Proposed KTE Hydrogen Plant Project: 72 km Bulk Water Pipeline along the R27 from the Soafskolk Road (DR2985) turnoff to Brandvlei in the Northern Cape

Animal Species (Birds and Mammals) Theme Compliance Statement

Compiled for

EnviroAfrica
Environmental Management and Impact Assessment | Omgegewingsbestuur en Impakbeoordeling

KTE.energy
Green Hydrogen Driven. Future Given.

By

Cossypha
Ecological

November 2024

REPORT PRODUCTION

Specialist	Role	Project Component	Qualifications and Professional Registration
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Refer to **Appendix A** for an abridged CV of the specialist.

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SPECIALIST DECLARATION OF INDEPENDENCE

I, **Robyn Phillips**, in my capacity as a specialist consultant, hereby declare that I –

- Act as an independent consultant;
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998);
- Do not have and will not have vested interest in the proposed activity proceeding;
- Have no, and will not engage in, conflicting interests in the undertaking of the activity;
- Undertake to disclose, to the Competent Authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Will provide the Competent Authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;
- As a registered member of the South African Council for Natural Scientific Professions, will undertake my profession in accordance with the Code of Conduct of the Council, as well as any other societies to which I am a member;
- Based on information provided to me by the project proponent and in addition to information obtained during the course of this study, have presented the results and conclusion within the associated document to the best of my professional ability;
- Reserve the right to modify aspects pertaining to the present investigation should additional information become available through ongoing research and/or further work in this field; and
- Undertake to have my work peer reviewed on a regular basis by a competent specialist in the field of study for which I am registered.

_____ _____

Robyn Phillips *Pr.Sci.Nat.*
Terrestrial Ecologist
SACNASP Reg. No. 400401/12

Date

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ABBREVIATIONS

CBA	Critical Biodiversity Area
CR	Critically Endangered
DFFE	Department of Forestry, Fisheries and the Environment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
En	Endemic
EN	Endangered
ESA	Ecological Support Area
IUCN	International Union for Conservation of Nature
LC	Least Concern
NEMA	National Environmental Management Act, Act 107 of 1998
NEMBA	National Environmental Management: Biodiversity Act, Act 10 of 2004
NFEPA	National Freshwater Ecosystem Priority Area
NPAES	National Protected Areas Expansion Strategy
NT	Near Threatened
PA	Protected Area
Pr	Protected
QDGC	Quarter Degree Grid Cell
SABAP	South African Bird Atlas Project
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SSV	Site Sensitivity Verification
VU	Vulnerable

1. INTRODUCTION

Kotulo Tsatsi Energy (Pty) Ltd (KTE) are applying for a water use licence to construct a water provision pipeline from the Orange River to a Hydrogen production facility situated roughly halfway between Kenhardt and Brandvlei in the Northern Cape. To contribute to the local communities, it is planned to provide the towns of Kenhardt and Brandvlei with potable water. This water will be delivered in bulk at the existing Kenhardt and Brandvlei storage reservoirs. Provision has been made to provide Kenhardt with a maximum of 2500 m^3/day and Brandvlei with 500 m^3/day. Kenhardt will be supplied via the main bulk water pipeline from the Orange River, while a separate pipeline will need to be constructed to Brandvlei. The distribution of water to these communities will remain the responsibility of the Kai !Garib and Hantam Local Municipalities respectively.

EnviroAfrica cc has been appointed as the independent Environmental Assessment Practitioner (EAP) to undertake the environmental process for the proposed 72 km connecting pipeline to Brandvlei, in this case a Water Use Licence Application (WULA), required in terms of the Regulations promulgated in terms of Section 26 (1) (k) of the National Water Act, Act 36 of 1998 (NWA), as amended on 19 May 2023, the National Environmental Management Act 107 of 1998 (NEMA), and the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R982, as amended by GN R326). Cossypha Ecological was appointed to conduct an Animal Species Assessment, focussing on birds and mammals, to inform the process.

1.1 PROJECT DESCRIPTION

KTE proposes to abstract surface water (10 950 000 m^3/a) by pumps from the Orange River near Keimoes, where it will be conveyed via a 3.1 km long raw water rising main to a new 30 megalitre/day conventional water treatment facility (flocculation, sedimentation, filtration, and disinfection) and new 10 megalitre storage reservoir. Here the raw water will undergo initial treatment to drinking water standards. The potable water will then be transported south along the R27 towards Kenhardt and Brandvlei in bulk water pipelines using pumps initially and then by gravity feed. The pipeline will remain within the road reserve of the R27 until the intersection with the Soafskolk (DR2985) gravel road, approximately 70 km southwest of Kenhardt. Here the pipeline will turn north-west along the gravel road to the proposed Hydrogen Production Facility Treatment Plant, where Green Hydrogen will be produced. A connecting bulk water pipeline will be constructed where the main pipeline turns off at the Soafskolk (DR2985) gravel road intersection with the R27. The bulk water pipeline, which will carry potable water to Brandvlei, will remain within the road reserve of the R27 for approximately 72 km, until reaching the Brandvlei storage reservoir. This report covers the 72 km stretch of pipeline to Brandvlei, while the remainder of the pipelines will be covered in a separate report.

1.2 THE STUDY AREA

1.2.1 LOCATION

The proposed Brandvlei pipeline occurs within the road reserve of the R27 from the intersection of the Soafskolk (DR2985) gravel road (located approximately 70 km southwest of the town of Kenhardt) for approximately 72 km to the town of Brandvlei, which is approximately 142 km southwest of Kenhardt. The northern section of the pipeline is located within the Kai !Garib Local Municipality, in the ZF Mgcawu District of the Northern Cape, while the remainder, and the majority of the route is located within the Hantam Local Municipality, in the Namakwa District of the Northern Cape (**Figure 1**). The study area falls within Quarter Degree Grid Cells (QDGC) 2920 DC, 3020BA, 3020BC, and 3020AD, and lies between 29°51'34.68" and 30°27'37.97" south and 20°28'40.42" and 20°44'07.17" east. The study area is relatively flat and ranges in altitude from around 875 m above mean sea level (a.m.s.l) to approximately 940 m a.m.s.l over the 72 km route.

