

**Terrestrial Fauna Biodiversity Assessment for the Proposed
Aggeneis - Paulputs 400Kv Transmissions Powerline and
Substations Upgrade, Northern Cape Province**
DEA REF: 14/12/16/3/3/2/1012

Performed for Mokgope Consulting



Final Report



Prepared by Harvey Ecological

June 2017

DECLARATION OF INDEPENDENCE BY THE SPECIALIST CONSULTANT

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I, James Harvey declare that I

- am an independent specialist consultant in this application;
- do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010;
- 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;
- declare that there are no circumstances that may compromise my objectivity in performing such work;
- have appropriate expertise in conducting biodiversity assessments;
- will provide the competent authority with access to all information at my disposal regarding this application, whether such information is favourable to the applicant or not;
- declare that all the particulars furnished by me in this form are true and correct;
- realise that a false declaration is an offence in terms of regulation 71 of the EIA Regulations, 2010 and is punishable in terms of section 24F of the National Environmental Management Act, 1998 (Act 107 of 1998); and
- will comply with all the requirements as indicated in the National Environmental Management Act, 1998 (Act 107 of 1998) and Environmental Impact Assessment Regulations, 2010.



Signature of the specialist consultant

James Harvey
Name of specialist consultant

23 September 2016
Date

EXPERTISE

James Harvey has sixteen years experience with biodiversity-related work and eleven years experience in ecological consulting in sub-Saharan Africa. He is experienced and knowledgeable concerning species identification, ecology, conservation issues and methods for performing biodiversity surveys, and has performed biodiversity work widely in South Africa.

1. INTRODUCTION

Mokgope Consulting have been appointed to undertake the environmental investigations associated with the proposed construction by Eskom of a new 400kV transmission power line from the Aggeneis Substation, approximately 5km south-west of the town of Aggeneis, to Paulputs substation, approximately 35km north-east of the town of Pofadder, within the Khai-Ma local Municipality, falling within the jurisdiction of Namakwa District Municipality in Northern Cape Province. As part of this process, Harvey Ecological was appointed to perform a terrestrial vertebrate fauna assessment for this project.

The total length of the transmission power line from Aggeneis to Paulputs substation would be approximately 97km. In addition, a servitude width of 55m would be required to accommodate the installation of towers upon which the transmission power line would be strung. Within the proposed corridor, three proposed alternative routes (one with a deviation) have been put forward (Figure 1). The combined area incorporating these alternative routes will hereafter be labelled 'the study area'.

