



forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

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SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

AVIFAUNA IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF THE 6 KM IMPALA ZIRCON TEMPORARY BY-PASS 132 KV POWERLINE WITH ASSOCIATED INFRASTRUCTURE AND THE MAINTENANCE MANAGEMENT PLAN OF THE EXISTING IMPALA ZIRCON 132 KV MAIN LINE

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with 'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	AVIFAUNA IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF THE 6 KM IMPALA ZIRCON TEMPORARY BY-PASS 132 KV POWERLINE WITH ASSOCIATED INFRASTRUCTURE AND THE MAINTENANCE MANAGEMENT PLAN OF THE EXISTING IMPALA ZIRCON 132 KV MAIN LINE
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E-mail	lindi@thebiodiversitycompany.com

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Lindi Steyn declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- 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 in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

The Biodiversity Company

Name of Company:

02 Jul 2026

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Lindi Steyn, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

The Biodiversity Company

Name of Company

02/07/2026

Date

Signature of the Commissioner of Oaths

02 Jul 2026

Date

Certified as a true copy of original

Farai Shadreck Mbirimi BD52805
Minister of Religion / Commissioner of Oaths
391 11th Road, Erand, Midrand 1685

Date 02/07/2026



forestry, fisheries & the environment

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E-mail	ryno@thebiodiversitycompany.com

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Ryno Kemp declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols") and in Government Notice No. 1150 of 30 October 2020.
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- 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 in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

The Biodiversity Company

Name of Company:

02 Jul 2026

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Ryno Kemp, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



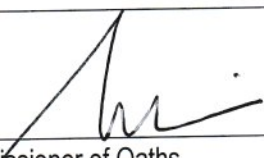
Signature of the Specialist

The Biodiversity Company

Name of Company

02/07/2026

Date

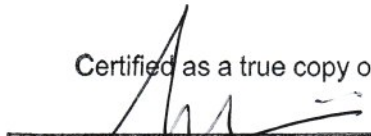


Signature of the Commissioner of Oaths

02 Jul 2026

Date

Certified as a true copy of original


Farai Shadreck Mbirimi BD52805
Minister of Religion / Commissioner of Oaths
391 11th Road, Erand, Midrand 1685

Date

02 / 07 / 2026



**AVIFAUNA IMPACT ASSESSMENT FOR THE
PROPOSED CONSTRUCTION OF THE 6 KM
IMPALA ZIRCON TEMPORARY BY-PASS 132 KV
POWERLINE WITH ASSOCIATED
INFRASTRUCTURE AND THE MAINTENANCE
MANAGEMENT PLAN OF THE EXISTING IMPALA
ZIRCON 132 KV MAIN LINE**

**uMhlathuze Local Municipality, King Cetshwayo District
Municipality, KwaZulu-Natal Province, South Africa**

21/04/2026

Prepared by:

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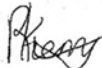
Report Name	AVIFAUNA IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF THE 6 KM IMPALA ZIRCON TEMPORARY BY-PASS 132 KV POWERLINE WITH ASSOCIATED INFRASTRUCTURE AND THE MAINTENANCE MANAGEMENT PLAN OF THE EXISTING IMPALA ZIRCON 132 KV MAIN LINE	
Specialist Theme	Avifauna Theme	
Project Reference	Impala Zircon Grid Connection	
Report Version	Draft 2 / 21/04/2026	
Environmental Assessment Practitioner		
Report Writer	Dr Lindi Steyn (SACNASP 119992)	
Reviewer	Neil van Rooyen (Cand. Sci. Nat 173191)	
Reviewer	Dr Ryno Kemp (SACNASP 117462/17)	
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, 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 principals of science.	

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1 Introduction

1.1 Background

The Biodiversity Company was appointed to undertake an avifauna assessment for the proposed for the proposed construction of the 6 km Impala Zircon Temporary By-Pass 132 kV Powerline with Associated Infrastructure and the Maintenance Management Plan of the existing Impala Zircon 132 kV Main Line. The project is located in the uMhlathuze Local Municipality, King Cetshwayo District Municipality, KwaZulu-Natal Province, South Africa (Figure 1-1). The Project Area of Interest (PAOI) consists of a 2 km area around the development footprint provided (Figure 1-2).

The approach was informed by the Environmental Impact Assessment Regulations, 2014 (GNR 326, 7 April 2017) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The approach has taken cognisance of the recently published Government Notices 320 (20 March 2020) in terms of NEMA, dated 20 March and 30 October 2020: *“Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation”* (Reporting Criteria).

This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making.

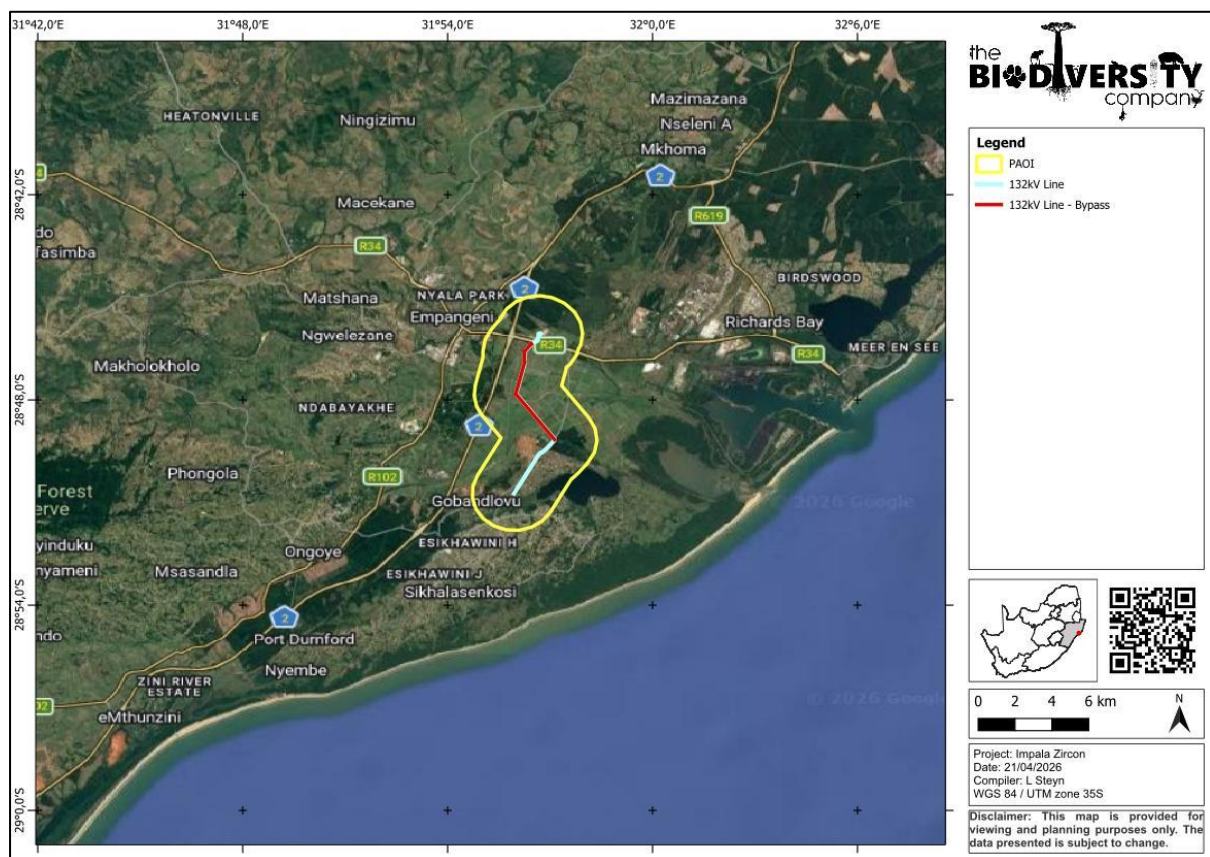


Figure 1-1 Proposed location of the project area in relation to the nearby towns

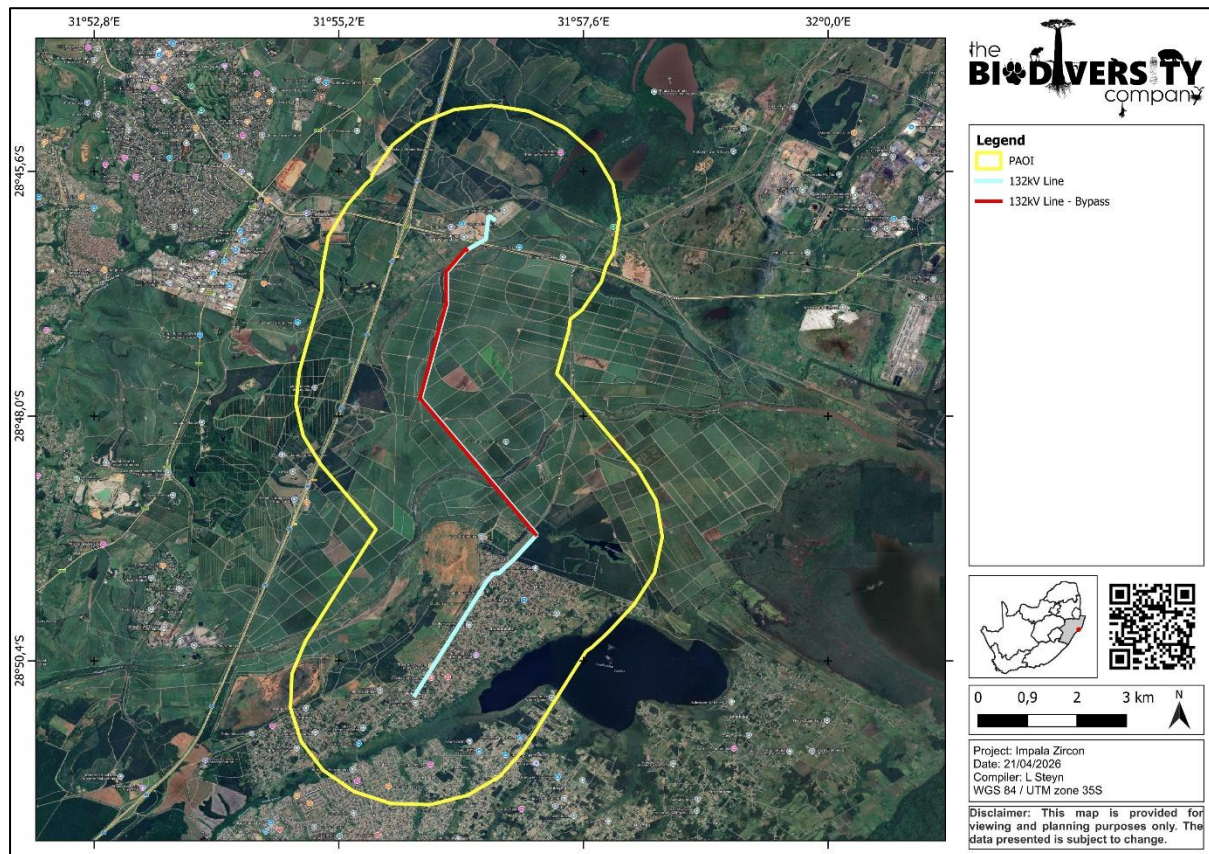


Figure 1-2 Project layout

1.2 Project Description

The following information pertains to the project details as provided by Selahle Consultancy (2026):

The Applicant (Eskom) intends for the Maintenance and Refurbishment of the Impala Zircon 132 kV powerline located in Empangeni, under Richards Bay. The existing powerline spans approximately 10,582 km in length, but Eskom is only responsible for about 7.6 km of this line; the rest of the powerline belongs to the uMhlathuze Local Municipality. The Impala Zircon 132 kV powerline is a radial line with no back-feeding capabilities and distributes electricity to approximately 6062 customers. It feeds Cygnus Substation, which supplies all the Esikhaweni networks, uMhlathuze Local Municipality and Lake Qube water pump (LPU).

The 10 km powerline is from the North coast of KwaZulu-Natal and is exposed to both industrial and coastal pollution. Due to the proximity to the coast, this powerline is experiencing severe corrosion and deterioration on tower foundations. Therefore, a temporary bypass powerline is required in order to continue with the maintenance of the main powerline.

The proposed temporary 132 kV bypass powerline will be approximately 6.01 km in length and will be built on wooden poles as a temporary option, which will allow the maintenance of the main powerline. The temporary bypass powerline will be in use for a period of approximately 3 years. The temporary bypass powerline will run parallel (within its servitude) to the existing main powerline (approximately 15 m apart) and will cross the uMhlathuze River, and most of the powerline traverses a sugarcane farm.

1.3 Scope of Work

The assessment was conducted according to the above-mentioned (Section 1.1) legislation on assessment and reporting criteria and the best-practice guidelines and principles for Avifaunal Impact Assessments as outlined by BirdLife South Africa (2017).

The scope of the Avifaunal Impact Assessment included the following:

- Desktop assessment to identify the relevant ecologically important geographical features within the Project Area of Influence (PAOI) and surrounding landscape
- Desktop assessment to compile an expected species list and possible avifauna Species of Conservation Concern (SCC) that potentially occur within the PAOI;
- Field work to determine the density and composition of species in the PAOI;
- Description of the baseline avifauna species and Functional Feeding Guild (FFG) composition assemblage within the PAOI;
- Delineate site sensitivity or sensitivities i.e., the Site Ecological Importance (SEI) within the context of the avifauna species assemblage of the PAOI;
- Identify the manner that the proposed development impacts the avifauna community and evaluate the level of risk of these potential impacts; and
- Provide mitigation measures to prevent or reduce the possible impacts.

1.4 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- The PAOI was based on the project footprint area as provided by the client. Any alterations to the area and/or missing GIS information pertaining to the assessment area would have affected the area surveyed and hence the results of this assessment;
- The avifaunal field survey was conducted from the 7-8th of April 2026;
- Whilst every effort was made to cover as much of the PAOI as possible, it is possible that some species that are present within the PAOI were not recorded during the field investigations due to their secretive behaviour;
- The GPS used in the assessment has an accuracy of 5 m and consequently any spatial features delineated may be offset by up to 5 m.

1.5 Key Legislative Requirements

The legislation, policies and guidelines listed below in Table 1-1 are applicable to the current project. The list below, although extensive, may not be complete and other legislation, policies and guidelines may apply in addition to those listed below.

Table 1-1 A list of key legislative requirements

Region	Legislation / Guideline	Comment
--------	-------------------------	---------

National	NEMA	Environmental Impact Assessment Regulations. 2014 (GNR 326, 7 April 2017), Appendix 6 requirements
	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA), Threatened or Protected Species Regulations	The protection of species and ecosystems that warrant protection
	Assessment Protocol (March 2020)	The minimum criteria for reporting.
	Assessment Protocol (October 2020)	Protocol for the specialist assessment and minimum report content requirements.
	NEMWA	The regulation of waste management to protect the environment.
	NWA	The regulation of water uses.
	GN 1003 of GG 43726 of 18 Sept 2020	The regulation and management of alien invasive species.
	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA)	To provide for control over the utilisation of the natural agricultural resources, including the vegetation and the combating of weeds and invader plants.
Provincial	KwaZulu-Natal Environmental, Biodiversity and Protected Areas Management Bill, 2014	
	KwaZulu-Natal Nature Conservation Management Act (No. 9 of 1997)	To provide for the management and conservation of the Province's biophysical environment and protected areas. Designation of conservation areas and targets.
	KwaZulu-Natal Nature Conservation Management Amendment Act (No. 5 of 1999)	
	KwaZulu-Natal Planning and Development Act (No. 6 of 2008)	
	Local Government Municipal System's Act (No 32 of 2000)	

2 Fieldwork

2.1 Avifauna Field Assessment

The avifaunal field survey was conducted from the 7-8th of April 2026.

Point Counts

Standardized point counts (Buckland *et al.*, 1993) were conducted to gather data on the species composition and relative abundance of species within the broad habitat types identified. The standardized point count technique was utilized as it was demonstrated to outperform line routes (Cumming & Henry, 2019). Each point count was conducted over a 10-minute period. The horizontal detection limit was set at 150 meters. At each point, the observer would document the date, start time, end time, habitat, numbers of each species, detection method (seen or heard), behaviour (perched or flying), and general notes on habitat and nesting suitability for conservation-important species.

Drive Transects

The drive transects focused on larger terrestrial birds and raptors. Transects were performed in and around the development footprint to ensure the larger area was considered. The transects were conducted by driving at approximately 15 km/h and stopping at regular intervals of 100 meters, scanning the surrounding environment with binoculars. All large terrestrial species and raptors were recorded, including their number, detection method (seen or heard), behaviour (perched or flying), and general notes on habitat and nesting suitability.

Water Resource Assessments

Water resources on-site as well as larger features outside the project footprint were assessed. This consisted of a focal assessment at the water's edge to determine if SCC (species of conservation concern) as well as congregator species, were present.

Nest Survey

Possible nesting sites such as power lines, stands of trees, marshes and drainage lines, cliffs, and gravel areas were surveyed for nests. All breeding sites were mapped, and the activity at the nests was assessed during the survey.

Incidental Observations

To supplement the species inventory with cryptic and elusive species that may not be detected during the rigid point count and drive transect protocols, diurnal incidental searches were conducted. This involved the opportunistic sampling of species between point count periods as well as random meandering. Figure 2-1 shows the locations of the GPS tracks of the specialists during the field survey.

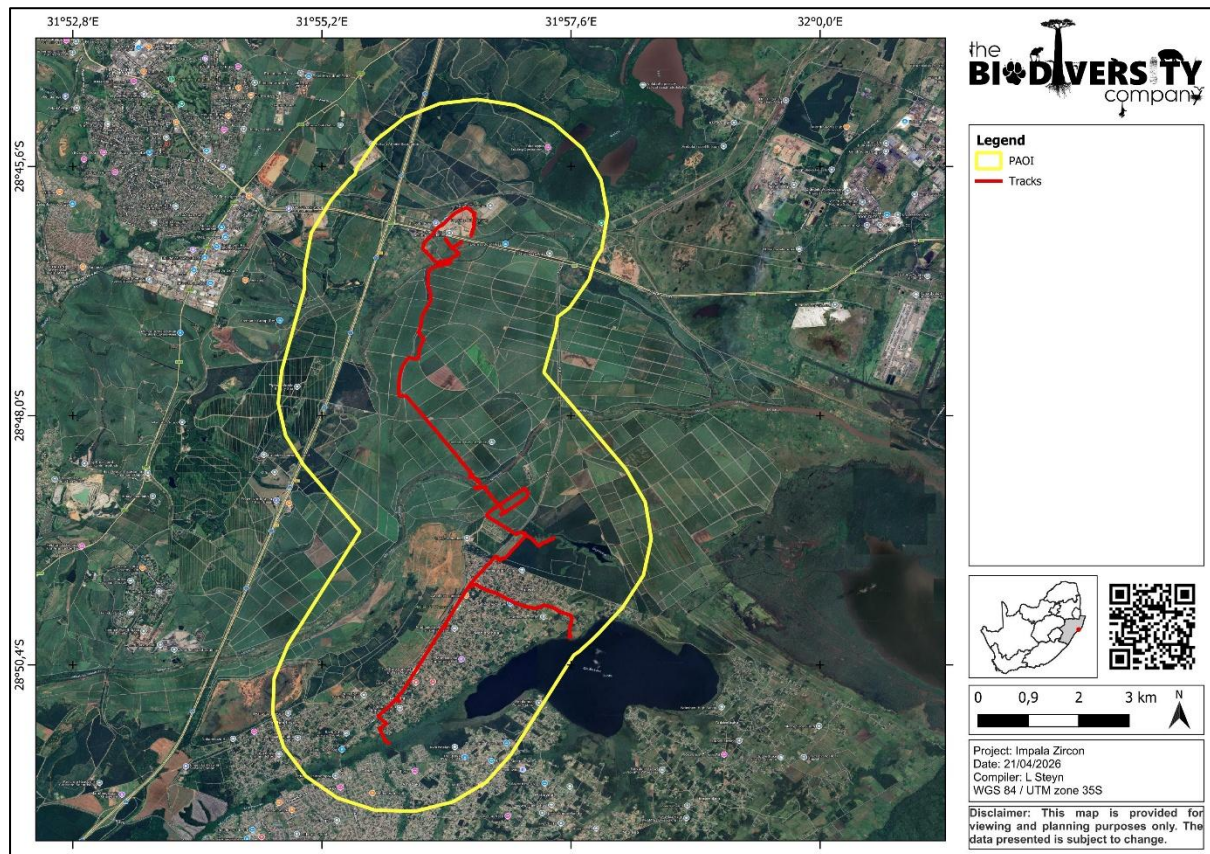


Figure 2-1 Map illustrating the GPS tracks during the field surveys

3 Results & Discussion

3.1 Ecologically Important Landscape Features

The GIS analysis pertaining to the relevance of the proposed project to ecologically important landscape features is summarised in Table 3-1.

Table 3-1 *Summary of relevance of the proposed project to ecologically important landscape features*

Desktop Information Considered	Relevant/Irrelevant	Section
Ecosystem Threat Status	Irrelevant – Overlaps with an “LC” and EN Ecosystems (RLE, 2021).	3.1.1
Ecosystem Protection Level	Relevant – Overlaps with a ‘Moderately Protected’ and Well Protected Ecosystems.	3.1.2
Provincial Conservation Plan	Relevant – the PAOI falls across areas classified as CBA: Irreplaceable, the development footprint does not fall across any classified areas	3.1.3
National Protected Areas Expansion Strategy	Relevant – the PAOI overlaps with a priority focus area. The development footprint however does not overlap.	3.1.5
SAPAD & SACAD	Relevant – The PAOI does not overlap with any protected areas, it is however within the 5 km buffer zone	3.1.4
Key Biodiversity Areas	Relevant – the PAOI overlaps with the Richards Bay Coast KBA	3.1.6
South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	Relevant – The PAOI and development footprint overlaps with SAIIAE rivers, as well as CR and EN wetlands	3.1.7
National Freshwater Priority Area	Relevant – the PAOI and development footprint overlaps with non-priority wetlands, and a non-priority river.	3.1.8
South Africa’s Strategic Water Source Areas	Irrelevant – The PAOI does not overlap with any Strategic Water Source Areas.	-
RAMSAR Wetlands	Irrelevant – The PAOI does not overlap with any RAMSAR Area	-
Strategic Transmission Corridors (EGI)	Relevant – The PAOI does not overlap with any expansion corridors	3.1.10
Coordinated Water Bird Count	Relevant – the species that is recorded at the Lake Nsezi and Lake Cubhu CWAC.	3.1.9
Coordinated Avifaunal Road Count	Irrelevant – Nearest CAR route ~ 68 km from the project area	-

3.1.1 Red List of Ecosystems

The Ecosystem Threat Status is an indicator of an ecosystem’s wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. According to the spatial dataset the proposed development overlaps with LC and EN ecosystems (Figure 3-1).

