



## **ECOLOGICAL ASSESSMENT REPORT**

**Cube Octahedron Diamonds (Pty) Ltd**  
Olievenput Diamond Prospecting Operation



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**Cube Octahedron Diamonds (Pty) Ltd**

**The Farm Doornbult 209**

**The Farm Atbara 452**

**The Farm Klippan 768**

**Portion 1 of the Farm De Hoop 767**

**The Farm Graspan 772**

**The Farm Spyker 779**

**Remaining Extent of the Farm Armenia 804**

**The Farm Vaaldam 1132**

**The Farm Witput 1134**

**Remaining Extent of Portion 1, Portion 2, Portion 3, Portion 8 (a portion of Portion 3) and Portion 10 of the Farm Olievenput 1594**

**The Farm 1730**

**District of Boshof**

**Free State Province**

**Ecological Assessment Report in application for Environmental Authorisation related to a Prospecting Right Application (FS 30/5/1/1/2/10564 PR) that was lodged with the Department of Mineral Resources**

**March 2020**

## EXECUTIVE SUMMARY

Cube Octahedron Diamonds (Pty) Ltd is proposing the prospecting of diamonds on the Farm Doornbult 209, the Farm Atbara 452, the Farm Klippan 768, Portion 1 of the Farm De Hoop 767, the Farm Graspan 772, the Farm Spyker 779, Remaining Extent of the Farm Armenia 804, the Farm Vaaldam 1132, the Farm Witput 1134, Remaining Extent of Portion 1, Portion 2, Portion 3, Portion 8 (a portion of Portion 3) and Portion 10 of the Farm Olievenput 1594 and the Farm 1730. The prospecting right area is located within the Boshof District of the Free State Province. Cube Octahedron Diamonds has submitted a Prospecting Right application, which triggers the requirement to apply for Environmental Authorisation. An ecological assessment is required in order to consider the impacts that the proposed activities might have on the ecological integrity of the property. This terrestrial ecological assessment report describes the ecological characteristics and biodiversity of the proposed prospecting area, identifies the source of impacts from the operation, and assesses these impacts, as well as the residual impacts after closure.

A desktop study was performed to obtain ecological and biodiversity information for the proposed study area and identify the ecological characteristics and sensitivity of the site. Four potential plant communities were identified on site of which the ephemeral drainage lines and ephemeral pans are considered to be of very high sensitivity. The grassland vegetation unit in the northern half of the study area is considered to be of high sensitivity, while the thornveld vegetation unit in the south is considered to be of medium sensitivity. The area transformed by historic mining is considered to be of low sensitivity. The most profound impacts are expected to be related to the loss of plant species of conservation concern as well as the disruption of ecological corridors and the hydrological regime if the ephemeral pans and ephemeral drainage lines are modified through road creation or drill pad establishment.

A high number of provincially protected plant species are likely to occur on site, but nationally red listed species include *Galenia pallens*, *Brachystelma dimorphum* subsp. *dimorphum* and *Drimia sanguinea*. Permit applications regarding protected flora need to be lodged with the Free State Department of Economic Development, Tourism and Environmental Affairs three months prior to any clearance of vegetation. Similarly, if any *Vachellia erioloba* trees are to be affected, a licence application regarding protected trees should be lodged with Department of Agriculture, Forestry and Fisheries three months prior to any potential disturbances to these trees. Authorisation for the proposed operation can be granted, if the applicant commits to the adhere to the effective avoidance, management, mitigation and rehabilitation measures.

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## 1. INTRODUCTION

### 1.1. Background information

Cube Octahedron Diamonds (Pty) Ltd is proposing the prospecting of diamonds on the Farm Doornbult 209, the Farm Atbara 452, the Farm Klippan 768, Portion 1 of the Farm De Hoop 767, the Farm Graspan 772, the Farm Spyker 779, Remaining Extent of the Farm Armenia 804, the Farm Vaaldam 1132, the Farm Witput 1134, Remaining Extent of Portion 1, Portion 2, Portion 3, Portion 8 (a portion of Portion 3) and Portion 10 of the Farm Olievenput 1594 and the Farm 1730. This application area is situated in the Boshof District of the Free State Province (Figure 1) and will from hereon be referred to as Olievenput. It lies 26 km West of Boshof and 30 km north of Kimberley on a public gravel road (commonly referred to as the Samaria Road) that turns from the R64 to connect Kimberley with Boshof. The total extent of the prospecting right area is  $\pm 8\ 029$  ha.

Cube Octahedron Diamonds has submitted a Prospecting Right application, which triggers an application for Environmental Authorisation. An ecological assessment is required in order to consider the impacts that the proposed activities might have on the ecological integrity of the property and therefore Boscia Ecological Consulting has been appointed by the applicant to conduct a desktop assessment and provide an ecological assessment report.

This assessment report describes the characteristics of habitats in the proposed prospecting area, identifies the biodiversity and species of conservation concern, identifies invasive and encroaching species and their distribution, indicates the source of impacts from the prospecting operation and assesses these impacts as well as the residual impacts after closure. A variety of avoidance and mitigation measures associated with each identified impact are recommended to reduce the likely impact of the operation. Ecological responsibilities pertaining to relevant conservation legislation are also indicated. These should all be included in the EMP.

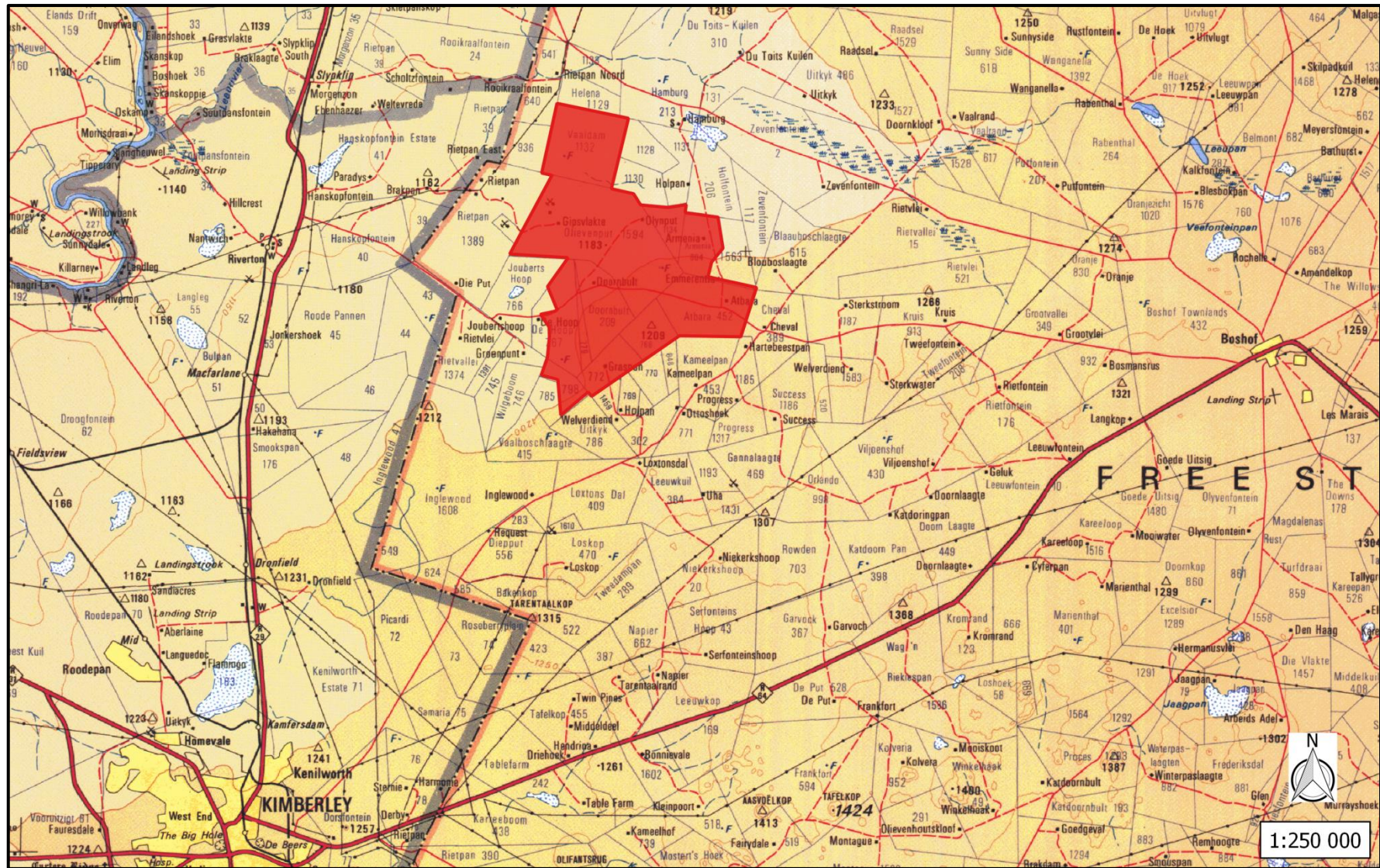


Figure 1. The location of the Olievenput prospecting area is indicated in red.



## 1.2. Scope of study

The specific terms of reference for the study include the following:

- conduct a desktop study in order to identify and describe different ecological habitats and provide an inventory of biodiversity, i.e. communities/species/taxa and associated species of conservation concern within the environment that may be affected by the proposed activity;
- identify the relative ecological sensitivity of the project area;
- produce an assessment report that:
  - indicates identified habitats and fauna and flora species,
  - indicates the ecological sensitivity of habitats and conservation values of species,
  - determines the potential impacts of the project on the ecological integrity,
  - provides mitigation measures and recommendations to limit project impacts,
  - indicate ecological responsibilities pertaining to relevant conservation legislation.


## 1.3. Details of the specialist consultant

<b>Company Name</b>	Boscia Ecological Consulting cc	<b>Registration no:</b>	2011/048041/23
<b>Address</b>	PostNet Suite #194 Private Bag X2 Diamond 8305		
<b>Contact Person</b>	Dr Elizabeth (Betsie) Milne		
<b>Contact Details</b>	Cell: 082 992 1261	Email: BosciaEcology@gmail.com	
<b>Qualifications</b>	PhD Botany (Nelson Mandela Metropolitan University), Masters Environmental Management (University of the Free State), BTech Nature Conservation (Tshwane University of Technology)		

**Declaration of independence**

I, Elizabeth (Betsie) Milne, owner of Boscia Ecological Consulting, declare that I:

- act as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct;
- do not have, and will not have any financial interest in the undertaking of the activity; other than the remuneration of work performed in terms of the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- have and will not have any vested interest in the activity proceedings;
- have no, and will not engage in conflicting interest in the undertaking of the activities;
- undertake to disclose to the component authority any material information that have or may have the potential to influence the decision of the competent authority, or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- will provide the competent authority with access to all information at my disposal regarding the study.



.....

**1.4. Description of the proposed activity**

The prospecting operation is primarily based on diamondiferous Kimberlite and potential Lamproite associated with the Olievenput diamond-bearing pipe anomaly which is mainly expected to be found in the south-east of the property (Figure 2). The presence of diamondiferous deposits on Olievenput will be evaluated by means of a standard phased approach. Initially, non-invasive desktop studies will be conducted to delineate and define areas underlain by Kimberlite or Lamproite. Thereafter, ground-truthing geophysical surveys and loam sampling will be conducted to confirm the presence of Kimberlite Indicator Minerals. A total of 20 L of soil from the top 20 cm will be sampled.



**Figure 2.** The proposed core footprint of prospecting activities on Olievenput is indicated in white.

If indicator minerals are detected from the loam sampling and geophysical surveys, a percussion drilling programme will be performed over anomalous target areas using predefined grids. At least 40 holes of  $\pm 60$  m in depth are expected to be drilled over 5 years.

Prospecting activities will primarily make use of existing roads where possible, but reconnaissance tracks will be created in order to access the drilling grid. Minor bush clearing will also be done to sample soils and to establish the drill pads. A mobile container office with mobile toilets might be positioned in the vicinity of the drill grid, but no permanent infrastructure will be established on site.

## 2. METHODOLOGY

### 2.1. Data collection

The study comprised an extensive desktop survey for data collection on fauna and flora in order to obtain a relatively comprehensive data set for the assessment. Most data was obtained from the quarter degree squares that include the study area, i.e. 2824BD and 2824DB as well as other reports from the surrounding area.

#### 2.1.1. Flora

For the floral component, the South African National Vegetation Map (Mucina and Rutherford 2006) was used to obtain data on broad-scale vegetation types, associated species and their conservation status. This information was then extrapolated to satellite images where homogenous vegetation units within the proposed prospecting area were identified to infer possible fine-scale communities on site. The South African National Biodiversity Institute's (SANBI) BGIS database was also consulted to obtain information on biodiversity information for the Tokologo (FS182) Local Municipality, in which the study area falls.

Further searches were undertaken specifically for Red List plant species within the current study area. Historical occurrences of Red List plant species were obtained from the SANBI: POSA database for the in the broad geographical area that includes the study site. The IUCN conservation status of plants in the species list was also extracted from the SANBI database and is based on the Threatened Species Programme (SANBI 2017).

#### 2.1.2. Fauna

For the faunal component, a lists of mammals, reptiles, amphibians, birds, fish and arthropods which are likely to occur in the study area were derived based on distribution records from the literature, including Friedmann and Daly (2004) and Stuart and Stuart (2015) for mammals, Alexander and Marais (2007) and Bates et al. (2014) for reptiles, Du Preez and Carruthers (2009) for amphibians, Gibbon (2006) for birds, Kleynhans (2007) for fish and Thirion (2007) for arthropods.

Additional information on faunal distribution was extracted from the various databases hosted by the ADU web portal, <http://adu.org.za>. A map of important bird areas (BirdLifeSA 2015) was also consulted. The faunal species lists provided are based on species which are known to occur in the broad geographical area.

The likelihood of Red Data species occurring on site has been determined using the distribution maps in the Red Data reference books (Friedmann and Daly 2004; Minter et al. 2004; Bates et al. 2014; Taylor et al. 2015; ADU 2016) and comparing their habitat preferences with the habitats identified from satellite images. The conservation status of each species is also listed, based on the IUCN Red List Categories and Criteria (IUCN 2019) and/or the various red data books for the respective taxa.

## **2.2. Assumptions and limitations**

Due to the nature of a desktop survey and the lack of ground-truth information, the species list reflected in this report cannot be regarded as entirely accurate or comprehensive. Ideally, a site should be visited at least once to compare desktop information with information on site as well as to ensure actual habitats and associated species present on site are recorded.

However, an extensive desktop review was conducted to ensure a fairly accurate representation of the study area. This is assumed to be sufficient to support this environmental authorisation application, because the proposed operation is primarily non-invasive with a likelihood of minor disturbances produced by the drilling operation.

## **2.3. Sensitivity mapping and assessment**

An ecological sensitivity map of the site was produced by integrating the available ecological and biodiversity information available in the literature and various spatial databases. The sensitivity mapping entails delineating different habitat units identified on the satellite images and assigning likely sensitivity values to the units based on their ecological properties, conservation value and the potential presence of species of conservation concern, as well as their probability of being affected by proposed activities.

The sensitivity of the different units identified in the mapping procedure increased with probability and was rated according to the following scale:

- Low:** Areas of natural or transformed habitat with a low sensitivity where there is likely to be a negligible impact on ecological processes and biodiversity. Most types of activities can proceed within these areas with little ecological impact.
- Medium:** Areas of natural or previously transformed land where the impacts are likely to be largely local and the risk of secondary impact such as erosion low. Activities within these areas can proceed with relatively little ecological impact provided that appropriate mitigation measures are taken.
- High:** Areas of natural or transformed land where a high impact is anticipated due to the high biodiversity value, sensitivity or important ecological role of the area. These areas may contain or be important habitat for faunal species or provide important ecological services such as water flow regulation or forage provision. Activities within these areas are undesirable and should only proceed with caution as it may not be possible to mitigate all impacts appropriately.
- Very High:** Critical and unique habitats that serve as habitat for species of conservation concern, or perform critical ecological roles. These areas are essentially no-go areas for activities and should be avoided as much as possible.

#### **2.4. Impact assessment and mitigation**

The criteria used to assess the significance of the impacts are shown in Table 1. The different project activities and associated infrastructure were identified and considered in order to identify and analyse the various possible impacts. The limits were defined in relation to project characteristics. Those for severity, extent, duration and probability are subjective, based on rule-of-thumb and experience.

Natural and existing mitigation measures were considered. These natural mitigation measures were defined as natural conditions, conditions inherent in the project design and existing management measures, which alleviate impacts.



The Consequence value of the impacts was calculated by using the following formula:

$$\frac{\text{CONSEQUENCE}}{(\text{Severity} + \text{Spatial Scope} + \text{Duration})} \times \frac{\text{PROBABILITY}}{(\text{Frequency of activity} + \text{Frequency of impact})}$$

Consequence of impacts is defined as follows:

- Very Low:** Impact would be negligible. Almost no mitigation and/or remedial activity would be needed, and any minor steps which might be needed would be easy, cheap and simple.
- Low:** Impact would have little real effect. Mitigation and/or remedial activity would be either easily achieved or little would be required or both.
- Low – Medium:** Impact would be real but not substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be both feasible and fairly easily possible.
- Medium – High:** Impact would be real and rather substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be feasible, but not necessarily possible without difficulty.
- High:** Impacts of substantial order. Mitigation and/or remedial activity would be feasible but difficult, expensive, time consuming or some combination of these.
- Very High:** Of the highest order possible within the bounds of impacts which could occur. There would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which was predicted.

**Table 1.** Criteria used to assess the significance of the impacts.

Weight	Severity	Spatial scope (Extent)		Duration											
5	Disastrous	Trans boundary effects		Permanent											
4	Catastrophic / major	National / Severe environmental damage		Residual											
3	High/ Critical / Serious	Regional effect		Decommissioning											
2	Medium / slightly harmful	Immediate surroundings / local / outside mine fence		Life of operation											
1	Minimal/potentially harmful	Slight permit deviation / on-site		Short term / construction (6 months – 1 yrs)											
0	Insignificant / non-harmful	Activity specific / No effect / Controlled		Immediate (0 – 6 months)											
Weight number		1	2	3	4	5									
Frequency															
Probability	Frequency of impact	Highly unlikely	Rare	Low likelihood	Probable / possible	Certain									
		Practically impossible	Conceivable but very unlikely	Only remotely possible	Unusual but possible	Definite									
	Frequency of activity	Annually or less	6 monthly / temporarily	Infrequent	Frequently	Life of operation									
<b>CONSEQUENCE</b> (Severity + Spatial Scope + Duration)															
PROBABILITY (Frequency of activity + Frequency of impact)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Colour code	Significance rating	Value	Negative impact Management strategy		Positive Impact Management strategy										
	VERY HIGH	126 – 150	Improve current management		Maintain current management										
	HIGH	101 – 125	Improve current management		Maintain current management										
	MEDIUM – HIGH	76 – 100	Improve current management		Maintain current management										
	LOW – MEDIUM	51 – 75	Improve current management		Maintain current management										
	LOW	26 – 50	Improve current management		Maintain current management										
	VERY LOW	1 – 25	Improve current management		Maintain current management										

### 3. DESCRIPTION OF THE AFFECTED ENVIRONMENT

#### 3.1. Current and historic land use

Currently, the major land uses in the area are mining and agriculture. According to DAFFARCGIS, the land capability for the study site is non-arable with potential for grazing land and wildlife, with a grazing capacity of 10 - 11 ha/LSU. The agricultural region is demarcated for grains, with the study area categorised to have suitability for the crop production of maize (0 - 1 ton/ha) and wheat (0 - 0.5 ton/ha).

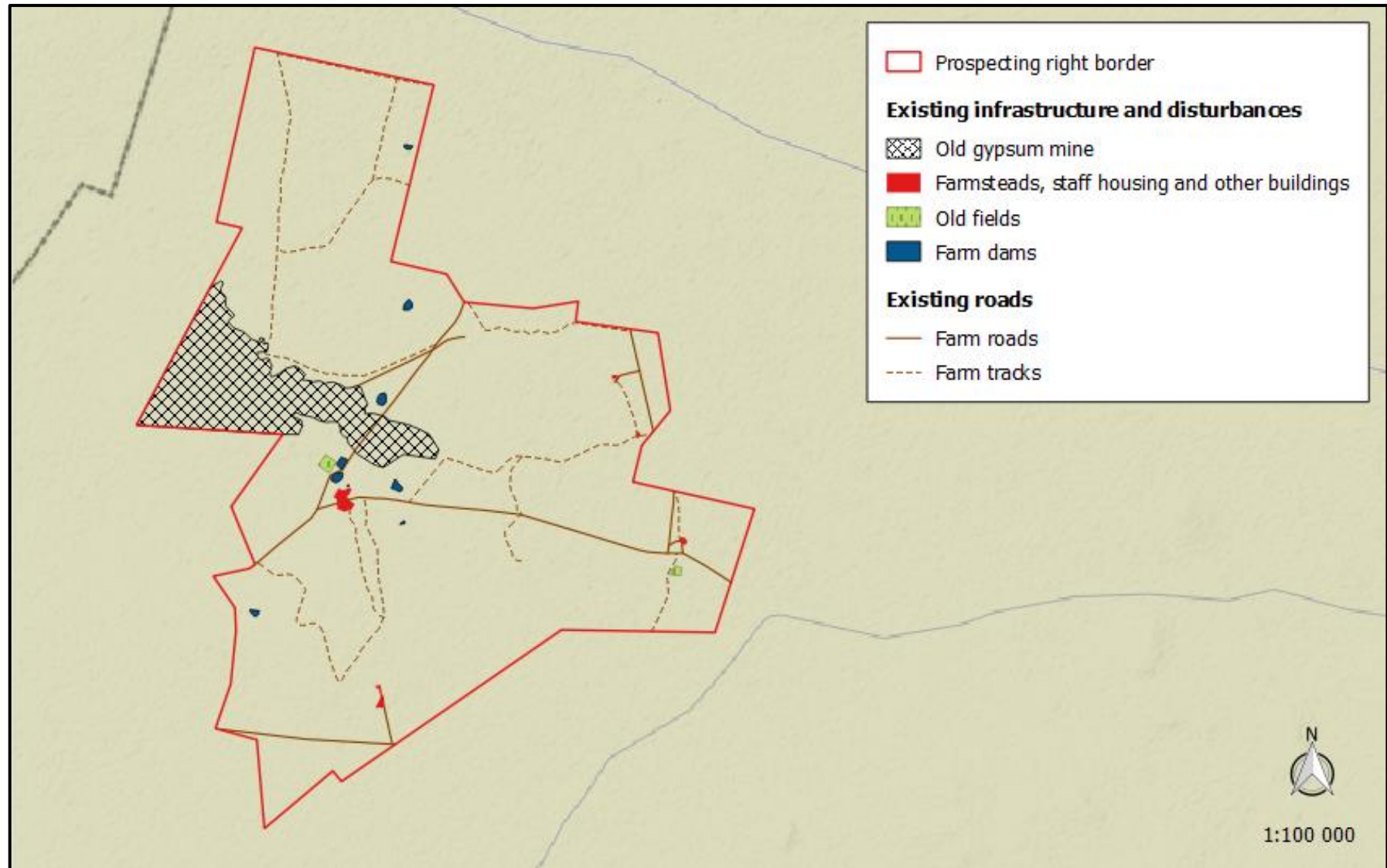
It is expected that the majority of Olievenput is currently being used as grazing pastures, but evidence of old fields are present. The northern half of the study area comprises Gypsum deposits and a portion in the north-west has already been mined extensively in the past. Existing infrastructure include a number of farmsteads, staff quarters, farm dams as well as farm roads and tracks (Figure 3).