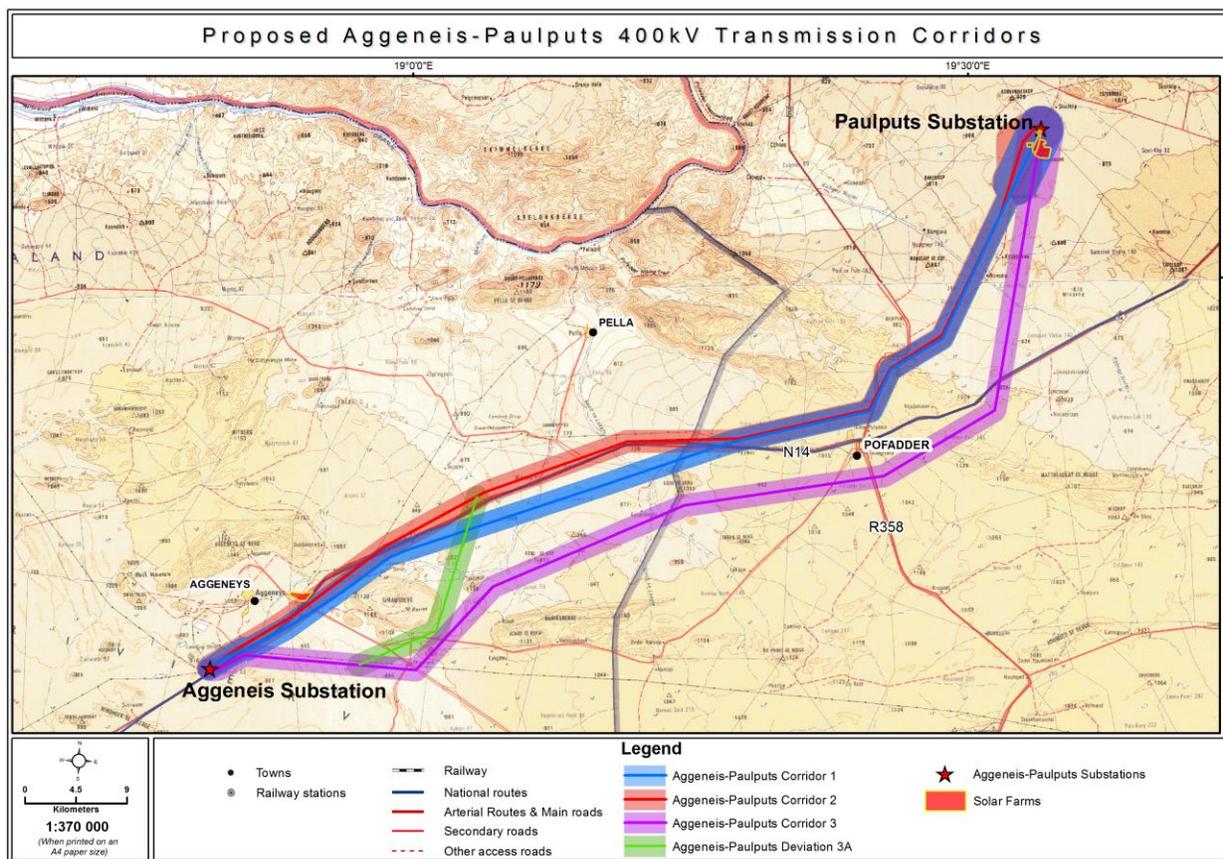


Figure 1. Proposed route of Aggeneis-Paulputs Transmission line, with alternative corridors indicated.

Components of the proposed development will include:

- Transmissions powerline support towers, installed approximately every 400m along the route,
- A 55m servitude traversed by the transmission powerline,
- Vehicle access roads (with existing road infrastructure used as far as possible), and
- Substation upgrades.

The objectives of this assessment were to:

- Assess and describe the terrestrial vertebrate faunal communities (mammals, reptiles and amphibians) associated within the study area, with particular emphasis on rare and threatened species and communities; and
- Provide comment and recommendations concerning the impact of the proposed development on the biodiversity within the study area.

2. METHODS

2.1 Survey Methods

The following methods were used:

- Desktop information relating to the fauna groups assessed was collated from literature, databases, previous studies and other sources.
- A site visit was performed during early September, 2016. The purpose of this survey was to evaluate the diversity, condition and suitability of habitats present within the study area for supporting various faunal species. Although the entire route could not be visited, an effort was made to get to several points along the alternative routes, along the full length of the total route.
- All rare and threatened species occurring or potentially occurring were identified (see next section) and the importance of the site for these species was evaluated.
- The location of the routes relative to protected areas and other areas of strategic conservation importance was examined.
- Potential impacts were identified and evaluated in terms of their effect against a series of criteria (Table 2).

Limitations and assumptions

- The purpose of the field assessment was not to perform a biodiversity species inventory, given the large size of the study area and the fact that most faunal species are fairly cryptic and not easily detected within a short space of time. However, the techniques outlined above are considered adequate for the scope of this assessment.
- The size of the area meant that the area could not be examined exhaustively. Nevertheless, an adequate subsample of the area was examined to evaluate the area and make recommendations regarding the proposed development.

2.2 Rare and Threatened Species

Using available information, all species considered of conservation importance that could occur on site were identified and are discussed. These are divided into two categories:

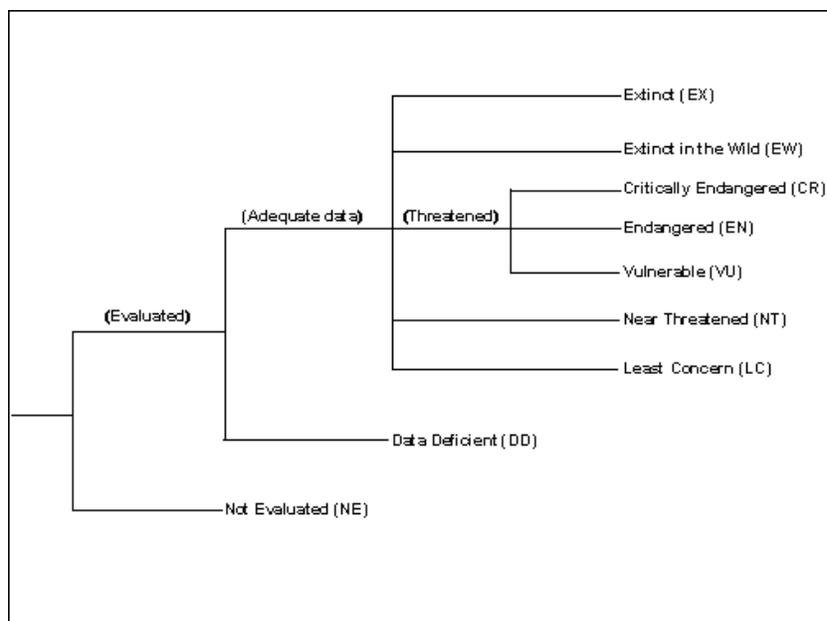
1) Red Data Species: Species that have been classified as under threat or potentially under threat, according to the International Union for the Conservation of Nature (IUCN) Redlisting system (See Box 1 and definitions below). These are based on published Red Data Books.

