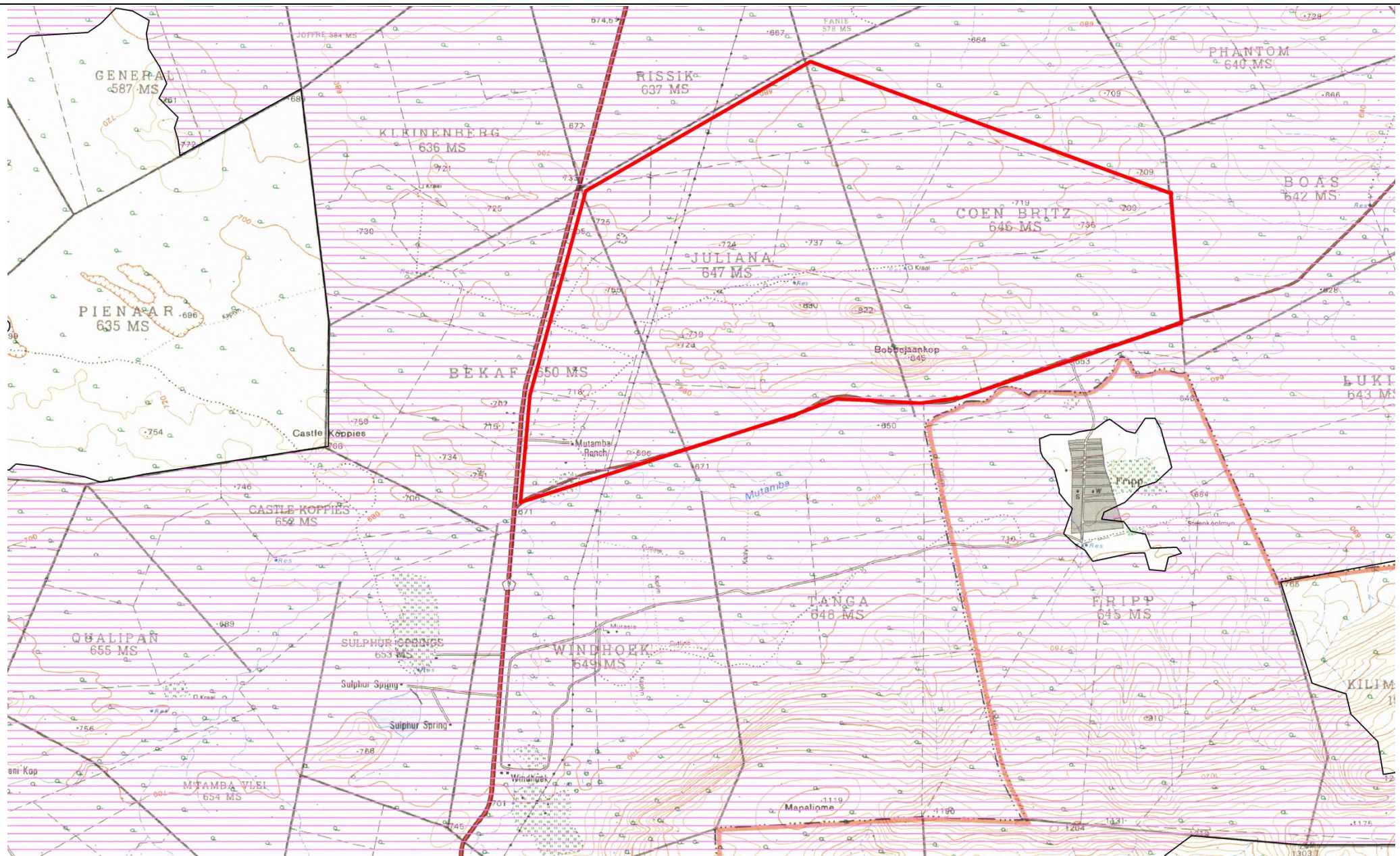
Dr. P. Van Eeden, EnviroScience, PO Box 1343, Norkem Park, 1631,
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APPENDIX 2: LIMPOPO CONSERVATION PLAN

APPENDIX 3: VEGETATION UNITS





LIMPOPO CONSERVATION PLAN

Critical Biodiversity Area

APPENDIX 4: FAUNA CHECKLISTS

TABLE 4: Regional mammal list and Red Data Status			
Family Scientific name	Common Name	Regional Status 2016	IUCN Status
ARTIODACTYLA: Bovidae			
<i>Aepyceros melampus</i>	Impala	Least Concern	Least Concern 2016
<i>Alcelaphus buselaphus</i>	Red Hartebeest	Least Concern	Least Concern 2016
<i>Antidorcas marsupialis</i>	Springbuck	Least Concern	Least Concern 2008
<i>Cephalophus natalensis</i>	Natal Red Duiker	Near Threatened B2ab(ii,V)	Least Concern 2016
<i>Connochaetes gnou</i>	Black Wildebeest	Least Concern*†	Least Concern 2008
<i>Connochaetes taurinus taurinus</i>	Blue Wildebeest	Least Concern	Least Concern 2016
<i>Damaliscus lunatus lunatus</i>	Tsessebe	Vulnerable D1*†	Least Concern 2008
<i>Damaliscus dorcas phillipsi</i>	Blesbuck	Least Concern	Least Concern 2008
<i>Hippotragus equinus</i>	Roan Antelope	Endangered C2a(i)+D*†‡	Least Concern 2008
Rhinocerotidae			
<i>Diceros bicornis minor</i>	Black Rhinoceros	Endangered C2a(i)*†	Critically Endangered A2abcd 2012
<i>Ceratotherium simum</i>	Southern White Rhinoceros	Near Threatened A4ad*†	Near Threatened C1+A3ad 2011
Equidae			
<i>Equus burchelli</i>	Plains Zebra	Least Concern	Near Threatened A2a+3c+4ac 2016
Giraffidae			
<i>Giraffa camelopardalis</i>	Giraffe	Least Concern	Vulnerable A2acd 2016
Hippopotamidae			
<i>Hippopotamus amphibius</i>	Hippopotamus	Least Concern*†	Vulnerable A4cd 2008
Elephantidae			
<i>Loxodonta africana</i>	African Elephant	Least Concern*†	Vulnerable A2a 2008
HYRACOIDEA: Procaviidae			
<i>Heterohyrax brucei</i>	Yellow-spotted Rock Hyrax	Least Concern	Least Concern 2015
<i>Procavia capensis</i>	Rock Hyrax	Least Concern	Least Concern 2015
CARNIVORA			
<i>Acinonyx jubatus</i>	Cheetah	Vulnerable C2a(i)+D1*†	Vulnerable A2acd+C1 2015
<i>Aonyx capensis</i>	Cape Clawless Otter	Near Threatened C2a(i)*	Near Threatened A2cde+3cde 2015
<i>Atilax paludinosus</i>	Water Mongoose	Least Concern	Least Concern 2015
<i>Canis adustus</i>	Side-striped Jackal	Least Concern	Least Concern

			2014
<i>Canis mesomelas</i>	Black-backed Jackel	Least Concern	Least Concern 2014
<i>Caracal caracal</i>	Caracal	Least Concern	Least Concern 2016
<i>Civettictis civetta</i>	African Civet	Least Concern	Least Concern 2015
<i>Crocuta crocuta</i>	Spotted Hyaena	Near Threatened C2a(ii)*†‡	Least Concern
<i>Cynictis penicillata</i>	Yellow Mongoose	Least Concern	Least Concern 2015
<i>Felis nigripes</i>	Black-footed Cat	Vulnerable C2a(i)*†	Vulnerable C2a(i) 2016
<i>Felis silvestris</i>	African Wild Cat	Least Concern*†	Least Concern 2015
<i>Herpestes sanguineus</i>	Slender Mongoose	Least Concern	Least Concern 2016
<i>Genetta genetta</i>	Small-spotted Genet	Least Concern	Least Concern 2015
<i>Genetta tigrina</i>	Large-spotted Genet	Least Concern	Least Concern 2015
<i>Helogale parvula</i>	Dwarf Mongoose	Least Concern	Least Concern 2015
<i>Herpestes ichneumon</i>	Large Grey Mongoose	Least Concern	Least Concern 2016
<i>Hyaena brunnea</i>	Brown Hyaena	Near Threatened C2a(i)+D1*	Near Threatened C1 2015
<i>Ichneumia albicauda</i>	White-tailed Mongoose	Least Concern	Least Concern 2015
<i>Ictonyx striatus</i>	Striped Polecat	Least Concern	Least Concern 2015
<i>Leptailurus serval</i>	Serval cat	Near Threatened A2c + C2a(i)*†	Least Concern 2015
<i>Lutra maculicollis</i>	Spotted-necked Otter	Vulnerable C2a(i)	Near Threatened A3cde 2015
<i>Lycaon pictus</i>	African Wild Dog	Endangered D	Endangered C2a(i)
<i>Mellivora capensis</i>	Honey Badger	Least Concern	Least Concern
<i>Mungos mungo</i>	Banded Mongoose	Least Concern	Least Concern 2016
<i>Otocyon megalotis</i>	Bat-eared Fox	Least Concern	Least Concern 2014
<i>Panthera leo</i>	Lion	Least Concern	Vulnerable A2abcd
<i>Panthera pardus</i>	Leopard	Vulnerable C1*†‡	Vulnerable A2cd
<i>Paracynictis selousi</i>	Selous' Mongoose	Least Concern	Least Concern 2016
<i>Poecilogale albinucha</i>	African Weasel	Near Threatened C1	Least Concern 2015
<i>Proteles cristatus</i>	Aardwolf	Least Concern	Least Concern 2015
<i>Rhynchogale melleri</i>	Meller's Mongoose	Least Concern	Least Concern 2015
<i>Suricata suricatta</i>	Suricate	Least Concern	Least Concern 2015
<i>Vulpes chama</i>	Cape Fox	Least Concern	Least Concern

CHIROPTERA			
<i>Chaerephon ansorgei</i>	Ansorge's Free-tailed Bat	Least Concern	Least Concern 2016
<i>Chaerephon pumila</i>	Little Free-tailed Bat	Least Concern	Least Concern 2008
<i>Cloeotis percivali</i>	Short-eared Trident Bat	Endangered C2a(i)	Least Concern 2008
<i>Epomophorus gambianus</i>	Gambian Epauletted Fruit Bat	Least Concern	Least Concern 2016
<i>Epomophorus wahlbergi</i>	Wahlberg's Epauletted Fruit Bat	Least Concern	Least Concern 2016
<i>Eptesicus hottentotus</i>	Long-tailed Serotine Bat	Least Concern	Least Concern 2016
<i>Glauconycteris variegata</i>	Butterfly Bat	Least Concern	Least Concern 2016
<i>Hipposideros caffer</i>	Sundavall's Leaf nosed Bat	Data Deficient	Least Concern 2008
<i>Kerivoula argentan</i>	Damara Woolly Bat	Near Threatened C2a(i)	Least Concern 2016
<i>Kerivoula lanosa</i>	Lesser Woolly Bat	Least Concern	Least Concern 2016
<i>Laephotis botswanae</i>	Botswana Long-eared Bat	Least Concern	Least Concern 2008
<i>Miniopterus fraterculus</i>	Lesser Long-fingered Bat	Least Concern	Least Concern 2008
<i>Miniopterus schreibersii</i>	Schreibers' Long-fingered Bat	Near Threatened	
<i>Mops codylurus</i>	Angolan Free-tailed Bat	Least Concern	Least Concern 2016
<i>Mops midas</i>	Midas Free-tailed Bat	Least Concern	Least Concern 2016
<i>Myotis bocagei</i>	Rufous Hairy Bat	Least Concern	Least Concern 2016
<i>Myotis tricolor</i>	Temmick's Hairy Bat	Least Concern	Least Concern 2016
<i>Myotis welwitschii</i>	Welwitsch's Hairy Bat	Least Concern	Least Concern 2016
<i>Neoromicia capensis</i>	Cape Serotine Bat	Least Concern	Least Concern 2016
<i>Neoromicia nanus</i>	Banana Bat	Least Concern	Least Concern 2016
<i>Neoromicia zuluensis</i>	Aloe Bat	Least Concern	Least Concern 2016
<i>Nycteris thebaica</i>	Egyptian Slit-faced Bat	Least Concern	Least Concern 2016
<i>Nycteris woodi</i>	Wood's Slit-faced Bat	Near Threatened B1ab(ii,iii,iv,v)*	Least Concern 2016
<i>Nycticeinops schlieffeniu</i>	Schlieffen's Bat	Least Concern	Least Concern 2016
<i>Pipistrellus anchietae</i>	Anchieta's Pipistrelle	Near Threatened	Least Concern 2016
<i>Pipistrellus hesperidus</i>	African Pipistrelle	Least Concern	Least Concern 2016
<i>Pipistrellus rusticus</i>	Rusty Bat	Least Concern	Least Concern 2016
<i>Rhinolophus blasii</i>	Peak-saddle Horseshoe Bat	Near Threatened D1	Least Concern

			2016
<i>Rhinolophus clivosus</i>	Geoffroy's Horseshoe Bat	Least Concern	Least Concern 2016
<i>Rhinolophus darlingi</i>	Darling's Horseshoe Bat	Least Concern	Least Concern 2016
<i>Rhinolophus fumigatus</i>	Rüppell's Horseshoe Bat	Least Concern	Least Concern 2016
<i>Rhinolophus hildebrandtii</i>	Hildebrandt's Horseshoe Bat	Least Concern	Least Concern 2016
<i>Rhinolophus landeri</i>	Lander's Horseshoe Bat	Least Concern	Least Concern 2016
<i>Rhinolophus simulator</i>	Bushveld Horseshoe Bat	Least Concern	Least Concern 2016
<i>Rhinolophus swinnyi</i>	Swinny's Horseshoe Bat	Vulnerable C2a(i)	Least Concern
<i>Rousettus aegyptiacus</i>	Egyptian Fruit Bat	Least Concern	Least Concern 2016
<i>Sauromys petrophilus</i>	Roberts' Flat-headed Bat	Least Concern	Least Concern 2016
<i>Scotophilus dinganii</i>	African Yellow Bat	Least Concern	Least Concern 2016
<i>Scotophilus viridis</i>	Green House Bat	Least Concern	Least Concern 2016
<i>Tadarida aegyptiaca</i>	Egyptian Free-tailed Bat	Least Concern	Least Concern 2016
<i>Taphozous mauritanus</i>	Mauritian Tomb Bat	Least Concern	Least Concern 2008
Insectivora			
<i>Amblysomus hottentotus</i>	Hottentot's Golden Mole	Least Concern	Least Concern 2015
<i>Atelerix frontalis</i>	Southern African Hedgehog	Near Threatened A4cde*†	Least Concern 2016
<i>Calcochloris obtusirostris</i>	Yellow Golden Mole	Near Threatened B1ab(iii)	Least Concern 2015
<i>Crocidura cyanea</i>	Reddish-grey Musk Shrew	Least Concern	Least Concern 2016
<i>Crocidura fuscomurina</i>	Tiny Musk Shrew	Least Concern	Least Concern 2016
<i>Crocidura hirta</i>	Lesser Red Musk Shrew	Least Concern	Least Concern 2016
<i>Crocidura maquassiensis</i>	Maquassie Musk Shrew	Vulnerable B2ab(ii,iii,iv)	Least Concern 2016
<i>Crocidura mariquensis</i>	Swamp Musk Shrew	Near Threatened B2ab(ii,iii,iv)	Least Concern 2016
<i>Crocidura silacea</i>	Lesser Grey-brown Musk Shrew	Least Concern	Least Concern 2016
<i>Myosorex cafer</i>	Dark-footed Forest Shrew	Vulnerable B2ab(i,ii,iii,iv)*†	Least Concern 2016
<i>Myosorex varius</i>	Forest Shrew	Least Concern*†	Least Concern 2008
<i>Neamblysomus gunningi</i>	Gunning's Golden Mole	Endangered B1ab(iii)+2ab(iii)	Endangered B1ab(iii)+2ab(iii) 2015
<i>Neamblysomus julianae</i>	Juliana's Golden Mole	Endangered B2ab(iii)	Endangered B2ab(iii) 2015
<i>Suncus infinitesimus</i>	Least Dwarf Shrew	Least Concern	Least Concern 2008

<i>Suncus lixus</i>	Greater Dwarf Shrew	Least Concern	Least Concern 2008
<i>Suncus varilla</i>	Lesser Dwarf Shrew	Least Concern	Least Concern 2008
Lagomorpha			
<i>Lepus capensis</i>	Cape Hare	Least Concern	Least Concern 2008
<i>Lepus saxatilis</i>	Scrub Hare	Least Concern	Least Concern 2008
<i>Pronolagus randensis</i>	Jameson's Red Rock Hare	Least Concern	Least Concern 2008
Primates			
Cercopithecidae			
<i>Chlorocebus pygerythrus</i>	Vervet Monkey	Least Concern	Least Concern 2016
<i>Cercopithecus albogularis</i>	Samango Monkey	Near Threatened B2ab(ii,iii,v)	Least Concern 2008
Galagonidae			
<i>Galago moholi</i>	Southern Lesser Galago	Least Concern	Least Concern 2016
Lorisidae			
<i>Otolemur crassicaudatus</i>	Thick-tailed Bushbaby	Least Concern	Least Concern 2008
Cercopithecidae			
<i>Papio ursinus</i>	Chacma Baboon	Least Concern	Least Concern 2008
Rodentia			
<i>Acomys spinosissimus</i>	Spiny Mouse	Least Concern	Least Concern 2016
<i>Aethomys chrysophilus</i>	Red Veld Rat	Least Concern	Least Concern 2016
<i>Aethomys ineptus</i>	Tete Veld Rat	Least Concern	Least Concern 2016
<i>Micaelamys namaquensis</i>	– Namaqua Rock Mouse	Least Concern	Least Concern 2016
<i>Cricetomys ansorgei</i>	Giant Rat	Least Concern	Least Concern 2008
Bathyerigidea			
<i>Cryptomys hottentotus</i>	Common Mole-rat	Least Concern	Least Concern 2016
Muridae			
<i>Dasymys robertsii</i>	African Marsh Rat	Near Threatened B2ab(ii,iii,iv)	Least Concern 2016
<i>Dendromus melanotis</i>	Grey African Climbing Mouse	Least Concern	Least Concern 2016
<i>Dendromus mesomelas</i>	Brants' Climbing Mouse	Least Concern	Least Concern 2016
<i>Dendromus mystacalis</i>	Chestnut African Climbing Mouse	Least Concern	Least Concern 2016
<i>Dendromus nyikae</i>	Nyika African Climbing Mouse	Least Concern	Data Deficient
<i>Desmodillus auricularis</i>	Cape Short-eared Gerbil	Least Concern	Least Concern 2016
<i>Gerbilliscus paeba</i>	Hairy-footed Gerbil	Least Concern	Least Concern 2016

<i>Grammomys dolichurus</i>	Woodland Thicket Rat	Least Concern	Least Concern 2016
Myoxidae			
<i>Graphiurus murinus</i>	Woodland Dormouse	Least Concern	Least Concern 2016
<i>Graphiurus platyops</i>	Rock Dormouse	Least Concern	Least Concern 2016
HYSTRICIDAE			
<i>Hystrix africaeaustralis</i>	Cape Porcupine	Least Concern	Least Concern 2016
Muridae			
<i>Lemniscomys rosalia</i>	Single-striped Grass Mouse	Least Concern	Least Concern 2016
<i>Mastomys coucha</i>	Multimammate Mouse	Least Concern	Least Concern 2016
<i>Mastomys natalensis</i>	Multimammate Mouse	Least Concern	Least Concern 2016
<i>Mus minutoides</i>	Pygmy Mouse	Least Concern	Least Concern 2016
<i>Mus neavei</i>	Thomas's Pygmy Mouse	Data Deficient	Data Deficient 2008
<i>Otomys angoniensis</i>	Angoni Vlei Rat	Least Concern	Least Concern 2016
<i>Paraxerus cepap</i>	Tree Squirrel	Least Concern	Least Concern 2016
<i>Pedetes capensis</i>	Springhare	Least Concern	Least Concern 2016
<i>Rhabdomys dilectus</i>	Four-striped Grass Mouse	Least Concern	Not Evaluated
<i>Saccostomus campestris</i>	Pouched Mouse	Least Concern	Least Concern 2016
<i>Steatomys pratensis</i>	Fat Mouse	Least Concern	Least Concern 2016
<i>Gerbilliscus brantsii</i>	Highveld Gerbil	Least Concern	Least Concern 2016
<i>Gerbilliscus leucogaster</i>	Bushveld Gerbil	Least Concern	Least Concern 2016
<i>Thallomys paedulus</i>	Tree Rat	Least Concern	Least Concern 2016
Thryonomyidae			
<i>Thryonomys swinderianus</i>	Greater Cane Rat	Least Concern	Least Concern
Macroscelidia			
<i>Elephantulus brachyrhynchus</i>	Short-snouted Sengi	Least Concern	Least Concern
<i>Elephantulus intufi</i>	Bushveld Sengi	Least Concern	Least Concern 2015
<i>Elephantulus myurus</i>	Eastern Rock Sengi	Least Concern	Least Concern 2015
<i>Smutsia temminckii</i>	Temminck's Ground Pangolin	Vulnerable A4d	Vulnerable A4cd*†‡
<i>Orycteropus afer</i>	Aardvark	Least Concern*†	Least Concern 2015
<i>Petrodromus tetradactylus</i>	Four-toed Sengi	Near Threatened B2ab(ii,iii,v)	Least Concern 2015

Table 2: Regional list of reptiles and Red Data Listed status

Family	Scientific Name	Common Name	Habitat/Biome	Status
Testudinidea	<i>Kinixys natalensis</i> Hewitt	Kwazulu-Natal Hinged-Back Tortoise	Rocky grasslands; rocky wooded grasslands, dry thickets and valley bushveld.	Least Concern
Testudinidea	<i>Psammobates oculifer</i>	Serrated Tent Tortoise (Kalahari tent Tortoise)	Occurs in arid regions on the central plateau of Southern Africa.	Least Concern
Crocodylidae	<i>Crocodylus niloticus Laurenti</i>	Nile Crocodile	Inhabits swamps, lakes and river mouths and coastal estuaries in KwaZulu-Natal.	Vulnerable A2ac
Gekkonidae	<i>Afroedura langi</i>	Lang's Flat Gecko (Lowveld Flat Gecko)	Occurs in Lowveld savannah in rock outcrops that provide crevices for retreat.	Least Concern
Gekkonidae	<i>Afroedura multiporis multiporis</i>	Woodbush Flat Gecko	Found in areas of granite or quartzite cliffs and boulders, at elevations of 1400- 1800m	Vulnerable A2c
Gekkonidae	<i>Afroedura transvaalica</i>	Zimbabwe Flat Gecko (Transvaal Flat Gecko)	Rupicolous, found in areas of granite and sandstone boulders and outcrops in mesic savannah.	Least Concern
Gekkonidae	<i>Colopus wahlbergii wahlbergii</i>	Kalahari ground Gecko	A Small terrestrial gecko of dune and savannah habitats in the central Kalahari and adjacent regions	Least Concern
Gekkonidae	<i>Homopholis mulleri</i> Visser	Muller's Velvet Gecko	Nocturnal, sheltering in holes in Marula and Knob-thorn.	Vulnerable B1ab(iii)+2ab (iii)
Gekkonidae	<i>Lygodactylus graniticolus</i>	Granite dwarf gecko	Inhabits crevices between boulders on rock outcrops at 1500m in the bushveld habitat.	Near Threatened
Gekkonidae	<i>Lygodactylus methueni FitzSimons</i>	Metheun's dwarf gecko	Rupicolous , inhabiting rock cracks on isolated outcrops in montane grassland at elevations of 1700m	Vulnerable B1ab(iii)+2ab (iii)
Gekkonidae	<i>Lygodactylus nigropunctatus nigropunctatus</i>	Black-Spotted dwarf gecko	Rupicolous, sheltering in cracks in rock outcrops in savannah at elevations of 700-800m	Least Concern
Gekkonidae	<i>Lygodactylus nigropunctatus incognitus</i>	Cryptic Dwarf Gecko	Found on outcrops in grasslands and woody patches at altitudes of 1282-1747m	Data Deficient
Gekkonidae	<i>Lygodactylus ocellatus soutpanbergensis</i>	Soutpansberg dwarf gecko	Rupicolous, living in small rock outcrops in montane grassland and savannah.	Near Threatened
Gekkonidae	<i>Lygodactylus waterbergensis</i>	Waterberg Dwarf Gecko	Rupicolous, sheltering in sandstone outcrops in grassland or scrub.	Near Threatened
Gekkonidae	<i>Pachydactylus affinis</i>	Transvaal thick-toed gecko	Found in rocky outcrops but occasionally also in moribund termitaria or on buildings.	Least Concern
Gekkonidae	<i>Pachydactylus punctatus</i>	Speckled Thick-toed Gecko	Tropical, occupying a diversity of open habitats from grassy savannah to desert margins to dry river beds.	Least Concern
Gekkonidae	<i>Pachydactylus vansoni</i>	Van sons thick-toed Gecko	Chiefly terrestrial. Highveld form is found in outcrops and grasslands whereas the Lowveld form is most often found on soil under rocks or dead aloes.	Least Concern
Gekkonidae	<i>Ptenopus garrulus garrulus</i>	Common Barking gecko	Small terrestrial gecko of dune and savannah habitats.	Least Concern

