Prospecting Right Application without Bulk Sampling on Wit Puts (Area 3)

Biodiversity Desktop Assessment

Aggeneys, Northern Cape

July 2019

CLIENT

Prepared by:

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Report Name	**Prospecting Right Application without Bulk Sampling on Wit Puts (Area 3)**
Submitted to	**Environmental Impact Management Services (Pty) Ltd**
Report Writer	**Martinus Erasmus** 
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Report Writer	**Lindi Steyn** 
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Report Reviewer	**Andrew Husted** 
	Andrew Husted is Pr Sci Nat registered (400213/11) in the following fields of practice: Ecological Science, Environmental Science and Aquatic Science. Andrew is an Aquatic, Wetland and Biodiversity Specialist with more than 12 years' experience in the environmental consulting field. Andrew has completed numerous wetland training courses, and is an accredited wetland practitioner, recognised by the DWS, and also the Mondi Wetlands programme as a competent wetland consultant.
Declaration	The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, 2014 (as amended). We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principles of science.

DECLARATION

I, Lindi Steyn, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence and is punishable in terms of Section 24F of the Act.

Lindi Steyn

Terrestrial Ecologist

The Biodiversity Company

July 2019

DECLARATION

I, Martinus Erasmus, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
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- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence and is punishable in terms of Section 24F of the Act.

Martinus Erasmus

Terrestrial Ecologist

The Biodiversity Company

July 2019

EXECUTIVE SUMMARY

Based on the desktop ecological review the habitat is still regarded to be in a largely natural condition (with overall moderate sensitivity) and will provide habitat for a number of faunal species, including some threatened species. A number of species of conservation concern (SCCs) are expected to occur in the area, based on the overall unique habitat the number of endemic species is also high, this increases the importance of the area as a habitat. Majority of the prospecting area has a low sensitivity, while the areas classed as Critical Biodiversity Area (CBA1) and CBA2 has a very high sensitivity and the Ecological Support Area (ESA) has a high sensitivity.

The following further conclusions were reached based on the results of this desktop assessment:

- Based on the Terrestrial CBA1 map, majority of the prospecting area fall in an area classified as “Other Natural Area”, with small sections of CBA1, CBA2, and ESA;
- The proposed project was superimposed on the terrestrial ecosystem threat status spatial data. According to this, the prospecting area falls across one ecosystem, which are listed as Least Threatened (LT);
- The prospecting area was superimposed on the ecosystem protection level map to assess the protection status of terrestrial ecosystems associated with the development. Based on this the terrestrial ecosystems associated with the proposed prospecting area is rated as *not protected*;
- The prospecting area is situated across tree vegetation types; Bushmanland Arid Grassland (LT), Bushmanland Basin Shrubland (LT), and Bushmanland Vloere (LT);
- Based on the Plants of Southern Africa database, 599 plant species are expected to occur in the prospecting area. Of the 599-plant species, 3 species are listed as being SCC;
- Based on the South African Bird Atlas Project, Version 2 (SABAP2) database 133 bird species are expected to occur in the vicinity of the prospecting area of which twelve (12) species are listed as SCC either on a regional scale or international scale;
- Fifty-six mammal species are expected of which 5 are SCCs, while 47 reptile species are expected, and one is a SCC. One Amphibian SCC namely the *Pyxicephalus adspersus* have a moderate chance of occurrence; and
- Majority of the impacts had a moderate rating prior to mitigations, which were then decreased once mitigations are implemented.

Table of Contents

Tables

Figures

1 Introduction

The Biodiversity Company (TBC) was commissioned by Environmental Impact Management Solutions (EIMS) to conduct a biodiversity assessment, as part of the Wit Puts prospecting right application (PRA) without bulk sampling on farm portions in the Aggeneys area in the Northern Cape. The following report is a desktop assessment highlighting the environmental features of the prospecting area.

The proposed prospecting area is located approximately 114km south east of the town Aggeneys. The area falls in the Namaqua district of the Northern Cape. Prospecting will be undertaken for Copper, Iron, Lead, Zinc, Manganese, Silver, Gold, Nickle and Molybdenum in a 174 126 Ha area. The geological target formation in the area is the Bushmanland Sequence.

2 Project Area

The northern section of prospecting area lies 4km from the R358 road, while the south eastern section is 51km from the R27 road. The prospecting area consists of 41 farm portions in the Calvinia Rd magisterial district. The land uses surrounding the prospecting area consist mainly of natural areas. The Black Mountain Mine is the closes mine to the prospecting area it is approximately 114km to the north of the prospecting area. Infrastructure such as secondary tar roads, telephone lines and gravel roads occur within the proximity of the prospecting area (Figure 1).

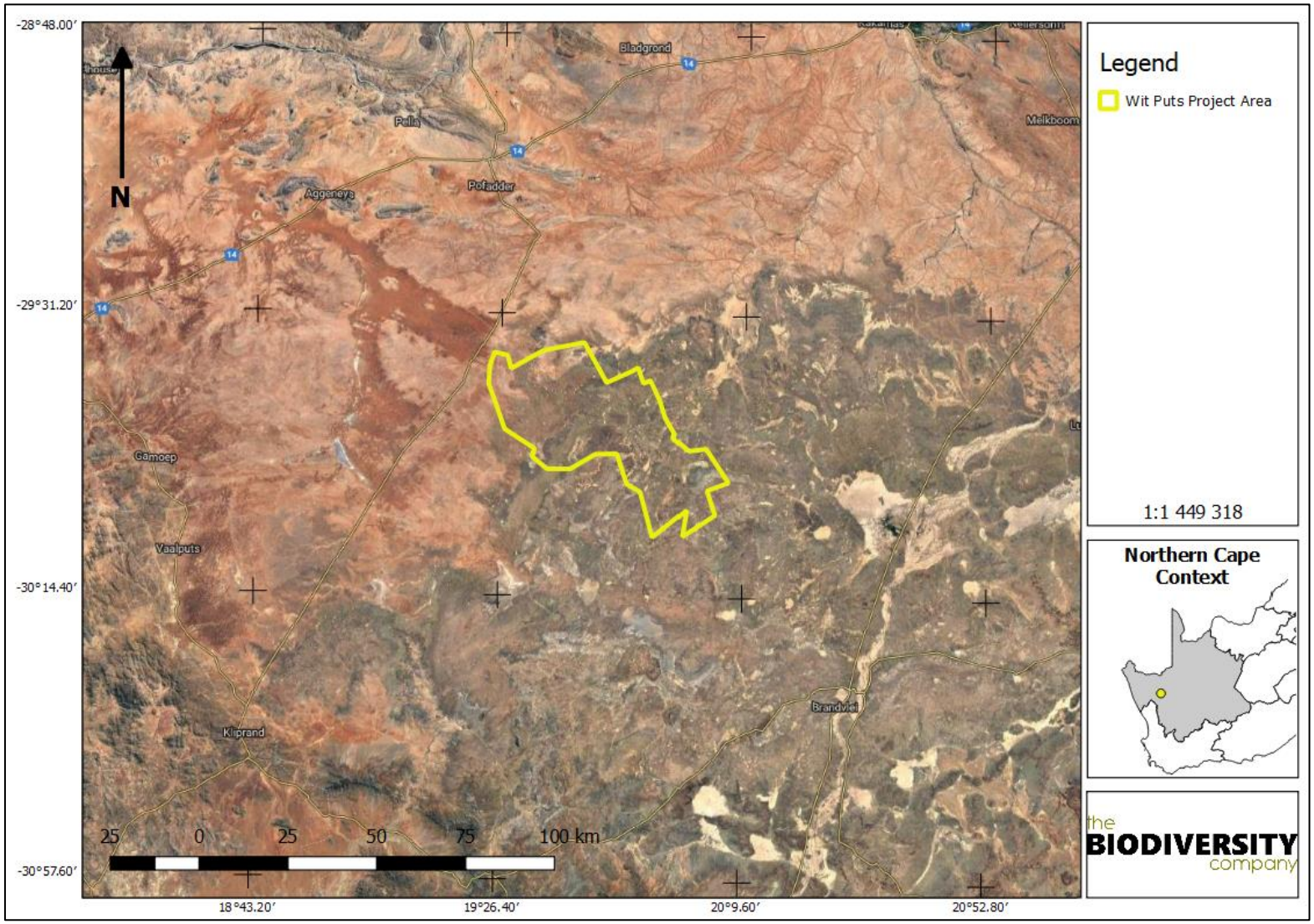

Figure 1:The general location of the proposed prospecting area

3 Scope of Work

The Terms of Reference (ToR) included the following:

- Desktop description of the baseline receiving environment specific to the field of expertise (general surrounding area as well as site specific environment);
- Identification and description of any sensitive receptors in terms of relevant specialist disciplines (biodiversity) that occur in the area, and the manner in which these sensitive receptors may be affected by the activity;
- Identify 'significant' ecological, botanical and faunal features within the proposed development areas;
- Identification of conservation significant habitats around the prospecting area which might be impacted by the proposed development;
- Screening to identify any critical issues (potential fatal flaws) that may result in project delays or rejection of the application;
- Provide a map to identify sensitive receptors in the prospecting area, based on available maps and database information; and
- Suggest possible impacts, mitigation and rehabilitation measures to prevent or reduce the possible impacts.

4 Limitations

The following limitations should be noted for the study:

- As per the scope of work, the assessment consisted of a desktop assessment only, all the impacts assessed were also only based on the desktop information.

5 Methodologies

5.1 Geographic Information Systems (GIS) Mapping

Existing data layers were incorporated into GIS software to establish how the proposed project might interact with any ecologically important entities. Emphasis was placed around the following spatial datasets:

- Vegetation Map of South Africa, Lesotho and Swaziland (Mucina *et al.,* 2006);
- Mining and Biodiversity Guidelines (2013);
- The National Freshwater Ecosystem Priority Areas (Nel *et al.,* 2011); and
- Northern Cape C-plan (2017).

5.2 Botanical Assessment

The botanical component encompassed a desktop assessment of all the vegetation units and habitat types within the prospecting area. The focus was on an ecological assessment of habitat types as well as identification of any Red Data species within the known distribution of the prospecting area. The South African National Biodiversity Institute (SANBI) provides an electronic database system, namely the Botanical Database of Southern Africa (BODATSA), to access distribution records on southern African plants. This is a new database which replaces the old Plants of Southern Africa (POSA) database. The POSA database provided distribution data of flora at the quarter degree square (QDS) resolution.

The Red List of South African Plants website (SANBI, 2017) was utilized to provide the most current account of the national status of flora.

Additional information regarding ecosystems, vegetation types, and species of conservation concern (SCC) included the following sources:

- The Vegetation of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2012); and
- Red List of South African Plants (Raimondo *et al.,* 2009; SANBI, 2016).

5.3 Faunal Assessment (Mammals & Avifauna)

The faunal desktop assessment included the following:

- Compilation of expected species lists;
- Identification of any Red Data or SCC potentially occurring in the area; and
- Emphasis was placed on the probability of occurrence of species of provincial, national and international conservation importance.

Mammal distribution data were obtained from the following information sources:

- The Mammals of the Southern African Subregion (Skinner & Chimimba, 2005);
- Bats of Southern and Central Africa (Monadjem *et al.,* 2010);
- The 2016 Red List of Mammals of South Africa, Lesotho and Swaziland (www.ewt.org.za) (EWT, 2016); and
- Animal Demography Unit (ADU) - MammalMap Category (MammalMap, 2017) (mammalmap.adu.org.za).

5.4 Herpetology (Reptiles & Amphibians)

A herpetofauna assessment of the possible species in the area was done and attention was paid to the SCCs, sources used included the IUCN (2017) and ADU (2019).

Herpetofauna distributional data was obtained from the following information sources:

- South African Reptile Conservation Assessment (SARCA) (sarca.adu.org);

- A Guide to the Reptiles of Southern Africa (Alexander & Marais, 2007);
- Field guide to Snakes and other Reptiles of Southern Africa (Branch, 1998);
- Atlas and Red list of Reptiles of South Africa, Lesotho and Swaziland (Bates *et al.,* 2014);
- A Complete Guide to the Frogs of Southern Africa (du Preez & Carruthers, 2009);
- Animal Demography Unit (ADU) - FrogMAP (frogmap.adu.org.za);
- Atlas and Red Data Book of Frogs of South Africa, Lesotho and Swaziland (Mintner *et al.,* 2004); and
- Ensuring a future for South Africa's frogs (Measey, 2011).

6 Key Legislative Requirements

The legislation, policies and guidelines listed below are applicable to the current project in terms of biodiversity and ecological support systems (Table 1). The list below, although extensive, may not be exhaustive and other legislation, policies and guidelines may apply in addition to those listed below.

Explanation of certain documents, organisations or legislation is provided (below Table 1). where these have a high degree of relevance to the project and/or are referred to in this assessment.

Table 1: A list of key legislative requirements relevant to biodiversity, aquatics and conservation in the Northern Cape

INTERNATIONAL	Convention on Biological Diversity (CBD, 1993) The United Nations Framework Convention on Climate Change (UNFCC,1994) The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 1973) The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, 1979)
NATIONAL	Constitution of the Republic of South Africa (Act No. 108 of 2006) The National Environmental Management Act (NEMA) (Act No. 107 of 1998) The National Environmental Management Protected Areas Act (Act No. 57 of 2003) The National Environmental Management Biodiversity Act (Act No. 10 of 2004) The National Environmental Management: Waste Act, 2008 (Act 59 of 2008); The Environment Conservation Act (Act No. 73 of 1989) National Environmental Management Air Quality Act (No. 39 of 2004) National Protected Areas Expansion Strategy (NPAES) Natural Scientific Professions Act (Act No. 27 of 2003) National Biodiversity Framework (NBF, 2009) National Forest Act (Act No. 84 of 1998) National Veld and Forest Fire Act (101 of 1998) National Water Act, 1998 (Act 36 of 1998) National Freshwater Ecosystem Priority Areas (NFEPA's) National Spatial Biodiversity Assessment (NSBA) World Heritage Convention Act (Act No. 49 of 1999) National Heritage Resources Act, 1999 (Act 25 of 1999) Municipal Systems Act (Act No. 32 of 2000) Alien and Invasive Species Regulations, 2014 South Africa's National Biodiversity Strategy and Action Plan (NBSAP) Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) Sustainable Utilisation of Agricultural Resources (Draft Legislation). White Paper on Biodiversity
PROVINCIAL	Northern Cape Planning and Development Act no. 7 of 1998 Northern Cape Nature Conservation act no. 9 of 2009

7 Desktop Spatial Assessment

The following features describes the general area and habitat, this assessment is based on spatial data that are provided by various sources such as the provincial environmental

authority and SANBI. The desktop analysis and their relevance to this project are listed in Table 2.

Table 2: Desktop spatial features examined.

Desktop Information Considered	Relevant/Not relevant	Section
Conservation Plan	The project falls almost completely in an area classified as ONA, with ESA areas scattered throughout the property, while CBA2 and CBA1 areas can be found in the south of the property	7.1
Ecosystem Threat Status	Falls within a *LT* ecosystem	7.2.1
Ecosystem Protection Level	Falls in a *not protected* ecosystem	7.2.2
Protected Areas	Irrelevant: Approximately 134km to the closes officially classified protected area: Augrabies Falls National Park	-
SKEP Priority Areas	Irrelevant: Approximately 44km to the closest priority area- Bushmanland Inselberg	-
Important Bird and Biodiversity Areas	Bitterputs Conservation Area IBA is 21km away from the prospecting area	8.1.2.1.1
NFEPA Wetlands and Rivers	No true FEPAs is present in the prospecting area. True FEPA wetlands are found in the south of the prospecting area.	7.3
Inland Water	Mostly natural water bodies can be found in the prospecting area, while a few artificial water bodies is present in the south of the prospecting area	7.4
Mining and Biodiversity Guidelines	Portions in the western and southern part of the project area is classified as highest biodiversity importance. The north eastern corner of the prospecting area is classified as moderate risk for mining	7.5

7.1 The Northern Cape Biodiversity Sector Plan

7.1.1 Aim and objectives

The Northern Cape Department of Environment and Nature Conservation has developed the Northern Cape CBA Map which identifies biodiversity priority areas for the province, called Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). These biodiversity priority areas, together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape as a whole.

The identification of Critical Biodiversity Areas for the Northern Cape was undertaken using a Systematic Conservation Planning approach. Available data on biodiversity features (incorporating both pattern and process, and covering terrestrial and inland aquatic realms), their condition, current Protected Areas and Conservation Areas, and opportunities and constraints for effective conservation were collated.

The Northern Cape CBA Map updates, revises and replaces all older systematic biodiversity plans and associated products for the province. These include the:

- Namakwa District Biodiversity Sector Plan;
- Cape Fine-Scale Plan (only the extent of the areas in the Northern Cape i.e. Bokkeveld and Nieuwoudvillei); and
- Richtersveld Municipality Biodiversity Assessment.

The Northern Cape CBA Map depicts sites which were assigned to the following CBA categories based on their biodiversity characteristics, spatial configuration and requirement for meeting targets for both biodiversity patterns and ecological processes:

- Critical Biodiversity Area 1 (CBA1);
- Critical Biodiversity Area 2 (CBA2);
- ESA;
- Other Natural Area (ONA); and
- Protected Area (PA).

CBAs are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (BGIS, 2017).

ONAs consist of all those areas in good or fair ecological condition that fall outside the protected area network and have not been identified as CBAs or ESAs. A biodiversity sector plan or bioregional plan must not specify the desired state/management objectives for ONAs or provide land-use guidelines for ONAs (BGIS, 2017).

The prospecting area falls almost completely in an area classified as ONA (Figure 2), with ESA areas scattered throughout the property, while CBA2 and CBA1 areas can be found in the south of the property.

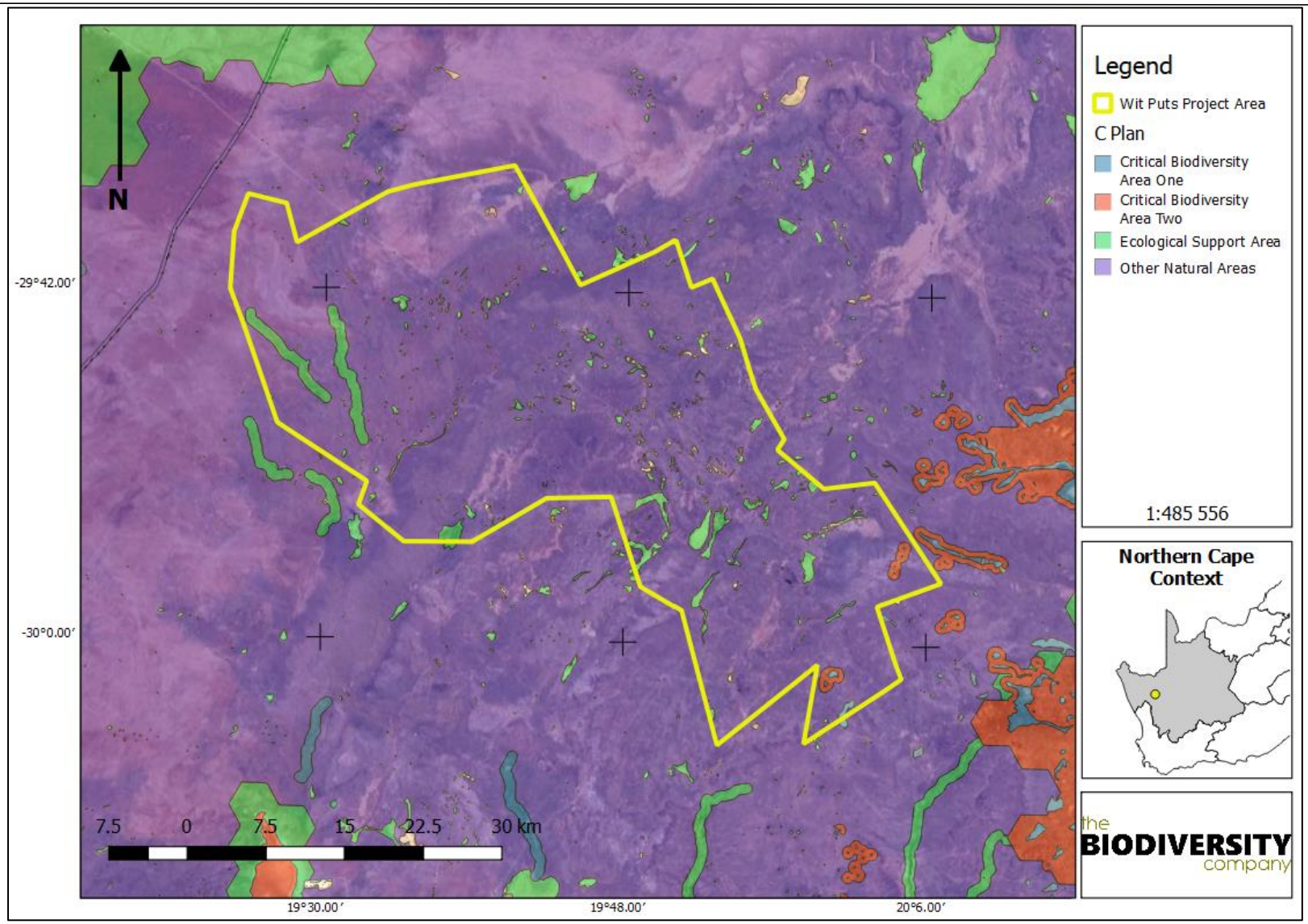

Figure 2: The prospecting area superimposed on the Northern Cape C-plan (2017)

7.2 National Biodiversity Assessment

The National Biodiversity Assessment (NBA) was completed as a collaboration between the SANBI, the DEA and other stakeholders, including scientists and biodiversity management experts throughout the country over a three-year period (Driver *et al*., 2011).

The purpose of the NBA is to assess the state of South Africa's biodiversity with a view to understanding trends over time and informing policy and decision-making across a range of sectors (Driver *et al*., 2011).

The two headline indicators assessed in the NBA are *ecosystem threat status* and *ecosystem protection level* (Driver *et al*., 2011).

7.2.1 Ecosystem Threat Status

Ecosystem threat status outlines the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function and composition, on which their ability to provide ecosystem services ultimately depends (Driver *et al.,* 2011).

Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Threatened (LT), based on the proportion of each ecosystem type that remains in good ecological condition (Driver *et al.,* 2011).

The prospecting area was superimposed on the terrestrial ecosystem threat status (Figure 3). As seen in this figure the prospecting area falls across one ecosystem which is listed as LT.