2) Other notable species: These species have not been classified as Threatened or Near Threatened according published Red Data Books, but are considered notable for various reasons:

- Naturally rare
- Localised distributions
- Specialised habitat requirements
- May be close to threatened and their Red Data status could be re-evaluated in a forthcoming conservation assessment of the fauna group

Box 1: The Red List and Red Data Species.

The Red List and Red Data species system is an approach developed by the International Union for the Conservation of Nature (IUCN) for evaluating the conservation status of species and in particular for identifying and documenting those species most in need of conservation attention (IUCN 2008). In this system, species are evaluated against a series of objective criteria (available at iucn.org), and based on those criteria are placed in one of eight categories (see below). Species that fall within the Threatened and Near Threatened categories are known as Redlisted or Red Data Species.



Structure of IUCN Categories (from iucn.org)

IUCN Categories

Extinct – there is no reasonable doubt that the last individual of the species has died

Extinct in the Wild – the species no longer occurs in the wild, and is only found in cultivation or in captivity

Critically Endangered – the species is considered to be facing an extremely high risk of extinction in the wild, based on IUCN criteria

Endangered – the species is considered to be facing a very high risk of extinction in the wild, based on IUCN criteria

Vulnerable – the species is considered to be facing a high risk of extinction in the wild, based on IUCN criteria

Near Threatened – when evaluated against IUCN criteria, does not qualify for a Threatened category but is close to qualifying for or is likely to qualify in one of those categories in the near future

Least Concern – when evaluated against IUCN criteria, does not qualify for any category as Threatened or Near Threatened. Widespread and abundant species fall in this category

Data Deficient – there is inadequate information regarding the species' population size, distribution or threats for an assessment to be made

3. RESULTS

3.1 Site Characteristics and Habitat Diversity

The study area sits within a generally homogenous flat to gently sloping topography, with some mountainous areas, mostly within an altitude range of 700m-1050masl. It is an arid region, receiving approximately 100mm of rain per annum.

Broadly speaking, the majority of the study area is classified as falling within the Nama Karoo Biome, (Mucina & Rutherford 2006). Much of the study areas consists of Bushmanland Arid Grassland, but the routes also traverse Bushmanland Sandy Grassland, Eastern Gariep Plains Desert, Eastern Gariep Rocky Desert and Aggeneys Gravel Vygieveld.

On a finer scale, much of the study area is under relatively low intensity landuse, such as livestock farming and is in natural to semi-natural condition. In terms of terrestrial fauna, the main habitats available can be described as follows:

- Open sand and gravel plains, sparsely vegetated by grasses and karroid scrub, which covers the vast majority of the study area (Figure 2-4);
- Rocky, sparsely vegetated mountainous areas, (Figure 4, 6, and 7); and
- Rocky plains, adjacent to mountainous areas (Figure 5)



Figure 2 and 3. Examples of habitat within the study area – sparsely vegetated, open plains in the east of the study area, 4km south-west of Pofadder on Alternative 3 l), and 13km west of Poadder, close to Alternatives 1 and 2 (r).



Figure 4 and 5. Examples of habitat within the study area – open plains in the west, south of Gamsberg, where Alternative 3 will pass over or close to this smaller mountain (l) and rocky plains, 3km north of Pofadder (Alternatives 1 and 2) (r).



Figure 6 and 7. Examples of habitat within the study area – rocky mountainside, with an existing powerline traversing it, 8km north of Pofadder (l), and rocky habitat with mountains in background, ca. 7km north of Pofadder (Alternatives 1 and 2) (r).

Mammals

3.2.1 Diversity

Forty-eight species of mammal are known to occur or likely to occur within the region (Friedmann & Daly 2004, Skinner & Chimimba 2005, Monadjem *et al.* 2010), and the majority of these can be expected to occur within the study area, given the habitats available and the relatively untransformed nature of much of the study area. Most of species in the region are widespread in central and eastern and/or western South Africa, while a number or confined to the drier western regions. One species is a South African endemic –Cape Horseshoe Bat *Rhinolophus capensis*.

3.2.2 Rare and Threatened Species

Eight species of conservation importance are known to occur in the broader region (Friedmann & Daly 2004; Monadjem *et al.* 2010), and are expected to occur within portions of the study area (Table 1). A number of these are rare, low density species and may occur along portions of the route, although at low numbers within their required habitats. Furthermore, some of these have large home ranges (Brown Hyena) (Skinner & Chimimba 2010) and, if present, any portion of the study area is likely to form a relatively small proportion of the area they routinely utilise.