#### 3.2. Geology, soils and topography

According to Bosch and Visser (1993) the geological features on Olievenput comprise Quaternary, Jurassic, and Permian deposits (Figure 4). The northern half of Olievenput comprises Prins Albert shales of the Ecca Group (Karoo Sequence), while the south is primarily underlain by dolerite. Here, a dolerite dyke is also present in the far south of the property. Calcrete and surface limestone is present in the south-east and south-west, with a small portion of Tierberg shales (Ecca Group, Karoo Sequence) also occurring in the south. Diamondiferous deposits in the region are mainly expected to be associated with dolerite emplacement structures (Figure 4).

The study area is primarily characterised by level plains in the north and level plains with open low hills or ridges in the south. Altitude ranges from 1 160 m above sea level in the north to 1 200 m in the south. The terrain is indicated by a very gentle slope of <2 %.

Landtypes found on the property include Db2a and Ae45a (Figure 5). The northern half of Olievenput is characterised by soils with a marked clay accumulation, strongly structured and a non-reddish colour. They may occur associated with one or more of vertic, melanic and plinthic soils. These soils are typically associated with the Db2 landtype and are moderately susceptible to wind erosion due to the presence of loamy sands.



**Figure 3.** Evidence of existing infrastructure and land use disturbances in the study area.



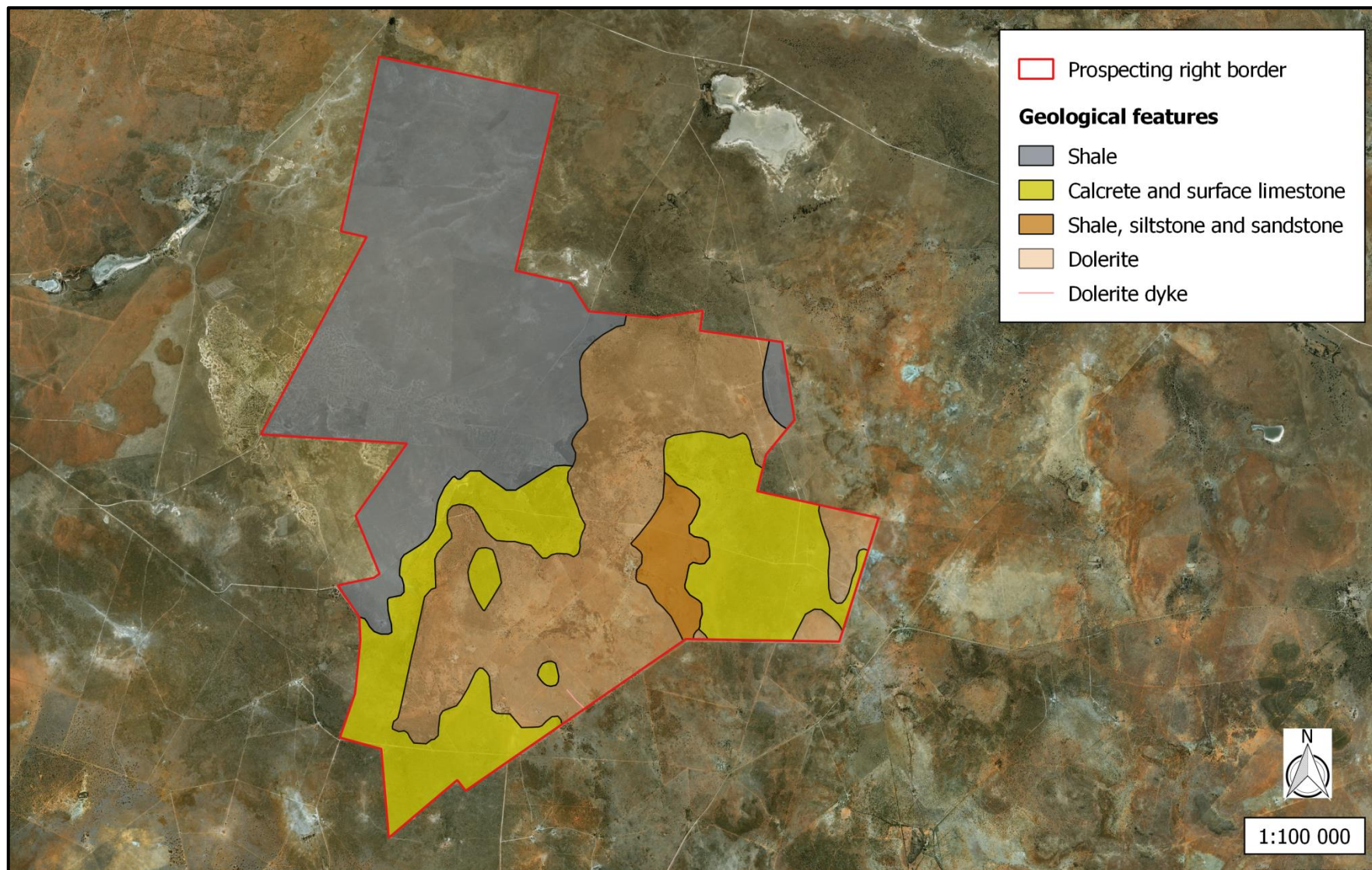
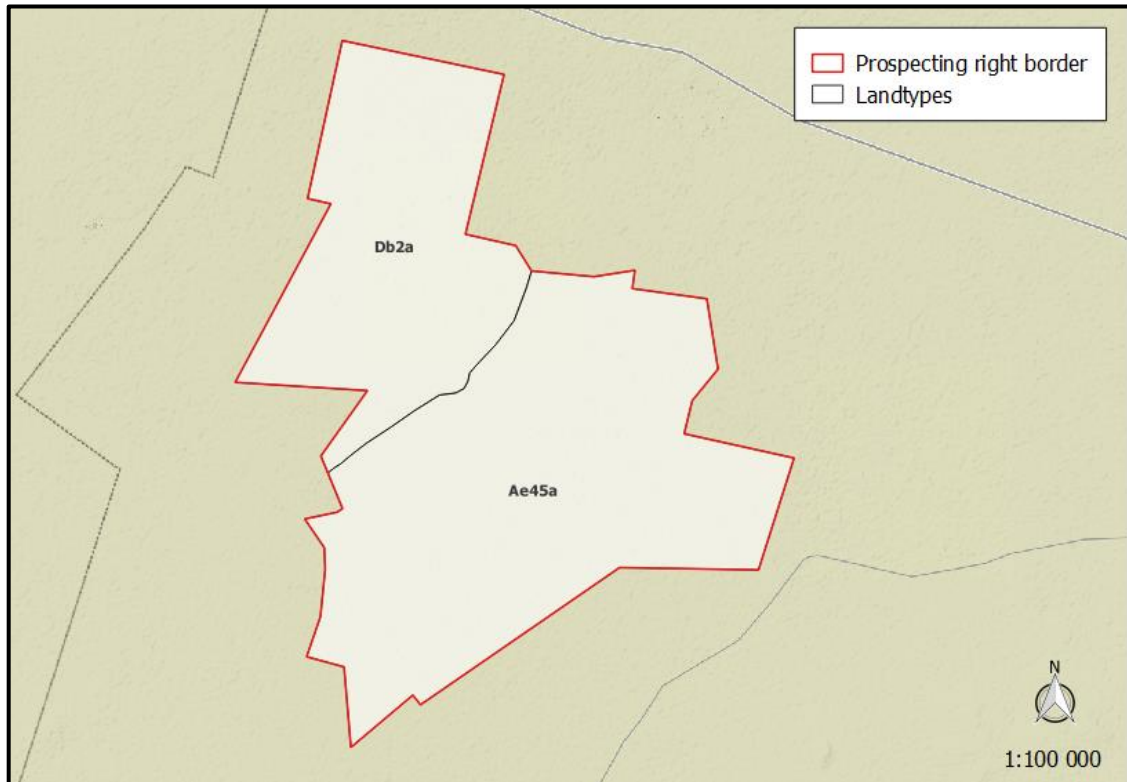


Figure 4. The distribution of geological features in the study area.

The southern half of the study area is characterised by red soils with high base status. These soils are typically associated with the Ae45 landtypes and are susceptible to wind erosion due to the fact that sand is sub-dominant. All soils of the study area have low to moderate water erosion risks due to the level to gently sloping land, but if badly eroded the potential for soil regeneration is low.



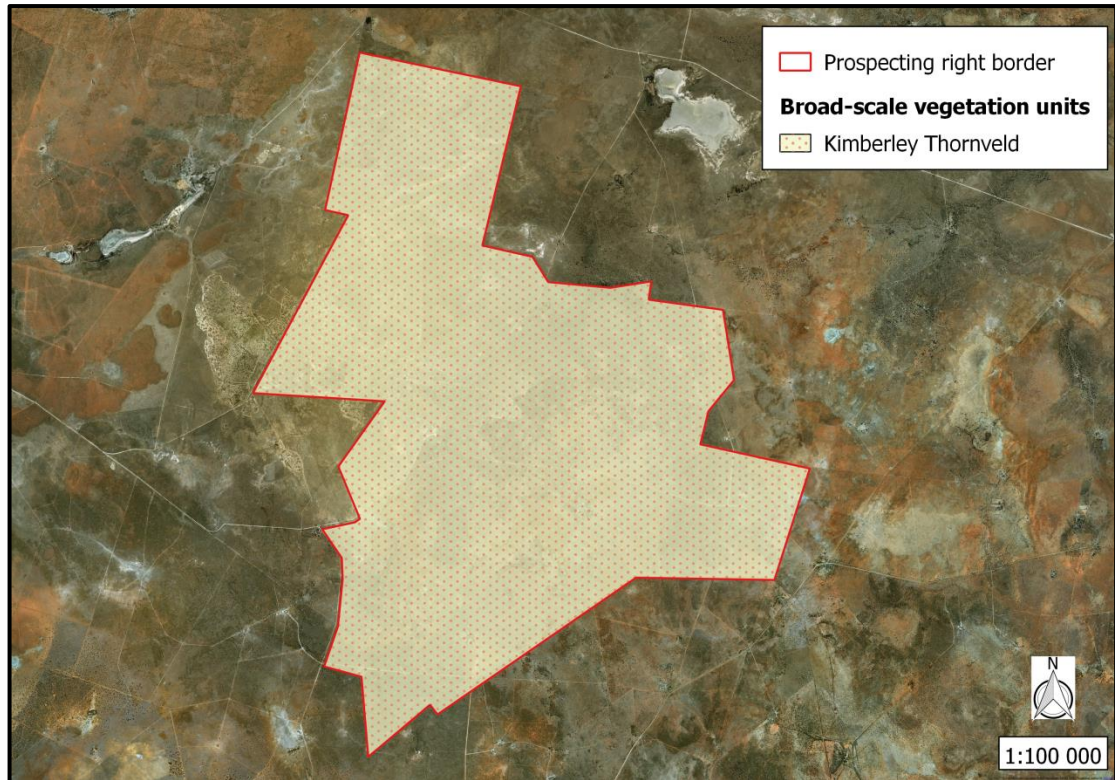
**Figure 5.** The distribution of landtypes in the study area.

### 3.3. Vegetation

#### 3.3.1. Broad-scale vegetation patterns

According to the vegetation map of Mucina and Rutherford (2012), the site falls within the savanna biome and comprises one broad-scale vegetation unit; i.e. Kimberley Thornveld (Figure 6).





**Figure 6.** The broad-scale vegetation unit (Mucina and Rutherford 2012) present in the study area.

**Kimberley Thornveld** is distributed in the North-West, Free State and Northern Cape Provinces at altitudes between 1 050 and 1 400 m. It is found in the Kimberley, Hartswater, Bloemhof and Hoopstad Districts, but is also within the Warrenton, Christiana, Taung, Boshof and Barkly West Districts. The unit is typically presented as slightly undulating sandy plains with a well-developed tree and shrub layer and an open grass layer. Andesitic lavas of the Allanridge Formation occur in the north and west, while fine-grained sediments of the Karoo Supergroup are found in the south and east. Soils are deep, sandy to loamy, and of the Hutton form. The most common land types are Ae and Ah. The unit is classified as being least threatened, but 18 % has already been transformed, predominantly by cultivation. Only 2 % is currently conserved in statutory reserves and no endemic species are known from this unit. It is specifically prone to *Senegalia mellifera* encroachment following overgrazing, but the occurrence and risk of erosion is very low.

### 3.3.2. Desktop habitat delineation and possible species occurrences

Plant communities are usually delineated according to plant species correspondences, change in soil structure, topographical changes and disturbance regimes. They are then described according to unique characteristics and the dominant species found in each unit. However, it is not possible to provide accurate fine-scale community descriptions without conducting a field survey. Therefore, for the purpose of this assessment desktop-based recognizable habitat delineations were done, which is presented in Figure 7, but most likely resemble the same communities defined by Mucina and Rutherford (2012). A complete list of species that have been recorded in the region in the past is listed in Appendix 1.

#### i) Grassland

This unit occupies the northern half of the study area (Figure 7). It most likely resembles the Western Free State Clay Grassland described by Mucina and Rutherford (2012) due to its association with clayey soils and the absence of trees, which is evident on the satellite images. Therefore it is believed to be distinct from the thornveld in the south. It is expected to host a very well developed graminoid layer with grasses including *Aristida adscensionis*, *A. bipartita*, *Cynodon dactylon*, *Eragrostis chloromelas*, *E. lehmanniana*, *Panicum coloratum* and *Themeda triandra* as the dominant species. Possible herbs include *Berkheya pinnatifida*, *Euphorbia inaequilatera*, *Gnaphalium confine*, *Indigofera alternans*, *Kohautia cynanchica* and *Salvia disermas*. Shrubs like *Hertia pallens*, *Lycium cinereum*, *Pentzia globosa*, *Amphiglossa triflora*, *Aptosimum elongatum* and *Felicia filifolia* could also be present here.

#### ii) Thornveld

This unit constitute the southern half of Olievenput (Figure 7) and most likely resembles Kimberley Thornveld (Mucina and Rutherford 2012). It is expected to have a well-developed tree layer with *Vachellia erioloba* being conspicuous. Bush clumps could also be common, where species like *Searsia lancea*, *Ziziphus mucronata*, *Lycium hirsutum* and *Asparagus burchellii* are dominant. Dense stands of *Tarchonanthus camphoratus* and *Senegalia mellifera* may also be present. Other trees and shrubs could include *Grewia flava*, *Vachellia tortilis*, *V. hebeclada* and *Diospyros austro-africana*.



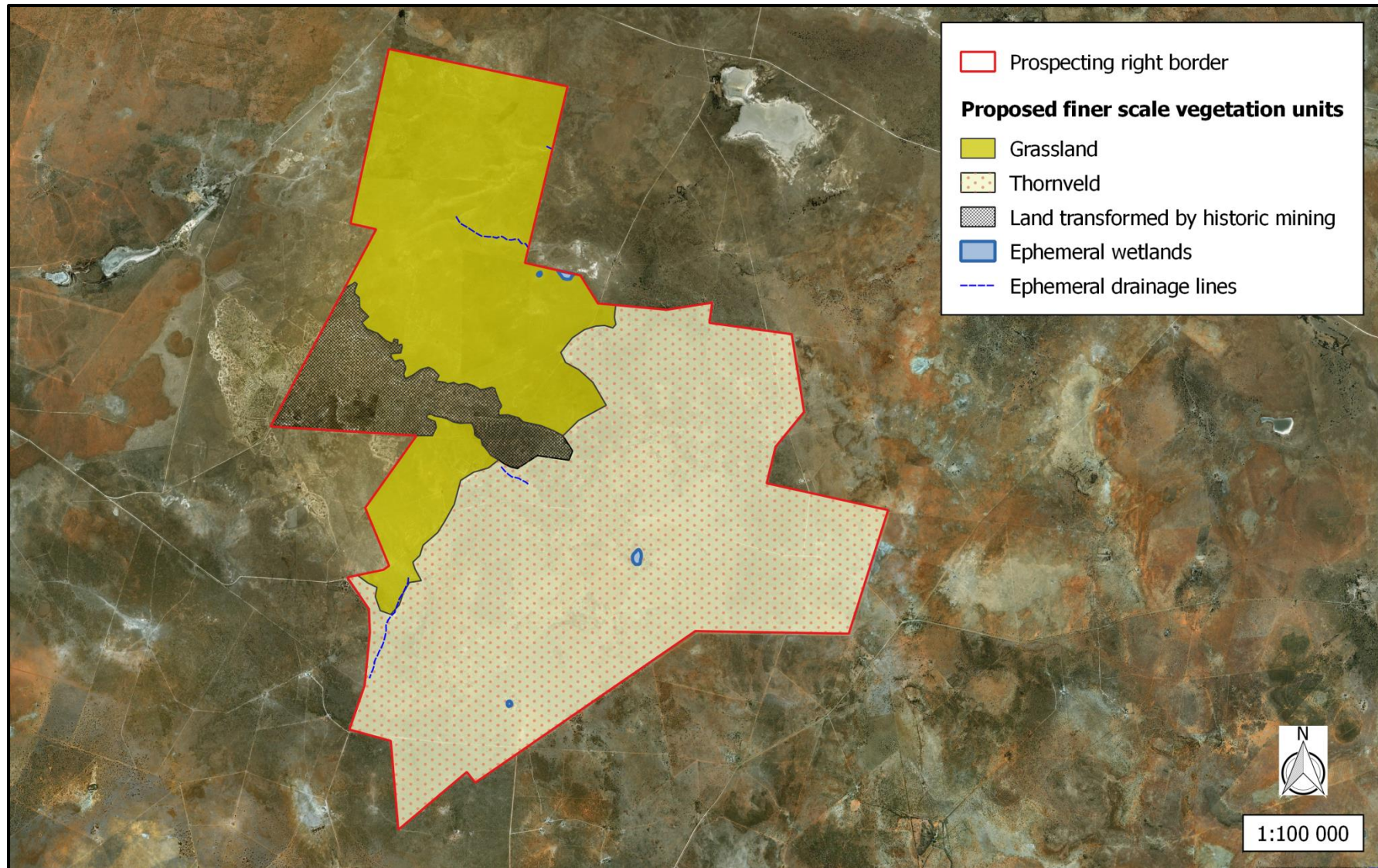


Figure 7. The distribution of fine-scale plant communities in the study area.

The grass layer is expected to be well developed with grasses like *Schmidtia pappophoroides*, *Aristida congesta* subsp. *congesta*, *Eragrostis lehmanniana*, *Pogonarthria squarrosa* and *Themeda triandra* dominating. Other grass species, including *Eragrostis rotifer*, *Stipagrostis uniplumis*, *Enneapogon cenchroides*, *Brachiaria marlothii* and *Heteropogon contortus* are also expected to be common. Species such as *Elephantorrhiza elephantina*, *Drimia sanguinea*, *Amphiglossa triflora*, *Boophone disticha*, *Gnidia polycephala*, *Chrysocoma obtusata*, *Gomphocarpus fruticosus* subsp. *fruticosus* and *Viscum rotundifolium* could also occur here.

### iii) Ephemeral pans

At least four pans occur in the study area (Figure 7). These pans are expected to host vegetation that resemble the Highveld Salt Pans described by Mucina and Rutherford (2012). The plant communities are likely to be presented as shrubby grassland where shrubs affiliated with the terrestrial matrix, e.g. *Pentzia incana*, *P. globosa* and *Felicia filifolia* migrate into the pans and are found scattered in a grassy matrix, where species such as *Chloris virgata*, *Cynodon dactylon*, *Leptochloa fusca*, *Eragrostis echinochloidea*, *E. bicolor*, *E. chloromelas*, *Panicum coloratum* and *Cyperus* spp. can be found. *Atriplex* and *Salsola* shrubs are also usually commonly found in these pans.

### iv) Ephemeral drainage lines

Only a few natural drainage lines (excluding artificial furrows) are associated with the site (Figure 7). These drainage lines are not expected to host a unique plant community, because they are not always well defined. In the grassland they are expected to differ from the terrestrial matrix by hosting a higher density of grasses typically associated with wetter areas, such as *Chloris virgata*, *Cynodon dactylon*, *Eragrostis echinochloidea*, *E. bicolor* and *E. chloromelas*. In the thornveld they might be distinguishable from the terrestrial matrix by a higher density of woody riparian canopies that form along the channels. It is very likely that species of conservation concern, like *Vachellia erioloba* and *Olea europaea* subsp. *africana* have pronounced occurrences here. Other trees and shrubs include those found in the matrix, such as *V. tortilis*, *Senegalia mellifera*, *Searsia lancea*, *Lycium hirsutum* and *Ziziphus mucronata* subsp. *mucronata*.

### 3.3.3. Population of sensitive, threatened and protected plant species

The SANBI Red List provides information on the national conservation status of South Africa's indigenous plants, while the National Forests Act (No. 84 of 1998) (NFA) and Chapter IV of the Free State Nature Conservation Ordinance (Act No. 8 of 1969) (FSNCO) restricts activities regarding sensitive plant species. All red listed plant species are protected in terms of the National Environmental Management: Biodiversity (NEMBA) Act 10 of 2004 (Notice 256 of 2015) and therefore a permit is required from the Free State Department of Economic Development, Tourism and Environmental Affairs for any restricted activity listed in the act. Section 15 of the NFA prevents any person to cut, disturb, damage, destroy or remove any protected tree; or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister. Section 30 of the FSNCO prohibits anyone to pick any protected (Schedule 6) plants, except under the authority of a permit, while Section 31 prevents a person to pick any indigenous plant on land of which he/she is not the owner, without written permission of the owner.