Amphisbaenidae	<i>Chirindia langi langi</i>	Lang's Round – headed worm Lizard	Mostly fossorial , found under rocks on the soil surface, in burrows or in rotting logs.	Least Concern
Amphisbaenidae	<i>Chirindia langi occidentalis</i>	Soutpansberg worm lizard	Found singly under stones partially imbedded in sandy soil, mostly on the surface or in burrows with the stone as a roof.	Vulnerable B1ab(iii)
Amphisbaenidae	<i>Monopeltis capensis</i>	Cape Spade-Snouted worm Lizard.	Fossorial, especially in red soil, and found is soil as deep as 20cm in the Odendaalsrus areas.	Least Concern
Amphisbaenidae	<i>Monopeltis decosteri</i>	De Coster's spade snouted worm Lizard	Fossorial. Occures in sandy soilin moist savanna.	Least Concern
Amphisbaenidae	<i>Monopeltis infuscata</i>	Dusky Spade-Snouted worm Lizard	Fossorial. Habitat similar to that of M. Capenis.	Least Concern
Amphisbaenidae	<i>Monopeltis leonhari</i>	Kalahari Spade-Snouted Worm Lizard	Recorded from Kalahari sands. Found in shallow soil under logs and in gerbill burrows.	Not Applicable
Amphisbaenidae	<i>Monopeltis sphenorhynchus</i>	Slender Spade Snouted worm Lizard	Fossorial. Usually found in deep sand from near sea level to at least 800m.	Least Concern
Amphisbaenidae	<i>Zygaspis vandami</i>	Van Dam's Dwarf worm Lizard.	Fossorial. Inhabit areas where leaf litter is densely aggregated.	Least Concern
Lacertidea	<i>Ichnotropis capensis</i>	Cpe Rough-Scaled Lizard	Inhabits hot sandy areas with open vegetation separated by patches of bare soil.	Least Concern
Lacertidea	<i>Meroles Squamulosus</i>	Common Rough-Scaled Lizard	Occurs on sandy soils in both mesic and arid savanna.	Least Concern
Lacertidea	<i>Nacras lalandii</i>	Delalande's Sanndveld Lizard	A terrestrial species associated with montane and temperate grassland. Also utilises coastal fynbos habitat in the southern Cape.	Least Concern
Lacertidea	<i>Pedioplasia lineocellata lineocellata</i>	Spotted sand Lizard	Prefers dry, open vegetation.	Least Concern
Lacertidea	<i>Vhembelacerta rupicola</i>	Soutpanssberg Rock Lizard	Occurs on rocky outcrops, scree slopes and bedrock. In wooded savanna and forest fringes on mountian slopes.	Near Threatened
Cordylidea	<i>Chamaesaura aenea</i>	Transvaal Grass Lizard	Restricted to the Grassland Biome. Found om the grassy slops and plateau of the eastern escarpment and Highveld.	Near Threatened
Cordylidea	<i>Chamaesaura anguina anguina</i>	Cape Grass Lizard	Found mostly on mountian slopes in fynbos and grassland. Essentially an arboreal species, resting on and 'swimming' over the tops of low-growing vegetation such as restios and grasses.	Least Concern
Cordylidea	<i>Chamaesaura macrolepis</i>	Large-Scaled Grass Lizard	Occurs in the Savanna , Indian Ocean Coastal belt and grassland, especially rocky, grassy hillsides.	Near Threatened
Cordylidea	<i>Cordylus jonesii</i>	Jones' Girdled Lizard	Largely restricted to dry Lowveld, Particularly Mopane savanna, where it shelters in holes in trees, under loos bark and especially in rotting logs.	Least Concern
Cordylidea	<i>Cordylus vittifer</i>	Transvaal Girdled Lizard	Occurs in rock outcrops in grasslands and savanna habitats.	Least Concern
Cordylidea	<i>Pseudocordylus melanotus melanotus</i>	Common Crag lizard	Occurs only in the grassland biome of South Africa and Swaziland.	Least Concern

Cordylidea	<i>Smaug breyeri</i>	Waterberg Girdled Lizard.	A rupicolous that occurs at altitudes of 700-1700m and prefers rock outcrops in open savanna.	Least Concern
Cordylidea	<i>Smaug vandami</i>	Van Dam's Girdled Lizard	Prefers mesic savanna where it occurs in large cracks in shaded outcrops.	Least Concern
Cordylidea	<i>Smaug warreni depressus</i>	Flat Girdled Lizard	A rupicolous species occurring on rock outcrops on hillsides and mountain summits, in savanna central Bushveld, Lowveld Mopane.	Least Concern
Cordylidea	<i>Platysaurus guttatus</i>	Dwarf Flat Lizard	Rupicolous, inhabiting small rocky ridges and outcrops. Narrow crevices are important refuges.	Least Concern
Cordylidea	<i>Platysaurus intermedius inopinus</i>	Unexpected Flat Lizard	Occupies low sandstone ridges and outcrops where it is dependent on narrow rock crevices for refuge.	Endangered B1ab(iii)+2ab(iii)
Cordylidea	<i>Platysaurus intermedius parvus</i>	Blouberg Flat Lizard	Found in rocky slopes and outcrops consisting of Blouberg sandstone. Requires narrow rock crevices for refuge.	Least Concern
Cordylidea	<i>Platysaurus minor</i>	Waterberg Flat Lizard	Found on low-lying isolated rock outcrops and on the lower slopes of mountains.	Least Concern
Cordylidea	<i>Platysaurus monotropis</i>	Orange-Throated Flat Lizard	Found on rocky outcrops of Waterberg sandstone.	Endangered B1ab(iii)+2ab(iii)
Cordylidea	<i>Platysaurus orientalis orientalis</i>	Sekhukune Flat Lizard.	Occupies rock outcrops typically composed of granites and quartzites.	Least Concern
Cordylidea	<i>Platysaurus orientalis Fitzsimonsi</i>	Fitzsimons's Flat Lizard	Found on low-lying rocky ridges, particularly where there is exfoliating granite with free-standing boulders.	Near Threatened
Cordylidea	<i>Platysaurus relictus</i>	Soutpansberg Flat Lizard	Occurs on north-facing rocky slopes and the crown of ridges on the Soutpansberg, where it is dependent on narrow rock crevices for refuge.	Least Concern
Gerrhosauridae	<i>Gerrhosaurus flavigularis</i>	Yellow-Throated Plated Lizard	Found in a variety of grassland, savanna and fynbos habitats as well as in low, open coastal forest.	Least Concern
Gerrhosauridae	<i>Gerrhosaurus intermedius</i>	Eastern Black-Lined Plated Lizard.	In the Atlas region it is restricted to low elevations in the Savanna Biome. Found in open bushveld where it forages among grass, under bushes and leaf litter at the base of trees.	Least Concern
Gerrhosauridae	<i>Matobosaurus validus</i>	Common Giant Plated Lizard	Found in the Savanna and Grassland biomes, almost exclusively in bushveld areas. Lives communally in rocky outcrop, especially on the upper slopes of large granite hills.	Least Concern
Gerrhosauridae	<i>Tetradactylus eastwoodae</i>	Eastwood's long-Tailed Seps	Presumed to have occurred in open montane grassland.	Extinct
Scincidae	<i>Acontias cregoi</i>	Cregoi's Legless Skink	Fossorial, found in soils with rocky cover on hills at 650 to 1700m	Least Concern
Scincidae	<i>Acontias kgalagadi subteaniatus</i>	Stripe-Bellied Legless Skink	Occurs under rotting logs, rocks or other surface debris in deep sand.	Data Deficient
Scincidae	<i>Acontias occidentalis</i>	Savanna Legless Skink	Fossorial, found in soil under leaf litter or other debris.	Least Concern
Scincidae	<i>Acontias Plumbeus</i>	Giant Legless Skink	Found in mesic microhabitats under leaf litter or other cover in forested or partly-wooded habitats, grasslands or alluvial sands.	Least Concern
Scincidae	<i>Acontias richardi</i>	Richard's Legless Skink	Found under rotting logs in deep aeolian sand deposit on the northern	Near Threatened

			slopes of the Soutpansberg	
Scincidae	<i>Acontias rieppeli</i>	Woodbush Legless Skink	Fossorial, Found in mesic conditions in montane grasslands, usually under stones.	Endangered B1ab(iii)+2ab(iii)
Scincidae	<i>Afroablepharus maculicollis</i>	Spotted-Neck Snake-Eyed Skink	A terrestrial species , very similar in habitat to a wahlbergii and known to occur in symparty with the latter in several areas,. Found in open or rocky savanna.	Least Concern
Scincidae	<i>Afroablepharus wahlbergii</i>	Wahlberg's Snake-Eyed Skink	A ubiquitous terrestrial species found in a wide variety of habitats ranging from rocky outcrops to open Highveld Grasslands usually under suitable cover or in leaf litter.	Least Concern
Scincidae	<i>Mochlus sundevallii sundevallii</i>	Sundevall's Writhing Skink	A fossorial species found in arid, sandy conditions, usually under suitable surface cover such as logs, rocks or leaf litter, mainly in savanna but also grassland.	Least Concern
Scincidae	<i>Trachylepis capensis</i>	Cape Skink	A ubiquitous, terrestrial species found in all major Biomes of South Africa. Although more abundant in grassland, savanna and fynbos.	Least Concern
Scincidae	<i>Trachylepis depressa</i>	Eastern Sand Skink	A terrestrial species found on sandy soils in costal scrub and in moist habitats fringing the Limpopo river	Least Concern
Scincidae	<i>Trachylepis homalocephala</i>	Red-Sided Skink	A Terrestrial species found in moist sandy habitats usually fringing rivers and wetlands. Occurs mainly in lowlands and on lower mountain slopes but occasionally on escarpments.	Least Concern
Scincidae	<i>Trachylepis margaritifera</i>	Rainbow Skink	Arupicolous species that occurs in large colonies on rock outcrops or vertical structures such as houses and walls. Occupies coastal scrub and mesic or arid savanna.	Least Concern
Scincidae	<i>Trachylepis punctatissima</i>	Montane Speckled Skink	Rupicolous and/or semi-arboreal, found on rock outcrops, trees and houses, predominantly along the escarpment and on the Highveld.	Least Concern
Scincidae	<i>Trachylepis punctulata</i>	Speckled Sand Skink	a Terrestrial species found in arid regions, mainly on deep, sandysoils and occasionally on rocky outcrops.	Least Concern
Scincidae	<i>Trachylepis striata</i>	Eastern Striped Skink	Rupicolous or arboreal. Found on trees and other vertical structurcs such as huts and houses.	Least Concern
Scincidae	<i>Trachylepis varia</i>	Variable Skink	A terrestrial species commonly found in open, rocky habitat in coastal scrub, montane grassland and savanna.	Least Concern
Scincidae	<i>Scelotes bidigittatus</i>	Lowveld Dwarf Burrowing Skink	Inhabits vegetated coastal dunes and sandy coastal areas.	Least Concern
Scincidae	<i>Scelotes limpopoensis albiventris</i>	White-Bellied Dward Burrowing Skink	A Fossorial skink, inhabiting deep aeolian sands in woodland.	Near Threatened
Scincidae	<i>Scelotes mirus</i>	Montane Dwarf Burrowing Skink	Inhabits rocky montane grasslands and scrub.	Least Concern

Chamaeleonidea	<i>Bradypodion transvaalense</i>	Northern Dwarf Chameleon; Wlokberg Dwarf Chameleon; Transvaal Dwarf Chameleon.	Found in Forested patches along the eastern escarpments and associated areas usually at high altitudes on mountain slopes and plateaus or in deep gorges.	Least Concern
Chamaeleonidea	<i>Chamaeleo dilepis dilepis</i>	Common Flat-neck Chameleon	Occurs in a variety of habitats; usually found high up in bushes or trees.	Least Concern
Agamidae	<i>Agama aculeata distanti</i>	Eastern Ground Agama; Distant's ground Agama	Found in Grassland and woodland habitat, and sometimes in rocky areas. Savanna; Grasslands.	Least Concern
Agamidae	<i>Agama armata</i>	Northern ground Agama	Sub Saharan end of range northern Limpopo. Areas with deep sand and open woodland.	Least Concern
Agamidae	<i>Agama atra</i>	Southern Tree Agama	Sub Saharan Africa, associated with savanna bushveld. Arboreal, territorial in large trees.	Least Concern
Agamidae	<i>Acanthocerus atricolis atricolis</i>	Southern Rock Agama; South African Rock Agama	A rupicolous lizard found in a variety of rocky habitats, ranging from seashore rocks to rocky hillsides to mountain tops.	Least Concern
Typhlopidae	<i>Afrotyphlops bibronii</i>	Bibron's Blind Snake	Burrows in loos soil and apparently moves into surface soils in search of macro-invertebrate prey items.	Least Concern
Typhlopidae	<i>Megatyphlops schlegelii</i>	Schlegel's Beaked Blind Snake.	Uses its hardened beak to burrow into compact soil, including termitaria, in search of its social macroinvertebrate adult and larval prey.	Least Concern
Leptotyphlopidea	<i>Leptotyphlops distanti</i>	Distant's Thread Snake	Occurs in mesic habitats, ranging from sea level to the Highveld. Found under logs and stones and among the roots of grasses.	Least Concern
Leptotyphlopidea	<i>Leptotyphlops jacobseni</i>	Jacobsen's thread Snake	Restricted to the grasslands of the Afromontane region where it has been found under stones and in old termitaria.	Least Concern
Pythonidae	<i>Python natalensis</i>	South African Python	Found in a wide variety of habitats but usually in riverine or rocky areas, and often in association with large animal burrows.	Least Concern
Viperidea	<i>Bitisartopos</i>	Berg Adder	Occupies grass- or restio-covered mountain slopes and summits. Takes refuge under rock slabs and tussocks of grass.	Least Concern
Lamprophiidae	<i>Amblyodipsas concolor</i>	KwaZulu-Natal Purple-Glossed Snake	Generally associated with moist, well-wooded or forested regions.	Least Concern
Lamprophiidae	<i>Amblyodipsias microphthalmia nigra</i>	*Soutpansberg Purple-Glossed Snake *Black White-Lipped Snake	Apparently it has an association with rocky, broken terrain, as most individuals have been from under rocks and logs.	Least Concern
Lamprophiidae	<i>Homoroselps dorsalis</i>	Striped Harlequin Snake	Partially fossorial and known to inhabit old termitaria in grassland habitat.	Near Treated
Lamprophiidae	<i>Homoroselaps lacteus</i>	Spotted Harlequin Snake	A semi-fossorial species found in sandy substrates, old termitaria and under rocks, from near sea level to elevations of 1800 m.	Least Concern

Lamprophiidae	<i>Xenocalamus bicolor bicolor</i>	Bicoloured Quill-Snouted Snake	Inhabits mainly Kalahari sand sands at altitudes of 1000-1200m	Least Concern
Lamprophiidae	<i>Xenocalamus bicolor australis</i>	Waterberg Quill-Snouted Snake	Inhabits alluvial sands in bushveld. Found at altitudes of 1100-1400,	Least Concern
Lamprophiidae	<i>Xenocalamus sabiensis</i>	Save Quill-Snouted Snake	Inhabits alluvial sands.	Least Concern
Lamprophiidae	<i>Xenocalamus transvaalensis</i>	Speckled Quill-Snouted Snake	Inhabits deep Kalahari and Alluvial sands.	Least Concern
Lamprophiidae	<i>Inyoka swazicus</i>	Swazi Rock Snake	Inhabits rock outcrops in grassland and savanna (Branch 1998). Shelters under rocks on rock, or in crevices, at altitudes of 1 400–1 900 m.	Least Concern
Lamprophiidae	<i>Lamprophis aurora</i>	Auropa Snake	Occurs in grassland, fynbos and moist savanna habitats. Specimens are known from the coast up to the plateau (1 700 m) of the Highveld. Often found near streams and under rocks, occasionally in old termitaria	Least Concern
Lamprophiidae	<i>Lamprophis fuscus</i>	YELLOW-BELLIED SNAKE	A poorly known snake, usually found in moribund termitaria (De Waal 1978; Jacobsen 1989; Branch 1998)	Least Concern
Lamprophiidae	<i>Lamprophis guttatus</i>	SPOTTED ROCK SNAKE	Found in rocky habitats throughout its range. Shelters under rocks or in crevices at altitudes as high as 2 300 m (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Lycodonomorphus inornatus</i>	OLIVE GROUND SNAKE	Inhabits grassland, savanna, fynbos and forest habitats across its distribution (Branch 1998). Shelters under rocks on soil and in or under rotting logs (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Lycodonomorphus laevisimus</i>	<u>DUSKY-BELLIED WATER SNAKE</u>	Inhabits riverine and other aquatic habitats, favouring well-wooded streams (Branch 1998). Often found along perennial streams in grassland; occurs from near sea level to at least 1 700 m (Jacobsen 1989)	Least Concern
Lamprophiidae	<i>Lycodonomorphus obscuriventris</i>	FLOODPLAIN WATER SNAKE	Inhabits lowland swamps and floodplains (Broadley 1990b)	Least Concern
Lamprophiidae	<i>Lycodonomorphus rufulus</i>	BROWN WATER SNAKE	Associated with aquatic habitats including dams, streams and rivers (Branch 1998).	Least Concern
Lamprophiidae	<i>Lycophidion pygmaeum</i>	PYGMY WOLF SNAKE	Inhabits lowland forests, grasslands and mesic savanna habitats. Has also been recorded from pine plantations (Branch 1998).	Near Threatened
Lamprophiidae	<i>Lycophidion variegatum</i>	VARIEGATED WOLF SNAKE	Found in savanna and grassland habitats as well as rocky areas throughout its range. Recorded from rock outcrops, under rocks on rock or soil, and under dead plants or logs, at elevations of 300–1 200 m (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Hemirhagerrhis nototaenia</i>	EASTERN BARK SNAKE	A semi-arboreal species found mainly in savanna, often sheltering under loose bark and cracks in trees, up to altitudes of 1 200 m (Broadley 1990b; Branch 1998; Broadley & Hughes 2000).	Least Concern

Lamprophiidae	<i>Psammophis brevirostris</i>	SHORT-SNOURED GRASS SNAKE	Inhabits grassland and savanna habitats from coastal regions to higher altitudes in the Drakensberg, central Highveld and highlands of eastern Zimbabwe. Shelters in holes in the ground, under rocks and in old termitaria (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Psammophis trinasalis</i>	FORK-MARKED SAND SNAKE	Inhabits arid savannas and grasslands at elevations of 200–1 700 m; often found in old termitaria and occasionally under rocks (De Waal 1978; Jacobsen 1989; Broadley 2002)	Least Concern
Lamprophiidae Genus	<i>Psammophylax rhombeatus rhombeatus</i>	SPOTTED GRASS SNAKE	Very common, found in savanna, grassland, fynbos and desert, from the coast up to about 2 300 m; shelters under rocks on soil, in rock crevices, old termitaria and holes in the ground (De Waal 1978; Jacobsen 1989; Broadley 1990b; Branch 1998).	Least Concern
Lamprophiidae	<i>Prosymna bivittata</i>	TWO-STRIPED SHOVEL-SNOOUT	Found in moist and dry savanna and also in karoo scrub and sandveld in the west of South Africa. In Zimbabwe it seems to prefer open habitats in grassland and sparse thornveld (Broadley 1990b; Branch 1998). Found under rocks on soil and under logs at altitudes of 200–1 400 m (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Prosymna lineata</i>	LINED SHOVEL-SNOOUT	Inhabits sandveld areas and miombo woodland (Broadley 1990b). Found under rocks on rock or soil, and under rotting logs, at altitudes of 300–1 400 m (Jacobsen 1989).	Least Concern
Elapidae	<i>Aspidelaps scutatus scutatus</i>	COMMON SHIELD COBRA	Semi-fossorial and nocturnal, found primarily in sandy areas (Marais 2004). In South Africa <i>A. s. scutatus</i> is found in stony and sandy areas at altitudes of 500–1 300 m; one specimen was observed at night emerging from loose sand and leaf litter at the base of a tree (Jacobsen 1989). May take refuge in rodent burrows by day (Broadley & Baldwin 2006).	Least Concern
Elapidae	<i>Aspidelaps scutatus intermedius</i>	INTERMEDIATE SHIELD COBRA	Semi-fossorial and nocturnal, found primarily in sandy areas (Marais 2004) at altitudes of 90–1 400 m (Jacobsen 1989; Boycott 1992a). May take refuge in rodent burrows by day (Broadley & Baldwin 2006)	Least Concern
Elapidae	<i>Elapsoidea sundevallii</i>	BOULENGER'S GARTER SNAKE	Found in a wide variety of habitats but appears to favour alluvial and aeolian sands (Broadley 1971a). Refugia of <i>E. s. media</i> include old termitaria and the underside of rocks (De Waal 1978). Occurs from sea level to 1 800 m.	Least Concern
Colubridae	<i>Dasypeltis inornata</i>	SOUTHERN BROWN EGG-EATER	Prefers open coastal woodland and moist savanna, sheltering under rocks on rock or soil, from near sea level to over 1 600 m (Jacobsen 1989; Branch 1998).	Least Concern

Colubridae	<i>Dispholidus typus</i>	BOOMSLANG	Largely arboreal in a variety of habitats including Karoo scrub, arid savanna, moist savanna, lowland forest, grassland and fynbos (Marais 2004). Often found moving over open ground, but quickly takes refuge in trees and bushes (Jacobsen 1989).	Least Concern
Colubridae Genus	<i>Philothamnus natalensis natalensis</i>	EASTERN NATAL GREEN SNAKE	Inhabits mainly lowland forest and moist savanna, often along forested river valleys, and is an excellent climber (Marais 2004)	Least Concern
Colubridae	<i>Philothamnus natalensis occidentalis</i>	WESTERN NATAL GREEN SNAKE	Occurs in lowland forest, wooded grassland and forest edge (Bourquin 2004; Marais 2004). Often found in trees and shrubs near water, at altitudes as high as 2000 m (Jacobsen 1989).	Least Concern
Colubridae	<i>Philothamnus semivariegatus</i>	SPOTTED BUSH SNAKE	Inhabits moist savanna, lowland forest and river- banks, as well as shrubby vegetation and rocky regions in the Karoo. It is an excellent climber and forages in shrubs and bushes (Branch 1998; Marais 2004). Occupies crevices in rock outcrops, holes in trees, and large old termite mounds, and is also found under tree bark, at altitudes as high as 2000 m (Jacobsen 1989).	Least Concern
Colubridae	<i>Telescopus semiannulatus semiannulatus</i>	EASTERN TIGER SNAKE	Found in arid and moist savanna and lowland forest, where it shelters under bark, loose flakes of rock and in rock crevices (Marais 2004). It is also known to climb trees (Broadley 1990b).	Least Concern
Colubridae	<i>Thelotornis capensis capensis</i>	SOUTHERN TWIG SNAKE	Inhabits trees and shrubs in coastal thicket, forest fringes and savanna (Broadley 1990b; Branch 1998)	Least Concern