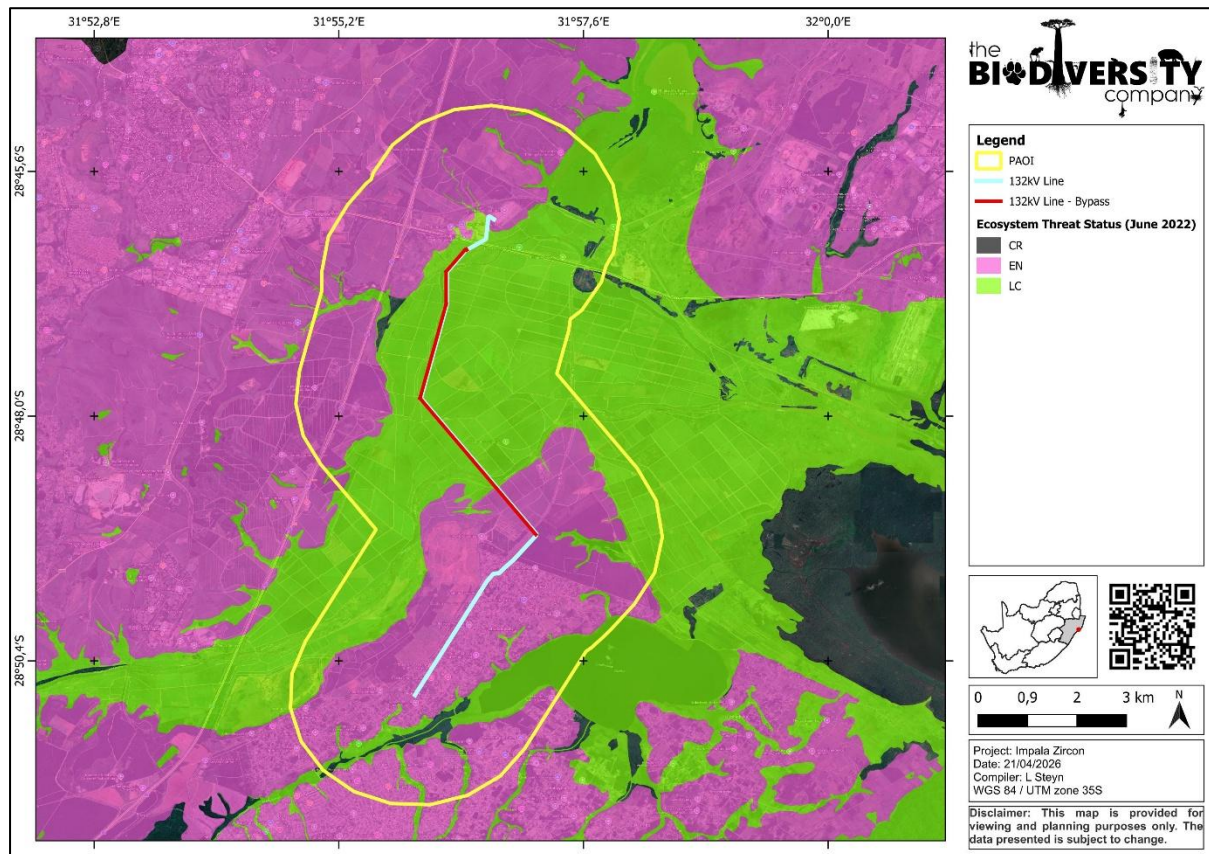


Figure 3-1 Map illustrating the ecosystem threat status associated with the proposed development

3.1.2 Ecosystem Protection Level

This is an indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. NP, PP or MP ecosystem types are collectively referred to as under-protected ecosystems. The proposed project overlaps with MP and WP ecosystems (Figure 3-2).

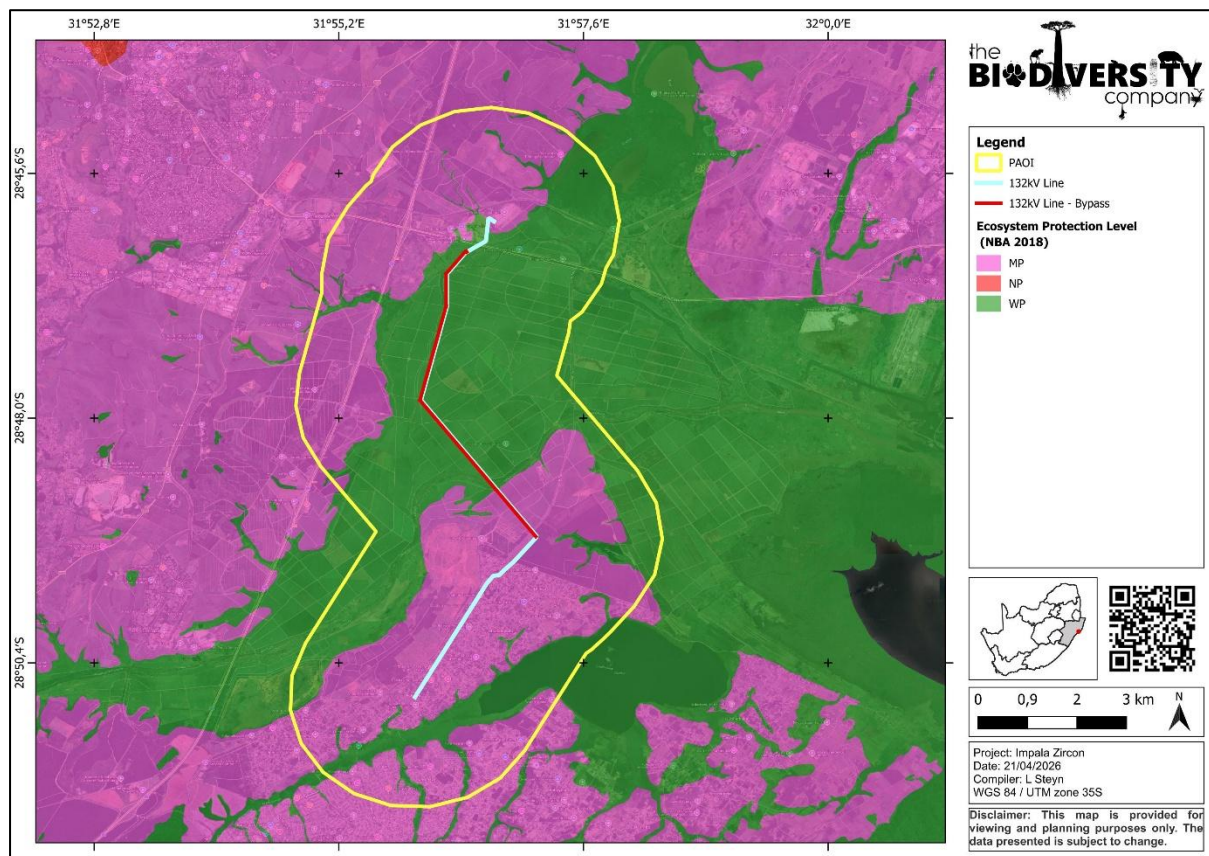


Figure 3-2 Map illustrating the ecosystem protection level associated with the PAOI

3.1.3 Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)

The aim of a Biodiversity Sector Plan (BSP) is to:

- Identify and map critical biodiversity assets in KwaZulu-Natal District Municipalities; and
- Provide associated management guidelines which aim to maintain the integrity of these biodiversity features.

The objectives of the Biodiversity Sector Plan are to:

Ensure aquatic and terrestrial biodiversity targets are met at the District level;

Conserve representative samples of biodiversity pattern;

Conserve the ecological and evolutionary processes that allow biodiversity to persist over time; and

Serve as a first step towards the development of a Bioregional Plan.

The Purpose of the BSP:

The key purpose of this BSP is to assist and guide land use planners and managers within various district and local municipalities, to account for biodiversity conservation priorities in all land use planning and management decisions, thereby promoting sustainable development and the protection of biodiversity, and in turn the protection of ecological infrastructure and associated ecosystem services.

Critical Biodiversity Areas

The KZN BSP also provides a spatial representation of land and coastal marine area required to ensure the persistence and conservation of biodiversity within KZN, reflected as Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA).

A CBA is considered a significant and ecologically sensitive area and needs to be kept in a pristine or near-natural state to ensure the continued functioning of ecosystems. A CBA represents the best choice for achieving biodiversity targets. ESAs are not essential for achieving targets, but they play a vital role in the continued functioning of ecosystems.

According to the C-Plan the PAOI falls across areas classified as CBA: Irreplaceable, the development footprint does not fall across any classified areas (Figure 3-3).

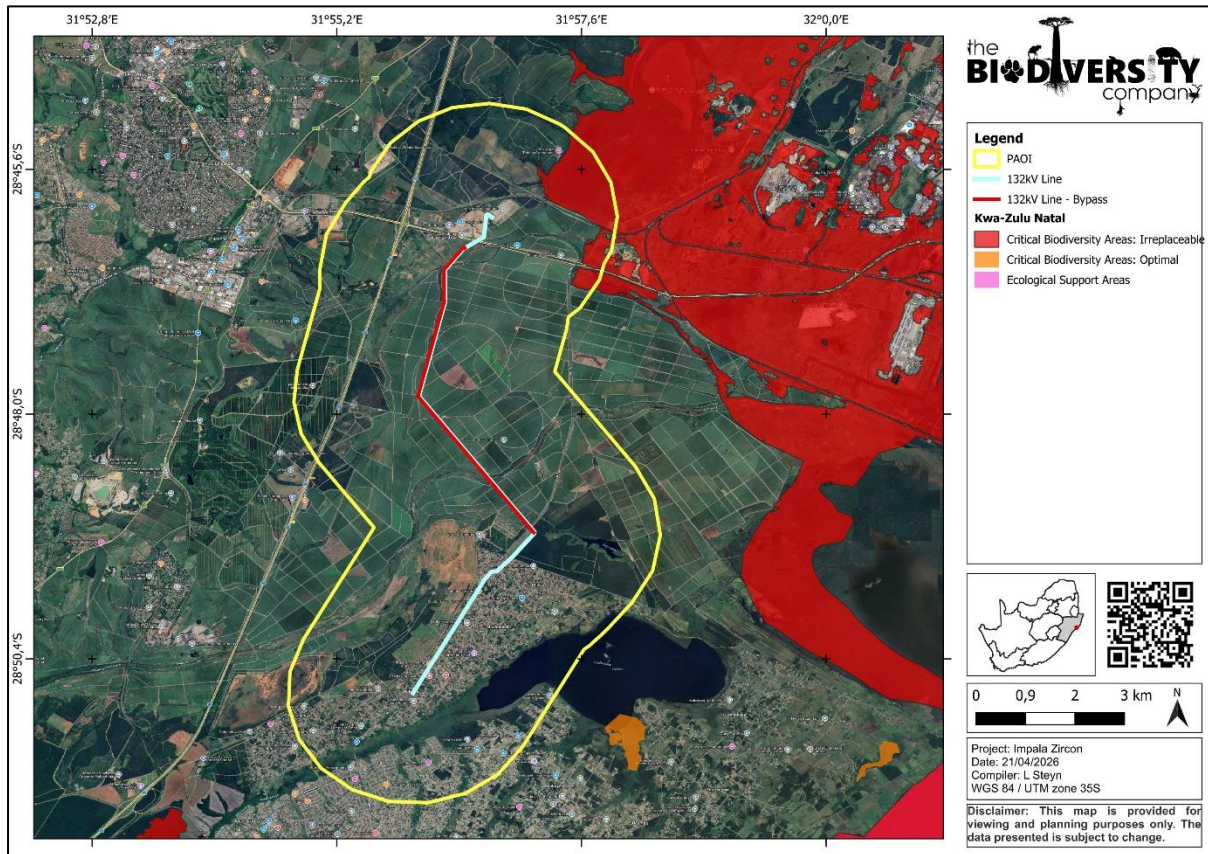


Figure 3-3 Map illustrating the biodiversity spatial plan in relation to the PAOI

3.1.4 Protected Areas

According to the protected and conservation area spatial datasets from SAPAD and SACAD (DFFE, 2025). The PAOI does not overlap with any protected areas, it is however within the 5 km buffer zone.

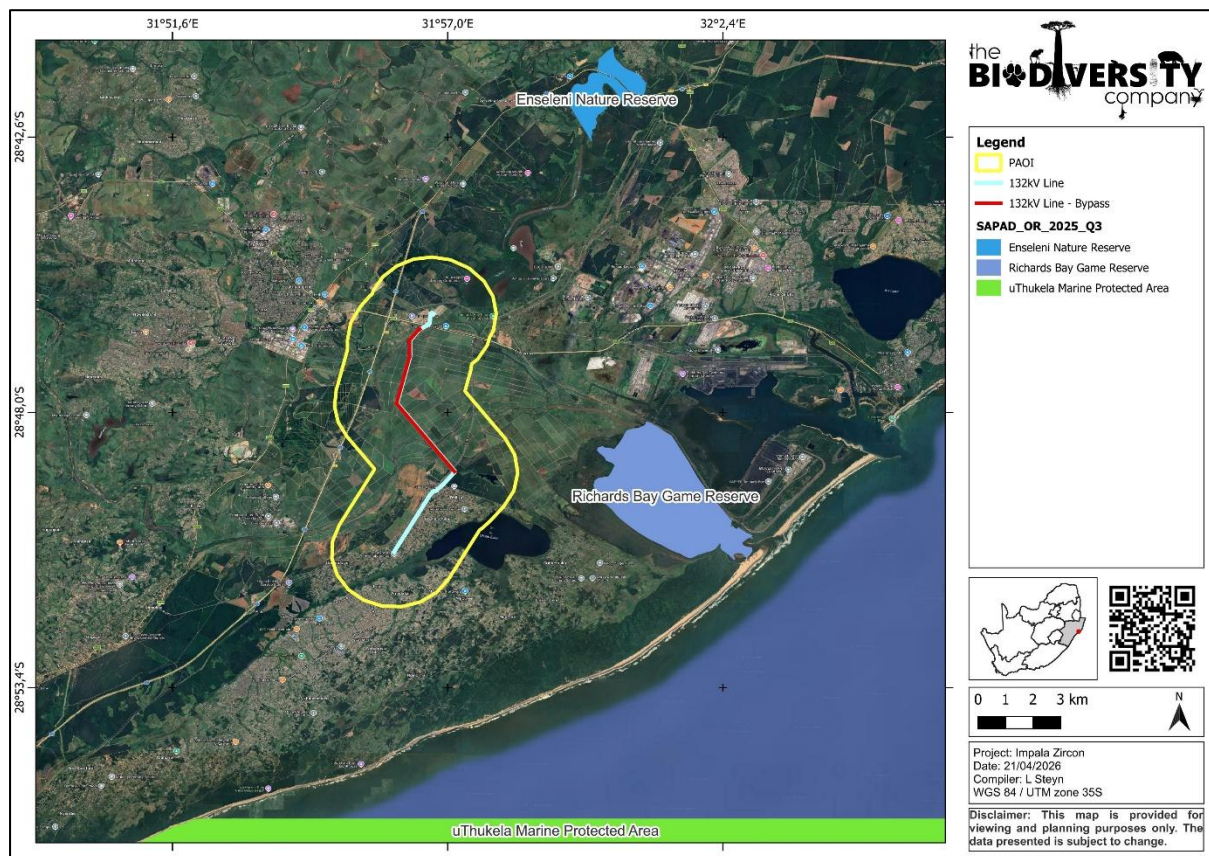


Figure 3-4 Map illustrating the location of conservation and protected areas proximal to the PAOI

3.1.5 National Protected Area Expansion Strategy

National Protected Area Expansion Strategy 2018 (NPAES) were identified through a systematic biodiversity planning process. They present the best opportunities for meeting the ecosystem-specific protected area targets set in the NPAES and were designed with strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases only a portion of a particular focus area would be required to meet the protected area targets set in the NPAES. They are also not a replacement for fine scale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2018). Figure 3-5 shows the PAOI overlaps with a priority focus area. The development footprint however does not overlap.

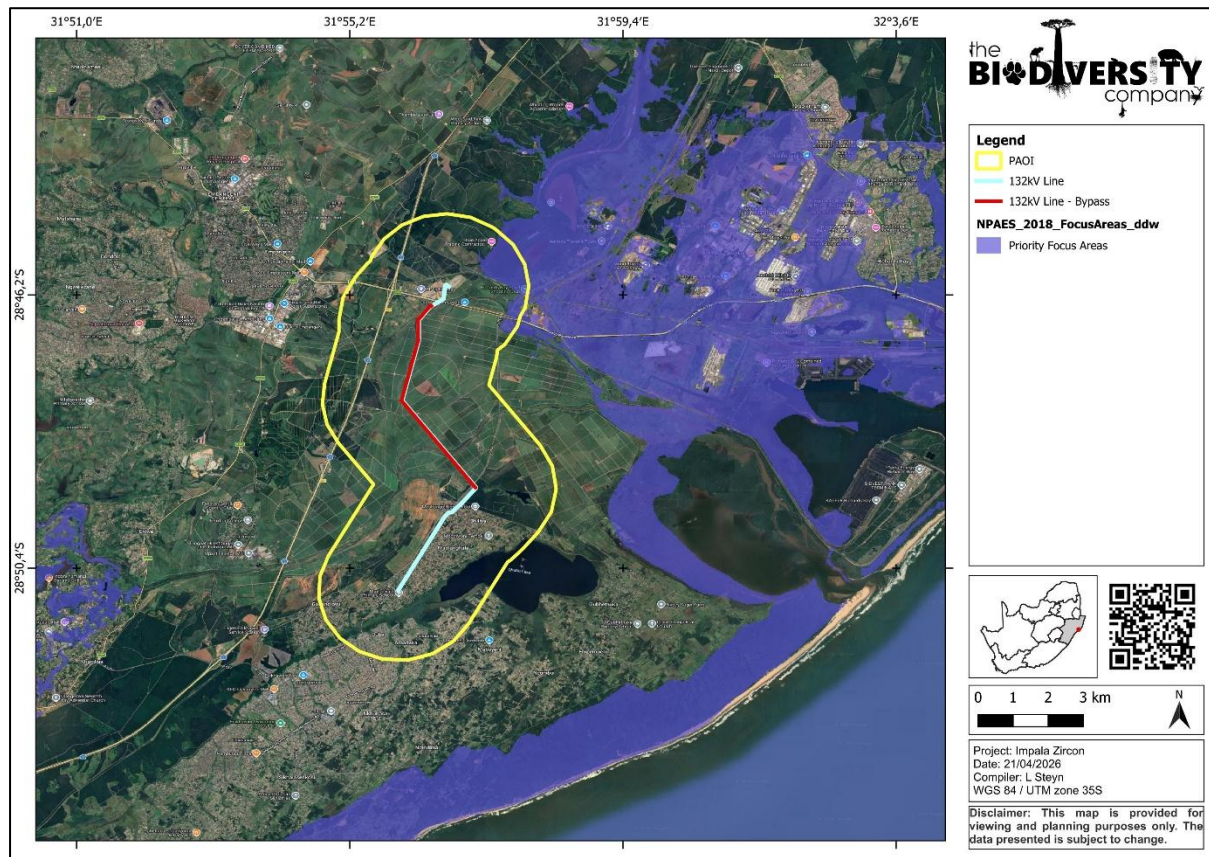


Figure 3-5 The PAOI in relation to the NPAES (2018)

3.1.6 Key Biodiversity Area

A new set of Key Biodiversity Areas (KBA) specific to South Africa has been identified using the Global Standard for the Identification of Key Biodiversity Areas version 1.2 (IUCN 2016), applied to South African species and ecosystems. KBAs are critical sites that play a vital role in maintaining global biodiversity by serving as essential habitats for species. The identification of KBAs enables governments and civil society to pinpoint key locations crucial for species and their habitats worldwide. This understanding facilitates collaborative efforts to manage and conserve these areas, thereby safeguarding global biological diversity and supporting international biodiversity objectives.

Unlike the Important Bird Areas (IBAs), which primarily focus on birds, the KBA framework encompasses a broader spectrum of biodiversity, including mammals, amphibians, plants, and other taxa. BirdLife South Africa (BLSA), in consultation with the KBA National Coordination Group, has opted to retire IBAs and integrate KBAs into its conservation strategy. This strategic shift acknowledges the necessity of investing resources effectively to protect avian and other macroecological elements at the site level within a comprehensive framework of biodiversity conservation (KBA NCG, 2024). Figure 3-6 shows the PAOI overlaps with the Richards Bay Coast KBA, this KBA is not triggered by any avifauna species.