1.2.2 CLIMATE

The region is arid with most rain falling in late summer and autumn. Rainfall is unreliable and droughts are unpredictable and sometimes prolonged (Mucina and Rutherford, 2006). The region around Brandvlei usually receives around 54 mm of rain per year, with the highest rainfall occurring in March (~17 mm) and the lowest in August (0 mm). Summers are hot and winters are cold. The monthly distribution of average daily maximum temperatures for Brandvlei range from 17.1°C in July to 32°C in January. The region is the coldest during July with the minimum dropping close to 0°C on average during the night (saexplorer, 2024). Temperature extremes can range from -5°C in winter to 43°C in summer. Frost is frequent in winter, and dust devils and small whirlwinds are frequent in summer (Mucina and Rutherford, 2006). The growing season of the region is very short, with rains peaking in March and the onset of frost starting as early as May in some areas (Mucina and Rutherford, 2006).

1.2.3 TOPOGRAPHY AND SURROUNDING LAND USES

The study area is located within the vast rural landscape of the arid Nama Karro comprising natural shrubland, with little to no human settlement, except in small towns situated periodically along the major routes. The dry open shrubland is interspersed with small dolerite outcrops, and non-perennial watercourses form a network that drain into a few large endorheic (closed, dry basin) pans known as floere. The dominant land use of the area is sheep farming. The Brandvlei pipeline route lies within the road reserve of the R27 regional highway (**Figure 2**).