Table 1: Potential Frog assemblage for northern Limpopo

Scientific Name Common Name	Habitat/Biome	Distribution	Status
<i>Arthroleptis stenodactylus</i> Shovel-footed Squeaker	In the atlas region, this species occurs in wooded areas with abundant leaf litter and sandy soils. Along the coast it inhabits Dune Forest and forest patches in Coastal Bushveld/ Grassland, in the northern Kruger National Park it was found in the leaf litter of riverine woodland (H.H. Braack pers. comm.). Breeding takes place in the same habitat.	<i>A. stenodactylus</i> is a widespread species that extends from southern and eastern Zaire to Kenya, south to Zimbabwe and Mozambique. In the atlas region it has a peripheral distribution, occurring along the coastal plain north of Empangeni (2831DD), and in the Limpopo River valley in the extreme north of Limpopo Province. This species is easily recognized by its call. The atlas data are reliable.	Least Concern
<i>Bufo fenoulheti</i> Northern Pygmy Toad,	<i>B. fenoulheti</i> inhabits a variety of bushveld vegetation types in the Savanna Biome and is occasionally found in adjacent grassland. Its distribution lies within the summer-rainfall region. Although occasionally found in sandy areas, these frogs usually occupy rocky outcrops, taking refuge between rocks or on soil under stones.	<i>Fenoulheti</i> occurs from Zeerust (2526CA) in North West Province, eastward through Limpopo Province and northern Gauteng to northern and eastern Mpumalanga, and extends southward through the northeastern parts of Swaziland and KwaZulu-Natal to St Lucia.	Least Concern
<i>Bufo garmani</i> Eastern Olive Toad	This species inhabits various bushveld vegetation types in the Savanna Biome and seems to prefer well-wooded, low-lying areas with high daytime temperatures. During the day, individuals may be found under fallen logs, rocks and mats of vegetation, or beneath any object that provides shelter around houses. In northern Kruger National Park, specimens have been found in abandoned termitaria.	<i>Garmani</i> has a wide distribution in the eastern savannas of Africa, ranging from Somalia in the north to South Africa in the south (Poynton 1964; Channing 1991). In the atlas region, the species occurs in northern KwaZulu-Natal and extends to the northwest through the lowveld of Swaziland, Mpumalanga and Limpopo provinces, and westward along the Limpopo River valley.	Least Concern
<i>Bufo gutturalis</i> Guttural Toad	<i>Gutturalis</i> inhabits various vegetation types in the Savanna, Grassland and Thicket biomes at altitudes ranging from sea-level to about 1800 m. In the east, the species is sometimes found in forest clearings and forest/grassland ecotones, while in the west it has a linear distribution along the wooded banks of the Gariep River.	<i>Gutturalis</i> is distributed from western Uganda eastward to coastal Kenya and southward through Tanzania, Zambia, Malawi, Mozambique, Zimbabwe and Botswana, to South Africa (Tandy 1972). In the atlas region, its distribution is centred in the northeast, particularly in the KwaZulu-Natal, Mpumalanga, Gauteng, central Limpopo, eastern West, and northern and eastern Free State provinces, and Swaziland.	Least Concern
<i>Bufo maculatus</i> Flat-backed Toad	In the atlas region, this species inhabits various vegetation types within the Savanna and Grassland biomes, on the Zululand coastal plain (Lambiris 1989a), in the Swaziland lowveld and middleveld (Boycott 1992), and in the lowveld and bushveld of northeastern South Africa. It is usually associated with riverine habitats: in Swaziland the species is almost always associated with medium and large rivers and is seldom found at pans, borrow pits or dams. In Ivory Coast, the species occurs in both forest and savanna habitats.	<i>Maculatus</i> is probably the most widespread toad in Africa, occurring in West Africa, East Africa and southern Africa. These toads occur quite far inland in Swaziland and adjacent South Africa, where their distribution range extends up the larger river valleys, including the Nkomati, Mlumati, Elands, Olifants and Limpopo rivers.	Least Concern
<i>Bufo poweri</i> Western Olive Toad	This species inhabits thornveld and open savanna in lower-rainfall areas of the Savanna Biome, including river valleys on Kalahari sand. Activity patterns and movements require further study, but these toads are probably inactive for substantial periods, especially in drier areas, as they take shelter under logs, grass tussocks or in rock crannies, and emerge opportunistically after rain or on humid nights.	At present, <i>B. poweri</i> is a poorly defined species that, in the view of some authors, represents nothing more than a geographical variant of <i>B. garmani</i> . Within the atlas region, the species has been recorded north of 30°S in the Northern Cape Province, and in adjoining areas in the western and northwestern Free State, localities throughout North West Province and the area west of 29°E in Gauteng and Limpopo provinces.	Least Concern

<p><i>Bufo rangeri</i> Raucous Toad,</p>	<p>Rangeri inhabits mesic temperate areas of South Africa, Lesotho and Swaziland, a distribution that encompasses much of the Fynbos and Grassland biomes. It also occurs peripherally in the Succulent Karoo, Nama Karoo, Thicket, Forest and Savanna biomes. The species is absent from the sub-alpine grasslands of Lesotho, upper montane areas of the Western Cape, the Cape Peninsula, Saldanha Peninsula and Swartland in the southwest, and from the lowveld and drier parts of Limpopo, Mpumalanga and KwaZulu-Natal provinces and Swaziland.</p>	<p><i>Bufo rangeri</i> is endemic to the atlas region. Its range includes all provinces of South. Throuhg Mpumalanga , to the Soutpansberg range of Limpopo Province.</p>	<p>Least Concern</p>
<p><i>Bufo vertebralis</i> Southern Pygmy Toad</p>	<p><i>B. vertebralis</i> inhabits primarily the Nama Karoo Biome but is also found in parts of the Savanna and Grassland biomes. The species is largely restricted to summer rainfall areas, but has been recorded in some parts of the Nama Karoo that are transitional between summer and winter rainfall. It occurs on a variety of substrates, from brackish soils to gravels, in open sandy and grassy areas and in Karoo scrub. It takes refuge under rocks and logs.</p>	<p><i>B. vertebralis</i> is endemic to the atlas region, although recent records from North West Province suggest that it may also occur in southern Botswana. Further north, the species has been recorded in two apparently isolated populations, namely, the Koppies area (2727BA) of the northern Free State, and on the border between Limpopo and North West provinces (recent atlas data) where it appears to occur in sympatry with <i>B. fenoulheti</i>.</p>	<p>Least Concern</p>
<p><i>Schismaderma carens</i> Red Toad</p>	<p>This species inhabits a wide variety of vegetation types, primarily in the Savanna biome, but is also found in Grassland vegetation types, such as Rocky Highveld Grassland in Gauteng (Poynton and Broadley 1988; Lambiris 1989a). It breeds in deep, muddy pools or dams in these habitats.</p>	<p>The Red Toad occurs from southeastern Democratic Republic of Congo and Tanzania, southward to Botswana, Zimbabwe and Mozambique. In the atlas region, <i>S. carens</i> is found from Vryburg in NorthWest Province, eastward through the northern Free State, Gauteng, Limpopo Province, northern and eastern Mpumalanga and Swaziland, and southward throughout KwaZulu-Natal to Port Edward. Within this area the species appears to be absent from the relatively cool highveld rasslands between Wakkerstroom and Dullstroom in Mpumalanga, and the relatively hot and dry Limpopo River valley.</p>	<p>Least Concern</p>
<p><i>Heleophryne natalensis</i> Natal Ghost Frog</p>	<p><i>H. natalensis</i> inhabits clear, swift-flowing streams in mountainous terrain; these waters flow through wooded and forested habitat and have headwaters in montane grassland. Annual rainfall in these habitats is 800– 2700 mm. Adults often frequent waterfalls and cas- cades, where they may be found beneath submerged rocks, in rock cracks, in caves, or sometimes in exposed positions on wet rock faces. Tadpoles live on rocky substrates in swift-flowing streams; when disturbed they take cover beneath rocks or in cracks (Boycott in prep.). This species occupies both Forest and Grassland biomes. Vegetation types include Afromontane Forest, Wet Cold Highveld Grassland, Moist Upland Grassland, North-eastern Mountain Grassland, Afro Mountain Grassland and Short Mistbelt Grassland.</p>	<p><i>H. natalensis</i> is endemic to the atlas region. It occurs throughout the Drakensberg and Maluti mountains and along the great escarpment of South Africa, Swaziland and Lesotho. The recorded altitudinal range is 580– 2675 m (Boycott in prep.). The atlas records are reliable but incomplete, espe- cially for most of Lesotho. This species should be easy to detect since the tadpoles are easily identified and are present in streams throughout the year. Channing (2001) expressed the opinion that this taxon contains a number of cryptic species and that field and laboratory investi- gations should be undertaken to explore this possibility</p>	<p>Least Concern</p>
<p><i>Hemisus guineensis broadleyi</i> Guinea Shovel-nosed Frog</p>	<p>Channing (2001: 122) recorded the habitat of <i>H. guine- ensis</i> as “grassland and open bush where temporary pans are formed in the rainy season”. The recorded localities for <i>H. g. broadleyi</i> in Limpopo Province are situated in Mopane Bushveld in the Savanna Biome</p>	<p><i>H. guineensis broadleyi</i>, a subspecies of the West Afri- can <i>H. guineensis</i>, is distributed through Angola, north- ern Botswana, Zimbabwe, Zambia and Mozambique. Museum specimens collected at two localities in Limpopo Province: the farms Bridgewater (263MS; 2229CA), 25 km northeast of Alldays, and Rochdale (700MS; 2229DC), 8 km east of Waterpoort, have been assigned to this species (Poynton and Broadley 1985a; Jacobsen 1989).</p>	<p>Least Concern</p>

<p><i>Hemismus marmoratus</i> Mottled Shovel-nosed Frog</p>	<p>This species thrives in semi-arid environments and is well-adapted to breeding in shallow, temporary water bodies. In the atlas region it inhabits a variety of bush- veld vegetation types in the Savanna Biome. Breeding habitat includes pans, waterholes or artificial impoundments, as well as the isolated pools that form in riverbeds as water levels drop. The substrate usually consists of fine mud or clay, but burrows have been observed in coarser sandy sediments too. In West Africa, <i>H. marmoratus</i> is found mainly in savanna habitats but also occurs in forest, and tadpoles have been encountered in a wide range of water bodies, except major rivers (Rödel 2000).</p>	<p><i>H. marmoratus</i> is a wide-ranging inhabitant of the savannas of sub-Saharan Africa, from Senegal in the west, to Ethiopia and Somalia in the east, and southward to Angola, eastern Namibia Botswana, Zimbabwe and Mozambique (Poynton and Broadley 1985a). In the atlas region the species is distributed from Derdepoort (2426DA) in the far western corner of Limpopo Province, eastward across the dry northern and central parts of the province into the lowveld, and south through eastern Mpumalanga and central and eastern Swaziland to northern KwaZulu-Natal, reaching Mfolozi (2831BD) and Ntambanana district (2831DB) in the south. In 1999, it was recorded in Gauteng Province in a borrow pit at Burkea Park near Pretoria, but this outlying record may represent an accidental translocation.</p>	<p>Least Concern</p>
<p><i>Afrixalus aureus</i> Golden Leaf-folding Frog</p>	<p><i>A. aureus</i> is a savanna species which inhabits Coastal Bushveld-Grassland, a mosaic of vegetation types found from sea level to an altitude of 300 m along the coast of northern KwaZulu-Natal, as well as various other bush- veld vegetation types, such as Mixed Lowveld Bush-veld, at altitudes of 200–300 m, east of the eastern escarpment (Jacobsen 1989). Along the coast, it seems to prefer drier habitats than those occupied by <i>A. delicatus</i> and <i>A. spinifrons</i> and it does not usually utilize the same breeding sites as the latter species (Pickersgill 1984; M.P. pers. obs.).</p>	<p>This species ranges northward into southern Mozambique (Pickersgill 1984; Poynton and Broadley 1987). Within the atlas region, <i>A. aureus</i> is a locally abundant species that occurs from the northeastern parts of the Limpopo Province, southward through eastern Mpumalanga, central and eastern Swaziland, to northern KwaZulu-Natal. It is usually abundant at its breeding sites and easy to identify by its call. Although <i>A. aureus</i> and <i>A. delicatus</i> are morphologically similar, their calls are quite distinct and they usually use different breeding sites. The atlas data for <i>A. aureus</i> are reasonably complete and reliable</p>	<p>Least Concern</p>
<p><i>Hyperolius marmoratus</i> Painted Reed Frog</p>	<p>inhabits a variety of vegetation types within the Savanna, Grassland and Forest biomes, and occurs marginally in the Fynbos Biome. It is a wide- spread and abundant species along the coast and at low altitudes east of the Great Escarpment in Limpopo Province, Mpumalanga and Swaziland. However, large breeding populations are also recorded at higher elevations, e.g., 1300 m at Ixopo (3030AA) in the KwaZulu- Natal Midlands, and 1400 m at Haenertsburg (2329DD) in Limpopo Province. Jacobsen (1989) recorded this species in montane grassland at 1600 m.</p>	<p><i>H. marmoratus</i> distributed through sub-Saharan Africa, of which three occur in the atlas region. <i>H. m. taeniatus</i> is distributed from Limpopo Province, Mpumalanga and Swaziland, southward to about St Lucia (2832AD), where it intergrades with <i>H. m. marmoratus</i> (Lambiris 1989a).</p>	<p>Least Concern</p>
<p><i>Hyperolius pusillus</i> Water Lily Frog</p>	<p><i>H. pusillus</i> inhabits open savanna and grassland, breeding in shallow pans, ponds, vleis and dams with water lilies <i>Nymphaea</i> sp., or at least some form of floating vegetation. In the atlas region it occurs in a variety of bushveld vegetation types, from Coastal Bushveld- Grassland along the coast of the Eastern Cape and KwaZulu-Natal, to Mixed Lowveld Bushveld in the low-lying areas of Limpopo Province, east of the Great Escarpment. During the atlas survey, breeding populations were also found in ponds in plantations of pine and Eucalyptus, south of Piet Retief (2730BA, 2730BC)</p>	<p><i>H. pusillus</i> is distributed from southern Somalia, southward through East Africa to Mozambique, eastern Zimbabwe and Swaziland (Poynton and Broadley 1987; Channing 2001). Within the atlas region it occurs as far south as Cebe (3228DA) in the Eastern Cape. The species usually occurs in low-lying coastal areas but, further inland in the northern parts of the atlas region, it is found at higher altitudes, as in Malawi and north- western Botswana (Channing 2001).</p>	<p>Least Concern</p>
<p><i>Kassina maculata</i> Red-Legged Kassina</p>	<p>This species inhabits a wide variety of bushveld vegetation types, predominantly Mixed and Sweet Lowveld Bushveld, and Coastal Bushveld-Grassland, in the Savanna Biome. The breeding habitat consists of well- vegetated pans, vleis, marshes and dams.</p>	<p><i>K. maculata</i> is essentially a lowland species, although there is an unusual record of specimens from the Vumba Mountains (Zimbabwe) at an altitude of 1400 m (Poynton 1964). North of the atlas region, the species occurs throughout Mozambique and the eastern lowlands of Zimbabwe, Malawi, Tanzania and Kenya. In the atlas region, <i>K. maculata</i> ranges from Pafuri (2231AD) in northeastern Limpopo Province, through eastern Mpumalanga and eastern Swaziland to the coastal lowlands of KwaZulu-Natal, and south to Shakaskraal (2931AC). Although seldom seen, these frogs can be easily identified by their characteristic call that carries a considerable distance. The atlas data are reliable and reasonably complete. Gaps in distribution in Mpumalanga and Limpopo provinces do not reflect an absence of the species.</p>	<p>Least Concern</p>

<p><i>Kassina senegalensis</i> Bubbling Kassina</p>	<p><i>K. senegalensis</i> inhabits a wide variety of vegetation types in the Savanna and Grassland biomes (Poynton 1964; Balinsky 1969; Passmore and Carruthers 1995). Breeding habitat comprises both temporary and permanent water bodies, including well-vegetated shallow pans, vleis and marshes, as well as deeper dams (Rödel 2000).</p>	<p><i>K. senegalensis</i> is one of the region's most widely distributed frog species, occurring throughout almost all of sub-Saharan Africa. It is found in suitable habitats at low and high altitudes, from Senegal in West Africa, eastward to Somalia and southward to South Africa. In the atlas region, this species is common in all provinces except Western Cape Province (apart from one record), the western part of Eastern Cape Province and the central and western parts of Northern Cape Province</p>	<p>Least Concern</p>
<p><i>Leptopelis mossambicus</i> Brown-backed Tree Frog</p>	<p>In the atlas region, this species inhabits a variety of bushveld vegetation types in the Savanna Biome, as well as Sand Forest and mangrove swamps. It seems to prefer moist, wooded, low-lying areas where it lays its eggs under leaf litter next to shallow pans, pools and streams. It has been recorded from relatively high altitudes in southern Malawi to sea level along the KwaZulu-Natal coast.</p>	<p><i>L. mossambicus</i> is distributed from southern Malawi through southeastern Zimbabwe to central and southern Mozambique (Poynton and Broadley 1987; Lambiris 1989a). In the atlas region, it occurs in the low-lying eastern parts of Limpopo Province, eastern Mpumalanga, Swaziland and northern KwaZulu-Natal. The southernmost record collected during the atlas survey at Everton (2930DD), and the historical record from Wentworth, Durban (2931CC), are disjunct from the main distribution further to the north. This break in distribution may reflect inadequate sampling. The colour, markings and call of <i>L. mossambicus</i> are distinctive, and it cannot be mistaken for any other frog species in the atlas region. The atlas data are reliable and reasonably complete.</p>	<p>Least Concern</p>
<p><i>Breviceps adspersus</i> Bushveld Rain Frog</p>	<p><i>B. a. adspersus</i> inhabits semi-arid habitats with sandy to sandy-loam soils. Its distribution closely matches that of the Savanna Biome, particularly the bushveld vegetation types that are characterized by "a grassy ground layer and a distinct upper layer of woody plants" (Low and Rebelo 1996). It is conspicuously absent from the Grassland and Forest biomes.</p>	<p>Beyond the atlas region, <i>B. adspersus</i> occurs in Namibia, Botswana, Zimbabwe, southern Zambia, and Mozambique (Poynton and Broadley 1985a). In the atlas region, the subspecies <i>B. a. adspersus</i> occurs in its preferred habitat throughout most of Limpopo and North West provinces, the northern Free State, the eastern parts of Northern Cape, Gauteng, Mpumalanga, central and eastern Swaziland, and at lower elevations in KwaZulu-Natal, as far south as Margate (3030CD).</p>	<p>Least Concern</p>
<p><i>Breviceps mossambicus</i> Mozambique Rain Frog</p>	<p>This species inhabits parts of the Savanna and Grassland biomes where the annual rainfall exceeds 700 mm. Coastal populations of <i>B. mossambicus</i> in KwaZulu-Natal and the Eastern Cape inhabit well-drained, sandy soils in Coastal Bushveld-Grassland, Coastal Hinterland Bushveld and Natal Lowveld Bushveld.</p>	<p>The extralimital distribution of <i>B. mossambicus</i> includes southern Tanzania, Malawi, Mozambique, Zambia, Zimbabwe, and eastern Botswana (Poynton and Broadley 1985a). In the atlas region this species occurs on the coastal plain of KwaZulu-Natal, extending southward as far as Mkambati (3129DA) in Eastern Cape Province, while in the interior it is found in the foothills and along the crest of the Lebombo Mountains and the Great Escarpment of KwaZulu-Natal, Swaziland, Mpumalanga and Limpopo Province, extending northward as far as Haenertsburg (2329DD).</p>	<p>Least Concern</p>
	<p>The breeding and non-breeding habitat is Afromontane Forest and adjacent North-eastern Mountain Grassland. In the breeding season, males call from closed-canopy forest, the forest fringe and adjacent open grassland in mountainous terrain. Calling males have also been encountered in disturbed habitats such as wooded parks and gardens, and in pine plantations on the fringe of indigenous forest. In winter, specimens have been found under rocks and logs in indigenous forest (Minter 1998)</p>	<p><i>B. sylvestris</i> is endemic to Limpopo Province, where it occurs on the slopes and crests of the Blouberg, Soutpansberg, Wolkberg and Drakensberg ranges. It is locally abundant but its distribution is restricted to isolated fragments of its natural habitat that have not yet been subjected to afforestation or other forms of agriculture.</p>	<p>Vulnerable B1ab(ii,iii,iv,v)+ 2ab(ii,iii,iv,v)</p>