Most species previously recorded in the region are classified as least concern; a category which includes widespread and abundant taxa. However, three species, i.e. *Galenia pallens* (**Data Deficient - Taxonomically Problematic**), *Drimia sanguinea* (**Near Threatened**) and *Brachystelma dimorphum* subsp. *dimorphum* (**Vulnerable**) is listed under the National Environmental: Biodiversity Act (Act No. 10 of 2004) (NEMBA) (Table 2). The *Drimia sanguinea* population has declined by 20 - 25% in the last 60 years due to harvesting for the medicinal plant trade. Declines are expected to continue and the species should be re-evaluated in the future. It is typically found in open veld and scrubby woodland in a variety of soil types, and therefore it is expected to primarily occur in the southern half of the study area. *Brachystelma dimorphum* subsp. *dimorphum* is known from only five collections and was last recorded in 1971. It is threatened by ongoing habitat loss and degradation, particularly agricultural expansion on alluvial soils, as well as spreading settlements, mining, alien invasive plants and degradation due to overgrazing. It prefers alluvial soils and large, shallow pans in grassland. Therefore, if it occurs on site, it is expected to be restricted to the ephemeral pans in the north of the study area. Not much is known about the distribution of *Galenia pallens*. Taxonomic problems hinder the distribution range and habitat from being well defined.

**Table 2.** Plant species found in the region that are of conservation concern.

FAMILY	Scientific name	Status	NFA	FSNCO
AIZOACEAE	<i>Galenia pallens</i>	<b>DDT</b>		
	<i>Titanopsis calcarea</i>	LC		X
AMARYLLIDACEAE	<i>Ammocharis coranica</i>	LC		X
	<i>Boophone disticha</i>	LC		X
	<i>Crinum bulbispermum</i>	LC		X
	<i>Crinum lugardiae</i>	LC		X
	<i>Gethyllis transkarooica</i>	LC		X
	<i>Haemanthus humilis</i> subsp. <i>humilis</i>	LC		X
	<i>Brachystelma dimorphum</i> subsp. <i>dimorphum</i>	<b>VU</b>		
APOCYNACEAE				
ASPHODELACEAE	<i>Aloe grandidentata</i>	LC		X
	<i>Aloe maculata</i>	LC		X
ASTERACEAE	<i>Helichrysum arenicola</i>	LC		X
	<i>Helichrysum argyrosphaerum</i>	LC		X
	<i>Helichrysum cerastioides</i> var. <i>cerastioides</i>	LC		X
	<i>Helichrysum dregeanum</i>	LC		X
	<i>Helichrysum lineare</i>	LC		X
	<i>Helichrysum lucilioides</i>	LC		X
	<i>Helichrysum zeyheri</i>	LC		X
EUPHORBIACEAE	<i>Euphorbia crassipes</i>	LC		X
	<i>Euphorbia davyi</i>	LC		X
	<i>Euphorbia duseimata</i>	LC		X
	<i>Euphorbia glanduligera</i>	LC		X
	<i>Euphorbia inaequilatera</i>	LC		X
	<i>Euphorbia juttae</i>	LC		X
	<i>Euphorbia spartaria</i>	LC		X
FABACEAE	<i>Erythrina zeyheri</i>	LC		X
	<i>Vachellia erioloba</i>	LC	X	
HYACINTHACEAE	<i>Drimia sanguinea</i>	<b>NT</b>		
	<i>Eucomis autumnalis</i>	LC		X
IRIDACEAE	<i>Gladiolus orchidiflorus</i>	LC		X
	<i>Gladiolus permeabilis</i> subsp. <i>edulis</i>	LC		X
OLEACEAE	<i>Olea europaea</i> subsp. <i>africana</i>	LC		X

Species likely to occur on site that are protected in terms of the National Forests (NFA) Act No 84 of 1998 (Table 2) include *Vachellia erioloba*. This species is expected to occur in the thornveld habitat in the southern half of the property. In order to damage or remove any protected trees (seedlings to adults) an application must be submitted to the Free State Department of Agriculture, Forestry and Fisheries (DAFF) and a licence obtained from DAFF at least three months prior to such activities. Protected species in terms of Schedule 6 of Free State Nature Conservation Ordinance (Act No. 8 of 1969) that have previously been recorded in the region are also listed in Table 2.



**3.3.4. Weeds and invader plant species**

Weeds and invasive species are controlled in terms of the National Environmental Management: Biodiversity (NEMBA) Act 10 of 2004 and the Conservation of Agricultural Resources (CARA) Act 43 of 1993. These are species that do not naturally occur in a given area and exhibit tendencies to invade that area, and others; at the cost of locally indigenous species. To govern the control of such species, NEMBA and CARA have divided weeds and invader species into categories (see Table 3). All declared weeds and invasive species known from the region are listed in Table 4, along with their categories according to CARA and NEMBA.

**Table 3.** The categorisation of weeds and invader plant species, according to NEMBA and CARA.

NEMBA	CARA
<p><b>1a</b> Listed invasive species that must be combatted or eradicated.</p>	<p><b>1</b> Plant species that must be removed and destroyed immediately. These plants serve no economic purpose and possess characteristics that are harmful to humans, animals and the environment.</p>
<p><b>1b</b> Listed invasive species that must be controlled.</p>	<p><b>2</b> Plant species that may be grown under controlled conditions. These plants have certain useful qualities and are allowed in demarcated areas. In other areas they must be eradicated and controlled.</p>
<p><b>2</b> Listed invasive species that require a permit to carry out a restricted activity within an area.</p>	<p><b>3</b> Plant species that may no longer be planted. These are alien plants that have escaped from, or are growing in gardens and are proven to be invaders. No further planting is allowed. Existing plants may remain (except those within the flood line, 30 m from a watercourse, or in a wetland) and must be prevented from spreading.</p>
<p><b>3</b> Listed invasive species that are subject to exemptions and prohibitions</p>	

**Table 4.** A list of declared weeds and invasive species likely to occur in the study area.

Scientific name	Common name	CARA	NEMBA
<i>Achyranthes aspera</i> var. <i>aspera</i>	Burweed	1	-
<i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	White-flowered Mexican poppy	1	1b
<i>Atriplex lindleyi</i> subsp. <i>inflata</i>	Sponge - fruit saltbush	3	-
<i>Datura stramonium</i>	Common thorn apple	1	1b
<i>Nicotiana glauca</i>	Wild tobacco	1	1b
<i>Prosopis glandulosa</i> var. <i>glandulosa</i>	Honey mesquite	2	1b
<i>Prosopis velutina</i>	Velvet mesquite	2	1b
<i>Salsola kali</i>	Tumbleweed	-	1b
<i>Sorghum halepense</i>	Aleppo grass	2	2
<i>Tamarix ramosissima</i>	Pink tamarisk	3	1b
<i>Xanthium spinosum</i>	Spiny cocklebur	1	1b
<i>Xanthium strumarium</i>	Large cocklebur	1	1b

### 3.3.5. Indicators of bush encroachment

Bush encroacher species are controlled in terms of Regulation 16 of CARA; where land users of an area in which natural vegetation occurs and that contains communities of encroacher indicator plants are required to follow sound practices to prevent the deterioration of natural resources and to combat bush encroachment where it occurs. Declared indicators of bush encroachment in the Free State, which are most likely to occur on site, are listed in Table 5.

**Table 5.** A list of declared indicators of bush encroachment in the Free State most likely to occur in the study area.

Scientific name	Common name
<i>Asparagus bechuanicus</i>	Wild asparagus
<i>Asparagus burchellii</i>	Wild asparagus
<i>Asparagus cooperi</i>	Wild asparagus
<i>Asparagus glaucus</i>	Wild asparagus
<i>Asparagus larycinus</i>	Wild asparagus
<i>Asparagus suaveolens</i>	Wild asparagus
<i>Asparagus virgatus</i>	Wild asparagus
<i>Euclea crispa</i> subsp. <i>ovata</i>	Blue guarri
<i>Senegalia mellifera</i> subsp. <i>detinens</i>	Black thorn
<i>Vachellia hebeclada</i> subsp. <i>hebeclada</i>	Candle thorn
<i>Vachellia karroo</i>	Sweet thorn
<i>Vachellia tortilis</i> subsp. <i>heteracantha</i>	Umbrella thorn

### 3.4. Faunal communities

All red listed fauna species are protected in terms of the National Environmental Management: Biodiversity (NEMBA) Act 10 of 2004 (Notice 256 of 2015). No person may carry out any restricted activity involving listed, threatened or protected species without a permit from the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs. Section 2 of the FSNCO prohibits anyone to hunt any protected (Schedule 1) wildlife, except under the authority of a permit, while Section 5 prevents a person to hunt any ordinary game without a licence and without written permission of the owner. Section 14 further prevents any person to hold any live wild animal in captivity, except under authority of a permit. The landscape features on Olievenput does not provide particularly diverse habitat opportunities to faunal communities. Animals likely to be found in the study area are discussed in their respective faunal groups below.

#### 3.4.1. Mammals

As many as 55 terrestrial mammals and seven bat species have been recorded in the region (see Appendix 2); of which 15 species are of conservation concern (Table 6).

**Table 6.** Mammal species of conservation concern that are likely to occur in the region. Conservation values are indicated in terms of the international (IUCN) Red List, the South African Red Data Book (SA RDB) and Schedule 1 of the Free State Nature Conservation Ordinance (FSNCO).

Scientific name	Common name	IUCN	SA RDB	FSNCO
<i>Eidolon helvum</i>	African Straw-coloured Fruit-bat	NT		
<i>Rhinolophus clivosus</i>	Geoffroy's Horseshoe Bat		NT	
<i>Rhinolophus denti</i>	Dent's Horseshoe Bat		NT	
<i>Chlorotalpa sclateri</i>	Sclater's Golden Mole		DD	
<i>Orycteropus afer</i>	Aardvark			X
<i>Gerbilliscus leucogaster</i>	Bushveld Gerbil		DD	
<i>Smutsia temminckii</i>	Ground Pangolin	VU	VU	X
<i>Suncus varilla</i>	Lesser Dwarf Shrew		DD	
<i>Atelerix frontalis</i>	South African Hedgehog		NT	X
<i>Felis nigripes</i>	Black-footed cat	VU		
<i>Aonyx capensis</i>	Cape Clawless Otter	NT		
<i>Hydrictis maculicollis</i>	Spotted-necked Otter	NT	NT	
<i>Hyaena brunnea</i>	Brown Hyena	NT	NT	
<i>Otocyon megalotis</i>	Bat-eared Fox			X
<i>Poecilogale albinucha</i>	African Striped Weasel		DD	
<i>Mellivora capensis</i>	Honey Badger		NT	

The listed bat species, along with terrestrial mammals such as Aardvark, Bat-eared Fox and Honey Badger have a wide habitat tolerance and therefore have a high chance to occur on site. Smaller species like the Bushveld Gerbil and African Striped Weasel could potentially occur in the grassland in the northern half of the study area, due to their preference for grassy habitats. Ground Pangolin, South African Hedgehog, Black-footed cat and Brown Hyaena are not likely to occur on site, because they are rather skittish and land use history in the region has probably excluded them many years ago already. The Cape Clawless Otter and Spotted-necked Otter are also not expected to occur on site due to their preference for perennial aquatic habitats.

#### **3.4.2. Reptiles**

The Olievenput prospecting area lies within the distribution range of at least 36 reptile species (see Appendix 2). None of these species are red listed, but four species; i.e. Southern Karusa Lizard, Greater Dwarf Tortoise, Serrated Tent Tortoise and Leopard Tortoise are protected according to Schedule 1 of the FSNCO. Furthermore, the Eastern Ground Agama, Aurora Snake and Peters' Thread Snake are endemic to South Africa. The habitat diversity for reptiles in the study area is moderate, with the grassland and thornveld providing equally important habitat opportunities. The ephemeral pans and farm dams could potentially provide a special habitat for the marsh terrapin.

#### **3.4.3. Amphibians**

Fourteen amphibian species are known from the region (Appendix 2), indicating that the site potentially has a rather diverse frog community. It is not clear if any natural permanent water occurs on site that would represent suitable breeding habitats for most of these species, but the ephemeral pans and farm dams will be important during periods of inundation. As a result, only those species which are relatively independent of water are likely to occur regularly in the terrestrial habitats. The Giant Bull Frog (*Pyxicephalus adspersus*), listed as Near Threatened according to Minter et al. (2004). They prefer seasonal shallow grassy pans, vleis and other rain-filled depressions in open flat areas of grassland or savanna, but mainly remain buried up to 1 m underground until conditions become favourable. The site lies within the known distribution of this species and the ephemeral pans and farm dams could therefore potentially provide the ideal habitat for it.



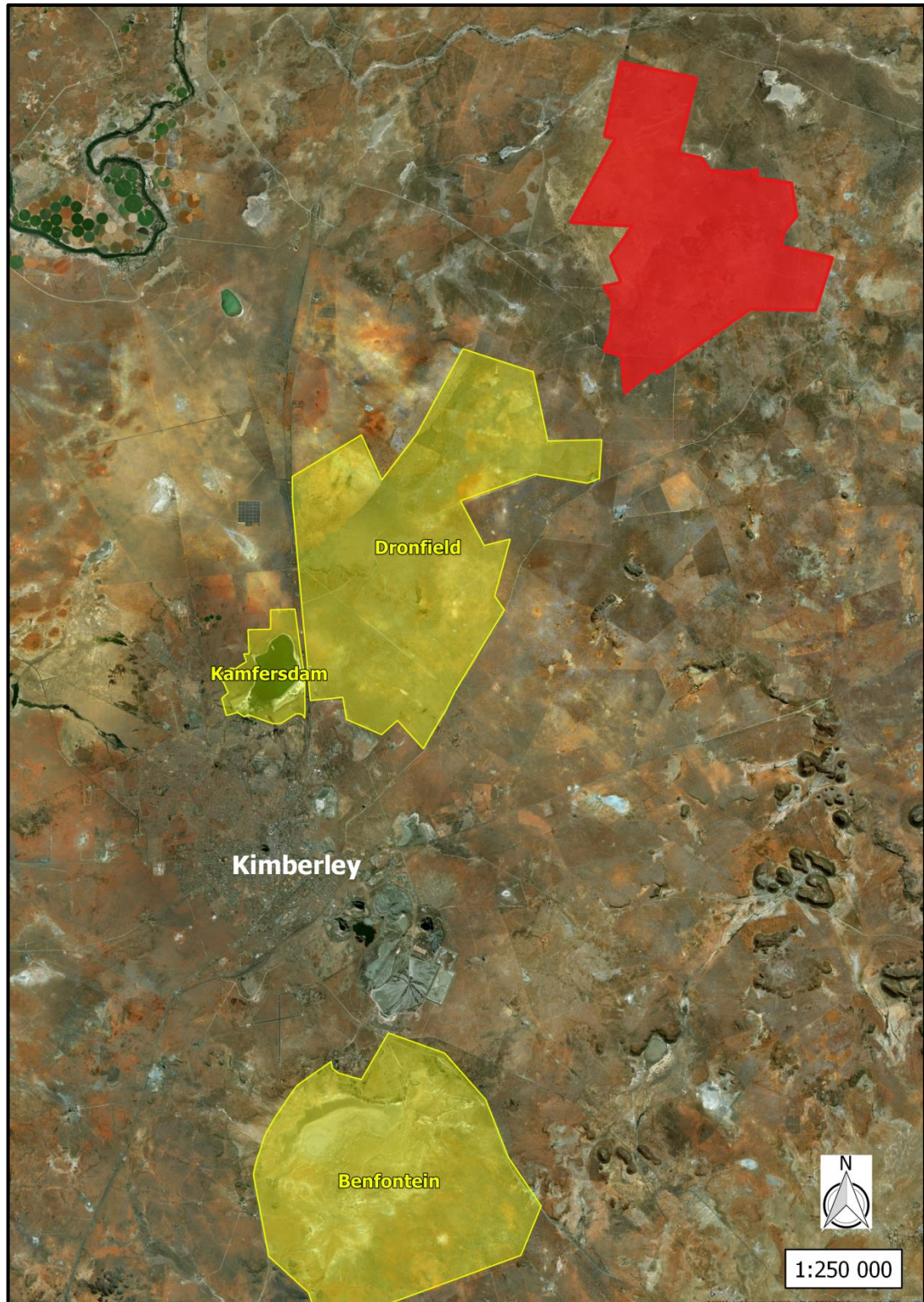
#### 3.4.4. Avifauna

The study site does not fall within any of the Important Bird Areas (IBA) defined by Birdlife South Africa, but it is located near (< 50 km) three IBA, i.e. Dronfield, Kamfersdam and Benfontein (Figure 8).

**Dronfield** lies 3 km south-west of Olievenput and supports large numbers of breeding White-backed Vulture, which comprises 41 % of the breeding pairs in the Kimberley region. These birds forage over wide areas and a pair was encountered soaring over the study area during the site visit. The use of poisons in farming areas to combat mammalian predators still poses a threat to scavenging raptors, and hundreds of vultures can be killed in a single poisoning incident. Collisions with transmission power lines and electrocutions on reticulation and distribution power lines also pose an ongoing threat to vultures and other trigger species.

**Kamfersdam** lies 19 km south-west of Olievenput and is an endorheic pan that has been transformed into a permanent wetland over the past decade due to an increase in sewage effluent inflow. Hence, it has become an important habitat for birds, especially the Greater- and Lesser Flamingos. The dam supports the largest permanent population of Lesser Flamingos in southern Africa. The most significant threats to Kamfersdam are poor water quality, flooding and expansion of urban development, while threats to the bird population include illegal hunting of water birds and the collisions and mortality of flamingos and other water birds caused by power lines and the electrical transmission lines along the railway.

**Benfontein** is a Nature Reserve owned by De Beers Consolidated Mines since 1891 and there has been significant investment by research groups over the years. It lies 32 km south-west of Olievenput and supports small numbers of breeding White-backed Vulture, Blue Crane and Blue Korhaan. Benfontein also holds several biome-restricted assemblage species and congregatory species, including Lesser Flamingo. More than 1 700 water birds from 65 species have been recorded during years of high rainfall on the ephemeral pan. There are presently few threats to this IBA as it is being well conserved. The invasive *Prosopis glandulosa* in the north-eastern, spreading along the N8 on the eastern boundary, could become a significant threat if not controlled. Collisions with the power line transecting the eastern side of Benfontein are a threat to the White-backed Vultures and large terrestrial birds such as Blue Crane and Ludwig's Bustard.



**Figure 8.** A map indicating the Important Bird Area (in yellow) near the study area (in red).

A total number of 301 bird species have been recorded from the region. Virtually all of these species are protected according to Schedule 1 of the FSNCO (see Appendix 2) and as many as 30 listed bird species are known from the region, all of which are classified as Vulnerable, Near Threatened, Endangered or Critically Endangered (Table 7).

Plants in general, from grass tufts to shrubs and tall trees provide important micro-habitats to birds and therefore the entire study area is expected to host a diverse avifauna community. The ephemeral pans could potentially attract protected water birds, such as Chestnut-banded Plover, Maccoa Duck, Lesser Flamingo, Greater Flamingo and Greater Painted-snipe when inundated, while the remaining species could occur in the terrestrial areas by occasionally passing over, foraging or nesting.

**Table 7.** Bird of conservation concern that are likely to occur on site. Species are indicated in terms of the IUCN Red List and SA Bird Atlas.

Scientific name	Common name	IUCN	SA Bird Atlas
<i>Anthropoides paradisea</i>	Blue Crane	NT	NT
<i>Anthus crenatus</i>	African Rock Pipit	NT	NT
<i>Aquila rapax</i>	Tawny Eagle	VU	EN
<i>Ardeotis kori</i>	Kori Bustard	NT	NT
<i>Certhilauda chuana</i>	Short-clawed Lark		NT
<i>Charadrius pallidus</i>	Chestnut-banded Plover	NT	NT
<i>Ciconia abdimii</i>	Abdim's Stork		NT
<i>Ciconia nigra</i>	Black Stork		VU
<i>Circus macrourus</i>	Pallid Harrier	NT	NT
<i>Circus ranivorus</i>	African Marsh-Harrier	EN	EN
<i>Coracias garrulus</i>	European Roller		NT
<i>Cursorius rufus</i>	Burchell's Courser		VU
<i>Eupodotis caerulescens</i>	Blue Korhaan	NT	
<i>Falco biarmicus</i>	Lanner Falcon	VU	VU
<i>Glareola nordmanni</i>	Black-winged Pratincole	NT	NT
<i>Gyps africanus</i>	White-backed Vulture	CR	CR
<i>Gyps coprotheres</i>	Cape Vulture	EN	EN
<i>Leptoptilos crumeniferus</i>	Marabou Stork		NT
<i>Limosa limosa</i>	Black-tailed Godwit	NT	
<i>Mycteria ibis</i>	Yellow-billed Stork		EN
<i>Neotis ludwigii</i>	Ludwig's Bustard	EN	EN
<i>Numenius arquata</i>	Eurasian Curlew	NT	NT
<i>Oxyura maccoa</i>	Maccoa Duck	NT	NT
<i>Pelecanus rufescens</i>	Pink-backed Pelican		VU
<i>Phoenicopterus minor</i>	Lesser Flamingo	NT	NT
<i>Phoenicopterus ruber</i>	Greater Flamingo	NT	NT
<i>Polemaetus bellicosus</i>	Martial Eagle	EN	EN
<i>Rostratula benghalensis</i>	Greater Painted-snipe		NT
<i>Sagittarius serpentarius</i>	Secretarybird	VU	VU
<i>Torgos tracheliotus</i>	Lappet-faced Vulture	EN	EN

### 3.4.5. Invertebrates

Invertebrates dominate inland habitats and play a significant role in the overall function of the ecosystem (Kremen et al. 1993; Weisser and Siemann 2004). Their immense species diversity makes it almost impossible to list all species that may possibly occur on site. Nevertheless, key morphospecies as well as species of conservation concern are discussed here. Eight invertebrate species of the Free State appear on the IUCN Red Data list of threatened species (Table 8), but the geographic ranges for most of these species exclude the study area. The distribution for the butterfly *Aloeides dentatis* (**Vulnerable**) has however not been mapped. It prefers grassland habitat and therefore could potentially be found in the grassland habitat of the study area.