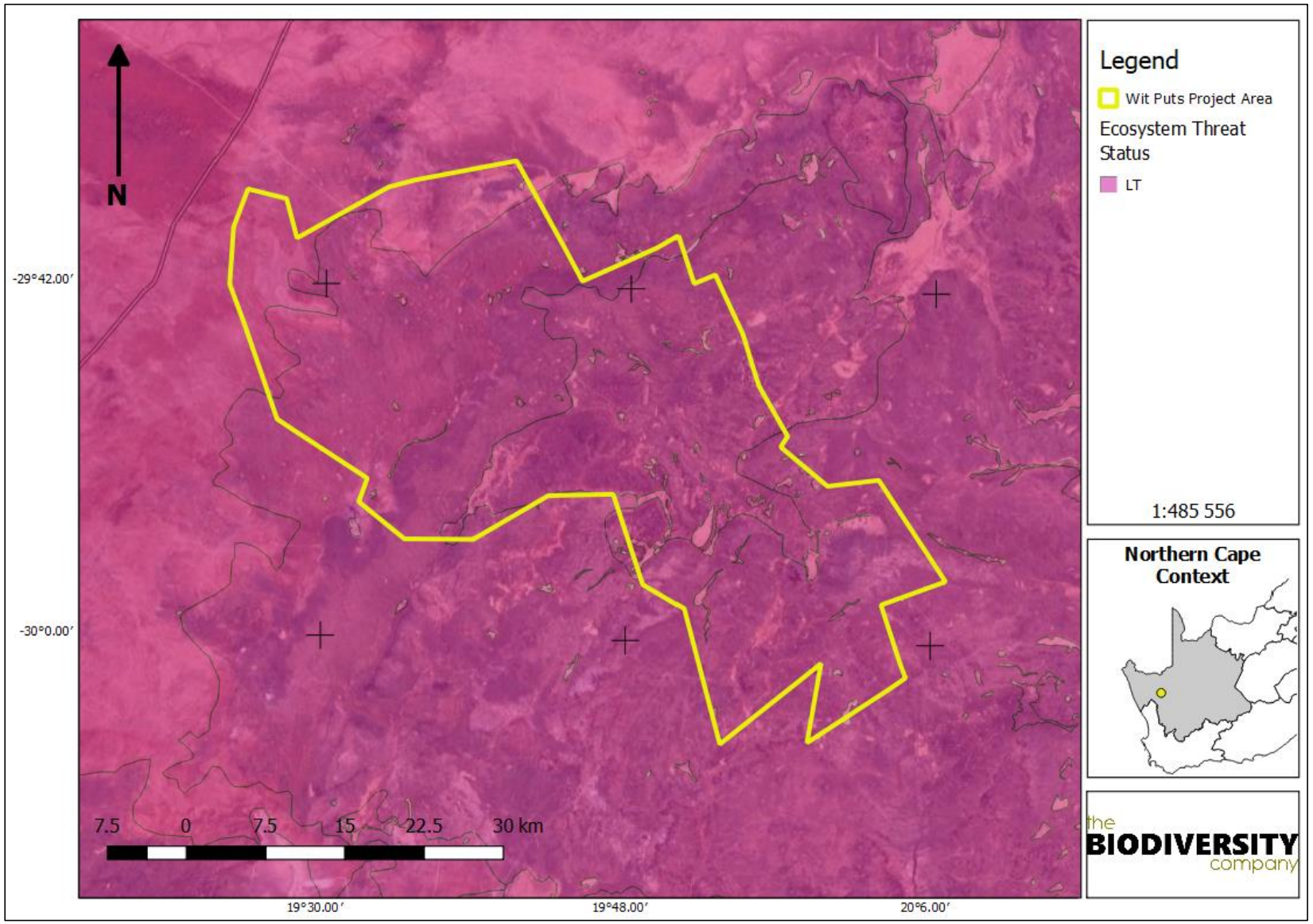

Figure 3: The prospecting area showing the ecosystem threat status of the associated terrestrial ecosystems (NBA, 2012)

7.2.2 Ecosystem Protection Level

Ecosystem protection level tells us whether ecosystems are adequately protected or under-protected. Ecosystem types are categorised as not protected, poorly protected, moderately protected or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the Protected Areas Act (Driver *et al.,* 2011).

The prospecting area was superimposed on the ecosystem protection level map to assess the protection status of terrestrial ecosystems associated with the development (Figure 4). Based on this the terrestrial ecosystems associated with the proposed prospecting area are rated as *not protected*. This means that these ecosystem types (and associated habitats) are not protected anywhere in the country (such as in nationally protected areas).

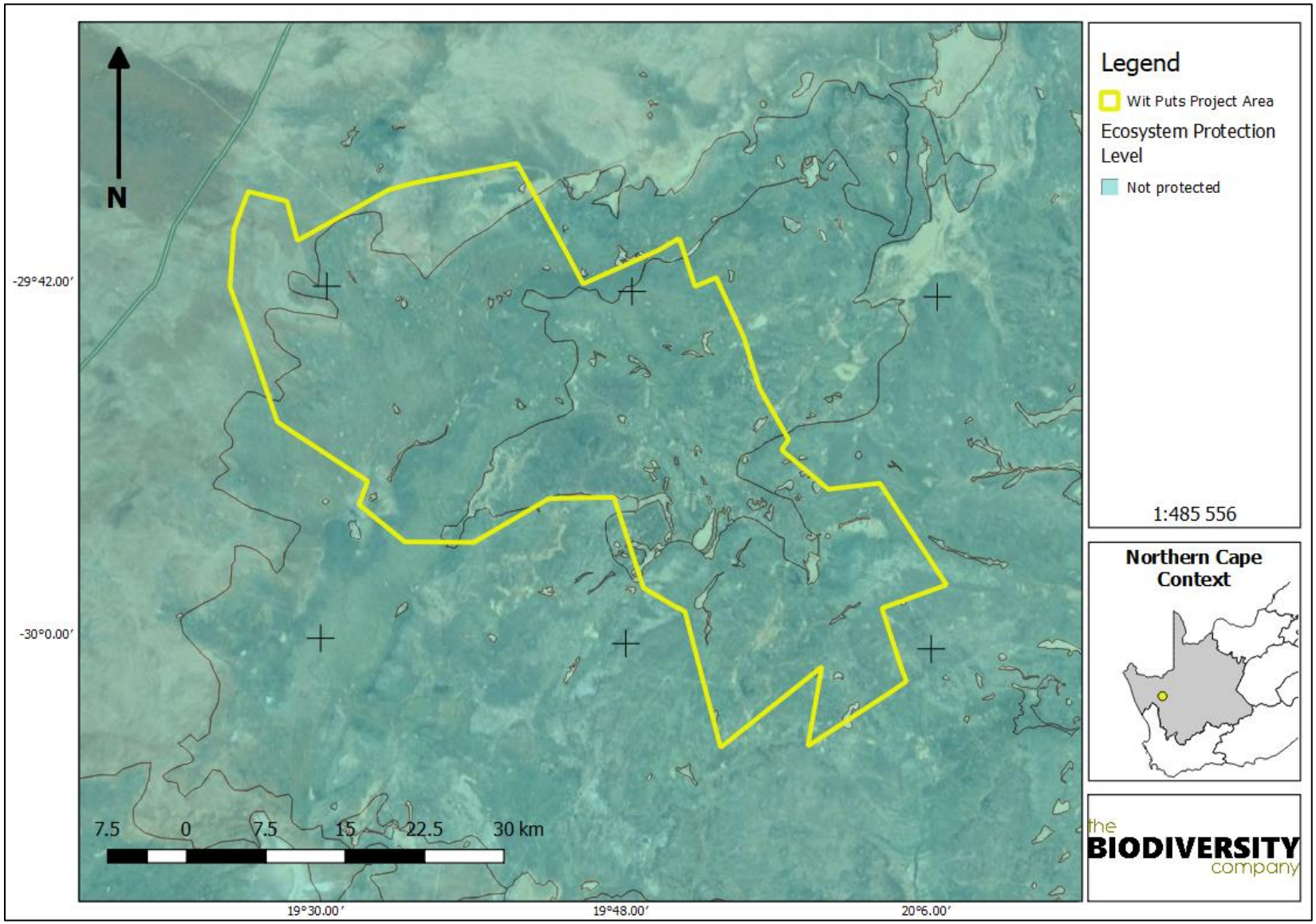

Figure 4: The prospecting area showing the level of protection of terrestrial ecosystems (NBA, 2012)

7.3 National Freshwater Ecosystem Priority Area (NFEPA) Status

In an attempt to better conserve aquatic ecosystems, South Africa has recently categorised its river systems according to set ecological criteria (i.e. ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify Freshwater Ecosystem Priority Areas (FEPAs) (Driver *et al.,* 2011). The FEPAs are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act (NEM:BA) biodiversity goals (Nel *et al.,* 2011). The NFEPA status mapping for the prospecting area is depicted in Figure 5. No true FEPA rivers are found in the prospecting area. True FEPA wetlands are found in the south of the prospecting area.

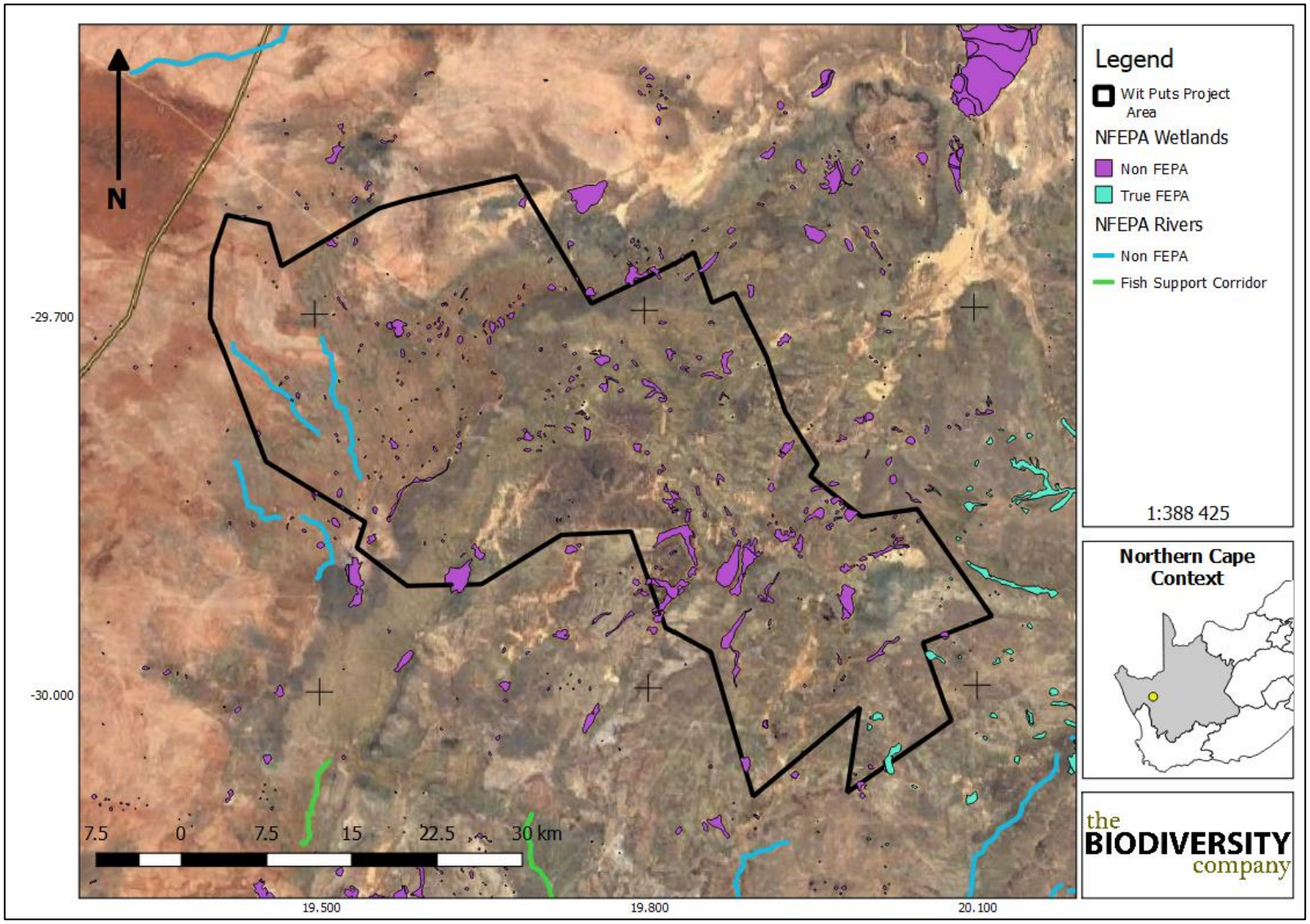

Figure 5: The prospecting area in relation to the National Freshwater Ecosystem Priority Areas (2011)

7.4 Inland Water

The inland water shapefile (DLA-CDSM, 2007) shows various water sources, including dams, lakes, rivers, streams, pans, mudflats, pools, marshvlei and swamps all these are classified as natural water bodies. Artificial water bodies that could occur in the project area are dams, fish farms, reservoirs, sewage works, water tanks, and purification plants (Nel *et al.,* 2011). Natural waterbodies can be found throughout the prospecting area, while a few artificial bodies can be seen in the north west and south western portions of the prospecting area (Figure 6).

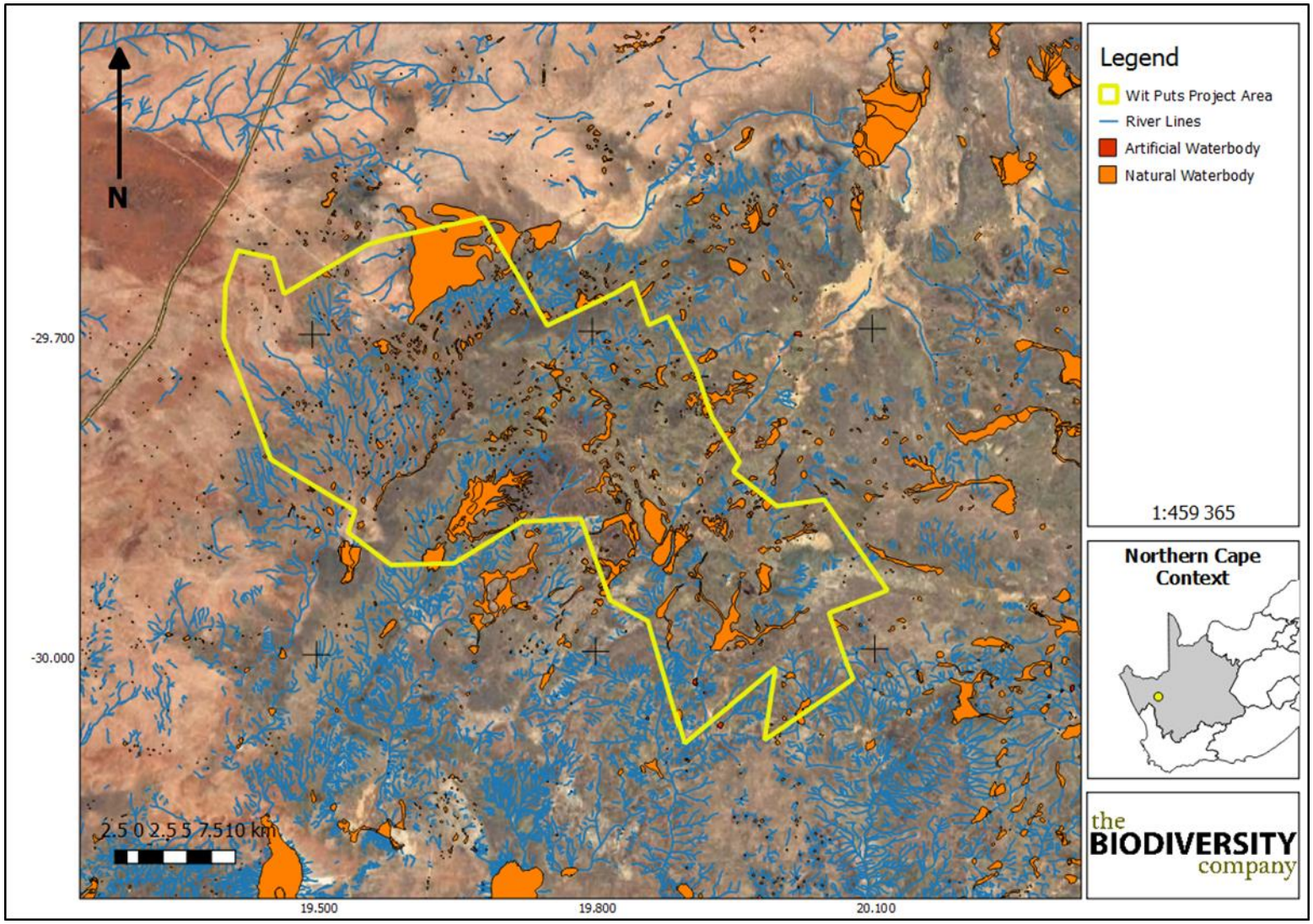

Figure 6: The prospecting area overlaid over inland water (DLA-CDSM, 2007)

7.5 Mining and Biodiversity Guidelines

The Mining and Biodiversity Guidelines (2013) was developed by the Department of Mineral Resources, the Chamber of Mines, the South African National Biodiversity Institute and the South African Mining and Biodiversity Forum, with the intention to find a balance between economic growth and environmental sustainability. The Guideline is envisioned as a tool to "foster a strong relationship between biodiversity and mining which will eventually translate into best practice within the mining sector. In identifying biodiversity priority areas which have different levels of risk against mining, the Guideline categorises biodiversity priority areas into four categories of biodiversity priority areas in relation to their importance from a biodiversity and ecosystem service point of view as well as the implications for mining in these areas:

A) Legally protected areas, where mining is prohibited;

B) Areas of highest biodiversity importance, which are at the highest risk for mining;

C) Areas of high biodiversity importance, which are at a high risk for mining; and

D) Areas of moderate biodiversity importance, which are at a moderate risk for mining.

Table 3 shows the four different categories and the implications for mining within each of these categories.

The Guideline provides a tool to facilitate the sustainable development of South Africa's mineral resources in a way that enables regulators, industry and practitioners to minimise the impact of mining on the country's biodiversity and ecosystem services. It provides the mining sector with a practical, user- friendly manual for integrating biodiversity considerations into the planning processes and managing biodiversity during the operational phases of a mine, from exploration through to closure. The Guideline provides explicit direction in terms of where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects, and where biodiversity may limit the potential for mining.

Overall, proponents of a mining activity in biodiversity priority areas should demonstrate that:

- There is significant cause to undertake mining – by commenting on whether the biodiversity priority area coincides with mineral or petroleum reserves that are strategically in the national interest to exploit. Reference should also be made to whether alternative deposits or reserves exist that could be exploited in areas that are not biodiversity priority areas or are less environmentally sensitive areas;
- Through the process of a rigorous EIA and associated specialist biodiversity studies the impacts of the proposed mining are properly assessed following good practice. It is critical that sufficient time and resources are budgeted to do so early in the planning and impact assessment process, including appointing appropriate team of people with the relevant skills and knowledge as required by legislation;
- Cumulative impacts have been taken into account;
- The mitigation hierarchy has been systematically applied and alternatives have been rigorously considered; and

- The issues related to biodiversity priority areas have been incorporated into a robust EMP as the main tool for describing how the mining or prospecting operation's environmental impacts are to be mitigated and managed.

Good practice environmental management is followed, and monitoring and compliance enforcement is ensured.

Table 3: The mining and biodiversity guidelines categories

Category	Biodiversity priority areas	Risk for mining	Implications for mining
A. Legally protected	• Protected areas (including National Parks, Nature Reserves, World Heritage Sites, Protected Environments, Nature Reserves) Areas declared under Section 49 of the Mineral and Petroleum Resources Development Act (No. 28 of 2002)	**Mining prohibited**	Mining projects cannot commence as mining is legally prohibited. Although mining is prohibited in Protected Areas, it may be allowed in Protected Environments if both the Minister of Mineral Resources and Minister of Environmental Affairs approve it. In cases where mining activities were conducted lawfully in protected areas before Section 48 of the Protected Areas Act (No. 57 of 2003) came into effect, the Minister of Environmental Affairs may, after consulting with the Minister of Mineral Resources, allow such mining activities to continue, subject to prescribed conditions that reduce environmental impacts.
B. Highest biodiversity importance	• Critically endangered and endangered ecosystems • Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans • River and wetland Freshwater Ecosystem Priority Areas (FEPAs) and a 1km buffer around these FEPAs • Ramsar Sites	**Highest risk for mining**	Environmental screening, environmental impact assessment (EIA) and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making for mining, water use licenses, and environmental authorisations. If they are confirmed, the likelihood of a fatal flaw for new mining projects is very high because of the significance of the biodiversity features in these areas and the associated ecosystem services. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being. An EIA should include the strategic assessment of optimum, sustainable land use for a particular area and will determine the significance of the impact on biodiversity. This assessment should fully take into account the environmental sensitivity of the area, the overall environmental and socio-economic costs and benefits of mining, as well as the potential strategic importance of the minerals to the country. Authorisations may well not be granted. If granted, the authorisation may set limits on allowed activities and impacts and may specify biodiversity offsets that would be written into license agreements and/or authorisations.

C. High biodiversity importance	• Protected area buffers (including buffers around National Parks, World Heritage Sites* and Nature Reserves) • Transfrontier Conservation Areas (remaining areas outside of formally proclaimed protected areas) • Other identified priorities from provincial spatial biodiversity plans • High water yield areas • Coastal Protection Zone • Estuarine functional zone	**High risk for mining**	These areas are important for conserving biodiversity, for supporting or buffering other biodiversity priority areas, and for maintaining important ecosystem services for particular communities or the country as a whole. An EIA should include an assessment of optimum, sustainable land use for a particular area and will determine the significance of the impact on biodiversity. Mining options may be limited in these areas, and limitations for mining projects are possible. Authorisations may set limits and specify biodiversity offsets that would be written into license agreements and/or authorisations.
D. Moderate biodiversity importance	• Ecological support areas • Vulnerable ecosystems • Focus areas for protected area expansion (land-based and offshore protection)	**Moderate risk for mining**	These areas are of moderate biodiversity value. EIA's and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, identifying features (e.g. threatened species) not included in the existing datasets, and on providing site-specific information to guide the application of the mitigation hierarchy. Authorisations may set limits and specify biodiversity offsets that would be written into license agreements and/or authorisations.

According to the Mining and Biodiversity Guidelines spatial dataset (2013), the majority of the prospecting area is considered to be unclassified. Portions in the western and southern portions of the prospecting area is classified as highest biodiversity importance. The north eastern portion of the prospecting area is classified as moderate risk for mining (Figure 7).