	In the atlas region, <i>P. annectens</i> occurs in the far- northern parts of the Succulent Karoo and Nama Karoo biomes where it is associated with inselbergs and other rock exposures. The pools of rainwater trapped in these outcrops provide breeding habitat. The average annual rainfall in this region is <60 mm, falling mainly in winter in the west (Richtersveld) and in summer in the east (Bushmanland).	<i>P. annectens</i> is endemic to the larger Namib region, from Angola southward through western Namibia, reaching South Africa in the extreme northern parts of Northern Cape Province. In the atlas region, it is known from the Augrabies Falls, the Richtersveld around the Vandersterrberg Mountains, and the rocky areas between Aggenys/Pofadder and the Gariep (Orange) River. These areas range from 600 to 1200 m in altitude. The atlas survey added several new Bushmanland localities for <i>P. annectens</i> . The species probably occurs in other localities with suitable habitat in the Richters- veld and in Bushmanland south of the Gariep (Orange) River. The atlas data are reliable but likely to be in- complete.	Least Concern
<i>Phrynomantis bifasciatus</i> Banded Rubber Frog	<i>P. bifasciatus</i> inhabits a variety of bushveld vegetation types in the Savanna Biome, at altitudes of 50–1450 m. It appears to be adapted to living in hot, semi-arid environments. Breeding takes place in temporary pans and pools, flooded grassland and small, shallow dams (Wager 1965; Jacobsen 1989; Lambiris 1989a)	This widespread species is distributed from the Demo- cratic Republic of Congo, eastern Ethiopia and Soma- lia, south through East Africa to northeastern South Africa. Its range extends westward through northern Botswana and northern Namibia to southern Angola. In the atlas region, <i>P. bifasciatus</i> is recorded from northern KwaZulu-Natal (north of 29°S), Swaziland, eastern Mpumalanga, Limpopo Province, northern Gauteng and the central and northern parts of North West Province (north of 27°S and east of 24°E)	Least Concern
<i>Cacosternum boettgeri</i> Boettger's Caco	<i>C. boettgeri</i> inhabits a wide variety of vegetation types in the Nama Karoo, Succulent Karoo, Savanna, Grass- land, Fynbos and Thicket biomes, but is usually absent from forest, although it is sometimes found in forest clearings. Within these biomes, it favours open areas with short vegetation and is especially abundant in grassy areas. This species can tolerate drier habitats than <i>C. nanum</i> , but also occurs in high rainfall areas (Van Dijk 1977).	<i>C. boettgeri</i> is one of the most widespread and abundant frog species in the atlas region, occurring in most suit- able habitat throughout its range at both high and low elevations. The species is absent from Namaqualand, the highlands of Lesotho, the top of the Soutpansberg and along much of the Mpumalanga escarpment.	Least Concern
<i>Cacosternum nanum nanum</i> Bronze Caco	<i>C. n. nanum</i> inhabits a wide variety of vegetation types in the Fynbos, Savanna, Grassland, Thicket and Forest biomes, occurring in areas of relatively high rainfall (Van Dijk 1971b). Breeding sites include small ponds, dams, vleis, streams, rain pools alongside roads, inun- dated grass and pasture.	<i>Cacosternum nanum</i> currently contains two subspecies: <i>C. n. nanum</i> and <i>C. n. parvum</i> (Poynton 1963; Lambiris 1989a). However, research in progress has produced morphological, behavioural and genetic evidence that justifies raising the taxonomic status of <i>C. n. parvum</i> to that of a full species (E. Scott in prep.). During the col- lection of atlas data it was possible to distinguish between these two taxa on the basis of differences in their advertisement calls. Therefore separate distribution maps have been produced, but the taxa are still treated as subspecies in this atlas, pending formal elevation of <i>C. n. parvum</i> to species status.	Least Concern
<i>Phrynobatrachus mababiensis</i> Dwarf Puddle Frog	<i>P. mababiensis</i> inhabits open to wooded savanna and, less frequently, grassland, where summer rainfall is 500–1000 mm p.a. It breeds in shallow stagnant water amongst emergent vegetation on the edges of grassy pans, vleis, marshes, small dams and ponds, and in the backwaters of slow-flowing streams. The species is also found in disturbed habitats near villages and other developments.	<i>P. mababiensis</i> occurs from the Sahel of East Africa to the Eastern Cape Province, South Africa, west to Namibia and southern Angola (Frost 2000). In the atlas region, it is found along the coastal plain from about Qolora Mouth (3228CB) in Eastern Cape Province, northward through KwaZulu-Natal, Swaziland, Kruger National Park and surrounding lowlands, from sea level to 1500 m. Earlier records from the western parts of Limpopo Prov- ince indicate that this species may be expected to occur across the province via the Limpopo valley.	Least Concern
<i>Phrynobatrachus natalensis</i> Snoring Puddle Frog	<i>P. natalensis</i> inhabits a variety of vegetation types in the Savanna and Grassland biomes where summer rainfall is >500 mm, although some populations along the west- ern edge of the species' range are found in drier areas. The polymorphic colour pattern may be a means of pro- tection against predators, and specific patterns have been correlated with particular habitats (Stewart 1974).	<i>P. natalensis</i> is widely distributed in the savannas of sub-Saharan Africa, from Senegal in the west to Soma- lia in the east and southward through East Africa. To the south, it ranges as far as northeastern Namibia, northern Botswana, and Eastern Cape Province of South Africa. The variation in clutch size, tadpole morphology, size of the adult frog and period of activity, suggests that this	Least Concern

		taxon may comprise more than one species (Rödel 2000).	
<i>Xenopus laevis</i> Common Platanna	This species inhabits all of the biomes in the atlas re- gion. Prior to the advent of modern agriculture, X. laevis probably occurred in low densities in natural water bodies, such as streams, rivers and their pools. Nowa- days, however, the species is also found in a variety of man-made water bodies such as farm dams, ponds, sewage purification works and fish farms. Eutrophic waters seem to produce the highest densities.	In the atlas region, X. laevis is a common and wide- spread species, occurring from sea level to nearly 3000 m in Lesotho. In the west, it is apparently absent in areas of extreme aridity, including much of the Kalahari and Bushmanland in Northern Cape Province, although this may be due to inadequate sampling. Its distribution extends eastward as far as the Great Escarp- ment, where it comes into contact with X. muelleri in the low-lying parts of Limpopo and Mpumalanga provinces	Least Concern
<i>Xenopus muelleri</i> Müller's Platanna	X. muelleri inhabits all types of water bodies, including lowland rivers, lagoons, dams and pans (Poynton and Broadley 1985a), mainly in the Grassland and Savanna biomes. It is seldom found in pristine forest habitats, but readily moves into deforested areas (Tinsley et al. 1996)	The distribution of X. muelleri in sub-Saharan Africa is divided into two distinct areas containing animals that are morphologically similar but probably represent allopatric sibling species. Within the atlas region, this species is confined to low-lying areas in northern and eastern Limpopo Prov- ince, eastern Mpumalanga and Swaziland, and north- eastern KwaZulu-Natal, which form the western and southern limits of the Mozambique plain.	Least Concern
<i>Afrana angolensis</i> Common River Frog	A. angolensis inhabits the Grassland and Savanna biomes, and forest fringe. Annual rainfall in these areas is 500–900 mm. The species tolerates some habitat dis- turbance and is frequently associated with human habi- tation, taking up residence in ditches and ponds, often where reeds and water lilies are present.	This widespread species is distributed from Ethiopia, south through East Africa to southern Africa, and west- ward to Angola (Poynton 1964). It occurs mainly in the eastern half of the atlas region, from just within the east- ern border of Western Cape Province, northward at all altitudes up to 2000 m. A. angolensis has been recorded from the Vaal and Gariep (Orange) river drainages west- ward to the coast, and at a few scattered localities in the interior of Northern Cape Province. However, records from Lesotho should be treated with circumspection because of the difficulties in distinguishing the species from A. dracomontana.	Least Concern
<i>Hildebrandtia ornata</i> Southern Ornate Frog	n South Africa, the species inhabits a variety of bush- veld vegetation types in the Savanna Biome, particularly areas with deep, sandy soils. It breeds in shallow tem- porary pans in dry, open woodland, often with emergent grass, and has also been recorded calling from pools on top of granite inselbergs (Jacobsen 1989; Lambiris 1989a; Channing 2001).	H. ornata has a wide distribution, from tropical West and East Africa, south as far as central Namibia and east through northern Botswana and Zimbabwe to Mozam- bique and South Africa (Poynton and Broadley 1985b). In the atlas region, H. ornata has been recorded as far west as 2426BC (35 km northwest of Dwaalboom) and it follows the Limpopo River eastward through the northern and eastern parts of Limpopo Province. To the south it occurs east of the Great Escarpment, through eastern Mpumalanga and Swaziland to northern Kwa-Zulu-Natal, and as far south as Mkuzi Game Reserve (2732CB).	Least Concern
<i>Ptychadena anchietae</i> Plain Grass Frog	P. anchietae is a widespread inhabitant of the savanna biome in the northeastern part of the atlas region, between 20 and 1450 m a.s.l. It occurs in relatively moist, coastal bushveld vegetation types with a minimum annual rain- fall in excess of 600 mm, as well as in more arid habitats such as Mixed Bushveld, which experiences a minimum annual rainfall of 350 mm (Low and Rebelo 1996). Indi- viduals are often found sheltering amongst grass and plant debris on the edges of their breeding sites, which include temporary pans, shallow pools in riverbeds, borrow pits, waterholes, as well as more permanent vleis and dams (Stewart 1967; Jacobsen 1989)	P. anchietae occurs in savanna habitat in all sub- Saharan countries from Angola to Ethiopia in the north, southward to eastern Namibia (Caprivi), eastern Bot- swana, Zimbabwe and Mozambique (Poynton and Broadley 1985b). In the atlas region, it occurs in the eastern half of North West Province, northern Gauteng, throughout Limpopo Province, northern and eastern Mpumalanga, central and eastern Swaziland and north- ern and eastern KwaZulu-Natal. It has been recorded as far west as Barberspan (2625DA) and as far south as Gingindlovo (2931BA). There is one atlas record in the northern Free State (2726AD).	Least Concern

<p><i>Ptychadena mossambica</i> Broad-banded Grass Frog</p>	<p>This savanna species inhabits several bushveld vegetation types in the northeastern parts of the atlas region, at altitudes of 200–1200 m. (Jacobsen 1989). Annual rainfall in these habitats is 350–>1000 mm. <i>P. mossambica</i> and <i>P. anchietae</i> are both savanna species and often occupy the same breeding sites. However, Poynton and Broadley (1985b) cited a record of <i>P. mossambica</i> collected in evergreen forest in Mozambique, while Loveridge (1953a) collected specimens in open grass-land, indicating that this species has adapted to a wider range of habitats than <i>P. anchietae</i>.</p>	<p><i>P. mossambica</i> occurs in open savanna from Kenya and Uganda southward through East Africa to Namibia (Caprivi), Botswana, Zimbabwe and Mozambique (Poynton and Broadley 1985b; Channing 2001). In the atlas region it occurs in the northeastern parts of North West Province, Limpopo Province, eastern Mpumalanga, eastern Swaziland and northern KwaZulu-Natal. Its recorded range extends west as far as Gopane (2525BD), and southward to Mtunzini (2831DD). This is a highly variable taxon which requires further taxonomic investigation (Poynton and Broadley 1985b; Channing 2001). <i>P. mossambica</i> has a loud and distinctive call and breeds over an extended period. The atlas data are reasonably complete and reliable, although the species is probably more widespread in Limpopo Province than is indicated by the map.</p>	<p>Least Concern</p>
<p><i>Ptychadena oxyrhynchus</i> Sharp-nosed Grass Frog</p>	<p><i>P. oxyrhynchus</i> inhabits relatively moist, open savanna and woodland, and is less specific in its choice of breeding site than the other <i>Ptychadena</i> species, using vleis, inundated grassland and sedge pans, as well as temporary pools, such as roadside puddles and pools on rock outcrops (Stewart 1967; Passmore 1978; Poynton and Broadley 1985b). It occurs in most of the bushveld vegetation types in the northeastern parts of the atlas region, from the coast to 850 m a.s.l., which receive 450–>1000 mm of rain p.a. (Jacobsen 1989; Low and Rebelo 1996). When foraging it may enter indigenous forests and plantations of pine and eucalypts (Poynton and Broadley 1985b; Passmore 1978).</p>	<p>This widespread species occupies savanna and woodland from Senegal, through West Africa and southward to Angola, eastern Namibia (Caprivi), northern Botswana, Zimbabwe and Mozambique (Poynton 1964; Poynton and Broadley 1985b; Channing 2001). In the atlas region, <i>P. oxyrhynchus</i> is recorded from only a few scattered localities in Limpopo Province, extending as far west as Bochum (2329AC), but is more common in eastern Mpumalanga, most of Swaziland and KwaZulu-Natal, and the northeastern part of Eastern Cape Province, almost reaching East London in the south (3327BA).</p>	<p>Least Concern</p>
<p><i>Ptychadena porosissima</i> Striped Grass Frog</p>	<p><i>P. porosissima</i> has adapted to a wider range of habitats than the other <i>Ptychadena</i> species in the atlas region: from the sub-tropical coastal environment of KwaZulu-Natal, to temperate grassland along the crest of the great escarpment and the highveld and, occasionally, wooded grassland (Passmore 1978; Jacobsen 1989). It is also widely distributed at high elevations in Malawi and other parts of Africa (Stewart 1967). In the atlas region, this species inhabits a variety of vegetation types in the Grassland Biome.</p>	<p><i>P. porosissima</i> is distributed from Ethiopia, southern Zaire and Angola, southward throughout East Africa to Zambia, Zimbabwe and southern Mozambique (Stewart 1967; Poynton and Broadley 1985b; Channing 2001). In the atlas region it is recorded from a few scattered localities in Limpopo and Gauteng provinces, but is more widely distributed in Mpumalanga, western Swaziland, KwaZulu-Natal, and the northeastern part of Eastern Cape Province, almost reaching East London in the south (3227DD).</p>	<p>Least Concern</p>
<p><i>Ptychadena uzungwensis</i> Udzungwa Grass Frog</p>	<p><i>P. uzungwensis</i> inhabits medium- to high-altitude grassland at 800–2300 m in the vicinity of pools and seepages (Stewart 1967). It is adapted to a temperate climate and resembles <i>P. porosissima</i> in this respect. In the atlas region it was found sheltering among grass tussocks on a dolerite outcrop, at the edges of small pools, and in a seepage area above a stream, in Northeastern Mountain Grassland, at an altitude of c.1500 m. (Jacobsen 1989)</p>	<p><i>P. uzungwensis</i> is recorded from Tanzania, Rwanda and Burundi, southward to Angola, Zambia, Zimbabwe and central Mozambique (Stewart 1967; Poynton and Broadley 1985b; Channing 2001). In the atlas region it is recorded from only three localities in the Soutpansberg, Limpopo Province: Bluegumspoort (2229DD), Entabeni Forest Reserve and Outlook (2230CD).</p>	<p>Least Concern</p>
<p><i>Pyxicephalus adspersus</i> Giant Bullfrog</p>	<p><i>P. adspersus</i> inhabits a variety of vegetation types in the Grassland, Savanna, Nama Karoo and Thicket biomes. It typically breeds in seasonal, shallow, grassy pans in flat, open areas but also utilizes non-permanent vleis and shallow water on the margins of waterholes and dams. Although they sometimes inhabit clay soils, they prefer sandy substrates.</p>	<p><i>P. adspersus</i> is widely distributed in the atlas region, mainly at higher elevations. It occurs in the northeastern part of the Western Cape, central and southern Eastern Cape, northern, central and eastern parts of Northern Cape, northern KwaZulu-Natal (except the low-lying parts), Free State, North West, Gauteng and Limpopo provinces, and at only a few localities in Mpumalanga Province. North of the atlas region, its range extends to central Namibia, central and northern Botswana and across the highveld of Zimbabwe (Poynton and Broadley 1985b)</p>	<p>Least Concern</p>

<i>Pyxicephalus edulis</i> Edible Bullfrog	In the atlas region, this species inhabits several bushveld vegetation types in the northeastern parts of the Savanna Biome, from sea level to an altitude of about 1500 m (Jacobsen 1989). Flat, low-lying areas in open, grassy woodland, that become flooded after heavy rain or contain shallow, seasonal pans, constitute prime breeding habitat and support large breeding populations (e.g., in Kruger National Park, Naboomspruit, Vivo, Soekmekaar and Giyani districts)	Formerly synonymized with <i>P. adpersus</i> (Poynton 1964) and later treated as a subspecies of <i>P. adpersus</i> (Parry 1982; Poynton and Broadley 1985b; Lambiris 1989a), this taxon was again recognised as a full species by Channing et al. (1994a) on the basis of clear differences in advertisement call and breeding behaviour. In the atlas region, records based on calls were collected in the northeastern parts of North West Province, Limpopo Province, eastern Mpumalanga Province, northern and eastern Swaziland and northeastern KwaZulu-Natal as far south as Empangeni (2831DD)	least Concern
<i>Strongylopus fasciatus</i> Striped Stream Frog	<i>S. fasciatus</i> inhabits a variety of vegetation types in the Forest, Fynbos, Thicket, Grassland and Savanna biomes. It occurs in well-watered areas with annual rainfall >500 mm, and it is rarely found far from permanent water (Greig et al. 1979). It ranges mainly through the summer-rainfall region, but extends into the winter-rainfall region in the southwest. In montane grassland, these frogs seem to prefer grassy areas and reed beds along streams and rivers and around natural vleis. They are also found in well-vegetated man-made dams and ponds and along irrigation canals. They can tolerate disturbance and have been found in urban parks and gardens, and at dams surrounded by alien vegetation, in commercial forestry plantations.	<i>S. fasciatus</i> is found in the wetter, relatively temperate parts of the atlas region. Its range extends from Bonnievale (3320CC) in the Western Cape Province, eastward through the Eastern Cape Province to coastal KwaZulu-Natal, and inland to Lesotho and the Drakensberg escarpment of Mpumalanga and Limpopo provinces and Swaziland. It has a sporadic distribution in the high-altitude grasslands of the eastern Free State, Gauteng, North West and Limpopo province.	Least Concern
<i>Strongylopus grayii</i> Clicking Stream Frog	<i>S. grayii</i> is found in the winter-rainfall region of Western Cape Province, and in the summer-rainfall region to the north. Annual rainfall is 250–2000 mm in the winter-rainfall region, and 500–1000 mm in the summer-rainfall region. The species inhabits the entire Fynbos Biome as well as parts of the Succulent Karoo, Nama Karoo, Savanna, Grassland, Thicket and Forest biomes. Outside the relatively temperate, southwestern parts of its range, <i>S. grayii</i> is largely restricted to uplands.	<i>S. grayii</i> is endemic to the atlas region where it is widely distributed. Its distribution extends from Western Cape Province, eastward through Eastern Cape Province and Lesotho to KwaZulu-Natal, and northward through Swaziland and Mpumalanga to Limpopo Province. The species has a marginal distribution in the Northern Cape Province and the Free State. <i>S. grayii</i> occurs from sea level to 1800 m in the mountains of Lesotho and Swaziland. The atlas data are accurate but incomplete in the high-lying, northern parts of its range. In the southwest it is one of the most common and frequently recorded species in lowlands.	Least Concern
<i>Tomopterna cryptotis</i> Tremolo Sand Frog	This species inhabits various vegetation types in the Savanna and Grassland biomes. Breeding takes place in shallow, standing water at the edges of dams, pans, and even small bodies of water such as roadside puddles.	Historical records indicate a wide distribution in the savannas of sub-Saharan Africa from Senegal in the west to Somalia in the east, and southward through East Africa to South Africa. However, on the basis of data available to this author, <i>T. cryptotis</i> appears to be distributed from Angola through Zambia to Malawi, and southward through Namibia, Botswana, Zimbabwe and Mozambique to the atlas region. In South Africa and Swaziland, <i>T. cryptotis</i> is known from the inland plateau and the dry interior regions.	Least Concern
<i>Tomopterna krugerensis</i> Knocking Sand Frog	<i>T. krugerensis</i> inhabits the Savanna Biome at altitudes ranging from sea level to 1500 m, in areas with annual rainfall of 500–>1000 mm. It seems to prefer sandy soils and breeds in temporary water bodies such as large and small pans, vleis, and floodplains.	<i>T. krugerensis</i> is distributed in a broad band across southern Africa, from northeastern South Africa and southern Mozambique, through southern Zimbabwe and Botswana to Namibia and southern Angola. Its distribution in the atlas region is rather patchy, especially in Limpopo and North West provinces. This may be due to the fact that only distribution records based on advertisement calls have been included in the map.	Least Concern
<i>Tomopterna marmorata</i> Russet-backed Sand Frog	In the atlas region, <i>T. marmorata</i> inhabits a range of bushveld vegetation types in the Savanna Biome. It seems to prefer sandy soil and occurs in areas where annual rainfall is 500–1000 mm. It breeds in slow-flowing rivers and streams as well as isolated pools, pans or dams with sandy substrates.	North of the atlas region, <i>T. marmorata</i> ranges from Botswana eastward through Zambia, Malawi and Zimbabwe to southern Mozambique. Within the atlas region, the species is fairly widespread in Limpopo Province and eastern Mpumalanga at altitudes <1000 m. An historical record from Ndumo Game Reserve in northern KwaZulu-Natal (Poynton 1964) requires confirmation, as the original specimens have been lost (Lambiris 1989a).	Least Concern

<p><i>Tomopterna natalensis</i> Natal Sand Frog</p>	<p><i>T. natalensis</i> is found in a variety of vegetation types in the Grassland and Savanna biomes. These areas receive annual rainfall of 300–>1000 mm. Breeding takes place in streams, rivers or other places where water flows slowly, but also in standing water.</p>	<p><i>T. natalensis</i> is recorded from Botswana, Zimbabwe and southern Mozambique and its distribution extends into the eastern part of the atlas region, where it occurs from sea level to the high inland plateau at 2000 m. It is largely absent from the upper slopes of the Drakensberg. It is a common species in Limpopo, Mpumalanga, Gauteng and KwaZulu-Natal provinces, as well as in the eastern parts of North West and Eastern Cape provinces and throughout Swaziland. The species is uncommon in the Free State and Lesotho.</p>	<p>Least Concern</p>
<p><i>Tomopterna tandyi</i> Tandy's Sand Frog</p>	<p><i>T. tandyi</i> inhabits loose, sandy soils. It occurs along small streams, pans and temporary rain pools, and is commonly associated with farm dams. It thrives in both arid and more mesic areas where annual rainfall is 50–>750 mm. Records are known from the Nama Karoo, Grassland and Savanna biomes.</p>	<p>Distribution records, based on advertisement calls, were collected mainly in the southern parts of the atlas region by M. Burger and H.H. Braack. The distribution of this species in the northern and eastern parts of the atlas region is not well known as few verifiable records were collected by observers working in these areas. The distribution data shown on the map are therefore accurate, but incomplete.</p>	<p>Least Concern</p>
<p><i>Chiromantis xerampelina</i> Southern Foam Nest Frog</p>	<p>The species inhabits a variety of bushveld vegetation types in the Savanna Biome. Breeding usually takes place in temporary pans and vleis, but also occurs in more permanent water bodies such as dams and quarries. In the absence of trees and shrubs, nests may be attached to the sides of large rocks or man-made structures overhanging water, including bridges, culverts and bird hides.</p>	<p><i>C. xerampelina</i> is widely distributed in eastern and southern Africa. In the atlas region it ranges from Mafikeng (2525DC) in the North West Province, eastward through most of Limpopo Province and southward through the eastern lowveld of Mpumalanga and Swaziland to Empangeni (2831DD) in KwaZulu-Natal. In South Africa, the species occurs from near sea level in KwaZulu-Natal (Lambiris 1989a) to 1200 m in the former Transvaal (Jacobsen 1989).</p>	<p>Least Concern</p>

Table 2: Regional list of reptiles and Red Data Listed status

Family	Scientific Name	Common Name	Habitat/Biome	Status
Testudinidea	<i>Kinixys natalensis</i> Hewitt	Kwazulu-Natal Hinged-Back Tortoise	Rocky grasslands; rocky wooded grasslands, dry thickets and valley bushveld.	Least Concern
Testudinidea	<i>Psammobates oculifer</i>	Serrated Tent Tortoise (Kalahari tent Tortoise)	Occurs in arid regions on the central plateau of Southern Africa.	Least Concern
Crocodylidae	<i>Crocodylus niloticus Laurenti</i>	Nile Crocodile	Inhabits swamps, lakes and river mouths and coastal estuaries in KwaZulu-Natal.	Vulnerable A2ac
Gekkonidae	<i>Afroedura langi</i>	Lang's Flat Gecko (Lowveld Flat Gecko)	Occurs in Lowveld savannah in rock outcrops that provide crevices for retreat.	Least Concern
Gekkonidae	<i>Afroedura multiporis multiporis</i>	Woodbush Flat Gecko	Found in areas of granite or quartzite cliffs and boulders, at elevations of 1400- 1800m	Vulnerable A2c
Gekkonidae	<i>Afroedura transvaalica</i>	Zimbabwe Flat Gecko (Transvaal Flat Gecko)	Rupicolous, found in areas of granite and sandstone boulders and outcrops in mesic savannah.	Least Concern
Gekkonidae	<i>Colopus wahlbergii wahlbergii</i>	Kalahari ground Gecko	A Small terrestrial gecko of dune and savannah habitats in the central Kalahari and adjacent regions	Least Concern
Gekkonidae	<i>Homopholis mulleri</i> Visser	Muller's Velvet Gecko	Nocturnal, sheltering in holes in Marula and Knob-thorn.	Vulnerable B1ab(iii)+2ab (iii)
Gekkonidae	<i>Lygodactylus graniticolus</i>	Granite dwarf gecko	Inhabits crevices between boulders on rock outcrops at 1500m in the bushveld habitat.	Near Threatened
Gekkonidae	<i>Lygodactylus methueni FitzSimons</i>	Metheun's dwarf gecko	Rupicolous , inhabiting rock cracks on isolated outcrops in montane grassland at elevations of 1700m	Vulnerable B1ab(iii)+2ab (iii)
Gekkonidae	<i>Lygodactylus nigropunctatus nigropunctatus</i>	Black-Spotted dwarf gecko	Rupicolous, sheltering in cracks in rock outcrops in savannah at elevations of 700-800m	Least Concern
Gekkonidae	<i>Lygodactylus nigropunctatus incognitus</i>	Cryptic Dwarf Gecko	Found on outcrops in grasslands and woody patches at altitudes of 1282-1747m	Data Deficient
Gekkonidae	<i>Lygodactylus ocellatus soutpanbergensis</i>	Soutpansberg dwarf gecko	Rupicolous, living in small rock outcrops in montane grassland and savannah.	Near Threatened
Gekkonidae	<i>Lygodactylus waterbergensis</i>	Waterberg Dwarf Gecko	Rupicolous, sheltering in sandstone outcrops in grassland or scrub.	Near Threatened
Gekkonidae	<i>Pachydactylus affinis</i>	Transvaal thick-toed gecko	Found in rocky outcrops but occasionally also in moribund termitaria or on buildings.	Least Concern
Gekkonidae	<i>Pachydactylus punctatus</i>	Speckled Thick-toed Gecko	Tropical, occupying a diversity of open habitats from grassy savannah to desert margins to dry river beds.	Least Concern
Gekkonidae	<i>Pachydactylus vansoni</i>	Van sons thick-toed Gecko	Chiefly terrestrial. Highveld form is found in outcrops and grasslands whereas the Lowveld form is most often found on soil under rocks or dead aloes.	Least Concern
Gekkonidae	<i>Ptenopus garrulus garrulus</i>	Common Barking gecko	Small terrestrial gecko of dune and savannah habitats.	Least Concern