Table 1. Rare and threatened mammals occurring or likely to occur within the study area. (CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient)

Common Name	Scientific Name	Conservation Status	Comment	Occurrence within the study area
Black-footed Cat	<i>Felis nigripes</i>	RD – LC (likely to be Redlisted in forthcoming assessment)	A rare species, occurring at low densities in semi-arid grassland, karoo and savanna. Threatened by habitat degradation and poisoning	May occur widely but sparsely in open habitats.
Leopard	<i>Panthera pardus</i>	RD – LC (likely to be Redlisted in forthcoming assessment)	Widely, but sparsely distributed, in western South Africa, largely restricted to mountainous areas. Threatened by habitat loss and human persecution.	May occur rarely in mountainous habitat.
Brown Hyena	<i>Parahyaena brunnea</i>	RD – NT	Occurs at low densities in semi-arid grassland, karoo and savanna. Primarily threatened through poisoning and predator-control activities.	May occur widely but sparsely in areas of natural vegetation, where some shelter is present. Rare in the region.
Angolan Hairy Bat	<i>Cistugo seabrae</i>	RD – VU	Poorly known; occurs in semi desert areas, recorded in riverine habitats, but may forage widely over surrounding habitats. Primarily threatened by habitat destruction or disturbance of roosting sites.	May forage over the study area, but will roost in mountainous/riverine areas within the broader landscape.
Littledales' Whistling Rat	<i>Parotomys littledalei</i>	RD – NT	Widely but apparently patchily distributed, and may be threatened by stochastic events e.g. disease	May occur widely in open areas with denser vegetation. Recorded near Gamsberg on open plains (Groundtruth 2013)
Dassie Rat	<i>Petromys typicus</i>	RD - NT	Restricted to mountainous areas.	Recorded on Gamsberg. Will be confined to mountainous areas, and therefore largely absent from actual footprint
Cape Horseshoe Bat	<i>Rhinolophus capensis</i>	RD – NT	Requires caves for roosting and occurs widely over surrounding habitats. Primarily threatened by destruction or disturbance of roosting sites.	may forage over the study area but unlikely to roost anywhere in or close to the development footprint.

Honey Badger	<i>Mellivora capensis</i>	RD – NT	Wide habitat use but occurs at low densities. Threatened by human persecution.	May occur widely but sparsely in areas of natural vegetation.
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3.3 Amphibians

3.3.1 Diversity

The study area falls within a region that has been described in terms of amphibian fauna as the 'Namaqualand assemblage' – an area with low species diversity, but relatively high number of endemic species and two range-restricted species (Alexander *et al.* 2004), one of which is recorded within the study area. Nine species of frog have been recorded within and around the study area (Minter *et al.* 2004), of which four are endemic – Paradise Toad *Vandijkophrynus robinsoni*, Namaqua Caco *Cacosternum namaquense*, Namaqua Stream Frog *Strongylopus namaquensis* and Cape Sand Frog *Tomopterna delellandei* (Appendix 1). The majority of these frogs within the study area will be confined to areas that are likely to support aquatic habitats and providing non-breeding shelter sites, i.e. mountainous areas. The open plains, over which the majority of all three alternative routes considered extend, will hold very few frog species.

3.3.2 Rare and Threatened Species

No threatened amphibian species are known or expected to occur within the study area. (Measey 2011; IUCN.org 2011)(Table 2), Three species are fairly localised endemics, with somewhat specialised habitat requirements. However, these three species are expected to be absent from the actual footprint of the development, given that they are restricted to rocky, mountainous areas in the far west of the study area, and the routes examined avoid these specific habitats.

Table 2. Rare and threatened amphibians occurring or likely to occur within the study area. (CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient)

Common Name	Scientific Name	Conservation Status	Comment	Occurrence within the study area
Namaqua Caco	<i>Cacosternum namaquense</i>	Least Concern	A fairly localized endemic, endemic to Namaqualand, and found in rocky areas in karroid vegetation	Recorded from Gamsberg – it is likely to be restricted to this area within the study area. Expected to be absent from actual powerline footprint.
Namaqua Stream Frog	<i>Strongylopus namaquensis</i>	Least Concern	A fairly localized endemic, endemic to Namaqualand, and found in rocky areas in karroid vegetation	Recorded from Aggenys area – it is likely to be restricted to this mountainous habitat in the extreme west of the study area. Expected to be absent from actual powerline footprint.
Paradise Toad	<i>Vanijkophrynus robinsoni</i>	Least Concern	A fairly localized endemic, endemic to Namaqualand, and found in rocky areas in karroid vegetation	Recorded from Gamsberg – it is likely to be restricted to this area within the study area. Expected to be absent from actual powerline footprint.

3.4 Reptiles

3.4.1 Diversity

Recorded reptile diversity is moderately rich overall, with 46 species in the area (Bates et al. 2014). Most species are fairly widespread in western South Africa, however, some are restricted to the mountains that follow the Gariiep River. Rocky and mountainous areas and open plains support reptile faunas that are somewhat distinct from each other. Seven endemic or near-endemic species are present within the study area, Speckled Padloper *Homopus signatus*, Striped Pygmy Gecko *Goggia lineatus*, Good's Gecko *Pachydactylus goodi*, Sand Lizard *Pedioplanis laticeps*, Southern Karusa Lizard *Karusasaurus polyzonus*, Namaqua Dwarf Burrowing Skink *Acontias tristis*, and Spotted Rock Snake *Lamprophis guttatus*.