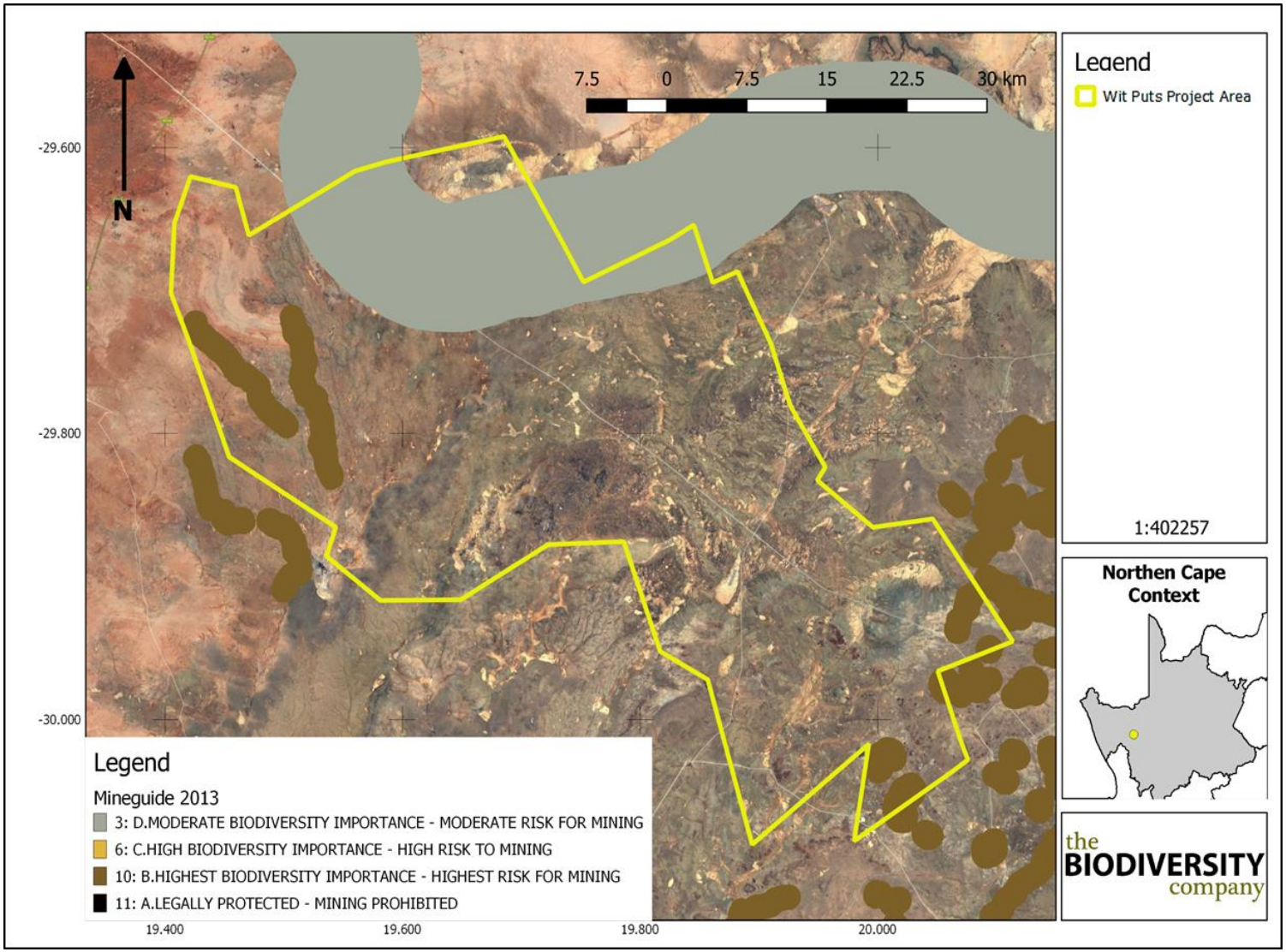

Figure 7: The prospecting area superimposed on the Mining and Biodiversity Guidelines spatial dataset (2013)

8 Results & Discussion

8.1 Desktop Assessment

8.1.1 Vegetation Assessment

The prospecting area is situated mainly in the Succulent Karoo biome, with small sections in the southern part of the prospecting area found in the Nama Karoo and Azonal vegetation biomes. The following description is of the Succulent Karoo as this is the major biome in the prospecting area. Most of the biome covers a flat to gently undulating plain, with some hilly and "broken" veld, mostly situated to the west and south of the escarpment, and north of the Cape Fold Belt. The altitude is mostly below 800 m, but in the east, it may reach 1 500 m (SANBI, 2019).

The Succulent Karoo Biome is primarily determined by the presence of low winter rainfall and extreme summer aridity. Rainfall varies between 20 and 290 mm per year. Because the rains are cyclonic, and not due to thunderstorms, the erosive power is far less than of the summer rainfall biomes. During summer, temperatures in excess of 40°C are common, while fog is common nearer to the coast (SANBI, 2019).

The vegetation is dominated by dwarf, succulent shrubs, of which the Vygies (Mesembryanthemaceae) and Stonecrops (Crassulaceae) are particularly prominent. Mass flowering displays of annuals (mainly Daisies Asteraceae) occur in spring, often on degraded or fallow lands. Grasses are rare, except in some sandy areas, and are of the C3 type. The number of plant species mostly succulents - is very high and unparalleled elsewhere in the world for an arid area of this size (SANBI, 2019).

8.1.1.1 Vegetation Types

The Succulent Karoo biome comprises many different vegetation types. The prospecting area is situated across three vegetation types; Bushmanland Arid Grassland, Bushmanland Basin Shrubland and Bushmanland Vloere, according to Mucina & Rutherford (2006) (Figure 8). Majority of the prospecting area fall across the Bushmanland Arid Grassland and Bushmanland Basin Shrubland

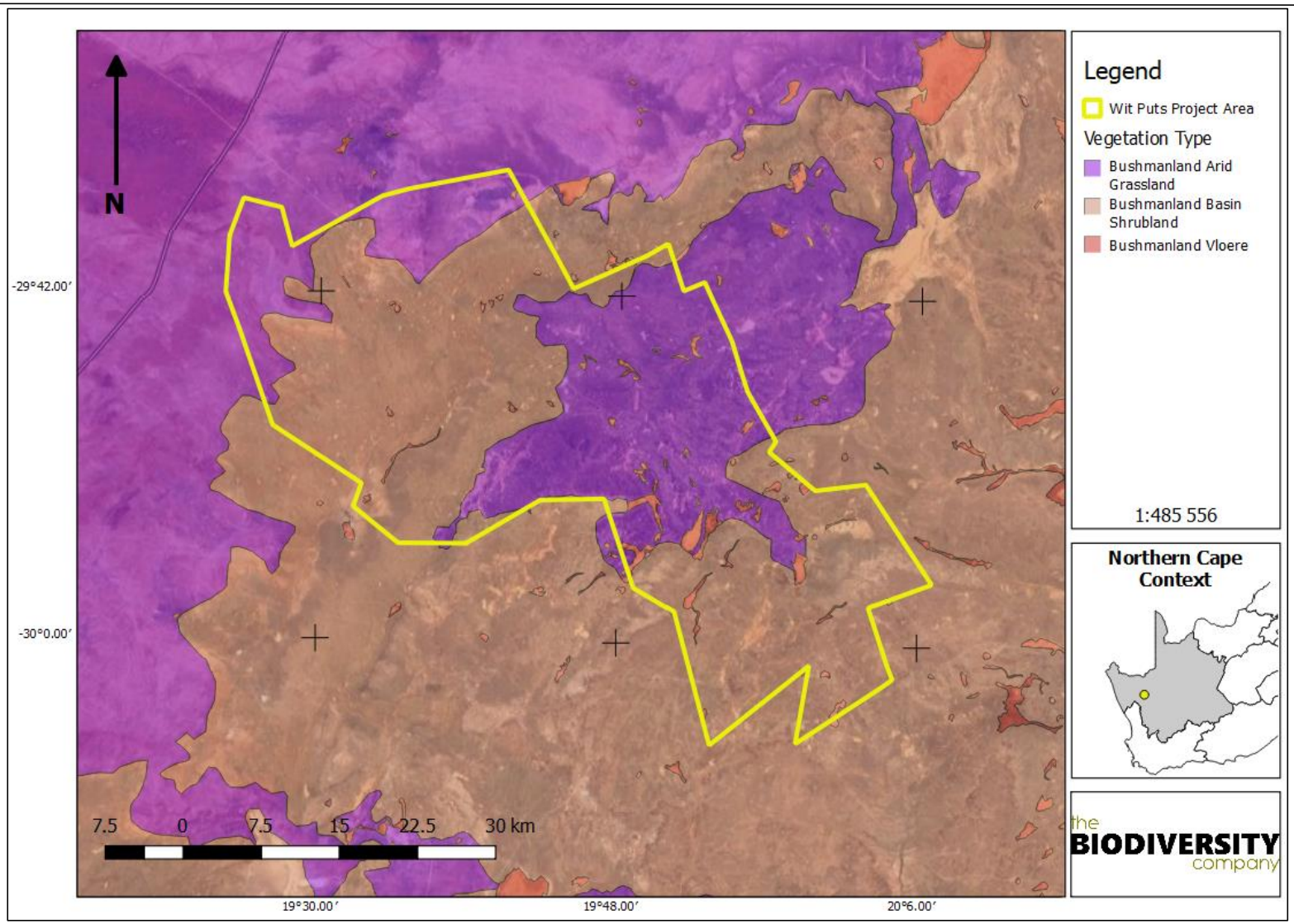

Figure 8: The prospecting area showing the vegetation type based on the Vegetation Map of South Africa, Lesotho & Swaziland (BGIS, 2018)

8.1.1.2 Bushmanland Arid Grassland

The Bushmanland Arid Grassland consists of irregular plains on a slightly sloping plateau. It is sparsely vegetated by grass species, mainly dominated by white grasses (*Stipagrostis* species). In places low shrubs of *Salsola* change the vegetation structure. In years of abundant rainfall rich displays of annual herbs can be expected (Mucina & Rutherford, 2006).

8.1.1.2.1 Important Plant Taxa

Important plant taxa are those species that have a high abundance, a frequent occurrence or are prominent in the landscape within a particular vegetation type (Mucina & Rutherford, 2006). The following species are important in the Bushmanland Arid Grassland ([W]Western and [E]Eastern regions of the unit).

Graminoids: *Aristida adscensionis*, *A. congesta*, *Enneapogon desvauxii*, *Eragrostis nindensis*, *Schmidtia kalahariensis*, *Stipagrostis ciliata*, *S. obtusa*, *Cenchrus ciliaris*, *Enneapogon scaber*, *Eragrostis annulata*[E], *E. porosa*[E], *E. procumbens*, *Panicum lanipes*[E], *Setaria verticillata*[E], *Sporobolus nervosus*, *Stipagrostis brevifolia*[W], *S. uniplumis*, *Tragus berteronianus*, *T. racemosus*[E].

Small Trees: *Acacia mellifera* subsp. *detinens*[E], *Boscia foetida* subsp. *foetida*.

Tall Shrubs: *Lycium cinereum*, *Rhigozum trichotomum*, *Cadaba aphylla*, *Parkinsonia africana*.

Low Shrubs: *Aptosimum spinescens* , *Hermannia spinosa*, *Pentzia spinescens*, *Aizoon asbestinum*[E], *A. schellenbergii*[E], *Aptosimum elongatum*, *A. lineare*[E], *A. marlothii*[E], *Barleria rigida*, *Berkheya annectens*, *Blepharis mitrata*, *Eriocephalus ambiguus*, *E. spinescens*, *Limeum aethiopicum*, *Lophiocarpus polystachyus*, *Monechma incanum*, *M. spartioides*, *Pentzia pinnatisecta*, *Phaeoptilum spinosum*[E], *Polygala seminuda*, *Pteronia leucoclada*, *P. mucronata*, *P. sordida*, *Rosenia humilis*, *Senecio niveus*, *Sericocoma avolans*, *Solanum capense*, *Talinum arnotii*[E], *Tetragonia arbuscula*, *Zygophyllum microphyllum*.

Succulent Shrubs: *Kleinia longiflora*, *Lycium bosciifolium*, *Salsola tuberculata*, *S. glabrescens*.

Herbs: *Acanthopsis hoffmannseggiana*, *Aizoon canariense*, *Amaranthus praetermissus*, *Barleria lichtensteiniana*[E], *Chamaesyce inaequilatera*, *Dicoma capensis*, *Indigastrum argyraeum*, *Lotononis platycarpa*, *Sesamum capense*, *Tribulus pterophorus*, *T. terrestris*, *Vahlia capensis*.

Succulent Herbs: *Gisekia pharnacioides*[E], *Psilocaulon coriarium*, *Trianthema parvifolia*.

Geophytic Herb: *Moraea venenata*.

8.1.1.2.2 Biogeographically Important Taxa

Succulent Herb: *Tridentea dwequensis*.

8.1.1.2.3 Endemic Taxa

Succulent Shrubs: *Dinteranthus pole-evansii*, *Larryleachia dinteri*, *L. marlothii*, *Ruschia kenhardtensis*.

Herbs: *Lotononis oligocephala*, *Nemesia maxii.*

8.1.1.2.4 Conservation Status of the Vegetation Type

According to Mucina and Rutherford (2006), this vegetation type is classified as LT. The national target for conservation protection for this vegetation types is 21%, with only small patches statutorily conserved in Augrabies Falls National Park and Goegab Nature Reserve. Very little of the area has been transformed. The risk of erosion in this vegetation type is very low (60%) and low (33%).

8.1.1.3 Bushmanland Basin Shrubland

Bushmanland Basin Shrubland consist of slightly irregular plains with dwarf shrubland dominated by a mixture of low sturdy and spiny (and sometimes also succulent) shrubs (*Rhigozum*, *Salsola*, *Pentzia*, *Eriocephalus*), 'white' grasses (*Stipagrostis*) and in years of high rainfall also by abundant annuals such as species of *Gazania* and *Leysera*.

8.1.1.3.1 Important Taxa

Important plant taxa are those species that have a high abundance, a frequent occurrence or are prominent in the landscape within a particular vegetation type (Mucina & Rutherford, 2006). The following species are important in the Bushmanland Basin Shrubland.

Tall Shrubs: *Lycium cinereum*, *Rhigozum trichotomum*.

Low Shrubs: *Aptosimum spinescens*, *Hermannia spinosa*, *Pentzia spinescens*, *Zygophyllum microphyllum*, *Aptosimum elongatum*, *A. marlothii*, *Berkheya annectens*, *Eriocephalus microphyllus* var. *pubescens*, *E. pauperrimus*, *E. spinescens*, *Felicia clavipilosa* subsp. *clavipilosa*, *Limeum aethiopicum*, *Osteospermum armatum*, *O. spinescens*, *Pegolettia retrofracta*, *Phaeoptilum spinosum*, *Plinthus karooicus*, *Polygala seminuda*, *Pteronia glauca*, *P. inflexa*, *P. leucoclada*, *P. mucronata*, *P. sordida*, *Rosenia humilis*, *Selago albida*, *Senecio niveus*, *Tetragonia arbuscula*, *Zygophyllum lichtensteinianum*.

Succulent Shrubs: *Salsola tuberculata*, *Aridaria noctiflora* subsp. *straminea*, *Brownanthus ciliatus* subsp. *ciliatus*, *Galenia sarcophylla*, *Lycium bosciifolium*, *Ruschia intricata*, *Salsola namibica*, *Sarcocaulon patersonii*, *S. salmoniflorum*, *Tripteris sinuata* var. *linearis*, *Zygophyllum flexuosum*.

Semiparasitic Shrub: *Thesium hystrix*.

Herbs: *Gazania lichtensteinii*, *Leysera tenella*, *Amaranthus praetermissus*, *Chamaesyce inaequilatera*, *Dicoma capensis*, *Indigastrum argyraeum*, *Lepidium desertorum*, *Monsonia umbellata*, *Radyera urens*, *Sesamum capense*, *Tribulus terrestris*, *T. zeyheri*.

Succulent Herbs: *Mesembryanthemum crystallinum*, *M. stenandrum*, *Trianthema parvifolia*, *Zygophyllum simplex*.

Graminoids: *Aristida adscensionis*, *Enneapogon desvauxii*, *Stipagrostis ciliata*, *S. obtusa*, *Aristida congesta*, *Enneapogon scaber*, *Stipagrostis anomala*, *Tragus berteronianus*, *T. racemosus.*

8.1.1.3.2 Biogeographically Important Taxon

Succulent Herb: *Tridentea dwequensis*.

8.1.1.3.3 Endemic Taxa

Herb: *Cromidon minutum*.

Geophytic Herbs: *Ornithogalum bicornutum*, *O. ovatum* subsp. *oliverorum*.

8.1.1.3.4 Conservation Status

According to Mucina and Rutherford (2006), this vegetation type is classified as LT. The national target for conservation protection for this vegetation types is 21%. None of the unit is conserved in statutory conservation areas. No signs of serious transformation, but scattered individuals of *Prosopis* sp. occur in some and some localized dense infestations form closed 'woodlands' along the eastern border of the unit.

8.1.1.4 Plant Species of Conservation Concern

Based on the Plants of Southern Africa (BODATSA-POSA, 2016) database, 599 plant species are expected to occur in the prospecting area. Figure 9 shows the extent of the grid that was used to compile the expected species list based on the Plants of Southern Africa (BODATSA-POSA, 2016) database. The full list of expected plant species is provided in Appendix A.

Of the 599-plant species, three (3) species are listed as being SCCs (Table 4).

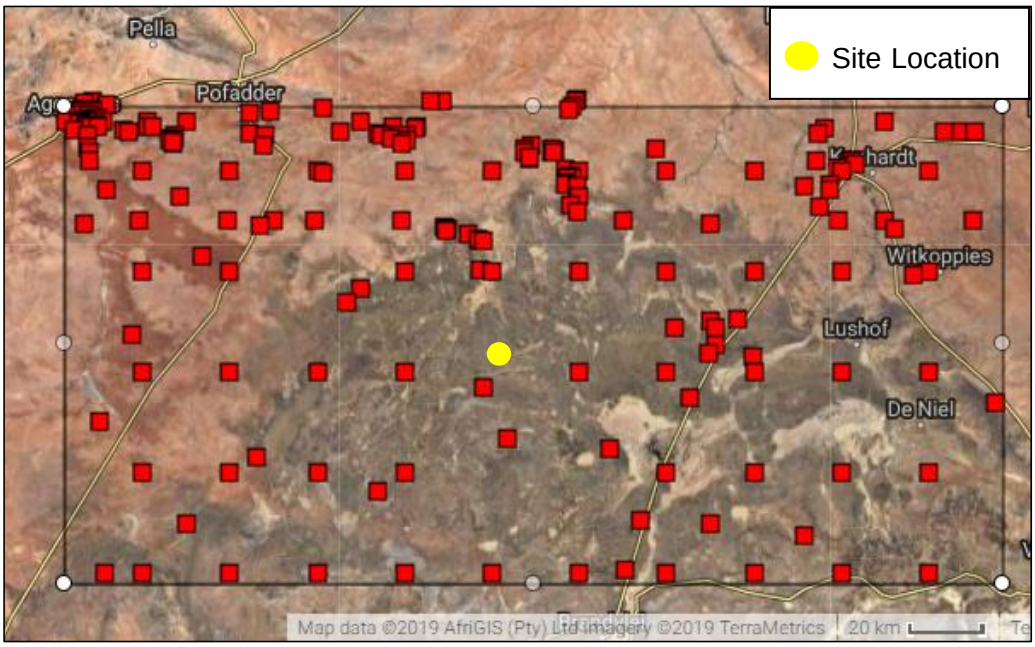

Figure 9: Map showing the grid drawn to compile an expected species list (BODATSA-POSA, 2016)

Table 4: Plant Species of Conservation Concern (SCC) expected to occur in the prospecting area (BODATSA-POSA, 2016)

Family	Taxon	Author	IUCN	Endemic	Likelihood of Occurrence
Asphodelaceae	*Aloidendron dichotomum*	(Masson) Klopper &	VU	Indigenous; Endemic	Moderate

		Gideon F.Sm.			
Fabaceae	*Calobota lotononoides*	(Schltr.) Boatwr. & B.-E.van Wyk	NT	Indigenous; Endemic	Moderate
Aizoaceae	*Conophytum achabense*	S.A.Hammer	VU	Indigenous; Endemic	High

Aloidendron dichotomum (Quiver tree) is a distinctive aloe tree, with smooth branches, which are covered with a thin layer of whitish powder that helps to reflect away the hot sun's rays. This tree is often found in rocky areas in arid parts known as the Namaqualand and Bushmanland. The likelihood of this species occurring in the prospecting area is moderate, due to the presence of suitable rocky habitat.

Cleome conrathii .is NT according to the Red List of South African Plants (SANBI, 2017). This species is endemic to the Northern Cape and Western Cape. It is found in well-drained sandy soils. It is threatened by habitat loss due to sand mining. Some suitable soils are present in the prospecting area as such the likelihood of occurrence is rated as moderate.

Conophytum achabense is listed VU according to the Red List of South African Plants (SANBI, 2017). This species occur in quartz rocky outcrops, where it is threated by mining operations. The likelihood of occurrence is rated as high due to the presence of suitable soil quartzite rocks.

8.1.2 Faunal Assessment

8.1.2.1 Avifauna

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 133 bird species are expected to occur in the vicinity of the prospecting area (pentads 2955_1900; 2955_1905; 3000_1900; 3000_1905; 2955_1855; 2955_1920; 2950_1920; 2945_1920; 2945_1925; 2940_1915; 2940_1920; 2940_1925; 2940_1930; 2940_1935; 2935_1925; 2935_1930; 2925_2000; 2930_2000; 2930_1955; 2935_1955; 2940_1955; 2930_2025; 2930_2020; 2925_2015; 2925_2005; 2925_2045; 2930_ 2030; 2930_2035; 2930_2025; 2920_2105). Due to the low reporting rate in the area combined with the need for a comprehensive list more pendants were added to ensure that no SCCs are missed. The full list of potential bird species is provided in Appendix B.

Of the expected bird species, twelve (12) species are listed as SCC either on a regional scale or international scale (Table 5). The SCC include the following:

- Two (2) species that are listed as EN on a regional basis;
- Five (5) species that are listed as VU on a regional basis; and

- Four (4) species that are listed as NT on a regional basis.

Table 5: List of bird species of regional or global conservation importance that are expected to occur in the pendants mentioned above (SABAP2, 2019, ESKOM, 2015; IUCN, 2017).

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (ESKOM, 2015)	IUCN (2017)	
Afrotis afra	Korhaan, Southern Black	VU	VU	High
Aquila verreauxii	Eagle, Verreaux's	VU	LC	Low
Ardeotis kori	Bustard, Kori	NT	NT	High
Calendulauda burra	Lark, Red	VU	VU	High
Calidris ferruginea	Sandpiper, Curlew	LC	NT	Low
Cursorius rufus	Courser, Burchell's	VU	LC	Moderate
Eupodotis vigorsii	Korhaan, Karoo	NT	LC	High
Falco biarmicus	Falcon, Lanner	VU	LC	High
Neotis ludwigii	Bustard, Ludwig's	EN	EN	High
Oxyura maccoa	Duck, Maccoa	NT	NT	Moderate
Polemaetus bellicosus	Eagle, Martial	EN	VU	High
Spizocorys sclateri	Lark, Sclater's	NT	NT	High

Afrotis afra (Southern Black Korhaan) is listed as VU on a regional and global scale (IUCN, 2017). They are endemic to the South-Western side of South Africa. Their habitat varies from non-grassy areas to the Fynbos biome, Karoo biome and the western coastline of South Africa. The main threat to them is habitat loss, in an eight year span they loss 80% of their range due to agricultural developments. Their diet consists of insects, small reptiles and plant material, including seeds and green shoots (Hockey *et al.,* 2005). Suitable habitat is found in the prospecting area as such the likelihood of occurrence is rated as high.

Aquila verreauxii (Verreaux's Eagle) is listed as VU on a regional scale and LC on a global scale. This species is locally persecuted in southern Africa where it coincides with livestock farms, but because the species does not take carrion, is little threatened by poisoned carcasses. Where hyraxes are hunted for food and skins, eagle populations have declined (IUCN, 2017). Based on the expected habitat, and the absence of large mountains the likelihood of occurrence is rated as low.