**Table 8.** Invertebrate species found in the Free State that are listed on the IUCN Red Data list.

CLASS	ORDER	Scientific Name	Common name	Status
INSECTA	Lepidoptera	<i>Aloeides dentatis</i>	-	VU
	Orthoptera	<i>Conocephalus zlobini</i>	Zlobin's Meadow Katydid	VU
		<i>Thoracistus arboreus</i>	Arboreal Seedpod Shieldback	CR
		<i>Paracilacris lateralis</i>	Drakensberg Grass False Shieldback	VU
		<i>Conchotopoda parva</i>	Highveld Dimorphic Leaf Katydid	DD
		<i>Paracilacris mordax</i>	Golden Gate Grass False Shieldback	VU
		<i>Clonia lalandei</i>	Lalande's Black-winged Clonia	VU
	Spirostreptida	<i>Doratogonus liberates</i>	-	DD

Two major habitats delimit possible invertebrate communities on site, i.e. the temporary waterbodies and a variety of terrestrial habitats collectively classified as Grassland vegetation for insect preference, according to Picker et al. (2004).

#### i. Grassland vegetation

Invertebrate communities associated with the grassland vegetation have distinct insects, including many grass mimics. Various termite species also dominate this habitat type. Insects are widely distributed and extremely diverse. It is therefore impossible to list species occurrences without a dedicated study. However, the one species of conservation already mentioned above are most likely to be associated with this invertebrate habitat.

ii. **Temporary waterbodies**

Temporary waterbodies like ephemeral pans and farm dams host species specifically adapted to ephemerality. Crustaceans in particular are specialist invertebrates that dominate these systems. Their eggs lie dormant in the soil until the waterbodies are inundated. They then hatch and rapidly mature and reproduce to ensure continued persistence. Not much is known about the species distribution or conservation status of species in the Free State, but typical taxa to be expected in the temporary waterbodies on Olievenput include Notostraca, Anostraca, Spinicaudata, Cladocera, Ostracoda and Copepoda. Within a few days after the waterbodies are inundated these species will attract a number of wetland birds. Therefore, these systems also act as important breeding and feeding links to birds in terms of connectivity, by providing stepping-stone corridors in an arid landscape. Any disturbances or destruction of these waterbodies will not only impact the specialised invertebrate communities locally, but will also have a regional and landscape-level effect.

**3.5. Critical biodiversity areas and broad-scale processes**

The proposed prospecting site falls within ecological support areas (Figure 9), defined by the Free State Province Biodiversity Plan (Collins 2019). These areas are important in supporting the ecological functioning of a protected area or critical biodiversity areas, or in delivering ecosystem services. In most cases ecological support areas (ESAs) are currently in at least fair ecological condition, and should remain in an at least fair functioning state. The ESA1 are areas with minimal degradation, while ESA2 have suffered some degradation. Conversely, according to the Mining and Biodiversity Guidelines (DENC et al. 2013) no areas on the study site have recognisable biodiversity importance. These guidelines were developed to identify and categorize biodiversity priority areas sensitive to the impacts of mining in order to support mainstreaming of biodiversity issues in decision making in the mining sector of South Africa.

Olievenput does not fall within any formally protected area or within a National Protected Areas Expansion Strategy Focus Area (NPAES). It does however fall in close proximity to the Free State Highveld Grassland focus area (NPAES #12) (Figure 10). This focus area includes some of the last remaining opportunities for relatively large protected areas in the highly threatened Grassland Biome. Options for meeting protected area targets are retreating rapidly in this area, making protected area expansion urgent. Although the grassland in the north of Olievenput is not formally included in this Focus Area, its associated grassland habitat remains vulnerable to degradation on a cumulative scale.



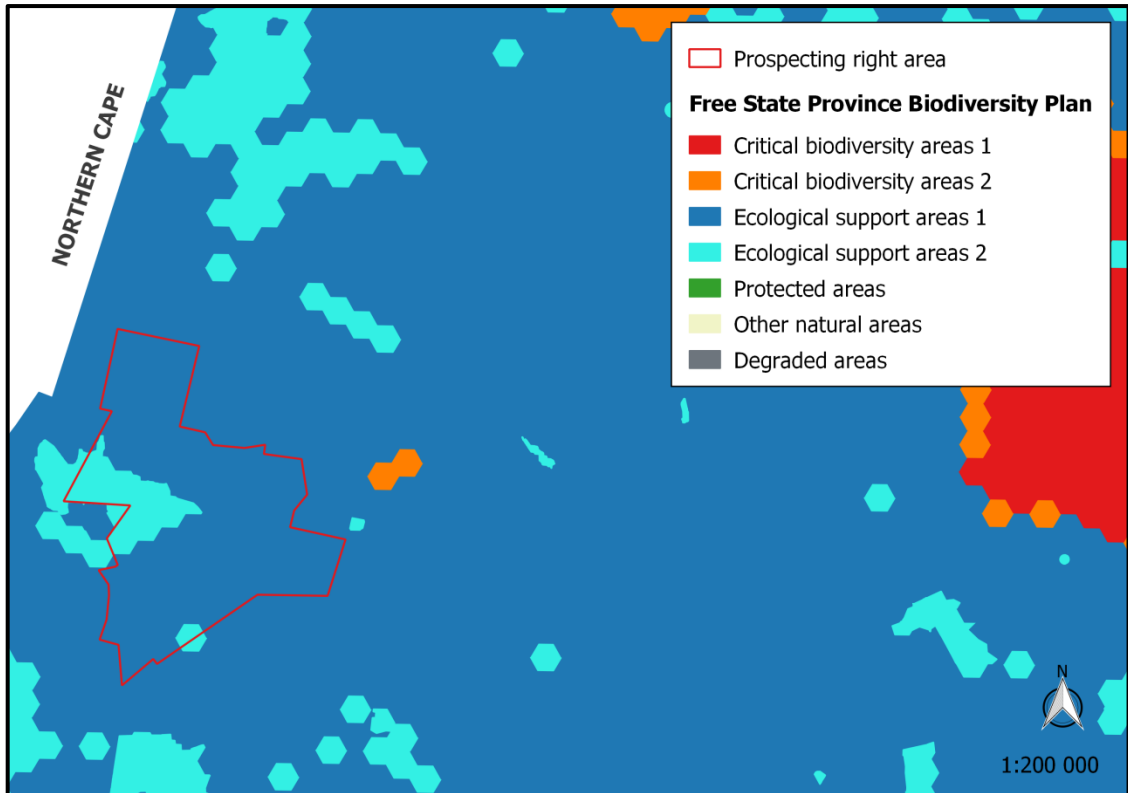


Figure 9. The study area in relation to the Free State Province Biodiversity Plan.

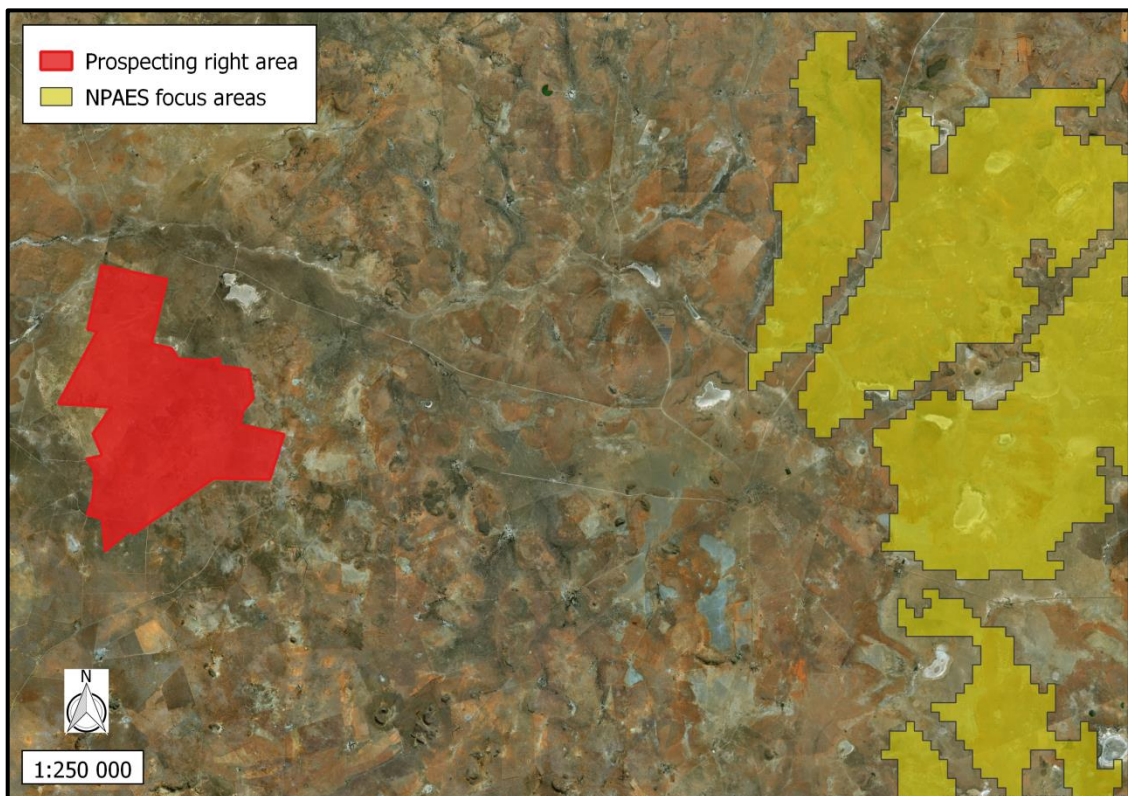


Figure 10. The study area in relation to adjacent National Protected Areas Expansion Strategy Focus areas.

According to the National Biodiversity Assessment project, all of the ephemeral pans in the study area of Least Concern, but poorly protected. They have also been classified with a Present Ecological State of A/B, which means that they are in a *Natural or Good Condition*. None of the wetlands have been identified as significant wetlands in terms of Ramsar sites, IUCN Frog localities, threatened water bird localities or Crane breeding grounds. Nevertheless, the Tokologo 4<sup>th</sup> generation Integrated Development Plan 2017/18, regards wetlands as core ecological corridors that need to be protected by a setback line of at least 32 m, from the banks of all water bodies. The ephemeral pans on site are therefore regarded as sensitive and important systems. Ephemeral pans are also unique habitats protected in terms of the National Water Act (Act No 36 of 1998).

### 3.6. Site sensitivity

The sensitivity map for the Olievenput prospecting operation is illustrated in Figure 11. The ephemeral pans and drainage lines are considered to be of **very high** sensitivity due to their vital ecological and hydrological functionality and significance. All natural watercourses in the study area are also unique habitats protected in terms of the National Water Act (Act No 36 of 1998). These units are essentially no-go areas.

The grassland habitat in the northern half of the study area is considered to be of **high** sensitivity, on account of the vulnerability of grasslands to degradation. This unit is not regarded as a no-go area, but activities should only proceed with caution as it may not be possible to mitigate all impacts appropriately.

The thornveld in the south is considered to be of **medium** sensitivity. Although it is expected to be affected by the prospecting operation, the nature of the impacts is likely to be largely local and the risk of secondary impact such as erosion is low. Activities within these areas can proceed with relatively little ecological impact provided that appropriate mitigation measures are taken.

The transformed areas are considered to be of **low** ecological sensitivity on account of the transformation of natural habitats that has already occurred here.



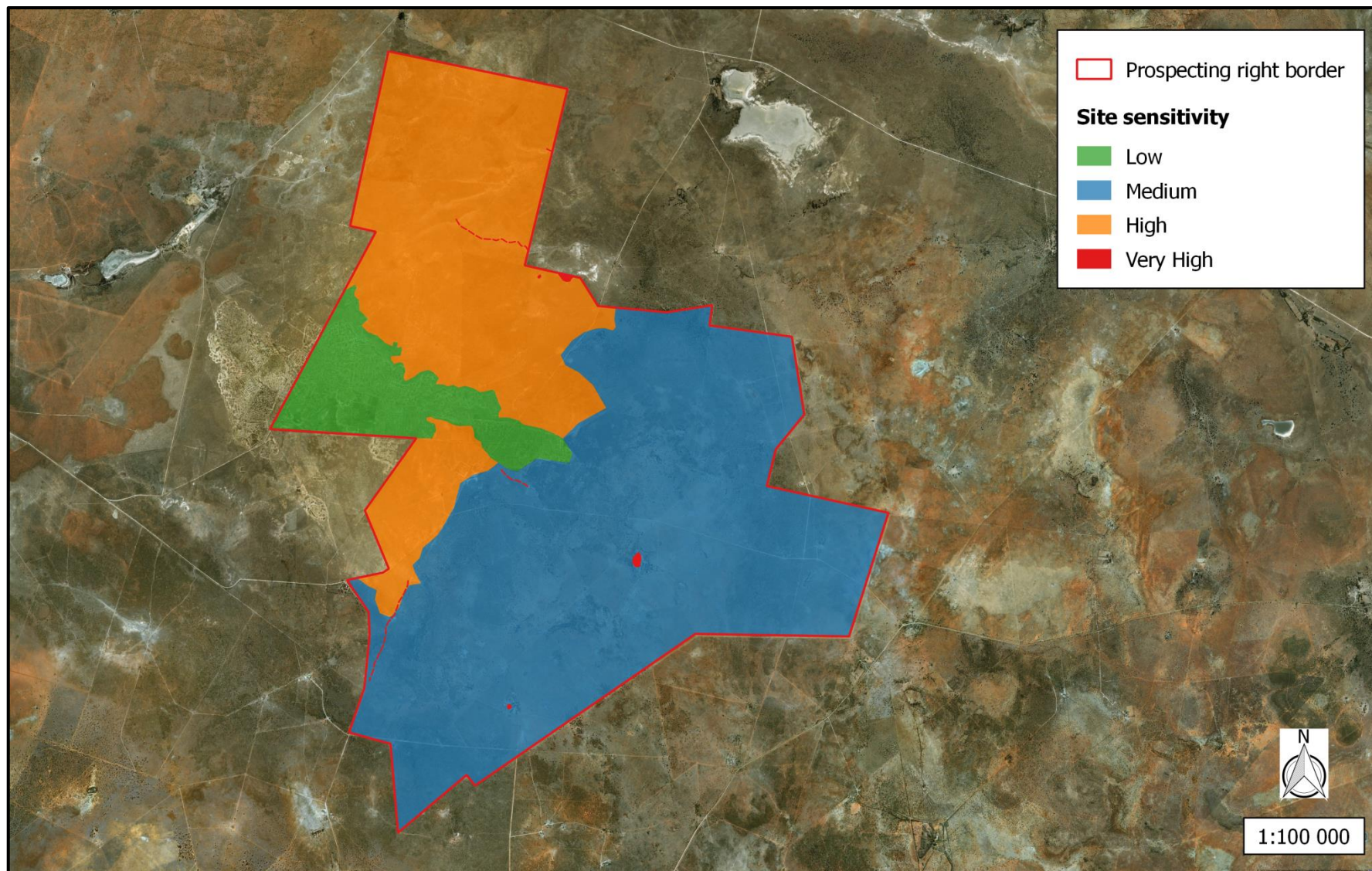


Figure 11. A sensitivity map for the Olievenput prospecting area.



## 4. ECOLOGICAL IMPACT ASSESSMENT

In this section, the potential impacts and associated risk factors that may be generated by the Olievenput prospecting operation are identified and described. A detailed analysis of each impact is provided in Table 9. The impacts are assessed in terms of the relevant ecological aspects and each impact is associated with an outline of specific mitigation measures, which with proper implementation, monitoring and auditing, will serve to reduce the significance of the impact. In order to ensure that the impacts identified are broadly applicable and inclusive, all the likely or potential impacts that may be associated with the prospecting activities are listed.

### 4.1. Topography, soil erosion and associated degradation of landscapes

#### 4.1.1. Loss of soil fertility

##### *Source of the impact*

The removal of any topsoil during the construction of roads and drill pads.

##### *Description of the impact*

Improper stockpiling and soil compaction can result in soil sterilisation. Leaching can also occur, resulting in the loss of nutrients.

##### *Mitigation and monitoring*

- If any topsoil is removed during creation of roads or drill pads then these stockpiles must be kept as small as possible in order to prevent compaction and the formation of anaerobic conditions.
- Topsoil must be stockpiled for the shortest possible timeframes in order to ensure that the quality of the topsoil is not impaired.
- Topsoil must not be handled when the moisture content exceeds 12 %.
- Topsoil stockpiles must be kept separate from sub-soils.
- The topsoil should be replaced as soon as possible on to the disturbed areas, thereby allowing for the re-growth of the seed bank contained within the topsoil.

**Table 9.** A detailed analysis of ecological impacts identified for the Olievenput prospecting operation.

	IMPACT	Phase			Extent	Duration	Severity	Probability	Significance	Significance after Mitigation
		C	O	D						
Landscape	Loss of soil fertility	✓	✓	✓	Local (2)	Residual (4)	High (3)	Rare and infrequent (5)	Low (45)	Very low
	Increase in soil erosion	✓	✓	✓	Local (2)	Decommissioning (3)	High (3)	Possible but infrequently (7)	Low - Medium (56)	Low
Flora	Loss of indigenous vegetation	✓	✓	✓	On-site (1)	Short term (1)	Minimal (1)	Possible but infrequent (7)	Very low (21)	Very low
	Loss of Red data and/or protected floral species	✓	✓		Local (2)	Residual (4)	High (3)	Possible but infrequent (7)	Low - Medium (63)	Low
	Introduction or spread of alien species	✓	✓	✓	Regional (4)	Residual (4)	High (3)	Rare and infrequent (5)	Low-Medium (55)	Low
	Bush encroachment			✓	Local (2)	Residual (4)	Medium (2)	Rare and infrequent (5)	Low (40)	Very low

	IMPACT	Phase			Extent	Duration	Severity	Probability	Significance	Significance after Mitigation
		C	O	D						
Fauna	Habitat fragmentation	✓	✓	✓	Local (2)	Decommissioning (3)	Medium (2)	Possible but infrequent (7)	Low (49)	Very low
	Disturbance, displacement and killing of fauna	✓	✓		Regional (3)	Decommissioning (3)	Medium (2)	Possible for life of operation (9)	Low-Medium (72)	Low
Ecological Processes	Compromise of ecological processes	✓	✓		Regional (3)	Residual (4)	High (3)	Highly unlikely and infrequent (4)	Low (40)	Very low

#### 4.1.2. Soil erosion

##### ***Source of the impact***

Clearing of vegetation and disturbance during the construction of roads and drill pads; alterations to pans and drainage line characteristics.

##### ***Description of the impact***

Vegetation will be stripped for construction of new roads and drill pads and these areas will be bare and susceptible to erosion. Any topsoil and overburden that is stripped and piled on surrounding areas can be eroded by wind, rain and flooding. The soil/sediments will be carried away during runoff. The affected areas should be rehabilitated, but full restoration might only occur over a number of years, subsequent to the re-establishment of vegetation and hydrologic regime.

##### ***Mitigation and monitoring***

- Re-establishment of plant cover on disturbed areas must take place as soon as possible, once activities in the area have ceased.
- Any road construction over drainage lines or pan catchments should be done to allow continuance of the natural hydrological regime.
- Ground exposure should be minimised in terms of the surface area and duration.
- Disturbances during the rainy season (November to March) should be monitored and controlled.
- Run-off from exposed ground should be controlled with flow retarding barriers.
- Regular monitoring carried out to identify areas where erosion is occurring; followed by appropriate remedial actions.

## 4.2. Vegetation and floristics

### 4.2.1. Loss of indigenous vegetation

#### ***Source of the impact***

Construction of roads and drill pads; vehicular movement.

#### ***Description of the impact***

The construction of roads and drill pads will damage or destroy natural vegetation. It is expected that trampled vegetation will not be significantly affected and any destruction to natural vegetation will be at a very small scale, based on the low invasive nature of drilling activities. It is likely that areas of high ecological function will rehabilitate following such disturbance events. Vehicle traffic generates lots of dust which can reduce the growth success and seed dispersal of many small plant species; however traffic volumes associated with drilling activities are very low.

#### ***Mitigation and monitoring***

- Minimise the footprint of transformation, by keeping to existing roads where possible.
- Ensure measures for the adherence to the speed limit to minimise dust plumes.
- Encourage the growth of natural plant species by sowing indigenous seeds or by planting seedlings where major vegetation clearance has taken place.



#### **4.2.2. Loss of Red data and/or protected floral species**

##### ***Source of the impact***

Removal of listed or protected plant species during the construction of roads and drill pads and/or illegal harvesting.

##### ***Description of the impact***

It is possible that prospecting activities will destroy protected species and other species of conservation concern through construction of drill pads and roads, vehicular movement and if any illegal harvesting occurs.

##### ***Mitigation and monitoring***

- All footprint areas of the prospecting activities must be scanned for Red Listed and protected plant species prior to any destructive activities.
- It is recommended that these plants are identified and marked prior to intended activity.
- These plants should, where possible, be incorporated into the activity layout and left in situ.
- However, if threatened by destruction, these plants should be removed (with the relevant permits) and relocated if possible.
- A management plan should be implemented to ensure proper establishment of ex situ individuals, and should include a monitoring programme for at least two years after re-establishment in order to ensure successful translocation.
- The appointment of an Environmental Control Officer must render guidance to the staff and contractors with respect to suitable areas for all related disturbance, and must ensure that all contractors and workers undergo Environmental Induction prior to commencing with work on site. The environmental induction should occur in the appropriate languages for the workers who may require translation.
- All those working on site must be educated about the conservation importance of the flora occurring on site.
- Employ measures to ensure that no illegal harvesting takes place.

#### **4.2.3. Introduction or spread of alien species**

##### ***Source of the impact***

Clearing of vegetation and disturbance during the construction of roads and drill pads.

##### ***Description of the impact***

The extent of alien invasive species in the study area is unknown. However, general clearing of vegetation destroy natural vegetation, wherafter invasive plants can increase due to their opportunistic nature in disturbed areas. If invasive plants establish in disturbed areas, it may cause an impact beyond the boundaries of the prospecting site. These alien invasive species are thus a threat to surrounding natural vegetation and can result in the decrease of biodiversity and ecological value of the area. Therefore, if alien invasive species are not controlled and managed, their propagation into new areas could have a high impact on the surrounding natural vegetation in the long term. With proper mitigation, the impacts can be substantially reduced. However, based on the low invasive nature of drilling activities, this impact is not likely to occur during the proposed operation.

##### ***Mitigation and monitoring***

- Minimise the footprint of transformation.
- Encourage the growth of natural plant species.
- Mechanical methods of control to be implemented if needed.
- Annual follow-up operations to be implemented.

#### **4.2.4. Encouraging bush encroachment**

##### ***Source of the impact***

Clearing of vegetation and disturbance during the construction of roads and drill pads.

##### ***Description of the impact***

The potential extent of bush encroaching species on site is unknown. While general clearing of the area and prospecting activities destroy natural vegetation, bush encroaching plants can increase due to their opportunistic nature in disturbed areas. If encroaching plants establish in disturbed areas, it may the lower potential for future land use and decrease biodiversity. With proper mitigation, the impacts can be substantially reduced and if any such species are removed during prospecting activities the prospecting operation can have a positive effect by reducing bush encroachment. Based on the low invasive nature of drilling activities, this impact is expected to be insignificant.