3.4.2 Rare and Threatened Species

Two threatened reptiles are known or expected from the study area. In addition, a further three species are considered notable because of their localised distributions and specialised habitat requirements (Bates et al. 2014)(Table 3). However, all of these species are restricted to rocky, mountainous habitats – the majority of the area covered by all alternative routes consists of unsuitable habitat for these species. Habitat for these species is only present within the corridors immediately south of Gamsberg (near Aggeneys), and in the area north and east of Pofadder.

Table 3. Rare and threatened reptiles occurring or likely to occur within the study area. (CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient)

Common Name	Scientific Name	Conservation Status	Comment	Occurrence within the study area
Speckled Padloper	<i>Homopus signatus</i>	RD - VU	A fairly localized endemic, endemic to Namaqualand, and found in rocky areas in karroid vegetation. Threatened by habitat loss and degradation	A single individual recorded north of Pofadder may represent an isolated population of this species (Branch 2007). Within the study area, likely to be restricted to the mountainous area north of Pofadder
Good's Gecko	<i>Pachydactylus goodi</i>	RD - VU	A localized endemic, restricted to the mountains associated with the lower Gariep River. Threatened by habitat loss through mining.	Recorded from Aggenys area – it is likely to be restricted to this mountainous habitat in the extreme west of the study area
Desert Mountain Gecko	<i>Pachydactylus montanus</i>	Least Concern	A fairly localized habitat specialist, restricted to the mountains associated with the lower Gariep River.	Found in mountainous areas close to Aggenys and north of Pofadder; absent elsewhere.
Haacke's Gecko	<i>Pachydactylus haackei</i>	Least Concern	A localized habitat specialist, restricted to the mountains associated with the lower Gariep River.	Found in mountainous areas close to Aggenys and north of Pofadder; absent elsewhere.
Desert Mountain Adder	<i>Bitis xeopaga</i>	Least Concern	A localized habitat specialist, restricted to the mountains associated with the lower Gariep River.	Found in mountainous areas close to Aggenys and north of Pofadder; absent elsewhere.

3.5 Protected Areas and areas of strategic conservation importance

The alternative routes were overlaid with:

- current protected areas – national and provincial reserves,
- Important Bird Areas (Marnewick *et al.* 2015) - areas considered of national/global importance for bird populations; although these areas have been identified based on their bird communities, the design of this network would support the maintenance of faunal communities in the region
- the Critical Biodiversity Areas map from the Namaqua Sector Biodiversity Sector Plan (Namaqua District 2008). This plan identifies CBAs, areas with high biodiversity value, and Ecological Support Areas (ESA's) that support key biodiversity resources (e.g. water) or ecological processes (e.g. movement corridors) in the landscape are also mapped. ESA's are functional landscapes that are moderately disturbed but maintain basic functionality and connect CBA's. Although this planning is based primarily on vegetation, as with IBAs, the design of the network would support the maintenance of faunal communities in the region.

Overlaying the alternative routes with these areas (Figure 3) shows that:

- No protected areas fall within the alternative routes
- All three alternatives cross CBA areas, in the western and eastern reaches. Route 3 traverses a relatively greater area than the other two alternatives
- All three alternatives traverse two IBAs – Haramoep and Black Mountain Mine (IBA SA035) in the extreme west, and Matheus Gat Conservation Area (IBA SA034) in the east . Alternative 3 traverses a substantial portion of the latter.