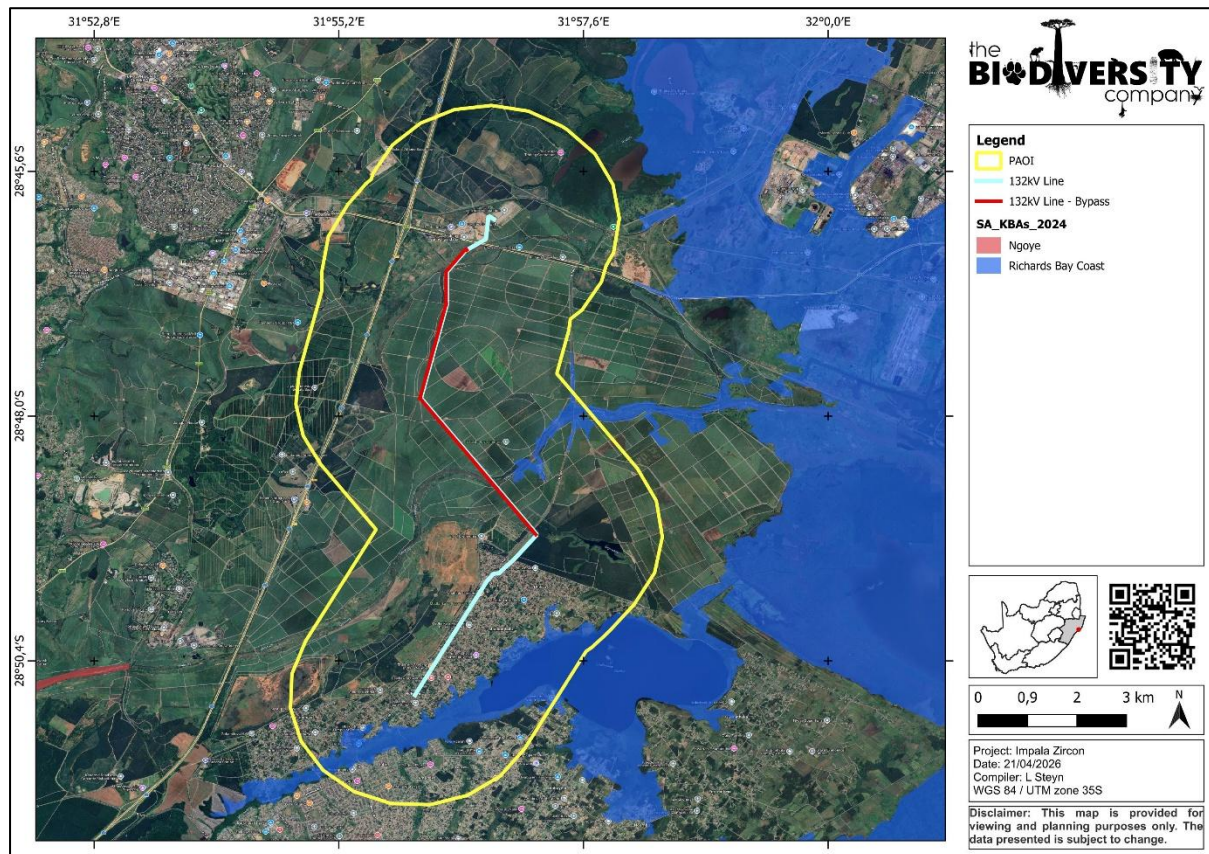


Figure 3-6 *The PAOI in relation to the KBA*

3.1.7 South African Inventory of Inland Aquatic Ecosystems

The South African Inventory of Inland Aquatic Ecosystems (SAIAE) was released with the NBA in 2018. Ecosystem threat status (ETS) of river and wetland ecosystem types are based on the extent to which each river ecosystem type had been altered from its natural condition. Ecosystem types are categorised as CR, EN, VU or LT, with CR, EN and VU ecosystem types collectively referred to as 'threatened' (Van Deventer *et al.*, 2019; Skowno *et al.*, 2019). The PAOI and development footprint overlaps with SAIAE rivers, as well as CR and EN wetlands (Figure 3-7).

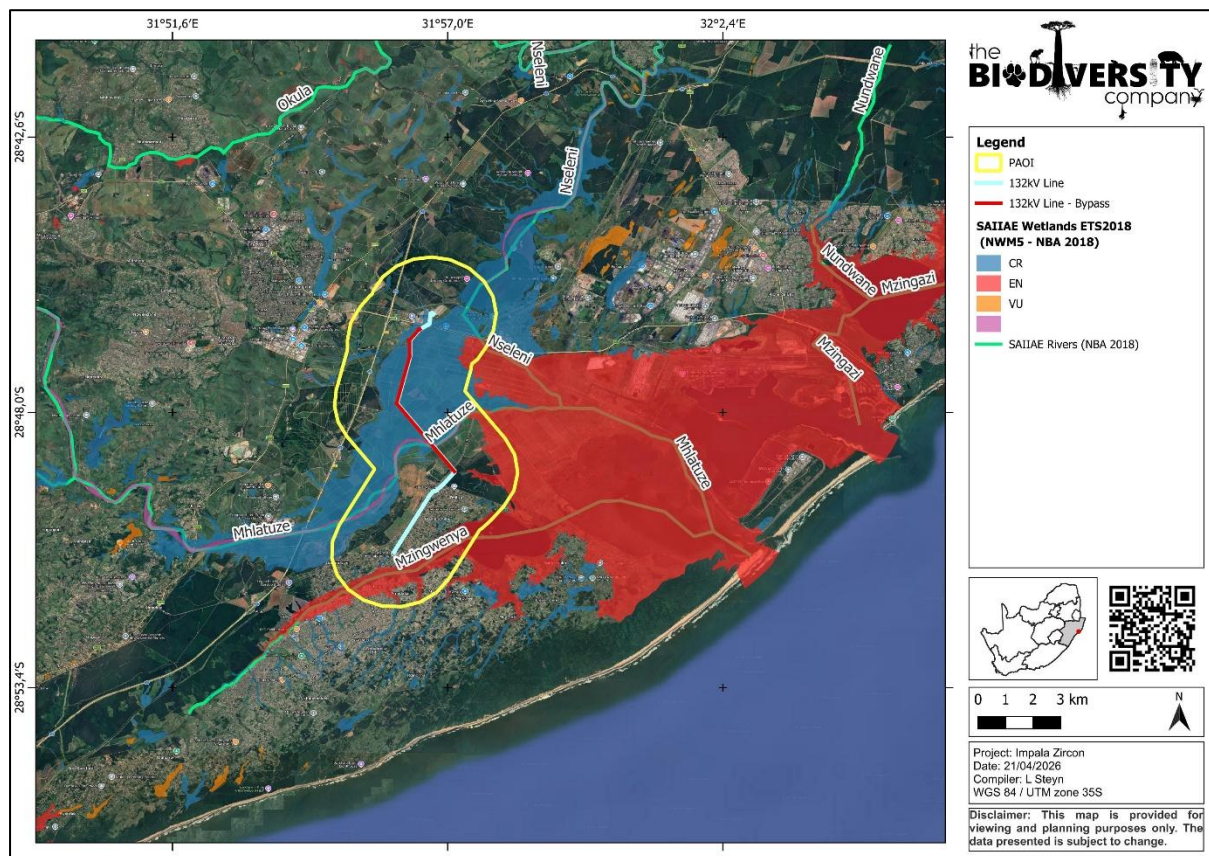


Figure 3-7 Map illustrating ecosystem threat status of rivers and wetland ecosystems in relation to the PAOI

3.1.8 National Freshwater Ecosystem Priority Area Status

In an attempt to better conserve aquatic ecosystems, South Africa has 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's (NEM:BA) biodiversity goals (Nel *et al.*, 2011).

Figure 3-8 shows that the PAOI and development footprint overlaps with non-priority wetlands, and a non-priority river.

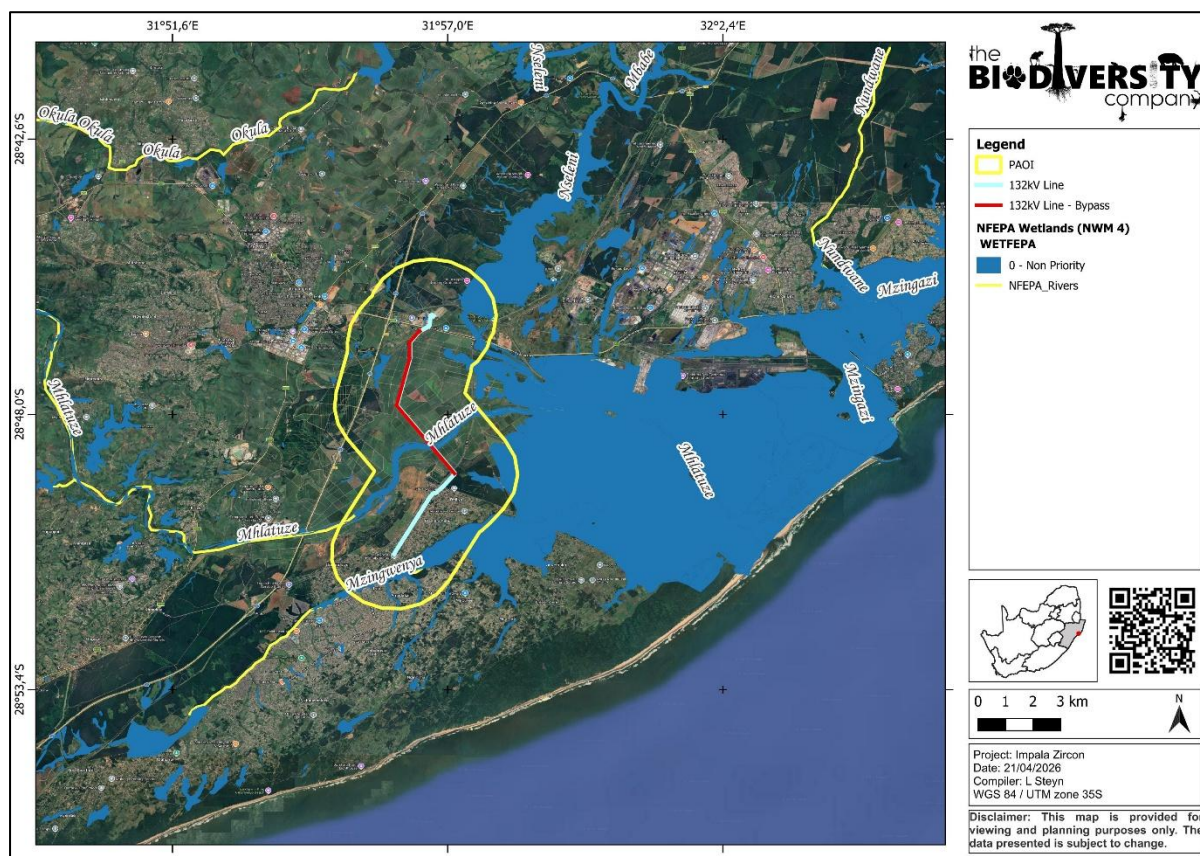


Figure 3-8 The PAOI in relation to the National Freshwater Ecosystem Priority Areas

3.1.9 Coordinated Waterbird Counts (CWAC)

The Animal demographic unit launched the Coordinated Waterbird Counts (CWAC) project in 1992 as part South Africa's commitment to International waterbird conservation. Regular mid-summer and mid-winter censuses are done to determine the various features of water birds including population size, how waterbirds utilise water sources and determining the health of wetlands. For a full description of CWAC please refer to <http://cwac.birdmap.africa/about.php>. Table 3-2 lists the species that is recorded at the Lake Nsezi and Lake Cubhu CWAC.

Table 3-2 CWAC species

Common name	Taxonomic name
Cormorant, Reed	<i>Microcarbo africanus</i>
Cormorant, White-breasted	<i>Phalacrocorax lucidus</i>
Crake, Black	<i>Zaportina flavirostra</i>
Darter, African	<i>Anhinga rufa</i>
Duck, White-faced Whistling	<i>Dendrocygna viduata</i>
Duck, Yellow-billed	<i>Anas undulata</i>
Egret, Little	<i>Egretta garzetta</i>
Egret, Western Cattle	<i>Bubulcus ibis</i>
Finfoot, African	<i>Podica senegalensis</i>
Fish Eagle, African	<i>Haliaeetus vocifer</i>
Goose, African Pygmy	<i>Nettapus auritus</i>

Goose, Egyptian	<i>Alopochen aegyptiaca</i>
Goose, Spur-winged	<i>Plectropterus gambensis</i>
Grebe, Little	<i>Tachybaptus ruficollis</i>
Greenshank, Common	<i>Tringa nebularia</i>
Hamerkop	<i>Scopus umbretta</i>
Heron, Black-headed	<i>Ardea melanocephala</i>
Heron, Goliath	<i>Ardea goliath</i>
Heron, Purple	<i>Ardea purpurea</i>
Heron, Striated	<i>Butorides striata</i>
Ibis, Hadada	<i>Bostrychia hagedash</i>
Jacana, African	<i>Actophilornis africanus</i>
Kingfisher, Giant	<i>Megaceryle maxima</i>
Kingfisher, Half-collared	<i>Alcedo semitorquata</i>
Kingfisher, Malachite	<i>Corythornis cristatus</i>
Kingfisher, Pied	<i>Ceryle rudis</i>
Pelican, Great White	<i>Pelecanus onocrotalus</i>
Stork, Woolly-necked	<i>Ciconia episcopus</i>
Tern, Common	<i>Sterna hirundo</i>
Wagtail, African Pied	<i>Motacilla aguimp</i>
Wagtail, Cape	<i>Motacilla capensis</i>

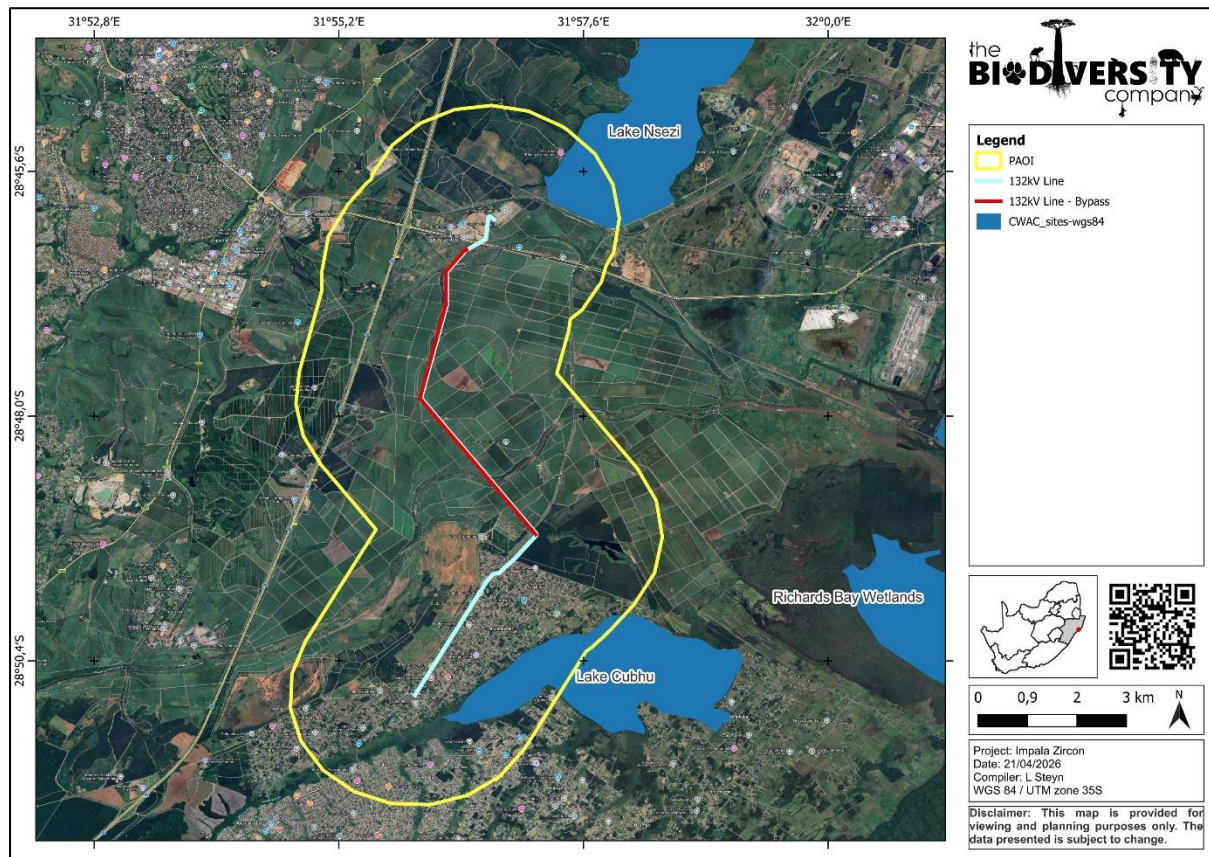


Figure 3-9 *The PAOI in relation to CWACs*

3.1.10 Strategic Transmission Corridors (EGI)

On 16 February 2018, Minister Edna Molewa published Government Notice No. 113 in Government Gazette No. 41445, which identified 5 strategic transmission corridors important for the planning of electricity transmission and distribution infrastructure as well as procedure to be followed when applying for environmental authorisation for electricity transmission and distribution expansion when occurring in these corridors.

On 29 April 2021, Minister Barbara Dallas Creecy published Government Notice No. 383 in Government Gazette No. 44504, which expanded the eastern and western transmission corridors and gave notice of the applicability of the application procedures identified in Government Notice No. 113, to these expanded corridors. More information on this can be obtained from <https://egis.environment.gov.za/egi>.

Figure 3-10 shows the PAOI overlap with the East EGI corridor.

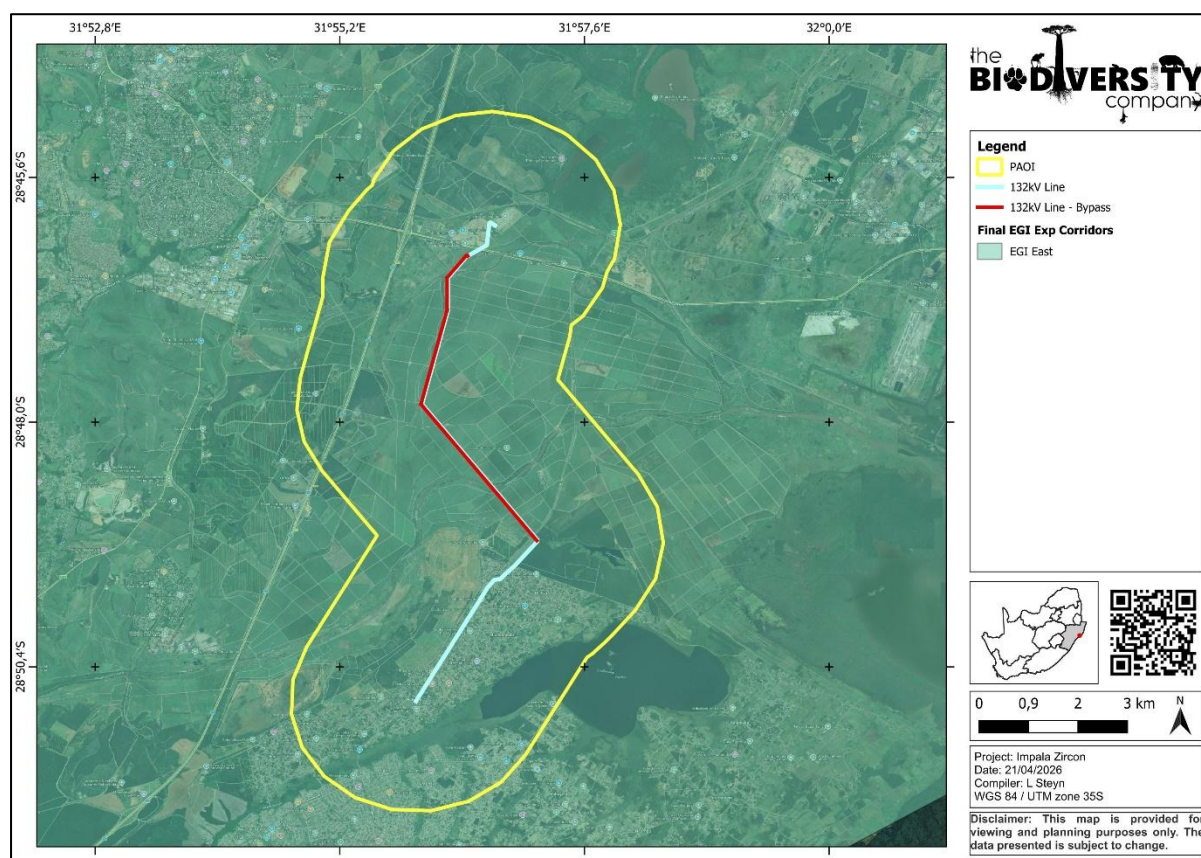


Figure 3-10 The PAOI in relation to EGI corridors

3.2 Avifauna Expected Species

SABAP2 data indicate that 385 avifauna species are expected for the PAOI and surrounds. Of these, 54 are considered SCC. The likelihood of occurrence for these SCCs within the POAI is indicated in Table 3-3. Two of the SCC were recorded on site.