Ardeotis kori (Kori Bustard) is listed as NT both on a regional and global scale. It occurs in flat, arid, mostly open country such as grassland, karoo, bushveld, thornveld, scrubland and savanna but also including modified habitats such as wheat fields and firebreaks. Collisions with high voltage power lines are a major threat to this species in the Karoo of South Africa (IUCN, 2007). The habitat at the prospecting area, is typical habitat of this species and therefore it's likelihood of occurrence is rated as high.

Calendulauda burra (Red Lark) is listed as VU both locally and internationally (IUCN, 2016). Their habitat consist of tropical dry shrubland to dry lowland grassland. This species is threatened by habitat destruction and loss. The likelihood of this species occurring in the prospecting area is high due to the known presence in the nearby IBA.

Calidris ferruginea (Curlew Sandpiper) is migratory species which breeds on slightly elevated areas in the lowlands of the high Arctic, and may be seen in parts of South Africa during winter. During winter, the species occurs at the coast, but also inland on the muddy edges of marshes, large rivers and lakes (both saline and freshwater), irrigated land, flooded areas, dams and saltpans (IUCN, 2017). Suitable water sources is not present in the prospecting area and as such the likelihood of occurrence is rated as low.

Cursorius rufus (Burchell's Courser) is categorised as VU on a regional scale. It inhabits open short-sward grasslands, dry savannas, fallow fields, overgrazed or burnt grasslands and pastures, bare or sparsely vegetated sandy or gravelly deserts, stony areas dotted with small shrubs and saltpans (IUCN, 2017). The species is threatened in the south of its range by habitat degradation as a result of poor grazing practices and agricultural intensification. The likelihood of occurrence in the prospecting area is rated as moderate as some suitable habitat is present however they are not one of the species found by Birdlife (2015) in the nearby IBA.

Eupodotis vigorsii (Karoo Korhaan) is listed as NT on a regional scale and as LC on a global scale. This species has a very large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km^2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The likelihood of the species occurring in the prospecting area is rated as high, this species is known to have a moderate density in this habitat type.

Falco biarmicus (Lanner Falcon) is native to South Africa and inhabits a wide variety of habitats, from lowland deserts to forested mountains (IUCN, 2017). They may occur in groups up to 20 individuals, but have also been observed solitary. Their diet is mainly composed of small birds such as pigeons and francolins. The likelihood of incidental records of this species in the prospecting area is rated as high due to the natural veld condition and the presence of many bird species on which Lanner Falcons may predate.

Neotis denhami (Denhams Bustard) is listed as VU on a regional scale and NT on a global scale. It occurs in flat, arid, mostly open country such as grassland, karoo, bushveld, thornveld, scrubland and savanna but also including modified habitats such as wheat fields and firebreaks Collisions with power lines may be a significant threat in parts of the range, particularly South Africa (IUCN, 2007). The habitat at the prospecting area does provide suitable habitat for this species and therefore it's likelihood of occurrence is rated as high.

Oxyura maccoa (Maccoa Duck) has a large northern and southern range, South Africa is part of its southern distribution. During the species' breeding season, it inhabits small temporary and permanent inland freshwater lakes, preferring those that are shallow and nutrient-rich with extensive emergent vegetation such as reeds (*Phragmites spp*.) and cattails (*Typha* spp.) on which it relies for nesting (IUCN, 2017). Some suitable streams are present in the prospecting area and as such the likelihood of occurrence is rated as moderate.

Polemaetus bellicosus (Martial Eagle) is listed as EN on a regional scale and VU on a global scale. This species has an extensive range across much of sub-Saharan Africa, but populations are declining due to deliberate and incidental poisoning, habitat loss, reduction in available prey, pollution and collisions with power lines (IUCN, 2017). It inhabits open woodland, wooded savanna, bushy grassland, thorn-bush and, in southern Africa, more open

country and even sub-desert (IUCN, 2017). Even though large species are absent from the prospecting area, this species has been known to adapt and nest on telephone poles and as such the likelihood of occurrence is rated as high.

Spizocorys sclateri (Sclaters Lark) is classified as NT both locally and internationally. This species is native to South Africa and Namibia. It is found in dry shrubland, where its habitat is threatened by increased numbers of livestock in its habitat. This species is known to occur in the Bitterputs Conservation Area IBA that is found approximately 21km away and as such has a high likelihood of occurrence.

8.1.2.1.1 Important Bird & Biodiversity Areas

Important Bird & Biodiversity Areas (IBAs) are the sites of international significance for the conservation of the world's birds and other conservation significant species as identified by BirdLife International. These sites are also all Key Biodiversity Areas; sites that contribute significantly to the global persistence of biodiversity (Birdlife, 2017).

According to Birdlife International (2017), the selection of IBAs is achieved through the application of quantitative ornithological criteria, grounded in up-to-date knowledge of the sizes and trends of bird populations. The criteria ensure that the sites selected as IBAs have true significance for the international conservation of bird populations and provide a common currency that all IBAs adhere to, thus creating consistency among, and enabling comparability between, sites at national, continental and global levels.

The Bitterputs Conservation Area IBA can be found approximately 21km form the prospecting area. This IBA is found 65km south west of Pofadder. Two species that are found in this IBA and not in many other places is the globally threatened Red Lark *Calendulauda burra* and the near-threatened Sclater's Lark *Spizocorys sclateri* (Birdlife, 2015). Other globally threatened species in this IBA are Kori Bustard and Ludwig's Bustard. Regionally threatened species include Karoo Korhaan. Restricted-range and biome-restricted species are Stark's Lark *Spizocorys starki*, Karoo Long-billed Lark *Certhilauda subcoronata*, Black-eared Sparrow-lark *Eremopterix australis*, Tractrac Chat *Cercomela tractrac*, Sickle-winged Chat *C. sinuata*, Karoo Chat *C. schlegelii*, Karoo Eremomela *Eremomela gregalis,* Cinnamon-breasted Warbler *Euryptila subcinnamomea* and Black-headed Canary *Serinus alario* (Birdlife, 2015).This list might vary from the list above as the IBA area has not been assessed by SABABP2.

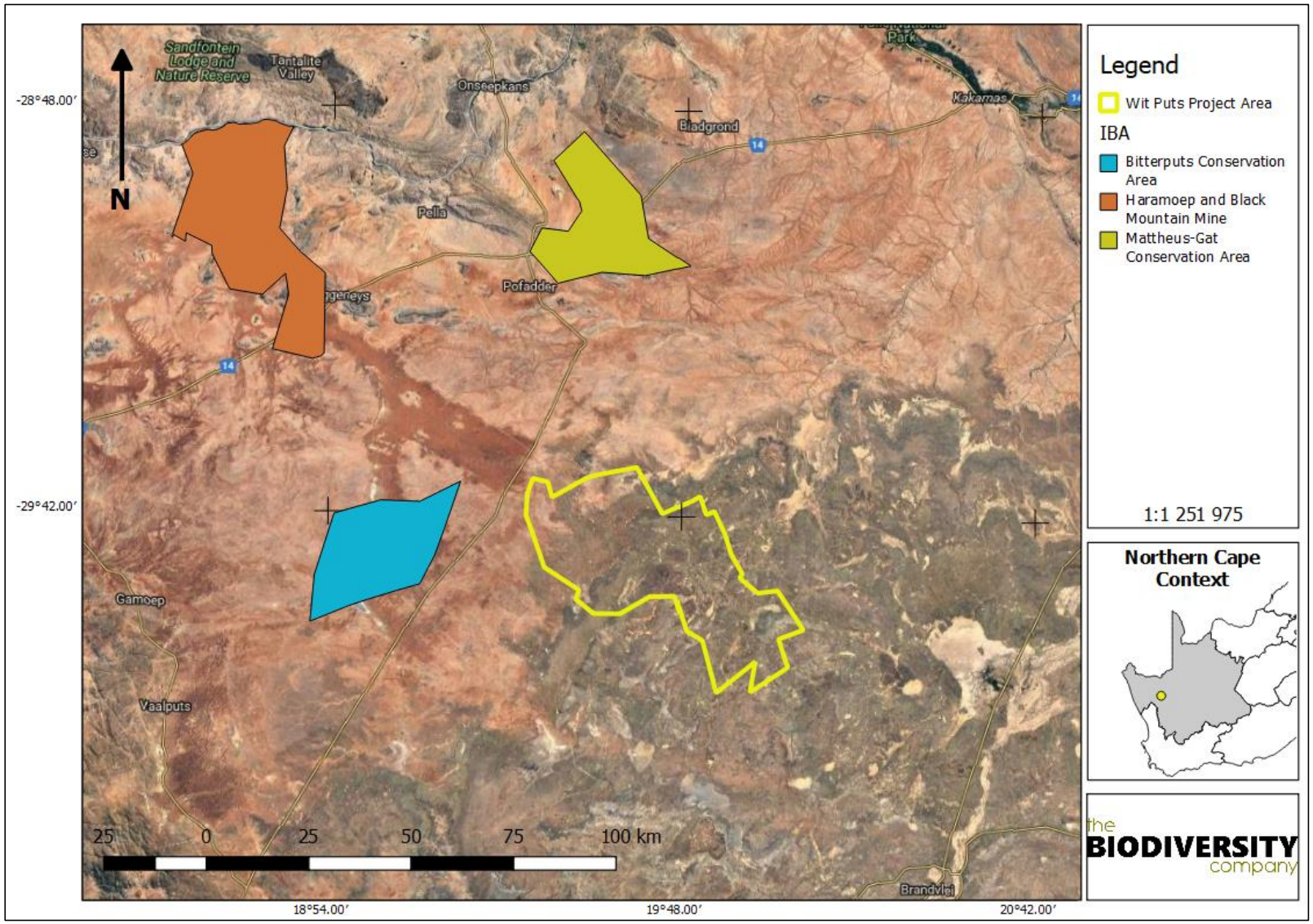

Figure 10: The prospecting area in relation to defined IBAs (Birdlife, 2017)

8.1.2.2 Mammals

The IUCN Red List Spatial Data (IUCN, 2017) lists 56 mammal species that could be expected to occur within the vicinity of the prospecting area (Appendix C). Of these species, 4 are medium to large conservation dependant species, such as *Ceratotherium simum* (Southern White Rhinoceros) that, in South Africa, are generally restricted to protected areas such as game reserves. These species are not expected to occur in the prospecting area and are removed from the expected SCC list. They are however still included in Appendix C.

Of the remaining 52 small to medium sized mammal species, six (6) are listed as being of conservation concern on a regional or global basis (Table 4).

The list of potential species includes:

- One (1) that is listed as CR on a regional basis;
- Two (2) that are listed as VU on a regional basis; and
- Two (2) that are listed as NT on a regional scale (Table 4).

Table 6: List of mammal species of conservation concern that may occur in the prospecting area as well as their global and regional conservation statuses (IUCN, 2017; SANBI, 2016)

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Bunolagus monticularis	Riverine Rabbit	CR	CR	Moderate
Eidolon helvum	African Straw-colored Fruit Bat	LC	NT	Low
Felis nigripes	Black-footed Cat	VU	VU	High
Graphiurus ocularis	Spectacular Dormouse	NT	LC	Low
Panthera pardus	Leopard	VU	VU	Low
Parotomys littledalei	Littledale's Whistling Rat	NT	LC	High

Bunolagus monticularis (Riverine Rabbit) is categorised as CR (IUCN, 2017). This endemic species can be found in the semi-arid Nama and Succulent Karoo biomes of South Africa. It is threatened by habitat destruction. This lagomorph is found in unique riverine vegetation. Based on the desktop assessment this species has a moderate chance of occurrence, this is because of the lack of perennial rivers in the site.

Eidolon helvum (African Straw-coloured Fruit Bat) is listed as LC on a regional scale and NT on a global scale. This species has been recorded from a very wide range of habitats across the lowland rainforest and savanna zones of Africa (IUCN, 2017). Although considered to be widespread and abundant across its range, certain populations are decreasing due to severe deforestation, hunting for food and medicinal use (IUCN, 2017). This species is known to form large roosts and colonies numbering in the thousands to even millions of individuals (IUCN, 2017). No colonies of this species are known to occur in the prospecting area or in the immediate vicinity and, although individuals may occasionally be recorded, it is not expected to be resident within the prospecting area and therefore it's likelihood of occurrence is rated as low.

Felis nigripes (Black-footed cat) is endemic to the arid regions of southern Africa. This species is naturally rare, has cryptic colouring is small in size and is nocturnal. These factors have contributed to a lack of information on this species. Given that the highest densities of this species have been recorded in the more arid Karoo region of South Africa, the habitat in the prospecting area can be considered ideal for the species and the likelihood of occurrence is rated as high.

Graphiurus ocularis (Spectacular Dormouse) is categorised as NT on a regional scale. This species is endemic to South Africa, where it occurs widely in Northern Cape, Eastern Cape, and Western Cape provinces, with a single record from the North West province. The species is associated with the sandstone formations of the Cape, which have many vertical and horizontal cracks and crevices in which to shelter and nest. The likelihood of occurrence is rated as low.

Panthera pardus (Leopard) has a wide distributional range across Africa and Asia, but populations have become reduced and isolated, and they are now extirpated from large portions of their historic range (IUCN, 2017). Impacts that have contributed to the decline in populations of this species include continued persecution by farmers, habitat fragmentation, increased illegal wildlife trade, excessive harvesting for ceremonial use of skins, prey base declines and poorly managed trophy hunting (IUCN, 2017). Although known to occur and persist outside of formally protected areas, the densities in these areas are considered to be low. The likelihood of occurrence in the prospecting area are considered low due to the lack of suitable prey species.

Parotomys littledalei (Littledale's Whistling Rat) is listed as NT on a regional scale. This diurnal species occurs in shrubland and is dependent on ground cover. Littledale's Whistling Rat is herbivorous only, feeding on fresh plant material, including annuals, succulent perennials, non-succulent perennials, and grasses. The presence of suitable ground cover increases their likelihood of occurrence in the prospecting area.

8.1.2.3 Herpetofauna (Reptiles & Amphibians)

8.1.2.3.1 Reptiles

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the ReptileMap database provided by the Animal Demography Unit (ADU, 2017) 47 reptile species are expected to occur in the prospecting area (Appendix D). One (1) reptile SCC is expected to be present in the prospecting area (Table 7).

Table 7: Expected reptile species of conservation concern that may occur in the prospecting area

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Chersobius signatus	Speckled Dwarf Tortoise	EN	EN	High

Chersobius signatus (Speckled Cape Tortoise) is categorised as EN both locally and internationally (IUCN, 2017). This species is naturally restricted to the little Namaqualand,

where it lives on rocky outcrops and forages on succulent plants. The likelihood of occurrence in the prospecting area is rated as high as suitable habitat and food species are present.

8.1.2.3.2 Amphibians

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the AmphibianMap database provided by the Animal Demography Unit (ADU, 2017) thirteen (13) amphibian species are expected to occur in the prospecting area (Appendix E).

One amphibian SCC could be present in the prospecting area according to the above-mentioned sources.

Table 8: Expected amphibian species of conservation concern that may occur in the prospecting area

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Pyxicephalus adspersus	Giant Bullfrog	NT	LC	Moderate

The Giant Bull Frog (*Pyxicephalus adspersus*) is a SCC that will possibly occur in the prospecting area. The Giant Bull Frog is listed as NT on a regional scale. It is a species of drier savannahs. It is fossorial for most of the year, remaining buried in cocoons. They emerge at the start of the rains, and breed in shallow, temporary waters in pools, pans and ditches (IUCN, 2017). This species has a moderate likelihood of occurrence as there are some smaller streams that can be found in the prospecting area.

9 Habitat Sensitivity Mapping

9.1 Methodology

EIMS has developed a comprehensive sensitivity mapping methodology for use by all specialists in order to standardise the scoring system which allows for a comparative assessment of all impacts. The methodology utilises a revised scoring table as well as including a base score for the entire prospecting area in question. This deviated from the past approach where features were scored based on their inherent sensitivity.

The updated methodology has shifted the focus from: (1) Scoring inherent environmental sensitivity towards (2) Scoring the proposed project impact on landscape features. The new scoring methodology (Figure 11) shifted focus to identifying sensitive/non-sensitive areas in terms of the development activity, rather than the original method which focused purely on the sensitivity of the landscape/environment.

The new scoring methodology has made provision for specialists to score areas/features that would be suitable or preferred for development. It should be noted that features/areas should be scored in terms of the proposed project context and not purely on “perceived sensitivity of landscape features”. Thus, the specialist should continually be asking themselves the question “how will this feature be affected by the proposed development”. In cases where the development is anticipated to create a high negative impact, the high or very high scoring should be applied. High and very high scores must be justified. The final shape files must include a column indicating why each feature was assigned a certain score/sensitivity. In addition, a separate column must be provided indicating the numerical score in Figure 11.

To ensure that accurate site selection decisions will take place, the specialist must score sensitivity relative to the site in question. Ideally the specialist should only use very high sensitivity in rare cases, where such a score can be justified. Please note that legal licencing requirements or permit requirements should not be factored into the sensitivity score, this should be represented by a separate shapefile indicating additional legal requirements.

Sensitivity Rating	Description	Weighting	Preference
Least Concern	The inherent feature status and sensitivity is already degraded. The proposed development will not affect the current status and/or may result in a positive impact. These features would be the preferred alternative for mining or infrastructure placement.	-1	Preferrable
Low/Poor	The proposed development will have not have a significant effect on the inherent feature status and sensitivity.	0	Negotiabl
High	The proposed development will negatively influence the current status of the feature.	+1	Restricted
Very High	The proposed development will negatively significantly influence the current status of the feature.	+2	

Figure 11: The sensitivity matrix utilised for the sensitivity mapping process (as provided by EIMS)

9.2 Prospecting Area

Areas that were classified as having low sensitivities are those areas which were deemed by the specialists to not have any spatial or desktop features that are considered ecologically important or sensitive (Figure 12). The areas assigned a *High* sensitivity are the region in which the ESA area are located, while the *Very High* sensitivity was assigned to the CBA1 and CBA2 area. The mining and biodiversity guidelines were also considered and the moderate biodiversity importance were given a *High* sensitivity rating.

It is important to note that these maps do not replace any local, provincial or government legislation relating to these areas or the land use capabilities or sensitivities of these environments.

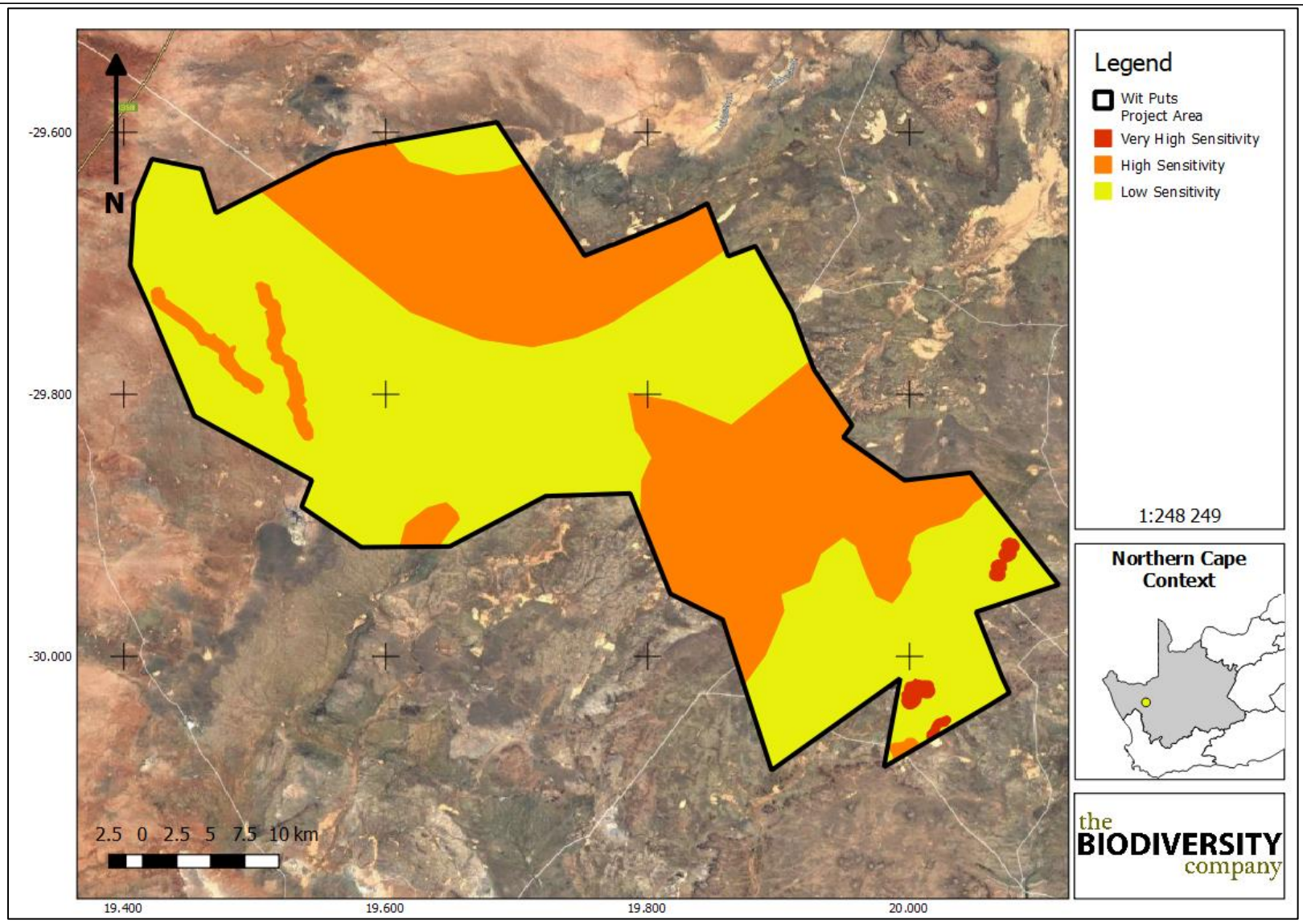

Figure 12: Habitat sensitivity map of the prospecting area

10 Impact Assessment

The impact assessment is based on the desktop assessment only, an in field survey must be conducted to confirm the desktop information. The methodology used in determining the significance of potential environmental impacts relating to the Wit Puts Prospecting project was supplied by EIMS. The details of this methodology can be made available on request.

10.1 Identification of Potential Impacts

The proposed prospecting activity may lead to the loss and destruction of habitats, direct mortalities and displacement of fauna and flora. The removal of natural vegetation to accommodate the drill holes and their associated access roads may reduce the habitat available for fauna species and may reduce animal populations and species compositions within the area, at least temporarily. Air borne surveys will influence the avifauna found in the area, while the assays (Rock chips and soil samples) will likely influence the herpetofauna. The initial qualitative impact assessment results with mitigation measures is available on request as a comprehensive Microsoft Excel spreadsheet.

The potential impacts associated with the various project stages are discussed below.

10.1.1 Planning Phase

The planning phase activities are considered a low risk as they typically involve desktop assessments and initial site inspections. This phase of the assessment would include, amongst others, site visits of various contractors, environmental and social impact assessment and compiling of management plans. Only one minor impact was assessed regarding the planning phase:

- Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles.