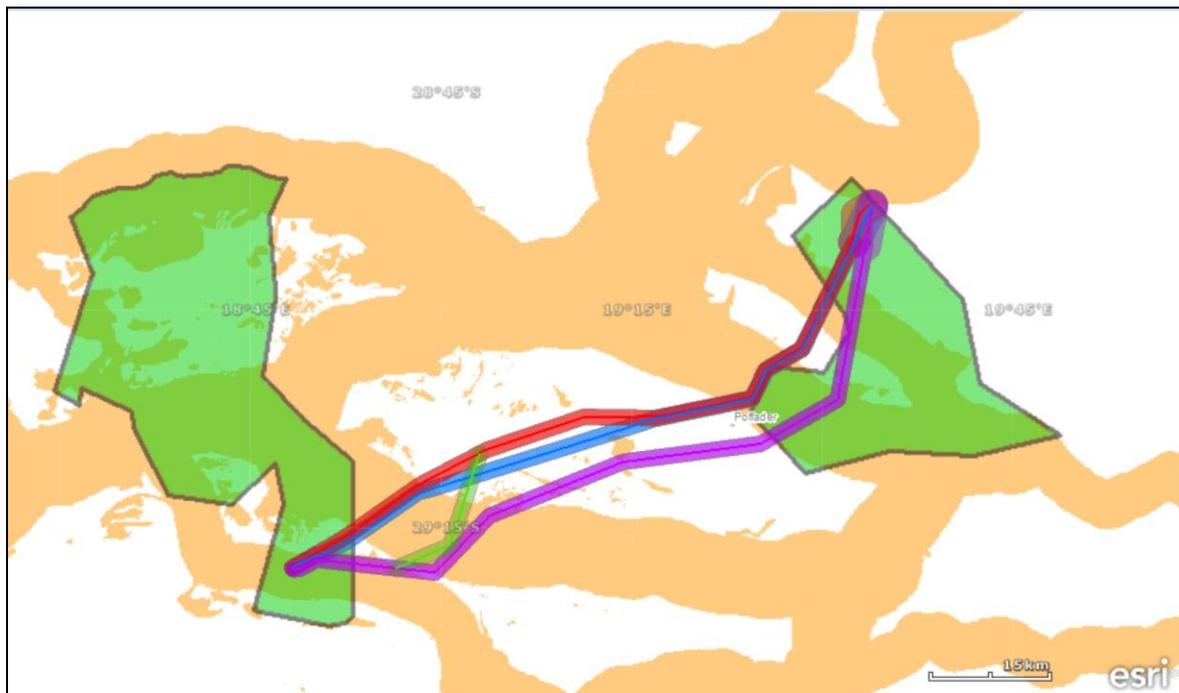


Figure 6. Proposed alternative routes, overlain with areas of strategic conservation importance, showing CBA networks (orange) and Important Bird Areas (green).

James Harvey
Ecological Consultant

4. DISCUSSION AND IMPLICATIONS OF THE PROPOSED DEVELOPMENT

4.1 Importance of the Site for Terrestrial Vertebrate Fauna Biodiversity Conservation

The study area covers areas of moderate importance for terrestrial vertebrate fauna diversity. As much of the study area supports natural vegetation, in varying condition, it can be expected to support a fair proportion of the fauna originally occurring there. Richness is moderate-high for mammals and reptiles but low for amphibians. Most species present have large distributions – the plains habitat that dominates the routes is extensive and largely unfragmented, and species there generally occur widely. A number of species are habitat specialised restricted to rocky, mountainous areas, but the routes traverse very small areas of such habitats.

4.2 Proposed Development and Potential Impacts

Overall, the development is not expected to have significant negative impacts on terrestrial vertebrate fauna. Potential negative impacts relating to these fauna as a result of the development are identified below, based on the criteria given in Table 2, the potential significance of their impacts is outlined in Table 3, and mitigations recommended in Table 4.

Disturbance

A degree of disturbance will occur to fauna that are present within and immediately adjacent to the footprint area during construction. Animals will likely avoid these areas during this time, but should use such areas post-construction.

Habitat loss

A small amount of habitat loss will take place within the footprints of the towers. However, within the broader landscape, this will represent a very small area and is unlikely to have a major effect on local terrestrial fauna. The powerlines themselves will be supported by the towers and will have no impact on terrestrial fauna. In general, vegetation clearance is expected to be minimal, given that much of the vegetation is naturally low and sparse.

Access roads – existing roads will be used where possible and new roads will be maintained with existing vegetation (and infrequently used) and thus will have minimal impact on habitat availability and quality for terrestrial fauna.

Pollution During and Following Construction

There is potential for waste products to be dumped into adjacent areas, during and following completion of the construction phase.

Table 2. Significance ranking matrix for evaluating potential impacts of the development on terrestrial fauna.

SIGNIFICANCE RANKING MATRIX					
RANKING	MAGNITUDE	REVERSIBILITY	EXTENT	DURATION	PROBABILITY
5	Very high/ don't know	Irreversible	International	Permanent	Certain/inevitable
4	High		National	Long term (impact ceases after operational life of asset)	Almost certain
3	Moderate	Reversible with human intervention	Provincial	Medium term	Can occur
2	Low		Local	Short term	Unusual but possible
1	Minor	Completely reversible	Site bound	Immediate	Extremely remote
0	None		None		None

Significance= Consequence (Magnitude+ Duration+ Extent + Reversibility) X Probability wherein the following meaning applies:

- The **Magnitude** of the impact: This will be quantified as either:
 - Low: Will cause a low impact on the environment;
 - Moderate: Will result in the process continuing but in a controllable manner;
 - High: Will alter processes to the extent that they temporarily cease; and
 - Very High: Will result in complete destruction and permanent cessation of processes.
- The **Probability**: which shall describe the likelihood of impact occurring and will be rated as follows:
 - Extremely remote: Which indicates that the impact will probably not happen;
 - Unusual but Possible: Distinct possibility of occurrence;
 - Can Occur: there is a possibility of occurrence;
 - Almost Certain: Most likely to occur; and
 - Certain/ Inevitable: Impact will occur despite any preventative measures put in place.
- The **duration (Exposure)**: wherein it will be indicated whether:
 - The impact will be immediate;
 - The impact will be of a short tem (Between 0-5 years);
 - The impact will be of medium term (between 5-15 years);
 - The impact will be long term (15 and more years); and
 - The impact will be permanent.
- **Reversibility/ Replaceability**: The degree at which the impact can be **reversible or the lost resource can be replaced.**

Table 3. Classification of significance of potential impacts on terrestrial vertebrate fauna. NM = No mitigation, WM = with mitigation

IMPACT	MITIGATION	MAGNITUDE	REVERSIBILITY	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE
Disturbance	NM	1	1	2	1	3	15
	WM	1	1	1	1	3	12
Habitat loss	NM	2	1	2	1	4	24
	WM	1	1	1	1	4	16
Pollution	NM	1	1	1	2	3	15
	WM	0	0	0	0	1	0

Table 4. Possible impacts and proposed mitigation measures.