##### ***Mitigation and monitoring***

- Minimise the footprint of transformation.
- Encourage the growth of natural plant species.
- Mechanical methods of control to be implemented if needed.
- Annual follow-up operations to be implemented.

### 4.3. Fauna

#### 4.3.1. Habitat fragmentation

##### ***Source of the impact***

Clearing of vegetation and disturbance during the construction of roads and drill pads.

##### ***Description of the impact***

Prospecting activities could result in the loss of connectivity and fragmentation of natural habitat, which generally leads to the loss of migration corridors, in turn resulting in degeneration of the affected population's genetic make-up. This impact will be most profound if characteristics of the natural watercourses are altered. However, due to the low invasive nature of drilling activities this impact is not expected to be significant.

##### ***Mitigation and monitoring***

- All activities associated with the prospecting operation must be planned, where possible in order to encourage faunal dispersal and should minimise dissection or fragmentation of any important faunal habitat type.
- No activities should take place in the ephemeral wetlands.
- The extent of the earmarked area should be demarcated on site layout plans. No staff, contractors or vehicles may leave the demarcated area except those authorised to do so.
- Those pristine areas surrounding the earmarked area that are not part of the demarcated area should be considered as a no go zone for employees, machinery or even visitors.
- Employ sound rehabilitation measures to restore the characteristics and habitat functionality of any affected areas.

#### **4.3.2. Disturbance, displacement and killing of fauna**

##### ***Source of the impact***

Vegetation clearing; increase in noise and vibration; human and vehicular movement on site resulting from prospecting activities.

##### ***Description of the impact***

The transformation of natural habitats will result in the loss of micro habitats, affecting individual species and ecological processes. This will result in the displacement of faunal species that depend on such habitats, e.g. birds that nest in trees or animals residing in holes in the ground. Increased noise and vibration will disturb and possibly displace wildlife. Fast moving vehicles cause road kills of small mammals, birds, reptiles, amphibians and a large number of invertebrates. Intentional killing of snakes, reptiles, vultures and owls will negatively affect the local populations.

##### ***Mitigation and monitoring***

- Careful planning of the operation is needed in order to avoid the destruction of pristine habitats and minimise the overall disturbance footprint.
- The extent of the prospecting activities should be demarcated on site layout plans, and no personnel or vehicles may leave the demarcated area except if authorised to do so. Areas surrounding the earmarked site that are not part of the demarcated area should be considered as a no go zone.
- However, if any of the protected species are threatened by destruction, the relevant permits should be obtained followed by the relevant mitigation procedures stipulated in the permits.
- An Environmental Control Officer must render guidance to the staff and contractors with respect to suitable areas for all related disturbance.
- Everyone on site must undergo environmental induction for awareness on not harming or collecting species that are often persecuted out of superstition and to be educated about the conservation importance of the fauna occurring on site.
- Reptiles and amphibians that are exposed during the clearing operations should be captured for later release or translocation by a qualified expert.
- Employ measures that ensure adherence to the speed limit to lower the risk of animals being killed on the roads.



#### **4.4. Broad-scale ecological processes**

##### ***Source of the impact***

Clearing of vegetation and disturbance during the construction of roads and drill pads; alterations to pan- and drainage line characteristics.

##### ***Description of the impact***

Transformation of intact habitat on a cumulative basis would contribute to the fragmentation of the landscape and would potentially disrupt the connectivity of the landscape for fauna and flora and impair their ability to respond to environmental fluctuations. The grassland habitat is the most vulnerable terrestrial habitat on site in terms of cumulative disturbances. With regards to aquatic communities, the fragmentation of ephemeral drainage ways and pans will destroy connectivity of vital ecological corridors and it will disrupt the hydrological regime on a landscape level. However, due to the low invasive nature of the proposed activity the potential for cumulative impacts is not significant during the proposed prospecting operation.

##### ***Mitigation and monitoring***

- Minimise the footprint of transformation.
- Encourage proper rehabilitation of affected areas.
- Encourage the growth of natural plant species.
- Encourage the preservation of ecological corridors.
- Employ sound rehabilitation measures to restore the characteristics of any affected watercourses.

**5. CONCLUSION, RECOMMENDATIONS AND OPINION REGARDING AUTHORISATION**

Four potential plant communities were identified on site of which the ephemeral drainage lines and ephemeral pans are considered to be of very high sensitivity. The grassland vegetation unit in the northern half of the study area is considered to be of high sensitivity, while the thornveld vegetation unit in the south is considered to be of medium sensitivity. The area transformed by historic mining is considered to be of low sensitivity. The most profound impacts are expected to be related to the loss of plant species of conservation concern as well as the disruption of ecological corridors and the hydrological regime if the ephemeral pans and ephemeral drainage lines are modified through road creation or drill pad establishment.

A high number of provincially protected plant species are likely to occur on site, but nationally red listed species include *Galenia pallens*, *Brachystelma dimorphum* subsp. *dimorphum* and *Drimia sanguinea*. Permit applications regarding protected flora need to be lodged with the Free State Department of Economic Development, Tourism and Environmental Affairs three months prior to any clearance of vegetation.

Similarly, if any *Vachellia erioloba* trees are to be affected, a licence application regarding protected trees should be lodged with Department of Agriculture, Forestry and Fisheries three months prior to any potential disturbances to these trees.

To conclude, disturbances to the natural habitat and associated fauna within the study area are likely. However, the significance of the impacts is low due to the low invasive nature of drilling activities. Nevertheless, any significance of the impacts will be affected by the success of the mitigation measures implemented and the rehabilitation programme for the prospecting area. In my opinion, authorisation for the proposed operation can be granted. However, the applicant should still commit to the adherence of effective avoidance, management, mitigation and rehabilitation measures.

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## APPENDICES

## **APPENDIX 1**

### **Plant species list**

FAMILY	SPECIES	STATUS	NFA	FSNCO
ACANTHACEAE	<i>Barleria rigida</i>	LC		
	<i>Blepharis integrifolia</i> var. <i>integrifolia</i>	LC		
	<i>Dicliptera leistneri</i>	LC		
	<i>Justicia orchioides</i> subsp. <i>glabrata</i>	LC		
AGAVACEAE	<i>Chlorophytum fasciculatum</i>	LC		
AIZOACEAE	<i>Aloinopsis rubrolineata</i>	LC		
	<b><i>Galenia pallens</i></b>	<b>DDT</b>		
	<i>Galenia portulacacea</i>	LC		
	<i>Galenia procumbens</i>	LC		
	<i>Galenia prostrata</i>	LC		
	<i>Galenia pubescens</i>	LC		
	<i>Mesembryanthemum articulatum</i>	LC		
	<i>Mesembryanthemum cordifolium</i>	LC		
	<i>Mesembryanthemum coriarium</i>	LC		
	<i>Mesembryanthemum granulicaule</i>	LC		
	<i>Mestoklema arboriforme</i>	LC		
	<i>Plinthus karooicus</i>	LC		
	<i>Plinthus sericeus</i>	LC		
	<b><i>Titanopsis calcarea</i></b>	LC		X
	<i>Trianthema parvifolia</i> var. <i>parvifolia</i>	LC		
	<i>Trichodiadema pomeridianum</i>	LC		
	ALLIACEAE	<i>Nothoscordum gracile</i>	Nat. Exotic	
<i>Tulbaghia leucantha</i>		LC		
AMARANTHACEAE	<b><i>Achyranthes aspera</i> var. <i>aspera</i></b>	<b>Alien Inv</b>		
	<i>Aerva leucura</i>	LC		
	<i>Alternanthera pungens</i>	Nat. Exotic		
	<i>Amaranthus deflexus</i>	Nat. Exotic		
	<i>Amaranthus dinteri</i> subsp. <i>dinteri</i>	-		
	<i>Amaranthus praetermissus</i>	LC		
	<i>Amaranthus schinzianus</i>	LC		
	<i>Amaranthus thunbergii</i>	LC		
	<i>Amaranthus viridis</i>	Nat. Exotic		
	<i>Atriplex erosa</i>	LC		
	<b><i>Atriplex lindleyi</i> subsp. <i>inflata</i></b>	<b>Alien Inv</b>		
	<i>Atriplex rosea</i>	Nat. Exotic		
	<i>Atriplex semibaccata</i>	Nat. Exotic		
	<i>Atriplex suberecta</i>	Nat. Exotic		
	<i>Atriplex vestita</i> var. <i>appendiculata</i>	LC		
	<i>Chenopodium giganteum</i>	Nat. Exotic		
	<i>Chenopodium glaucum</i>	Nat. Exotic		
	<i>Chenopodium murale</i> var. <i>murale</i>	Nat. Exotic		
	<i>Chenopodium opulifolium</i> var. <i>opulifolium</i>	Nat. Exotic		
	<i>Chenopodium schraderianum</i>	Nat. Exotic		
<i>Dysphania carinata</i>	Nat. Exotic			
<i>Dysphania cristata</i>	Nat. Exotic			
<i>Dysphania multifida</i>	Nat. Exotic			

FAMILY	SPECIES	STATUS	NFA	FSNCO
AMARANTHACEAE	<i>Gomphrena celosioides</i>	Nat. Exotic		
	<i>Hermbstaedtia odorata</i> var. <i>odorata</i>	-		
	<i>Kyphocarpa angustifolia</i>	LC		
	<i>Pupalia lappacea</i> var. <i>lappacea</i>	LC		
	<i>Salsola aphylla</i>	LC		
	<i>Salsola calluna</i>	LC		
	<i>Salsola denudata</i>	LC		
	<i>Salsola exalata</i>	LC		
	<i>Salsola geminiflora</i>	LC		
	<i>Salsola glabrescens</i>	LC		
	<i>Salsola kali</i>	Alien Inv		
	<i>Salsola rabieana</i>	LC		
	<i>Sericorema remotiflora</i>	LC		
	<i>Suaeda fruticosa</i>	LC		
AMARYLLIDACEAE	<i>Ammocharis coranica</i>	LC		X
	<i>Boophone disticha</i>	LC		X
	<i>Crinum bulbispermum</i>	LC		X
	<i>Crinum lugardiae</i>	LC		X
	<i>Gethyllis transkarooica</i>	LC		X
	<i>Haemanthus humilis</i> subsp. <i>humilis</i>	LC		X
	<i>Scadoxus puniceus</i>	LC		
ANACARDIACEAE	<i>Schinus molle</i>	Nat. Exotic		
	<i>Searsia ciliata</i>	LC		
	<i>Searsia lancea</i>	LC		
	<i>Searsia pyroides</i> var. <i>pyroides</i>	LC		
	<i>Searsia tridactyla</i>	LC		
APIACEAE	<i>Choritaenia capensis</i>	LC		
	<i>Deverra burchellii</i>	LC		
APOCYNACEAE	<i>Aspidoglossum interruptum</i>	LC		
	<i>Brachystelma dimorphum</i> subsp. <i>dimorphum</i>	VU		
	<i>Cynanchum orangeanum</i>	LC		
	<i>Cynanchum virens</i>	LC		
	<i>Gomphocarpus fruticosus</i> subsp. <i>fruticosus</i>	LC		
	<i>Gomphocarpus tomentosus</i>	LC		
	<i>Microlooma armatum</i> var. <i>armatum</i>	LC		
	<i>Microlooma armatum</i> var. <i>burchellii</i>	LC		
	<i>Orbea lutea</i> subsp. <i>lutea</i>	LC		
	<i>Orbea verrucosa</i>	LC		
	<i>Orthanthera jasminiflora</i>	LC		
	<i>Pentarrhinum insipidum</i>	LC		
	<i>Piarranthus decipiens</i>	LC		
	<i>Raphionacme velutina</i>	LC		
	<i>Riocreuxia polyantha</i>	LC		
	<i>Stapelia gettliffei</i>	LC		
<i>Stapelia gigantea</i>	LC			

FAMILY	SPECIES	STATUS	NFA	FSNCO
APOCYNACEAE	<i>Stapelia leendertziae</i>	LC		
	<i>Stenostelma capense</i>	LC		
	<i>Tridentea gemmiflora</i>	LC		
ASPARAGACEAE	<i>Asparagus bechuanicus</i>	Bush Encr		
	<i>Asparagus burchellii</i>	Bush Encr		
	<i>Asparagus cooperi</i>	Bush Encr		
	<i>Asparagus glaucus</i>	Bush Encr		
	<i>Asparagus laricinus</i>	Bush Encr		
	<i>Asparagus suaveolens</i>	Bush Encr		
	<i>Asparagus virgatus</i>	Bush Encr		
ASPHODELACEAE	<i>Aloe grandidentata</i>	LC		X
	<i>Aloe maculata</i>	LC		X
	<i>Bulbine abyssinica</i>	LC		
	<i>Bulbine asphodeloides</i>	LC		
	<i>Trachyandra burkei</i>	LC		
	<i>Trachyandra laxa</i> var. <i>rigida</i>	LC		
	<i>Trachyandra saltii</i> var. <i>saltii</i>	LC		
	<i>Asplenium cordatum</i>	LC		
ASPLENIACEAE				
ASTERACEAE	<i>Amellus strigosus</i> subsp. <i>strigosus</i>	LC		
	<i>Amellus tridactylus</i> subsp. <i>tridactylus</i>	LC		
	<i>Amphiglossa triflora</i>	LC		
	<i>Anthemis cotula</i>	Nat. Exotic		
	<i>Arctotheca calendula</i>	LC		
	<i>Arctotis venusta</i>	LC		
	<i>Berkheya pinnatifida</i> subsp. <i>pinnatifida</i>	LC		
	<i>Bidens biternata</i>	Nat. Exotic		
	<i>Chrysocoma ciliata</i>	LC		
	<i>Chrysocoma obtusata</i>	LC		
	<i>Cineraria aspera</i>	LC		
	<i>Cineraria lyratiformis</i>	LC		
	<i>Conyza scabrida</i>	LC		
	<i>Cotula anthemoides</i>	LC		
	<i>Crassothonna cylindrica</i>	LC		
	<i>Denekia capensis</i>	LC		
	<i>Dicoma capensis</i>	LC		
	<i>Dicoma macrocephala</i>	LC		
	<i>Dicoma schinzii</i>	LC		
	<i>Erigeron bonariensis</i>	Nat. Exotic		
	<i>Eriocephalus ambiguus</i>	LC		
	<i>Eriocephalus karoocicus</i>	LC		
	<i>Euryops asparagoides</i>	LC		
	<i>Euryops subcarnosus</i> subsp. <i>vulgaris</i>	LC		
	<i>Felicia fascicularis</i>	LC		
	<i>Felicia filifolia</i> subsp. <i>filifolia</i>	LC		
	<i>Felicia muricata</i> subsp. <i>muricata</i>	LC		

FAMILY	SPECIES	STATUS	NFA	FSNCO
ASTERACEAE	<i>Foveolina burchellii</i>	LC		
	<i>Galeomma stenolepis</i>	LC		
	<i>Gazania jurineifolia</i> subsp. <i>jurineifolia</i>	LC		
	<i>Gazania krebsiana</i> subsp. <i>arctotoides</i>	LC		
	<i>Geigeria burkei</i>	LC		
	<i>Geigeria filifolia</i>	LC		
	<i>Geigeria ornativa</i> subsp. <i>ornativa</i>	LC		
	<i>Gnaphalium confine</i>	LC		
	<i>Helichrysum arenicola</i>	LC		X
	<i>Helichrysum argyrosphaerum</i>	LC		X
	<i>Helichrysum cerastioides</i> var. <i>cerastioides</i>	LC		X
	<i>Helichrysum dregeanum</i>	LC		X
	<i>Helichrysum lineare</i>	LC		X
	<i>Helichrysum lucilioides</i>	LC		X
	<i>Helichrysum zeyheri</i>	LC		X
	<i>Hertia pallens</i>	LC		
	<i>Hirpicium echinus</i>	LC		
	<i>Kleinia longiflora</i>	LC		
	<i>Lactuca inermis</i>	LC		
	<i>Laggera decurrens</i>	LC		
	<i>Lasiopogon glomerulatus</i>	LC		
	<i>Lasiospermum bipinnatum</i>	LC		
	<i>Litogyne gariepina</i>	LC		
	<i>Mesogramma apiifolium</i>	LC		
	<i>Nidorella resedifolia</i> subsp. <i>resedifolia</i>	LC		
	<i>Nolletia ciliaris</i>	LC		
	<i>Oedera humilis</i>	LC		
	<i>Osteospermum leptolobum</i>	LC		
	<i>Osteospermum muricatum</i> subsp. <i>muricatum</i>	LC		
	<i>Osteospermum scariosum</i> var. <i>scariosum</i>	-		
	<i>Osteospermum spinescens</i>	LC		
	<i>Othonna auriculifolia</i>	LC		
	<i>Pegolettia retrofracta</i>	LC		
	<i>Pentzia calcarea</i>	LC		
	<i>Pentzia globosa</i>	LC		
	<i>Pentzia lanata</i>	LC		
	<i>Pentzia quinquefida</i>	LC		
	<i>Pentzia viridis</i>	LC		
	<i>Schkuhria pinnata</i>	Nat. Exotic		
	<i>Senecio burchellii</i>	LC		
	<i>Senecio consanguineus</i>	LC		
<i>Senecio glutinosus</i>	LC			
<i>Senecio inaequidens</i>	LC			
<i>Senecio reptans</i>	LC			
<i>Senecio windhoekensis</i>	LC			



FAMILY	SPECIES	STATUS	NFA	FSNCO
ASTERACEAE	<i>Sonchus oleraceus</i>	Nat. Exotic		
	<i>Symphotrichum squamatum</i>	Nat. Exotic		
	<i>Tarhonanthus camphoratus</i>	LC		
	<i>Tarhonanthus obovatus</i>	LC		
	<i>Tragopogon dubius</i>	Nat. Exotic		
	<i>Troglophyton capillaceum</i> subsp. <i>capillaceum</i>	LC		
	<i>Xanthium spinosum</i>	Alien Inv		
	<i>Xanthium strumarium</i>	Alien Inv		
BIGNONIACEAE	<i>Rhigozum obovatum</i>	LC		
	<i>Rhigozum trichotomum</i>	LC		
BORAGINACEAE	<i>Anchusa riparia</i>	LC		
	<i>Buglossoides arvensis</i>	Nat. Exotic		
	<i>Ehretia alba</i>	LC		
	<i>Heliotropium ciliatum</i>	LC		
	<i>Heliotropium curassavicum</i>	Nat. Exotic		
	<i>Heliotropium lineare</i>	LC		
	<i>Heliotropium nelsonii</i>	LC		
	<i>Lappula heteracantha</i>	Nat. Exotic		
	<i>Lithospermum cinereum</i>	LC		
	<i>Trichodesma angustifolium</i>	LC		
	BRASSICACEAE	<i>Erucastrum griquense</i>	LC	
<i>Heliophila minima</i>		LC		
<i>Lepidium africanum</i> subsp. <i>divaricatum</i>		LC		
<i>Rapistrum rugosum</i>		Nat. Exotic		
<i>Rorippa fluviatilis</i> var. <i>caledonica</i>		LC		
<i>Sisymbrium burchellii</i> var. <i>burchellii</i>		LC		
CAMPANULACEAE		<i>Wahlenbergia androsacea</i>	LC	
	<i>Wahlenbergia denticulata</i> var. <i>denticulata</i>	LC		
	<i>Wahlenbergia denticulata</i> var. <i>transvaalensis</i>	LC		
	<i>Wahlenbergia meyeri</i>	LC		
	<i>Wahlenbergia nodosa</i>	LC		
CARYOPHYLLACEAE	<i>Cerastium capense</i>	LC		
	<i>Corrigiola litoralis</i> subsp. <i>litoralis</i>	-		
	<i>Dianthus micropetalus</i>	LC		
	<i>Herniaria erckertii</i> subsp. <i>erckertii</i>	LC		
	<i>Pollichia campestris</i>	LC		
	<i>Spergularia rubra</i>	Nat. Exotic		
	CELASTRACEAE	<i>Gymnosporia buxifolia</i>	LC	
<i>Putterlickia pyracantha</i>		LC		
<i>Putterlickia saxatilis</i>		LC		
CLEOMACEAE	<i>Cleome angustifolia</i> subsp. <i>diandra</i>	LC		
	<i>Cleome gynandra</i>	LC		
	<i>Cleome monophylla</i>	LC		
	<i>Cleome rubella</i>	LC		
COLCHICACEAE	<i>Colchicum burkei</i>	LC		

FAMILY	SPECIES	STATUS	NFA	FSNCO
COLCHICACEAE	<i>Colchicum melanthoides</i> subsp. <i>melanthoides</i>	LC		
	<i>Ornithoglossum dinteri</i>	LC		
COMMELINACEAE	<i>Commelina africana</i> var. <i>africana</i>	LC		
	<i>Commelina africana</i> var. <i>barberae</i>	LC		
	<i>Commelina benghalensis</i>	LC		
	<i>Commelina livingstonii</i>	LC		
CONVOLVULACEAE	<i>Convolvulus boedeckerianus</i>	LC		
	<i>Convolvulus multifidus</i>	LC		
	<i>Convolvulus ocellatus</i> var. <i>ocellatus</i>	LC		
	<i>Convolvulus sagittatus</i>	LC		
	<i>Cuscuta appendiculata</i>	LC		
	<i>Falkia oblonga</i>	LC		
	<i>Ipomoea bolusiana</i>	LC		
	<i>Ipomoea oenotheroides</i>	LC		
	<i>Merremia verecunda</i>	LC		
	CORBICHONIACEAE	<i>Corbichonia decumbens</i>	LC	
CRASSULACEAE	<i>Crassula capitella</i> subsp. <i>nodulosa</i>	LC		
	<i>Kalanchoe paniculata</i>	LC		
CUCURBITACEAE	<i>Acanthosicyos naudinianus</i>	LC		
	<i>Coccinia rehmannii</i>	LC		
	<i>Coccinia sessilifolia</i>	LC		
	<i>Cucumis heptadactylus</i>	LC		
	<i>Cucumis myriocarpus</i> subsp. <i>leptodermis</i>	LC		
	<i>Cucumis myriocarpus</i> subsp. <i>myriocarpus</i>	LC		
	<i>Cucumis zeyheri</i>	LC		
	<i>Kedrostis africana</i>	LC		
	<i>Momordica balsamina</i>	LC		
	<i>Trochomeria debilis</i>	LC		
CYPERACEAE	<i>Bulbostylis hispidula</i> subsp. <i>pyriformis</i>	LC		
	<i>Cyperus capensis</i>	LC		
	<i>Cyperus decurvatus</i>	LC		
	<i>Cyperus fastigiatus</i>	LC		
	<i>Cyperus laevigatus</i>	LC		
	<i>Cyperus margaritaceus</i> var. <i>margaritaceus</i>	LC		
	<i>Cyperus marlothii</i>	LC		
	<i>Cyperus usitatus</i>	LC		
	<i>Eleocharis dregeana</i>	LC		
	<i>Isolepis sepulcralis</i>	LC		
	<i>Kyllinga alba</i>	LC		
	<i>Pseudoschoenus inanis</i>	LC		
DIPSACACEAE	<i>Scabiosa columbaria</i>	LC		
EBENACEAE	<i>Diospyros austro-africana</i> var. <i>microphylla</i>	LC		
	<i>Diospyros lycioides</i> subsp. <i>lycioides</i>	LC		
	<i>Euclea crispa</i> subsp. <i>ovata</i>	Bush Encr		
EUPHORBIACEAE	<i>Euphorbia crassipes</i>	LC		X