Amphisbaenidae	<i>Chirindia langi langi</i>	Lang's Round – headed worm Lizard	Mostly fossorial , found under rocks on the soil surface, in burrows or in rotting logs.	Least Concern
Amphisbaenidae	<i>Chirindia langi occidentalis</i>	Soutpansberg worm lizard	Found singly under stones partially imbedded in sandy soil, mostly on the surface or in burrows with the stone as a roof.	Vulnerable B1ab(iii)
Amphisbaenidae	<i>Monopeltis capensis</i>	Cape Spade-Snouted worm Lizard.	Fossorial, especially in red soil, and found is soil as deep as 20cm in the Odendaalsrus areas.	Least Concern
Amphisbaenidae	<i>Monopeltis decosteri</i>	De Coster's spade snouted worm Lizard	Fossorial. Occures in sandy soilin moist savanna.	Least Concern
Amphisbaenidae	<i>Monopeltis infuscata</i>	Dusky Spade-Snouted worm Lizard	Fossorial. Habitat similar to that of M. Capenis.	Least Concern
Amphisbaenidae	<i>Monopeltis leonhari</i>	Kalahari Spade-Snouted Worm Lizard	Recorded from Kalahari sands. Found in shallow soil under logs and in gerbill burrows.	Not Applicable
Amphisbaenidae	<i>Monopeltis sphenorhynchus</i>	Slender Spade Snouted worm Lizard	Fossorial. Usually found in deep sand from near sea level to at least 800m.	Least Concern
Amphisbaenidae	<i>Zygaspis vandami</i>	Van Dam's Dwarf worm Lizard.	Fossorial. Inhabit areas where leaf litter is densely aggregated.	Least Concern
Lacertidea	<i>Ichnotropis capensis</i>	Cpe Rough-Scaled Lizard	Inhabits hot sandy areas with open vegetation separated by patches of bare soil.	Least Concern
Lacertidea	<i>Meroles Squamulosus</i>	Common Rough-Scaled Lizard	Occurs on sandy soils in both mesic and arid savanna.	Least Concern
Lacertidea	<i>Nacras lalandii</i>	Delalande's Sanndveld Lizard	A terrestrial species associated with montane and temperate grassland. Also utilises coastal fynbos habitat in the southern Cape.	Least Concern
Lacertidea	<i>Pedioplasia lineocellata lineocellata</i>	Spotted sand Lizard	Prefers dry, open vegetation.	Least Concern
Lacertidea	<i>Vhembelacerta rupicola</i>	Soutpanssberg Rock Lizard	Occurs on rocky outcrops, scree slopes and bedrock. In wooded savanna and forest fringes on mountian slopes.	Near Threatened
Cordylidea	<i>Chamaesaura aenea</i>	Transvaal Grass Lizard	Restricted to the Grassland Biome. Found om the grassy slops and plateau of the eastern escarpment and Highveld.	Near Threatened
Cordylidea	<i>Chamaesaura anguina anguina</i>	Cape Grass Lizard	Found mostly on mountian slopes in fynbos and grassland. Essentially an arboreal species, resting on and 'swimming' over the tops of low-growing vegetation such as restios and grasses.	Least Concern
Cordylidea	<i>Chamaesaura macrolepis</i>	Large-Scaled Grass Lizard	Occurs in the Savanna , Indian Ocean Coastal belt and grassland, especially rocky, grassy hillsides.	Near Threatened
Cordylidea	<i>Cordylus jonesii</i>	Jones' Girdled Lizard	Largely restricted to dry Lowveld, Particularly Mopane savanna, where it shelters in holes in trees, under loos bark and especially in rotting logs.	Least Concern
Cordylidea	<i>Cordylus vittifer</i>	Transvaal Girdled Lizard	Occurs in rock outcrops in grasslands and savanna habitats.	Least Concern
Cordylidea	<i>Pseudocordylus melanotus melanotus</i>	Common Crag lizard	Occurs only in the grassland biome of South Africa and Swaziland.	Least Concern

Cordylidea	<i>Smaug breyeri</i>	Waterberg Girdled Lizard.	A rupicolous that occurs at altitudes of 700-1700m and prefers rock outcrops in open savanna.	Least Concern
Cordylidea	<i>Smaug vandami</i>	Van Dam's Girdled Lizard	Prefers mesic savanna where it occurs in large cracks in shaded outcrops.	Least Concern
Cordylidea	<i>Smaug warreni depressus</i>	Flat Girdled Lizard	A rupicolous species occurring on rock outcrops on hillsides and mountain summits, in savanna central Bushveld, Lowveld Mopane.	Least Concern
Cordylidea	<i>Platysaurus guttatus</i>	Dwarf Flat Lizard	Rupicolous, inhabiting small rocky ridges and outcrops. Narrow crevices are important refuges.	Least Concern
Cordylidea	<i>Platysaurus intermedius inopinus</i>	Unexpected Flat Lizard	Occupies low sandstone ridges and outcrops where it is dependent on narrow rock crevices for refuge.	Endangered B1ab(iii)+2ab(iii)
Cordylidea	<i>Platysaurus intermedius parvus</i>	Blouberg Flat Lizard	Found in rocky slopes and outcrops consisting of Blouberg sandstone. Requires narrow rock crevices for refuge.	Least Concern
Cordylidea	<i>Platysaurus minor</i>	Waterberg Flat Lizard	Found on low-lying isolated rock outcrops and on the lower slopes of mountains.	Least Concern
Cordylidea	<i>Platysaurus monotropis</i>	Orange-Throated Flat Lizard	Found on rocky outcrops of Waterberg sandstone.	Endangered B1ab(iii)+2ab(iii)
Cordylidea	<i>Platysaurus orientalis orientalis</i>	Sekhukune Flat Lizard.	Occupies rock outcrops typically composed of granites and quartzites.	Least Concern
Cordylidea	<i>Platysaurus orientalis Fitzsimonsi</i>	Fitzsimons's Flat Lizard	Found on low-lying rocky ridges, particularly where there is exfoliating granite with free-standing boulders.	Near Threatened
Cordylidea	<i>Platysaurus relictus</i>	Soutpansberg Flat Lizard	Occurs on north-facing rocky slopes and the crown of ridges on the Soutpansberg, where it is dependent on narrow rock crevices for refuge.	Least Concern
Gerrhosauridae	<i>Gerrhosaurus flavigularis</i>	Yellow-Throated Plated Lizard	Found in a variety of grassland, savanna and fynbos habitats as well as in low, open coastal forest.	Least Concern
Gerrhosauridae	<i>Gerrhosaurus intermedius</i>	Eastern Black-Lined Plated Lizard.	In the Atlas region it is restricted to low elevations in the Savanna Biome. Found in open bushveld where it forages among grass, under bushes and leaf litter at the base of trees.	Least Concern
Gerrhosauridae	<i>Matobosaurus validus</i>	Common Giant Plated Lizard	Found in the Savanna and Grassland biomes, almost exclusively in bushveld areas. Lives communally in rocky outcrop, especially on the upper slopes of large granite hills.	Least Concern
Gerrhosauridae	<i>Tetradactylus eastwoodae</i>	Eastwood's long-Tailed Seps	Presumed to have occurred in open montane grassland.	Extinct
Scincidae	<i>Acontias cregoi</i>	Cregoi's Legless Skink	Fossorial, found in soils with rocky cover on hills at 650 to 1700m	Least Concern
Scincidae	<i>Acontias kgalagadi subteaniatus</i>	Stripe-Bellied Legless Skink	Occurs under rotting logs, rocks or other surface debris in deep sand.	Data Deficient
Scincidae	<i>Acontias occidentalis</i>	Savanna Legless Skink	Fossorial, found in soil under leaf litter or other debris.	Least Concern
Scincidae	<i>Acontias Plumbeus</i>	Giant Legless Skink	Found in mesic microhabitats under leaf litter or other cover in forested or partly-wooded habitats, grasslands or alluvial sands.	Least Concern
Scincidae	<i>Acontias richardi</i>	Richard's Legless Skink	Found under rotting logs in deep aeolian sand deposit on the northern	Near Threatened

			slopes of the Soutpansberg	
Scincidae	<i>Acontias rieppeli</i>	Woodbush Legless Skink	Fossorial, Found in mesic conditions in montane grasslands, usually under stones.	Endangered B1ab(iii)+2ab(iii)
Scincidae	<i>Afroablepharus maculicollis</i>	Spotted-Neck Snake-Eyed Skink	A terrestrial species , very similar in habitat to a wahlbergii and known to occur in symparty with the latter in several areas,. Found in open or rocky savanna.	Least Concern
Scincidae	<i>Afroablepharus wahlbergii</i>	Wahlberg's Snake-Eyed Skink	A ubiquitous terrestrial species found in a wide variety of habitats ranging from rocky outcrops to open Highveld Grasslands usually under suitable cover or in leaf litter.	Least Concern
Scincidae	<i>Mochlus sundevallii sundevallii</i>	Sundevall's Writhing Skink	A fossorial species found in arid, sandy conditions, usually under suitable surface cover such as logs, rocks or leaf litter, mainly in savanna but also grassland.	Least Concern
Scincidae	<i>Trachylepis capensis</i>	Cape Skink	A ubiquitous, terrestrial species found in all major Biomes of South Africa. Although more abundant in grassland, savanna and fynbos.	Least Concern
Scincidae	<i>Trachylepis depressa</i>	Eastern Sand Skink	A terrestrial species found on sandy soils in costal scrub and in moist habitats fringing the Limpopo river	Least Concern
Scincidae	<i>Trachylepis homalocephala</i>	Red-Sided Skink	A Terrestrial species found in moist sandy habitats usually fringing rivers and wetlands. Occurs mainly in lowlands and on lower mountain slopes but occasionally on escarpments.	Least Concern
Scincidae	<i>Trachylepis margaritifera</i>	Rainbow Skink	Arupicolous species that occurs in large colonies on rock outcrops or vertical structures such as houses and walls. Occupies coastal scrub and mesic or arid savanna.	Least Concern
Scincidae	<i>Trachylepis punctatissima</i>	Montane Speckled Skink	Rupicolous and/or semi-arboreal, found on rock outcrops, trees and houses, predominantly along the escarpment and on the Highveld.	Least Concern
Scincidae	<i>Trachylepis punctulata</i>	Speckled Sand Skink	a Terrestrial species found in arid regions, mainly on deep, sandysoils and occasionally on rocky outcrops.	Least Concern
Scincidae	<i>Trachylepis striata</i>	Eastern Striped Skink	Rupicolous or arboreal. Found on trees and other vertical structurcs such as huts and houses.	Least Concern
Scincidae	<i>Trachylepis varia</i>	Variable Skink	A terrestrial species commonly found in open, rocky habitat in coastal scrub, montane grassland and savanna.	Least Concern
Scincidae	<i>Scelotes bidigittatus</i>	Lowveld Dwarf Burrowing Skink	Inhabits vegetated coastal dunes and sandy coastal areas.	Least Concern
Scincidae	<i>Scelotes limpopoensis albiventris</i>	White-Bellied Dward Burrowing Skink	A Fossorial skink, inhabiting deep aeolian sands in woodland.	Near Threatened
Scincidae	<i>Scelotes mirus</i>	Montane Dwarf Burrowing Skink	Inhabits rocky montane grasslands and scrub.	Least Concern

Chamaeleonidea	<i>Bradypodion transvaalense</i>	Northern Dwarf Chameleon; Wlokberg Dwarf Chameleon; Transvaal Dwarf Chameleon.	Found in Forested patches along the eastern escarpments and associated areas usually at high altitudes on mountain slopes and plateaus or in deep gorges.	Least Concern
Chamaeleonidea	<i>Chamaeleo dilepis dilepis</i>	Common Flat-neck Chameleon	Occurs in a variety of habitats; usually found high up in bushes or trees.	Least Concern
Agamidae	<i>Agama aculeata distanti</i>	Eastern Ground Agama; Distant's ground Agama	Found in Grassland and woodland habitat, and sometimes in rocky areas. Savanna; Grasslands.	Least Concern
Agamidae	<i>Agama armata</i>	Northern ground Agama	Sub Saharan end of range northern Limpopo. Areas with deep sand and open woodland.	Least Concern
Agamidae	<i>Agama atra</i>	Southern Tree Agama	Sub Saharan Africa, associated with savanna bushveld. Arboreal, territorial in large trees.	Least Concern
Agamidae	<i>Acanthocerus atricolis atricolis</i>	Southern Rock Agama; South African Rock Agama	A rupicolous lizard found in a variety of rocky habitats, ranging from seashore rocks to rocky hillsides to mountain tops.	Least Concern
Typhlopidae	<i>Afrotyphlops bibronii</i>	Bibron's Blind Snake	Burrows in loos soil and apparently moves into surface soils in search of macro-invertebrate prey items.	Least Concern
Typhlopidae	<i>Megatyphlops schlegelii</i>	Schlegel's Beaked Blind Snake.	Uses its hardened beak to burrow into compact soil, including termitaria, in search of its social macroinvertebrate adult and larval prey.	Least Concern
Leptotyphlopidea	<i>Leptotyphlops distanti</i>	Distant's Thread Snake	Occurs in mesic habitats, ranging from sea level to the Highveld. Found under logs and stones and among the roots of grasses.	Least Concern
Leptotyphlopidea	<i>Leptotyphlops jacobseni</i>	Jacobsen's thread Snake	Restricted to the grasslands of the Afromontane region where it has been found under stones and in old termitaria.	Least Concern
Pythonidae	<i>Python natalensis</i>	South African Python	Found in a wide variety of habitats but usually in riverine or rocky areas, and often in association with large animal burrows.	Least Concern
Viperidea	<i>Bitisartopos</i>	Berg Adder	Occupies grass- or restio-covered mountain slopes and summits. Takes refuge under rock slabs and tussocks of grass.	Least Concern
Lamprophiidae	<i>Amblyodipsas concolor</i>	KwaZulu-Natal Purple-Glossed Snake	Generally associated with moist, well-wooded or forested regions.	Least Concern
Lamprophiidae	<i>Amblyodipsias microphthalmia nigra</i>	*Soutpansberg Purple-Glossed Snake *Black White-Lipped Snake	Apparently it has an association with rocky, broken terrain, as most individuals have been from under rocks and logs.	Least Concern
Lamprophiidae	<i>Homoroselps dorsalis</i>	Striped Harlequin Snake	Partially fossorial and known to inhabit old termitaria in grassland habitat.	Near Treated
Lamprophiidae	<i>Homoroselaps lacteus</i>	Spotted Harlequin Snake	A semi-fossorial species found in sandy substrates, old termitaria and under rocks, from near sea level to elevations of 1800 m.	Least Concern

Lamprophiidae	<i>Xenocalamus bicolor bicolor</i>	Bicoloured Quill-Snouted Snake	Inhabits mainly Kalahari sand sands at altitudes of 1000-1200m	Least Concern
Lamprophiidae	<i>Xenocalamus bicolor australis</i>	Waterberg Quill-Snouted Snake	Inhabits alluvial sands in bushveld. Found at altitudes of 1100-1400,	Least Concern
Lamprophiidae	<i>Xenocalamus sabiensis</i>	Save Quill-Snouted Snake	Inhabits alluvial sands.	Least Concern
Lamprophiidae	<i>Xenocalamus transvaalensis</i>	Speckled Quill-Snouted Snake	Inhabits deep Kalahari and Alluvial sands.	Least Concern
Lamprophiidae	<i>Inyoka swazicus</i>	Swazi Rock Snake	Inhabits rock outcrops in grassland and savanna (Branch 1998). Shelters under rocks on rock, or in crevices, at altitudes of 1 400–1 900 m.	Least Concern
Lamprophiidae	<i>Lamprophis aurora</i>	Auroa Snake	Occurs in grassland, fynbos and moist savanna habitats. Specimens are known from the coast up to the plateau (1 700 m) of the Highveld. Often found near streams and under rocks, occasionally in old termitaria	Least Concern
Lamprophiidae	<i>Lamprophis fuscus</i>	YELLOW-BELLIED SNAKE	A poorly known snake, usually found in moribund termitaria (De Waal 1978; Jacobsen 1989; Branch 1998)	Least Concern
Lamprophiidae	<i>Lamprophis guttatus</i>	SPOTTED ROCK SNAKE	Found in rocky habitats throughout its range. Shelters under rocks or in crevices at altitudes as high as 2 300 m (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Lycodonomorphus inornatus</i>	OLIVE GROUND SNAKE	Inhabits grassland, savanna, fynbos and forest habitats across its distribution (Branch 1998). Shelters under rocks on soil and in or under rotting logs (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Lycodonomorphus laevisimus</i>	<u>DUSKY-BELLIED WATER SNAKE</u>	Inhabits riverine and other aquatic habitats, favouring well-wooded streams (Branch 1998). Often found along perennial streams in grassland; occurs from near sea level to at least 1 700 m (Jacobsen 1989)	Least Concern
Lamprophiidae	<i>Lycodonomorphus obscuriventris</i>	FLOODPLAIN WATER SNAKE	Inhabits lowland swamps and floodplains (Broadley 1990b)	Least Concern
Lamprophiidae	<i>Lycodonomorphus rufulus</i>	BROWN WATER SNAKE	Associated with aquatic habitats including dams, streams and rivers (Branch 1998).	Least Concern
Lamprophiidae	<i>Lycophidion pygmaeum</i>	PYGMY WOLF SNAKE	Inhabits lowland forests, grasslands and mesic savanna habitats. Has also been recorded from pine plantations (Branch 1998).	Near Threatened
Lamprophiidae	<i>Lycophidion variegatum</i>	VARIEGATED WOLF SNAKE	Found in savanna and grassland habitats as well as rocky areas throughout its range. Recorded from rock outcrops, under rocks on rock or soil, and under dead plants or logs, at elevations of 300–1 200 m (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Hemirhagerrhis nototaenia</i>	EASTERN BARK SNAKE	A semi-arboreal species found mainly in savanna, often sheltering under loose bark and cracks in trees, up to altitudes of 1 200 m (Broadley 1990b; Branch 1998; Broadley & Hughes 2000).	Least Concern

Lamprophiidae	<i>Psammophis brevirostris</i>	SHORT-SNOUDED GRASS SNAKE	Inhabits grassland and savanna habitats from coastal regions to higher altitudes in the Drakensberg, central Highveld and highlands of eastern Zimbabwe. Shelters in holes in the ground, under rocks and in old termitaria (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Psammophis trinasalis</i>	FORK-MARKED SAND SNAKE	Inhabits arid savannas and grasslands at elevations of 200–1 700 m; often found in old termitaria and occasionally under rocks (De Waal 1978; Jacobsen 1989; Broadley 2002)	Least Concern
Lamprophiidae Genus	<i>Psammophylax rhombeatus rhombeatus</i>	SPOTTED GRASS SNAKE	Very common, found in savanna, grassland, fynbos and desert, from the coast up to about 2 300 m; shelters under rocks on soil, in rock crevices, old termitaria and holes in the ground (De Waal 1978; Jacobsen 1989; Broadley 1990b; Branch 1998).	Least Concern
Lamprophiidae	<i>Prosymna bivittata</i>	TWO-STRIPED SHOVEL-SNOOUT	Found in moist and dry savanna and also in karoo scrub and sandveld in the west of South Africa. In Zimbabwe it seems to prefer open habitats in grassland and sparse thornveld (Broadley 1990b; Branch 1998). Found under rocks on soil and under logs at altitudes of 200–1 400 m (Jacobsen 1989).	Least Concern
Lamprophiidae	<i>Prosymna lineata</i>	LINED SHOVEL-SNOOUT	Inhabits sandveld areas and miombo woodland (Broadley 1990b). Found under rocks on rock or soil, and under rotting logs, at altitudes of 300–1 400 m (Jacobsen 1989).	Least Concern
Elapidae	<i>Aspidelaps scutatus scutatus</i>	COMMON SHIELD COBRA	Semi-fossorial and nocturnal, found primarily in sandy areas (Marais 2004). In South Africa <i>A. s. scutatus</i> is found in stony and sandy areas at altitudes of 500–1 300 m; one specimen was observed at night emerging from loose sand and leaf litter at the base of a tree (Jacobsen 1989). May take refuge in rodent burrows by day (Broadley & Baldwin 2006).	Least Concern
Elapidae	<i>Aspidelaps scutatus intermedius</i>	INTERMEDIATE SHIELD COBRA	Semi-fossorial and nocturnal, found primarily in sandy areas (Marais 2004) at altitudes of 90–1 400 m (Jacobsen 1989; Boycott 1992a). May take refuge in rodent burrows by day (Broadley & Baldwin 2006)	Least Concern
Elapidae	<i>Elapsoidea sundevallii</i>	BOULENGER'S GARTER SNAKE	Found in a wide variety of habitats but appears to favour alluvial and aeolian sands (Broadley 1971a). Refugia of <i>E. s. media</i> include old termitaria and the underside of rocks (De Waal 1978). Occurs from sea level to 1 800 m.	Least Concern
Colubridae	<i>Dasypeltis inornata</i>	SOUTHERN BROWN EGG-EATER	Prefers open coastal woodland and moist savanna, sheltering under rocks on rock or soil, from near sea level to over 1 600 m (Jacobsen 1989; Branch 1998).	Least Concern

Colubridae	<i>Dispholidus typus</i>	BOOMSLANG	Largely arboreal in a variety of habitats including Karoo scrub, arid savanna, moist savanna, lowland forest, grassland and fynbos (Marais 2004). Often found moving over open ground, but quickly takes refuge in trees and bushes (Jacobsen 1989).	Least Concern
Colubridae Genus	<i>Philothamnus natalensis natalensis</i>	EASTERN NATAL GREEN SNAKE	Inhabits mainly lowland forest and moist savanna, often along forested river valleys, and is an excellent climber (Marais 2004)	Least Concern
Colubridae	<i>Philothamnus natalensis occidentalis</i>	WESTERN NATAL GREEN SNAKE	Occurs in lowland forest, wooded grassland and forest edge (Bourquin 2004; Marais 2004). Often found in trees and shrubs near water, at altitudes as high as 2000 m (Jacobsen 1989).	Least Concern
Colubridae	<i>Philothamnus semivariegatus</i>	SPOTTED BUSH SNAKE	Inhabits moist savanna, lowland forest and river- banks, as well as shrubby vegetation and rocky regions in the Karoo. It is an excellent climber and forages in shrubs and bushes (Branch 1998; Marais 2004). Occupies crevices in rock outcrops, holes in trees, and large old termite mounds, and is also found under tree bark, at altitudes as high as 2000 m (Jacobsen 1989).	Least Concern
Colubridae	<i>Telescopus semiannulatus semiannulatus</i>	EASTERN TIGER SNAKE	Found in arid and moist savanna and lowland forest, where it shelters under bark, loose flakes of rock and in rock crevices (Marais 2004). It is also known to climb trees (Broadley 1990b).	Least Concern
Colubridae	<i>Thelotornis capensis capensis</i>	SOUTHERN TWIG SNAKE	Inhabits trees and shrubs in coastal thicket, forest fringes and savanna (Broadley 1990b; Branch 1998)	Least Concern