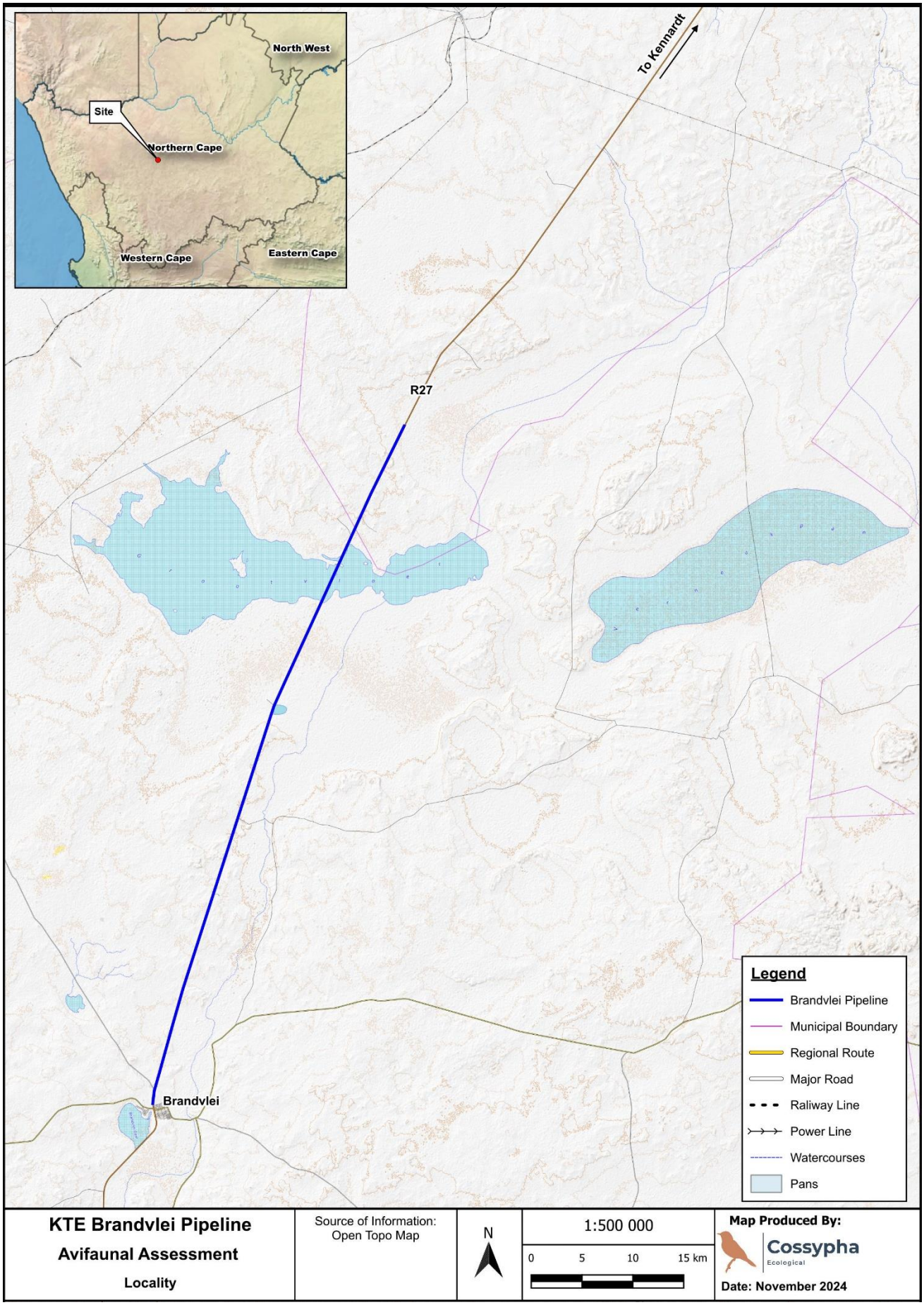


Figure 1: Location of the study area

Figure 2: Aerial context of the study area

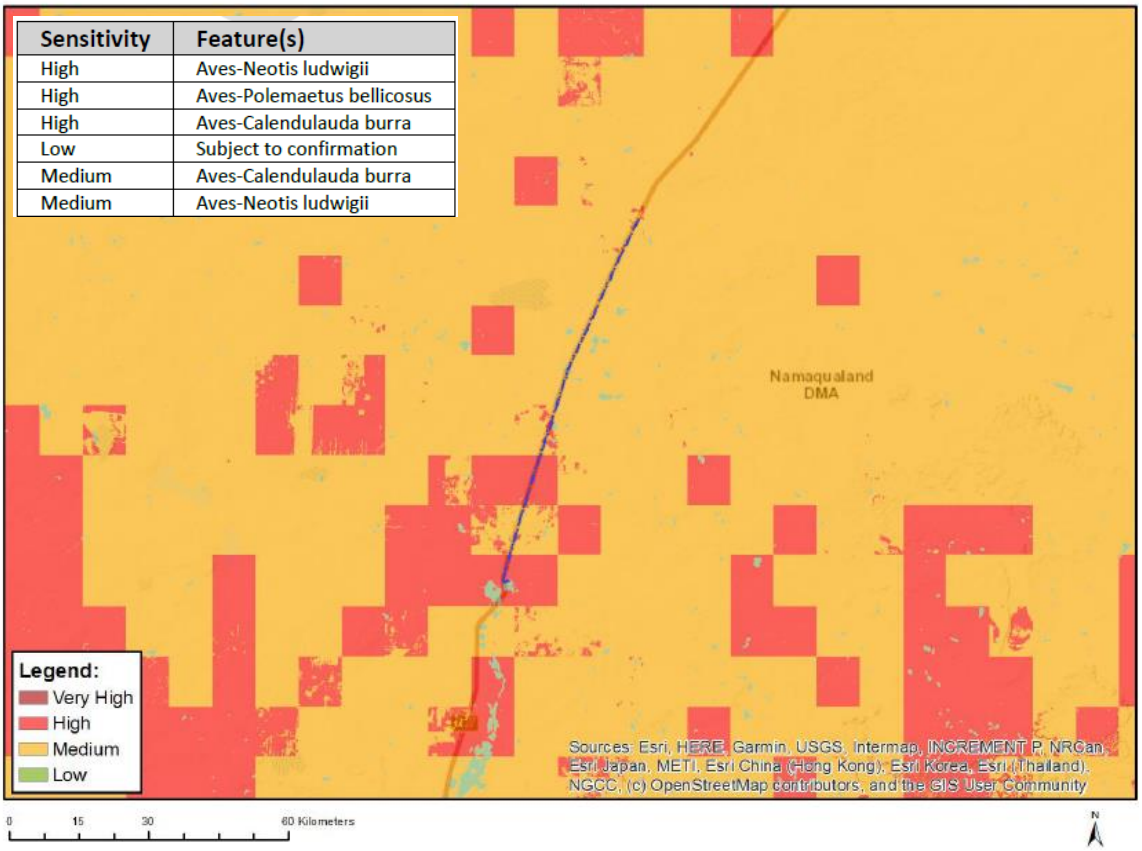
2. REPORTING REQUIREMENTS

2.1 SCREENING TOOL

A Screening Report for proposed site environmental sensitivity, as required by the EIA Regulations of 2014 (as amended in 2017) for Applications for Environmental Authorisation (EA) in terms of NEMA 1998 (Act No. 107 of 1998) was generated for the Brandvlei bulk water pipeline using the National Web-Based Environmental Screening Tool on the 20th of August 2024. The report identified the majority of the study area as having **Medium** sensitivity, with the southern section as **High** sensitivity for the Animal Species theme, due the potential occurrence of the following bird species of conservation concern (SCC):

- High: Aves: Ludwig's Bustard *Neotis ludwigii* (EN)
- High: Aves: Martial Eagle Bustard *Polemaetus bellicosus* (EN)
- High: Aves: Red Lark Calendulauda burra (VU)
- Medium: Aves: Red Lark Calendulauda burra (VU)
- Medium: Aves: Ludwig's Bustard *Neotis ludwigii* (EN)

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Therefore, an animal species assessment (focussing on birds) is required for the project, which must be compiled in accordance with the requirements of the *Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes when Applying for EA* (GN R320 of 2020) and comply with the following gazetted protocol. This protocol replaces the requirements of Appendix 6 of the EIA Regulations, 2014 (as amended) in terms of NEMA:

- *Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species* (GN 1150 of 30 October 2020) as amended 28 July 2023.

The following report therefore comprises an investigation of the birds and mammals present in the study area, including an assessment of the ecological sensitivities and possible impacts associated with the proposed project on the ecology pertaining to birds and mammals in the area.

2.2 SITE SENSITIVITY VERIFICATION

According to the above-mentioned protocol, the current use of the land and the potential environmental sensitivity identified by the screening tool, of the site under consideration, must be confirmed by undertaking a site sensitivity verification prior to commencing with the specialist assessment. This will confirm the actual use of the land on the ground versus that which has been identified by the screening tool and the validity of the sensitivity rating assigned by the screening tool. This will confirm whether a full Specialist Assessment Report (applicable for **Very High** and **High** sensitivity sites) or a Compliance Statement (applicable for **Low** sensitivity sites) is required.

In the case of species assessments, because **Medium** sensitivity data represents suspected habitat for SCC based on occurrence records for these species collected prior to 2002 or is based on habitat suitability modelling, the presence or likely presence of the SCC identified by the screening tool must be investigated through a site inspection. Where SCC are found on the site or have been confirmed to be likely present by the specialist, an **Animal Species Specialist Assessment** must be compiled in accordance with the requirements specified for **Very High** and **High** sensitivity in the protocol. Where no SCC are found on the site or the presence is confirmed to be unlikely during the site inspection, an **Animal Species Compliance Statement** must be submitted.

For the project in question, the site inspection and field surveys were combined into one site visit and took place on the 9th and the 13th of September 2024 where the footprint of the proposed pipeline was inspected by vehicle and on foot at various points. The season was early spring and was deemed an appropriate time of year for the field survey. The site inspection revealed that the assessment area is in a disturbed state with the entire pipeline route situated within the road reserve of the R27 regional route and due to the proximity to the roadway. It is unlikely that any SCC would occur in the areas affected by the proposed development. The site sensitivity for terrestrial fauna can therefore drop to **Low** for the road reserve (see further discussion in **Section 7**).

The following Report therefore comprises an investigation of the terrestrial fauna (with a focus on birds and mammals) on the site in the form of a Compliance Statement in accordance with the above-mentioned protocol and written following the Species Environmental Assessment Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols (SANBI, 2020).