FAMILY	SPECIES	STATUS	NFA	FSNCO
EUPHORBIACEAE	<i>Euphorbia davyi</i>	LC		X
	<i>Euphorbia duseimata</i>	LC		X
	<i>Euphorbia glanduligera</i>	LC		X
	<i>Euphorbia inaequilatera</i>	LC		X
	<i>Euphorbia juttae</i>	LC		X
	<i>Euphorbia spartaria</i>	LC		X
FABACEAE	<i>Seidelia triandra</i>	LC		
	<i>Bolusanthus speciosus</i>	LC		
	<i>Chamaecrista biensis</i>	LC		
	<i>Chamaecrista capensis</i>	LC		
	<i>Crotalaria griquensis</i>	LC		
	<i>Crotalaria lotoides</i>	LC		
	<i>Crotalaria sphaerocarpa</i> subsp. <i>sphaerocarpa</i>	LC		
	<i>Cullen tomentosum</i>	LC		
	<i>Dichilus gracilis</i>	LC		
	<i>Elephantorrhiza elephantina</i>	LC		
	<i>Erythrina zeyheri</i>	LC		X
	<i>Indigofera alternans</i> var. <i>alternans</i>	LC		
	<i>Indigofera arrecta</i>	LC		
	<i>Indigofera daleoides</i> var. <i>daleoides</i>	-		
	<i>Indigofera filipes</i>	LC		
	<i>Indigofera rhytidocarpa</i> subsp. <i>rhytidocarpa</i>	LC		
	<i>Indigofera vicioides</i> var. <i>vicioides</i>	LC		
	<i>Lessertia affinis</i>	LC		
	<i>Lessertia depressa</i>	LC		
	<i>Lessertia frutescens</i> subsp. <i>frutescens</i>	LC		
	<i>Lessertia pauciflora</i> var. <i>pauciflora</i>	LC		
	<i>Listia heterophylla</i>	LC		
	<i>Listia marlothii</i>	LC		
	<i>Medicago laciniata</i> var. <i>laciniata</i>	Nat. Exotic		
	<i>Medicago polymorpha</i>	Nat. Exotic		
	<i>Melolobium calycinum</i>	LC		
	<i>Melolobium candicans</i>	LC		
	<i>Melolobium canescens</i>	LC		
	<i>Melolobium microphyllum</i>	LC		
	<i>Otoptera burchellii</i>	LC		
	<i>Prosopis glandulosa</i> var. <i>glandulosa</i>	Alien Inv		
	<i>Prosopis pubescens</i>	Nat. Exotic		
<i>Prosopis velutina</i>	Alien Inv			
<i>Rhynchosia confusa</i>	LC			
<i>Rhynchosia holosericea</i>	LC			
<i>Rhynchosia totta</i> var. <i>totta</i>	LC			
<i>Senegalia mellifera</i> subsp. <i>detinens</i>	Bush Encr			
<i>Senna italica</i> subsp. <i>arachoides</i>	LC			
<i>Sesbania notialis</i>	LC			

FAMILY	SPECIES	STATUS	NFA	FSNCO
FABACEAE	<i>Tephrosia burchellii</i>	LC		
	<i>Vachellia erioloba</i>	LC	X	
	<i>Vachellia grandicornuta</i>	LC		
	<b><i>Vachellia hebeclada</i> subsp. <i>hebeclada</i></b>	Bush Encr		
	<b><i>Vachellia karroo</i></b>	Bush Encr		
	<b><i>Vachellia tortilis</i> subsp. <i>heteracantha</i></b>	Bush Encr		
FRANKENIACEAE	<i>Frankenia pulverulenta</i>	LC		
GENTIANACEAE	<i>Sebaea exigua</i>	LC		
	<i>Sebaea pentandra</i> var. <i>pentandra</i>	LC		
GERANIACEAE	<i>Monsonia angustifolia</i>	LC		
	<i>Monsonia burkeana</i>	LC		
	<i>Pelargonium nanum</i>	LC		
GISEKIACEAE	<i>Gisekia africana</i> var. <i>decagyna</i>	LC		
	<i>Gisekia pharnaceoides</i> var. <i>pharnaceoides</i>	LC		
HYACINTHACEAE	<i>Albuca dyeri</i>	LC		
	<i>Albuca prasina</i>	LC		
	<i>Albuca virens</i> subsp. <i>arida</i>	LC		
	<i>Daubenya comata</i>	LC		
	<i>Dipcadi gracillimum</i>	LC		
	<i>Dipcadi marlothii</i>	LC		
	<i>Dipcadi viride</i>	LC		
	<i>Drimia intricata</i>	LC		
	<b><i>Drimia sanguinea</i></b>	NT		
	<b><i>Eucomis autumnalis</i></b>	LC		X
	<i>Ledebouria marginata</i>	LC		
	<i>Ledebouria undulata</i>	LC		
	<i>Massonia jasminiflora</i>	LC		
	<i>Ornithogalum flexuosum</i>	LC		
	<i>Schizocarphus nervosus</i>	LC		
IRIDACEAE	<i>Babiana hypogaea</i>	LC		
	<i>Duthieastrum linifolium</i>	LC		
	<b><i>Gladiolus orchidiflorus</i></b>	LC		X
	<b><i>Gladiolus permeabilis</i> subsp. <i>edulis</i></b>	LC		X
	<i>Moraea pallida</i>	LC		
	<i>Moraea polystachya</i>	LC		
JUNCACEAE	<i>Juncus exsertus</i>	LC		
	<i>Juncus rigidus</i>	LC		
KEWACEAE	<i>Kewa salsoloides</i>	LC		
LAMIACEAE	<i>Acrotome inflata</i>	LC		
	<i>Leonotis pentadentata</i>	LC		
	<i>Mentha longifolia</i> subsp. <i>capensis</i>	LC		
	<i>Ocimum americanum</i> var. <i>americanum</i>	LC		
	<i>Salvia disermas</i>	LC		
	<b><i>Salvia verbenaca</i></b>	Nat. Exotic		
	<i>Stachys hyssopoides</i>	LC		

FAMILY	SPECIES	STATUS	NFA	FSNCO
LAMIACEAE	<i>Stachys spathulata</i>	LC		
LIMEACEAE	<i>Limeum aethiopicum</i> var. <i>aethiopicum</i>	LC		
	<i>Limeum arenicolum</i>	LC		
	<i>Limeum argute-carinatum</i>	LC		
	<i>Limeum fenestratum</i> var. <i>fenestratum</i>	LC		
	<i>Limeum pterocarpum</i>	LC		
	<i>Limeum sulcatum</i> var. <i>sulcatum</i>	LC		
LOBELIACEAE	<i>Cyphia stenopetala</i>	LC		
	<i>Lobelia dregeana</i>	LC		
	<i>Lobelia thermalis</i>	LC		
LOPHIOCARPACEAE	<i>Lophiocarpus polystachyus</i>	LC		
MALVACEAE	<i>Corchorus asplenifolius</i>	LC		
	<i>Grewia flava</i>	LC		
	<i>Hermannia bicolor</i>	LC		
	<i>Hermannia comosa</i>	LC		
	<i>Hermannia erodioides</i>	LC		
	<i>Hermannia linearifolia</i>	LC		
	<i>Hermannia modesta</i>	LC		
	<i>Hermannia tomentosa</i>	LC		
	<i>Hibiscus marlothianus</i>	LC		
	<i>Hibiscus pusillus</i>	LC		
	<i>Malva parviflora</i> var. <i>parviflora</i>	Nat. Exotic		
	<i>Melhania prostrata</i>	LC		
	<i>Pavonia burchellii</i>	LC		
	<i>Sphaeralcea bonariensis</i>	Nat. Exotic		
MARTYNIACEAE	<i>Ibicella lutea</i>	Nat. Exotic		
MELIANTHACEAE	<i>Greyia sutherlandii</i>	LC		
MENISPERMACEAE	<i>Antizoma angustifolia</i>	LC		
NEURADACEAE	<i>Grielum humifusum</i> var. <i>humifusum</i>	LC		
	<i>Neuradopsis bechuanensis</i>	LC		
NYCTAGINACEAE	<i>Boerhavia cordobensis</i>	Nat. Exotic		
	<i>Commicarpus pentandrus</i>	LC		
OLEACEAE	<i>Jasminum angulare</i>	LC		
	<i>Menodora africana</i>	LC		
	<i>Olea europaea</i> subsp. <i>africana</i>	LC		X
ONAGRACEAE	<i>Oenothera indecora</i>	Nat. Exotic		
OXALIDACEAE	<i>Oxalis corniculata</i>	Nat. Exotic		
	<i>Oxalis depressa</i>	LC		
	<i>Oxalis pes-caprae</i> var. <i>pes-caprae</i>	LC		
PAPAVERACEAE	<i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	Alien Inv		
PEDALIACEAE	<i>Harpagophytum procumbens</i>	LC		
	<i>Pterodiscus speciosus</i>	LC		
	<i>Sesamum capense</i>	LC		
PHRYMACEAE	<i>Mimulus gracilis</i>	LC		
PHYLLANTHACEAE	<i>Phyllanthus maderaspatensis</i>	LC		

FAMILY	SPECIES	STATUS	NFA	FSNCO
PHYLLANTHACEAE	<i>Phyllanthus parvulus</i> var. <i>parvulus</i>	LC		
POACEAE	<i>Anthephora pubescens</i>	LC		
	<i>Aristida adscensionis</i>	LC		
	<i>Aristida bipartita</i>	LC		
	<i>Aristida congesta</i> subsp. <i>barbicollis</i>	LC		
	<i>Aristida congesta</i> subsp. <i>congesta</i>	LC		
	<i>Aristida meridionalis</i>	LC		
	<i>Aristida mollissima</i> subsp. <i>mollissima</i>	LC		
	<i>Aristida scabrivalvis</i> subsp. <i>scabrivalvis</i>	LC		
	<i>Aristida stipitata</i> subsp. <i>graciliflora</i>	LC		
	<i>Aristida stipitata</i> subsp. <i>spicata</i>	LC		
	<i>Aristida vestita</i>	LC		
	<i>Brachiaria marlothii</i>	LC		
	<i>Cenchrus ciliaris</i>	LC		
	<b><i>Cenchrus incertus</i></b>	Nat. Exotic		
	<i>Chloris virgata</i>	LC		
	<i>Cymbopogon caesius</i>	LC		
	<i>Cymbopogon nardus</i>	LC		
	<b><i>Cymbopogon pospischilii</i></b>	Nat. Exotic		
	<i>Cynodon dactylon</i>	LC		
	<i>Cynodon incompletus</i>	LC		
	<i>Diandrochloa pusilla</i>	LC		
	<i>Dichanthium annulatum</i> var. <i>papillosum</i>	LC		
	<i>Digitaria eriantha</i>	LC		
	<b><i>Digitaria sanguinalis</i></b>	Nat. Exotic		
	<i>Echinochloa colona</i>	LC		
	<i>Echinochloa crus-galli</i>	LC		
	<i>Echinochloa holubii</i>	LC		
	<i>Ehrharta calycina</i>	LC		
	<i>Eleusine coracana</i> subsp. <i>africana</i>	LC		
	<i>Elionurus muticus</i>	LC		
	<i>Enneapogon cenchroides</i>	LC		
	<i>Enneapogon scoparius</i>	LC		
	<b><i>Eragrostis barrelieri</i></b>	Nat. Exotic		
	<i>Eragrostis bicolor</i>	LC		
	<i>Eragrostis biflora</i>	LC		
	<i>Eragrostis chloromelas</i>	LC		
	<i>Eragrostis cilianensis</i>	LC		
	<i>Eragrostis curvula</i>	LC		
	<i>Eragrostis echinochloidea</i>	LC		
	<i>Eragrostis gummiflua</i>	LC		
	<i>Eragrostis homomalla</i>	LC		
	<i>Eragrostis lehmanniana</i> var. <i>lehmanniana</i>	LC		
	<b><i>Eragrostis mexicana</i> subsp. <i>virescens</i></b>	Nat. Exotic		
	<i>Eragrostis nindensis</i>	LC		



FAMILY	SPECIES	STATUS	NFA	FSNCO
POACEAE	<i>Eragrostis obtusa</i>	LC		
	<i>Eragrostis pallens</i>	LC		
	<i>Eragrostis pilosa</i>	LC		
	<i>Eragrostis porosa</i>	LC		
	<i>Eragrostis procumbens</i>	LC		
	<i>Eragrostis pseudobtusa</i>	LC		
	<i>Eragrostis rotifer</i>	LC		
	<i>Eragrostis superba</i>	LC		
	<b><i>Eragrostis tef</i></b>	<b>Nat. Exotic</b>		
	<i>Eragrostis trichophora</i>	LC		
	<i>Eragrostis truncata</i>	LC		
	<i>Fingerhuthia africana</i>	LC		
	<i>Hemarthria altissima</i>	LC		
	<i>Heteropogon contortus</i>	LC		
	<i>Leptochloa fusca</i>	LC		
	<i>Melinis repens</i> subsp. <i>grandiflora</i>	LC		
	<i>Melinis repens</i> subsp. <i>repens</i>	LC		
	<i>Microchloa kunthii</i>	LC		
	<i>Oropetium capense</i>	LC		
	<i>Panicum coloratum</i>	LC		
	<i>Panicum stapfianum</i>	LC		
	<b><i>Phalaris minor</i></b>	<b>Nat. Exotic</b>		
	<i>Phragmites australis</i>	LC		
	<b><i>Poa annua</i></b>	<b>Nat. Exotic</b>		
	<i>Pogonarthria squarrosa</i>	LC		
	<b><i>Polypogon monspeliensis</i></b>	<b>Nat. Exotic</b>		
	<i>Puccinellia acroxantha</i>	LC		
	<i>Schismus barbatus</i>	LC		
	<i>Schmidtia kalahariensis</i>	LC		
	<i>Schmidtia pappophoroides</i>	LC		
	<i>Setaria pumila</i>	LC		
	<i>Setaria verticillata</i>	LC		
	<b><i>Sorghum halepense</i></b>	<b>Alien Inv</b>		
	<i>Sporobolus albicans</i>	LC		
	<i>Sporobolus coromandelianus</i>	LC		
	<i>Sporobolus discosporus</i>	LC		
	<i>Sporobolus fimbriatus</i>	LC		
	<i>Sporobolus ludwigii</i>	LC		
	<i>Stipagrostis brevifolia</i>	LC		
	<i>Stipagrostis namaquensis</i>	LC		
	<i>Stipagrostis obtusa</i>	LC		
	<i>Stipagrostis uniplumis</i> var. <i>neesii</i>	LC		
<i>Stipagrostis uniplumis</i> var. <i>uniplumis</i>	LC			
<i>Themeda triandra</i>	LC			
<i>Tragus berteronianus</i>	LC			

FAMILY	SPECIES	STATUS	NFA	FSNCO
POACEAE	<i>Tragus koelerioides</i>	LC		
	<i>Tragus racemosus</i>	LC		
	<i>Tricholaena monachne</i>	LC		
	<i>Trichoneura grandiglumis</i>	LC		
	<i>Triraphis purpurea</i>	LC		
	<i>Urochloa panicoides</i>	LC		
POLYGALACEAE	<i>Polygala hottentotta</i>	LC		
	<i>Polygala leptophylla</i> var. <i>leptophylla</i>	LC		
	<i>Polygala seminuda</i>	LC		
POLYGONACEAE	<i>Fallopia convolvulus</i>	Nat. Exotic		
	<i>Oxygonum alatum</i> var. <i>alatum</i>	LC		
	<i>Persicaria hystricula</i>	LC		
	<i>Polygonum aviculare</i>	Nat. Exotic		
	<i>Polygonum plebeium</i>	LC		
PORTULACACEAE	<i>Portulaca kermesina</i>	LC		
	<i>Portulaca quadrifida</i>	LC		
POTAMOGETONACEAE	<i>Potamogeton crispus</i>	LC		
	<i>Potamogeton pectinatus</i>	LC		
	<i>Zannichellia palustris</i>	LC		
PTERIDACEAE	<i>Cheilanthes eckloniana</i>	LC		
	<i>Cheilanthes hirta</i> var. <i>brevipilosa</i>	LC		
	<i>Pellaea calomelanos</i> var. <i>calomelanos</i>	LC		
RANUNCULACEAE	<i>Clematis brachiata</i>	LC		
	<i>Ranunculus multifidus</i>	LC		
	<i>Ranunculus trichophyllus</i>	LC		
	<i>Thalictrum minus</i>	LC		
RESEDACEAE	<i>Oligomeris dipetala</i> var. <i>dipetala</i>	LC		
RHAMNACEAE	<i>Ziziphus mucronata</i> subsp. <i>mucronata</i>	LC		
ROSACEAE	<i>Alchemilla elongata</i>	LC		
RUBIACEAE	<i>Kohautia cynanchica</i>	LC		
RUSCACEAE	<i>Eriospermum porphyrium</i>	LC		
SALICACEAE	<i>Salix mucronata</i> subsp. <i>mucronata</i>	LC		
SANTALACEAE	<i>Thesium hystricoides</i>	LC		
	<i>Thesium hystrix</i>	LC		
	<i>Thesium resedoides</i>	LC		
	<i>Viscum rotundifolium</i>	LC		
	<i>Viscum rotundifolium</i>	LC		
SCROPHULARIACEAE	<i>Aptosimum elongatum</i>	LC		
	<i>Aptosimum indivisum</i>	LC		
	<i>Aptosimum marlothii</i>	LC		
	<i>Buddleja saligna</i>	LC		
	<i>Chaenostoma halimifolium</i>	LC		
	<i>Chaenostoma patrioticum</i>	LC		
	<i>Diclis petiolaris</i>	LC		
	<i>Gomphostigma virgatum</i>	LC		
	<i>Hebenstretia integrifolia</i>	LC		

FAMILY	SPECIES	STATUS	NFA	FSNCO
SCROPHULARIACEAE	<i>Jamesbrittenia albiflora</i>	LC		
	<i>Jamesbrittenia atropurpurea</i>	LC		
	<i>Limosella maior</i>	LC		
	<i>Nemesia fruticans</i>	LC		
	<i>Nemesia lilacina</i>	LC		
	<i>Peliostomum leucorrhizum</i>	LC		
	<i>Peliostomum origanoides</i>	LC		
	<i>Selago densiflora</i>	LC		
	<i>Selago geniculata</i>	LC		
	<i>Selago mixta</i>	LC		
	<i>Selago welwitschii</i> var. <i>australis</i>	LC		
	<i>Zaluzianskya venusta</i>	LC		
SOLANACEAE	<b><i>Datura stramonium</i></b>	<b>Alien Inv</b>		
	<i>Lycium arenicola</i>	LC		
	<i>Lycium cinereum</i>	LC		
	<i>Lycium ferocissimum</i>	LC		
	<i>Lycium hirsutum</i>	LC		
	<i>Lycium horridum</i>	LC		
	<i>Lycium pilifolium</i>	LC		
	<i>Lycium pumilum</i>	LC		
	<i>Lycium villosum</i>	LC		
	<b><i>Nicotiana glauca</i></b>	<b>Alien Inv</b>		
	<i>Solanum capense</i>	LC		
	<i>Solanum lichtensteinii</i>	LC		
<i>Solanum tomentosum</i>	LC			
STILBACEAE	<i>Nuxia gracilis</i>	LC		
TALINACEAE	<i>Talinum arnotii</i>	LC		
TAMARICACEAE	<b><i>Tamarix ramosissima</i></b>	<b>Alien Inv.</b>		
TECOPHILAEACEAE	<i>Cyanella lutea</i>	LC		
THYMELAEACEAE	<i>Lasiosiphon polycephalus</i>	LC		
VAHLIACEAE	<i>Vahlia capensis</i> subsp. <i>capensis</i>	LC		
	<i>Vahlia capensis</i> subsp. <i>vulgaris</i>	LC		
VERBENACEAE	<i>Chascanum hederaceum</i> var. <i>hederaceum</i>	LC		
	<i>Chascanum pinnatifidum</i>	LC		
	<i>Lantana rugosa</i>	LC		
	<b><i>Verbena officinalis</i></b>	<b>Nat. Exotic</b>		
VITACEAE	<i>Cyphostemma hereroense</i>	LC		
ZYGOPHYLLACEAE	<i>Roepera incrustata</i>	LC		
	<i>Roepera pubescens</i>	LC		
	<i>Tetraena microcarpa</i>	LC		
	<i>Tetraena simplex</i>	LC		
	<i>Tribulus terrestris</i>	LC		
	<i>Tribulus zeyheri</i> subsp. <i>zeyheri</i>	LC		

## **APPENDIX 2**

### **Fauna species list**

## LIST OF MAMMALS

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
<b>CHIROPTERA</b>	<i>Eidolon helvum</i>	African Straw-coloured Fruit-bat	<b>NT</b>	<i>Not listed</i>	Wide habitat tolerance.	High
	<i>Neoromicia capensis</i>	Cape Bat	LC	LC	Wide habitat tolerance, but often found in arid areas, grassland, bushveld and <i>Acacia</i> woodland. Animals roost under the bark of trees and similar vegetation.	High
	<i>Miniopterus natalensis</i>	Natal Long-fingered Bat	LC	<i>Not listed</i>	Mainly roosts in caves or mine shafts, but also in crevices and holes in trees.	High
	<i>Nycteris thebaica</i>	Common Slit-faced Bat	LC	LC	Savanna species with wide habitat tolerance. Roosts in caves, mine adits, aardvark holes, rock crevices and hollow trees in open savanna woodland.	High
	<i>Pipistrellus hesperidus</i>	Dusk Pipistrelle	LC	LC	Wide habitat tolerance, but close proximity to open water may be a limiting factor.	Low
	<i>Rhinolophus clivosus</i>	Geoffroy's Horseshoe Bat	LC	<b>NT</b>	Wide habitat tolerance.	High
	<i>Tadarida aegyptiaca</i>	Egyptian Free-tailed Bat	LC	LC	Wide habitat tolerance.	High