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Name: Afrika Enviro & Biology Date: 2018-08-22 Place: Ekland Safaris QDS: 2229DD Species: 461

SAM	Rob	Scientific	English Name	Habitats	Map Status
1	1	Struthio camelus	Ostrich	BW, Ki, Gr, Ko, Ds, Fy, Fa	R-C
3	188	Peliperdix coqui	Coqui Francolin	BW	R-C
4	189	Dendroperdix sephaena	Crested Francolin	BW	R-VC
7	191	Scleroptila shelleyi	Shelley's Francolin	BW, Fa	R-C
12	196	Pternistis natalensis	Natal Francolin	Fo, BW, RC	E-VC
14	199	Pternistis swainsonii	Swainson's Francolin	BW, Gr, Fa	E-VC
15	200	Coturnix coturnix	Common Quail	Ki, Gr, Ko, Mo, Fa	R-U
16	201	Coturnix delegorguei	Harlequin Quail	Gr, Fa	BM-U
19	204	Guttera pucherani	Crested Guineafowl	Fo, BW	R-VC
20	203	Numida meleagris	Helmeted Guineafowl	BW, Ki, Gr, Ko, Fa	R-VC
21	100	Dendrocygna bicolor	Fulvous Duck	Wa	R-U
22	99	Dendrocygna viduata	Whitefaced Duck	Wa	R-VC
23	101	Thalassornis leuconotus	Whitebacked Duck	Wa	R-U
25	102	Alopochen aegyptiacus	Egyptian Goose	Fa, Wa	R-VC
27	116	Plectropterus gambensis	Spurwinged Goose	Fa, Wa	R-C
28	115	Sarkidiornis melanotos	Knobilled Duck	Wa	R-C
29	114	Nettapus auritus	Pygmy Goose	Wa	R-U
30	106	Anas capensis	Cape Teal	Wa	R-U
31	105	Anas sparsa	African Black Duck	RC, Wa	R-C
33	104	Anas undulata	Yellowbilled Duck	Wa	R-U
36	108	Anas erythrorhyncha	Redbilled Teal	Wa	R-U
39	107	Anas hottentota	Hottentot Teal	Wa	R-U
40	113	Netta erythrophthalma	Southern Pochard	Wa	R-U/C
41	205	Turnix sylvatica	Kurrichane Buttonquail	BW, Gr, Fa	R-U
42	206	Turnix nana	Blackrumped Buttonquail	Gr, Fa, Wa	R-U
44	475	Indicator variegatus	Scalythroated Honeyguide	Fo, BW	R-C
45	474	Indicator indicator	Greater Honeyguide	Fo, BW, Fa	R-C
46	476	Indicator minor	Lesser Honeyguide	BW, To, Fa, Wa	R-U
49	478	Prodotiscus regulus	Sharpbilled Honeyguide	Fo, BW	R-U
51	481	Campethera bennettii	Bennett's Woodpecker	BW	R-U
53	483	Campethera abingoni	Goldentailed Woodpecker	Fo, BW, Ki, RC, To	R-C
57	486	Dendropicos fuscescens	Cardinal Woodpecker	Fo, BW, Ki, Ko, Ds, Fy, RC, To, Fa	R-C
58	487	Dendropicos namaquus	Bearded Woodpecker	BW	R-U/C
59	488	Dendropicos griseocephalus	Olive Woodpecker	Fo, Fy, RC, Fa	R-U/C
65	470	Pogoniuulus chrysoconus	Yellowfronted Tinker Barbet	BW	R-VC
67	465	Tricholaema leucomelas	Pied Barbet	BW, Ki, Gr, Ko, Ds, To, Fa	E-VC
68	464	Lybius torquatus	Blackcollared Barbet	Fo, BW, To, Fa	R-VC
69	473	Trachyphonus vaillantii	Crested Barbet	BW, To, Fa	R-VC
71	458	Tockus erythrorhynchus	Redbilled Hornbill	BW	R-U/VC
73	459	Tockus leucomelas	Southern Yellowbilled Hornbill	BW, Ki	E-VC
76	457	Tockus nasutus	Grey Hornbill	BW, Ki	R-VC
79	463	Bucorvus leadbeateri	Southern Ground Hornbill	BW, Fa	R-U
80	451	Upupa africana	African Hoopoe	BW, Ki, Ko, Ds, To, Fa	R-VC
81	452	Phoeniculus purpureus	Redbilled Woodhoopoe	Fo, BW, RC, To, Fa	R-VC
83	454	Rhinopomastus cyanomelas	Scimitarbillied Woodhoopoe	BW, Ki	R-VC
84	427	Apaloderma narina	Narina Trogon	Fo, BW	R-C
85	446	Coracias garrulus	Eurasian Roller	BW, Ki, Gr, Fa	NBM-C
86	447	Coracias caudata	Lilacbreasted Roller	BW, Ki	R-A
88	449	Coracias naevia	Purple Roller	BW, Ki	R-VC
89	450	Eurystomus glaucurus	Broadbilled Roller	Fo, BW	BM-C
91	431	Alcedo cristata	Malachite Kingfisher	Wa	R-U
92	432	Ispidina picta	Pygmy Kingfisher	Fo, BW	BM-C
93	436	Halcyon leucocephala	Greyhooded Kingfisher	BW	BM-U
94	433	Halcyon senegalensis	Woodland Kingfisher	BW	BM-U/C
96	435	Halcyon albiventris	Brownhooded Kingfisher	Fo, BW, RC, To	R-VC
97	437	Halcyon chelicuti	Striped Kingfisher	BW	R-VC
98	429	Megaceryle maxima	Giant Kingfisher	Wa, Ms	R-U
99	428	Ceryle rudis	Pied Kingfisher	Wa, Ms	R-C/VC
100	443	Merops bullockoides	Whitefronted Bee-eater	BW, Wa	R-C
101	444	Merops pusillus	Little Bee-eater	BW, Wa	R-VC
102	445	Merops hirundineus	Swallowtailed Bee-eater	BW, Ki, Ko, Ds	R-U
105	440	Merops persicus	Bluecheeked Bee-eater	BW, Wa	NBM-U
107	438	Merops apiaster	Eurasian Bee-eater	BW, Ki, Gr, Ko, Ds, Fa	NBM-VC
108	441	Merops nubicoides	Carmine Bee-eater	BW, Wa	NBM-U/C
110	424	Colius striatus	Speckled Mousebird	BW, To	R-VC
111	426	Urocolius indicus	Redfaced Mousebird	BW, Ko, Fy, To, Fa	R-VC
112	382	Clamator jacobinus	Jacobin Cuckoo	BW, Ki	BM-C
113	381	Clamator levallantii	Striped Cuckoo	Fo, BW	BM-U

SAM	Rob	Scientific	English Name	Habitats	Map Status
114	380	Clamator glandarius	Great Spotted Cuckoo	BW	BM-U
116	377	Cuculus solitarius	Redchested Cuckoo	Fo, BW, To, Fa	BM-C
117	378	Cuculus clamosus	Black Cuckoo	Fo, BW, To, Fa	BM-U
118	374	Cuculus canorus	Eurasian Cuckoo	BW, Mo	NBM-U
119	375	Cuculus gularis	African Cuckoo	BW, Ki	BM-U
123	385	Chrysococcyx klaas	Klaas's Cuckoo	Fo, BW, To	BM-U
124	384	Chrysococcyx cupreus	Emerald Cuckoo	Fo, BW	BM-U
125	386	Chrysococcyx caprius	Diederik Cuckoo	BW, Ki, Gr, Ko, Fy, To, Fa	BM-C
131	391	Centropus burchellii	Burchell's Coucal	BW, To, Wa	R-VC
133	362.1	Poicephalus fuscicollis	Greyheaded Parrot	Fo, BW	R-C
144	421	Cypsiurus parvus	Palm Swift	BW, To	R-C
145	418	Tachymarpis melba	Alpine Swift	BW, Ki, Gr, Ko, Ds, Fy, Mo, RC, Fa	BM-C
147	411	Apus apus	Eurasian Swift	BW, Ki, Gr, Ko, Ds, Fy, Mo, RC, To, Fa	NBM-U
149	412	Apus barbatus	Black Swift	BW, Ki, Gr, Ko, Ds, Fy, Mo, RC, To, Fa	R-C
151	417	Apus affinis	Little Swift	BW, Gr, Ko, Ds, Fy, Mo, RC, To, Fa	R-VC
152	416	Apus horus	Horus Swift	Gr, Mo, RC, Fa, Wa	BM-U
153	415	Apus caffer	Whiterumped Swift	Ko, Ds, Mo, RC, To, Fa	BM-C
156	370	Tauraco corythaix	Knysna Lourie	Fo, RC	E-C
157	371	Musophaga porphyreolopha	Purplecrested Lourie	Fo, BW, RC, To	R-C/A
159	373	Corythaixoides concolor	Grey Lourie	BW, To	R-A
160	392	Tyto alba	Barn Owl	BW, Ki, Gr, Ko, Ds, Fy, RC, To, Fa	R-C
162	396	Otus senegalensis	African Scops Owl	BW, Ki	R-C
163	397	Ptilopus granti	Whitefaced Owl	BW, Ki	R-C
164	400	Bubo capensis	Cape Eagle Owl	BW, Fy, Mo, RC, Fa	R-U
165	401	Bubo africanus	Spotted Eagle Owl	Fo, BW, Ki, Gr, Ko, Ds, Fy, RC, To, Fa	R-C
166	402	Bubo lacteus	Giant Eagle Owl	BW, Ki	R-U
167	403	Scotopelia peli	Pel's Fishing Owl	Wa	R-U
168	394	Strix woodfordii	Wood Owl	Fo, BW	R-C
169	398	Glaucidium perlatum	Pearlspotted Owl	BW, Ki	R-VC
171	395	Asio capensis	Marsh Owl	Gr, Fa, Wa	R-U
172	404	Caprimulgus europaeus	Eurasian Nightjar	BW, Ki, To, Fa	NBM-U
173	406	Caprimulgus rufigena	Rufouscheeked Nightjar	BW, Ki, Ko, Ds, Fa	BM-C
174	405	Caprimulgus pectoralis	Fierynecked Nightjar	BW, Ki, To, Fa	R-C
176	408	Caprimulgus tristigma	Freckled Nightjar	RC	R-VC
177	409	Caprimulgus fossii	Mozambique Nightjar	BW	R-U
179	348	Columba livia	Feral Pigeon	To, Fa	R-C
180	349	Columba guinea	Rock Pigeon	Mo, RC, To, Fa	R-C
181	350	Columba arquatrix	Rameron Pigeon	Fo	R-U/C
183	360	Aplopelia larvata	Cinnamon Dove	Fo	R-U
185	355	Streptopelia senegalensis	Laughing Dove	BW, Ki, Gr, Ko, Ds, Fy, To, Fa	R-A
186	353	Streptopelia decipiens	African Mourning Dove	BW, To	R-C
187	354	Streptopelia capicola	Cape Turtle Dove	BW, Ki, Gr, Ko, Ds, Fy, To, Fa	R-A
188	352	Streptopelia semitorquata	Redeyed Dove	Fo, BW, To, Fa	R-VC
189	358	Turtur chalcospilos	Greenspotted Dove	BW, To	R-A
191	359	Turtur tympanistria	Tambourine Dove	Fo	R-C
192	356	Oena capensis	Namaqua Dove	BW, Ki, Gr, Ko, Ds, To, Fa	R-VC
193	361	Treron calva	African Green Pigeon	Fo, BW	R-VC
196	230	Ardeotis kori	Kori Bustard	BW, Ki, Gr, Ko, Ds	R-C/VC
197	237	Eupodotis ruficrista	Redcrested Korhaan	BW, Ki	E-VC
208	229	Podica senegalensis	African Finfoot	Wa	R-U
209	218	Sarothrura elegans	Buffspotted Flufftail	Fo, To	R-U
210	217	Sarothrura rufa	Redchested Flufftail	Wa	R-U
212	221	Sarothrura affinis	Striped Flufftail	Fo, Gr, Mo	R-U
215	212	Crecopsis egregia	African Crane	Gr, Wa	BM-U
217	213	Amaurornis flavirostris	Black Crane	Wa	R-C
218	215	Porzana pusilla	Baillon's Crane	Wa	R-U
219	214	Porzana porzana	Spotted Crane	Gr, Wa	Rare
221	223	Porphyrio madagascariensis	Purple Gallinule	Wa	R-U
222	224	Porphyrio alleni	Lesser Gallinule	Wa	BM-U
224	226	Gallinula chloropus	Common Moorhen	Wa	R-U
225	227	Gallinula angulata	Lesser Moorhen	Wa	BM-U
226	228	Fulica cristata	Redknobbed Coot	Wa	R-U/C
229	347	Pterocles bicinctus	Doublebanded Sandgrouse	BW, Ki, Ko, Ds	E-C
230	345	Pterocles burchelli	Burchell's Sandgrouse	Ki	E-C
236	290	Numenius phaeopus	Whimbrel	Wa, Ms	NBM-U
240	269	Tringa stagnatilis	Marsh Sandpiper	Wa, Ms	NBM-C
241	270	Tringa nebularia	Greenshank	Wa, Ms	NBM-C
244	265	Tringa ochropus	Green Sandpiper	Wa	NBM-U
245	266	Tringa glareola	Wood Sandpiper	Wa	NBM-C
247	264	Actitis hypoleucos	Common Sandpiper	Gr, Wa, Ms	NBM-C
251	281	Calidris alba	Sanderling	Wa, Ms	NBM-U
252	274	Calidris minuta	Little Stint	Wa, Ms	NBM-C
260	272	Calidris ferruginea	Curlew Sandpiper	Wa, Ms	NBM-C
263	284	Philomachus pugnax	Ruff	Gr, Wa	NBM-U
267	242	Rostratula benghalensis	Old World Painted Snipe	Wa	R-C
268	240	Actophilornis africanus	African Jacana	Wa	R-VC
271	298	Burhinus vermiculatus	Water Dikkop	Wa, Ms	R-C
272	297	Burhinus capensis	Spotted Dikkop	BW, Ki, Gr, Ko, Ds, Fy, To, Fa, Ms	R-C
275	295	Himantopus himantopus	Blackwinged Stilt	Wa, Ms	R-U
279	254	Pluvialis squatarola	Grey Plover	Wa, Ms	NBM-U
280	245	Charadrius hiaticula	Ringed Plover	Wa, Ms	NBM-U

SAM	Rob	Scientific	English Name	Habitats	Map Status
282	248	Charadrius pecuarius	Kittlitz's Plover	Gr, Wa, Ms	R-C
283	249	Charadrius tricoloris	Threebanded Plover	Wa, Ms	R-VC
289	252	Charadrius asiaticus	Caspian Plover	BW, Ki, Gr	NBM-C
291	258	Vanellus armatus	Blacksmith Plover	Gr, Wa	R-VC
294	260	Vanellus senegallus	Wattled Plover	Gr, Wa	R-U
297	255	Vanellus coronatus	Crowned Plover	BW, Ki, Gr, Ko, Fy, To, Fa	R-VC
300	303	Rhinoptilus chalcopterus	Bronzewinged Courser	BW, Ki	R-U
303	300	Cursorius temminckii	Temminck's Courser	BW, Ki, Gr, Fa	R-C
317	315	Larus cirrocephalus	Greyheaded Gull	Wa, Ms	R-U
340	338	Chlidonias hybridus	Whiskered Tern	Wa	BM-U
341	339	Chlidonias leucopterus	Whitewinged Tern	Wa	NBM-U
345	170	Pandion haliaetus	Osprey	Wa, Ms	NBM-U
346	128	Aviceda cuculoides	Cuckoo Hawk	Fo, BW	R-U
347	130	Pernis apivorus	Honey Buzzard	Fo, BW	NBM-U
348	129	Macheiramphus alcinus	Bat Hawk	Fo, BW	R-U
349	127	Elanus caeruleus	Blackshouldered Kite	BW, Gr, Ko, Ds, Fa	R-C/VC
350	126	Milvus migrans	Black Kite	BW, Ko, Ds, Fa	NBM-U
351	126.1	Milvus aegyptius	Yellowbilled Kite	Fo, BW, Gr, To, Fa	BM-C
352	148	Haliaeetus vocifer	African Fish Eagle	Wa, Ms	R-U/C
356	121	Necrosyrtes monachus	Hooded Vulture	BW	R-U
357	123	Gyps africanus	Whitebacked Vulture	BW, Ki, Ko, Ds	R-U
359	122	Gyps coprotheres	Cape Vulture	BW, Ki, Gr, Ko, Ds, Fy, Mo, Fa	E-C
360	124	Torgos tracheliotus	Lappetfaced Vulture	BW, Ki, Ko, Ds	R-C
362	143	Circaetus pectoralis	Blackbreasted Snake Eagle	BW, Ki, Ko, Ds, Fa	R-C
363	142	Circaetus cinereus	Brown Snake Eagle	BW	R-C
366	146	Terathopius ecaudatus	Bateleur	BW, Ki	R-C
367	164	Circus aeruginosus	Eurasian Marsh Harrier	Gr, Wa	NBM-U
368	165	Circus ranivorus	African Marsh Harrier	Gr, Fa, Wa	R-U
370	167	Circus macrourus	Pallid Harrier	Ki, Gr, Fa	NBM-U
371	166	Circus pygargus	Montagu's Harrier	Ki, Gr	NBM-U
372	169	Polyboroides typus	Gymnogene	Fo, BW, Ko, RC	R-C
373	154	Kaupifalco monogrammicus	Lizard Buzzard	BW	R-C
374	163	Melierax metabates	Dark Chanting Goshawk	BW	R-C
375	162	Melierax canorus	Pale Chanting Goshawk	BW, Ki, Ko, Ds	E-U/VC
376	161	Melierax gabar	Gabar Goshawk	BW, Ki, To, Fa	R-C
377	160	Accipiter tachiro	African Goshawk	Fo, BW, To	R-C
378	159	Accipiter badius	Little Banded Goshawk	BW	R-U
379	157	Accipiter minullus	Little Sparrowhawk	Fo, BW	R-U
380	156	Accipiter ovampensis	Ovambo Sparrowhawk	BW	R-U
381	155	Accipiter rufiventris	Redbreasted Sparrowhawk	Fo, Gr, Fy, Fa	R-U
382	158	Accipiter melanoleucus	Black Sparrowhawk	Fo, RC	R-U
383	149	Buteo vulpinus	Steppe Buzzard	BW, Gr, Ko, Fa	NBM-C
384	150	Buteo trizonatus	Forest Buzzard	Fo	NBM-C
387	152	Buteo rufofuscus	Jackal Buzzard	Gr, Ko, Ds, Mo, RC, Fa	E-VC
388	134	Aquila pomarina	Lesser Spotted Eagle	BW	NBM-U
390	132	Aquila rapax	Tawny Eagle	BW, Ki	R-U
391	133	Aquila nipalensis	Steppe Eagle	BW, Ki	NBM-U
392	131	Aquila verreauxii	Black Eagle	Mo, RC	R-C
393	135	Aquila wahlbergi	Wahlberg's Eagle	BW, Ki, Fa	BM-C
394	137	Hieraaetus spilogaster	African Hawk Eagle	Fo, BW	R-C
395	136	Hieraaetus pennatus	Booted Eagle	BW, Ki, Gr, Ko, Fy, Mo, Fa	NBM-U
396	138	Hieraaetus ayresii	Ayres' Eagle	Fo, BW	NBM-U
397	140	Polemaetus bellicosus	Martial Eagle	BW, Ki, Gr, Ko, Ds	R-C
399	141	Stephanoaetus coronatus	Crowned Eagle	Fo	R-C
400	118	Sagittarius serpentarius	Secretarybird	BW, Ki, Gr, Ko, Ds, Fy, Mo, Fa	R-C
402	183	Falco naumanni	Lesser Kestrel	Gr, Ko, To, Fa	NBM-U
403	181	Falco rupicolis	Rock Kestrel	Ki, Gr, Ko, Ds, Fy, Mo, RC, Fa	R-U
404	182	Falco rupicoloides	Greater Kestrel	BW, Ki, Gr, Ko, Ds, Fa	R-U
408	179	Falco vespertinus	Western Redfooted Kestrel	BW, Ki, Gr, Fa	NBM-U
409	180	Falco amurensis	Eastern Redfooted Kestrel	BW, Gr, To, Fa	NBM-U
412	173	Falco subbuteo	Northern Hobby Falcon	BW, Ki, Gr, Ko, Fa	NBM-C
414	172	Falco biarmicus	Lanner Falcon	BW, Ki, Ko, Ds, Fy, Mo, RC, To, Fa	R-U/C
415	171	Falco peregrinus	Peregrine Falcon	Fo, Gr, Ko, Ds, Mo, RC, To	R-U
417	8	Tachybaptus ruficollis	Dabchick	Wa	R-VC
427	60	Anhinga rufa	Darter	Wa	R-U/C
428	58	Phalacrocorax africanus	Reed Cormorant	Wa	R-U
430	55	Phalacrocorax lucidus	Whitebreasted Cormorant	Wa, Ms	R-VC
434	69	Egretta ardesiaca	Black Egret	Wa	R-U
435	67	Egretta garzetta	Little Egret	Wa	R-U
437	68	Egretta intermedia	Yellowbilled Egret	Wa	R-U
438	66	Egretta alba	Great White Egret	Wa	R-C
441	62	Ardea cinerea	Grey Heron	Wa	R-C
442	63	Ardea melanocephala	Blackheaded Heron	Gr, Fa, Wa	R-VC
443	64	Ardea goliath	Goliath Heron	Wa	R-U/C
444	65	Ardea purpurea	Purple Heron	Wa	R-U/C
445	71	Bubulcus ibis	Cattle Egret	BW, Gr, Fa, Wa	R-VC/A
446	72	Ardeola ralloides	Squacco Heron	Wa	NBM-U
449	74	Butorides striatus	Greenbacked Heron	Wa	R-C
450	76	Nycticorax nycticorax	Blackcrowned Night Heron	Wa	R-U
451	77	Gorsachius leuconotus	Whitebacked Night Heron	Wa	R-U
452	78	Ixobrychus minutus	Little Bittern	Wa	R-U