2.3 TERMS OF REFERENCE

The terms of reference for the animal species assessment were to:

- Undertake a desktop assessment and field survey of the site to inform the assessment.
- Complete a habitat assessment to determine the likelihood of bird and mammal SCC occurring within the study area.
- Verify the site sensitivities for terrestrial faunal species.
- If any SCC are recorded, include evidence if possible, such as location and map points of where species are identified denoting them as high sensitivity areas within the site/s.
- Photographic record of the site characteristics, including potential habitats and/or sensitive areas.

- Compilation of a Terrestrial Animal Species Assessment or Compliance Statement following the Species Environmental Assessment Guidelines (SANBI, 2020), including a description of the baseline terrestrial ecology of the area;
- Compilation of a Terrestrial Biodiversity Assessment or Compliance Statement according to the relevant protocol; and
- Recommend impact management actions or any monitoring requirements for inclusion in the EMPr.

3. METHODOLOGY

The study was based on desktop assessment as well as field surveys. The methodology broadly entailed the following.

3.1 DESKTOP ASSESSMENT

The desktop assessment entailed the following:

- Available recent and historical satellite and aerial imagery using Google Earth and the Chief Directorate National Geospatial Information (CDNGI) Geospatial Portal was reviewed to differentiate areas with natural vegetation versus modified and transformed areas of the study area.
- Review of all relevant literature including distribution data of birds and mammals, and vegetation/habitat types expected to occur in the study area, as well as the conservation status of the vegetation types and faunal species.
- Review available information layers within the Geographic Information System (GIS) e.g. regional vegetation types, relevant provincial spatial conservation or biodiversity plan, Important Bird Areas (IBAs), Protected Areas Database etc.
- Mammal species likely to occur in the region of the study area was informed using the electronic database MammalMap (2024) provided by the ADU's Virtual Museum and information regarding species distribution and habitat was obtained from reputable field guides and literature pertaining to mammal distribution such as Skinner and Chimimba (2005) and Stuart and Stuart (2015). Conservation status follows the Red List of Mammals of South Africa, Lesotho and Swaziland (Child *et al*., 2016).
- A comprehensive list of bird species potentially occurring in the area was compiled using electronic databases within Roberts VII Multimedia Birds of Southern Africa (SA Birding, 2011) where distribution maps have been interpreted and updated from the Atlas of Southern African Birds (Harrison *et al*., 1997). The search was confined to the QDGC in which the study area falls (i.e. atlas area of 15' × 15' – roughly 24 × 27 km) to get a comprehensive list of species for the region. The data was supplemented with current Southern African Bird Atlas Project 2 (SABAP2, 2024) data, which is recorded per pentad (a 5' x 5' coordinate spatial grid reference – one QDGC comprises of nine pentads). Bird SCC that potentially occur in the study area were noted and their habitat requirements determined by consulting the relevant literature. Bird names follow the International Ornithological Congress (IOC) World Bird List (v13.2) (Gill *et al*., 2023) while conservation status follows the latest Red Data Book of Birds (Taylor *et al*., 2015), which is updated yearly by BirdLife South Africa in their Checklist of Birds.
- Other online databases such as Co-ordinated Wetland Counts (CWAC), Co-ordinated Avifaunal Road Counts (CAR), Birds in Reserves Project (BIRP), Global Biodiversity Information Facility (GBIF), and iNaturalist were searched for avifaunal SCC potentially occurring in the area.

- The conservation status of species is reported on a national level and global level, based on the International Union for Conservation of Nature (IUCN) Red List Categories and Criteria (**Figure 3**).

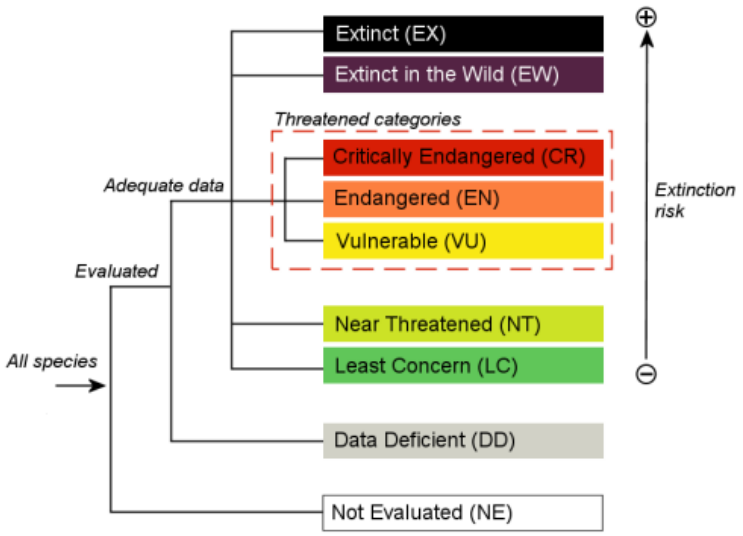


Figure 3: IUCN Red List Categories (www.iucnredlist.org)

3.2 FIELD ASSESSMENT

The field investigation was undertaken on the 9th and the 13th of September 2024 when terrestrial faunal elements within the study area were assessed, with a focus on birds. Daytime surveys were conducted by vehicle and on foot at various points by driving the length of the route within the assessment area. Changes in land cover, habitat, and vegetation were observed, and any fauna or evidence of fauna present on site noted. Photographs were taken at various points to illustrate the condition of vegetation, habitat, and representative areas of the route, and are described in the results section below. Coverage of the study area was deemed to be sufficient. Note that no sampling was conducted in the vegetation outside of the road reserve.

During the field survey the following aspects pertaining to terrestrial fauna were assessed:

- Current land use of the site and immediate surrounds.
- Current ecological state of habitats on site.
- Presence of terrestrial faunal SCC, protected species, or suitable habitat for such species on site; and
- Significant landscape features, ecological corridors, and landscape connectivity.

3.3 ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations pertain to the current study:

- To obtain a comprehensive understanding of the dynamics of the biota on site, including SCC, studies should include sampling through the different seasons of the year, over several years, and extensive sampling of the area. Such long-term research is not feasible for non-academic studies of this nature, and the survey was conducted during one field visit during the early spring season. It is not considered necessary to perform an additional survey.
- It is assumed that all third-party information used (e.g. GIS data and satellite imagery) was correct at the time of generating this report.