10.1.2 Construction Phase

The following potential impacts were considered on biodiversity (including fauna and flora) based on the clearance for infrastructure as well as disturbances such as dust, noise and heat radiation:

- Destruction of, and fragmentation of, portions of the vegetation community;
- Loss of CBA1, CBA2 and ESA and sections of area classed as moderate and highest biodiversity importance; and
- Displacement of faunal community (including possible threatened or protected species) due to habitat loss, disturbance (noise, dust and vibration) and/or direct mortalities.

10.1.3 Operational Phase

The following potential impacts were considered on biodiversity (fauna and flora) during operational phase:

- Continued disturbance of vegetation communities (including portions of a CBA1, CBA2, ESA and a section classed as moderate and highest biodiversity importance) and encroachment by alien invasive plant species;
- Displacement of avifauna by the airborne survey;
- Disturbance and mortalities of herpetofauna due to assaying (Rock chips and Soil sampling); and
- Ongoing displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances because of the drilling and access roads.

10.1.4 Decommissioning and Closure Phase

The decommissioning will mostly involve the removal of the equipment, staff and vehicles from the prospecting area. Followed by the rehabilitation of the area.

Other impacts that were considered on biodiversity include:

- Further impacts due to the spread and/or establishment of alien and/or invasive species; and
- Displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances (such as dust, vibrations, poaching and noise).

11 Assessment of Significance

The summary tables below show the significance of the potential impacts, the impacts were based on the desktop information and the general processes that will be followed for the prospecting. An infield survey will be needed to confirm the relevance of the impacts.

11.1 Planning Phase

The table below (Table 9) presents the significance of potential planning phase impacts on the terrestrial ecosystems and biodiversity before and after implementation of mitigation measures. This aspect of the project scored low, it was however considered that tests and evaluations will need to be performed on site and as such the ratings were slightly increased pre-mitigations (Table 9).

Table 9: Impact significance during the planning phase pre- and post-mitigation

Impact Name	**Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	3	2
Extent	3	3	Reversibility	3	2
Duration	2	2	Probability	3	2
Environmental Risk (Pre-mitigation)					-8,25
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-4,50
Degree of confidence in impact prediction:					Medium
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
Prioritisation Factor					1,17
Final Significance					-5,25

11.2 Construction Phase

The tables below (Table 10 to Table 12) show the significance of potential construction phase impacts on flora and faunal communities before and after implementation of mitigation measures.

The CBA1 and CBA 2 section as well as the highest mining and biodiversity important sections are only small portion of the prospecting area and as such the impact was rated as moderate prior to mitigations and low post mitigations. Construction of the access roads to the drill sites will have a moderate impact on the fauna, this can be lowered should the proposed mitigations be followed.

Table 10: Impact significance during the construction phase pre- and post-mitigation for the prospecting

Impact Name	**Destruction of, and fragmentation of, portions of the vegetation community**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	4	3
Extent	4	2	Reversibility	4	3
Duration	4	3	Probability	4	3
Environmental Risk (Pre-mitigation)					-16,00
Mitigation Measures					

See section 12	
Environmental Risk (Post-mitigation)	-8,25
Degree of confidence in impact prediction:	Medium
Impact Prioritisation	
Public Response	1
Low: Issue not raised in public responses	
Cumulative Impacts	1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.	
Degree of potential irreplaceable loss of resources	2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.	
Prioritisation Factor	1,17
Final Significance	-9,63

Table 11: Impact significance during the construction phase pre- and post-mitigation for the prospecting

Impact Name	**Loss of CBA1, CBA2 and ESA and sections of area classed as moderate and highest biodiversity importance**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	4	3
Extent	4	3	Reversibility	4	3
Duration	3	3	Probability	4	3
Environmental Risk (Pre-mitigation)					-15,00
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-9,00
Degree of confidence in impact prediction:					Medium
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
Prioritisation Factor					1,17
Final Significance					-10,50

Table 12: Impact significance during the construction phase pre- and post-mitigation for prospecting

Impact Name	**Displacement of faunal community (including possible threatened or protected species) due to habitat loss, disturbance (noise, dust and vibration) and/or direct mortalities.**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**

Nature	-1	-1	Magnitude	4	2
Extent	4	3	Reversibility	3	2
Duration	3	3	Probability	3	3
Environmental Risk (Pre-mitigation)					-10,50
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-7,50
Degree of confidence in impact prediction:					Medium
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
Prioritisation Factor					1,17
Final Significance					-8,75

11.3 Operational Phase

The tables below (Table 13 to Table 16) show the significance of potential operational phase impacts on floral and faunal communities before and after implementation of mitigation measures. The airborne sampling will have a moderately high impact on the avifauna this can be lowered should the sampling be done in the middle of the day to avoid the times when birds are active. Herpetofauna might be influenced by assaying in the form of specifically rock chip sampling, this can be a disturbance of the habitat. The ongoing disturbance of the fauna was rated as moderate and lowered post mitigations.

Table 13: Impact significance during the operational phase pre- and post-mitigation for the prospecting

Impact Name	**Continued disturbance of vegetation communities (including portions of a CBA1, CBA2, ESA and a section classed as moderate and highest biodiversity importance) and encroachment by alien invasive plant species;**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	4	4
Extent	4	3	Reversibility	4	3
Duration	4	3	Probability	4	3
Environmental Risk (Pre-mitigation)					-16,00
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-9,75
Degree of confidence in impact prediction:					Medium
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1

Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.	
Degree of potential irreplaceable loss of resources	2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.	
Prioritisation Factor	1,17
Final Significance	-11,38

Table 14: Impact significance during the operational phase pre- and post-mitigation for the prospecting

Impact Name	**Displacement of avifauna by the airborne survey**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	3	3
Extent	4	3	Reversibility	4	3
Duration	3	3	Probability	5	3
Environmental Risk (Pre-mitigation)					-17,50
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-9,00
Degree of confidence in impact prediction:					Medium
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
Prioritisation Factor					1,17
Final Significance					-10,50

Table 15: Impact significance during the operational phase pre- and post-mitigation for the prospecting

Impact Name	**Disturbance and mortalities of herpetofauna due to assaying (Rock chips and Soil sampling)**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	3	3
Extent	3	3	Reversibility	4	3
Duration	3	3	Probability	3	3
Environmental Risk (Pre-mitigation)					-9,75
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-9,00
Degree of confidence in impact prediction:					Medium

Impact Prioritisation	
Public Response	1
Low: Issue not raised in public responses	
Cumulative Impacts	1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.	
Degree of potential irreplaceable loss of resources	2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.	
Prioritisation Factor	1,17
Final Significance	-10,50

Table 16: Impact significance during the operational phase pre- and post-mitigation for prospecting

Impact Name	**Ongoing displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances because of the drilling and access roads**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	3	3
Extent	3	3	Reversibility	4	2
Duration	3	3	Probability	4	2
Environmental Risk (Pre-mitigation)					-13,00
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-5,50
Degree of confidence in impact prediction:					Medium
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
Prioritisation Factor					1,17
Final Significance					-6,42

11.4 Closure & Decommissioning Phase

The tables below (Table 17 to Table 18) show the significance of potential closure and decommissioning phase impacts on floral and faunal communities before and after implementation of mitigation measures.

The closure phase generally result in a decrease of human presence in the area, should the rehabilitation of the area be completed successfully the risk of alien species establishing is also decreased.

Table 17: Impact significance during the closure and decommissioning phase pre- and post-mitigation for the prospecting

Impact Name	**Further impacts due to the spread and/or establishment of alien and/or invasive species**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	4	3
Extent	4	3	Reversibility	4	3
Duration	3	3	Probability	3	3
Environmental Risk (Pre-mitigation)					-11,25
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-9,00
Degree of confidence in impact prediction:					Medium
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					2
Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
Prioritisation Factor					1,17
Final Significance					-10,50

Table 18: Impact significance during the closure and decommissioning phase pre- and post-mitigation for the prospecting

Impact Name	**Displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances (such as dust, vibrations, poaching and noise).**				
Alternative	**0**				
Environmental Risk					
Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
Nature	-1	-1	Magnitude	3	3
Extent	4	3	Reversibility	3	2
Duration	4	2	Probability	3	2
Environmental Risk (Pre-mitigation)					-10,50
Mitigation Measures					
See section 12					
Environmental Risk (Post-mitigation)					-5,00
Degree of confidence in impact prediction:					Medium
Impact Prioritisation					
Public Response					1
Low: Issue not raised in public responses					
Cumulative Impacts					1
Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.					
Degree of potential irreplaceable loss of resources					2

Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.	
Prioritisation Factor	1,17
Final Significance	-5,83

12 Mitigation Measures

12.1 Mitigation Measure Objectives

The focus of mitigation measures should be to reduce the significance of potential impacts associated with the prospecting and thereby to:

- Prevent the unnecessary destruction of, and fragmentation, of the vegetation community (including areas classified as CBA1, CBA2, ESA and sections classed as moderate and highest biodiversity importance);
- Prevent the loss of the faunal community (including potentially occurring SCCs) associated with these vegetation communities; and
- Limiting the construction area to the defined prospecting areas and only impacting those areas where it is unavoidable to do so otherwise.

12.1.1 General mitigations relevant to the prospecting

More in detail mitigations can be supplied after a field visit has been conducted.

- Site establishment shall take place in an orderly manner and all amenities shall be installed before the onset of exploration;
- A method statement is required from the Contractor(s) that includes the layout of the prospecting camp, management of facilities and wastewater management during prospecting;
- A site plan of the camp must be provided indicating domestic waste areas, chemical storage areas, fuel storage area, site offices and placement of ablution facilities;
- The planning and design for the camp must ensure that there is a minimum impact on the environment;
- The Contractor should inform all site staff to the use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities;
- The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility;
- Where a registered disposal facility is not available close to the prospecting area, the Contractor shall provide a method statement with regard to waste management. Under no circumstances may domestic waste be burned on site;
- Refuse bins will be emptied and secured;

- Temporary storage of domestic waste shall be in covered waste skips;
- Maximum domestic waste storage period will be 10 days;
- Any possible contamination of topsoil by hydrocarbons, concrete or concrete water must be avoided;
- Materials must be stored in leak-proof, sealable containers or packaging;
- No permanent structures will be permitted at the camp;
- Buildings should preferably be pre-fabricated or constructed of re-usable/recyclable materials;
- All structure footprints to be rehabilitated and landscaped after prospecting is complete;
- A minimum of one toilet must be provided per 10 persons;
- No storage of vehicles or equipment will be allowed outside of the designated prospecting area;
- Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use;
- No servicing of equipment on site unless absolutely necessary;
- Leaking equipment shall be repaired immediately or be removed from site to facilitate repair;
- The Contractor shall be in possession of an emergency spill kit that must be complete and available at all times on site;
- All vehicles and equipment must be well maintained to ensure that there are no oil or fuel leakages;
- All contaminated soil / yard stone shall be treated *in situ* or removed and be placed in containers;
- A specialist Contractor shall be used for the bio-remediation of contaminated soil where the required remediation material and expertise is not available on site;
- All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the prospecting area to inform contractors and site staff of the presence of Red / Orange List species, their identification, conservation status and importance, biology, habitat requirements and management requirements;
- Prospecting site footprints should be kept to a minimum;
- Schedule prospecting activities and operations during least sensitive periods, in order to avoid migration, nesting and breeding seasons of SCC;

- Clearing of vegetation should be minimized and avoided where possible. Maintain small patches of natural vegetation within the prospecting site to accelerate restoration and succession of cleared patches;
- When vegetation is cleared, hand cutting techniques should be used as far possible in order to avoid the use of heavy machinery;
- During decommissioning, compacted surfaces should be broken-up and covered with brush, leaf litter or reseeded with site specific grass species;
- Restoration success should be monitored through a follow-up site visit during the next growing season in order to identify remedial actions;
- Outside lighting should be designed to minimize impacts on fauna. All outside lighting should be directed away from Very high and high sensitive areas. Fluorescent and mercury vapour lighting should be avoided and sodium vapour (yellow) lights should be used wherever possible;
- Construction vehicles must be restricted to existing roads and new pathways must be restricted;
- Prior and during vegetation clearance any larger fauna species noted should be given the opportunity to move away from the construction machinery;
- In the event that a bird strike of SCCs occur, all flights must be halted. Details pertaining to the strike must be reported to the EWT and ACSA bird strike programme (clairep@ewt.org.za) hereafter advice from these stakeholders must be followed on how to proceed;
- Herpetofauna observed while rock sampling, should be carefully and safely removed to a suitable location beyond the extent of the development footprint by a suitably qualified ECO trained in the handling and relocation of animals;
- A qualified environmental control officer must be on site when construction begins to identify species that will be directly disturbed and to relocate fauna/flora that are found during the prospecting activities;
- Dust reducing mitigation measures must be put in place and must be strictly adhered to; this will be very important during the construction phase, seeing that the area is prone to gusts of winds;
- No trapping, killing or poisoning of any wildlife is to be allowed on site, including snakes, birds, lizards, frogs, insects or mammals;
- Rehabilitation of the disturbed areas existing in the prospecting area must be made a priority. Top soils must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type; and
- The boreholes needs to be sealed to ensure that no fauna species can fall in the drill hole..

13 Recommendations

The following recommendation are applicable:

- The prospecting areas must be prioritised in the Low sensitivity areas;
- Due to the proximity to the IBA that should more development take place in the area a full avifaunal survey must be conducted;
- A rehabilitation plan must be compiled for the project, to be implemented from the onset of the activities. The plan must include an alien vegetation management plan;
- Should mining be approved all legislative requirements must be adhered to and guidance must be given by an Environmental Assessment Practitioner (EAP).

14 Conclusion

Based on the desktop ecological review the habitat is still regarded to be in a largely natural condition (with overall moderate sensitivity) and will provide habitat for a number of faunal species, including some threatened species. A number of species of conservation concern (SCCs) are expected to occur in the area, based on the overall unique habitat the number of endemic species is also high, this increases the importance of the area as a habitat. Majority of the prospecting area has a low sensitivity, while the areas classed as Critical Biodiversity Area (CBA1) and CBA2 has a very high sensitivity and the Ecological Support Area (ESA) has a high sensitivity.

The following further conclusions were reached based on the results of this desktop assessment:

- Based on the Terrestrial CBA1 map, majority of the prospecting area fall in an area classified as “Other Natural Area”, with small sections of CBA1, CBA2, and ESA;
- The proposed project was superimposed on the terrestrial ecosystem threat status spatial data. According to this, the prospecting area falls across one ecosystem, which are listed as Least Threatened (LT);
- The prospecting area was superimposed on the ecosystem protection level map to assess the protection status of terrestrial ecosystems associated with the development. Based on this the terrestrial ecosystems associated with the proposed prospecting area is rated as *not protected*;
- The prospecting area is situated across tree vegetation types; Bushmanland Arid Grassland (LT), Bushmanland Basin Shrubland (LT), and Bushmanland Vloere (LT);
- Based on the Plants of Southern Africa database, 599 plant species are expected to occur in the prospecting area. Of the 599-plant species, 3 species are listed as being SCC;
- Based on the South African Bird Atlas Project, Version 2 (SABAP2) database 133 bird species are expected to occur in the vicinity of the prospecting area of which twelve (12) species are listed as SCC either on a regional scale or international scale;

- Fifty-six mammal species are expected of which 5 are SCCs, while 47 reptile species are expected and 1 are SCC. One Amphibian SCC namely the *Pyxicephalus adspersus* have a moderate chance of occurrence; and
- Majority of the impacts had a moderate rating prior to mitigations, which were then decreased once mitigations are implemented.

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APPENDIX A: *Floral species expected to occur in the prospecting area*

Family	Taxon	Author	IUCN	Ecology
Malvaceae	*Abutilon pycnodon*	Hochr.	LC	Indigenous
Fabaceae	*Acacia sp.*			
Crassulaceae	*Adromischus nanus*	(N.E.Br.) Poelln.	LC	Indigenous; Endemic
Poaceae	*Agrostis lachnantha var. lachnantha*	Nees	LC	Indigenous
Aizoaceae	*Aizoon canariense*	L.	LC	Indigenous
Aizoaceae	*Aizoon schellenbergii*	Adamson	LC	Indigenous
Hyacinthaceae	*Albuca unifolia*	(Retz.) J.C.Manning & Goldblatt		Indigenous; Endemic
Hyacinthaceae	*Albuca virens subsp. virens*	(Ker Gawl.) J.C.Manning & Goldblatt		Indigenous
Asphodelaceae	*Aloidendron dichotomum*	(Masson) Klopper & Gideon F.Sm.	VU	Indigenous; Endemic
Amaranthaceae	*Alternanthera pungens*	Kunth		Not indigenous; Naturalised
Amaranthaceae	*Amaranthus schinzianus*	Thell.	LC	Indigenous; Endemic
Asteraceae	*Amellus epaleaceus*	O.Hoffm.	LC	Indigenous; Endemic
Asteraceae	*Amellus tridactylus subsp. arenarius*	DC.	LC	Indigenous; Endemic
Aizoaceae	*Amphibolia rupis-arcuatae*	(Dinter) H.E.K.Hartmann		Indigenous; Endemic
Asteraceae	*Amphiglossa tomentosa*	(Thunb.) Harv.	LC	Indigenous; Endemic
Asteraceae	*Amphiglossa triflora*	DC.	LC	Indigenous; Endemic
Anacampserotaceae	*Anacampseros albissima*	Marloth		Indigenous; Endemic
Anacampserotaceae	*Anacampseros baeseckei*	Dinter ex Poelln.		Indigenous; Endemic
Anacampserotaceae	*Anacampseros filamentosa subsp. namaquensis*	(Haw.) Sims		Indigenous; Endemic
Anacampserotaceae	*Anacampseros papyracea subsp. namaensis*	E.Mey. ex Fenzl		Indigenous; Endemic
Anacampserotaceae	*Anacampseros quinaria*	E.Mey. ex Fenzl		Indigenous; Endemic
Anacampserotaceae	*Anacampseros recurvata subsp. minuta*	Schonland		Indigenous; Endemic
Poaceae	*Andropogon chinensis*	(Nees) Merr.	LC	Indigenous
Aizoaceae	*Antimima nordenstamii*	(L.Bolus) H.E.K.Hartmann	LC	Indigenous; Endemic
Aizoaceae	*Antimima vanzylii*	(L.Bolus) H.E.K.Hartmann	LC	Indigenous; Endemic
Menispermaceae	*Antizoma miersiana*	Harv.	LC	Indigenous

Scrophulariaceae	*Aptosimum albomarginatum*	Marloth & Engl.	LC	Indigenous; Endemic
Scrophulariaceae	*Aptosimum indivisum*	Burch. ex Benth.	LC	Indigenous; Endemic
Scrophulariaceae	*Aptosimum lineare*	Marloth & Engl.		Indigenous
Scrophulariaceae	*Aptosimum procumbens*	(Lehm.) Steud.	LC	Indigenous; Endemic
Scrophulariaceae	*Aptosimum spinescens*	(Thunb.) Emil Weber	LC	Indigenous; Endemic
Asteraceae	*Arctotis hirsuta*	(Harv.) Beauverd	LC	Indigenous; Endemic
Asteraceae	*Arctotis leiocarpa*	Harv.	LC	Indigenous; Endemic
Asteraceae	*Arctotis sp.*			
Poaceae	*Aristida adscensionis*	L.	LC	Indigenous
Poaceae	*Aristida congesta subsp. congesta*	Roem. & Schult.	LC	Indigenous
Poaceae	*Aristida diffusa subsp. burkei*	Trin.	LC	Indigenous
Poaceae	*Aristida engleri var. engleri*	Mez	LC	Indigenous; Endemic
Asparagaceae	*Asparagus capensis var. capensis*	L.	LC	Indigenous; Endemic
Asparagaceae	*Asparagus exuvialis forma exuvialis*	Burch.	NE	Indigenous; Endemic
Asparagaceae	*Asparagus falcatus*	L.	LC	Indigenous
Asparagaceae	*Asparagus pearsonii*	Kies	LC	Indigenous; Endemic
Asparagaceae	*Asparagus suaveolens*	Burch.	LC	Indigenous
Aspleniaceae	*Asplenium cordatum*	(Thunb.) Sw.	LC	Indigenous
Asteraceae	*Athanasia minuta subsp. minuta*	(L.f.) Kallersjo	LC	Indigenous; Endemic
Amaranthaceae	*Atriplex cinerea subsp. bolusii*	Poir.	NE	Indigenous
Amaranthaceae	*Atriplex eardleyae*	Aellen		Not indigenous; Naturalised
Amaranthaceae	*Atriplex lindleyi subsp. inflata*	Moq.		Not indigenous; Naturalised; Invasive
Amaranthaceae	*Atriplex semibaccata*	R.Br.		Not indigenous; Naturalised; Invasive
Amaranthaceae	*Atriplex vestita var. appendiculata*	(Thunb.) Aellen	LC	Indigenous; Endemic
Zygophyllaceae	*Augea capensis*	Thunb.	LC	Indigenous; Endemic
Salvadoraceae	*Azima tetracantha*	Lam.	LC	Indigenous
Iridaceae	*Babiana sp.*			
Acanthaceae	*Barleria irritans*	Nees		Indigenous; Endemic
Acanthaceae	*Barleria lichtensteiniana*	Nees		Indigenous; Endemic
Acanthaceae	*Barleria pungens*	L.f.	LC	Indigenous; Endemic
Acanthaceae	*Barleria rigida*	Nees	LC	Indigenous; Endemic
Amaranthaceae	*Bassia salsoloides*	(Fenzl) A.J.Scott	LC	Indigenous; Endemic
Elatinaceae	*Bergia anagalloides*	(E.Mey. ex Fenzl) Walp.	LC	Indigenous; Endemic
Asteraceae	*Berkheya annectens*	Harv.	LC	Indigenous; Endemic
Asteraceae	*Berkheya canescens*	DC.	LC	Indigenous; Endemic
Asteraceae	*Berkheya pinnatifida subsp. pinnatifida*	(Thunb.) Thell.	LC	Indigenous; Endemic