SAM	Rob	Scientific	English Name	Habitats	Map Status
453	79	<i>Ixobrychus sturmii</i>	Dwarf Bittern	Wa	BM-U
455	81	<i>Scopus umbretta</i>	Hamerkop	Wa	R-VC
456	96	<i>Phoenicopterus ruber</i>	Greater Flamingo	Wa, Ms	R-U
457	97	<i>Phoenicopterus minor</i>	Lesser Flamingo	Wa, Ms	R-U
458	93	<i>Plegadis falcinellus</i>	Glossy Ibis	Wa	R-U
459	94	<i>Bostrychia hagedash</i>	Hadedda Ibis	Fo, BW, Gr, To, Fa, Wa	R-VC/A
461	91	<i>Threskiornis aethiopicus</i>	Sacred Ibis	Gr, Fa, Wa	R-U
462	95	<i>Platalea alba</i>	African Spoonbill	Wa	R-U
463	49	<i>Pelecanus onocrotalus</i>	White Pelican	Wa, Ms	R-U
464	50	<i>Pelecanus rufescens</i>	Pinkbacked Pelican	Wa, Ms	R-U
465	90	<i>Mycteria ibis</i>	Yellowbilled Stork	Wa	R-C, NBM-U
466	87	<i>Anastomus lamelligerus</i>	Openbilled Stork	Wa	R-C
467	84	<i>Ciconia nigra</i>	Black Stork	RC, Fa, Wa	R-C
468	85	<i>Ciconia abdimii</i>	Abdim's Stork	Ki, Gr, Ko, Fa, Wa	NBM-U
469	86	<i>Ciconia episcopus</i>	Woollynecked Stork	BW, Gr, Wa, Ms	R-U/C
470	83	<i>Ciconia ciconia</i>	White Stork	BW, Ki, Gr, Ko, Mo, Fa	NBM-C
471	88	<i>Ephippiorhynchus senegalensis</i>	Saddlebilled Stork	Wa	R-U
472	89	<i>Leptoptilos crumeniferus</i>	Marabou Stork	BW, Wa	R-U
536	490	<i>Smithornis capensis</i>	African Broadbill	Fo, BW	R-U
537	543	<i>Oriolus oriolus</i>	Eurasian Golden Oriole	BW, Ki, Fa	NBM-U
538	544	<i>Oriolus auratus</i>	African Golden Oriole	BW	BM-U
540	545	<i>Oriolus larvatus</i>	Blackheaded Oriole	Fo, BW, To, Fa	R-VC
542	541	<i>Dicurus adsimilis</i>	Forktailed Drongo	BW, Ki, RC, To, Fa	R-VC/A
546	708	<i>Trochocercus cyanomelas</i>	Bluemantled Flycatcher	Fo	R-U
547	710	<i>Terpsiphone viridis</i>	Paradise Flycatcher	Fo, BW, To, Fa	BM-VC
549	741	<i>Nilaus afer</i>	Brubru	BW	R-VC
550	740	<i>Dryoscopus cubla</i>	Puffback	Fo, BW	R-A
552	744	<i>Tchagra senegala</i>	Blackcrowned Tchagra	BW	R-VC
553	743	<i>Tchagra australis</i>	Threestreaked Tchagra	BW	R-VC
555	737	<i>Laniarius aethiopicus</i>	Tropical Boubou	Fo	R-VC
557	736	<i>Laniarius ferrugineus</i>	Southern Boubou	Fo, BW, Fy, To	E-VC
558	739	<i>Laniarius atrococcineus</i>	Crimsonbreasted Shrike	BW, Ki, Ko, Ds	E-VC
560	748	<i>Telophorus sulfureopectus</i>	Orangebreasted Bush Shrike	BW	R-VC
561	750	<i>Telophorus olivaceus</i>	Olive Bush Shrike	Fo, BW	E-C
562	749	<i>Telophorus nigrifrons</i>	Blackfronted Bush Shrike	Fo	R-U
563	747	<i>Telophorus quadricolor</i>	Gorgeous Bush Shrike	Fo, BW	R-VC
564	751	<i>Malacotus blanchoti</i>	Greyheaded Bush Shrike	BW, To	R-VC
565	753	<i>Prionops plumatus</i>	White Helmetshrike	BW	R-VC
566	754	<i>Prionops retzii</i>	Redbilled Helmetshrike	BW	R-C
569	700	<i>Batis capensis</i>	Cape Batis	Fo, BW	R-VC
571	701	<i>Batis molitor</i>	Chinspot Batis	BW	R-VC
576	547	<i>Corvus capensis</i>	Black Crow	BW, Gr, Ko, Ds, Mo, Fa	R-U
577	548	<i>Corvus albus</i>	Pied Crow	BW, Gr, Ko, Ds, To, Fa	R-A
578	550	<i>Corvus albicollis</i>	Whitenecked Raven	Mo, RC, Fa	R-VC
579	733	<i>Lanius collurio</i>	Redbacked Shrike	BW, Ki, Gr, Fa	NBM-VC
581	731	<i>Lanius minor</i>	Lesser Grey Shrike	BW, Ki, Gr	NBM-C
582	732	<i>Lanius collaris</i>	Fiscal Shrike	BW, Ki, Gr, Ko, Ds, Fy, Mo, To, Fa	R-C/A
583	735	<i>Corvinella melanoleuca</i>	Longtailed Shrike	BW	R-VC
584	756	<i>Eurocephalus anguitemens</i>	Whitecrowned Shrike	BW, Ki	E-VC
586	540	<i>Coracina caesia</i>	Grey Cuckooshrike	Fo, BW	R-U
587	538	<i>Campephaga flava</i>	Black Cuckooshrike	Fo, BW	R-C
588	558	<i>Anthoscopus caroli</i>	Grey Penduline Tit	BW	R-U
589	557	<i>Anthoscopus minutus</i>	Cape Penduline Tit	BW, Ki, Ko, Ds, Fy, Fa	E-U
590	554	<i>Parus niger</i>	Southern Black Tit	Fo, BW, To, Fa	E-VC
595	552	<i>Parus cinerascens</i>	Ashy Tit	BW, Ki	E-C
597	532	<i>Riparia riparia</i>	Sand Martin	Gr, Fa, Wa	NBM-U
598	533	<i>Riparia paludicola</i>	Brownthroated Martin	Gr, Wa	R-U
599	534	<i>Riparia cincta</i>	Banded Martin	Gr, Fa, Wa	BM-U
602	518	<i>Hirundo rustica</i>	Eurasian Swallow	BW, Ki, Gr, Ko, Ds, Fy, Mo, To, Fa, Wa	NBM-VC
604	520	<i>Hirundo albicularis</i>	Whitethroated Swallow	Gr, RC, To, Fa	BM-U
605	522	<i>Hirundo smithii</i>	Wiretailed Swallow	BW, Gr, Fa, Wa	R-C
607	523	<i>Hirundo dimidiata</i>	Pearlbreasted Swallow	BW, Fa	R-U
608	526	<i>Hirundo cucullata</i>	Greater Striped Swallow	Ki, Gr, Ko, Fy, Mo, RC, To, Fa	BM-VC
609	527	<i>Hirundo abyssinica</i>	Lesser Striped Swallow	BW, RC, To, Fa	BM-VC
610	524	<i>Hirundo semirufa</i>	Redbreasted Swallow	BW, Gr, Fa	BM-C
614	529	<i>Hirundo fuligula</i>	Rock Martin	Ki, Mo, RC, To, Fa	R-VC
615	530	<i>Delichon urbica</i>	House Martin	Gr, RC, Fa	NBM-U
617	536	<i>Psalidoprocne holomelaena</i>	Black Sawwing Swallow	Fo, BW, Wa	BM-C
619	568	<i>Pycnonotus tricolor</i>	Blackeyed Bulbul	BW, Mo, To, Fa	R-A
622	572	<i>Andropadus importunus</i>	Sombre Bulbul	Fo	R-VC
624	574	<i>Chlorocichla flaviventris</i>	Yellowbellied Bulbul	Fo	R-C
625	569	<i>Phyllastrephus terrestris</i>	Terrestrial Bulbul	Fo, BW	R-C
626	570	<i>Phyllastrephus flavostriatus</i>	Yellowstreaked Bulbul	Fo	R-U
629	638	<i>Bradypterus baboecala</i>	African Sedge Warbler	Wa	R-C
635	661	<i>Sphenoeacus afer</i>	Grassbird	Gr, Fy	E-C
637	634	<i>Acrocephalus schoenobaenus</i>	Eurasian Sedge Warbler	Wa	NBM-U
639	631	<i>Acrocephalus baeticatus</i>	African Marsh Warbler	Wa	R-C
640	633	<i>Acrocephalus palustris</i>	Eurasian Marsh Warbler	Fo, BW, To, Wa	NBM-U
641	628	<i>Acrocephalus arundinaceus</i>	Great Reed Warbler	To, Fa, Wa	NBM-U
644	635	<i>Acrocephalus gracilirostris</i>	Cape Reed Warbler	Wa	R-C
645	626	<i>Hippolais olivetorum</i>	Olivetree Warbler	BW	NBM-U

SAM	Rob	Scientific	English Name	Habitats	Map Status
646	625	Hippolais icterina	Icterine Warbler	BW, Ki	NBM-U
647	637	Chloropeta natalensis	Yellow Warbler	Wa	R-U
648	653	Eremomela icteropygialis	Yellowbellied Eremomela	BW, Ki, Ko, Ds	R-C
649	655	Eremomela scotops	Greencapped Eremomela	BW	R-U
651	656	Eremomela usticollis	Burnnecked Eremomela	BW	R-C
654	651	Sylvietta rufescens	Longbilled Crombec	BW, Ki, Ko	R-VC
655	644	Phylloscopus ruficapilla	Yellowthroated Warbler	Fo	R-C
656	643	Phylloscopus trochilus	Willow Warbler	Fo, BW, Ki, To, Fa	NBM-C
662	563	Turdoides bicolor	Pied Babbler	BW, Ki	E-VC
663	560	Turdoides jardineii	Arrowmarked Babbler	BW, Fa	R-C/VC
669	621	Parisoma subcaeruleum	Titbabbler	BW, Ki, Ko, Ds	E-C
671	619	Sylvia borin	Garden Warbler	Fo, BW, To	NBM-U
672	620	Sylvia communis	Whitethroat	BW	NBM-U
674	796	Zosterops virens	Cape White-eye	Fo, BW, Ko, Fy, To, Fa	E-U/VC
676	674	Cisticola erythropis	Redfaced Cisticola	Fa, Wa	R-C
678	679	Cisticola aberrans	Lazy Cisticola	Fo, BW, Mo, RC	R-U
679	672	Cisticola chinianus	Rattling Cisticola	BW, Ki	R-VC
682	670	Cisticola lais	Wailing Cisticola	Gr, Fy, Mo	R-C
688	681	Cisticola fulvicapillus	Neddicky	Fo, BW, Gr, Fy, RC, To, Fa	R-C
690	664	Cisticola juncidis	Fantailed Cisticola	Gr, Fa	R-C
691	665	Cisticola aridulus	Desert Cisticola	Gr, Fa	R-C
692	666	Cisticola textrix	Cloud Cisticola	Gr, Fa	R-U
694	667	Cisticola ayresii	Ayres' Cisticola	Gr, Fa	R-U
695	683	Prinia subflava	Tawnyflanked Prinia	BW, To, Fa, Wa	R-VC
696	685	Prinia flavicans	Blackchested Prinia	BW, Ki, Gr, Ds, To, Fa	E-VC
698	686.1	Prinia hypoxantha	Spotted Prinia	Mo, To, Fa	E-C
703	645	Apalis thoracica	Barthroated Apalis	Fo, BW, Fy, RC, To	R-VC
704	648	Apalis flavida	Yellowbreasted Apalis	Fo, BW	R-VC
708	657	Camaroptera brachyura	Greenbacked Bleating Warbler	Fo, BW, To	R-VC
709	657.1	Camaroptera brevicaudata	Greybacked Bleating Warbler	BW	R-VC
710	658	Calamonastes fasciatus	Desert Barred Warbler	BW, Ki	E-U
713	493	Mirafra passerina	Monotonous Lark	BW, Ki	E-U
715	494	Mirafra africana	Rufousnaped Lark	BW, Gr, Fa	R-VC
716	496	Mirafra rufocinnamomea	Flappet Lark	BW, Gr	R-C
721	498	Calendulauda sabota	Sabota Lark	BW, Ki, Gr, Ko, Ds, RC	E-VC
723	497	Calendulauda africanoides	Fawncoloured Lark	BW, Ki	R-U
728	505	Pinarocorys nigricans	Dusky Lark	BW	NBM-U
738	515	Eremopterix leucotis	Chestnutbacked Finchlark	BW, Gr, Fa	R-C
740	507	Calandrella cinerea	Redcapped Lark	BW, Ki, Gr, Ko, Ds, Fy, Mo, Fa	R-U
747	581	Monticola rupestris	Cape Rockthrush	RC	E-C
751	579	Zoothera gurneyi	Orange Thrush	Fo	R-U
753	580	Psophocichla litsipsirupa	Groundscraper Thrush	BW, Ki, To, Fa	R-VC
754	576	Turdus libyanus	Kurrichane Thrush	BW, To, Fa	R-VC
755	577	Turdus olivaceus	Olive Thrush	Fo, To, Fa	R-VC
758	696	Bradornis pallidus	Pallid Flycatcher	BW	R-C
760	695	Bradornis mariquensis	Marico Flycatcher	BW, Ki	E-VC
761	694	Melaenornis pammelaina	Black Flycatcher	Fo, BW, To, Fa	R-C
762	698	Sigelus silens	Fiscal Flycatcher	BW, Ko, To	E-U
763	689	Muscicapa striata	Spotted Flycatcher	BW, Ki, Ko, To, Fa	NBM-C
764	690	Muscicapa adusta	Dusky Flycatcher	Fo, BW, RC, To	R-C
765	691	Muscicapa caerulescens	Bluegrey Flycatcher	Fo, BW, RC	R-C
766	693	Myioparus plumbeus	Fantailed Flycatcher	Fo, BW	R-U
768	606	Pogonocichla stellata	Starred Robin	Fo	R-U
771	609	Luscinia luscinia	Thrush Nightingale	BW	NBM-U
772	601	Cossypha caffra	Cape Robin	Fo, Fy, RC, To	R-VC
773	602	Cossypha humeralis	Whitethroated Robin	BW	E-C
774	599	Cossypha heuglini	Heuglin's Robin	BW, To	R-VC
775	600	Cossypha natalensis	Natal Robin	Fo, To	R-VC
776	598	Cossypha dichroa	Chorister Robin	Fo	E-C
779	617	Cercotrichas quadrivirgata	Bearded Robin	Fo	R-U
781	613	Cercotrichas leucophrys	Whitebrowed Robin	BW	R-VC
782	615	Cercotrichas paena	Kalahari Robin	BW, Ki	E-VC
787	596	Saxicola torquata	Stonechat	Gr, Fy, Mo, Fa	R-VC
792	587	Oenanthe pileata	Capped Wheatear	BW, Ki, Gr, Ko, Fa	R-U/C
797	589	Cercomela familiaris	Familiar Chat	BW, Ki, Gr, Ko, Ds, Fy, Mo, RC, To, Fa	R-C
798	595	Myrmecocichla formicivora	Anteating Chat	Ki, Gr, Ko, Fa	E-U
800	593	Thamnolaea cinnamomeiventris	Mocking Chat	RC	R-C
803	769	Onychognathus morio	Redwinged Starling	Fy, Mo, RC, To, Fa	R-VC
805	764	Lamprotornis nitens	Glossy Starling	BW, Ki, Ko, Ds, To, Fa	E-VC
806	765	Lamprotornis chalybaeus	Greater Blue-eared Starling	BW	R-VC
810	763	Lamprotornis mevesii	Longtailed Starling	BW	R-VC
811	761	Cinnyricinclus leucogaster	Plumcoloured Starling	BW	BM-VC
813	760	Creatophora cinerea	Wattled Starling	BW, Ki, Gr, Ko, Ds, To, Fa	R-VC
817	772	Buphagus erythrorhynchus	Redbilled Oxpecker	BW	R-U
824	792	Chalcomitra amethystina	Black Sunbird	Fo, BW, To	R-VC
825	791	Chalcomitra senegalensis	Scarletchested Sunbird	BW, To	R-VC
828	793	Hedydipna collaris	Collared Sunbird	Fo, To	R-VC
830	783	Cinnyris chalybea	Lesser Doublecollared Sunbird	Fo, Fy, Mo, To	E-C
831	785	Cinnyris afra	Greater Doublecollared Sunbird	Fo, Fy, Mo, To	E-C
834	787	Cinnyris talatala	Whitebellied Sunbird	BW, To	R-VC
838	779	Cinnyris mariquensis	Marico Sunbird	BW, To	R-VC

SAM	Rob	Scientific	English Name	Habitats	Map Status
840	774	<i>Promerops gurneyi</i>	Gurney's Sugarbird	Mo, To	E-U
842	798	<i>Bubalornis niger</i>	Redbilled Buffalo Weaver	BW	R-VC
843	806	<i>Sporopipes squamifrons</i>	Scalyfeathered Finch	BW, Ki, Ko, Ds, Fa	E-VC
844	799	<i>Plocepasser mahali</i>	Whitebrowed Sparrowweaver	BW, Ki, Fa	R-VC
846	815	<i>Ploceus intermedius</i>	Lesser Masked Weaver	BW, To, Wa	R-U
847	810	<i>Ploceus ocularis</i>	Spectacled Weaver	Fo, BW, To	R-VC
848	813	<i>Ploceus capensis</i>	Cape Weaver	BW, Fy, To, Fa, Wa	E-U
850	816	<i>Ploceus xanthops</i>	Golden Weaver	BW, Wa	R-C
852	814	<i>Ploceus velatus</i>	Masked Weaver	BW, Ki, Gr, Ko, Ds, Mo, To, Fa, Wa	R-VC
853	811	<i>Ploceus cucullatus</i>	Spottedbacked Weaver	Fo, BW, To, Fa	R-VC
857	819	<i>Anaplectes rubriceps</i>	Redheaded Weaver	BW	R-C
860	821	<i>Quelea quelea</i>	Redbilled Quelea	BW, Ki, Gr, Fa	R-VC
861	826	<i>Euplectes afer</i>	Golden Bishop	Gr, Fa, Wa	R-U
863	824	<i>Euplectes orix</i>	Red Bishop	Gr, To, Fa, Wa	R-U/VC
864	827	<i>Euplectes capensis</i>	Yellowrumped Widow	Gr, Fy, Mo, Fa, Wa	R-VC
867	829	<i>Euplectes albonotatus</i>	Whitewinged Widow	BW, Gr, Fa	R-C
868	831	<i>Euplectes ardens</i>	Redcollared Widow	BW, Gr, Mo, Fa	R-VC
871	807	<i>Amblyospiza albifrons</i>	Thickbilled Weaver	Fo, To, Wa	R-C
872	833	<i>Pytilia afra</i>	Goldenbacked Pytilia	BW	R-U
873	834	<i>Pytilia melba</i>	Melba Finch	BW, Ki, Ko, Ds	R-VC
874	835	<i>Mandingoa nitidula</i>	Green Twinspot	Fo, To	R-U
878	838	<i>Hypargos margaritatus</i>	Pinkthroated Twinspot	BW	E-U
880	842	<i>Lagonosticta senegala</i>	Redbilled Firefinch	BW, Gr, Ko, To, Fa	R-C
881	840	<i>Lagonosticta rubricata</i>	Bluebilled Firefinch	Fo, BW, To, Fa	R-C
882	841	<i>Lagonosticta rhodopareia</i>	Jameson's Firefinch	BW, Fa	R-C
883	844	<i>Uraeginthus angolensis</i>	Blue Waxbill	BW, To, Fa	R-A
884	845	<i>Granatina granatina</i>	Violeteared Waxbill	BW, Ki, Fa	E-VC
887	850	<i>Estrilda melanotis</i>	Sweet Waxbill	Fo, To, Fa	E-U
889	846	<i>Estrilda astrild</i>	Common Waxbill	Gr, To, Fa, Wa	R-VC
890	847	<i>Estrilda erythronotos</i>	Blackcheeked Waxbill	BW, Ki	R-C
891	854	<i>Amandava subflava</i>	Orangebreasted Waxbill	Gr	R-U/C
892	852	<i>Ortygospiza atricollis</i>	Quail Finch	Gr	R-U
894	857	<i>Lonchura cucullata</i>	Bronze Mannikin	Fo, BW, To, Fa	R-U/VC
895	858	<i>Lonchura nigriceps</i>	Redbacked Mannikin	Fo, To	R-U/C
897	855	<i>Amadina fasciata</i>	Cutthroat Finch	BW, Ki	R-C
898	856	<i>Amadina erythrocephala</i>	Redheaded Finch	Gr, Fa	E-U
899	867	<i>Vidua chalybeata</i>	Steelblue Widowfinch	BW, To, Fa	R-C
900	864	<i>Vidua funerea</i>	Black Widowfinch	BW, To, Fa	R-U
902	865	<i>Vidua purpurascens</i>	Purple Widowfinch	BW, Fa	R-U
903	861	<i>Vidua regia</i>	Shafttailed Whydah	BW, Ki, Ko	E-VC
904	860	<i>Vidua macroura</i>	Pintailed Whydah	BW, Gr, To, Fa	R-VC
905	862	<i>Vidua paradisaea</i>	Paradise Whydah	BW, To, Fa	R-VC
907	801	<i>Passer domesticus</i>	House Sparrow	To, Fa	R-VC
908	802	<i>Passer motitensis</i>	Great Sparrow	BW, Ki, Ds	R-C
909	803	<i>Passer melanurus</i>	Cape Sparrow	BW, Ki, Ko, Ds, Fy, To, Fa	E-C/A
910	804	<i>Passer diffusus</i>	Southern Greyheaded Sparrow	BW, Ki, Ko, To, Fa	E-VC
912	805	<i>Petronia superciliaris</i>	Yellowthroated Sparrow	BW, Fa	R-C
913	711	<i>Motacilla aguimp</i>	African Pied Wagtail	RC, To, Fa, Wa, Ms	R-U
914	713	<i>Motacilla capensis</i>	Cape Wagtail	Gr, Fy, To, Fa, Wa	R-U
915	714	<i>Motacilla flava</i>	Yellow Wagtail	Gr, Fa, Wa	NBM-C
918	712	<i>Motacilla clara</i>	Longtailed Wagtail	Wa	R-U
924	720	<i>Anthus lineiventris</i>	Striped Pipit	BW, RC	R-U
926	716	<i>Anthus cinnamomeus</i>	Grassveld Pipit	BW, Gr, Fa	R-VC
928	718	<i>Anthus leucophrys</i>	Plainbacked Pipit	Gr, Mo, Fa	R-U
929	719	<i>Anthus vaalensis</i>	Buffy Pipit	Ki, Gr, Fa	R-U
931	717	<i>Anthus similis</i>	Longbilled Pipit	Ko, Mo	R-U
935	723	<i>Anthus caffer</i>	Bushveld Pipit	BW	R-U
936	722	<i>Anthus trivialis</i>	Tree Pipit	BW	NBM-U
939	872	<i>Serinus canicollis</i>	Cape Canary	Fy, Mo, To, Fa	R-U
940	873	<i>Serinus scotops</i>	Forest Canary	Fo, Fy	E-U
941	870	<i>Serinus atrogularis</i>	Blackthroated Canary	BW, Ki, Gr, Ko, Ds, Fy, To, Fa	R-VC
943	869	<i>Serinus mozambicus</i>	Yelloweyed Canary	Fo, BW, To, Fa	R-VC
944	878	<i>Serinus flaviventris</i>	Yellow Canary	Ki, Gr, Ko, Ds, Fy, Mo, To, Fa	E-U
945	877	<i>Serinus sulphuratus</i>	Bully Canary	Fo, Mo, To, Fa	R-U
947	881	<i>Serinus gularis</i>	Streakyheaded Canary	Fo, BW, Gr, Mo, To, Fa	R-C
954	887	<i>Emberiza impetuani</i>	Larklike Bunting	Ko, Ds, Fy	E-U
955	886	<i>Emberiza tahapisi</i>	Rock Bunting	Mo, RC	R-VC
956	885	<i>Emberiza capensis</i>	Cape Bunting	Ko, Ds, Fy, Mo, RC	R-U
957	884	<i>Emberiza flaviventris</i>	Goldenbreasted Bunting	BW, To, Fa	R-VC