- Vegetation habitat boundaries usually consist of subtle transitional zones or ecotones, which cannot be captured as distinct lines. Boundaries of habitat types are therefore approximately defined.
- Habitat types were defined and mapped in the context of use by birds and mammals and not in terms of botanical species associations. Similarly, the habitat associated with rivers and wetlands described in this report are defined in terms of broad habitat use by fauna and do not denote the boundaries of wetlands and watercourses.
- No sampling was conducted in the adjacent indigenous vegetation outside of the road reserve.
- Potential impacts of the proposed project were evaluated based on the layout provided at the time of writing, and where necessary, recommendations for the most appropriate mitigation measures have been provided.
- Findings, recommendations, and conclusions provided in this report are based on the author's best scientific and professional knowledge as well as information available at the time of compilation.

4. DESKTOP ASSESSMENT RESULTS

4.1 REGIONAL BIODIVERSITY SETTING

The study area is located within the Bushmanland Bioregion, which forms part of the Nama Karoo Biome (Rutherford and Westfall, 1994). The site falls mostly within the original extent of the **Bushmanland Basin Shrubland** vegetation type, and crosses sections of **Bushmanland Vloere**, which is an azonal vegetation type falling within the Inland Saline Vegetation Bioregion (Mucina and Rutherford, 2006; SANBI, 2018) (**Figure 4**).

The Bushmanland Basin Shrubland vegetation type is typically a dwarf shrubland dominated by a mixture of low, sturdy, and spiny shrubs with occasional succulents, and grasses (mainly *Stipagrostis* species) (Mucina and Rutherford, 2006). The Vloere are salt pans of the central Bushmanland Basin and the broad riverbeds of the intermittent Sak River. They are characteristically flat and even, with the centre of a pan (or the river drainage channel itself) usually devoid of vegetation. The rest is covered by loosely scattered scrub dominated by *Rhigozum trichotomum* and various species of *Salsola* and *Lycium*, with a mixture of non-succulent dwarf shrubs. In places loose thickets of woody species such as *Parkinsonia africana*, *Lebeckia linearifolia*, and *Vachellia karroo* can be found (Mucina and Rutherford, 2006).

According to the recently gazetted list of threatened ecosystems (DFFE, 2022), both vegetation types are currently listed as **Least Concern** as the ecosystems have experienced low rates of natural habitat loss and biotic disruptions, placing the ecosystems at low risk of collapse (SANBI, 2021).

The identification of Critical Biodiversity Areas (CBAs) for the Northern Cape (Holness and Oosthuysen, 2016) was undertaken using a Systematic Conservation Planning approach (Margules and Pressey, 2000; Ardron *et al.*, 2010). Opportunities and constraints for effective conservation were collated using available data on the condition of both terrestrial and inland aquatic biodiversity features (incorporating both pattern and process), and current Protected Areas and Conservation Areas (Holness and Oosthuysen, 2016). The categories included in the Northern Cape CBA Map are Protected Area (PA), Critical Biodiversity Area One (CBA 1), Critical Biodiversity Area Two (CBA 2), Ecological Support Area (ESA), and Other Natural Area (ONA). ONAs are identified as natural and/or near natural environmental areas (i.e. not 100% modified) but not identified as an optimal area for the conservation of biodiversity. The route of the pipeline crosses areas classified as CBA 1 (associated with the **Bushmanland Vloere**), CBA 2 (associated with a buffer to the **Bushmanland Vloere** and non-perennial watercourses such as the Sak River), as well as a patch of ESA at the southern end of the route, and ONA at the northern end of the route (**Figure 5**).