Table 3-3 Threatened avifauna species that are expected to occur within the PAOI. CR = Critically Endangered, EN = Endangered, LC = Least Concern, NT = Near Threatened, VU = Vulnerable and NA = Not Assessed

Common Name	Scientific Name	Family Name	Regional *	Global*	Likelihood of occurrence
African Darter	<i>Anhinga rufa</i>	Anhingidae	NT	LC	Observed
African Finfoot	<i>Podica senegalensis</i>	Heliornithidae	VU	LC	Low
African Marsh Harrier	<i>Circus ranivorus</i>	Accipitridae	VU	LC	Moderate
African Pygmy Goose	<i>Nettapus auritus</i>	Anatidae	NT	LC	Moderate
Allen's Gallinule	<i>Porphyrio alleni</i>	Rallidae	NA	LC	Low
Baillon's Crake	<i>Zapornia pusilla</i>	Rallidae	NT	LC	Low
Bar-tailed Godwit	<i>Limosa lapponica</i>	Scolopacidae	LC	NT	Low
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	Ardeidae	NT	LC	Moderate
Black-winged Kite	<i>Elanus caeruleus</i>	Accipitridae	NT	LC	High
Cape Cormorant	<i>Phalacrocorax capensis</i>	Phalacrocoracidae	EN	EN	Low
Cape Gannet	<i>Morus capensis</i>	Sulidae	VU	EN	Low

Cape Shoveler	<i>Spatula smithii</i>	Anatidae	NT	LC	Low
Caspian Tern	<i>Hydropogon caspia</i>	Laridae	VU	LC	Low
Crowned Eagle	<i>Stephanoaetus coronatus</i>	Accipitridae	VU	NT	Moderate
Curlew Sandpiper	<i>Calidris ferruginea</i>	Scolopacidae	VU	VU	Low
Denham's Bustard	<i>Neotis denhami</i>	Otididae	VU	NT	Low
Eurasian Curlew	<i>Numenius arquata</i>	Scolopacidae	NA Species of Conservation Concern	NT	Low
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	Haematopodidae	NA	NT	Low
European Roller	<i>Coracias garrulus</i>	Coraciidae	NT	LC	Low
Fulvous Whistling Duck	<i>Dendrocygna bicolor</i>	Anatidae	NT	LC	Low
Great Egret	<i>Ardea alba</i>	Ardeidae	NT	LC	Moderate
Great White Pelican	<i>Pelecanus onocrotalus</i>	Pelecanidae	VU	LC	Moderate
Greater Flamingo	<i>Phoenicopterus roseus</i>	Phoenicopteridae	NT	LC	Low
Green Barbet	<i>Stactolaema olivacea</i>	Lybiidae	EN	LC	Low
Grey Crowned Crane	<i>Balearica regulorum</i>	Gruidae	VU	EN	High
Grey Plover	<i>Pluvialis squatarola</i>	Charadriidae	NT	VU	Low
Half-collared Kingfisher	<i>Alcedo semitorquata</i>	Alcedinidae	VU	LC	Moderate
Hamerkop	<i>Scopus umbretta</i>	Scopidae	NT	LC	High
Hartlaub's Gull	<i>Chroicocephalus hartlaubii</i>	Laridae	VU	LC	Low
Kittlitz's Plover	<i>Charadrius pecuarius</i>	Charadriidae	NT	LC	Low
Knob-billed Duck	<i>Sarkidiornis melanotos</i>	Anatidae	NT	LC	Moderate
Lanner Falcon	<i>Falco biarmicus</i>	Falconidae	NT	LC	High
Lesser Flamingo	<i>Phoeniconaias minor</i>	Phoenicopteridae	VU	NT	Low
Lesser Jacana	<i>Microparra capensis</i>	Jacanidae	NA	LC	Moderate
Mangrove Kingfisher	<i>Halcyon senegaloides</i>	Alcedinidae	EN	LC	Moderate
Marsh Owl	<i>Asio capensis</i>	Strigidae	NT	LC	Moderate
Martial Eagle	<i>Polemaetus bellicosus</i>	Accipitridae	EN	EN	Low
Pink-backed Pelican	<i>Pelecanus rufescens</i>	Pelecanidae	VU	LC	Moderate
Red Knot	<i>Calidris canutus</i>	Scolopacidae	NT	NT	Low
Red-billed Teal	<i>Anas erythrorhynchos</i>	Anatidae	NT	LC	High
Ruddy Turnstone	<i>Arenaria interpres</i>	Scolopacidae	NT	NT	Low
Saddle-billed Stork	<i>Ephippiorhynchus senegalensis</i>	Ciconiidae	EN	NT	Moderate
Sanderling	<i>Calidris alba</i>	Scolopacidae	NT	LC	Low
Short-tailed Pipit	<i>Anthus brachyurus</i>	Motacillidae	VU	LC	Low
Southern Bald Ibis	<i>Geronticus calvus</i>	Threskiornithidae	NT	NT	Low
Southern Banded Snake Eagle	<i>Circaetus fasciolatus</i>	Accipitridae	CR	NT	Low
Southern Pochard	<i>Netta erythrophthalma</i>	Anatidae	NT	LC	Low

Spotted Ground Thrush	<i>Geokichla guttata</i>	Turdidae	EN	VU	Low
Swamp Nightjar	<i>Caprimulgus natalensis</i>	Caprimulgidae	VU	LC	Low
Tawny Eagle	<i>Aquila rapax</i>	Accipitridae	EN	VU	Low
White-backed Duck	<i>Thalassornis leuconotus</i>	Anatidae	NT	LC	Low
Yellow-billed Duck	<i>Anas undulata</i>	Anatidae	NT	LC	Observed
Yellow-billed Egret	<i>Ardea brachyrhyncha</i>	Ardeidae	NT	LC	Moderate
Yellow-billed Stork	<i>Mycteria ibis</i>	Ciconiidae	VU	LC	Moderate

Alcedo semitorquata (Half-collared Kingfisher) is listed as VU on a regional scale and occurs across a large range. This species generally prefers narrow rivers, streams, and estuaries with dense vegetation onshore, but it may also move into coastal lagoons and lakes. It mainly feeds on fish (IUCN, 2017). The possibility of occurrence is moderate due to the wetlands and rivers in the PAOI.

Anas erythrorhyncha (Red-billed Teal) is found across most of South Africa, but most commonly found in the highveld and Western Cape. This waterbird favours ephemeral wetlands, but can be found in both natural and artificial inland wetlands. This species feeds mainly on plant species but does supplement their diet with invertebrates. The rivers provide suitable habitat for this species on site.

Anas undulata (Yellow-billed Duck) is both a resident and a nomadic species that will follow food should it be required. They prefer open still water bodies, this can be both natural and artificial, including rivers, streams, dams, sewage works, and irrigation dams. Their diet consists mainly of plant matter and to a lesser extent insect larvae and snails. The species was observed in the PAOI.

Anhinga rufa (African Darter) occurs in tropical and sub-tropical freshwater wetlands, with dead trees, rocks or banks where they can rest between feedings. This species is mainly sedentary but will move locally following fish and should water levels drop. Their diet consists of mainly fish, but they will also feed on frogs. The species was observed in the PAOI.

Ardea alba (Great Egret) is a monogamous species that can be found in colonies in open water systems as well as flooded grasslands. They are mainly nomadic, movements of 1766km have been observed for one bird between Western Cape and Mozambique. Their diet consists of fish, frogs, insects and reptiles (Roberts, 2024). The rivers and wetlands can provide suitable habitat for the species.

Ardea intermedia (Yellow-billed Egret) is listed as regionally NT and globally LC. This species inhabits seasonally flooded marshes and grasslands, with a preference for shallow water, they are however also known to forage in dry grasslands close to water. Their diet consists of fish, frogs and aquatic insects. The rivers and wetlands can provide suitable habitat for the species.

Asio capensis (Marsh Owl) can be found in tall grass (including alien grass species), weeds reeds and sedges. Contrary to its name it is not just associated with marsh areas, but can be found in moist grasslands as well. The local common resident's diet consists mostly of small rodents. The rivers, wetlands along with the agricultural areas can provide suitable habitat for the species.

Balearica regulorum (Grey Crowned Crane) is listed as EN both globally and regionally. Populations of this species have declined, largely owing to direct poisoning, power-line collisions and loss of their grassland breeding habitats owing to afforestation, mining, agriculture and development (IUCN, 2017). They breed in natural grass and sedge-dominated habitats, preferring secluded grasslands at high elevations where the vegetation is thick and short. Due to the presence of agricultural areas and extensive wetlands within the project area the likelihood of occurrence is rated as high.

Circus ranivorus (African Marsh Harrier) is listed as VU in South Africa (Lee *et al* 2025). This species has an extremely large distributional range in sub-equatorial Africa. South African populations of this species are declining due to the degradation of wetland habitats, loss of habitat through over-grazing

and human disturbance and possibly, poisoning owing to over-use of pesticides (IUCN, 2017). This species breeds in wetlands and forages primarily over reeds and lake margins. There are some extensive wetlands and marsh areas at the project area, however many of them are disturbed and thus the occurrence of *C. ranivorus* in the project area is therefore considered to be moderate.

Elanus caeruleus (Black-winged Kite) can be found in open Savana, grasslands, croplands, fynbos as well as grassy scrubs. They specialise in hunting rodent species but will also feed on birds, lizards and insects. They appear to be less impacted by habitat clearance for agriculture than other raptors, as this creates more areas for foraging. Suitable foraging habitat for this species is present on site, the likelihood of occurrence is thus high.

Falco biarmicus (Lanner Falcon) is native to South Africa and inhabits a wide variety of habitats, from open grassland to open cleared woodlands and agricultural areas. Global population estimates is more than 30000 breeding pairs, in South Africa it is estimated to be 1400 pairs. They may occur in groups up to 20 individuals but have also been observed solitary. They are partial and facultative migrants, that breeds from May to early September. Nests are mostly found on cliff ledges, and they may alternate between more than one nest. Their diet is mainly composed of small birds such as pigeons and francolins. Anecdotal evidence suggests these species are susceptible to agrochemicals, another threat to their population is the clearing of grassland habitats (Roberts et al., 2023). Suitable foraging habitat for this species is present on site, the likelihood of occurrence is thus high.

Halcyon senegaloides (Mangrove Kingfisher) is listed as endangered on a regional scale. This species occurs along the east coast of sub-Saharan Africa, from southern Somalia through Kenya and Tanzania to southern Africa. In summer it generally prefers the banks of forested rivers, streams and estuaries along or near the coast, while in winter it mainly stays in mangroves and nearby woodland. The likelihood of this species occurring in the project area is rated as moderate.

Microparra capensis (Lesser Jacana) is listed as VU on a regional scale and LC on a global scale. This species shows a preference for shallow water around the edges of permanent and seasonally flooded wetlands, with areas of sparse sedge (IUCN, 2017). Its likelihood of occurrence in the project area is rated as moderate.

Mycteria ibis (Yellow-billed Stork) is listed as VU on a regional scale and LC on a global scale. This species is migratory and has a large distributional range which includes much of sub-Saharan Africa. It is typically associated with freshwater ecosystems, especially wetlands and the margins of lakes and dams (IUCN, 2017). The presence of extensive water bodies although somewhat disturbed within the project area creates a moderate possibility that this species may occur there.

Nettapus auritus (African Pygmy Goose) is listed as NT in South Africa. They are threatened by habitat degradation such as the destruction of aquatic plant communities through the introduction of exotic fish (e.g. cichlids *Tilapia* spp.), siltation, pollution (e.g. herbicides), drainage and tourist water-sports (which destroy lily beds). The likelihood of occurring in the project areas is rated as moderate.

Nycticorax nycticorax (Black-crowned Night Heron) is listed as regionally NT and globally LC. They inhabit a wide range of wetland habitats, but require dense vegetation nearby to roost. They are threatened by the loss and degradation of their wetland habitats. They are particularly susceptible to the effects of pollutants such as pesticides and petroleum. The presence of suitable water resources suggests there is a moderate likelihood of occurrence.

Sarkidiornis melanotos (Knob-billed Duck) is listed as regionally NT and globally LC. When breeding, primarily occupies marshes and pans in savannah habitat. When not breeding, wanders widely and may occupy many different natural and artificial wetlands. Its threats are poorly understood but are thought to be related to habitat loss and degradation. The presence of suitable wetlands suggests that this species has a moderate likelihood of occurrence.

Scopus umbretta (Hamerkop) is found mainly either in pairs or solitary, however occasionally they can build communal nests. Nests are large structures resembling an inverter pyramid with chambers, nests often used for consecutive years. This species is associated with rivers, lakes, dams and other wetlands. They feed on frogs, tadpoles, small fish and aquatic insects. Suitable habitat is present in the PAOI, the likelihood of occurrence is rated as moderate.

3.3 Literature Review

TBC performed two avifauna assessment on the edge of the PAOI in 2025, during which 6 SCC were recorded (Table 3-4). The habitat was somewhat more natural in this area compared to the mainly agricultural areas in the Impala Zircon PAOI.

Table 3-4 SCC recorded in 2025 by TBC in an adjacent area

Species	Common Name	Conservation Status	
		Regional	Global
African Marsh Harrier	<i>Circus ranivorus</i>	VU	LC
Great Egret	<i>Ardea alba</i>	NT	LC
Yellow-billed Egret	<i>Ardea brachyrhyncha</i>	NT	LC
African Darter	<i>Anhinga rufa</i>	NT	LC
Half-collared Kingfisher	<i>Alcedo semitorquata</i>	VU	LC
Hamerkop	<i>Scopus umbretta</i>	NT	LC

In addition to the 6 SCC, 27 priority species were also recorded (Table 3-5).

Table 3-5 Priority species recorded by TBC 2025

Common Name	Scientific Name	Collision	Electrocution	Disturbance/Habitat Loss
African Cuckoo-Hawk	<i>Aviceda cuculoides</i>	X	X	
African Darter	<i>Anhinga rufa</i>	X	X	
African Fish Eagle	<i>Haliaeetus vocifer</i>	X	X	
African Harrier-Hawk	<i>Polyboroides typus</i>	X	X	
African Marsh Harrier	<i>Circus ranivorus</i>	X	X	X
African Woolly-necked Stork	<i>Ciconia microscelis</i>	X	X	
Black-chested Snake Eagle	<i>Circaetus pectoralis</i>	X	X	
Black-headed Heron	<i>Ardea melanocephala</i>	X	X	
Blue-cheeked Bee-eater	<i>Merops persicus</i>		X	
Broad-billed Roller	<i>Eurystomus glaucurus</i>		X	
Brown Snake Eagle	<i>Circaetus cinereus</i>	X	X	
Common Buzzard	<i>Buteo buteo</i>	X	X	
Egyptian Goose	<i>Alopochen aegyptiaca</i>	X	X	
Great Egret	<i>Ardea alba</i>	X	X	X
Hadada Ibis	<i>Bostrychia hagedash</i>	X	X	
Half-collared Kingfisher	<i>Alcedo semitorquata</i>			X
Hamerkop	<i>Scopus umbretta</i>	X	X	

Little Grebe	<i>Tachybaptus ruficollis</i>	X		
Long-crested Eagle	<i>Lophaetus occipitalis</i>	X	X	
Natal Spurfowl	<i>Pternistis natalensis</i>	X	X	
Pied Crow	<i>Corvus albus</i>	X	X	
Reed Cormorant	<i>Microcarbo africanus</i>	X	X	
Spur-winged Goose	<i>Plectropterus gambensis</i>	X	X	
Squacco Heron	<i>Ardeola ralloides</i>	X		
White-breasted Cormorant	<i>Phalacrocorax lucidus</i>	X	X	
Yellow-billed Egret	<i>Ardea brachyrhyncha</i>	X	X	X
Yellow-billed Kite	<i>Milvus aegyptius</i>	X	X	

3.4 Fieldwork Findings

3.4.1 Species List of Field Survey

This site visit was conducted to determine the presence of Species of Conservation Concern (SCC). Effort was made to cover all the different habitat types, within the limits of time and access.

Two SCC were recorded during the survey period (Table 3-6).

Table 3-6 SCC recorded in the assessment.

Common Name	Scientific Name	Regional (2025)	Global
African Darter	<i>Anhinga rufa</i>	NT	LC
Yellow-billed Duck	<i>Anas undulata</i>	NT	LC

3.4.1.1 Risk Species

Priority Species are considered threatened, rare or prone to impacts from energy development (Ralston Paton *et al*, 2017). TBC has defined Risk Species as those species that are listed in Ralston Paton *et al* (2017) as Priority Species, as well as those listed in the Eskom poster of Birds and Power Lines (Eskom and EWT, no date), which together include all species, common or red-listed that may be at risk of collision, electrocution or habitat loss as a result of the proposed activity. Nine of the species observed within the PAOI are regarded as priority species (Table 3-7).

Table 3-7 Summary of Priority Species recorded within and around the proposed development.

Common Name	Scientific Name	Collisions	Electrocutions	Habitat Loss
African Darter	<i>Anhinga rufa</i>	X		X
African Fish Eagle	<i>Haliaeetus vocifer</i>	X	X	
Black Sparrowhawk	<i>Accipiter melanoleucus</i>	X	X	
Common Buzzard	<i>Buteo buteo</i>	X	X	
Hadada Ibis	<i>Bostrychia hagedash</i>		X	
Pied Crow	<i>Corvus albus</i>	X	X	
Spur-winged Goose	<i>Plectropterus gambensis</i>	X	X	
White-breasted Cormorant	<i>Phalacrocorax lucidus</i>	X		
Yellow-billed Duck	<i>Anas undulata</i>	X		X

3.4.1.2 Dominant Species

Table 3-8 provides the relative abundance of the dominant species as well as the frequency with which each species appeared in the point count samples. The most abundant species was the Little Swift (*Apus affinis*), with a relative abundance of 0.154 and with a frequency of occurrence of 36.364% (Table 3-8).

Table 3-8 *Relative abundance and frequency of occurrence of dominant avifauna species recorded during the standardised point counts within and around the proposed development during the field survey.*

Common Name	Scientific Name	Relative abundance	Frequency (%)
Little Swift	<i>Apus affinis</i>	0,154	36,364
House Sparrow	<i>Passer domesticus</i>	0,110	18,182
Fork-tailed Drongo	<i>Dicrurus adsimilis</i>	0,070	54,545
Bronze Mannikin	<i>Spermestes cucullata</i>	0,066	27,273
Dark-capped Bulbul	<i>Pycnonotus tricolor</i>	0,053	63,636
Barn Swallow	<i>Hirundo rustica</i>	0,048	27,273
Red-winged Starling	<i>Onychognathus morio</i>	0,044	9,091
African Palm Swift	<i>Cypsiurus parvus</i>	0,039	36,364
Cape Weaver	<i>Ploceus capensis</i>	0,035	36,364
Yellow-fronted Canary	<i>Crithagra mozambica</i>	0,035	36,364
Little Bee-eater	<i>Merops pusillus</i>	0,031	18,182
Cape Sparrow	<i>Passer melanurus</i>	0,018	9,091
Pin-tailed Whydah	<i>Vidua macroura</i>	0,018	9,091
Southern Black Tit	<i>Melaniparus niger</i>	0,018	18,182
Southern Fiscal	<i>Lanius collaris</i>	0,018	36,364
Spur-winged Goose	<i>Plectropterus gambensis</i>	0,018	9,091
Yellow-rumped Tinkerbird	<i>Pogoniulus bilineatus</i>	0,018	36,364
Common Waxbill	<i>Estrilda astrild</i>	0,013	18,182
Red-eyed Dove	<i>Streptopelia semitorquata</i>	0,013	18,182
Spectacled Weaver	<i>Ploceus ocularis</i>	0,013	27,273
African Fish Eagle	<i>Haliaeetus vocifer</i>	0,009	9,091
Black-collared Barbet	<i>Lybius torquatus</i>	0,009	9,091
Cape White-eye	<i>Zosterops virens</i>	0,009	9,091
Emerald-spotted Wood Dove	<i>Turtur chalcospilos</i>	0,009	18,182
Pied Crow	<i>Corvus albus</i>	0,009	18,182
Sombre Greenbul	<i>Andropadus importunus</i>	0,009	18,182
Village Weaver	<i>Ploceus cucullatus</i>	0,009	9,091
White-breasted Cormorant	<i>Phalacrocorax lucidus</i>	0,009	9,091
Yellow-billed Duck	<i>Anas undulata</i>	0,009	9,091

3.4.1.3 Trophic Guilds

Trophic guilds are defined as a group of species that exploit the same class of environmental resources in a similar way (González-Salazar *et al*, 2014). The guild classification used in this assessment is as per González-Salazar *et al* (2014); they divided avifauna into the major groups based on their diet, habitat, and main area of activity. Although species tend to exhibit varied diet with invertivores consuming fruit and frugivores consuming insects for example, the dominant composition of the diet was considered.

The analysis of the major avifaunal guilds reveals that the species composition during the survey was dominated by Granivore Ground Diurnal (GGD) and Omnivore Ground Diurnal (OGD) birds (Figure 3-11).