IMPACT	MITIGATIONS RECOMMENDED
Disturbance	Ensure disturbance sources (machinery, personnel movement etc) are kept to a restricted construction area, and that adjacent areas are not disturbed unnecessarily
Habitat loss	Disturbance and destruction of habitat must be kept to the most restricted corridor possible. Any disturbance beyond the corridor is prohibited. This should be monitored throughout construction.
Pollution	All potential pollutants to be safely stored and promptly removed from the construction corridor. No pollutants should be allowed outside of a restricted and defined construction corridor. Any violation of this should be prohibited. This should be monitored during and upon completion of the construction phase.

4.3. Consideration of Alternative Routes

In terms of the choice of alternative route, it is considered that:

- The impacts of all alternatives are likely to be fairly low on terrestrial fauna, given the fairly low sensitivity of the faunal communities and the minimal anticipated impacts of the proposed development, All three alternatives could be used without any significant effect on terrestrial fauna. Looking more holistically, Alternatives 3 is more sensitive, as it traverses a greater extent of both CBAs and IBAs than do the other two. In this regard, Alternatives 1 and 2 are preferable, and any deviation within those routes that followed existing disturbance lines ie existing lines or roads, would be most acceptable.

5. CONCLUSIONS AND RECOMMENDATIONS

This assessment determined that the study area is generally of medium value for terrestrial vertebrate biodiversity, and terrestrial vertebrate fauna is unlikely to be substantially negatively affected by this development. The following recommendations are made:

- Alternative 1 and 2, are considered the most favourable routes and equally favourable. Alternative 3 (and deviation 3A) is slightly less favourable, given that it traverses larger areas of land identified falling within the CBA and IBA networks.
- All attempts to minimise unnecessary disturbance and habitat loss during the construction phase should be employed.
- During construction, all efforts must be made to minimise pollution and disturbance to areas outside the demarcated development footprint - no waste of any kind must be allowed to enter the surrounding areas during construction.

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James Harvey
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APPENDIX 1. CHECKLIST OF ALL TERRESTRIAL FAUNA SPECIES OCCURRING OR LIKELY TO OCCUR WITHIN THE STUDY AREA.

COMMON NAME	SCIENTIFIC NAME
MAMMALS	
Springbok	<i>Antidorcas marsupialis</i>
Gemsbok	<i>Oryx gazella</i>
Steenbok	<i>Raphicerus campestris</i>
Common Duiker	<i>Sylvicapra grimmia</i>
Black-backed Jackal	<i>Canis mesomelas</i>
Bat-eared Fox	<i>Otocyon megalotis</i>
Cape Fox	<i>Vulpes chama</i>
Caracal	<i>Caracal caracal</i>
Black-footed Cat	<i>Felis nigripes</i>
African Wildcat	<i>Felis silvestris</i>
Leopard	<i>Panthera pardus</i>
Yellow Mongoose	<i>Cynictis penicillata</i>
Cape Grey Mongoose	<i>Herpestes pulverulentus</i>
Suricate	<i>Suricata suricatta</i>
Aardwolf	<i>Proteles cristata</i>
Striped Polecat	<i>Ictonyx striatus</i>
Honey Badger	<i>Mellivora capensis</i>
Cape Genet	<i>Genetta tigrina</i>
Flat-headed Free-tail Bat	<i>Sauromys petrophilus</i>
Egyptian Free-tailed Bat	<i>Tadarida aegyptiaca</i>
Egyptian Slit-faced Bat	<i>Nycteris thebaica</i>
Darling's Horseshoe Bat	<i>Rhinolophus darlingi</i>
Angolan Hairy Bat	<i>Cistugo seabrae</i>
Cape Serotine Bat	<i>Neoromicia capensis</i>
Rock Hyrax	<i>Procavia capensis</i>
African Savanna Hare	<i>Lepus microtis</i>
Scrub Hare	<i>Lepus saxatilis</i>
Western Rock Sengi	<i>Elephantulus rupestris</i>
Karoo Round-eared Sengi	<i>Macroscelides proboscideus</i>
Chacma Baboon	<i>Papio ursinus</i>
Rock Dormouse	<i>Graphiurus platyops</i>
Cape Porcupine	<i>Hystrix africae australis</i>
Short-tailed Gerbil	<i>Desmodillus auricularis</i>
Highveld Gerbil	<i>Gerbilliscus brantsii</i>
Hairy-footed Gerbil	<i>Gerbilliscus paeba</i>
Namaqua Rock Mouse	<i>Micaelamys namaquensis</i>
Brants' Whistling Rat	<i>Parotomys brantsii</i>
Littledale's Whistling Rat	<i>Parotomys littledalei</i>