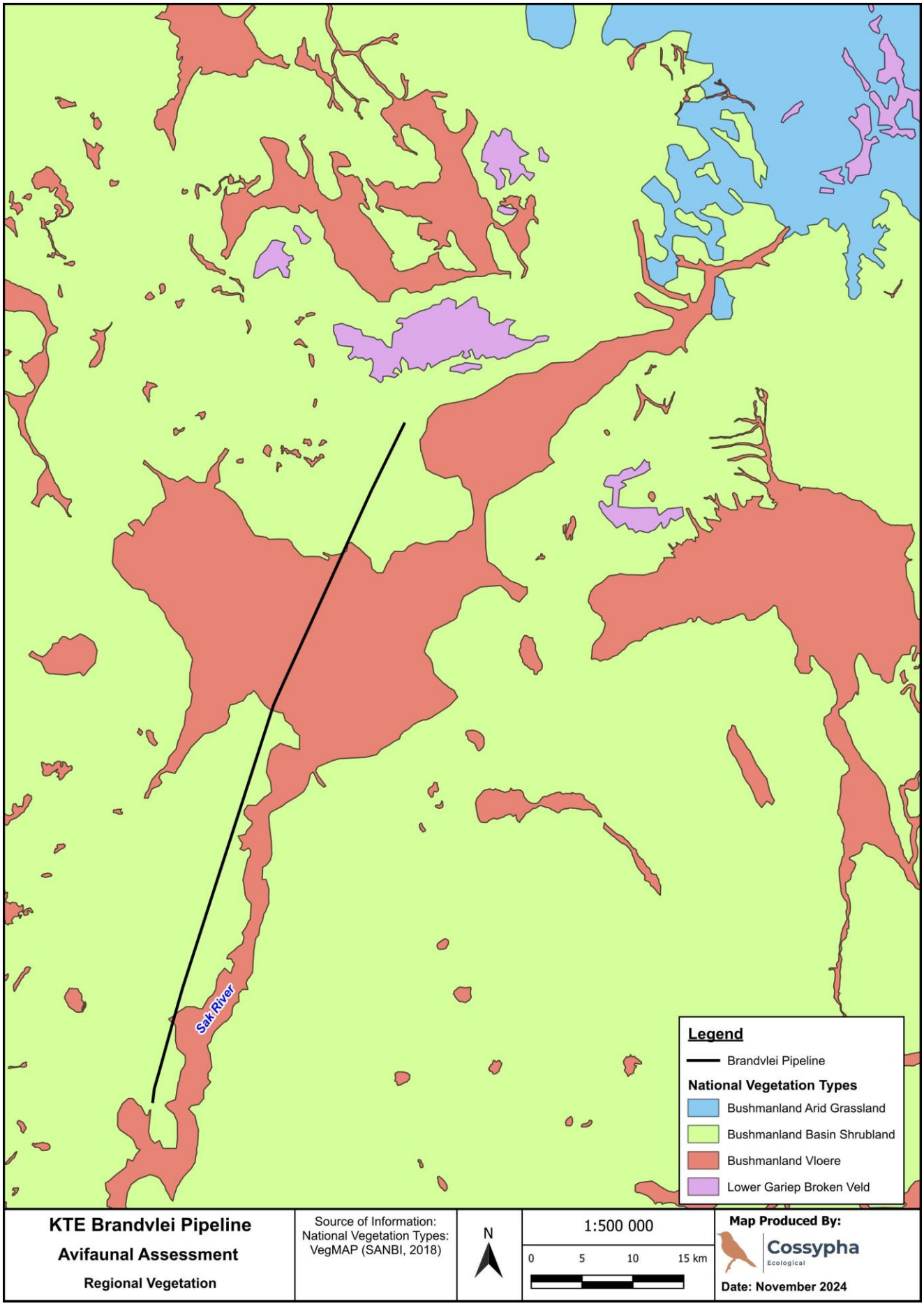


Figure 4: The study area in relation to national vegetation types

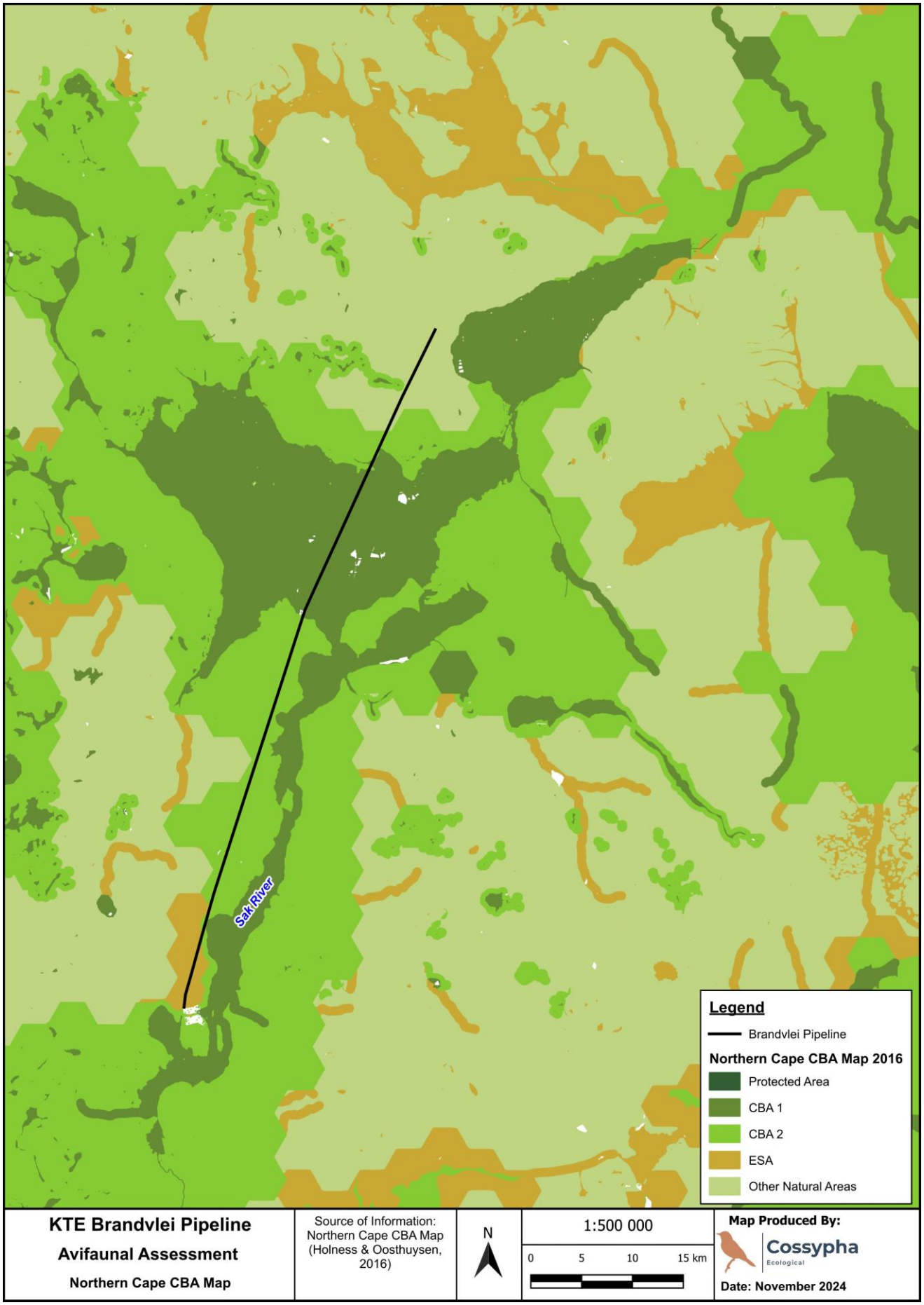


Figure 5: The study area in relation to the Northern Cape CBA Map

According to the South African Protected Areas Database (SAPAD 2024 Quarter 2; DFFE, 2024a) and the South African Conservation Areas Database (SACAD 2024 Quarter 2; DFFE, 2024b), no formally protected areas or IBAs fall within a ~50 km radius of the site. The closest protect area is the Meerkat National Park, which occurs approximately 70 km to the south-east. The National Protected Area Expansion Strategy (NPAES) has identified Priority Focus Areas associated with the Upper Karoo category within and around the study area (DEA, 2018).

4.2 HISTORICAL LAND USE OF THE STUDY AREA

The proposed Brandvlei pipeline occurs within an expansive, arid, and ancient landscape, which has not changed much over the last century. According to available historical satellite and aerial imagery using Google Earth and the CDNGI Geospatial Portal, the route is situated along the R27, which has been present since at least 1963 and most likely prior. The surroundings comprise natural, arid shrubland, and natural salt pans.