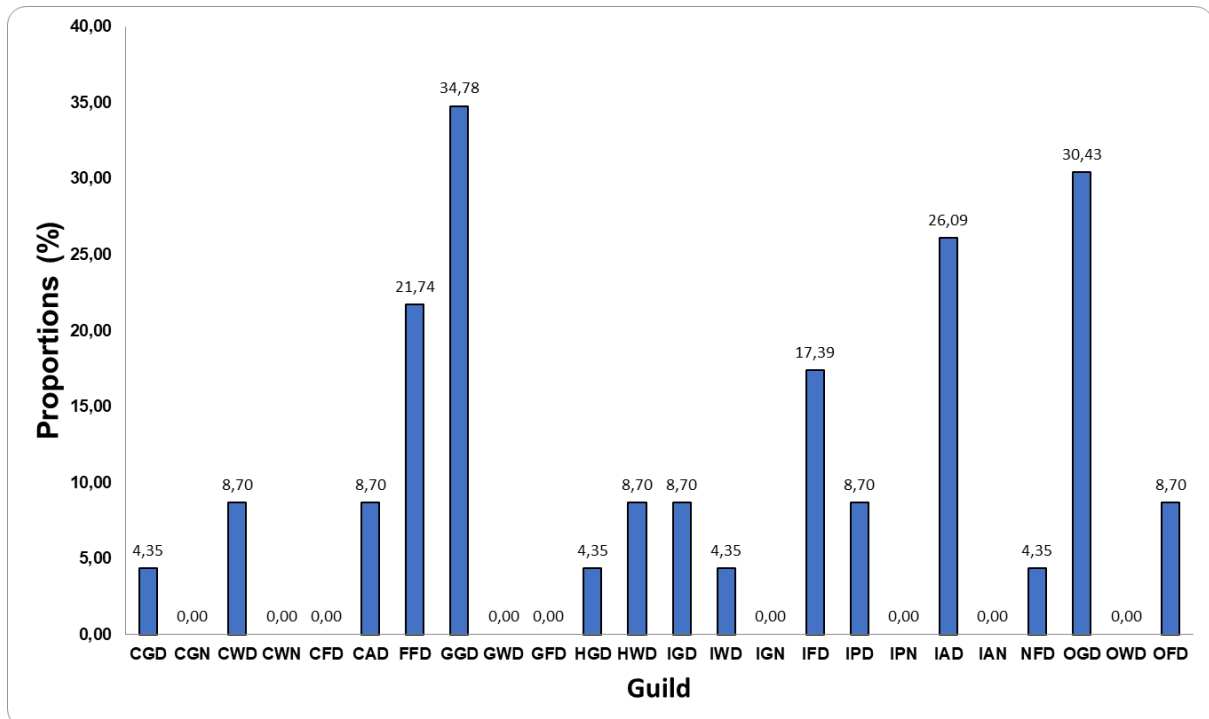


Figure 3-11 Column plot illustrating the proportion of each Functional Feeding Guild to the total abundance. Avifaunal trophic guilds – CGD, carnivore ground diurnal; CGN, carnivore ground nocturnal; CWD, carnivore water diurnal; CWN, carnivore water nocturnal; CFD, carnivore foliage diurnal; CAD, carnivore air nocturnal; FFD, frugivore foliage diurnal; GGD, granivore ground diurnal; GWD, granivore water diurnal; GFD, granivore foliage diurnal; HGD, herbivore ground diurnal; HWD, herbivore water diurnal; IGD, invertivore ground diurnal; IWD, invertivore, water diurnal; IGN, invertivore ground nocturnal; IFD, invertivore foliage diurnal; IPD, invertivore perch diurnal; IPN, invertivore perch nocturnal; IAD, invertivore air diurnal; IAN, invertivore air nocturnal; NFD, nectivore foliage diurnal; OGD, omnivore ground diurnal; OWD, omnivore water diurnal; OFD, omnivore foliage diurnal.

3.4.2 Flight and Nest Analysis

Observing and monitoring flight paths and nesting sites of SCC and/or priority species are important in ascertaining habitat sensitivity and evaluating the impact risk significance of any proposed development. Flight analysis is also important for species that exhibit diel movement between roosting and foraging sites to prevent the risk of collision with infrastructure. A very condensed version of flight path analysis was done, the aim of this was to determine if there is a general direction of most birds on site. This section needs to be interpreted cautiously based on the limited time spent on this component.

No specific flight paths were noted.

Two nests of unknown species were recorded on the existing powerlines, along which the temporary route will be built. The exact species associated with the nests could not be identified, it is however suspected it might be a stork species. A nest walkdown must be done prior to any site clearance to ensure that the species can be suitably protected and identified. This would then result in construction restricted to outside of the breeding season of this species.

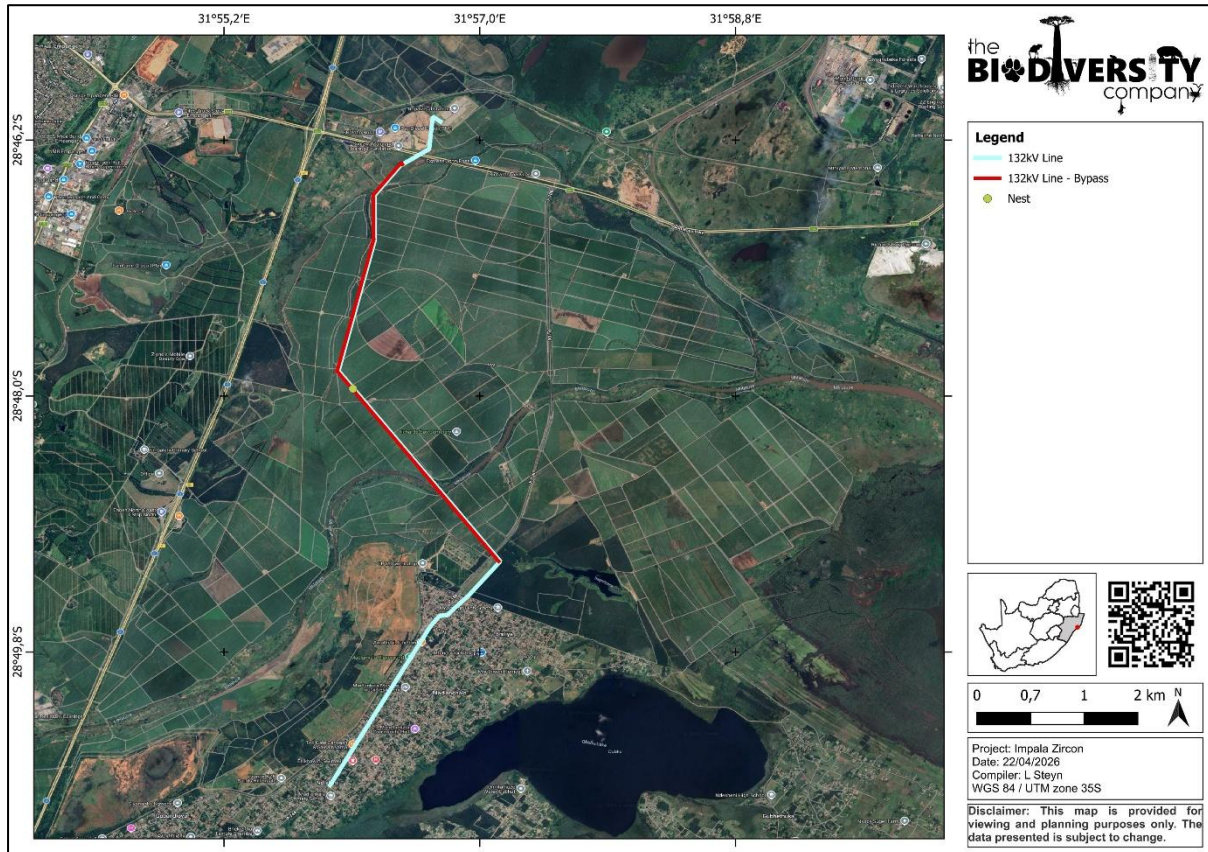


Figure 3-12 Nests recorded in the PAOI

3.5 Habitat Assessment

Fine-scale habitats within the landscape are important in supporting a diverse avifauna community as they provide differing nesting, foraging and reproductive opportunities.

The main habitat types identified across the PAOI were initially delineated largely based on aerial imagery, and these main habitat types were then refined based on the field coverage and data collected during the survey. Four habitats were delineated in total (Figure 3-13), with a full description of the habitats provided below.

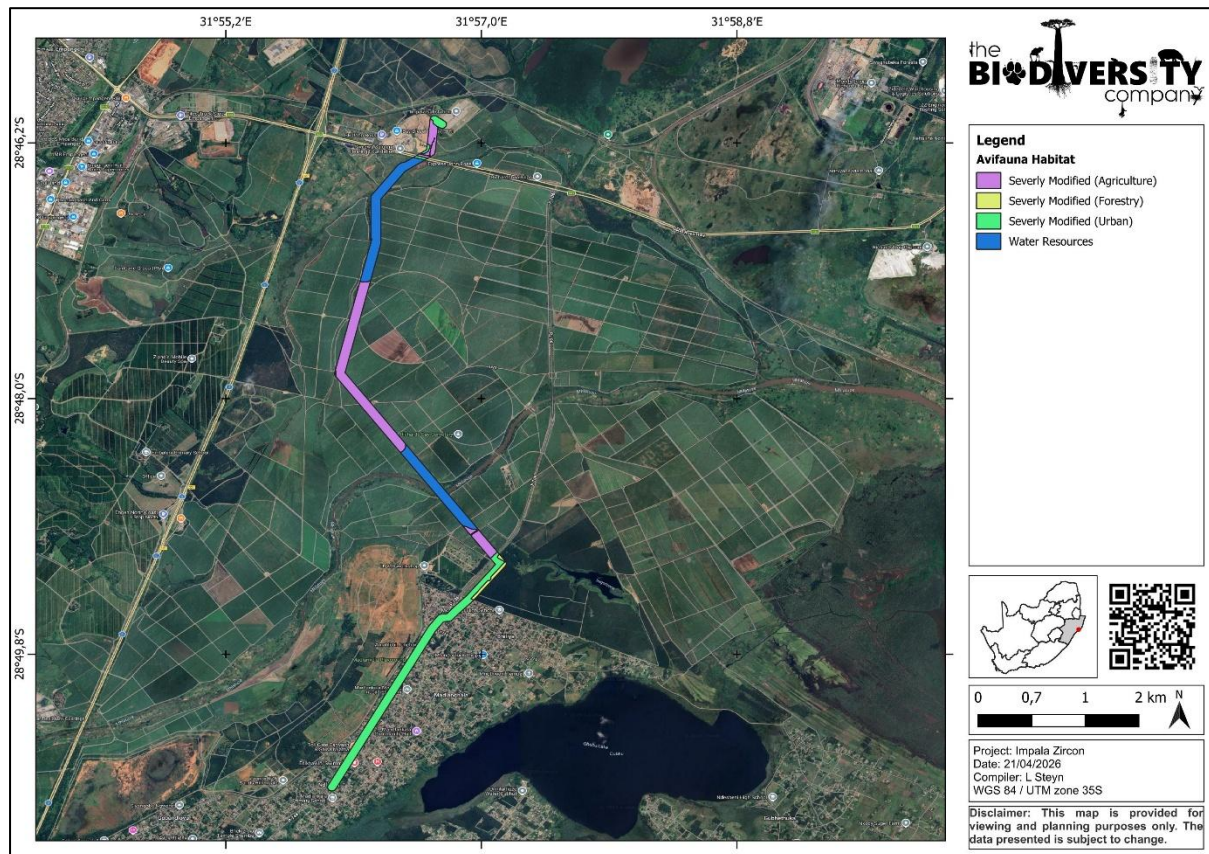


Figure 3-13 *Habitats identified within the assessment areas of the areas that has been covered*

3.5.1 Severely modified - Agriculture

The habitat consists of mainly sugarcane plantations, it can provide nesting and foraging habitat for avifauna species. Smaller ground dwelling birds have been known to breed in the sugarcane, while after it has been harvested the area is often frequented by larger birds feeding on the seeds and insects found on the fields (Figure 3-14).

SCC possible occupying this habitat include: Black-winged Kite, Grey Crowned Crane, Lanner Falcon, Saddle-billed Stork



Figure 3-14 *Example of the Severely modified–Agriculture habitat at Lat: -28.79686 Lon: 31.93278*

3.5.2 Severely Modified- Forestry

This habitat consists of *Eucalyptus* plantations, it can provide suitable habitat for larger predatory bird species for both foraging and nesting (Figure 3-15).

SCC possible occupying this habitat include: Black-winged Kite, Crowned Eagle



Figure 3-15 *Examples of the Severely modified-forestry habitat at Lat: -28.82111 Lon: 31.951*

3.5.3 Severly Modified - Urban

The habitat has little to no remaining natural vegetation due to land transformation by historic and current housing, industries and roads. These habitats exist in a constant disturbed state as it cannot recover to a more natural state due to ongoing disturbances and impacts it receives (Figure 3-16). Although this habitat has been severely negatively affected, it still provides suitable foraging habitat for avifauna SCC.

SCC possible occupying this habitat include: Black-winged Kite



Figure 3-16 *Transformed habitat at Lat: -28.82753 Lon: 31.94385*

3.5.4 Water Resources

This habitat provides crucial habitat for waterbirds. Some of the water resources are natural while others are artificial, and from an avifauna perspective both are important. Due to the overall importance of this resource, the different water resources were combined. The SCC recorded and expected would also utilise varying depths of water, including the riparian vegetation. This habitat provides a vital source of hydration, as well as providing suitable foraging and nesting site for the local avifauna (Figure 3-17).

SCC possible occupying this habitat include: African Darter, African Marsh Harrier, African Pygmy Goose, Black-crowned Night Heron, Great Egret, Grey Crowned Crane, Half-collared Kingfisher, Hamerkop, Knob-billed Duck, Lesser Jacana, Mangrove Kingfisher, Marsh Owl, Red-billed Teal, Saddle-billed Stork, Yellow-billed Duck, Yellow-billed Egret, Yellow-billed Stork, Pink-backed Pelican



Figure 3-17 **Water Resource at Lat: -28.81113 Lon: 31.9454**

3.6 Site Ecological Importance

The different habitat types within the PAOI were delineated and identified based on observations during the field assessment, and available satellite imagery. These habitat types were assigned Site Ecological Importance (SEI) categories based on their ecological integrity, conservation value, the presence of species of conservation concern.

Four habitat types were delineated within the development area. Their respective SEI and the corresponding mitigation guidelines are summarised in Table 3-9.

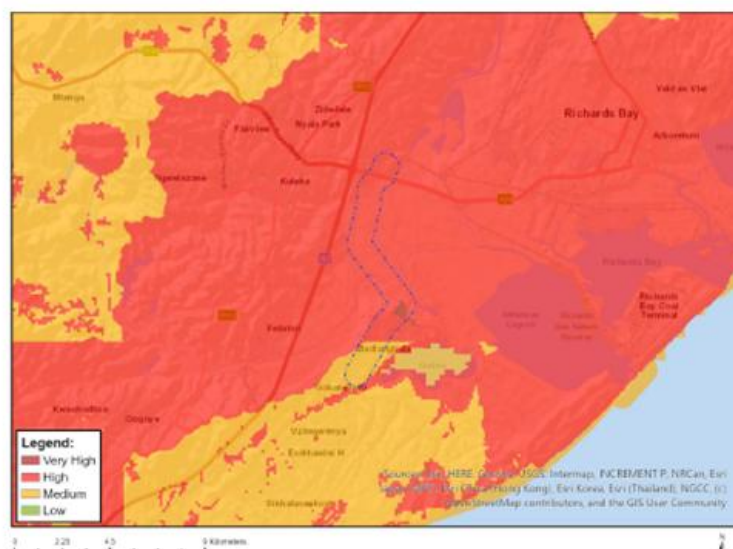
Table 3-9 Summary of habitat types delineated within field assessment area

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Severely Modified - Agriculture	<u>Medium</u> Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals	<u>Low</u> Several minor and major current negative ecological impacts.	Low	<u>High</u> Species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.	<u>Very Low</u> Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.
Severely Modified - Forestry	<u>Medium</u> Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals	<u>Low</u> Several minor and major current negative ecological impacts.	Low	<u>High</u> Species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.	<u>Very Low</u> Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.
Severely Modified - Urban	<u>Medium</u> Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals	<u>Low</u> Several minor and major current negative ecological impacts.	Low	<u>High</u> Species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.	<u>Very Low</u> Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.
Water Resources	<u>High</u> Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km ² . IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A.	<u>Medium</u> Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.	Medium	<u>Medium</u> Species that have a moderate likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.	<u>Medium</u> Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.

3.6.1 Desktop Ecological Sensitivity

The following is deduced from the National Web-based Environmental Screening Tool Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended):

- Animal Species Theme sensitivity is 'Very High' for the PAOI, with the possibility of Avifaunal Species of Conservation Concern (SCC) being present (Figure 3-18).



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
x			

Sensitivity	Feature(s)
High	Aves-Circus ranivorus
High	Aves-Nettapus auritus
High	Aves-Hydroprogne caspia
High	Aves-Balearica regulorum
High	Aves-Pelecanus oncorhynchus
High	Aves-Microparra capensis
High	Aves-Halcyon senegaloides
High	Aves-Pelecanus rufescens
High	Aves-Caprimulgus natalensis
High	Aves-Mycteria ibis
High	Actinopterygii-Marcusenius caudisquamatus
High	Odonata-Agrionemid ruberrima
High	Odonata-Gynacantha villosa
High	Odonata-Hemicordulia africana
High	Odonata-Orthetrum robustum
High	Odonata-Parazygoptera flavicans
Medium	Amphibia-Hyperolius pickersgilli
Medium	Aves-Podica senegalensis
Medium	Aves-Balearica regulorum
Medium	Aves-Halcyon senegaloides
Medium	Aves-Circus fasciatus
Medium	Aves-Stephanoaetus coronatus
Medium	Insecta-Deleoneura millari millari
Medium	Insecta-Iolais diametra natalica
Medium	Insecta-Teriomima zulana
Medium	Mammalia-Dendrohyrax arboreus
Medium	Mammalia-Myosorex sclateri
Medium	Sensitive species 13
Medium	Reptilia-Crocodilus niloticus
Medium	Reptilia-Dendroaspis angusticeps
Medium	Reptilia-Pelusios rhodesianus
Medium	Invertebrate-Forest invertebrate
Medium	Invertebrate-Aryopteris basalis
Medium	Invertebrate-Pomatonota dregii
Medium	Invertebrate-Physophora livingstonii
Medium	Actinopterygii-Ctenopoma multispine
Medium	Actinopterygii-Enteromius gurneyi
Medium	Actinopterygii-Marcusenius caudisquamatus
Very High	Arachnida-Quamtana mbaba

Figure 3-18 *Animal Species Theme Sensitivity for the development*

3.6.2 Site Sensitivity Verification (Screening Tool Comparison)

The allocated sensitivities if the mitigation measures are followed for each of the relevant themes identified in the National Web-based Environmental Screening Tool are either disputed or validated for the assessed areas in Table 3-10 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are based largely on the SEI process followed in the previous section, and consideration is given to any observed or likely presence of SCC or protected species. The sensitivities delineated for the project area is illustrated in Figure 3-19.

Table 3-10 Summary of the screening tool vs specialist assigned sensitivities post mitigation

Screening Tool Theme	Screening Tool	Habitat	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Animal Theme	Very High	Severely Modified-Agriculture	Very Low	Disputed – The habitat has been altered from a natural state, even though it can support SCC. The existing line which the line will be adjacent to reduces the overall sensitivity as well.
		Severely Modified-Forestry	Very Low	Disputed – The habitat has been altered from a natural state, even though it can support SCC. The existing line which the line will be adjacent to reduces the overall sensitivity as well.
		Severely Modified-Urban	Very Low	Disputed – The habitat has been altered from a natural state, even though it can support SCC. The existing line which the line will be adjacent to reduces the overall sensitivity as well.
		Water Resources	Medium	Disputed– The habitat can support both nesting and breeding SCC, however as it is surrounded by extensive agriculture and development the state of the systems has been impacted reducing its sensitivities.

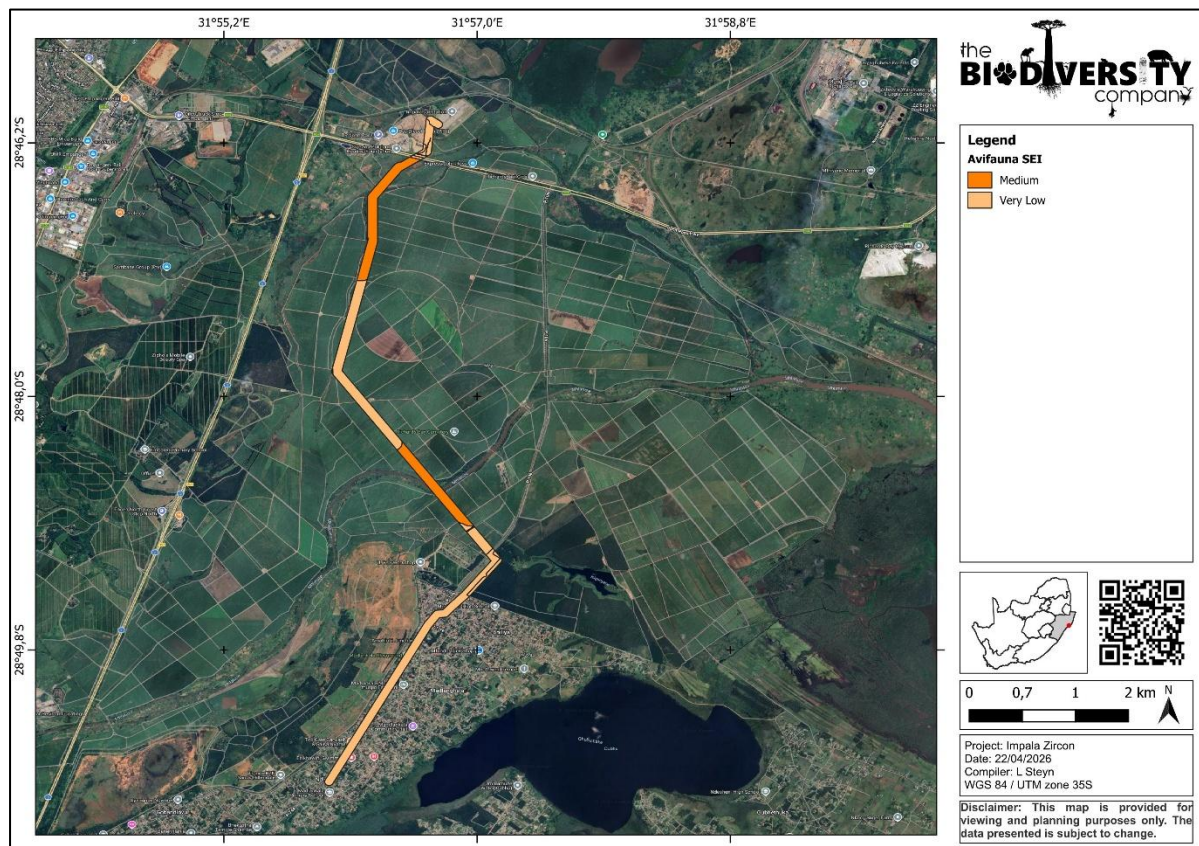


Figure 3-19 Site ecological importance, with mitigation measures applied for the areas that has been assessed

4 Impact Assessment

4.1 Current Impacts to Biodiversity

In consideration that there are anthropogenic activities and influences present within the landscape, there are currently several negative impacts to biodiversity, including avifauna. These include:

- Historic land modification to accommodate roads, powerline infrastructure, and housing;
- Livestock;
- Cleared areas;
- Agriculture and plantations; and
- Fences and the associated infrastructure (Figure 4-1).