Asteraceae	*Berkheya spinosissima subsp. spinosissima*	(Thunb.) Willd.	LC	Indigenous; Endemic
Asteraceae	*Bertilia hantamensis*	(J.C.Manning & Goldblatt) Cron	LC	Indigenous; Endemic
Acanthaceae	*Blepharis mitrata*	C.B.Clarke		Indigenous; Endemic
Nyctaginaceae	*Boerhavia cordobensis*	Kuntze		Not indigenous; Naturalised
Nyctaginaceae	*Boerhavia repens subsp. repens*	L.	LC	Indigenous
Cyperaceae	*Bolboschoenus glaucus*	(Lam.) S.G.Sm.	LC	Indigenous
Capparaceae	*Boscia albitrunca*	(Burch.) Gilg & Gilg-Ben.	LC	Indigenous
Capparaceae	*Boscia foetida subsp. foetida*	Schinz	LC	Indigenous
Poaceae	*Brachiaria glomerata*	(Hack.) A.Camus	LC	Indigenous; Endemic
Amaryllidaceae	*Brunsvigia comptonii*	W.F.Barker	LC	Indigenous; Endemic
Amaryllidaceae	*Brunsvigia sp.*			
Bryaceae	*Bryum argenteum*	Hedw.		Indigenous
Asphodelaceae	*Bulbine abyssinica*	A.Rich.	LC	Indigenous
Capparaceae	*Cadaba aphylla*	(Thunb.) Wild	LC	Indigenous
Fabaceae	*Calobota linearifolia*	(E.Mey.) Boatwr. & B.-E.van Wyk	LC	Indigenous; Endemic
Fabaceae	*Calobota lotononoides*	(Schltr.) Boatwr. & B.-E.van Wyk	NT	Indigenous; Endemic
Fabaceae	*Calobota spinescens*	(Harv.) Boatwr. & B.-E.van Wyk	LC	Indigenous; Endemic
Bignoniaceae	*Catophractes alexandri*	D.Don	LC	Indigenous
Poaceae	*Cenchrus ciliaris*	L.	LC	Indigenous
Poaceae	*Centropodia glauca*	(Nees) Cope	LC	Indigenous
Aizoaceae	*Cephalophyllum fulleri*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Cephalophyllum sp.*			
Gigaspermaceae	*Chamaebryum pottioides*	Ther. & Dixon		Indigenous
Verbenaceae	*Chascanum garipense*	E.Mey.		Indigenous; Endemic
Verbenaceae	*Chascanum pumilum*	E.Mey.		Indigenous; Endemic
Pteridaceae	*Cheilanthes kunzei*	Mett.	LC	Indigenous; Endemic
Aizoaceae	*Cheiridopsis schlechteri*	Tischer	LC	Indigenous; Endemic
Amaranthaceae	*Chenopodium murale var. murale*	L.		Not indigenous; Naturalised
Poaceae	*Chloris virgata*	Sw.	LC	Indigenous
Asteraceae	*Chrysocoma ciliata*	L.	LC	Indigenous
Asteraceae	*Chrysocoma longifolia*	DC.	LC	Indigenous; Endemic
Asteraceae	*Chrysocoma microphylla*	Thunb.	LC	Indigenous; Endemic
Asteraceae	*Chrysocoma sparsifolia*	Hutch.	LC	Indigenous; Endemic
Cucurbitaceae	*Citrullus lanatus*	(Thunb.) Matsum. & Nakai	LC	Indigenous
Poaceae	*Cladoraphis spinosa*	(L.f.) S.M.Phillips	LC	Indigenous; Endemic
Cleomaceae	*Cleome angustifolia subsp. diandra*	Forssk.	LC	Indigenous

Cleomaceae	*Cleome foliosa var. lutea*	Hook.f.	LC	Indigenous; Endemic
Cleomaceae	*Cleome oxyphylla var. oxyphylla*	Burch.	LC	Indigenous
Cleomaceae	*Cleome paxii*	(Schinz) Gilg & Gilg-Ben.	LC	Indigenous; Endemic
Colchicaceae	*Colchicum bellum*	(Schltr. & K.Krause) J.C.Manning & Vinn.		Indigenous; Endemic
Colchicaceae	*Colchicum melanthoides subsp. melanthoides*	(Willd.) J.C.Manning & Vinn.		Indigenous; Endemic
Aizoaceae	*Conicosia elongata*	(Haw.) N.E.Br.	LC	Indigenous; Endemic
Aizoaceae	*Conophytum achabense*	S.A.Hammer	VU	Indigenous; Endemic
Aizoaceae	*Conophytum calculus subsp. vanzylii*	(A.Berger) N.E.Br.	LC	Indigenous; Endemic
Aizoaceae	*Conophytum friedrichiae*	(Dinter) Schwantes	LC	Indigenous; Endemic
Aizoaceae	*Conophytum fulleri*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Conophytum marginatum subsp. haramoepense*	Lavis	LC	Indigenous; Endemic
Aizoaceae	*Conophytum praesectum*	N.E.Br.	LC	Indigenous; Endemic
Aizoaceae	*Conophytum sp.*			
Aizoaceae	*Conophytum subfenestratum*	Schwantes	LC	Indigenous; Endemic
Convolvulaceae	*Convolvulus sagittatus*	Thunb.	LC	Indigenous
Cucurbitaceae	*Corallocarpus dissectus*	Cogn.	LC	Indigenous; Endemic
Brassicaceae	*Coronopus squamatus*	(Forssk.) Asch.		Not indigenous; Naturalised
Asteraceae	*Cotula melaleuca*	Bolus	LC	Indigenous; Endemic
Asteraceae	*Cotula microglossa*	(DC.) O.Hoffm. & Kuntze ex Kuntze	LC	Indigenous; Endemic
Crassulaceae	*Cotyledon orbiculata var. orbiculata*	L.	LC	Indigenous
Asteraceae	*Crassothonna sedifolia*	(DC.) B.Nord.	LC	Indigenous; Endemic
Crassulaceae	*Crassula columnaris subsp. prolifera*	Thunb.		Indigenous; Endemic
Crassulaceae	*Crassula corallina subsp. macrorrhiza*	Thunb.		Indigenous; Endemic
Crassulaceae	*Crassula decumbens var. brachyphylla*	Thunb.		Indigenous; Endemic
Crassulaceae	*Crassula deltoidea*	Thunb.		Indigenous; Endemic
Crassulaceae	*Crassula elegans subsp. elegans*	Schonland & Baker f.		Indigenous; Endemic
Crassulaceae	*Crassula exilis subsp. sedifolia*	Harv.		Indigenous; Endemic
Crassulaceae	*Crassula garibina*	Marloth & Schonland		Indigenous; Endemic
Crassulaceae	*Crassula garibina subsp. garibina*	Marloth & Schonland		Indigenous; Endemic
Crassulaceae	*Crassula grisea*	Schonland	LC	Indigenous; Endemic
Crassulaceae	*Crassula muscosa var. muscosa*	L.		Indigenous; Endemic

Crassulaceae	*Crassula obovata var. obovata*	Haw.		Indigenous; Endemic
Crassulaceae	*Crassula sericea var. sericea*	Schonland		Indigenous; Endemic
Crassulaceae	*Crassula sericea var. velutina*	Schonland		Indigenous; Endemic
Scrophulariaceae	*Cromidon minutum*	(Rolfe) Hilliard	LC	Indigenous; Endemic
Amaryllidaceae	*Crossyne flava*	(W.F.Barker ex Snijman) D.Mull.-Doblies & U.Mull.-Doblies		Indigenous; Endemic
Fabaceae	*Crotalaria virgultalis*	Burch. ex DC.	LC	Indigenous; Endemic
Cucurbitaceae	*Cucumis africanus*	L.f.	LC	Indigenous
Cucurbitaceae	*Cucumis myriocarpus subsp. leptodermis*	Naudin	LC	Indigenous; Endemic
Cucurbitaceae	*Cucumis myriocarpus subsp. myriocarpus*	Naudin	LC	Indigenous
Cucurbitaceae	*Cucumis rigidus*	E.Mey. ex Sond.	LC	Indigenous; Endemic
Fabaceae	*Cullen tomentosum*	(Thunb.) J.W.Grimes	LC	Indigenous
Fabaceae	*Cyamopsis serrata*	Schinz	LC	Indigenous; Endemic
Cyperaceae	*Cyperus bellus*	Kunth	LC	Indigenous
Cyperaceae	*Cyperus indecorus var. namaquensis*	Kunth	NE	Indigenous; Endemic
Poaceae	*Danthoniopsis ramosa*	(Stapf) Clayton	LC	Indigenous
Solanaceae	*Datura ferox*	L.		Not indigenous; Naturalised; Invasive
Apiaceae	*Deverra denudata subsp. aphylla*	(Viv.) Pfisterer & Podlech	LC	Indigenous; Endemic
Scrophulariaceae	*Diascia integerrima*	E.Mey. ex Benth.	LC	Indigenous; Endemic
Scrophulariaceae	*Diascia runcinata*	E.Mey. ex Benth.	LC	Indigenous; Endemic
Scrophulariaceae	*Diascia sp.*			
Poaceae	*Dichanthium annulatum var. papillosum*	(Forssk.) Stapf	LC	Indigenous
Poaceae	*Dichanthium sp.*			
Asteraceae	*Dicoma capensis*	Less.	LC	Indigenous
Poaceae	*Digitaria eriantha*	Steud.	LC	Indigenous
Poaceae	*Digitaria sanguinalis*	(L.) Scop.	NE	Not indigenous; Naturalised
Asteraceae	*Dimorphotheca jucunda*	E.Phillips	LC	Indigenous; Endemic
Asteraceae	*Dimorphotheca pinnata var. breve*	(Thunb.) Harv.		Indigenous
Asteraceae	*Dimorphotheca polyptera*	DC.	LC	Indigenous; Endemic
Asteraceae	*Dimorphotheca sinuata*	DC.	LC	Indigenous
Aizoaceae	*Dinteranthus puberulus*	N.E.Br.	LC	Indigenous; Endemic
Ebenaceae	*Diospyros acocksii*	(De Winter) De Winter	LC	Indigenous; Endemic
Ebenaceae	*Diospyros lycioides subsp. lycioides*	Desf.		Indigenous
Hyacinthaceae	*Dipcadi brevifolium*	(Thunb.) Fourc.		Indigenous; Endemic
Hyacinthaceae	*Dipcadi gracillimum*	Baker		Indigenous
Poaceae	*Dregeochloa calviniensis*	Conert	LC	Indigenous; Endemic

Aizoaceae	*Drosanthemum floribundum*	(Haw.) Schwantes	LC	Indigenous; Endemic
Aizoaceae	*Drosanthemum hispidum*	(L.) Schwantes	LC	Indigenous; Endemic
Aizoaceae	*Drosanthemum karrooense*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Drosanthemum latipetalum*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Drosanthemum sp.*			
Aizoaceae	*Drosanthemum subclausum*	L.Bolus	LC	Indigenous; Endemic
Plumbaginaceae	*Dyerophytum africanum*	(Lam.) Kuntze	LC	Indigenous; Endemic
Amaranthaceae	*Dysphania carinata*	(R.Br.) Mosyakin & Clemants		Not indigenous; Naturalised; Invasive
Aizoaceae	*Ebracteola fulleri*	(L.Bolus) Glen	LC	Indigenous; Endemic
Poaceae	*Ehrharta calycina*	Sm.	LC	Indigenous
Poaceae	*Eleusine coracana subsp. africana*	(L.) Gaertn.	LC	Indigenous
Poaceae	*Enneapogon cenchroides*	(Licht. ex Roem. & Schult.) C.E.Hubb.	LC	Indigenous
Poaceae	*Enneapogon desvauxii*	P.Beauv.	LC	Indigenous
Poaceae	*Enneapogon scaber*	Lehm.	LC	Indigenous
Poaceae	*Eragrostis annulata*	Rendle ex Scott-Elliot	LC	Indigenous
Poaceae	*Eragrostis bicolor*	Nees	LC	Indigenous
Poaceae	*Eragrostis brizantha*	Nees	LC	Indigenous; Endemic
Poaceae	*Eragrostis curvula*	(Schrad.) Nees	LC	Indigenous
Poaceae	*Eragrostis echinochloidea*	Stapf	LC	Indigenous
Poaceae	*Eragrostis homomalla*	Nees	LC	Indigenous
Poaceae	*Eragrostis lehmanniana var. chaunantha*	Nees	LC	Indigenous; Endemic
Poaceae	*Eragrostis lehmanniana var. lehmanniana*	Nees	LC	Indigenous
Poaceae	*Eragrostis macrochlamys var. macrochlamys*	Pilg.	NE	Indigenous; Endemic
Poaceae	*Eragrostis nindensis*	Ficalho & Hiern	LC	Indigenous
Poaceae	*Eragrostis obtusa*	Munro ex Ficalho & Hiern	LC	Indigenous; Endemic
Poaceae	*Eragrostis porosa*	Nees	LC	Indigenous
Poaceae	*Eragrostis procumbens*	Nees	LC	Indigenous
Poaceae	*Eragrostis pseudobtusa*	De Winter	NE	Indigenous; Endemic
Poaceae	*Eragrostis rotifer*	Rendle	LC	Indigenous
Poaceae	*Eragrostis sp.*			
Ericaceae	*Erica natalitia var. natalitia*	Bolus	LC	Indigenous
Asteraceae	*Eriocephalus ambiguus*	(DC.) M.A.N.Mull.	LC	Indigenous; Endemic
Asteraceae	*Eriocephalus pauperrimus*	Merxm. & Eberle	LC	Indigenous; Endemic
Asteraceae	*Eriocephalus spinescens*	Burch.	LC	Indigenous; Endemic

Ruscaceae	*Eriospermum bakerianum subsp. bakerianum*	Schinz	LC	Indigenous; Endemic
Ruscaceae	*Eriospermum porphyrium*	Archibald	LC	Indigenous; Endemic
Ruscaceae	*Eriospermum pusillum*	P.L.Perry	LC	Indigenous; Endemic
Ebenaceae	*Euclea undulata*	Thunb.		Indigenous
Euphorbiaceae	*Euphorbia braunsii*	N.E.Br.	LC	Indigenous; Endemic
Euphorbiaceae	*Euphorbia gariepina*	Boiss.		Indigenous
Euphorbiaceae	*Euphorbia glanduligera*	Pax	LC	Indigenous
Euphorbiaceae	*Euphorbia inaequilatera var. inaequilatera*	Sond.	NE	Indigenous
Euphorbiaceae	*Euphorbia mauritanica*	L.	LC	Indigenous
Euphorbiaceae	*Euphorbia spinea*	N.E.Br.	LC	Indigenous; Endemic
Euphorbiaceae	*Euphorbia tirucalli*	L.	LC	Indigenous
Asteraceae	*Euryops subcarnosus subsp. vulgaris*	DC.	LC	Indigenous; Endemic
Fabroniaceae	*Fabronia pilifera*	Hornsch.		Indigenous
Asteraceae	*Felicia burkei*	(Harv.) L.Bolus	LC	Indigenous; Endemic
Asteraceae	*Felicia clavipilosa*	Grau		Indigenous
Asteraceae	*Felicia clavipilosa subsp. clavipilosa*	Grau	LC	Indigenous
Asteraceae	*Felicia muricata*	(Thunb.) Nees		Indigenous
Asteraceae	*Felicia muricata subsp. muricata*	(Thunb.) Nees	LC	Indigenous
Asteraceae	*Felicia namaquana*	(Harv.) Merxm.	LC	Indigenous; Endemic
Asteraceae	*Felicia sp.*			
Iridaceae	*Ferraria variabilis*	Goldblatt & J.C.Manning	LC	Indigenous; Endemic
Poaceae	*Fingerhuthia africana*	Lehm.	LC	Indigenous; Endemic
Apocynaceae	*Fockea comaru*	(E.Mey.) N.E.Br.	LC	Indigenous; Endemic
Urticaceae	*Forsskaolea candida*	L.f.		Indigenous; Endemic
Asteraceae	*Foveolina dichotoma*	(DC.) Kallersjo	LC	Indigenous; Endemic
Funariaceae	*Funaria clavata*	(Mitt.) Magill		Indigenous; Endemic
Aizoaceae	*Galenia africana*	L.	LC	Indigenous
Aizoaceae	*Galenia collina*	(Eckl. & Zeyh.) Walp.	LC	Indigenous; Endemic
Aizoaceae	*Galenia namaensis*	Schinz	LC	Indigenous; Endemic
Aizoaceae	*Galenia papulosa*	(Eckl. & Zeyh.) Sond.	LC	Indigenous; Endemic
Aizoaceae	*Galenia sarcophylla*	Fenzl	LC	Indigenous; Endemic
Aizoaceae	*Galenia secunda*	(L.f.) Sond.	LC	Indigenous; Endemic
Aizoaceae	*Galenia sp.*			
Aizoaceae	*Galenia squamulosa*	(Eckl. & Zeyh.) Fenzl	LC	Indigenous; Endemic
Asteraceae	*Gazania jurineifolia subsp. jurineifolia*	DC.	LC	Indigenous; Endemic
Asteraceae	*Gazania jurineifolia subsp. scabra*	DC.	LC	Indigenous; Endemic
Asteraceae	*Gazania lichtensteinii*	Less.	LC	Indigenous; Endemic

Asteraceae	*Geigeria filifolia*	Mattf.	LC	Indigenous
Asteraceae	*Geigeria ornativa subsp. ornativa*	O.Hoffm.	LC	Indigenous
Asteraceae	*Geigeria pectidea*	(DC.) Harv.	LC	Indigenous; Endemic
Asteraceae	*Geigeria vigintisquamea*	O.Hoffm.	LC	Indigenous; Endemic
Amaryllidaceae	*Gethyllis britteniana subsp. britteniana*	Baker	LC	Indigenous; Endemic
Gisekiaceae	*Gisekia africana var. africana*	(Lour.) Kuntze	LC	Indigenous
Gisekiaceae	*Gisekia pharnaceoides*	L.		Indigenous
Gisekiaceae	*Gisekia pharnaceoides var. pharnaceoides*	L.	LC	Indigenous
Iridaceae	*Gladiolus orchidiflorus*	Andrews	LC	Indigenous; Endemic
Apocynaceae	*Gomphocarpus filiformis*	(E.Mey.) D.Dietr.	LC	Indigenous; Endemic
Asphodelaceae	*Gonialoe variegata*	(L.) Boatwr. & J.C.Manning	LC	Indigenous; Endemic
Funariaceae	*Goniomitrium africanum*	(Mull.Hal.) Broth.		Indigenous
Asteraceae	*Gorteria alienata*	(Thunb.) Stangb. & Anderb.		Indigenous; Endemic
Neuradaceae	*Grielum humifusum*	Thunb.		Indigenous; Endemic
Neuradaceae	*Grielum humifusum var. humifusum*	Thunb.	LC	Indigenous; Endemic
Neuradaceae	*Grielum humifusum var. parviflorum*	Thunb.	LC	Indigenous; Endemic
Celastraceae	*Gymnosporia linearis subsp. lanceolata*	(L.f.) Loes.	LC	Indigenous; Endemic
Amaryllidaceae	*Haemanthus sp.*			
Scrophulariaceae	*Hebenstretia cordata*	L.	LC	Indigenous; Endemic
Scrophulariaceae	*Hebenstretia integrifolia*	L.	LC	Indigenous
Asteraceae	*Helichrysum herniarioides*	DC.	LC	Indigenous
Asteraceae	*Helichrysum micropoides*	DC.	LC	Indigenous; Endemic
Asteraceae	*Helichrysum pumilio*	(O.Hoffm.) Hilliard & B.L.Burtt		Indigenous; Endemic
Asteraceae	*Helichrysum tomentosulum subsp. aromaticum*	(Klatt) Merxm.	LC	Indigenous; Endemic
Asteraceae	*Helichrysum zeyheri*	Less.	LC	Indigenous; Endemic
Brassicaceae	*Heliophila arenosa*	Schltr.	LC	Indigenous; Endemic
Brassicaceae	*Heliophila deserticola var. deserticola*	Schltr.	LC	Indigenous; Endemic
Brassicaceae	*Heliophila seselifolia var. seselifolia*	Burch. ex DC.	NE	Indigenous; Endemic
Brassicaceae	*Heliophila trifurca*	Burch. ex DC.	LC	Indigenous; Endemic
Brassicaceae	*Heliophila variabilis*	Burch. ex DC.	LC	Indigenous; Endemic
Boraginaceae	*Heliotropium ciliatum*	Kaplan	LC	Indigenous
Boraginaceae	*Heliotropium curassavicum*	L.		Not indigenous; Naturalised
Boraginaceae	*Heliotropium supinum*	L.		Not indigenous; Naturalised

Loranthaceae	*Helixanthera garciana*	(Engl.) Danser	LC	Indigenous
Aizoaceae	*Hereroa hesperantha*	(Dinter & A.Berger) Dinter & Schwantes	LC	Indigenous; Endemic
Malvaceae	*Hermannia abrotanoides*	Schrad.	LC	Indigenous; Endemic
Malvaceae	*Hermannia bicolor*	Engl. & Dinter	LC	Indigenous; Endemic
Malvaceae	*Hermannia burchellii*	(Sweet) I.Verd.	LC	Indigenous; Endemic
Malvaceae	*Hermannia erodioides*	(Burch. ex DC.) Kuntze	LC	Indigenous; Endemic
Malvaceae	*Hermannia gariepina*	Eckl. & Zeyh.	LC	Indigenous; Endemic
Malvaceae	*Hermannia johanssenii*	N.E.Br.	LC	Indigenous; Endemic
Malvaceae	*Hermannia marginata*	(Turcz.) Pillans	LC	Indigenous; Endemic
Malvaceae	*Hermannia minutiflora*	Engl.	LC	Indigenous; Endemic
Malvaceae	*Hermannia paucifolia*	Turcz.	LC	Indigenous; Endemic
Malvaceae	*Hermannia sp.*			
Malvaceae	*Hermannia spinosa*	E.Mey. ex Harv.	LC	Indigenous; Endemic
Malvaceae	*Hermannia stricta*	(E.Mey. ex Turcz.) Harv.	LC	Indigenous; Endemic
Malvaceae	*Hermannia tomentosa*	(Turcz.) Schinz ex Engl.	LC	Indigenous
Amaranthaceae	*Hermbstaedtia fleckii*	(Schinz) Baker & C.B.Clarke	LC	Indigenous
Amaranthaceae	*Hermbstaedtia glauca*	(J.C.Wendl.) Rchb. ex Steud.	LC	Indigenous; Endemic
Iridaceae	*Hesperantha bachmannii*	Baker	LC	Indigenous; Endemic
Amaryllidaceae	*Hessea speciosa*	Snijman	LC	Indigenous; Endemic
Amaryllidaceae	*Hessea stenosiphon*	(Snijman) D.Mull.-Doblies & U.Mull.-Doblies	LC	Indigenous; Endemic
Malvaceae	*Hibiscus elliottiae*	Harv.	LC	Indigenous; Endemic
Asteraceae	*Hirpicium echinus*	Less.	LC	Indigenous; Endemic
Apocynaceae	*Huernia barbata subsp. barbata*	(Masson) Haw.	LC	Indigenous; Endemic
Molluginaceae	*Hypertelis umbellata*	(Forssk.) Thulin		Indigenous
Asteraceae	*Ifloga molluginoides*	(DC.) Hilliard	LC	Indigenous; Endemic
Aizoaceae	*Ihlenfeldtia excavata*	(L.Bolus) H.E.K.Hartmann	LC	Indigenous; Endemic
Aizoaceae	*Ihlenfeldtia vanzylii*	(L.Bolus) H.E.K.Hartmann	LC	Indigenous; Endemic
Fabaceae	*Indigastrum argyroides*	(E.Mey.) Schrire	LC	Indigenous; Endemic
Fabaceae	*Indigastrum niveum*	(Willd. ex Spreng.) Schrire & Callm.		Indigenous; Endemic
Fabaceae	*Indigofera alternans var. alternans*	DC.	LC	Indigenous
Fabaceae	*Indigofera heterotricha*	DC.	LC	Indigenous
Fabaceae	*Indigofera heterotricha subsp. pechuelii*	DC.		Indigenous
Fabaceae	*Indigofera meyeriana*	Eckl. & Zeyh.	LC	Indigenous; Endemic
Fabaceae	*Indigofera sordida*	Benth. ex Harv.	LC	Indigenous
Fabaceae	*Indigofera sp.*			