4.3 SPECIES DISTRIBUTION

4.3.1 AVIFAUNA

The region has relatively low avifaunal diversity, typical of the arid western regions of the country, with around 170 bird species potentially occurring within QDGCs through which the route moves, according to the distribution maps in Roberts VII Multimedia Birds of Southern Africa (SA Birding, 2011). The Southern African Bird Atlas Project (SABAP2) has been collecting data since 2007 and includes data from the previous SABAP1 (1987-1991). SABAP2 aims to map the distribution and relative abundance of birds in southern Africa. SABAP2 data is recorded per pentad (a 5' x 5' coordinate spatial grid reference and a subset of the QDGC, i.e. one QDGC comprises of nine pentads. 5' x 5' = roughly 8 x 9 km) and therefore represents a more focussed search. The route crosses nine pentads that have data available. According to this data, 150 bird species have been recorded within the pentads combined. This includes eight SCC and 16 species that are endemic to southern Africa (**Table 1**).

Table 1: Red listed and endemic species recorded in the SABAP2 pentads in which the route falls

Common Name	Taxonomic Name	Red List Status (National, Global)	Endemism	Residence
Black Harrier	*Circus maurus*	EN, EN	NE	Resident
Martial Eagle	*Polemaetus bellicosus*	EN, EN		Resident
Red Lark	*Calendulauda burra*	VU, VU	E	Resident
Black Stork	*Ciconia nigra*	VU, LC		Resident
Lanner Falcon	*Falco biarmicus*	VU, LC		Resident
Kori Bustard	*Ardeotis kori*	NT, NT		Resident
Karoo Korhaan	*Eupodotis vigorsii*	NT, LC		Resident
Greater Flamingo	*Phoenicopterus roseus*	NT, LC		Resident
Pied Starling	*Lamprotornis bicolor*	LC, LC	SLS	Resident
Fiscal Flycatcher	*Melaenornis silens*	LC, LC	NE	Resident
Karoo Thrush	*Turdus smithi*	LC, LC	NE	Resident
Namaqua Warbler	*Phragmacia substriata*	LC, LC	NE	Resident
Black-headed Canary	*Serinus alario*	LC, LC	NE	Resident
Southern Double-collared Sunbird	*Cinnyris chalybeus*	LC, LC	NE	Resident
Sickle-winged Chat	*Emarginata sinuata*	LC, LC	NE	Resident
Karoo Eremomela	*Eremomela gregalis*	LC, LC	NE	Resident
Jackal Buzzard	*Buteo rufofuscus*	LC, LC	NE	Resident
Karoo Prinia	*Prinia maculosa*	LC, LC	NE	Resident
Black-eared Sparrow-Lark	*Eremopterix australis*	LC, LC	NE	Resident
Large-billed Lark	*Galerida magnirostris*	LC, LC	NE	Resident

Common Name	Taxonomic Name	Red List Status (National, Global)	Endemism	Residence
Cape White-eye	*Zosterops virens*	LC, LC	NE	Resident
Fairy Flycatcher	*Stenostira scita*	LC, LC	NE	NBM

EN = Endangered; VU = Vulnerable; NT = Near Threatened; LC = Least Concern

E = endemic; NE = near endemic (70% or more of population in RSA); SLS = endemic to South Africa, Lesotho, and eSwatini

NBM = non-breeding migrant

According to citizen science online databases such as iNaturalist and GBIF, bird SCC that have been recorded in the vicinity of the Brandvlei pipeline route include Red Lark (mostly around the town of Brandvlei), Martial Eagle, Black Harrier, Lanner Falcon, and Karoo Korhaan. These were mostly recorded in the surrounding natural vegetation, and not within the road reserve of the R27.

4.3.2 MAMMALS

Mammals are less well documented that birds. According to available online database MammalMap and other relevant literature, approximately 35 indigenous mammal species are known to occur in the broad region of the study area. Of these, one species is currently of conservation concern, Black-footed Cat *Felis nigripes* (VU).

5. FIELD SURVEY RESULTS

5.1 LANDSCAPE FEATURES AND HABITATS WITHIN THE STUDY AREA

The assessment area incorporated the broad road reserve on the eastern side of the R27 and was mostly comprised of the disturbed roadside with pockets of scrubby vegetation growing mostly against the fence line. The road reserve generally had little vegetation and is likely cut or cleared from time to time. Vegetation comprised mainly grasses (*Stipagrostis* spp.) and indigenous scrubs such as *Rhigozum trichotomum* (driedoring), *Lycium cinereum* (kriedoring), and *Phaeoptilum spinosum* (brosdoring) (PB Consult, 2024). The R27 is routed through the large salt pan known as Grootvloer in the northern section of the pipeline route. Here the road reserve was generally sparse in vegetation with a mix of indigenous and alien woody vegetation including *Vachellia karoo* and *Prosopis* sp. occurring along the fence line. Similar vegetation was present at most of the drainage line crossings. Other notable landscape features include small dolerite outcrops that occur occasionally along the route. These generally occur outside of the road reserve, or the road reserve narrows where rocky areas are close by.

Broad road reserve on the eastern side of the road with sparse vegetation in the northern section of the route

Vegetation in the road reserve was similar throughout the route comprising mostly grasses and shrubs such as *Rhigozum trichotomum*

Vegetation associated with the Grootvloer salt pan comprising woody species such as *Vachellia karoo* and the alien invasive *Prosopis* sp. occurring just outside the road reserve

The occasional rocky outcrop along the route

5.2 FAUNAL SPECIES OCCURRENCE

Faunal activity along the route was very low with only common and generalist birds recorded mainly around the drainage lines and pans, and few mammals such as Rock Hyrax *Procavia capensis* recorded on the rocky outcrops. Common bird species recorded along the route included Sabota Lark *Calendulauda sabota*, Ant-eating Chat *Myrmecocichla formicivora*, Little Swift *Apus affinis*, Pied Crow *Corvus albus*, and Southern Masked Weaver *Ploceus velatus*. No faunal SCC were recorded during the site surveys.