Figure 4-1 Photograph illustrating current negative impacts associated with the PAOI: A) Existing powerlines, plantations, B) cattle, C) roads and sugarcane, D) fences and power station

4.2 Alternatives Considered

No alternatives were considered in the report.

4.3 Loss of Irreplaceable Resources

The proposed development will lead to the loss of the following irreplaceable resources:

- Habitat and possible nesting sites for numerous expected avifauna SCC; and
- Loss of avifauna SCC due to displacement or death.

4.4 Quantitative Impact Assessment

Potential impacts were evaluated against the data captured during the fieldwork and from a desktop perspective to identify relevance to the project area of interest, specifically the proposed development footprint area. Bennun *et al* (2021) describes three broad types of impacts associated with development:

- Direct impacts – Impacts that result from project activities or operational decisions that can be predicted based on planned activities and knowledge of local biodiversity, such as habitat loss under the project footprint, habitat fragmentation due to project infrastructure and species disturbance or mortality as a result of project operations;
- Indirect impacts – Impacts induced by, or 'by-products' of, project activities within a project's area of influence; and
- Cumulative impacts – Impacts that result from the successive, incremental and/or combined effects of existing, planned and/or reasonably anticipated future human activities in combination with project development impacts.

The assessment of impact significance considers pre-mitigation as well as implemented post-mitigation scenarios. Although different species and groups will react differently to the development, the risk assessment was undertaken bearing in mind the potential impacts to the priority species listed in this report. Three phases were considered for the impact assessment:

- Construction Phase;
- Operational Phase; and
- Decommissioning Phase.

4.4.1 Construction Phase

The following potential main impacts on biodiversity were considered for the construction phase of the proposed development. This phase refers to the period during construction when the proposed features are constructed; and is considered to have the largest direct impact on biodiversity. The following potential impacts to avifauna were considered:

- Habitat destruction within the development footprint;
- Destruction, degradation and fragmentation of surrounding habitats;
- Displacement/emigration of avifauna community (including SCC);
- Direct mortality from persecution or poaching of avifauna species and collection of eggs; and
- Direct mortality from increased vehicle and heavy machinery traffic.

The pre-mitigation and post-mitigation impact ratings for the construction phase are shown in Table 4-1.

Table 4-1 Construction Phase Impacts

Impact	Prior to mitigation						Post mitigation					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Habitat destruction within the development area	4	2	3	3	4		3	2	2	3	2	
	Life of operation or less than 20 years: Long Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	Moderate	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Possible	Low
Destruction, degradation and fragmentation of surrounding habitats	4	3	3	3	4		3	2	3	3	3	
	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	Moderate	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Likely	Low
Displacement/emigration of avifauna community (including SCC)	3	4	3	3	4		3	2	2	3	3	
	One year to five years: Medium Term	Regional within 5 km of the site boundary / < 2000ha impacted /	Significant / ecosystem structure and function	Ecology moderately sensitive/ /important	Highly likely	Moderate	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Likely	Low

		Linear features affected < 3000m	moderately altered					impacted / Linear features affected < 100m				
Direct mortality from persecution or poaching of avifauna species and collection of eggs	4	3	3	3	4		3	2	2	4	2	
	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	Moderate	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology highly sensitive /important	Possible	Low
Direct mortality from increased vehicle and heavy machinery traffic	4	3	3	3	4		3	2	2	4	2	
	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	Moderate	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology highly sensitive /important	Possible	Low

4.4.2 Operation Phase

The operational phase includes the following impacts:

- Collisions with the powerlines;
- Electrocution due to the powerlines;
- Direct mortality from roadkill, persecution or poaching of avifauna species and collection of eggs.

The pre-mitigation and post-mitigation impact ratings for the construction phase are shown in Table 4-2.

Table 4-2 Operational Phase Impacts

Impact	Prior to mitigation						Post mitigation					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Collisions with powerlines	5	3	4	4	4		4	2	3	4	3	
	Permanent	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Highly likely	Moderately High	Life of operation or less than 20 years: Long Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important	Likely	Moderate
Electrocution as a result of powerlines	4	3	3	4	4		4	2	3	4	2	
	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important	Highly likely	Moderately High	Life of operation or less than 20 years: Long Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important	Possible	Moderate
Direct mortality from roadkill,	3	3	3	4	3		3	2	2	3	1	
					Likely	Moderate						Low

persecution or poaching of avifauna species and collection of eggs	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important			One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Highly unlikely	
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4.4.3 Decommissioning Phase

This phase is when the scaling down of activities ahead of temporary or permanent closure is initiated. During this phase, the Operational Phase impacts will persist until the activity reduces and the rehabilitation measures are implemented.

The following potential impacts were considered:

- Direct mortality due to earthworks, vehicle collisions and persecution;
- Direct mortality due to collisions with powerlines;
- Continued habitat degradation due to Invasive Alien Plant encroachment and erosion;
- Destruction of nests when temporary line is removed.

The pre-mitigation and post-mitigation impact ratings for the construction phase are shown in Table 4-3.

Table 4-3 Decommissioning Phase Impacts

Impact	Prior to mitigation						Post mitigation					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Direct mortality due to earthworks, vehicle collisions and persecution	4	3	3	3	3		2	2	2	3	1	
	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Likely	Moderate	One month to one year: Short Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Highly unlikely	Absent
Direct mortality due to collisions	4	2	3	3	4		2	2	2	3	1	
	Life of operation or less than 20 years: Long Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	Moderate	One month to one year: Short Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Highly unlikely	Absent
Continued habitat degradation due to Invasive Alien Plant	4	3	3	3	4		2	2	2	3	2	
	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	Moderate	One month to one year: Short Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Possible	Low

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encroachment and erosion	20 years: Long Term	5000ha impacted / Linear features affected < 1000m	function moderately altered					boundary / < 100 ha impacted / Linear features affected < 100m	function largely unchanged			
	4	3	3	4	3		2	2	2	3	2	
Destruction of nests when temporary line is removed.	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important	Likely	Moderate	One month to one year: Short Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Possible	Low

4.4.4 Cumulative Impacts

Cumulative impacts are assessed within the context of the extent of the proposed PAOI, other developments and activities in the area (existing and proposed) and general habitat loss and disturbance resulting from any other anthropogenic activities in the area. The impacts of projects are often assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation this provides a good method of assessing a project's impact. However, in areas where baselines have already been affected, or where future development will continue to add to the impacts in an area or region, it is appropriate to consider the cumulative effects of development or disturbance activities. This is similar to the concept of shifting baselines, which describes how the environmental baseline at a specific point in time may actually represent a significant change from the original state of the system. This section describes the potential cumulative impacts of the project on the local and regional avifauna community.

Localised cumulative impacts include those from operations that are close enough to potentially cause additive effects on the local environment or any sensitive receivers (such as nearby large road networks, and power infrastructure). Relevant activities and impacts include dust deposition, noise and vibration, loss of corridors or habitat, disruption of waterways, groundwater drawdown, groundwater and surface water depletion, and transport activities. Long-term cumulative impacts associated with the site development activities can lead to the loss of endemic and threatened species, including natural habitat and vegetation types, and these impacts can even lead to the degradation of conserved areas such as the adjacent game parks and reserves.

The proposed development in isolation has a Negative Low impact significance (Table 4-4). In consideration of the existing powerlines in the area, the cumulative impact was determined to be of a Negative Moderately high significance. Figure 4-2 shows the inland 30 km area along with the existing powerlines.

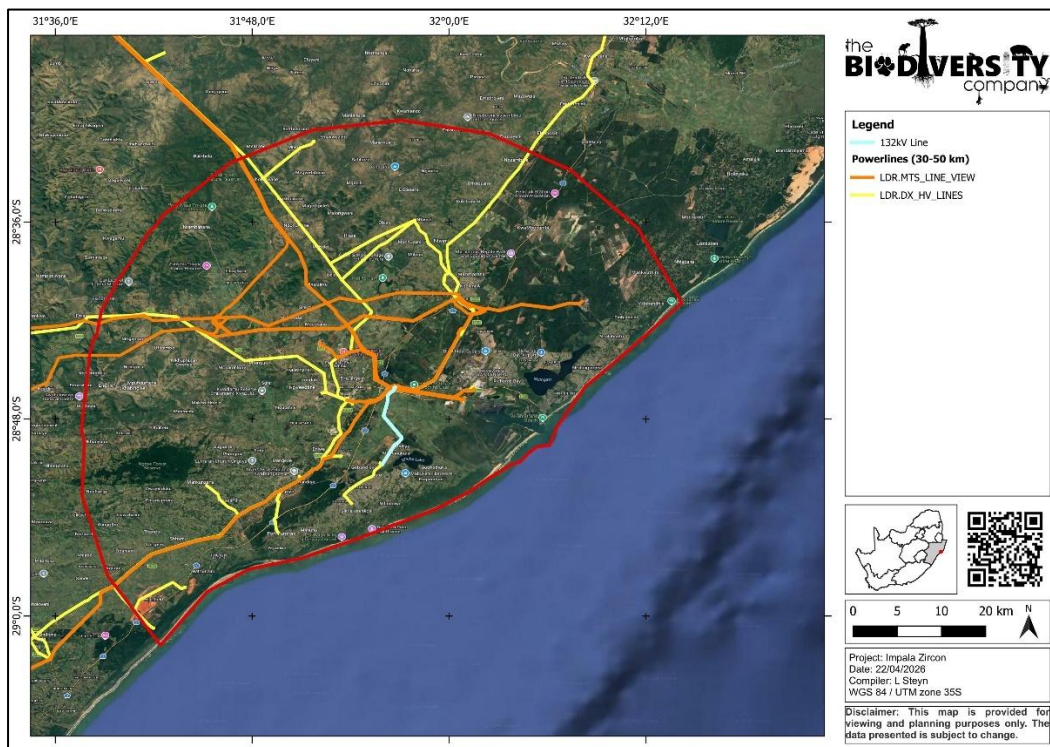


Figure 4-2 Cumulative powerlines in 30 km surrounding the PAOI

The pre-mitigation and post-mitigation impact ratings for the cumulative impacts are shown in Table 4-4.

Table 4-4 Cumulative Impacts to avifauna associated with the proposed project

Impact	Project in Isolation						Cumulative Effect					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Loss of habitat, collisions, and electrocutions	3	3	3	3	2		4	4	3	4	4	
	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive / important	Possible	Low	Life of operation or less than 20 years: Long Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive / important	Highly likely	Moderately High

5 Avifauna Impact Management Actions

The purpose of the Biodiversity Impact Management Actions is to present the mitigations in such a way that they can be incorporated into the Environmental Management Programme (EMPr), allowing for more successful implementation and auditing of the mitigations and monitoring guidelines. The impact management actions in the Generic Environmental Management Programme (EMPr) for the development and expansion of substation infrastructure for the transmission and distribution of electricity as per No. 42323 GOVERNMENT GAZETTE, 22 MARCH 2019, are sufficient for the avoidance, management and mitigation of impacts and risks are mostly sufficient. Additional site-specific mitigation measures are provided below.

Table 5-1 details the mitigation measure necessary for implementation, while providing recommended mitigation measures for the Environmental Assessment Practitioner (EAP) to consider, aimed at minimizing the overall impact on avifauna. Both tables include corresponding timeframes, targets, and performance indicators specific to the avifaunal component.

Table 5-1 *Specific avifauna management outcomes pertaining to impacts to avifauna and their habitats*

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Management outcome: Habitats				
A nest walkdown must be performed prior to clearance of the site. This must include the areas where the previous nests were found. It must be used to confirm the species associated with the nests found, and lead to recommendations for possible avoidance months for construction.	Construction Phase	Environmental Officer	Development footprint	During Phase
The development area must be demarcated and movement into surrounding natural areas must be restricted- especially the water resource areas.	Life of operation	Project Manager	Habitat destruction	Life of operation
Management outcome: Avifauna				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
All personnel should undergo environmental induction with regards to avifauna and in particular awareness about not harming, collecting, or hunting terrestrial species, and owls, which are often persecuted out of superstition. Signs must be put up to enforce this.	Life of operation	Environmental Officer	Evidence of trapping etc	Ongoing
Overhead cables/lines must be fitted with industry standard bird flight diverters in one span each side of the delineated water resources as per the TBC wetland report to make the lines as visible as possible to collision-susceptible	Construction/Operational Phase	Project Manager Environmental Officer Design Engineer	Bird collisions	Ongoing

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species. Recommended bird diverters such as flapping devices (dynamic device) and thickened wire spirals (static device) that increase the visibility of the lines should be fitted as per industry standards.				
All the parts of the infrastructure must be nest proofed, and anti-perch devices placed on areas that can lead to electrocution;	Construction/Operational Phase	Project Manager Environmental Officer Design Engineer	Bird electrocutions	Ongoing
Any exposed parts must be covered (insulated) to reduce electrocution risk	Construction/Operational Phase	Project Manager Environmental Officer Design Engineer	Bird electrocutions	Ongoing
All areas to be developed must be walked through prior to any activity to ensure no nests or avifauna species are found in the area. Should any Species of Conservation Concern be found and not move out of the area, or their nest be found in the area, a suitably qualified specialist must be consulted to advise on the correct actions to be taken.	Construction	Environmental Officer	Presence of avifauna species and nests	During Phase
All the parts of the infrastructure must be nest proofed, and anti-perch devices placed on areas that can lead to electrocution	Planning and Construction	Environmental Officer Contractor Engineer	Presence of electrocuted birds	During phase
As far as possible, power cables within the PAOI should be thoroughly insulated and preferably buried.	Construction and Operation	Project Manager Environmental Officer Design Engineer	Exposed cables	During phase
During the decommission phase, the line must be removed after a nest check was conducted by the ECO. Should any nests be found an avifauna specialist must advise on the way forward.	Closure/Rehabilitation	Project Manager Environmental Officer	Infrastructure removal	During phase

Table 5-2 **Generic management outcomes pertaining to impacts to avifauna and their habitats**

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Management outcome: Habitats				
Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, must under no circumstances be fragmented or disturbed further.	Life of operation	Project Manager Environmental Officer	Areas of indigenous vegetation	Ongoing
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion. This will also reduce the likelihood of encroachment by alien invasive plant species. Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are indigenous to this vegetation type.	Decommissioning / Rehabilitation	Project Manager	Erosion	Decommissioning / Rehabilitation
A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over, that it does not run into the surrounding areas. The Contractor must be in possession of an emergency spill kit that must always be complete and available on site. 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 necessary. All contaminated soil / yard stone must be treated in situ or removed and be placed in containers. Appropriately contain any generator diesel storage tanks, machinery spills (e.g., accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them leaking and entering the environment.	Life of operation	Environmental Officer Contractor	Spill events, Vehicles dripping.	Ongoing
Cement must be mixed in a designated area on a liner away from water sources and buffers, so that successful rehabilitation of the construction areas can take place.	Planning and Construction	Project Manager Environmental Officer Contractor Engineer	Water pollution and restricted rehabilitation	During phase
Leaking equipment and vehicles must be repaired immediately or be removed from PAOI to facilitate repair.	Life of operation	Environmental Officer Contractor	Leaks and spills	Ongoing
Only environmentally friendly substances must be used for the cleaning/washing of the panels	Operational Phase	Project Manager Environmental Officer	Water pollution	During Phase
Management outcome: Avifauna				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency

All construction and maintenance motor vehicle operators to undergo an environmental induction, that includes instruction on the need to comply with speed limit (40 km/h), to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings and erosion is limited.	Life of Operation	Health and Safety Officer	Compliance to the training.	Ongoing
All project activities must be undertaken with appropriate noise mitigation measures to avoid disturbance to avifauna population in the region	Construction/Operational Phase	Project Manager Environmental Officer	Noise	Ongoing
Infrastructure must be consolidated where possible in order to minimise the amount of ground and air space used.	Planning and Construction	Project Manager Environmental Officer Contractor Engineer	Presence of bird collisions	During phase

6 Monitoring

Diverter must be monitored as per the ESKOM maintenance schedule and must be replaced within one year should it not be functional.

7 Conclusion

The assessment identified 385 expected bird species, including 54 SCC, with two SCC (African Darter and Yellow-billed Duck) recorded during field surveys.

Key findings indicate that while the project area overlaps with several ecologically important features (such as Critical Biodiversity Areas, Key Biodiversity Areas, and water resources), the direct development footprint is largely within already transformed landscapes, reducing overall sensitivity except for water resource habitats. The main risks to avifauna are habitat loss, collisions, and electrocutions, particularly for SCC and priority species.

Mitigation measures, including pre-construction nest walkdowns, installation of bird flight diverters across the water resource areas, nest-proofing infrastructure, and strict environmental management protocols, are recommended to reduce impacts to acceptable levels. Post-mitigation, the residual impacts are assessed as ranging from moderately high to low, with cumulative impacts considered moderately high due to existing infrastructure in the region.

7.1 Impact Statement

The main expected impacts of the proposed electrical grid infrastructure includes habitat loss as well as electrocutions and collisions resulting in possible bird mortalities including SCC.

The overall residual impacts for the project range from moderately high to low. Mitigation measures, as described in this report, can be implemented to reduce the significance of the impacts to an acceptable level.

7.2 Specialist Opinion

It is the opinion of the specialist that the development can be favourably considered should the mitigation measures and management actions be implemented.

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9 Appendix Items

9.1 Appendix A: Methodology

9.1.1 Desktop Dataset Assessment

The desktop assessment was principally undertaken using a Geographic Information System (GIS) to access the latest available spatial datasets to develop digital cartographs and species lists. These datasets and their date of publishing are provided below.

9.1.1.1 Expected Species

The avifaunal desktop assessment comprised of the following, compiling an expected species list:

- Avifauna list, generated from the SABAP2 dataset by looking at pentads 2840_3150; 2840_3155; 2840_3200; 2845_3150; 2845_3155; 2845_3200; 2850_3150; 2850_3155; 2850_3200

9.1.1.2 Ecologically Important Landscape Features

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

- Ecosystem Threat Status (ETS) – indicator of an ecosystem’s wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. The revised red list of threatened ecosystems was developed between 2016 and 2021 incorporating the best available information on terrestrial ecosystem extent and condition, pressures and drivers of change. The revised list (known as the Red List of Ecosystems (RLE) 2022) is based on assessments that followed the International Union for Conservation of Nature (IUCN) Red List of Ecosystems Framework (version 1.1) and covers all 456 terrestrial ecosystem types described in South Africa (Mucina and Rutherford 2006; with updates described in Dayaram *et al.*, 2019). The revised list identifies 120 threatened terrestrial ecosystem types (55 Critically Endangered, 51 Endangered and 14 Vulnerable types). The revised list was published in the Government Gazette (Gazette Number 47526, Notice Number 2747) and came into effect on 18 November 2022;
- Ecosystem Protection level (EPL) informs on whether ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Not Protected (NP), Poorly Protected (PP), Moderately Protected (MP) or Well Protected (WP), based on the proportion of each ecosystem type that occurs within a protected area recognised in the Protected Areas Act (Skowno *et al.*, 2019). NP, PP or MP ecosystem types are collectively referred to as under-protected ecosystems.
- Protected areas - South Africa Protected Areas Database (SAPAD) (DEA, 2023) – The SAPAD Database contains spatial data pertinent to the conservation of South African biodiversity. It includes spatial and attribute information for both formally protected areas and areas that have less formal protection. SAPAD is updated on a continuous basis and forms the basis for the Register of Protected Areas, which is a legislative requirement under the National Environmental Management: Protected Areas Act, Act 57 of 2003.
- National Protected Areas Expansion Strategy (NPAES) (SANBI, 2018) – The NPAES provides spatial information on areas that are suitable for terrestrial ecosystem protection. These focus

areas are large, intact and unfragmented and therefore, of high importance for biodiversity, climate resilience and freshwater protection.

- KwaZulu Natal Biodiversity Sector Plan aim is to:
 - Identify and map critical biodiversity assets in KwaZulu-Natal District Municipalities; and
 - Provide associated management guidelines which aim to maintain the integrity of these biodiversity features.
 - **The objectives of the Biodiversity Sector Plan are to:**
 - Ensure aquatic and terrestrial biodiversity targets are met at the District level;
 - Conserve representative samples of biodiversity pattern;
 - Conserve the ecological and evolutionary processes that allow biodiversity to persist over time; and
 - Serve as a first step towards the development of a Bioregional Plan.
 - **The Purpose of the BSP:**
 - The key purpose of this BSP is to assist and guide land use planners and managers within various district and local municipalities, to account for biodiversity conservation priorities in all land use planning and management decisions, thereby promoting sustainable development and the protection of biodiversity, and in turn the protection of ecological infrastructure and associated ecosystem services.
 - **Critical Biodiversity Areas**
 - The KZN BSP also provides a spatial representation of land and coastal marine area required to ensure the persistence and conservation of biodiversity within KZN, reflected as Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA).
 - A CBA is considered a significant and ecologically sensitive area and needs to be kept in a pristine or near-natural state to ensure the continued functioning of ecosystems. A CBA represents the best choice for achieving biodiversity targets. ESAs are not essential for achieving targets, but they play a vital role in the continued functioning of ecosystems.
- A new set of Key Biodiversity Areas (KBA) specific to South Africa has been identified using the Global Standard for the Identification of Key Biodiversity Areas version 1.2 (IUCN 2016), applied to South African species and ecosystems. KBAs are critical sites that play a vital role in maintaining global biodiversity by serving as essential habitats for species. The identification of KBAs enables governments and civil society to pinpoint key locations crucial for species and their habitats worldwide. This understanding facilitates collaborative efforts to manage and conserve these areas, thereby safeguarding global biological diversity and supporting international biodiversity objectives.; and

- South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Van Deventer *et al.*, 2018) – A SAIIAE was established during the NBA of 2018. It is a collection of data layers that represent the extent of river and inland wetland ecosystem types and pressures on these systems.