Hyacinthaceae	*Iosanthus toxicarius*	(C.Archer & R.H.Archer) Mart.-Azorin, M.B.Crespo, M.Pinter, Slade & Wetschn		Indigenous; Endemic
Scrophulariaceae	*Jamesbrittenia adpressa*	(Dinter) Hilliard	LC	Indigenous; Endemic
Scrophulariaceae	*Jamesbrittenia aridicola*	Hilliard	LC	Indigenous; Endemic
Scrophulariaceae	*Jamesbrittenia atropurpurea subsp. atropurpurea*	(Benth.) Hilliard	LC	Indigenous
Scrophulariaceae	*Jamesbrittenia canescens var. canescens*	(Benth.) Hilliard	LC	Indigenous
Scrophulariaceae	*Jamesbrittenia maxii*	(Hiern) Hilliard	LC	Indigenous
Scrophulariaceae	*Jamesbrittenia sp.*			
Scrophulariaceae	*Jamesbrittenia thunbergii*	(G.Don) Hilliard	LC	Indigenous; Endemic
Acanthaceae	*Justicia distichotricha*	Lindau		Indigenous; Endemic
Acanthaceae	*Justicia divaricata*	Licht. ex Roem. & Schult.		Indigenous
Acanthaceae	*Justicia incana*	(Nees) T.Anderson		Indigenous; Endemic
Acanthaceae	*Justicia spartioides*	T.Anderson		Indigenous; Endemic
Cucurbitaceae	*Kedrostis africana*	(L.) Cogn.	LC	Indigenous
Rubiaceae	*Kohautia caespitosa subsp. brachyloba*	Schnizl.	LC	Indigenous
Rubiaceae	*Kohautia cynanchica*	DC.	LC	Indigenous
Rubiaceae	*Kohautia sp.*			
Hyacinthaceae	*Lachenalia giessii*	W.F.Barker		Indigenous; Endemic
Hyacinthaceae	*Lachenalia inconspicua*	G.D.Duncan		Indigenous; Endemic
Santalaceae	*Lacomucinaea lineata*	(L.f.) Nickrent & M.A.Garcia		Indigenous; Endemic
Asteraceae	*Laggera decurrens*	(Vahl) Hepper & J.R.I.Wood	LC	Indigenous
Aizoaceae	*Lampranthus otzenianus*	(Dinter) Friedrich	LC	Indigenous; Endemic
Iridaceae	*Lapeirousia plicata subsp. foliosa*	(Jacq.) Diels		Indigenous; Endemic
Apocynaceae	*Larryleachia marlothii*	(N.E.Br.) Plowes		Indigenous; Endemic
Apocynaceae	*Larryleachia sp.*			
Asteraceae	*Lasiopogon glomerulatus*	(Harv.) Hilliard	LC	Indigenous
Thymelaeaceae	*Lasiosiphon polycephalus*	(E.Mey. ex Meisn.) H.Pearson	LC	Indigenous; Endemic
Hyacinthaceae	*Ledebouria sp.*			
Fabaceae	*Leobordea platycarpa*	(Viv.) B.-E.van Wyk & Boatwr.	LC	Indigenous
Brassicaceae	*Lepidium africanum subsp. divaricatum*	(Burm.f.) DC.	LC	Indigenous; Endemic
Brassicaceae	*Lepidium schinzii*	Thell.	LC	Indigenous; Endemic
Poaceae	*Leptochloa fusca*	(L.) Kunth	LC	Indigenous
Fabaceae	*Lessertia annularis*	Burch.	LC	Indigenous; Endemic
Fabaceae	*Lessertia frutescens subsp. frutescens*	(L.) Goldblatt & J.C.Manning	LC	Indigenous; Endemic
Fabaceae	*Lessertia frutescens subsp. microphylla*	(L.) Goldblatt & J.C.Manning	LC	Indigenous; Endemic
Fabaceae	*Lessertia sp.*			

Asteraceae	*Leysera tenella*	DC.	LC	Indigenous; Endemic
Limeaceae	*Limeum aethiopicum var. aethiopicum*	Burm.f.	NE	Indigenous; Endemic
Limeaceae	*Limeum aethiopicum var. lanceolatum*	Burm.f.	NE	Indigenous; Endemic
Limeaceae	*Limeum arenicolum*	G.Schellenb.	LC	Indigenous; Endemic
Limeaceae	*Limeum argute-carinatum var. argute-carinatum*	Wawra ex Wawra & Peyr.	LC	Indigenous
Limeaceae	*Limeum myosotis var. myosotis*	H.Walter	LC	Indigenous
Limeaceae	*Limeum rhombifolium*	G.Schellenb.	LC	Indigenous; Endemic
Scrophulariaceae	*Limosella inflata*	Hilliard & B.L.Burtt	LC	Indigenous; Endemic
Aizoaceae	*Lithops julii subsp. fulleri*	(Dinter & Schwantes) N.E.Br.	LC	Indigenous; Endemic
Aizoaceae	*Lithops olivacea*	L.Bolus		Indigenous; Endemic
Lophiocarpaceae	*Lophiocarpus polystachyus*	Turcz.	LC	Indigenous; Endemic
Asteraceae	*Lopholaena cneorifolia*	(DC.) S.Moore	LC	Indigenous; Endemic
Fabaceae	*Lotononis falcata*	(E.Mey.) Benth.	LC	Indigenous; Endemic
Fabaceae	*Lotononis lenticula*	(E.Mey.) Benth.	LC	Indigenous; Endemic
Fabaceae	*Lotononis rabenaviana*	Dinter & Harms	LC	Indigenous; Endemic
Solanaceae	*Lycium bosciifolium*	Schinz	LC	Indigenous; Endemic
Solanaceae	*Lycium cinereum*	Thunb.	LC	Indigenous; Endemic
Solanaceae	*Lycium horridum*	Thunb.	LC	Indigenous; Endemic
Solanaceae	*Lycium pilifolium*	C.H.Wright	LC	Indigenous; Endemic
Solanaceae	*Lycium pumilum*	Dammer	LC	Indigenous; Endemic
Solanaceae	*Lycium schizocalyx*	C.H.Wright	LC	Indigenous; Endemic
Solanaceae	*Lycium sp.*			
Scrophulariaceae	*Lyperia tristis*	(L.f.) Benth.	LC	Indigenous; Endemic
Aizoaceae	*Malephora lutea*	(Haw.) Schwantes	LC	Indigenous; Endemic
Aizoaceae	*Malephora thunbergii*	(Haw.) Schwantes	LC	Indigenous; Endemic
Malvaceae	*Malva aegyptia*	L.		Not indigenous; Naturalised
Malvaceae	*Malva parviflora var. parviflora*	L.		Not indigenous; Naturalised
Scrophulariaceae	*Manulea cheiranthus*	(L.) L.	LC	Indigenous; Endemic
Scrophulariaceae	*Manulea gariepina*	Benth.	LC	Indigenous; Endemic
Scrophulariaceae	*Manulea nervosa*	E.Mey. ex Benth.	LC	Indigenous; Endemic
Scrophulariaceae	*Manulea schaeferi*	Pilg.	LC	Indigenous; Endemic
Scrophulariaceae	*Manulea sp.*			
Melianthaceae	*Melianthus comosus*	Vahl	LC	Indigenous; Endemic
Fabaceae	*Melolobium candicans*	(E.Mey.) Eckl. & Zeyh.	LC	Indigenous
Fabaceae	*Melolobium canescens*	Benth.	LC	Indigenous
Fabaceae	*Melolobium humile*	Eckl. & Zeyh.	LC	Indigenous; Endemic
Aizoaceae	*Mesembryanthemum articulatum*	Thunb.		Indigenous; Endemic

Aizoaceae	*Mesembryanthemum coriarium*	Burch. ex N.E.Br.		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum crystallinum*	L.	LC	Indigenous
Aizoaceae	*Mesembryanthemum emarcidum*	Thunb.		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum geniculiflorum*	L.		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum junceum*	Haw.		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum latipetalum*	(L.Bolus) Klak		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum nitidum*	Haw.		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum noctiflorum subsp. stramineum*	L.		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum nodiflorum*	L.	LC	Indigenous
Aizoaceae	*Mesembryanthemum schenkii*	Schinz		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum subnodosum*	A.Berger		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum tetragonum*	Thunb.		Indigenous; Endemic
Aizoaceae	*Mesembryanthemum vaginatum*	Lam.		Indigenous; Endemic
Apocynaceae	*Microloma incanum*	Decne.	LC	Indigenous
Apocynaceae	*Microloma longitubum*	Schltr.	LC	Indigenous; Endemic
Acanthaceae	*Monechma sp.*			
Geraniaceae	*Monsonia crassicaulis*	(Rehm) F.Albers	LC	Indigenous; Endemic
Geraniaceae	*Monsonia glauca*	R.Knuth	LC	Indigenous
Geraniaceae	*Monsonia luederitziana*	Focke & Schinz	LC	Indigenous; Endemic
Geraniaceae	*Monsonia parvifolia*	Schinz	LC	Indigenous; Endemic
Geraniaceae	*Monsonia patersonii*	DC.	LC	Indigenous; Endemic
Geraniaceae	*Monsonia salmoniflora*	(Moffett) F.Albers	LC	Indigenous; Endemic
Geraniaceae	*Monsonia umbellata*	Harv.	LC	Indigenous
Montiniaceae	*Montinia caryophyllacea*	Thunb.	LC	Indigenous
Iridaceae	*Moraea ramosissima*	(L.f.) Druce	LC	Indigenous; Endemic
Iridaceae	*Moraea serpentina*	Baker	LC	Indigenous; Endemic
Iridaceae	*Moraea venenata*	Dinter	LC	Indigenous; Endemic
Asteraceae	*Myxopappus acutilobus*	(DC.) Kallersjo	LC	Indigenous; Endemic
Scrophulariaceae	*Nemesia anisocarpa*	E.Mey. ex Benth.	LC	Indigenous; Endemic
Scrophulariaceae	*Nemesia maxii*	Hiern	LC	Indigenous; Endemic
Amaryllidaceae	*Nerine laticoma*	(Ker Gawl.) T.Durand & Schinz	LC	Indigenous
Resedaceae	*Oligomeris dipetala var. dipetala*	(Aiton) Turcz.	LC	Indigenous; Endemic
Ophioglossaceae	*Ophioglossum polyphyllum var. polyphyllum*	A.Braun	LC	Indigenous
Ophioglossaceae	*Ophioglossum sp.*			

Hyacinthaceae	*Ornithogalum bicornutum*	F.M.Leight.		Indigenous; Endemic
Hyacinthaceae	*Ornithogalum juncifolium var. juncifolium*	Jacq.		Indigenous; Endemic
Hyacinthaceae	*Ornithogalum pruinosum*	F.M.Leight.		Indigenous; Endemic
Poaceae	*Oropetium capense*	Stapf	LC	Indigenous
Asteraceae	*Osteospermum armatum*	Norl.	LC	Indigenous; Endemic
Asteraceae	*Osteospermum calendulaceum*	L.f.	LC	Indigenous; Endemic
Asteraceae	*Osteospermum spinescens*	Thunb.	LC	Indigenous; Endemic
Asteraceae	*Othonna arbuscula*	(Thunb.) Sch.Bip.	LC	Indigenous; Endemic
Asteraceae	*Othonna auriculifolia*	Licht. ex Less.	LC	Indigenous; Endemic
Asteraceae	*Othonna daucifolia*	J.C.Manning & Goldblatt	LC	Indigenous; Endemic
Asteraceae	*Othonna perfoliata*	(L.f.) Jacq.	LC	Indigenous; Endemic
Asteraceae	*Othonna quercifolia*	DC.	LC	Indigenous; Endemic
Asteraceae	*Othonna sp.*			
Oxalidaceae	*Oxalis annae*	F.Bolus	LC	Indigenous; Endemic
Oxalidaceae	*Oxalis pocockiae*	L.Bolus	LC	Indigenous; Endemic
Anacardiaceae	*Ozoroa dispar*	(C.Presl) R.Fern. & A.Fern.	LC	Indigenous; Endemic
Poaceae	*Panicum arbusculum*	Mez	LC	Indigenous; Endemic
Poaceae	*Panicum gilvum*	Launert	LC	Indigenous; Endemic
Poaceae	*Panicum lanipes*	Mez	LC	Indigenous; Endemic
Fabaceae	*Parkinsonia africana*	Sond.	LC	Indigenous; Endemic
Hypoxidaceae	*Pauridia scullyi*	(Baker) Snijman & Kocyan	LC	Indigenous; Endemic
Peganaceae	*Peganum harmala*	L.		Not indigenous; Naturalised
Asteraceae	*Pegolettia retrofracta*	(Thunb.) Kies	LC	Indigenous; Endemic
Geraniaceae	*Pelargonium fulgidum*	(L.) L'Her.	LC	Indigenous; Endemic
Geraniaceae	*Pelargonium minimum*	(Cav.) Willd.	LC	Indigenous; Endemic
Geraniaceae	*Pelargonium spinosum*	Willd.	LC	Indigenous; Endemic
Geraniaceae	*Pelargonium xerophyton*	Schltr. ex R.Knuth	LC	Indigenous; Endemic
Scrophulariaceae	*Peliostomum junceum*	(Hiern) Kolberg & Van Slageren		Indigenous; Endemic
Scrophulariaceae	*Peliostomum leucorrhizum*	E.Mey. ex Benth.	LC	Indigenous; Endemic
Poaceae	*Pennisetum thunbergii*	Kunth	LC	Indigenous
Poaceae	*Pentameris aristifolia*	(Schweick.) Galley & H.P.Linder	LC	Indigenous; Endemic
Asteraceae	*Pentzia incana*	(Thunb.) Kuntze	LC	Indigenous; Endemic
Asteraceae	*Pentzia lanata*	Hutch.	LC	Indigenous; Endemic
Asteraceae	*Pentzia spinescens*	Less.	LC	Indigenous; Endemic
Polygonaceae	*Persicaria decipiens*	(R.Br.) K.L.Wilson	LC	Indigenous
Nyctaginaceae	*Phaeoptilum spinosum*	Radlk.	LC	Indigenous; Endemic
Bartramiaceae	*Philonotis dregeana*	(Mull.Hal.) A.Jaeger		Indigenous

Poaceae	*Phragmites australis*	(Cav.) Steud.	LC	Indigenous
Aytoniaceae	*Plagiochasma rupestre var. rupestre*	(J.R.Forst. & G.Forst.) Steph.		Indigenous
Plantaginaceae	*Plantago virginica*	L.		Not indigenous; Naturalised
Polypodiaceae	*Platycerium bifurcatum*	(Cav.) C.Chr.		Not indigenous; Cultivated; Naturalised; Invasive
Aizoaceae	*Plinthus karooicus*	I.Verd.	LC	Indigenous; Endemic
Scrophulariaceae	*Polycarena filiformis*	Diels	LC	Indigenous; Endemic
Polygalaceae	*Polygala leptophylla var. leptophylla*	Burch.	LC	Indigenous
Polygalaceae	*Polygala seminuda*	Harv.	LC	Indigenous
Polygonaceae	*Polygonum aviculare*	L.		Not indigenous; Naturalised
Polygonaceae	*Polygonum bellardii*	All.		Not indigenous; Naturalised
Poaceae	*Polypogon monspeliensis*	(L.) Desf.	NE	Not indigenous; Naturalised
Salicaceae	*Populus canescens*	(Aiton) Sm.		Not indigenous; Naturalised; Invasive
Portulacaceae	*Portulaca kermesina*	N.E.Br.		Indigenous
Didiereaceae	*Portulacaria fruticulosa*	(H.Pearson & Stephens) Bruyns & Klak		Indigenous; Endemic
Fabaceae	*Prosopis glandulosa var. glandulosa*	Torr.	NE	Not indigenous; Naturalised
Fabaceae	*Prosopis glandulosa var. torreyana*	Torr.	NE	Not indigenous; Naturalised; Invasive
Fabaceae	*Prosopis sp.*			
Fabaceae	*Prosopis velutina*	Wooton	NE	Not indigenous; Naturalised; Invasive
Pottiaceae	*Pseudocrossidium crinitum*	(Schultz) R.H.Zander		Indigenous
Aizoaceae	*Psilocaulon sp.*			
Asteraceae	*Pteronia acuminata*	DC.	LC	Indigenous; Endemic
Asteraceae	*Pteronia ciliata*	Thunb.	LC	Indigenous; Endemic
Asteraceae	*Pteronia glabrata*	L.f.	LC	Indigenous; Endemic
Asteraceae	*Pteronia leucoclada*	Turcz.	LC	Indigenous; Endemic
Asteraceae	*Pteronia mucronata*	DC.	LC	Indigenous; Endemic
Asteraceae	*Pteronia oblanceolata*	E.Phillips	LC	Indigenous; Endemic
Asteraceae	*Pteronia sp.*			
Malvaceae	*Radyera urens*	(L.f.) Bullock	LC	Indigenous; Endemic
Apocynaceae	*Raphionacme flanaganii*	Schltr.	LC	Indigenous
Fabaceae	*Requienia sphaerosperma*	DC.	LC	Indigenous
Ricciaceae	*Riccia albornata*	O.H.Volk & Perold		Indigenous; Endemic
Ricciaceae	*Riccia cavernosa*	Hoffm.		Indigenous
Ricciaceae	*Riccia okahandjana*	S.W.Arnell		Indigenous
Ricciaceae	*Riccia villosa*	Steph.		Indigenous; Endemic
Zygophyllaceae	*Roepera lichtensteiniana*	(Cham.) Beier & Thulin		Indigenous; Endemic
Zygophyllaceae	*Roepera microphyllum*	(L.f.) Beier & Thulin		Indigenous; Endemic

Asteraceae	*Rosenia humilis*	(Less.) K.Bremer	LC	Indigenous; Endemic
Aizoaceae	*Ruschia centrocapsula*	H.E.K.Hartmann & Stuber	LC	Indigenous; Endemic
Aizoaceae	*Ruschia cradockensis subsp. triticiformis*	(Kuntze) H.E.K.Hartmann & Stuber	LC	Indigenous; Endemic
Aizoaceae	*Ruschia divaricata*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Ruschia intricata*	(N.E.Br.) H.E.K.Hartmann & Stuber	LC	Indigenous; Endemic
Aizoaceae	*Ruschia kenhardtensis*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Ruschia muricata*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Ruschia sp.*			
Aizoaceae	*Ruschia spinosa*	(L.) Dehn	LC	Indigenous; Endemic
Aizoaceae	*Ruschia uncinata*	(L.) Schwantes	LC	Indigenous; Endemic
Salicaceae	*Salix mucronata subsp. mucronata*	Thunb.	LC	Indigenous
Amaranthaceae	*Salsola aphylla*	L.f.	LC	Indigenous
Amaranthaceae	*Salsola apterygea*	Botsch.	LC	Indigenous; Endemic
Amaranthaceae	*Salsola barbata*	Aellen	LC	Indigenous; Endemic
Amaranthaceae	*Salsola columnaris*	Botsch.	LC	Indigenous; Endemic
Amaranthaceae	*Salsola geminiflora*	Fenzl ex C.H.Wright	LC	Indigenous; Endemic
Amaranthaceae	*Salsola gemmifera*	Botsch.	LC	Indigenous; Endemic
Amaranthaceae	*Salsola kali*	L.		Not indigenous; Naturalised; Invasive
Amaranthaceae	*Salsola namaqualandica*	Botsch.	LC	Indigenous; Endemic
Amaranthaceae	*Salsola sp.*			
Amaranthaceae	*Salsola tuberculata*	(Moq.) Fenzl	LC	Indigenous; Endemic
Amaranthaceae	*Salsola zeyheri*	(Moq.) Bunge	LC	Indigenous; Endemic
Lamiaceae	*Salvia tiliifolia*	Vahl		Not indigenous; Naturalised; Invasive
Poaceae	*Schismus barbatus*	(Loefl. ex L.) Thell.	LC	Indigenous
Poaceae	*Schmidtia kalahariensis*	Stent	LC	Indigenous
Poaceae	*Schmidtia pappophoroides*	Steud.	LC	Indigenous
Fabaceae	*Schotia afra var. angustifolia*	(L.) Thunb.	LC	Indigenous; Endemic
Aizoaceae	*Schwantesia pillansii*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Schwantesia sp.*			
Aizoaceae	*Schwantesia triebneri*	L.Bolus	LC	Indigenous; Endemic
Anacardiaceae	*Searsia lancea*	(L.f.) F.A.Barkley		Indigenous
Scrophulariaceae	*Selago divaricata*	L.f.	LC	Indigenous; Endemic
Scrophulariaceae	*Selago paniculata*	Thunb.	LC	Indigenous; Endemic
Asteraceae	*Senecio burchellii*	DC.	LC	Indigenous; Endemic
Asteraceae	*Senecio cardaminifolius*	DC.	LC	Indigenous; Endemic
Asteraceae	*Senecio leptophyllus*	DC.	LC	Indigenous; Endemic
Asteraceae	*Senecio niveus*	(Thunb.) Willd.	LC	Indigenous
Asteraceae	*Senecio piptocoma*	O.Hoffm.	LC	Indigenous; Endemic
Asteraceae	*Senecio sisymbriifolius*	DC.	LC	Indigenous; Endemic

Fabaceae	*Senna italica subsp. arachoides*	Mill.	LC	Indigenous
Loranthaceae	*Septulina glauca*	(Thunb.) Tiegh.	LC	Indigenous; Endemic
Amaranthaceae	*Sericocoma avolans*	Fenzl	LC	Indigenous; Endemic
Amaranthaceae	*Sericocoma pungens*	Fenzl	LC	Indigenous; Endemic
Proteaceae	*Serruria acrocarpa*	R.Br.	LC	Indigenous; Endemic
Pedaliaceae	*Sesamum capense*	Burm.f.	LC	Indigenous; Endemic
Pedaliaceae	*Sesamum sp.*			
Poaceae	*Setaria verticillata*	(L.) P.Beauv.	LC	Indigenous
Zygophyllaceae	*Sisyndite spartea*	E.Mey. ex Sond.	LC	Indigenous; Endemic
Solanaceae	*Solanum burchellii*	Dunal	LC	Indigenous; Endemic
Solanaceae	*Solanum capense*	L.	LC	Indigenous; Endemic
Poaceae	*Sporobolus coromandelianus*	(Retz.) Kunth	LC	Indigenous
Poaceae	*Sporobolus ioclados*	(Trin.) Nees	LC	Indigenous
Poaceae	*Sporobolus nebulosus*	Hack.	LC	Indigenous; Endemic
Poaceae	*Sporobolus nervosus*	Hochst.	LC	Indigenous
Apocynaceae	*Stapelia sp.*			
Poaceae	*Stipagrostis anomala*	De Winter	LC	Indigenous; Endemic
Poaceae	*Stipagrostis brevifolia*	(Nees) De Winter	LC	Indigenous; Endemic
Poaceae	*Stipagrostis ciliata var. capensis*	(Desf.) De Winter	LC	Indigenous
Poaceae	*Stipagrostis fastigiata*	(Hack.) De Winter	LC	Indigenous; Endemic
Poaceae	*Stipagrostis hochstetteriana var. hochstetteriana*	(Beck ex Hack.) De Winter	LC	Indigenous; Endemic
Poaceae	*Stipagrostis hochstetteriana var. secalina*	(Beck ex Hack.) De Winter	LC	Indigenous
Poaceae	*Stipagrostis namaquensis*	(Nees) De Winter	LC	Indigenous; Endemic
Poaceae	*Stipagrostis obtusa*	(Delile) Nees	LC	Indigenous
Poaceae	*Stipagrostis uniplumis var. uniplumis*	(Licht.) De Winter	LC	Indigenous
Amaranthaceae	*Suaeda fruticosa*	(L.) Forssk.	LC	Indigenous
Molluginaceae	*Suessenguthiella scleranthoides*	(Sond.) Friedrich	LC	Indigenous; Endemic
Pottiaceae	*Syntrichia ammonsiana*	(H.A.Crum & L.E.Anderson) Ochyra		Indigenous
Talinaceae	*Talinum tenuissimum*	Dinter		Indigenous
Tamaricaceae	*Tamarix usneoides*	E.Mey. ex Bunge	LC	Indigenous
Fabaceae	*Tephrosia dregeana var. dregeana*	E.Mey.	LC	Indigenous
Zygophyllaceae	*Tetraena chrysopteron*	(Retief) Beier & Thulin		Indigenous; Endemic
Zygophyllaceae	*Tetraena microcarpa*	(Licht. ex Cham.) Beier & Thulin		Indigenous; Endemic
Zygophyllaceae	*Tetraena retrofracta*	(Thunb.) Beier & Thulin		Indigenous; Endemic
Zygophyllaceae	*Tetraena rigida*	(Schinz) Beier & Thulin		Indigenous; Endemic
Zygophyllaceae	*Tetraena simplex*	(L.) Beier & Thulin		Indigenous