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Karoo Four-striped Grass Mouse	<i>Rhabdomys intermedius</i>
Black-tailed Tree Rat	<i>Thallomys nigricauda</i>
Large-eared Mouse	<i>Malacothrix typica</i>
Pygmy Rock Mouse	<i>Petromyscus collinus</i>
Pouched Mouse	<i>Saccostomus campestris</i>
Springhare	<i>Pedetes capensis</i>
Dassie Rat	<i>Petromus typicus</i>
Cape Ground Squirrel	<i>Xerus inauris</i>
Reddish-grey Musk Shrew	<i>Crocidura cyanea</i>
Lesser Red Musk Shrew	<i>Crocidura hirta</i>
Aardvark	<i>Orycteropus afer</i>
REPTILES	
Speckled Padloper	<i>Homopus signatus cafer</i>
Tent Tortoise	<i>Psammobates tentorius</i>
Common Giant Gecko	<i>Chondrodactylus angulifer</i>
Bibron's Gecko	<i>Chondrodactylus bibronii</i>
Turner's Gecko	<i>Chondrodactylus turneri</i>
Striped Pygmy Gecko	<i>Goggia lineata</i>
Bradfield's Dwarf Gecko	<i>Lygodactylus bradfieldi</i>
Good's Gecko	<i>Pachydactylus goodi</i>
Haacke's Gecko	<i>Pachydactylus haackei</i>
Quartz Gecko	<i>Pachydactylus latirostris</i>
Namaqua Mountain Gecko	<i>Pachydactylus montanus</i>
Purcell's Gecko	<i>Pachydactylus purcelli</i>
Common Rough Gecko	<i>Pachydactylus rugosus</i>
Spotted Barking Gecko	<i>Ptenopus garrulus maculatus</i>
Knox's Desert Lizard	<i>Meroles knoxii</i>
Spotted Desert Lizard	<i>Meroles suborbitalis</i>
Western Sandveld Lizard	<i>Nucras tessellata</i>
Plain Sand Lizard	<i>Pedioplanis inornata</i>
Karoo Sand Lizard	<i>Pedioplanis laticeps</i>
Spotted Sand Lizard	<i>Pedioplanis lineocellata</i>
Namaqua Sand Lizard	<i>Pedioplanis namaquensis</i>
Southern Karusa Lizard	<i>Karusasaurus polyzonus</i>
Striped Dwarf Legless Skink	<i>Acontias lineatus</i>
Namaqualand Dwarf Legless Skink	<i>Acontias tristis</i>
Western Three-striped Skink	<i>Trachylepis occidentalis</i>
Western Rock Skink	<i>Trachylepis sulcata sulcata</i>
Variiegated Skink	<i>Trachylepis variegata</i>
Western Ground Agama	<i>Agama aculeata aculeata</i>
Anchieta's Agama	<i>Agama anchietae</i>
Southern Rock Agama	<i>Agama atra</i>
Namaqua Chameleon	<i>Chamaeleo namaquensis</i>
Delalande's Beaked Blind Snake	<i>Rhinotyphlops lalandei</i>
Schinz's Beaked Blind Snake	<i>Rhinotyphlops schinzi</i>

Rhombic Egg-Eater	<i>Dasypeltis scabra</i>
Beetz' Tiger Snake	<i>Telescopus beetzii</i>
Black Spitting Cobra	<i>Naja nigricincta woodi</i>
Spotted House Snake	<i>Lamprophis guttatus</i>
Brown House Snake	<i>Boaedon capensis</i>
Dwarf Beaked Snake	<i>Dipsina multimaculata</i>
Karoo Whip Snake	<i>Psammophis notostictus</i>
Western Sand Snake	<i>Psammophis trigrammus</i>
Two-striped Shovel-snout	<i>Prosymna bivittata</i>
South-Western Shovel-snout	<i>Prosymna frontalis</i>
Horned Adder	<i>Bitis caudalis</i>
Many Horned Adder	<i>Bitis cornuta</i>
Desert Mountain Adder	<i>Bitis xeropaga</i>
AMPHIBIANS	
Paradise Toad	<i>Vandijkophrynus. robinsoni</i>
Marbled Rubber Frog	<i>Phrynomantis annectans</i>
Common Platanna	<i>Xenopus laevis</i>
Boettger's Caco	<i>Cacosternum boettgeri</i>
Namaqua Caco	<i>Cacosternum namaquense</i>
Springbok Stream Frog	<i>Strongylopus springbokensis</i>
Tremolo Sand Frog	<i>Tomopterna cryptotis</i>
Tandy's Sand Frog	<i>Tomopterna tandyi</i>
Cape Sand Frog	<i>Tonopterna delalandei</i>