9.1.2 Avifauna Survey

Point Counts

Standardized point counts (Buckland *et al.*, 1993) were conducted to gather data on the species composition and relative abundance of species within the broad habitat types identified. The standardized point count technique was utilized as it was demonstrated to outperform line routes (Cumming & Henry, 2019). Each point count was conducted over a 10-minute period. The horizontal detection limit was set at 150 meters. At each point, the observer would document the date, start time, end time, habitat, numbers of each species, detection method (seen or heard), behaviour (perched or flying), and general notes on habitat and nesting suitability for conservation-important species.

Drive Transects

The drive transects focused on larger terrestrial birds and raptors. Transects were performed in and around the development footprint to ensure the larger area was considered. The transects were conducted by driving at approximately 15 km/h and stopping at regular intervals of 100 meters, scanning the surrounding environment with binoculars. All large terrestrial species and raptors were recorded, including their number, detection method (seen or heard), behaviour (perched or flying), and general notes on habitat and nesting suitability.

Water Resource Assessments

Water resources on-site as well as larger features outside the project footprint were assessed. This consisted of a focal assessment at the water's edge to determine if SCC (species of conservation concern) as well as congregator species, were present.

Nest Survey

Possible nesting sites such as power lines, stands of trees, marshes and drainage lines, cliffs, and gravel areas were surveyed for nests. All breeding sites were mapped, and the activity at the nests was assessed during the survey.

Incidental Observations

To supplement the species inventory with cryptic and elusive species that may not be detected during the rigid point count and drive transect protocols, diurnal incidental searches were conducted. This involved the opportunistic sampling of species between point count periods as well as random meandering.

9.2 Appendix B: Site Ecological Importance

The different habitat types within the study area were delineated and identified, based on observations during the field assessment, and available satellite imagery. These habitat types were assigned Ecological Importance (EI) categories, based on their ecological integrity, conservation value, the presence of SCC and their ecosystem processes.

SEI is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community or habitat type present on the site) and Receptor Resilience (RR) (its resilience to impacts) as follows.

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor as follows. The criteria for the CI and FI ratings are provided Table 9-1 and, respectively Table 9-2.

Table 9-1 Summary of Conservation Importance (CI) criteria

Conservation Importance	Fulfilling Criteria
Very High	Confirmed or highly likely occurrence of CR, EN, VU or Extremely Rare or CR species that have a global extent of occurrence (EOO) of < 10 km ² . Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of an EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km ² . IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
Medium	Confirmed or highly likely occurrence of populations of Near Threatened (NT) species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
Low	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
Very Low	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.

Table 9-2 Summary of Functional Integrity (FI) criteria

Functional Integrity	Fulfilling Criteria
Very High	Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts with no signs of major past disturbance.
High	Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type or > 10 ha for EN ecosystem types. Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Only minor current negative ecological impacts with no signs of major past disturbance and good rehabilitation potential.
Medium	Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types. Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.
Low	Small (> 1 ha but < 5 ha) area. Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area. Low rehabilitation potential. Several minor and major current negative ecological impacts.
Very Low	Very small (< 1 ha) area. No habitat connectivity except for flying species or flora with wind-dispersed seeds.

Several major current negative ecological impacts.

BI can be derived from a simple matrix of CI and FI as provided in Table 9-3.

Table 9-3 *Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)*

Biodiversity Importance (BI)		Conservation Importance (CI)				
		Very high	High	Medium	Low	Very low
Functional Integrity (FI)	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor as summarised in Table 9-4.

Table 9-4 *Summary of Resource Resilience (RR) criteria*

Resilience	Fulfilling Criteria
Very High	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.
Very Low	Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.

Subsequent to the determination of the BI and RR, the SEI can be ascertained using the matrix as provided in Table 9-5.

Table 9-5 *Matrix used to derive Site Ecological Importance (SEI) from Receptor Resilience (RR) and Biodiversity Importance (BI)*

Site Ecological Importance (SEI)		Biodiversity Importance (BI)				
		Very high	High	Medium	Low	Very low
Receptor Resilience (RR)	Very Low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low
	High	High	Medium	Low	Very low	Very low
	Very High	Medium	Low	Very low	Very low	Very low

Interpretation of the SEI in the context of the proposed development activities is provided in Table 9-6.

Table 9-6 *Guidelines for interpreting Site Ecological Importance (SEI) in the context of the proposed development activities*

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

The SEI evaluated for each taxon can be combined into a single multi-taxon evaluation of SEI for the assessment area. Either a combination of the maximum SEI for each receptor should be applied, or the SEI may be evaluated only once per receptor but for all necessary taxa simultaneously. For the latter, justification of the SEI for each receptor is based on the criteria that conforms to the highest CI and FI, and the lowest RR across all taxa.

9.3 Appendix C: Impact / Risk Assessment

Each Impact was rated whether such impacts are positive or negative. Each impact is also assessed according to the project phases:

- Construction;
- Operation; and
- Decommissioning.

The significance of the identified impacts was determined using an accepted methodology from the Department of Environmental Affairs and Tourism Guideline document on EIA Regulations, April 1998. As with all impact methodologies, the impact is defined in a semi-quantitative way and was assessed according to methodology as per the scale utilised for the evaluation of Environmental Impact Ratings in Table 9-7, Table 9-8, and Table 9-9. First, the impact is assigned a score based on Likelihood descriptors Probability and Sensitivity (Likelihood = Probability + Sensitivity) (Table 9-7). and then assigned a Severity rating based on Consequence descriptors Severity, Scope and Duration (Severity = Severity + Scope + Duration) (Table 9-8). Overall Consequence and Likelihood scores are then used to Determine the Significance Rating (Table 9-9).

Table 9-7 *Environmental Impact Assessment: Likelihood Descriptors*

Probability of impact	Rating
Highly unlikely	1
Possible	2
Likely	3
Highly likely	4
Definite	5

Sensitivity of receiving environment	Rating
Ecology not sensitive/important	1
Ecology with limited sensitivity/importance	2
Ecology moderately sensitive/ /important	3
Ecology highly sensitive /important	4
Ecology critically sensitive /important	5

Table 9-8 Environmental Impact Assessment: Consequence Descriptors

Severity of impact	Rating
Insignificant / ecosystem structure and function unchanged	1
Small / ecosystem structure and function largely unchanged	2
Significant / ecosystem structure and function moderately altered	3
Great / harmful/ ecosystem structure and function largely altered	4
Disastrous / ecosystem structure and function seriously to critically altered	5

Spatial scope of impact	Rating
Activity specific/ < 5 ha impacted / Linear features affected < 100m	1
Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	2
Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	3
Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	4
Entire habitat unit / Entire system/ > 2000ha impacted / Linear features affected > 3000m	5

Duration of impact	Rating
One day to one month: Temporary	1
One month to one year: Short Term	2
One year to five years: Medium Term	3
Life of operation or less than 20 years: Long Term	4
Permanent	5

Table 9-9 Environmental Impact Assessment: Significance Rating Matrix

	CONSEQUENCE (Severity + Spatial Scope + Duration)															
	0	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Absent
LIKELIHOOD (Probability of impact + Sensitivity of receiving environment)	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	Low
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	Moderate
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	Moderately High
	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	High

	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	
	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	Critical
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	

9.4 Appendix D: Avifauna Expected Species

Common Name	Scientific Name	Family Name	Regional	Global
Acacia Pied Barbet	<i>Tricholaema leucomelas</i>	Lybiidae		
African Black Duck	<i>Anas sparsa</i>	Anatidae		
African Black Swift	<i>Apus barbatus</i>	Apodidae		
African Cuckoo-Hawk	<i>Aviceda cuculoides</i>	Accipitridae		
African Darter	<i>Anhinga rufa</i>	Anhingidae	NT	LC
African Dusky Flycatcher	<i>Muscicapa adusta</i>	Muscicapidae		
African Emerald Cuckoo	<i>Chrysococcyx cupreus</i>	Cuculidae		
African Finfoot	<i>Podica senegalensis</i>	Heliornithidae	VU	LC
African Firefinch	<i>Lagonosticta rubricata</i>	Estridiidae		
African Fish Eagle	<i>Haliaeetus vocifer</i>	Accipitridae		
African Goshawk	<i>Accipiter tachiro</i>	Accipitridae		
African Green Pigeon	<i>Treron calvus</i>	Columbidae		
African Harrier-Hawk	<i>Polyboroides typus</i>	Accipitridae		
African Hoopoe	<i>Upupa africana</i>	Upupidae		
African Jacana	<i>Actophilornis africanus</i>	Jacaniidae		
African Marsh Harrier	<i>Circus ranivorus</i>	Accipitridae	VU	LC
African Olive Pigeon	<i>Columba arquatrix</i>	Columbidae		
African Openbill	<i>Anastomus lamelligerus</i>	Ciconiidae		
African Palm Swift	<i>Cypsiurus parvus</i>	Apodidae		
African Paradise Flycatcher	<i>Terpsiphone viridis</i>	Monarchidae		
African Pied Wagtail	<i>Motacilla aguimp</i>	Motacillidae		
African Pipit	<i>Anthus cinnamomeus</i>	Motacillidae		
African Pygmy Goose	<i>Nettapus auritus</i>	Anatidae	NT	LC
African Pygmy Kingfisher	<i>Ispidina picta</i>	Alcedinidae		
African Rail	<i>Rallus caerulescens</i>	Rallidae		
African Sacred Ibis	<i>Threskiornis aethiopicus</i>	Threskiornithidae		
African Snipe	<i>Gallinago nigripennis</i>	Scolopacidae		
African Spoonbill	<i>Platalea alba</i>	Threskiornithidae		
African Stonechat	<i>Saxicola torquatus</i>	Muscicapidae		
African Swampphen	<i>Porphyrio madagascariensis</i>	Rallidae		
African Wattled Lapwing	<i>Vanellus senegallus</i>	Charadriidae		
African Wood Owl	<i>Strix woodfordii</i>	Strigidae		
African Yellow Warbler	<i>Iduna natalensis</i>	Acrocephalidae		

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Allen's Gallinule	<i>Porphyrio alleni</i>	Rallidae	NA	LC
Alpine Swift	<i>Tachymarpis melba</i>	Apodidae		
Amethyst Sunbird	<i>Chalcomitra amethystina</i>	Nectariniidae		
Amur Falcon	<i>Falco amurensis</i>	Falconidae		
Ashy Flycatcher	<i>Muscicapa caerulescens</i>	Muscicapidae		
Ayers's Hawk-eagle	<i>Hieraaetus ayresii</i>	Accipitridae		
Baillon's Crake	<i>Zapornia pusilla</i>	Rallidae	NT	LC
Banded Martin	<i>Riparia cincta</i>	Hirundinidae		
Barn Swallow	<i>Hirundo rustica</i>	Hirundinidae		
Barratt's Warbler	<i>Bradypterus barratti</i>	Locustellidae		
Bar-tailed Godwit	<i>Limosa lapponica</i>	Scolopacidae	LC	NT
Bar-throated Apalis	<i>Apalis thoracica</i>	Cisticolidae		
Bearded Scrub Robin	<i>Cercotrichas quadrivirgata</i>	Muscicapidae		
Black Crake	<i>Zapornia flavirostra</i>	Rallidae		
Black Cuckoo	<i>Cuculus clamosus</i>	Cuculidae		
Black Cuckooshrike	<i>Campephaga flava</i>	Campephagidae		
Black Heron	<i>Egretta ardesiaca</i>	Ardeidae		
Black Kite	<i>Milvus migrans</i>	Accipitridae		
Black Saw-wing	<i>Psalidoprocne pristoptera</i>	Hirundinidae		
Black Sparrowhawk	<i>Accipiter melanoleucus</i>	Accipitridae		
Black Tern	<i>Chlidonias niger</i>	Laridae		
Black-backed Puffback	<i>Dryoscopus cubla</i>	Malaconotidae		
Black-bellied Bustard	<i>Lissotis melanogaster</i>	Otididae		
Black-bellied Starling	<i>Notopholia corusca</i>	Sturnidae		
Black-chested Snake Eagle	<i>Circaetus pectoralis</i>	Accipitridae		
Black-collared Barbet	<i>Lybius torquatus</i>	Lybiidae		
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	Ardeidae	NT	LC
Black-crowned Tchagra	<i>Tchagra senegalus</i>	Malaconotidae		
Black-headed Heron	<i>Ardea melanocephala</i>	Ardeidae		
Black-headed Oriole	<i>Oriolus larvatus</i>	Oriolidae		
Blacksmith Lapwing	<i>Vanellus armatus</i>	Charadriidae		
Black-throated Wattle-eye	<i>Platysteira peltata</i>	Platysteiridae		
Black-winged Kite	<i>Elanus caeruleus</i>	Accipitridae	NT	LC
Black-winged Lapwing	<i>Vanellus melanopterus</i>	Charadriidae		
Black-winged Stilt	<i>Himantopus himantopus</i>	Recurvirostridae		
Blue Waxbill	<i>Uraeginthus angolensis</i>	Estrildidae		
Blue-billed Teal	<i>Spatula hottentota</i>	Anatidae		
Blue-cheeked Bee-eater	<i>Merops persicus</i>	Meropidae		
Blue-mantled Crested Flycatcher	<i>Trochocercus cyanomelas</i>	Monarchidae		

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Bokmakierie	<i>Telophorus zeylonus</i>	Malaconotidae		
Brimstone Canary	<i>Crithagra sulphurata</i>	Fringillidae		
Broad-billed Roller	<i>Eurystomus glaucurus</i>	Coraciidae		
Bronze Mannikin	<i>Spermestes cucullata</i>	Estrildidae		
Bronze-winged Courser	<i>Rhinoptilus chalcopterus</i>	Glareolidae		
Brown Scrub Robin	<i>Cercotrichas signata</i>	Muscicapidae		
Brown Snake Eagle	<i>Circaetus cinereus</i>	Accipitridae		
Brown-backed Honeybird	<i>Prodotiscus regulus</i>	Indicatoridae		
Brown-crowned Tchagra	<i>Tchagra australis</i>	Malaconotidae		
Brown-hooded Kingfisher	<i>Halcyon albiventris</i>	Alcedinidae		
Brown-throated Martin	<i>Riparia paludicola</i>	Hirundinidae		
Brubru	<i>Nilaus afer</i>	Malaconotidae		
Buff-spotted Flufftail	<i>Sarothrura elegans</i>	Sarothruridae		
Burchell's Coucal	<i>Centropus burchellii</i>	Cuculidae		
Cape Batis	<i>Batis capensis</i>	Platysteiridae		
Cape Canary	<i>Serinus canicollis</i>	Fringillidae		
Cape Cormorant	<i>Phalacrocorax capensis</i>	Phalacrocoracidae	EN	EN
Cape Crow	<i>Corvus capensis</i>	Corvidae		
Cape Gannet	<i>Morus capensis</i>	Sulidae	VU	EN
Cape Longclaw	<i>Macronyx capensis</i>	Motacillidae		
Cape Robin-Chat	<i>Cossypha caffra</i>	Muscicapidae		
Cape Shoveler	<i>Spatula smithii</i>	Anatidae	NT	LC
Cape Starling	<i>Lamprotornis nitens</i>	Sturnidae		
Cape Teal	<i>Anas capensis</i>	Anatidae		
Cape Wagtail	<i>Motacilla capensis</i>	Motacillidae		
Cape Weaver	<i>Ploceus capensis</i>	Ploceidae		
Cape White-eye	<i>Zosterops virens</i>	Zosteropidae		
Cardinal Woodpecker	<i>Dendropicos fuscescens</i>	Picidae		
Caspian Tern	<i>Hydropogon caspia</i>	Laridae	VU	LC
Chinspot Batis	<i>Batis molitor</i>	Platysteiridae		
Chorister Robin-Chat	<i>Cossypha dichroa</i>	Muscicapidae		
Cinnamon-breasted Bunting	<i>Emberiza tahapisi</i>	Emberizidae		
Collared Pratincole	<i>Glareola pratincola</i>	Glareolidae		
Collared Sunbird	<i>Hedydipna collaris</i>	Nectariniidae		
Common Buttonquail	<i>Turnix sylvaticus</i>	Turnicidae		
Common Buzzard	<i>Buteo buteo</i>	Accipitridae		
Common Cuckoo	<i>Cuculus canorus</i>	Cuculidae		
Common Greenshank	<i>Tringa nebularia</i>	Pycnonotidae		
Common House Martin	<i>Delichon urbicum</i>	Hirundinidae		

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Common Moorhen	<i>Gallinula chloropus</i>	Rallidae		
Common Myna	<i>Acridotheres tristis</i>	Sturnidae		
Common Quail	<i>Coturnix coturnix</i>	Phasianidae		
Common Ringed Plover	<i>Charadrius hiaticula</i>	Charadriidae		
Common Sandpiper	<i>Actitis hypoleucos</i>	Scolopacidae		
Common Scimitarbill	<i>Rhinopomastus cyanomelas</i>	Phoeniculidae		
Common Square-tailed Drongo	<i>Dicrurus ludwigii</i>	Dicruridae		
Common Starling	<i>Sturnus vulgaris</i>	Sturnidae		
Common Tern	<i>Sterna hirundo</i>	Laridae		
Common Waxbill	<i>Estrilda astrild</i>	Estrildidae		
Crab-plover	<i>Dromas ardeola</i>	Charadriidae		
Crested Barbet	<i>Trachyphonus vaillantii</i>	Lybiidae		
Crested Francolin	<i>Dendroperdix sephaena</i>	Phasianidae		
Crested Guineafowl	<i>Guttera pucherani</i>	Numididae		
Croaking Cisticola	<i>Cisticola natalensis</i>	Cisticolidae		
Crowned Eagle	<i>Stephanoaetus coronatus</i>	Accipitridae	VU	NT
Crowned Hornbill	<i>Lophoceros alboterminatus</i>	Bucerotidae		
Crowned Lapwing	<i>Vanellus coronatus</i>	Charadriidae		
Curlew Sandpiper	<i>Calidris ferruginea</i>	Scolopacidae	VU	VU
Dark-backed Weaver	<i>Ploceus bicolor</i>	Ploceidae		
Dark-capped Bulbul	<i>Pycnonotus tricolor</i>	Pycnonotidae		
Denham's Bustard	<i>Neotis denhami</i>	Otididae	VU	NT
Diederik Cuckoo	<i>Chrysococcyx caprius</i>	Cuculidae		
Dusky Indigobird	<i>Vidua funerea</i>	Viduidae		
Eastern Golden Weaver	<i>Ploceus subaureus</i>	Ploceidae		
Eastern Nicator	<i>Nicator gularis</i>	Nicatoridae		
Egyptian Goose	<i>Alopochen aegyptiaca</i>	Anatidae		
Emerald-spotted Wood Dove	<i>Turtur chalcospilos</i>	Columbidae		
Eurasian Curlew	<i>Numenius arquata</i>	Scolopacidae	NA Species of Conservation Concern	NT
Eurasian Golden Oriole	<i>Oriolus oriolus</i>	Oriolidae		
Eurasian Hobby	<i>Falco subbuteo</i>	Falconidae		
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	Haematopodidae	NA	NT
Eurasian Whimbrel	<i>Numenius phaeopus</i>	Scolopacidae		
European Bee-eater	<i>Merops apiaster</i>	Meropidae		
European Honey Buzzard	<i>Pernis apivorus</i>	Accipitridae		
European Nightjar	<i>Caprimulgus europaeus</i>	Caprimulgidae		
European Roller	<i>Coracias garrulus</i>	Coraciidae	NT	LC
Familiar Chat	<i>Oenanthe familiaris</i>	Muscicapidae		

Fan-tailed Grassbird	<i>Catriscus brevirostris</i>	Locustellidae		
Fan-tailed Widowbird	<i>Euplectes axillaris</i>	Ploceidae		
Fiery-necked Nightjar	<i>Caprimulgus pectoralis</i>	Caprimulgidae		
Fiscal Flycatcher	<i>Melaenornis silens</i>	Muscicapidae		
Flappet Lark	<i>Mirafr rufocinnamomea</i>	Alaudidae		
Fork-tailed Drongo	<i>Dicrurus adsimilis</i>	Dicruridae		
Fulvous Whistling Duck	<i>Dendrocygna bicolor</i>	Anatidae	NT	LC
Garden Warbler	<i>Sylvia borin</i>	Sylviidae		
Giant Kingfisher	<i>Megaceryle maxima</i>	Alcedinidae		
Glossy Ibis	<i>Plegadis falcinellus</i>	Threskiornithidae		
Golden-breasted Bunting	<i>Emberiza flaviventris</i>	Emberizidae		
Golden-tailed Woodpecker	<i>Campethera abingoni</i>	Picidae		
Goliath Heron	<i>Ardea goliath</i>	Ardeidae		
Gorgeous Bushshrike	<i>Telophorus viridis</i>	Malaconotidae		
Great Egret	<i>Ardea alba</i>	Ardeidae	NT	LC
Great Reed Warbler	<i>Acrocephalus arundinaceus</i>	Acrocephalidae		
Great White Pelican	<i>Pelecanus onocrotalus</i>	Pelecanidae	VU	LC
Greater Crested Tern	<i>Thalasseus bergii</i>	Laridae		
Greater Flamingo	<i>Phoenicopterus roseus</i>	Phoenicopteridae	NT	LC
Greater Honeyguide	<i>Indicator indicator</i>	Indicatoridae		
Greater Painted-snipe	<i>Rostratula benghalensis</i>	Rostratulidae		
Greater Sand Plover	<i>Charadrius leschenaultii</i>	Charadriidae		
Greater Striped Swallow	<i>Cecropis cucullata</i>	Hirundinidae		
Green Barbet	<i>Stactolaema olivacea</i>	Lybiidae	EN	LC
Green Malkoha	<i>Ceuthmochares australis</i>	Cuculidae		
Green Twinspot	<i>Mandingoa nitidula</i>	Estrildidae		
Green Wood Hoopoe	<i>Phoeniculus purpureus</i>	Phoeniculidae		
Green-backed Camaroptera	<i>Camaroptera brachyura</i>	Cisticolidae		
Grey Crowned Crane	<i>Balearica regulorum</i>	Gruidae	VU	EN
Grey Cuckooshrike	<i>Cebilepyris caesius</i>	Campephagidae		
Grey Heron	<i>Ardea cinerea</i>	Ardeidae		
Grey Plover	<i>Pluvialis squatarola</i>	Charadriidae	NT	VU
Grey Sunbird	<i>Cyanomitra veroxii</i>	Nectariniidae		
Grey Tit-Flycatcher	<i>Myioparus plumbeus</i>	Muscicapidae		
Grey Waxbill	<i>Estrilda perreini</i>	Estrildidae		
Grey-headed Bushshrike	<i>Malaconotus blanchoti</i>	Malaconotidae		
Grey-headed Gull	<i>Chroicocephalus cirrocephalus</i>	Laridae		
Grey-rumped Swallow	<i>Pseudhirundo griseopyga</i>	Hirundinidae		
Groundscraper Thrush	<i>Turdus litsitsirupa</i>	Turdidae		