Zygophyllaceae	*Tetraena tenuis*	(Glover) Beier & Thulin		Indigenous; Endemic
Aizoaceae	*Tetragonia acanthocarpa*	Adamson	LC	Indigenous; Endemic
Aizoaceae	*Tetragonia arbuscula*	Fenzl	LC	Indigenous; Endemic
Aizoaceae	*Tetragonia calycina*	Fenzl	LC	Indigenous; Endemic
Aizoaceae	*Tetragonia nigrescens*	Eckl. & Zeyh.	LC	Indigenous; Endemic
Aizoaceae	*Tetragonia reduplicata*	Welw. ex Oliv.	LC	Indigenous
Aizoaceae	*Tetragonia sp.*			
Pottiaceae	*Tortula atrovirens*	(Sm.) Lindb.		Indigenous
Asphodelaceae	*Trachyandra sp.*			
Euphorbiaceae	*Tragia meyeriana*	Mull.Arg.	LC	Indigenous
Poaceae	*Tragus berteronianus*	Schult.	LC	Indigenous
Poaceae	*Tragus racemosus*	(L.) All.	LC	Indigenous
Aizoaceae	*Trianthema parvifolia var. parvifolia*	E.Mey. ex Sond.	LC	Indigenous
Aizoaceae	*Trianthema parvifolia var. rubens*	E.Mey. ex Sond.	LC	Indigenous
Zygophyllaceae	*Tribulus cristatus*	C.Presl	LC	Indigenous; Endemic
Zygophyllaceae	*Tribulus pterophorus*	C.Presl	LC	Indigenous; Endemic
Zygophyllaceae	*Tribulus sp.*			
Zygophyllaceae	*Tribulus terrestris*	L.	LC	Indigenous
Boraginaceae	*Trichodesma africanum*	(L.) Lehm.	LC	Indigenous
Aizoaceae	*Trichodiadema pomeridianum*	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	*Trichodiadema setuliferum*	(N.E.Br.) Schwantes	LC	Indigenous; Endemic
Poaceae	*Tricholaena capensis subsp. capensis*	(Licht. ex Roem. & Schult.) Nees	LC	Indigenous; Endemic
Poaceae	*Tricholaena monachne*	(Trin.) Stapf & C.E.Hubb.	LC	Indigenous
Pottiaceae	*Trichostomum brachydontium*	Bruch		Indigenous
Poaceae	*Triraphis ramosissima*	Hack.	LC	Indigenous
Iridaceae	*Tritonia karooica*	M.P.de Vos	LC	Indigenous; Endemic
Cucurbitaceae	*Trochomeria debilis*	(Sond.) Hook.f.	LC	Indigenous; Endemic
Crassulaceae	*Tylecodon reticulatus subsp. reticulatus*	(L.f.) Toelken		Indigenous; Endemic
Crassulaceae	*Tylecodon rubrovenosus*	(Dinter) Toelken		Indigenous; Endemic
Crassulaceae	*Tylecodon sulphureus*	(Toelken) Toelken		Indigenous; Endemic
Crassulaceae	*Tylecodon sulphureus var. sulphureus*	(Toelken) Toelken		Indigenous; Endemic
Asteraceae	*Ursinia nana subsp. nana*	DC.	LC	Indigenous
Fabaceae	*Vachellia karroo*	(Hayne) Banfi & Galasso	LC	Indigenous
Plantaginaceae	*Veronica anagallis-aquatica*	L.	LC	Indigenous

Campanulaceae	*Wahlenbergia patula*	A.DC.	LC	Indigenous; Endemic
Fabaceae	*Xerocladia viridiramis*	(Burch.) Taub.	LC	Indigenous; Endemic
Scrophulariaceae	*Zaluzianskya affinis*	Hilliard	LC	Indigenous; Endemic
Scrophulariaceae	*Zaluzianskya diandra*	Diels	LC	Indigenous; Endemic
Scrophulariaceae	*Zaluzianskya sanorum*	Hilliard	LC	Indigenous; Endemic
Rhamnaceae	*Ziziphus mucronata subsp. mucronata*	Willd.		Indigenous
Zygophyllaceae	*Zygophyllum dregeanum*	Sond.	LC	Indigenous
Zygophyllaceae	*Zygophyllum sp.*			

APPENDIX B*: Avifaunal species expected to occur in the prospecting area*

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Acrocephalus baeticatus	Reed-warbler, African	Unlisted	Unlisted
Afrotis afra	Korhaan, Southern Black	VU	VU
Afrotis afraoides	Korhaan, Northern Black	Unlisted	LC
Agapornis roseicollis	Lovebird, Rosy-faced	Unlisted	LC
Alopochen aegyptiacus	Goose, Egyptian	Unlisted	LC
Amadina erythrocephala	Finch, Red-headed	Unlisted	LC
Anas capensis	Teal, Cape	Unlisted	LC
Anas erythrorhyncha	Teal, Red-billed	Unlisted	LC
Anas smithii	Shoveler, Cape	Unlisted	LC
Anthoscopus minutus	Penduline-tit, Cape	Unlisted	LC
Anthus cinnamomeus	Pipit, African	Unlisted	LC
Apus affinis	Swift, Little	Unlisted	LC
Apus caffer	Swift, White-rumped	Unlisted	LC
Aquila pennatus	Eagle, Booted	Unlisted	LC
Aquila verreauxii	Eagle, Verreaux's	VU	LC
Ardea cinerea	Heron, Grey	Unlisted	LC
Ardeotis kori	Bustard, Kori	NT	NT
Batis pririt	Batis, Pririt	Unlisted	LC
Bostrychia hagedash	Ibis, Hadeda	Unlisted	LC
Bradornis infuscatus	Flycatcher, Chat	Unlisted	LC
Bubo africanus	Eagle-owl, Spotted	Unlisted	LC
Burhinus capensis	Thick-knee, Spotted	Unlisted	LC
Buteo rufofuscus	Buzzard, Jackal	Unlisted	LC
Calandrella cinerea	Lark, Red-capped	Unlisted	LC
Calendulauda africanoides	Lark, Fawn-coloured	Unlisted	LC
Calendulauda burra	Lark, Red	VU	VU
Calendulauda sabota	Lark, Sabota	Unlisted	LC
Calidris ferruginea	Sandpiper, Curlew	LC	NT
Calidris minuta	Stint, Little	LC	LC
Caprimulgus rufigena	Nightjar, Rufous-cheeked	Unlisted	LC
Cercomela familiaris	Chat, Familiar	Unlisted	LC
Cercomela schlegelii	Chat, Karoo	Unlisted	LC

Cercomela sinuata	Chat, Sickle-winged	Unlisted	LC
Cercomela tractrac	Chat, Tractrac	Unlisted	LC
Cercotrichas coryphoeus	Scrub-robin, Karoo	Unlisted	LC
Cercotrichas paena	Scrub-robin, Kalahari	Unlisted	LC
Certhilauda subcoronata	Lark, Karoo Long-billed	Unlisted	LC
Charadrius pecuarius	Plover, Kittlitz's	Unlisted	LC
Charadrius tricollaris	Plover, Three-banded	Unlisted	LC
Chersomanes albofasciata	Lark, Spike-heeled	Unlisted	LC
Chrysococcyx caprius	Cuckoo, Diderick	Unlisted	LC
Ciconia ciconia	Stork, White	Unlisted	LC
Cinnyris chalybeus	Sunbird, Southern Double-collared	Unlisted	LC
Cinnyris fuscus	Sunbird, Dusky	Unlisted	LC
Circaetus pectoralis	Snake-eagle, Black-chested	Unlisted	LC
Cisticola aridulus	Cisticola, Desert	Unlisted	LC
Cisticola subruficapilla	Cisticola, Grey-backed	Unlisted	LC
Colius colius	Mousebird, White-backed	Unlisted	LC
Columba guinea	Pigeon, Speckled	Unlisted	LC
Columba livia	Dove, Rock	Unlisted	LC
Corvus albus	Crow, Pied	Unlisted	LC
Cossypha caffra	Robin-chat, Cape	Unlisted	LC
Coturnix coturnix	Quail, Common	Unlisted	LC
Crithagra albogularis	White-throated Canary	LC	LC
Crithagra atrogularis	Canary, Black-throated	Unlisted	LC
Crithagra flaviventris	Canary, Yellow	Unlisted	LC
Cursorius rufus	Courser, Burchell's	VU	LC
Cypsiurus parvus	Palm-swift, African	Unlisted	LC
Dendropicos fuscescens	Woodpecker, Cardinal	Unlisted	LC
Dicrurus adsimilis	Drongo, Fork-tailed	Unlisted	LC
Emberiza impetuani	Bunting, Lark-like	Unlisted	LC
Eremomela icteropygialis	Eremomela, Yellow-bellied	Unlisted	LC
Eremopterix australis	Sparrow-lark, Black-eared	Unlisted	LC
Eremopterix verticalis	Sparrowlark, Grey-backed	Unlisted	LC
Euplectes orix	Bishop, Southern Red	Unlisted	LC
Eupodotis vigorsii	Korhaan, Karoo	NT	LC
Falco biarmicus	Falcon, Lanner	VU	LC
Falco naumanni	Kestrel, Lesser	Unlisted	LC
Falco rupicoloides	Kestrel, Greater	Unlisted	LC
Falco rupicolus	Kestrel, Rock	Unlisted	LC
Fulica cristata	Coot, Red-knobbed	Unlisted	LC
Galerida magnirostris	Lark, Large-billed	Unlisted	LC
Himantopus himantopus	Stilt, Black-winged	Unlisted	LC
Hirundo cucullata	Swallow, Greater Striped	Unlisted	LC
Hirundo fuligula	Martin, Rock	Unlisted	Unlisted
Hirundo rustica	Swallow, Barn	Unlisted	LC
Lamprotornis nitens	Starling, Cape Glossy	Unlisted	LC
Lanius collaris	Fiscal, Common (Southern)	Unlisted	LC

Malcorus pectoralis	Warbler, Rufous-eared	Unlisted	LC
Melierax canorus	Goshawk, Southern Pale Chanting	Unlisted	LC
Mirafra fasciolata	Lark, Eastern Clapper	Unlisted	LC
Motacilla capensis	Wagtail, Cape	Unlisted	LC
Myrmecocichla formicivora	Chat, Anteating	Unlisted	LC
Neotis ludwigii	Bustard, Ludwig's	EN	EN
Nilaus afer	Brubru	Unlisted	LC
Oena capensis	Dove, Namaqua	Unlisted	LC
Oenanthe monticola	Wheatear, Mountain	Unlisted	LC
Oenanthe pileata	Wheatear, Capped	Unlisted	LC
Onychognathus nabouroup	Starling, Pale-winged	Unlisted	LC
Oxyura maccoa	Duck, Maccoa	NT	NT
Parisoma subcaeruleum	Tit-babbler, Chestnut-vented	Unlisted	Unlisted
Passer diffusus	Sparrow, Southern Grey-headed	Unlisted	LC
Passer domesticus	Sparrow, House	Unlisted	LC
Passer melanurus	Sparrow, Cape	Unlisted	LC
Philetairus socius	Weaver, Sociable	Unlisted	LC
Philomachus pugnax	Ruff	Unlisted	LC
Phragmacia substriata	Warbler, Namaqua	Unlisted	Unlisted
Plectropterus gambensis	Goose, Spur-winged	Unlisted	LC
Plocepasser mahali	Sparrow-weaver, White-browed	Unlisted	LC
Ploceus velatus	Masked-weaver, Southern	Unlisted	LC
Polemaetus bellicosus	Eagle, Martial	EN	VU
Polihierax semitorquatus	Falcon, Pygmy	Unlisted	LC
Polyboroides typus	Harrier-Hawk, African	Unlisted	LC
Prinia flavicans	Prinia, Black-chested	Unlisted	LC
Pterocles namaqua	Sandgrouse, Namaqua	Unlisted	LC
Pycnonotus nigricans	Bulbul, African Red-eyed	Unlisted	LC
Quelea quelea	Quelea, Red-billed	Unlisted	LC
Recurvirostra avosetta	Avocet, Pied	Unlisted	LC
Rhinopomastus cyanomelas	Scimitarbill, Common	Unlisted	LC
Rhinoptilus africanus	Courser, Double-banded	Unlisted	LC
Riparia paludicola	Martin, Brown-throated	Unlisted	LC
Serinus alario	Canary, Black-headed	Unlisted	LC
Sigelus silens	Flycatcher, Fiscal	Unlisted	LC
Spizocorys sclateri	Lark, Sclater's	NT	NT
Spizocorys starki	Lark, Stark's	Unlisted	LC
Sporopipes squamifrons	Finch, Scaly-feathered	Unlisted	LC
Streptopelia capicola	Turtle-dove, Cape	Unlisted	LC
Streptopelia semitorquata	Dove, Red-eyed	Unlisted	LC
Streptopelia senegalensis	Dove, Laughing	Unlisted	LC
Sturnus vulgaris	Starling, Common	Unlisted	LC
Sylvietta rufescens	Crombec, Long-billed	Unlisted	LC
Tachybaptus ruficollis	Grebe, Little	Unlisted	LC
Tadorna cana	Shelduck, South African	Unlisted	LC
Telophorus zeylonus	Bokmakierie, Bokmakierie	Unlisted	LC

Tricholaema leucomelas	Barbet, Acacia Pied	Unlisted	LC
Tringa nebularia	Greenshank, Common	Unlisted	LC
Turdus olivaceus	Thrush, Olive	Unlisted	LC
Turdus smithi	Thrush, Karoo	Unlisted	LC
Urocolius indicus	Mousebird, Red-faced	Unlisted	LC
Vanellus armatus	Lapwing, Blacksmith	Unlisted	LC
Vanellus coronatus	Lapwing, Crowned	Unlisted	LC
Vidua macroura	Whydah, Pin-tailed	Unlisted	LC
Zosterops pallidus	White-eye, Orange River	Unlisted	LC

APPENDIX C: *Mammals species expected to occur in the prospecting area*

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Aethomys namaquensis	Namaqua rock rat	LC	LC
Antidorcas marsupialis	Sclater's Shrew	LC	LC
Canis mesomelas	Black-backed Jackal	LC	LC
Caracal caracal	Caracal	LC	LC
Ceratotherium simum	White Rhinoceros	NT	NT
Crocidura cyanea	Reddish-grey Musk Shrew	LC	LC
Cynictis penicillata	Yellow Mongoose	LC	LC
Desmodillus auricularis	Short-tailed Gerbil	LC	LC
Diceros bicornis	Black Rhinoceros	EN	CR
Eidolon helvum	African Straw-colored Fruit Bat	LC	NT
Elephantulus rupestris	Western rock sengi	LC	LC
Eptesicus hottentotus	Long-tailed Serotine Bat	LC	LC
Felis nigripes	Black-footed Cat	VU	VU
Felis silvestris	African Wildcat	LC	LC
Genetta genetta	Small-spotted Genet	LC	LC
Gerbillurus paeba	Hairy-footed Gerbil	LC	LC
Gerbillurus vallinus	Bushy-tailed Hairy-footed Gerbil	LC	LC
Graphiurus ocularis	Spectacular Dormouse	NT	LC
Herpestes pulverulentus	Cape Grey Mongoose	LC	LC
Hystrix africaeaustralis	Cape Porcupine	LC	LC
Ictonyx striatus	Striped Polecat	LC	LC
Lepus capensis	Cape Hare	LC	LC
Lepus saxatilis	Scrub Hare	LC	LC
Macroscelides proboscideus	Karoo Round-eared Sengi	LC	LC
Malacothrix typica	Gerbil Mouse	LC	LC
Mellivora capensis	Honey Badger	LC	LC
Mus minutoides	Pygmy Mouse	LC	LC
Mus musculus	House Mouse	Unlisted	LC
Neoromicia capensis	Cape Serotine Bat	LC	LC
Nycteris thebaica	Egyptian Slit-faced Bat	LC	LC
Oreotragus oreotragus	Klipspringer	LC	LC
Orycteropus afer	Aardvark	LC	LC

Oryx gazella	Gemsbok	LC	LC
Otocyon megalotis	Bat-eared Fox	LC	LC
Otomys unisulcatus	Karoo Bush Rat	LC	LC
Panthera pardus	Leopard	VU	VU
Papio ursinus	Chacma Baboon	LC	LC
Parotomys brantsii	Brants' Whistling Rat	LC	LC
Parotomys littledalei	Littledale's Whistling Rat	NT	LC
Pedetes capensis	Springhare	LC	LC
Petromus typicus	Dassie Rat	LC	LC
Petromyscus collinus	Pygmy Rock Mouse	LC	LC
Procavia capensis	Rock Hyrax	LC	LC
Proteles cristata	Aardwolf	LC	LC
Raphicerus campestris	Steenbok	LC	LC
Rhabdomys pumilio	Xeric Four-striped Mouse	LC	LC
Sauromys petrophilus	Flat-headed Free-tail Bat	LC	LC
Suncus varilla	Lesser Dwarf Shrew	LC	LC
Suricata suricatta	Suricate	LC	LC
Sylvicapra grimmia	Common Duiker	LC	LC
Tadarida aegyptiaca	Egyptian Free-tailed Bat	LC	LC
Thallomys shortridgei	Shortridge's Rat	DD	DD
Tragelaphus oryx	Common Eland	LC	LC
Vulpes chama	Cape Fox	LC	LC

APPENDIX D: *Reptile species expected to occur within the prospecting area*

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Acontias lineatus	Striped Dwarf Legless Skink	LC	LC
Acontias tristis	Namaqualand Dwarf Legless Skink	LC	LC
Agama aculeata aculeata	Western Ground Agama	LC	Unlisted
Agama anchietae	Anchieta's Agama	LC	Unlisted
Agama atra	Southern Rock Agama	LC	LC
Agama hispida	Southern Spiny Agama	LC	LC
Aspidelaps lubricus lubricus	Coral Shield Snake	LC	LC
Bitis arietans arietans	Puff Adder	LC	Unlisted
Boaedon capensis	Brown House Snake	LC	LC
Chamaeleo namaquensis	Namaqua Chameleon	LC	LC
Chersina angulata	Angulate Tortoise	LC	LC
Chersobius signatus	Speckled Dwarf Tortoise	EN	EN
Chondrodactylus angulifer	Common Giant Gecko	LC	LC
Chondrodactylus bibronii	Bibron's Gecko	LC	Unlisted
Chondrodactylus turneri	Turner's Gecko	LC	Unlisted
Cordylosaurus subtessellatus	Dwarf Plated Lizard	LC	LC
Dasypeltis scabra	Rhombic Egg-eater	LC	LC
Dipsina multimaculata	Dwarf Beaked Snake	LC	Unlisted

Goggia lineata	Striped Pygmy Gecko	LC	LC
Karusasaurus polyzonus	Southern Karusa Lizard	LC	LC
Lamprophis fiskii	Fisk's Snake	LC	LC
Lamprophis guttatus	Spotted Rock Snake	LC	LC
Meroles suborbitalis	Spotted Desert Lizard	LC	Unlisted
Naja nivea	Cape Cobra	LC	Unlisted
Namazonurus peersi	Peer's Nama Lizard	LC	LC
Nucras tessellata	Western Sandveld Lizard	LC	Unlisted
Pachydactylus capensis	Cape Gecko	LC	Unlisted
Pachydactylus labialis	Western Cape Gecko	LC	LC
Pachydactylus latirostris	Quartz Gecko	LC	Unlisted
Pachydactylus purcelli	Purcell's Gecko	LC	Unlisted
Pachydactylus weberi	Weber's Gecko	LC	LC
Pedioplanis inornata	Plain Sand Lizard	LC	Unlisted
Pedioplanis laticeps	Karoo Sand Lizard	LC	LC
Pedioplanis lineoocellata lineoocellata	Spotted Sand Lizard	LC	Unlisted
Pedioplanis namaquensis	Namaqua Sand Lizard	LC	Unlisted
Prosymna bivittata	Two-Striped Shovel-Snout	LC	Unlisted
Prosymna frontalis	South-western Shovel-snout	LC	LC
Psammobates tentorius	Tent Tortoise	LC	LC
Psammophis crucifer	Cross-marked Grass Snake	LC	LC
Psammophis notostictus	Karoo Sand Snake	LC	Unlisted
Psammophis trinasalis	Fork-marked Sand Snake	LC	Unlisted
Ptenopus garrulus maculatus	Spotted Barking Gecko	LC	Unlisted
Rhinotyphlops lalandei	Delalande's Beaked Blind Snake	LC	Unlisted
Telescopus beetzii	Beetz's Tiger Snake	LC	Unlisted
Trachylepis occidentalis	Western Three-striped Skink	LC	Unlisted
Trachylepis sulcata sulcata	Western Rock Skink	LC	Unlisted
Trachylepis variegata	Variegated Skink	LC	Unlisted

APPENDIX E: *Amphibian species expected to occur within the prospecting area*

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Amietia delalandii	Delalande's River Frog	LC	Unlisted
Amietia fuscigula	Cape River Frog	LC	LC
Amietia poyntoni	Poynton's River Frog	LC	LC
Bufo robinsoni	Paradise Toad	LC	LC
Cacosternum boettgeri	Common Caco	LC	LC
Cacosternum namaquense	Namaqua Caco	LC	LC
Phrynomantis annectens	Marbled Rubber Frog	LC	LC
Poyntonophrynus vertebralis	Southern Pygmy Toad	LC	LC
Pyxicephalus adspersus	Giant Bullfrog	NT	LC
Tomopterna cryptotis	Tremelo Sand Frog	LC	LC

Tomopterna delalandii	Cape Sand Frog	LC	LC
Tomopterna tandyi	Tandy's Sand Frog	LC	LC
Vandijkophrynus gariepensis gariepensis	Karoo Toad	Not listed	Not listed
Xenopus laevis	Common Platanna	LC	LC