Sabota Lark *Calendulauda sabota* (left) and Rock Hyrax *Procavia capensis* (right) recorded in the assessment area

6. SUMMARY AND RECOMMENDATIONS

6.1 SUMMARY

The assessment area is in a relatively disturbed state with the entire pipeline route situated within the road reserve on the eastern side of the R27 regional route. The vegetation is sparse and mostly comprised of grasses and scattered shrubs. Woody species are found around the drainage lines and salt pans. The habitat along the route is largely disturbed and exists in a narrow strip that is somewhat fragmented due to the proximity to the roadway. The proposed footprint has limited use by fauna, and it is unlikely that the available habitat would support any individuals or populations of faunal SCC. Such species are more likely to utilise the better-quality habitat that exists in the adjacent natural areas. Overall, the assessment area displays a low sensitivity from a terrestrial faunal perspective.

6.2 IMPACT MANAGEMENT

The perceived impacts from the construction activities of the pipeline will be relatively low to negligible from a terrestrial faunal perspective. The following recommendations are important for ensuring the impacts are kept to a minimum, and must be included in the Environmental Management Programme (EMPr):

1. An experienced, independent Environmental Control Officer (ECO) must be appointed to oversee the construction activities and compliance with the EMPr.
2. The natural vegetation and habitat associated with features such as rocky outcrops, drainage lines, and pans must be avoided as far as possible.
3. Rocky outcrops, drainage lines, and the natural vegetation in the surrounding areas must be designated no-go areas for construction camps and crews. Construction camps must be placed within the footprint or within disturbed areas that are already modified as far as possible.

4. During construction, no wild animal may under any circumstance be handled, removed, or be interfered with by construction workers. No wild animal may under any circumstance be hunted, snared, captured, injured, or killed. This includes animals perceived to be vermin.
5. Alien plant eradication and control must be undertaken throughout the construction phase and the operational phase.

6.3 CONCLUSION

It is the opinion of the specialist that the impacts on terrestrial fauna will be low to negligible considering the modified and currently disturbed state of the proposed footprint, and that the project may be authorised subject to the recommendations in the EMPr being adhered to.

- This compliance statement is applicable to the study area as described in the EIA documentation and shown in **Figure 1** and **Figure 2**.
- Due to the disturbed nature of the habitat, the study area is confirmed to be of **Low** sensitivity for the Terrestrial Animal Species theme.
- It is likely that the proposed development will not have any impact on terrestrial animal SCC; and
- There are no conditions to which this compliance statement is subjected.

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8. APPENDICES

APPENDIX A: ABRIDGED CV OF THE SPECIALIST

Name and Surname	:	Robyn Phillips
Date of Birth	:	28 08 1975
Company Name	:	Cossypha Ecological
Field of Expertise	:	Terrestrial Ecologist and Avifaunal Specialist
SACNASP Registration	:	*Pr.Sci.Nat.* 400401/12 (Zoological and Ecological Sciences)
Highest Qualification	:	MSc (Zoology) *cum laude*
Years of Experience	:	23
Contact Number	:	084 695 1648
Email	:	robyn@cossypha.co.za

The first half of my professional career was spent working in ecological research at the University of KwaZulu-Natal. Since starting in consulting in 2011, I have been involved in many projects requiring biodiversity surveys and ecological assessments as part of the legislated requirements for the Environmental Impact Assessment (EIA) process. These studies Include field assessment of habitat, species occurrence (especially those of conservation concern), assessment of ecological importance and sensitivity of floral and faunal communities and habitat, as well as assessment of impacts. Tasks also include making recommendations and prescribing mitigation measures after applying the mitigation hierarchy, aimed at minimising impacts.

Following is a selection of similar projects undertaken:

- Terrestrial Biodiversity and Animal Species Themes Impact Assessment Report for the Proposed overhead power line up to 132 kV in capacity from the ABO Otter Solar Energy Facilities to Mercury MTS (CES / ABO) – 2023 to present.
- Avifaunal Impact Assessment Report for the Proposed Installation of the 400 kV Transmission Line to connect the new Mbewu Substation to the existing Invubu Substation near Richards Bay, KwaZulu-Natal (ENVASS / Eskom) – 2023 to 2024.
- Terrestrial Animal Species Compliance Statement for the Proposed Rehabilitation of the Road TR75/1 (N12 Highway) Near Oudtshoorn, Oudtshoorn Local Municipality, Garden Route District Municipality, Western Cape (SES) – 2023.
- Terrestrial Biodiversity and Faunal Assessment for the Proposed Springhaas Solar Cluster Development and Grid Connection near Dealesville, Free State (GIBB Environmental) – 2021 to 2023.
- Fauna and Avifauna Impact Assessment Report for the Proposed Riversdale Anthracite Colliery Ropeway near Vryheid, KwaZulu-Natal (Eco-Pulse / Greenmined) – 2023.
- Terrestrial Animal Species Compliance Statement for the Proposed Road Upgrade of the R46 in Ceres, Western Cape (SRK) – 2022.
- Avifaunal Assessment for the Proposed Development of a Battery Energy Storage System (BESS) and Associated Infrastructure at the Cuprum Substation located at Copperton, near the town of Prieska, Northern Cape Province (AECOM) – 2021.
- Terrestrial Biodiversity Assessment (flora and fauna) for the Proposed KwaZulu-Natal Automotive Supplier Park (ASP) and Township Establishment, including powerline, bulk water pipeline, and sewer line, Illovo South, Durban, KwaZulu-Natal (Dube TradePort Corporation) – 2018 to 2021.
- Terrestrial Biodiversity (fauna and flora) Impact Assessment for the proposed bulk water pipelines for Emfuleni Local Municipality, Vanderbijlpark, Gauteng (Emfuleni Local Municipality) – 2018.
- Avifaunal Assessment for the Westgate and Randfontein Powerlines, Gauteng (Eskom) – 2017.
- Terrestrial Biodiversity (fauna) and Avifaunal Assessment for the Teebus Hydroscheme: Bulhoek Powerline, Eastern Cape (Eskom) – 2016 to 2017
- Terrestrial Biodiversity (fauna) and Avifaunal Assessment for the Ngqeleni Rural Electrification Project, Eastern Cape (Eskom) – 2016.