## LIST OF MAMMALS (Continued)

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
CHRYSOCHLORIDAE	<i>Chlorotalpa sclateri</i>	Sclater's Golden Mole	LC	DD	Restricted to high-altitude grasslands, scrub and forested kloofs in the Nama Karoo and Grassland biomes of South Africa.	Low
MACROSCOLIDIDAE	<i>Elephantulus myurus</i>	Eastern Rock Sengi	LC	LC	Rocky environments.	Low
TUBULENTATA	<sup>1</sup> <i>Orycteropus afer</i>	Aardvark	LC	LC	Wide habitat tolerance, being found in open woodland, scrub and grassland, especially associated with sandy soil.	High
HYRACOIDEA	<i>Procavia capensis</i>	Rock Hyrax	LC	LC	Outcrops of rocks, especially granite formations and dolomite intrusions in the Karoo. Also erosion gullies.	Low



## LIST OF MAMMALS (Continued)

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	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
LAGOMORPHA	<sup>2</sup> <i>Lepus capensis</i>	Cape Hare	LC	LC	Dry, open regions, with palatable bush and grass.	High
	<sup>2</sup> <i>Lepus saxatilis</i>	Scrub Hare	LC	LC	Common in agriculturally developed areas, especially in crop-growing areas or in fallow lands where there is some bush development.	Moderate
	<i>Pronolagus rupestris</i>	Smith's Red Rock Rabbit	LC	LC	Rocky habitats, from isolated outcrops to mountain ranges; in high and low rainfall areas, but absent from true desert.	Low
RODENTIA	<i>Hystrix africaeaustralis</i>	Cape Porcupine	LC	LC	Catholic in habitat requirements.	High
	<i>Xerus inauris</i>	South African Ground Squirrel	LC	LC	Open terrain with a sparse bush cover and hard substrate.	High
	<i>Pedetes capensis</i>	Springhare	LC	LC	Occurs widespread: open sandy ground, sandy scrub, overgrazed grassland, edges of vleis and dry river beds.	High
	<i>Graphiurus ocellatus</i>	Spectacled Dormouse	LC	LC	Rocky habitats, but also trees.	Moderate

## LIST OF MAMMALS (Continued)

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
<b>RODENTIA</b>	<i>Saccostomus campestris</i>	Pouched Mouse	LC	LC	Wide habitat tolerance but prefers soft, particularly sandy soils; can be found in open and dense vegetation and in rocky areas; annual rainfall of 250 - 1 200 mm.	High
	<i>Malacothrix typica</i>	Large-eared (Gerbil) Mouse	LC	LC	Short grass habitats over hard soil.	Moderate
	<i>Rhabdomys pumilio</i>	Four-striped Grass Mouse	LC	LC	Essentially a grassland species; occurs in wide variety of habitats where there is good grass cover.	High
	<i>Mus minutoides</i>	Pygmy Mouse	LC	LC	Wide habitat tolerance.	High
	<i>Mus musculus</i>	House Mouse	LC	<i>Not listed</i>	Wide habitat tolerance.	High
	<i>Mastomys natalensis</i>	Natal Multimammate Mouse	LC	LC	Wide habitat tolerance.	High
	<i>Mastomys coucha</i>	Southern Multimammate Mouse	LC	LC	Wide habitat tolerance.	High
	<i>Micaelamys namaquensis</i>	Namaqua Rock Mouse	LC	LC	Catholic habitat requirements, but prefer rocky hills, outcrops or boulder-strewn hillsides.	Low
	<i>Rattus rattus</i>	House Rat	LC	LC	Primarily commensal, but also found in a variety of natural and semi-natural habitats.	High

## LIST OF MAMMALS (Continued)

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
<b>RODENTIA</b>	<i>Otomys irroratus</i>	Southern African Vlei Rat	LC	LC	Known from grassland and marshes in areas of dense vegetation cover and higher moisture content. It also occurs in pine plantations.	Moderate
	<i>Desmodillus auricularis</i>	Cape Short-tailed Gerbil	LC	LC	Tend to occur on hard ground, unlike other gerbil species, with some cover of grass or karroid bush.	Moderate
	<i>Gerbillurus paeba</i>	Pygmy Hairy-footed Gerbil	LC	LC	Associated with Nama and Succulent Karoo preferring sandy soil or sandy alluvium with a grass, scrub or light woodland cover.	Moderate
	<i>Gerbilliscus leucogaster</i>	Bushveld Gerbil	LC	<b>DD</b>	Sandy soils; wooded and more open grassland; areas of cultivation.	High
	<i>Gerbilliscus brantsii</i>	Highveld Gerbil	LC	LC	Sandy soils; wooded and more open grassland; areas of cultivation.	High
<b>PRIMATES</b>	<i>Papio ursinus</i>	Chacma Baboon	LC	LC	Can exploit fynbos, montane grasslands, riverine courses in deserts, and simply need water and access to refuges.	Low
	<i>Chlorocebus pygerythrus</i>	Vervet Monkey	LC	LC	Woodland savanna, riverine woodland, isolated stands of trees along river courses.	Moderate

## LIST OF MAMMALS (Continued)

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
PHOLIDOTA	<sup>1</sup> <i>Smutsia temminckii</i>	Ground Pangolin	VU	VU	Low to high rainfall areas, including open grassland, woodland and rocky hills, but excluding forest and true desert; nevertheless present throughout the Kalahari sand country.	Low
EULIPOTYPHILA	<i>Crocidura cyanea</i>	Reddish-Grey Musk Shrew	LC	DD	Occurs in relatively dry terrain, with a mean annual rainfall of less than 500 mm. Occur in karroid scrub and in fynbos often in association with rocks.	Low
	<i>Suncus varilla</i>	Lesser Dwarf Shrew	LC	DD	Generally associated with termite mounds, grassland habitat.	High
	<sup>1</sup> <i>Atelerix frontalis</i>	South African Hedgehog	LC	NT	Generally found in semi-arid and sub-temperate environments with ample ground cover.	Moderate

## LIST OF MAMMALS (Continued)

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
<b>CARNIVORA</b>	<i>Proteles cristata</i>	Aardwolf	LC	LC	Common in the 100-600mm rainfall range of country, Nama-Karoo, Succulent Karoo Grassland and Savanna biomes.	High
	<i>Caracal caracal</i>	Caracal	LC	LC	Caracals tolerate arid regions, occur in semi-desert and karroid conditions.	High
	<i>Felis silvestris</i>	African Wild Cat	LC	LC	Wide habitat tolerance.	High
	<i>Felis nigripes</i>	Black-footed cat	<b>VU</b>	LC	Associated with arid country, particularly areas with open habitat that provides some cover in the form of tall stands of grass or scrub.	Low
	<i>Genetta genetta</i>	Common (Small-spotted) Genet	LC	LC	Occur in open arid habitats.	Moderate
	<i>Suricata suricatta</i>	Suricate	LC	LC	Open arid country with hard and stony substrate. Occur in Nama- and Succulent Karoo but also fynbos.	High

## LIST OF MAMMALS (Continued)

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
<b>CARNIVORA</b>	<i>Cynictis penicillata</i>	Yellow Mongoose	LC	LC	Semi-arid country on a sandy substrate.	High
	<i>Galerella pulverulenta</i>	Cape (Small) Grey Mongoose	LC	LC	Wide habitat tolerance.	High
	<i>Herpestes sanguineus</i>	Slender Mongoose	LC	LC	Wide habitat tolerance, but areas with adequate cover.	High
	<i>Atilax paludinosus</i>	Water (Marsh) Mongoose	LC	LC	Associated with well-watered areas, along rivers and streams, around dams, lakes, estuaries and swamps wherever there is cover.	Very low
	<i>Vulpes chama</i>	Cape Fox	LC	LC	Associated with open country, open grassland, grassland with scattered thickets and coastal or semi-desert scrub.	High
	<i>Canis mesomelas</i>	Black-backed Jackal	LC	LC	Wide habitat tolerance.	High
	<i>Aonyx capensis</i>	Cape Clawless Otter	<b>NT</b>	LC	Rivers, marshes, dams and lakes; dry stream beds if pools of water exist.	Very low

## LIST OF MAMMALS (Continued)

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
CARNIVORA	<i>Hydrictis maculicollis</i>	Spotted-necked Otter	NT	NT	Larger rivers or rivers with permanent pools; lakes, dams and well-watered swamps.	Very low
	<i>Hyaena brunnea</i>	Brown Hyena	NT	NT	Found in dry areas, generally with annual rainfall of 100 - 700 mm, particularly along the coast, semi-desert, open scrub and open woodland savanna.	Low
	<sup>1</sup> <i>Otocyon megalotis</i>	Bat-eared Fox	LC	LC	Open country with mean annual rainfall of 100-600 mm.	High
	<i>Poecilogale albinucha</i>	African Striped Weasel	LC	DD	Wide habitat tolerance, but most common in grassland areas.	High
	<i>Ictonyx striatus</i>	Striped Polecat	LC	LC	Widely distributed throughout the sub-region.	High
	<i>Mellivora capensis</i>	Honey Badger	LC	NT	Wide habitat tolerance.	High



## LIST OF MAMMALS (Continued)

Mammals protected according to FSNCO are indicated with their respective Schedule no. in superscript

	Scientific name	Common name	IUCN	RDB	Habitat	Potential occurrence
CETARTIODACTYLA	<sup>2</sup> <i>Oryx gazella</i>	Gemsbok	LC	LC	Semi-arid and arid bushland and grassland of the Kalahari and Karoo and adjoining regions of Southern Africa.	Low
	<sup>2</sup> <i>Connochaetes gnou</i>	Black Wildebeest	LC	LC	Open plains grasslands and karoo shrublands of South Africa and Lesotho.	Low
	<sup>2</sup> <i>Connochaetes taurinus</i>	Blue Wildebeest	LC	LC	Open savanna woodland and open grassland with access to drinking water.	Low
	<sup>2</sup> <i>Alcelaphus caama</i>	Red Hartebeest	LC	LC	Open savanna country and open woodland.	Low
	<sup>2</sup> <i>Damaliscus pygargus phillipsi</i>	Blesbok	LC	LC	Open grassland with water.	Low
	<sup>2</sup> <i>Antidorcas marsupialis</i>	Springbok	LC	LC	Open arid plains with short vegetation	Low
	<sup>2</sup> <i>Raphicerus campestris</i>	Steenbok	LC	LC	Inhabits open country.	High
	<i>Sylvicapra grimmia</i>	Common Duiker	LC	LC	Presence of bushes are important.	High

## LIST OF REPTILES

Reptiles protected according to FSNCO are indicated with their respective Schedule no. in superscript

Family	Scientific name	Common name	pyxlUCN status
AGAMIDAE	<i>Agama aculeata aculeata</i>	Western Ground Agama	LC
	<i>Agama aculeata distanti</i>	Eastern Ground Agama	LC
	<i>Agama atra</i>	Southern Rock Agama	LC
COLUBRIDAE	<i>Dasypeltis scabra</i>	Rhombic Egg-eater	LC
CORDYLIDAE	<sup>1</sup> <i>Karusasaurus polyzonus</i>	Southern Karusa Lizard	LC
ELAPIDAE	<i>Naja nivea</i>	Cape Cobra	LC
GEKKONIDAE	<i>Chondrodactylus bibronii</i>	Bibron's Gecko	LC
	<i>Pachydactylus capensis</i>	Cape Gecko	LC
LACERTIDAE	<i>Nucras holubi</i>	Holub's Sandveld Lizard	LC
	<i>Nucras intertexta</i>	Spotted Sandveld Lizard	LC
	<i>Pedioplanis lineocellata lineocellata</i>	Spotted Sand Lizard	LC
LAMPROPHIIDAE	<i>Aparallatus capensis</i>	Black-headed Centipede-eater	LC
	<i>Boaedon capensis</i>	Common House Snake	LC
	<i>Lamprophis aurora</i>	Aurora Snake	LC
	<i>Lycophidion capense capense</i>	Cape Wolf Snake	LC
	<i>Psammophis notostictus</i>	Karoo Sand Snake	LC
	<i>Psammophis trinasalis</i>	Fork-marked Sand Snake	LC
	<i>Psammophis tritaeniatu</i>	Striped Grass Snake	LC
	<i>Prosymna bivittata</i>	Two-striped Shovel-snout	LC
LEPTOTYPHLOPIDAE	<i>Leptotyphlops scutifrons scutifrons</i>	Peters' Thread Snake	LC
	<i>Atractaspis bibronii</i>	Bibron's Stiletto Snake	LC
PELOMEDUSIDAE	<i>Pelomedusa subrufa</i>	Marsh Terrapin	LC
SCINCIDAE	<i>Acontias gracilicauda</i>	Thin-tailed Legless Skink	LC
	<i>Trachylepis capensis</i>	Cape Skink	LC
	<i>Trachylepis punctatissima</i>	Speckled Rock Skink	LC
	<i>Trachylepis punctulata</i>	Speckled Sand Skink	LC
	<i>Trachylepis sulcata sulcata</i>	Western Rock Skink	LC
	<i>Trachylepis varia</i>	Variable Skink	LC
	<i>Trachylepis variegata</i>	Variiegated Skink	LC
TESTUDINIDAE	<sup>1</sup> <i>Homopus femoralis</i>	Greater Dwarf Tortoise	LC
	<sup>1</sup> <i>Psammobates oculifer</i>	Serrated Tent Tortoise	LC
	<sup>1</sup> <i>Stigmochelys pardalis</i>	Leopard Tortoise	LC
TYPHLOPIDAE	<i>Rhinotyphlops lalandei</i>	Delalande's Beaked Blind Snake	LC
VARANIDAE	<i>Varanus albigularis albigularis</i>	Southern Rock Monitor	LC
VIPERIDAE	<i>Bitis arietans arietans</i>	Puff Adder	LC

## LIST OF AMPHIBIANS

Family	Scientific name	Common name	Frog Atlas
BUFONIDAE	<i>Amietophrynus gutturalis</i>	Guttural Toad	LC
	<i>Amietophrynus poweri</i>	Western Olive Toad	LC
	<i>Amietophrynus rangeri</i>	Raucous Toad	LC
	<i>Poyntonophrynus vertebralis</i>	Southern Pygmy Toad	LC
HYPEROLIIDAE	<i>Kassina senegalensis</i>	Bubbling Kassina	LC
PHRYNOBATRACHIDAE	<i>Phrynobatrachus natalensis</i>	Snoring Puddle Frog	LC
PIPIDAE	<i>Xenopus laevis</i>	Common Platanna	LC
PYXICEPHALIDAE	<i>Amietia poyntoni</i>	Poynton's River Frog	LC
	<i>Amietia fuscigula</i>	Cape River Frog	LC
	<i>Amietia quecketti</i>	Common River Frog	LC
	<i>Cacosternum boettgeri</i>	Boettger's Caco	LC
	<b><i>Pyxicephalus adspersus</i></b>	<b>Giant Bullfrog</b>	<b>NT</b>
	<i>Tomopterna cryptotis</i>	Tremolo Sand Frog	LC
	<i>Tomopterna tandyi</i>	Tandy's Sand Frog	LC

## LIST OF BIRDS

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Scientific name	Common name	IUCN status	SA RDB
<sup>1</sup> <i>Accipiter melanoleucus</i>	Black Sparrowhawk	LC	LC
<sup>1</sup> <i>Acrocephalus arundinaceus</i>	Great Reed-Warbler	LC	LC
<sup>1</sup> <i>Acrocephalus baeticatus</i>	African Reed-Warbler	LC	LC
<sup>1</sup> <i>Acrocephalus gracilirostris</i>	Lesser Swamp-Warbler	LC	LC
<sup>1</sup> <i>Acrocephalus palustris</i>	Marsh Warbler	LC	LC
<sup>1</sup> <i>Actitis hypoleucos</i>	Common Sandpiper	LC	LC
<sup>1</sup> <i>Actophilornis africanus</i>	African Jacana	LC	LC
<sup>1</sup> <i>Alcedo cristata</i>	Malachite Kingfisher	LC	LC
<sup>2</sup> <i>Alopochen aegyptiacus</i>	Egyptian Goose	LC	LC
<sup>1</sup> <i>Amadina erythrocephala</i>	Red-headed Finch	LC	LC
<sup>1</sup> <i>Amaurornis flavirostris</i>	Black Crane	LC	LC
<sup>1</sup> <i>Anas capensis</i>	Cape Teal	LC	LC
<sup>2</sup> <i>Anas erythrorhyncha</i>	Red-billed Teal	LC	LC
<sup>1</sup> <i>Anas hottentota</i>	Hottentot Teal	LC	LC
<sup>1</sup> <i>Anas smithii</i>	Cape Shoveler	LC	LC
<sup>1</sup> <i>Anas sparsa</i>	African Black Duck	LC	LC
<sup>2</sup> <i>Anas undulata</i>	Yellow-billed Duck	LC	LC
<sup>1</sup> <i>Anhinga rufa</i>	African Darter	LC	LC
<sup>1</sup> <i>Anthoscopus minutus</i>	Cape Penduline-Tit	LC	LC
<sup>2</sup> <i>Anthropoides paradisea</i>	Blue Crane	NT	NT
<sup>1</sup> <i>Anthus cinnamomeus</i>	African Pipit	LC	LC
<sup>1</sup> <i>Anthus crenatus</i>	African Rock Pipit	NT	NT
<sup>1</sup> <i>Anthus leucophrys</i>	Plain-backed Pipit	LC	LC
<sup>1</sup> <i>Anthus similis</i>	Long-billed Pipit	LC	LC
<sup>1</sup> <i>Anthus vaalensis</i>	Buffy Pipit	LC	LC
<sup>1</sup> <i>Apus affinis</i>	Little Swift	LC	LC
<sup>1</sup> <i>Apus apus</i>	Common Swift	LC	LC
<sup>1</sup> <i>Apus barbatus</i>	African Black Swift	LC	LC
<sup>1</sup> <i>Apus bradfieldi</i>	Bradfield's Swift	LC	LC
<sup>1</sup> <i>Apus caffer</i>	White-rumped Swift	LC	LC
<sup>1</sup> <i>Apus horus</i>	Horus Swift	LC	LC
<sup>1</sup> <i>Aquila rapax</i>	Tawny Eagle	VU	EN
<sup>1</sup> <i>Ardea cinerea</i>	Grey Heron	LC	LC
<sup>1</sup> <i>Ardea goliath</i>	Goliath Heron	LC	LC
<sup>1</sup> <i>Ardea melanocephala</i>	Black-headed Heron	LC	LC
<sup>1</sup> <i>Ardea purpurea</i>	Purple Heron	LC	LC
<sup>1</sup> <i>Ardeola ralloides</i>	Squacco Heron	LC	LC
<sup>1</sup> <i>Ardeotis kori</i>	Kori Bustard	NT	NT
<sup>1</sup> <i>Asio capensis</i>	Marsh Owl	LC	LC
<sup>1</sup> <i>Batis pririt</i>	Pirit Batis	LC	LC

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<sup>1</sup> <i>Bostrychia hagedash</i>	Hadedda Ibis	LC	LC
<sup>1</sup> <i>Bradornis infuscatus</i>	Chat Flycatcher	LC	LC
<sup>1</sup> <i>Bradornis mariquensis</i>	Marico Flycatcher	LC	LC
<sup>1</sup> <i>Bubo africanus</i>	Spotted Eagle-Owl	LC	LC
<sup>1</sup> <i>Bubo lacteus</i>	Verreaux's Eagle-Owl	LC	LC
<sup>1</sup> <i>Bubulcus ibis</i>	Cattle Egret	LC	LC
<sup>1</sup> <i>Burhinus capensis</i>	Spotted Thick-knee	LC	LC
<sup>1</sup> <i>Buteo rufofuscus</i>	Jackal Buzzard	LC	LC
<sup>1</sup> <i>Buteo vulpinus</i>	Steppe Buzzard	LC	LC
<sup>1</sup> <i>Butorides striatus</i>	Green-backed Heron	LC	LC
<sup>1</sup> <i>Calandrella cinerea</i>	Red-capped Lark	LC	LC
<sup>1</sup> <i>Calendulauda africanoides</i>	Fawn-coloured Lark	LC	LC
<sup>1</sup> <i>Calendulauda sabota</i>	Sabota Lark	LC	LC
<sup>1</sup> <i>Calidris alba</i>	Sanderling	LC	LC
<sup>1</sup> <i>Calidris ferruginea</i>	Curlew Sandpiper	LC	LC
<sup>1</sup> <i>Calidris minuta</i>	Little Stint	LC	LC
<sup>1</sup> <i>Campethera abingoni</i>	Golden-tailed Woodpecker	LC	LC
<sup>1</sup> <i>Caprimulgus europaeus</i>	European Nightjar	LC	LC
<sup>1</sup> <i>Caprimulgus pectoralis</i>	Fiery-necked Nightjar	LC	LC
<sup>1</sup> <i>Caprimulgus rufigena</i>	Rufous-cheeked Nightjar	LC	LC
<sup>1</sup> <i>Cercomela familiaris</i>	Familiar Chat	LC	LC
<sup>1</sup> <i>Cercomela schlegelii</i>	Karoo Chat	LC	LC
<sup>1</sup> <i>Cercomela sinuata</i>	Sickle-winged Chat	LC	LC
<sup>1</sup> <i>Cercotrichas coryphoeus</i>	Karoo Scrub-Robin	LC	LC
<sup>1</sup> <i>Cercotrichas paena</i>	Kalahari Scrub-Robin	LC	LC
<sup>1</sup> <i>Certhilauda chuana</i>	Short-clawed Lark	LC	NT
<sup>1</sup> <i>Ceryle rudis</i>	Pied Kingfisher	LC	LC
<sup>1</sup> <i>Charadrius asiaticus</i>	Caspian Plover	LC	LC
<sup>1</sup> <i>Charadrius hiaticula</i>	Common Ringed Plover	LC	LC
<sup>1</sup> <i>Charadrius pallidus</i>	Chestnut-banded Plover	NT	NT
<sup>1</sup> <i>Charadrius pecuarius</i>	Kittlitz's Plover	LC	LC
<sup>1</sup> <i>Charadrius tricollaris</i>	Three-banded Plover	LC	LC
<sup>1</sup> <i>Chersomanes albofasciata</i>	Spike-heeled Lark	LC	LC
<sup>1</sup> <i>Chlidonias hybridus</i>	Whiskered Tern	LC	LC
<sup>1</sup> <i>Chlidonias leucopterus</i>	White-winged Tern	LC	LC
<sup>1</sup> <i>Chrysococcyx caprius</i>	Diderick Cuckoo	LC	LC
<sup>1</sup> <i>Ciconia abdimii</i>	Abdim's Stork	LC	NT
<sup>1</sup> <i>Ciconia ciconia</i>	White Stork	LC	LC
<sup>1</sup> <i>Ciconia nigra</i>	Black Stork	LC	VU