TABLE 5: Regional list of important butterflies

Scientific Name	Habitat and Ecology	Distribution / Endemic / Range Discription	Regional Status 2016	IUCN Status
<i>Acada Biseriata</i> Axehead Orange	Brachystegia Woodland. VhaVenda Miombo.	South Africa (Limpopo) Within the Atlas region recorded only from Gundani north-east of Thohoyandou.	Critically Endangered	Least Concern.
<i>Papilio ophidicephalus entabeni</i> Emperor Swallowtail;	Northern Misbelt Forest along the Blouberg and Soutpansberg. Northern Mistbelt Forest	South Africa (Limpopo) Endemic to the Atlas region, from Vivo in the west to Thohoyandou in the east.	Rare	Least Concern.
<i>Papilio ophidicephalus transvaalensis</i> Emperor Swallowtail;	Temperate forest of the Northern Mistbelt Forest type, which occurs in mountain areas. Northern Mistbelt Forest	South Africa (Limpopo) Endemic to the Atlas region, near Polokwane in the west to Ofcolaco in the east.	Rare	Least Concern.
<i>Antanartia schaeneia schaeneia</i> Long-tailed Admiral	Forest, particularly forest edges; also often in clearings. Southern Mistbelt Forest; Northern Misbelt Forest; Scarp Forest; Northern Coastal Forest; Lowveld Riverine Forest.	South Africa (Eastern Cape, KwaZulu-Natal, Limpopo, Mpumalanga): endemic to the atlas region;		Least Concern.
<i>Charaxes druceanus entabeni</i> Soutpansberg Silver-barred Charaxes	Montane Forests Northern Mistbelt Forest	South Africa (Limpopo) Endemic to the Atlas region, from Louis Trichardt in the west to Thohoyandou in the east, in the Soutpansberg mountains.		Least Concern.
<i>Charaxes druceanus solitarius</i> Blouberg Silver-barred Charaxes	Montane Forests Northern Mistbelt Forest	South Africa (Limpopo) Endemic to the Atlas region, limited to the Blouberg inselberg near Poleni.	Rare	Least Concern.
<i>Charaxes guderiana guderiana</i> Blue-spangled Charaxes	Brachystegia Woodland. VhaVenda Miombo.	South Africa (Limpopo) one known subpopulation in the Soutpansberg near Thohoyandou, removed from the nearest main population near Umtali in Zimbabwe by more than 500 km.		Least Concern.
<i>Charaxes xiphares draconis</i> Venda Forest-king Charaxes	Temperate and montane forest; in forests; on forest edges, mountains and hillsides. Northern Mistbelt Forest	South Africa (Limpopo) Endemic to the Atlas region, from Louis Trichardt in the west to Thohoyandou in the east, in the Soutpansberg mountains.		Least Concern.
<i>Charaxes xiphares kwenwayi</i> Magoebaskloof Forest-king Charaxes	Temperate and montane forest; in forests; on forest edges, mountains and hillsides. Northern Mistbelt Forest	South Africa (Limpopo) Endemic to the Atlas region; from Lekgalameetse Nature Reserve near Tzaneen in the south to Woodbush near Heanertsburg in the north.		Least Concern.
<i>Charaxes xiphares staudei</i> Blouberg Forest-king Charaxes	Temperate and montane forest; in forests; on forest edges, and mountains Northern Mistbelt Forest	South Africa (Limpopo) Endemic to the Atlas region; on the slopes of the Blouberg near Poleni	Rare	Least Concern.
<i>Coenyra rufiplaga</i> Secucuni Shadefly	Wooded savanna at the base hill and mountains, in flatlands or on forest edges. Found at higher altitudes than its congeners. Central Bushveld; Mesic Highveld Grassland.	South Africa (Limpopo) Endemic to the Atlas region; from the Waterberg near Thabazimbi in the west to the Wolkberg and as far as Ohrigstad in the east.		Least Concern.
<i>Coenyropsis natali poetulodes</i> Natal Brown	Rank grassy slopes at an altitude of 1000m to 1500 in mixed savanna/ grassland. Sekhukhune Plains Bushveld; Pong Dolomite Mountain Bushveld; Granite Lowveld; Tsende Mopaneveld; Limpopo Ridge Bushveld; Ohrigstad Mountain Bushveld.	South Africa (Limpopo) Endemic to the Atlas region; western Wolkberg near Chunniespoort.		Data Deficient

<i>Cymothoe alcimeda transvaalica</i> Battling Glider	Forests, specifically on the edges and in clearings. Northern Mistbelt Forest	South Africa (Limpopo) and Swaziland to the Atlas region; from north of Ohrigstad in the south to Louis Trichard in the north.		Least Concern.
<i>Dingana clara</i> Wolkberg Widow	Rocky, grass-covered montane slopes and ledges, generally on high elevation Protea slopes and seemingly preferring steep, grassy slopes, alongside rocks. Northern Escarpment Quartzite Sourveld; Wolkberg Dolomite Grassland.	South Africa (Limpopo) Endemic to the Atlas region; Wolkberg at Lekgalameetse Nature Reserve near Tzaneen in the south to just south of Heanertsburg in the north.		Endangered
<i>Dingana jerinae</i> Jerine's Widow	Grassy hillsides, rocky ledges and on mountains. Waterberg- Magaliesberg summit Sourveld.	South Africa (Limpopo) Endemic to the Atlas region; Waterberg near Thabazimbi.	Rare	Least Concern.
<i>Dira swanepoeli isolate</i> Swanepoel's Widow; Blouberg Weduwee	Montane grassy slopes of its single known locality. Montane grassy slopes.	South Africa (Limpopo) Endemic to the Atlas region; southern slopes of the Blouberg	Rare	Least Concern.
<i>Dira swanepoeli swanepoeli</i> Swanepoel's Widow; Soutpansberg Weduwee	South-facing grassy mountainous slopes. Soutpansberg Summit Sourveld	South Africa (Limpopo) Endemic to the Atlas region; restricted to the Soutpansberg mountain		Least Concern.
<i>Pseudonympha swanepoeli</i> Swanepoel's Brown; Houtbos Vleibruintjie	Wetlands, limited, to the type locality in Wood-bush Granite Grassland at an altitude of about 2000m above sea-level. Woodbush Granite Grassland.	South Africa (Limpopo) Endemic to the Atlas region; near Houtboschdorp.		Data Deficient
<i>Telchina induna salmontana</i> Soutpansberg Acraea	Exposed high rocky ridges in mountain sourveld where the host plant, <i>Aeschynomene nodulosa</i> , grows. <i>Aeschynomene nodulosa</i>	South Africa (Limpopo) Endemic to the Atlas region; higher peaks in the Soutpansberg mountains near Louis Trichardt.		Endanger
<i>Alaena margaritacea</i> Wolkberg Zulu	Steep grassy slopes of Woodbush Granite Grassland associated with lichen-covered rocks. Woodbush Granite Grassland.	South Africa (Limpopo) Endemic to the Atlas region; Wolkberg mountains near Heanertsburg.		Critically Endangered
<i>Aloeides stevensoni</i> Stevenson's Copper	South-Facing, high altitude grassy slopes of the Wolkberg in Woodbush Granite Grassland in the Mesic Highveld Grassland Bioregion of the Grassland BIOME. Woodbush Granite Grassland.	South Africa (Limpopo) Endemic to the Atlas region; on the Wolkberg near Serala and Heanertsburg.		Endanger
<i>Anthene crawshayi juanitae</i> Juanita's Hairtail	Riverine woodland Granite Lowveld	South Africa (Limpopo) Endemic to the Atlas region; north of Ohrigstad,		Critically Endangered
<i>Anthene minima minima</i> Little Hairtail	South Africa restricted to arid savanna and dry areas. Lowveld; Central Bushveld	South Africa (KwaZulu-Natal, Limpopo, Mpumalanga) and Swaziland:		Least Concern.
<i>Eriksonia edgei</i>	Level ground with grass understorey, herbaceous elements and scattered trees at the north western base of a small mountain. Occurs at the ecotone between the Waterberg Mountain Bushveld and Central Sandy Bushveld vegetation types. Waterberg Mountain Bushveld; Central Sandy Bushveld.	South Africa (Limpopo) Endemic to the Atlas region; confined to the small area of the Waterberg near Modimolle, where it now appears to be extinct, and recently rediscovered in the Bateleur Nature Reserve near Bela-Bela.		Critically Endangered

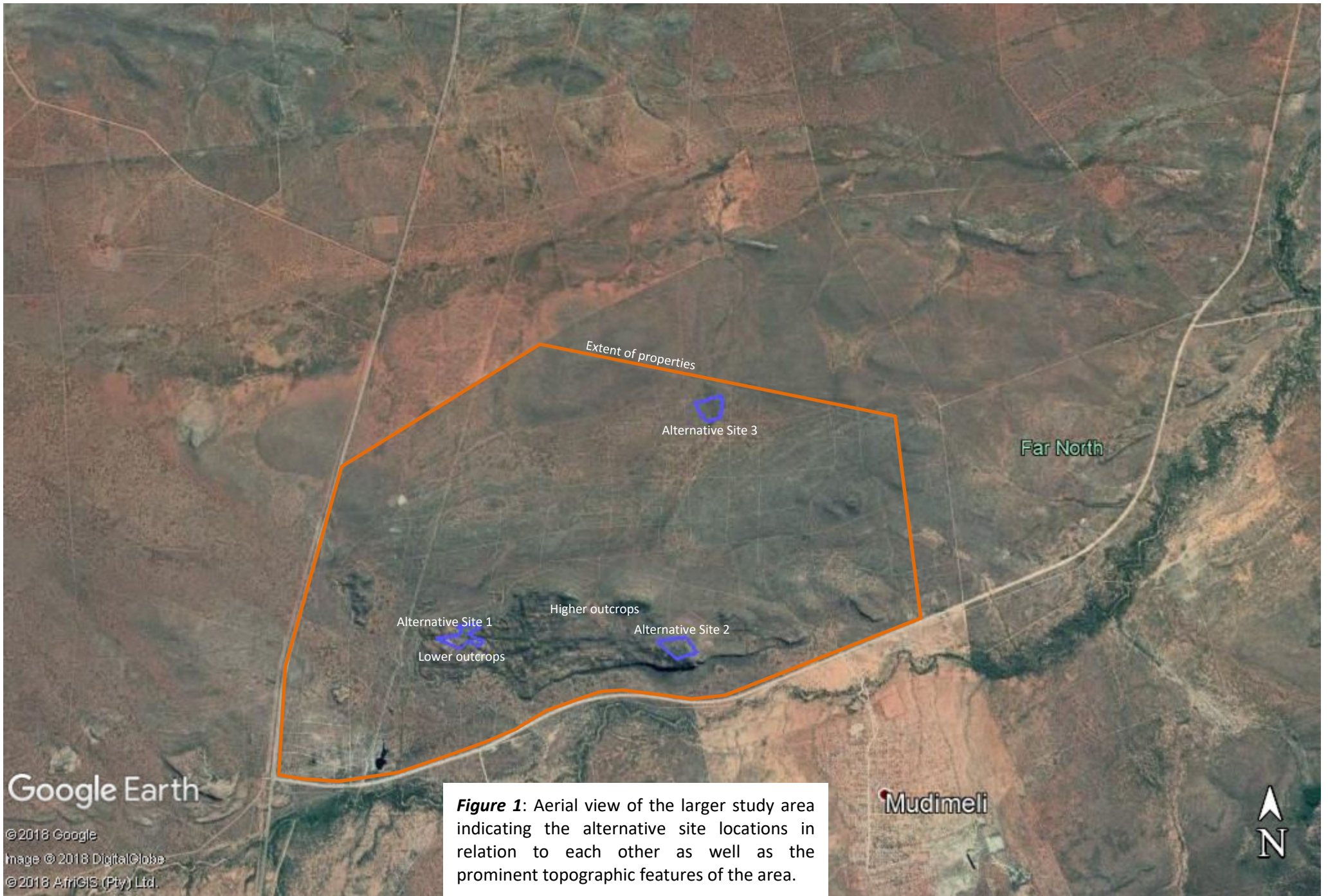


Figure 1: Aerial view of the larger study area indicating the alternative site locations in relation to each other as well as the prominent topographic features of the area.

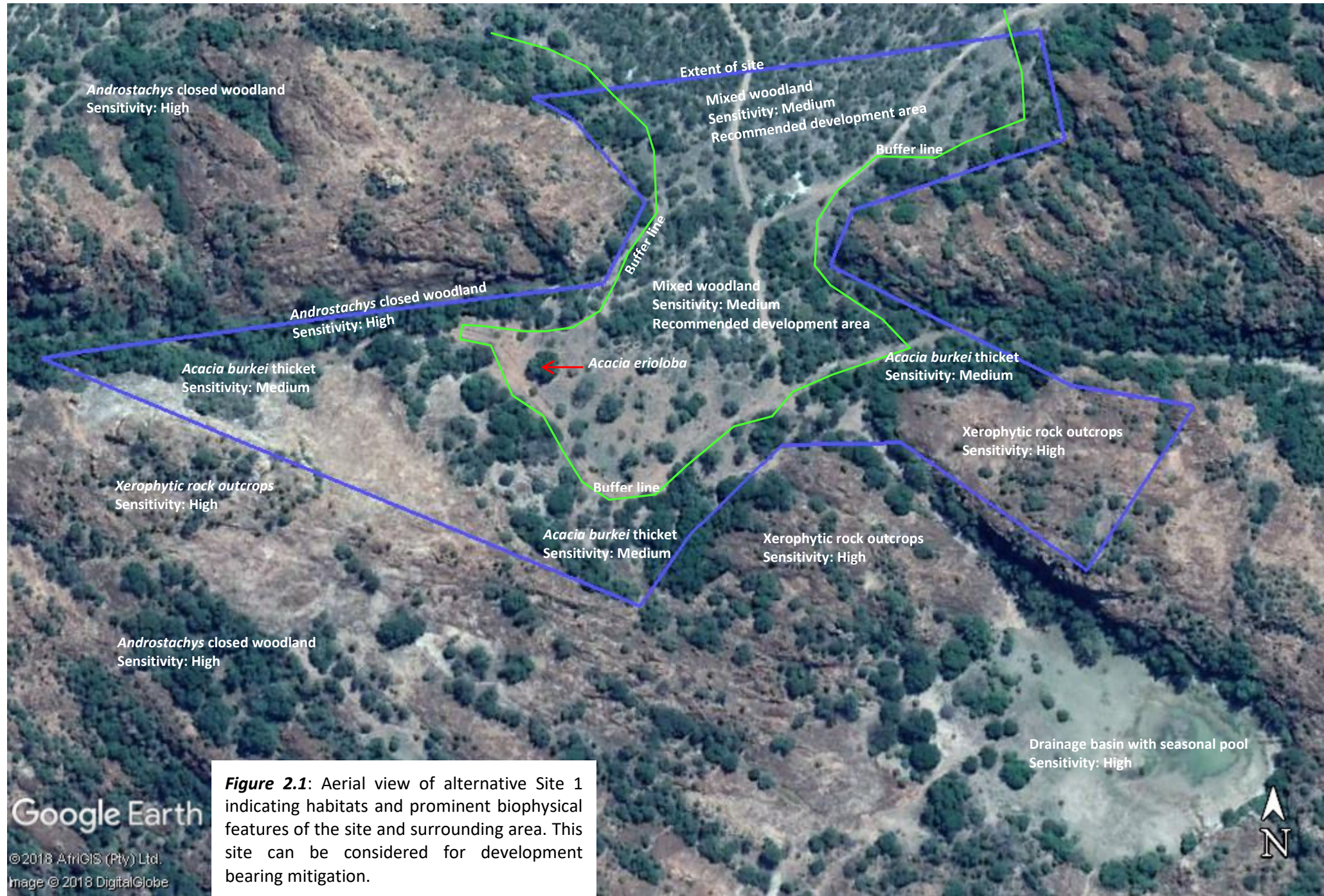
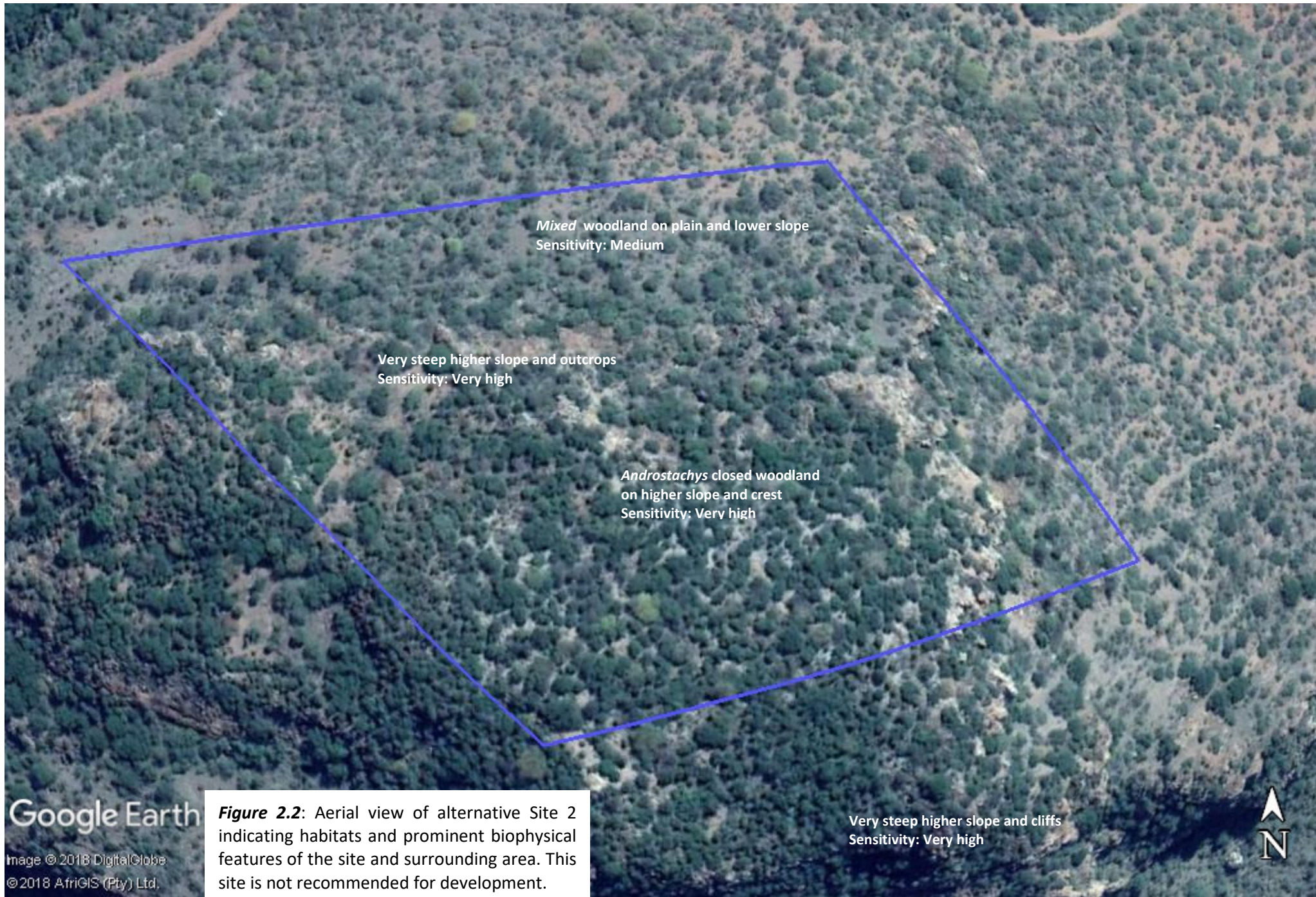


Figure 2.1: Aerial view of alternative Site 1 indicating habitats and prominent biophysical features of the site and surrounding area. This site can be considered for development bearing mitigation.

Google Earth

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Google Earth

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Figure 2.2: Aerial view of alternative Site 2 indicating habitats and prominent biophysical features of the site and surrounding area. This site is not recommended for development.

Very steep higher slope and cliffs
Sensitivity: Very high



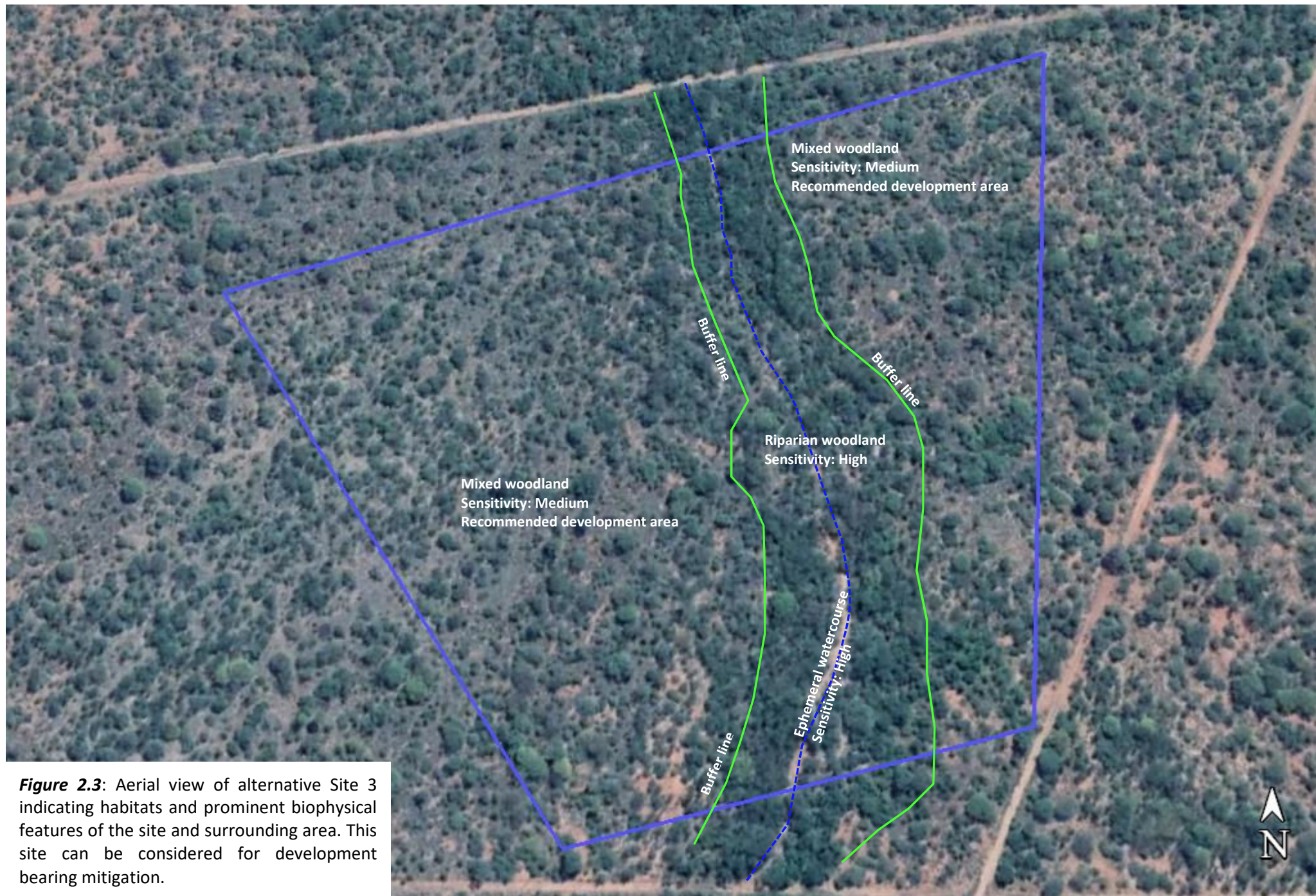


Figure 2.3: Aerial view of alternative Site 3 indicating habitats and prominent biophysical features of the site and surrounding area. This site can be considered for development bearing mitigation.