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Hadada Ibis	<i>Bostrychia hagedash</i>	Threskiornithidae		
Half-collared Kingfisher	<i>Alcedo semitorquata</i>	Alcedinidae	VU	LC
Hamerkop	<i>Scopus umbretta</i>	Scopidae	NT	LC
Harlequin Quail	<i>Coturnix delegorguei</i>	Phasianidae		
Hartlaub's Gull	<i>Chroicocephalus hartlaubii</i>	Laridae	VU	LC
Helmeted Guineafowl	<i>Numida meleagris</i>	Numididae		
Holub's Golden Weaver	<i>Ploceus xanthops</i>	Ploceidae		
House Crow	<i>Corvus splendens</i>	Corvidae		
House Sparrow	<i>Passer domesticus</i>	Passeridae		
Indian Peafowl	<i>Pavo cristatus</i>	Phasianidae		
Jackal Buzzard	<i>Buteo rufofuscus</i>	Accipitridae		
Jacobin Cuckoo	<i>Clamator jacobinus</i>	Cuculidae		
Kelp Gull	<i>Larus dominicanus</i>	Laridae		
Kittlitz's Plover	<i>Charadrius pecuarius</i>	Charadriidae	NT	LC
Klaas's Cuckoo	<i>Chrysococcyx klaas</i>	Cuculidae		
Knob-billed Duck	<i>Sarkidiornis melanotos</i>	Anatidae	NT	LC
Kurrichane Thrush	<i>Turdus libonyana</i>	Turdidae		
Lanner Falcon	<i>Falco biarmicus</i>	Falconidae	NT	LC
Large Rock Martin	<i>Ptyonoprogne fuligula</i>	Hirundinidae		
Laughing Dove	<i>Spilopelia senegalensis</i>	Columbidae		
Lazy Cisticola	<i>Cisticola aberrans</i>	Cisticolidae		
Lemon Dove	<i>Columba larvata</i>	Columbidae		
Lesser Crested Tern	<i>Thalasseus bengalensis</i>	Laridae		
Lesser Flamingo	<i>Phoeniconaias minor</i>	Phoenicopteridae	VU	NT
Lesser Frigatebird	<i>Fregata ariel</i>	Fregatidae		
Lesser Grey Shrike	<i>Lanius minor</i>	Laniidae		
Lesser Honeyguide	<i>Indicator minor</i>	Indicatoridae		
Lesser Jacana	<i>Microparra capensis</i>	Jacanidae	NA	LC
Lesser Masked Weaver	<i>Ploceus intermedius</i>	Ploceidae		
Lesser Striped Swallow	<i>Cecropis abyssinica</i>	Hirundinidae		
Lesser Swamp Warbler	<i>Acrocephalus gracilirostris</i>	Acrocephalidae		
Lilac-breasted Roller	<i>Coracias caudatus</i>	Coraciidae		
Little Bee-eater	<i>Merops pusillus</i>	Meropidae		
Little Bittern	<i>Ixobrychus minutus</i>	Ardeidae		
Little Egret	<i>Egretta garzetta</i>	Ardeidae		
Little Grebe	<i>Tachybaptus ruficollis</i>	Podicipedidae		
Little Rush Warbler	<i>Bradypterus baboecala</i>	Locustellidae		
Little Sparrowhawk	<i>Accipiter minullus</i>	Accipitridae		
Little Stint	<i>Calidris minuta</i>	Scolopacidae		

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Little Swift	<i>Apus affinis</i>	Apodidae		
Little Tern	<i>Sternula albifrons</i>	Laridae		
Livingstone's Turaco	<i>Tauraco livingstonii</i>	Musophagidae		
Lizard Buzzard	<i>Kaupifalco monogrammicus</i>	Accipitridae		
Long-billed Crombec	<i>Sylvietta rufescens</i>	Macrosphenidae		
Long-crested Eagle	<i>Lophaetus occipitalis</i>	Accipitridae		
Long-tailed Widowbird	<i>Euplectes progne</i>	Ploceidae		
Malachite Kingfisher	<i>Corythornis cristatus</i>	Alcedinidae		
Mallard	<i>Anas platyrhynchos</i>	Anatidae		
Mangrove Kingfisher	<i>Halcyon senegaloides</i>	Alcedinidae	EN	LC
Marsh Owl	<i>Asio capensis</i>	Strigidae	NT	LC
Marsh Sandpiper	<i>Tringa stagnatilis</i>	Scolopacidae		
Marsh Warbler	<i>Acrocephalus palustris</i>	Acrocephalidae		
Martial Eagle	<i>Polemaetus bellicosus</i>	Accipitridae	EN	EN
Mountain Wagtail	<i>Motacilla clara</i>	Motacillidae		
Namaqua Dove	<i>Oena capensis</i>	Columbidae		
Narina Trogon	<i>Apaloderma narina</i>	Trogonidae		
Natal Spurfowl	<i>Pternistis natalensis</i>	Phasianidae		
Neddicky	<i>Cisticola fulvicapilla</i>	Cisticolidae		
Olive Bushshrike	<i>Chlorophoneus olivaceus</i>	Malaconotidae		
Olive Sunbird	<i>Cyanomitra olivacea</i>	Nectariniidae		
Olive Thrush	<i>Turdus olivaceus</i>	Turdidae		
Olive Woodpecker	<i>Dendropicos griseocephalus</i>	Picidae		
Orange-breasted Bushshrike	<i>Chlorophoneus sulfureopectus</i>	Malaconotidae		
Orange-breasted Waxbill	<i>Amandava subflava</i>	Estrildidae		
Pale Flycatcher	<i>Melaenornis pallidus</i>	Muscicapidae		
Pale-crowned Cisticola	<i>Cisticola cinnamomeus</i>	Cisticolidae		
Palm-nut Vulture	<i>Gypohierax angolensis</i>	Accipitridae		
Peregrine Falcon	<i>Falco peregrinus</i>	Falconidae		
Pied Avocet	<i>Recurvirostra avosetta</i>	Recurvirostridae		
Pied Crow	<i>Corvus albus</i>	Corvidae		
Pied Kingfisher	<i>Ceryle rudis</i>	Alcedinidae		
Pink-backed Pelican	<i>Pelecanus rufescens</i>	Pelecanidae	VU	LC
Pin-tailed Whydah	<i>Vidua macroura</i>	Viduidae		
Plain-backed Pipit	<i>Anthus leucophrys</i>	Motacillidae		
Purple Heron	<i>Ardea purpurea</i>	Ardeidae		
Purple-banded Sunbird	<i>Cinnyris bifasciatus</i>	Nectariniidae		
Purple-crested Turaco	<i>Tauraco porphyreolophus</i>	Musophagidae		
Quailfinch	<i>Ortygospiza atricollis</i>	Estrildidae		

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Rattling Cisticola	<i>Cisticola chiniana</i>	Cisticolidae		
Red Knot	<i>Calidris canutus</i>	Scolopacidae	NT	NT
Red-backed Mannikin	<i>Spermestes nigriceps</i>	Estrildidae		
Red-backed Shrike	<i>Lanius collurio</i>	Laniidae		
Red-billed Firefinch	<i>Lagonosticta senegala</i>	Estrildidae		
Red-billed Quelea	<i>Quelea quelea</i>	Ploceidae		
Red-billed Teal	<i>Anas erythrorhyncha</i>	Anatidae	NT	LC
Red-breasted Swallow	<i>Cecropis semirufa</i>	Hirundinidae		
Red-capped Robin-Chat	<i>Cossypha natalensis</i>	Muscicapidae		
Red-chested Cuckoo	<i>Cuculus solitarius</i>	Cuculidae		
Red-chested Flufftail	<i>Sarothrura rufa</i>	Sarothruridae		
Red-collared Widowbird	<i>Euplectes ardens</i>	Ploceidae		
Red-eyed Dove	<i>Streptopelia semitorquata</i>	Columbidae		
Red-faced Cisticola	<i>Cisticola erythrops</i>	Cisticolidae		
Red-faced Mousebird	<i>Urocolius indicus</i>	Coliidae		
Red-fronted Tinkerbird	<i>Pogoniulus pusillus</i>	Lybiidae		
Red-headed Quelea	<i>Quelea erythrops</i>	Ploceidae		
Red-throated Wryneck	<i>Jynx ruficollis</i>	Picidae		
Red-winged Starling	<i>Onychognathus morio</i>	Sturnidae		
Reed Cormorant	<i>Microcarbo africanus</i>	Phalacrocoracidae		
Ring-necked Dove	<i>Streptopelia capicola</i>	Columbidae		
Rock Dove	<i>Columba livia</i>	Columbidae		
Rudd's Apalis	<i>Apalis ruddi</i>	Cisticolidae		
Ruddy Turnstone	<i>Arenaria interpres</i>	Scolopacidae	NT	NT
Ruff	<i>Calidris pugnax</i>	Scolopacidae		
Rufous-bellied Heron	<i>Ardeola rufiventris</i>	Ardeidae		
Rufous-naped Lark	<i>Mirafr africana</i>	Alaudidae		
Rufous-winged Cisticola	<i>Cisticola galactotes</i>	Cisticolidae		
Sabota Lark	<i>Calendulauda sabota</i>	Alaudidae		
Saddle-billed Stork	<i>Ephippiorhynchus senegalensis</i>	Ciconiidae	EN	NT
Sand Martin	<i>Riparia riparia</i>	Hirundinidae		
Sanderling	<i>Calidris alba</i>	Scolopacidae	NT	LC
Sandwich Tern	<i>Thalasseus sandvicensis</i>	Laridae		
Scaly-throated Honeyguide	<i>Indicator variegatus</i>	Indicatoridae		
Scarlet-chested Sunbird	<i>Chalcomitra senegalensis</i>	Nectariniidae		
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	Acrocephalidae		
Short-tailed Pipit	<i>Anthus brachyurus</i>	Motacillidae	VU	LC
Sombre Greenbul	<i>Andropadus importunus</i>	Pycnonotidae		
Southern Bald Ibis	<i>Geronticus calvus</i>	Threskiornithidae	NT	NT

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Southern Banded Snake Eagle	<i>Circaetus fasciolatus</i>	Accipitridae	CR	NT
Southern Black Flycatcher	<i>Melaenornis pammelaina</i>	Muscicapidae		
Southern Black Tit	<i>Melaniparus niger</i>	Paridae		
Southern Boubou	<i>Laniarius ferrugineus</i>	Malaconotidae		
Southern Brown-throated Weaver	<i>Ploceus xanthopterus</i>	Ploceidae		
Southern Fiscal	<i>Lanius collaris</i>	Laniidae		
Southern Grey-headed Sparrow	<i>Passer diffusus</i>	Passeridae		
Southern Masked Weaver	<i>Ploceus velatus</i>	Ploceidae		
Southern Pochard	<i>Netta erythrophthalma</i>	Anatidae	NT	LC
Southern Red Bishop	<i>Euplectes orix</i>	Ploceidae		
Speckled Mousebird	<i>Colius striatus</i>	Coliidae		
Speckled Pigeon	<i>Columba guinea</i>	Columbidae		
Spectacled Weaver	<i>Ploceus ocularis</i>	Ploceidae		
Spotted Eagle-Owl	<i>Bubo africanus</i>	Strigidae		
Spotted Flycatcher	<i>Muscicapa striata</i>	Muscicapidae		
Spotted Ground Thrush	<i>Geokichla guttata</i>	Turdidae	EN	VU
Spotted Thick-knee	<i>Burhinus capensis</i>	Burhinidae		
Spur-winged Goose	<i>Plectropterus gambensis</i>	Anatidae		
Squacco Heron	<i>Ardeola ralloides</i>	Ardeidae		
Square-tailed Nightjar	<i>Caprimulgus fossii</i>	Caprimulgidae		
Striated Heron	<i>Butorides striata</i>	Ardeidae		
Striped Kingfisher	<i>Halcyon chelicuti</i>	Alcedinidae		
Striped Pipit	<i>Anthus lineiventris</i>	Motacillidae		
Swainson's Spurfowl	<i>Pternistis swainsonii</i>	Phasianidae		
Swamp Nightjar	<i>Caprimulgus natalensis</i>	Caprimulgidae	VU	LC
Swee Waxbill	<i>Coccyzygia melanotis</i>	Estrildidae		
Tambourine Dove	<i>Turtur tympanistria</i>	Columbidae		
Tawny Eagle	<i>Aquila rapax</i>	Accipitridae	EN	VU
Tawny-flanked Prinia	<i>Prinia subflava</i>	Cisticolidae		
Temminck's Courser	<i>Cursorius temminckii</i>	Glareolidae		
Terek Sandpiper	<i>Xenus cinereus</i>	Scolopacidae		
Terrestrial Brownbul	<i>Phyllastrephus terrestris</i>	Pycnonotidae		
Thick-billed Weaver	<i>Amblyospiza albifrons</i>	Ploceidae		
Three-banded Plover	<i>Charadrius tricollaris</i>	Charadriidae		
Trumpeter Hornbill	<i>Bycanistes bucinator</i>	Bucerotidae		
Village Indigobird	<i>Vidua chalybeata</i>	Viduidae		
Village Weaver	<i>Ploceus cucullatus</i>	Ploceidae		
Violet-backed Starling	<i>Cinnyricinclus leucogaster</i>	Sturnidae		
Wahlberg's Eagle	<i>Hieraaetus wahlbergi</i>	Accipitridae		

Water Thick-knee	<i>Burhinus vermiculatus</i>	Burhinidae		
Wattled Starling	<i>Creatophora cinerea</i>	Sturnidae		
Western Barn Owl	<i>Tyto alba</i>	Strigidae		
Western Cattle Egret	<i>Bubulcus ibis</i>	Ardeidae		
Western Osprey	<i>Pandion haliaetus</i>	Pandionidae		
Western Yellow Wagtail	<i>Motacilla flava</i>	Motacillidae		
Whiskered Tern	<i>Chlidonias hybrida</i>	Laridae		
White Stork	<i>Ciconia ciconia</i>	Ciconiidae		
White-backed Duck	<i>Thalassornis leuconotus</i>	Anatidae	NT	LC
White-bellied Sunbird	<i>Cinnyris talatala</i>	Nectariniidae		
White-breasted Cormorant	<i>Phalacrocorax lucidus</i>	Phalacrocoracidae		
White-browed Robin-Chat	<i>Cossypha heuglini</i>	Muscicapidae		
White-browed Scrub Robin	<i>Cercotrichas leucophrys</i>	Muscicapidae		
White-crested Helmetshrike	<i>Prionops plumatus</i>	Vangidae		
White-eared Barbet	<i>Stactolaema leucotis</i>	Lybiidae		
White-faced Whistling Duck	<i>Dendrocygna viduata</i>	Anatidae		
White-fronted Bee-eater	<i>Merops bullockoides</i>	Meropidae		
White-fronted Plover	<i>Charadrius marginatus</i>	Charadriidae		
White-necked Raven	<i>Corvus albicollis</i>	Corvidae		
White-rumped Swift	<i>Apus caffer</i>	Apodidae		
White-starred Robin	<i>Pogonocichla stellata</i>	Muscicapidae		
White-throated Swallow	<i>Hirundo albicularis</i>	Hirundinidae		
White-winged Tern	<i>Chlidonias leucopterus</i>	Laridae		
White-winged Widowbird	<i>Euplectes albonotatus</i>	Ploceidae		
Willow Warbler	<i>Phylloscopus trochilus</i>	Phylloscopidae		
Wing-snapping Cisticola	<i>Cisticola ayresii</i>	Cisticolidae		
Wire-tailed Swallow	<i>Hirundo smithii</i>	Hirundinidae		
Wood Sandpiper	<i>Tringa glareola</i>	Scolopacidae		
Yellow-bellied Greenbul	<i>Chlorocichla flaviventris</i>	Pycnonotidae		
Yellow-billed Duck	<i>Anas undulata</i>	Anatidae	NT	LC
Yellow-billed Egret	<i>Ardea brachyrhyncha</i>	Ardeidae	NT	LC
Yellow-billed Kite	<i>Milvus aegyptius</i>	Accipitridae		
Yellow-billed Stork	<i>Mycteria ibis</i>	Ciconiidae	VU	LC
Yellow-breasted Apalis	<i>Apalis flava</i>	Cisticolidae		
Yellow-crowned Bishop	<i>Euplectes afer</i>	Ploceidae		
Yellow-fronted Canary	<i>Crithagra mozambica</i>	Fringillidae		
Yellow-rumped Tinkerbird	<i>Pogoniulus bilineatus</i>	Lybiidae		
Yellow-throated Bush Sparrow	<i>Gymnoris supercilialis</i>	Passeridae		
Yellow-throated Longclaw	<i>Macronyx croceus</i>	Motacillidae		

Zitting Cisticola	<i>Cisticola juncidis</i>	Cisticolidae
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9.5 Appendix E: Species observed in the Survey

Common Name	Scientific Name	Family Name	Regional	Global
Acacia Pied Barbet	<i>Tricholaema leucomelas</i>	Lybiidae		
African Darter	<i>Anhinga rufa</i>	Anhingidae	NT	LC
African Fish Eagle	<i>Haliaeetus vocifer</i>	Accipitridae		
African Jacana	<i>Actophilornis africanus</i>	Jacanidae		
African Palm Swift	<i>Cypsiurus parvus</i>	Apodidae		
African Stonechat	<i>Saxicola torquatus</i>	Muscicapidae		
Amethyst Sunbird	<i>Chalcomitra amethystina</i>	Nectariniidae		
Barn Swallow	<i>Hirundo rustica</i>	Hirundinidae		
Black Crake	<i>Zapornia flavirostra</i>	Rallidae		
Black Sparrowhawk	<i>Accipiter melanoleucus</i>	Accipitridae		
Black-collared Barbet	<i>Lybius torquatus</i>	Lybiidae		
Bronze Mannikin	<i>Spermestes cucullata</i>	Estrildidae		
Cape Sparrow	<i>Passer melanurus</i>	Passeridae		
Cape Weaver	<i>Ploceus capensis</i>	Ploceidae		
Cape White-eye	<i>Zosterops virens</i>	Zosteropidae		
Cardinal Woodpecker	<i>Dendropicos fuscescens</i>	Picidae		
Common Buzzard	<i>Buteo buteo</i>	Accipitridae		
Common Myna	<i>Acridotheres tristis</i>	Sturnidae		
Common Waxbill	<i>Estrilda astrild</i>	Estrildidae		
Croaking Cisticola	<i>Cisticola natalensis</i>	Cisticolidae		
Dark-capped Bulbul	<i>Pycnonotus tricolor</i>	Pycnonotidae		
Emerald-spotted Wood Dove	<i>Turtur chalcospilos</i>	Columbidae		
European Bee-eater	<i>Merops apiaster</i>	Meropidae		
Fork-tailed Drongo	<i>Dicrurus adsimilis</i>	Dicruridae		
Greater Double-collared Sunbird	<i>Cinnyris afer</i>	Nectariniidae		
Hadada Ibis	<i>Bostrychia hagedash</i>	Threskiornithidae		
House Sparrow	<i>Passer domesticus</i>	Passeridae		
Little Bee-eater	<i>Merops pusillus</i>	Meropidae		
Little Swift	<i>Apus affinis</i>	Apodidae		
Olive Thrush	<i>Turdus olivaceus</i>	Turdidae		
Pied Crow	<i>Corvus albus</i>	Corvidae		
Pin-tailed Whydah	<i>Vidua macroura</i>	Viduidae		
Red-eyed Dove	<i>Streptopelia semitorquata</i>	Columbidae		
Red-knobbed Coot	<i>Fulica cristata</i>	Rallidae		
Red-winged Starling	<i>Onychognathus morio</i>	Sturnidae		

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Sombre Greenbul	<i>Andropadus importunus</i>	Pycnonotidae		
Southern Black Tit	<i>Melaniparus niger</i>	Paridae		
Southern Fiscal	<i>Lanius collaris</i>	Laniidae		
Spectacled Weaver	<i>Ploceus ocularis</i>	Ploceidae		
Spur-winged Goose	<i>Plectropterus gambensis</i>	Anatidae		
Tawny-flanked Prinia	<i>Prinia subflava</i>	Cisticolidae		
Village Weaver	<i>Ploceus cucullatus</i>	Ploceidae		
Violet-backed Starling	<i>Cinnyricinclus leucogaster</i>	Sturnidae		
White-breasted Cormorant	<i>Phalacrocorax lucidus</i>	Phalacrocoracidae		
Yellow-billed Duck	<i>Anas undulata</i>	Anatidae	NT	LC
Yellow-fronted Canary	<i>Crithagra mozambica</i>	Fringillidae		
Yellow-rumped Tinkerbird	<i>Pogoniulus bilineatus</i>	Lybiidae		

9.6 Appendix I: Specialist Declaration of Independence

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 in terms of NEMA.



Dr Lindi Steyn

Ecologist

The Biodiversity Company

April 2026

9.7 Appendix J – Specialist CVs

Avialable on request