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<sup>1</sup> <i>Cinnyris fusca</i>	Dusky Sunbird	LC	LC
<sup>1</sup> <i>Cinnyris talatala</i>	White-bellied Sunbird	LC	LC
<sup>1</sup> <i>Circaetus pectoralis</i>	Black-chested Snake-Eagle	LC	LC
<sup>1</sup> <i>Circus aeruginosus</i>	Western Marsh-Harrier	LC	LC
<sup>1</sup> <i>Circus macrourus</i>	Pallid Harrier	<b>NT</b>	<b>NT</b>
<sup>1</sup> <i>Circus maurus</i>	Black Harrier	<b>VU</b>	LC
<sup>1</sup> <i>Circus pygargus</i>	Montagu's Harrier	LC	LC
<sup>1</sup> <i>Circus ranivorus</i>	African Marsh-Harrier	<b>EN</b>	<b>EN</b>
<sup>1</sup> <i>Cisticola aridulus</i>	Desert Cisticola	LC	LC
<sup>1</sup> <i>Cisticola fulvicapillus</i>	Neddicky	LC	LC
<sup>1</sup> <i>Cisticola juncidis</i>	Zitting Cisticola	LC	LC
<sup>1</sup> <i>Cisticola textrix</i>	Cloud Cisticola	LC	LC
<sup>1</sup> <i>Cisticola tinniens</i>	Levaillant's Cisticola	LC	LC
<sup>1</sup> <i>Clamator glandarius</i>	Great Spotted Cuckoo	LC	LC
<sup>1</sup> <i>Clamator jacobinus</i>	Jacobin Cuckoo	LC	LC
<i>Colius colius</i>	White-backed Mousebird	LC	LC
<sup>1</sup> <i>Columba guinea</i>	Speckled Pigeon	LC	LC
<i>Columba livia</i>	Rock Dove	LC	LC
<sup>1</sup> <i>Coracias caudata</i>	Lilac-breasted Roller	LC	LC
<sup>1</sup> <i>Coracias garrulus</i>	European Roller	LC	<b>NT</b>
<i>Corvus albus</i>	Pied Crow	LC	LC
<i>Corvus capensis</i>	Cape Crow	LC	LC
<sup>1</sup> <i>Cossypha caffra</i>	Cape Robin-Chat	LC	LC
<sup>2</sup> <i>Coturnix coturnix</i>	Common Quail	LC	LC
<sup>1</sup> <i>Creatophora cinerea</i>	Wattled Starling	LC	LC
<sup>1</sup> <i>Cuculus solitarius</i>	Red-chested Cuckoo	LC	LC
<sup>1</sup> <i>Cursorius rufus</i>	Burchell's Courser	LC	<b>VU</b>
<sup>1</sup> <i>Cursorius temminckii</i>	Temminck's Courser	LC	LC
<sup>1</sup> <i>Cypsiurus parvus</i>	African Palm-Swift	LC	LC
<sup>1</sup> <i>Delichon urbica</i>	Common House-Martin	LC	LC
<sup>1</sup> <i>Dendrocygna bicolor</i>	Fulvous Duck	LC	LC
<sup>1</sup> <i>Dendrocygna viduata</i>	White-faced Duck	LC	LC
<sup>1</sup> <i>Dendropicos fuscescens</i>	Cardinal Woodpecker	LC	LC
<sup>1</sup> <i>Dicrurus adsimilis</i>	Fork-tailed Drongo	LC	LC
<sup>1</sup> <i>Egretta alba</i>	Great Egret	LC	LC
<sup>1</sup> <i>Egretta ardesiaca</i>	Black Heron	LC	LC
<sup>1</sup> <i>Egretta garzetta</i>	Little Egret	LC	LC
<sup>1</sup> <i>Egretta intermedia</i>	Yellow-billed Egret	LC	LC
<sup>1</sup> <i>Elanus caeruleus</i>	Black-shouldered Kite	LC	LC

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<sup>1</sup> <i>Emberiza capensis</i>	Cape Bunting	LC	LC
<sup>1</sup> <i>Emberiza flaviventris</i>	Golden-breasted Bunting	LC	LC
<sup>1</sup> <i>Emberiza impetuani</i>	Lark-like Bunting	LC	LC
<sup>1</sup> <i>Emberiza tahapisi</i>	Cinnamon-breasted Bunting	LC	LC
<sup>1</sup> <i>Eremomela icteropygialis</i>	Yellow-bellied Eremomela	LC	LC
<sup>1</sup> <i>Eremopterix leucotis</i>	Chestnut-backed Sparrowlark	LC	LC
<sup>1</sup> <i>Eremopterix verticalis</i>	Grey-backed Sparrowlark	LC	LC
<sup>1</sup> <i>Estrilda astrild</i>	Common Waxbill	LC	LC
<sup>1</sup> <i>Estrilda erythronotos</i>	Black-faced Waxbill	LC	LC
<i>Euplectes afer</i>	Yellow-crowned Bishop	LC	LC
<i>Euplectes orix</i>	Southern Red Bishop	LC	LC
<i>Euplectes progne</i>	Long-tailed Widowbird	LC	LC
<sup>1</sup> <i>Eupodotis afroaoides</i>	Northern Black Korhaan	LC	LC
<sup>1</sup> <i>Eupodotis caerulescens</i>	Blue Korhaan	NT	LC
<sup>1</sup> <i>Eupodotis ruficrista</i>	Red-crested Korhaan	LC	LC
<sup>1</sup> <i>Falco amurensis</i>	Amur Falcon	LC	LC
<sup>1</sup> <i>Falco biarmicus</i>	Lanner Falcon	VU	VU
<sup>1</sup> <i>Falco naumanni</i>	Lesser Kestrel	LC	LC
<sup>1</sup> <i>Falco peregrinus</i>	Peregrine Falcon	LC	LC
<sup>1</sup> <i>Falco rupicolis</i>	Rock Kestrel	LC	LC
<sup>1</sup> <i>Falco rupicoloides</i>	Greater Kestrel	LC	LC
<sup>2</sup> <i>Fulica cristata</i>	Red-knobbed Coot	LC	LC
<sup>1</sup> <i>Galerida magnirostris</i>	Large-billed Lark	LC	LC
<sup>1</sup> <i>Gallinago nigripennis</i>	African Snipe	LC	LC
<sup>1</sup> <i>Gallinula chloropus</i>	Common Moorhen	LC	LC
<sup>1</sup> <i>Glareola nordmanni</i>	Black-winged Pratincole	NT	NT
<sup>1</sup> <i>Granatina granatina</i>	Violet-eared Waxbill	LC	LC
<sup>1</sup> <i>Gyps africanus</i>	White-backed Vulture	CR	CR
<sup>1</sup> <i>Gyps coprotheres</i>	Cape Vulture	EN	EN
<sup>1</sup> <i>Halcyon albiventris</i>	Brown-hooded Kingfisher	LC	LC
<sup>1</sup> <i>Haliaeetus vocifer</i>	African Fish-Eagle	LC	LC
<sup>1</sup> <i>Hieraaetus pennatus</i>	Booted Eagle	LC	LC
<sup>1</sup> <i>Himantopus himantopus</i>	Black-winged Stilt	LC	LC
<sup>1</sup> <i>Hippolais icterina</i>	Icterine Warbler	LC	LC
<sup>1</sup> <i>Hirundo albigularis</i>	White-throated Swallow	LC	LC
<sup>1</sup> <i>Hirundo cucullata</i>	Greater Striped Swallow	LC	LC
<sup>1</sup> <i>Hirundo dimidiata</i>	Pearl-breasted Swallow	LC	LC
<sup>1</sup> <i>Hirundo fuligula</i>	Rock Martin	LC	LC
<sup>1</sup> <i>Hirundo rustica</i>	Barn Swallow	LC	LC
<sup>1</sup> <i>Hirundo semirufa</i>	Red-breasted Swallow	LC	LC

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<sup>1</sup> <i>Hirundo spilodera</i>	South African Cliff-Swallow	LC	LC
<sup>1</sup> <i>Indicator indicator</i>	Greater Honeyguide	LC	LC
<sup>1</sup> <i>Indicator minor</i>	Lesser Honeyguide	LC	LC
<sup>1</sup> <i>Ixobrychus minutus</i>	Little Bittern	LC	LC
<sup>1</sup> <i>Lagonosticta senegala</i>	Red-billed Firefinch	LC	LC
<sup>1</sup> <i>Lamprotornis nitens</i>	Cape Glossy Starling	LC	LC
<sup>1</sup> <i>Laniarius atrococcineus</i>	Crimson-breasted Shrike	LC	LC
<sup>1</sup> <i>Lanius collaris</i>	Common Fiscal	LC	LC
<sup>1</sup> <i>Lanius collurio</i>	Red-backed Shrike	LC	LC
<sup>1</sup> <i>Lanius minor</i>	Lesser Grey Shrike	LC	LC
<sup>1</sup> <i>Larus cirrocephalus</i>	Grey-headed Gull	LC	LC
<sup>1</sup> <i>Leptoptilos crumeniferus</i>	Marabou Stork	LC	NT
<sup>1</sup> <i>Limosa limosa</i>	Black-tailed Godwit	NT	LC
<sup>1</sup> <i>Macronyx capensis</i>	Cape Longclaw	LC	LC
<sup>1</sup> <i>Malcorus pectoralis</i>	Rufous-eared Warbler	LC	LC
<sup>1</sup> <i>Megaceryle maxima</i>	Giant Kingfisher	LC	LC
<sup>1</sup> <i>Melierax canorus</i>	Southern Pale Chanting Goshawk	LC	LC
<sup>1</sup> <i>Melierax gabar</i>	Gabar Goshawk	LC	LC
<sup>1</sup> <i>Merops apiaster</i>	European Bee-eater	LC	LC
<sup>1</sup> <i>Merops bullockoides</i>	White-fronted Bee-eater	LC	LC
<sup>1</sup> <i>Merops hirundineus</i>	Swallow-tailed Bee-eater	LC	LC
<sup>1</sup> <i>Merops persicus</i>	Blue-cheeked Bee-eater	LC	LC
<sup>1</sup> <i>Milvus aegyptius</i>	Yellow-billed Kite	-	LC
<sup>1</sup> <i>Milvus migrans</i>	Black Kite	LC	LC
<sup>1</sup> <i>Mirafraga africana</i>	Rufous-naped Lark	LC	LC
<sup>1</sup> <i>Mirafraga cheniana</i>	Melodious Lark	LC	LC
<sup>1</sup> <i>Mirafraga fasciolata</i>	Eastern Clapper Lark	LC	LC
<sup>1</sup> <i>Monticola brevipes</i>	Short-toed Rock-Thrush	LC	LC
<sup>1</sup> <i>Motacilla aguimp</i>	African Pied Wagtail	LC	LC
<sup>1</sup> <i>Motacilla capensis</i>	Cape Wagtail	LC	LC
<sup>1</sup> <i>Motacilla flava</i>	Yellow Wagtail	LC	LC
<sup>1</sup> <i>Muscicapa striata</i>	Spotted Flycatcher	LC	LC
<sup>1</sup> <i>Mycteria ibis</i>	Yellow-billed Stork	LC	EN
<sup>1</sup> <i>Myrmecocichla formicivora</i>	Anteater Chat	LC	LC
<sup>1</sup> <i>Neotis ludwigii</i>	Ludwig's Bustard	EN	EN
<sup>1</sup> <i>Netta erythrophthalma</i>	Southern Pochard	LC	LC
<sup>1</sup> <i>Nilus afer</i>	Brubru	LC	LC
<sup>1</sup> <i>Numenius arquata</i>	Eurasian Curlew	NT	NT
<sup>1</sup> <i>Numenius phaeopus</i>	Common Whimbrel	LC	LC
<sup>2</sup> <i>Numida meleagris</i>	Helmeted Guineafowl	LC	LC



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<sup>1</sup> <i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	LC	LC
<sup>1</sup> <i>Oena capensis</i>	Namaqua Dove	LC	LC
<sup>1</sup> <i>Oenanthe monticola</i>	Mountain Wheatear	LC	LC
<sup>1</sup> <i>Oenanthe pileata</i>	Capped Wheatear	LC	LC
<sup>1</sup> <i>Oriolus oriolus</i>	Eurasian Golden Oriole	LC	LC
<sup>1</sup> <i>Ortygospiza atricollis</i>	African Quailfinch	LC	LC
<sup>1</sup> <i>Oxyura maccoa</i>	<b>Maccoa Duck</b>	<b>NT</b>	<b>NT</b>
<sup>1</sup> <i>Pandion haliaetus</i>	Osprey	LC	LC
<sup>1</sup> <i>Parisoma layardi</i>	Layard's Tit-Babbler	-	LC
<sup>1</sup> <i>Parisoma subcaeruleum</i>	Chestnut-vented Tit-Babbler	LC	LC
<sup>1</sup> <i>Parus cinerascens</i>	Ashy Tit	LC	LC
<sup>1</sup> <i>Passer diffusus</i>	Southern Grey-headed Sparrow	LC	LC
<i>Passer domesticus</i>	House Sparrow	LC	LC
<i>Passer melanurus</i>	Cape Sparrow	LC	LC
<sup>1</sup> <i>Passer motitensis</i>	Great Sparrow	LC	LC
<sup>1</sup> <i>Pelecanus rufescens</i>	<b>Pink-backed Pelican</b>	LC	<b>VU</b>
<i>Phalacrocorax africanus</i>	Reed Cormorant	LC	LC
<i>Phalacrocorax lucidus</i>	White-breasted Cormorant	LC	LC
<i>Philetairus socius</i>	Sociable Weaver	LC	LC
<sup>1</sup> <i>Philomachus pugnax</i>	Ruff	LC	LC
<sup>1</sup> <i>Phoenicopterus minor</i>	<b>Lesser Flamingo</b>	<b>NT</b>	<b>NT</b>
<sup>1</sup> <i>Phoenicopterus ruber</i>	<b>Greater Flamingo</b>	<b>NT</b>	<b>NT</b>
<sup>1</sup> <i>Phragmacia substriata</i>	Namaqua Warbler	LC	LC
<sup>1</sup> <i>Phylloscopus trochilus</i>	Willow Warbler	LC	LC
<sup>1</sup> <i>Platalea alba</i>	African Spoonbill	LC	LC
<sup>2</sup> <i>Plectropterus gambensis</i>	Spur-winged Goose	LC	LC
<sup>1</sup> <i>Plegadis falcinellus</i>	Glossy Ibis	LC	LC
<i>Plocepasser mahali</i>	White-browed Sparrow-Weaver	LC	LC
<i>Ploceus velatus</i>	Southern Masked-Weaver	LC	LC
<sup>1</sup> <i>Podiceps cristatus</i>	Great Crested Grebe	LC	LC
<sup>1</sup> <i>Podiceps nigricollis</i>	Black-necked Grebe	LC	LC
<sup>1</sup> <i>Polemaetus bellicosus</i>	<b>Martial Eagle</b>	<b>EN</b>	<b>EN</b>
<sup>1</sup> <i>Polhierax semitorquatus</i>	Pygmy Falcon	LC	LC
<sup>1</sup> <i>Polyboroides typus</i>	African Harrier-Hawk	LC	LC
<sup>1</sup> <i>Porphyrio madagascariensis</i>	African Purple Swamphen	LC	LC
<sup>1</sup> <i>Porzana pusilla</i>	Baillon's Crake	LC	LC
<sup>1</sup> <i>Prinia flavicans</i>	Black-chested Prinia	LC	LC
<sup>1</sup> <i>Psophocichla litsipsirupa</i>	Groundscraper Thrush	LC	LC
<sup>2</sup> <i>Pternistis natalensis</i>	Natal Francolin	LC	LC
<sup>1</sup> <i>Pternistis swainsonii</i>	Swainson's Spurfowl	LC	LC

## LIST OF BIRDS

Birds protected according to FSNCO are indicated with their respective Schedule no. in superscript.

Scientific name	Common name	IUCN status	SA RDB
<sup>1</sup> <i>Pterocles namaqua</i>	Namaqua Sandgrouse	LC	LC
<sup>1</sup> <i>Ptilopus granti</i>	Southern White-faced Scops-Owl	LC	LC
<i>Pycnonotus nigricans</i>	African Red-eyed Bulbul	LC	LC
<sup>1</sup> <i>Pytilia melba</i>	Green-winged Pytilia	LC	LC
<i>Quelea quelea</i>	Red-billed Quelea	LC	LC
<sup>1</sup> <i>Rallus caerulescens</i>	African Rail	LC	LC
<sup>1</sup> <i>Recurvirostra avosetta</i>	Pied Avocet	LC	LC
<sup>1</sup> <i>Rhinopomastus cyanomelas</i>	Common Scimitarbill	LC	LC
<sup>1</sup> <i>Rhinoptilus africanus</i>	Double-banded Courser	LC	LC
<sup>1</sup> <i>Riparia cincta</i>	Banded Martin	LC	LC
<sup>1</sup> <i>Riparia paludicola</i>	Brown-throated Martin	LC	LC
<sup>1</sup> <i>Riparia riparia</i>	Sand Martin	LC	LC
<sup>1</sup> <i>Rostratula benghalensis</i>	Greater Painted-snipe	LC	NT
<sup>1</sup> <i>Sagittarius serpentarius</i>	Secretarybird	VU	VU
<sup>1</sup> <i>Sarkidiornis melanotos</i>	Comb Duck	LC	LC
<sup>1</sup> <i>Saxicola torquata</i>	African Stonechat	LC	LC
<sup>2</sup> <i>Scleroptila lewaillantoides</i>	Orange River Francolin	LC	LC
<sup>1</sup> <i>Scopus umbretta</i>	Hamerkop	LC	LC
<sup>1</sup> <i>Serinus albogularis</i>	White-throated Canary	LC	LC
<sup>1</sup> <i>Serinus atrogularis</i>	Black-throated Canary	LC	LC
<sup>1</sup> <i>Serinus canicollis</i>	Cape Canary	LC	LC
<sup>1</sup> <i>Serinus flaviventris</i>	Yellow Canary	LC	LC
<sup>1</sup> <i>Sigelus silens</i>	Fiscal Flycatcher	LC	LC
<sup>1</sup> <i>Spizocorys conirostris</i>	Pink-billed Lark	LC	LC
<sup>1</sup> <i>Sporopipes squamifrons</i>	Scaly-feathered Finch	LC	LC
<i>Spreo bicolor</i>	Pied Starling	LC	LC
<sup>1</sup> <i>Stenostira scita</i>	Fairy Flycatcher	LC	LC
<sup>1</sup> <i>Sterna caspia</i>	Caspian Tern	LC	LC
<i>Streptopelia capicola</i>	Cape Turtle-Dove	LC	LC
<sup>1</sup> <i>Streptopelia semitorquata</i>	Red-eyed Dove	LC	LC
<i>Streptopelia senegalensis</i>	Laughing Dove	LC	LC
<sup>1</sup> <i>Struthio camelus</i>	Common Ostrich	LC	LC
<sup>1</sup> <i>Sylvia borin</i>	Garden Warbler	LC	LC
<sup>1</sup> <i>Sylvietta rufescens</i>	Long-billed Crombec	LC	LC
<sup>1</sup> <i>Tachybaptus ruficollis</i>	Little Grebe	LC	LC
<sup>1</sup> <i>Tachymarpis melba</i>	Alpine Swift	LC	LC
<sup>2</sup> <i>Tadorna cana</i>	South African Shelduck	LC	LC
<sup>1</sup> <i>Tchagra australis</i>	Brown-crowned Tchagra	LC	LC
<sup>1</sup> <i>Telophorus zeylonus</i>	Bokmakierie	LC	LC
<sup>1</sup> <i>Terpsiphone viridis</i>	African Paradise-Flycatcher	LC	LC

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Birds protected according to FSNCO are indicated with their respective Schedule no. in superscript.

Scientific name	Common name	IUCN status	SA RDB
<sup>1</sup> <i>Thalassornis leuconotus</i>	White-backed Duck	LC	LC
<sup>1</sup> <i>Threskiornis aethiopicus</i>	African Sacred Ibis	LC	LC
<sup>1</sup> <i>Tockus leucomelas</i>	Southern Yellow-billed Hornbill	LC	LC
<sup>1</sup> <i>Tockus nasutus</i>	African Grey Hornbill	LC	LC
<sup>1</sup> <i>Torgos tracheliotus</i>	Lappet-faced Vulture	EN	EN
<sup>1</sup> <i>Trachyphonus vaillantii</i>	Crested Barbet	LC	LC
<sup>1</sup> <i>Tricholaema leucomelas</i>	Acacia Pied Barbet	LC	LC
<sup>1</sup> <i>Tringa glareola</i>	Wood Sandpiper	LC	LC
<sup>1</sup> <i>Tringa nebularia</i>	Common Greenshank	LC	LC
<sup>1</sup> <i>Tringa stagnatilis</i>	Marsh Sandpiper	LC	LC
<sup>1</sup> <i>Turdus smithi</i>	Karoo Thrush	-	LC
<sup>2</sup> <i>Turnix sylvatica</i>	Small Buttonquail	LC	LC
<sup>1</sup> <i>Tyto alba</i>	Barn Owl	LC	LC
<sup>1</sup> <i>Upupa africana</i>	African Hoopoe	LC	LC
<sup>1</sup> <i>Uraeginthus angolensis</i>	Blue Waxbill	LC	LC
<i>Urocolius indicus</i>	Red-faced Mousebird	LC	LC
<sup>1</sup> <i>Vanellus armatus</i>	Blacksmith Lapwing	LC	LC
<sup>1</sup> <i>Vanellus coronatus</i>	Crowned Lapwing	LC	LC
<sup>1</sup> <i>Vidua chalybeata</i>	Village Indigobird	LC	LC
<sup>1</sup> <i>Vidua macroura</i>	Pin-tailed Whydah	LC	LC
<sup>1</sup> <i>Vidua paradisaea</i>	Long-tailed Paradise-Whydah	LC	LC
<sup>1</sup> <i>Vidua regia</i>	Shaft-tailed Whydah	LC	LC
<sup>1</sup> <i>Zosterops pallidus</i>	Orange River White-eye	LC	LC