Terrestrial Animal Species Compliance Statement for the proposed rebuild of the Avondale to Gordonia Substation 132 kV Power Line, near Upington, Northern Cape Province

Dr David J. McDonald
Bergwind Botanical Surveys & Tours CC.
14A Thomson Road, Claremont, 7708
Tel: 021-671-4056
Mobile: 082-876-4051

Prepared for Zutari (Pty) Ltd

August 2021

CONTENTS

1. Appointment and Declaration

As the appointed ecological specialist for the proposed rebuild of the Avondale to Gordonia Substation 132 kV Power Line, near Upington, Northern Cape Province,

I hereby verify that:

(a) I conducted a site visit on 12 & 13 June 2021 and 12—16 July 2021.

(b) The impact of the construction of a new 132 kV power line from Avondale to the Gordonia Substation near Upington, was investigated with respect to the biodiversity.

a. **Specialist:** Dr David J. McDonald, Bergwind Botanical Surveys & Tours CC, 14A Thomson Road, Claremont. Telephone: 021-671-4056; mobile – 082-876-4051.
SACNASP Reg. No. 400094/06 Ecological Science (Curriculum Vitae appended).

b. **Declaration of independence:**

I David Jury McDonald, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I, in terms of the general requirement to be independent, other than fair remuneration for work performed in terms of this application:

(i) have no business, financial, personal, or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity.

(ii) in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all the requirements.

(iii) have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and

(iv) am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Dr David J. McDonald Pr. Sci. Nat.
Botanical / Ecological Specialist
Owner/ Director: Bergwind Botanical Surveys & Tours CC

2. Background

Bergwind Botanical Surveys and Tours CC (Dr D.J. McDonald) ('Bergwind') was appointed to conduct a botanical and biodiversity (including terrestrial animals) assessment for the construction of a new 132 kV overhead power line (OHPL) from Avondale to the Gordonia Substation near Upington. The reason for the appointment was to verify the biodiversity rating of the National Web-based Screening Tool where the Terrestrial Animal Theme Sensitivity is '**Medium'.**

3. Locality

The 'target area' (Figure 1) for the (OHPL) is the area north of the N14 highway, east of Upington, David Kruiper Municipality, Northern Cape Province. The route traverses two vegetation types, namely Gordonia Duneveld and Kalahari Karroid Shrubland (Figure 2). Figure 3 shows the positions of the waypoints recorded along the power line route.

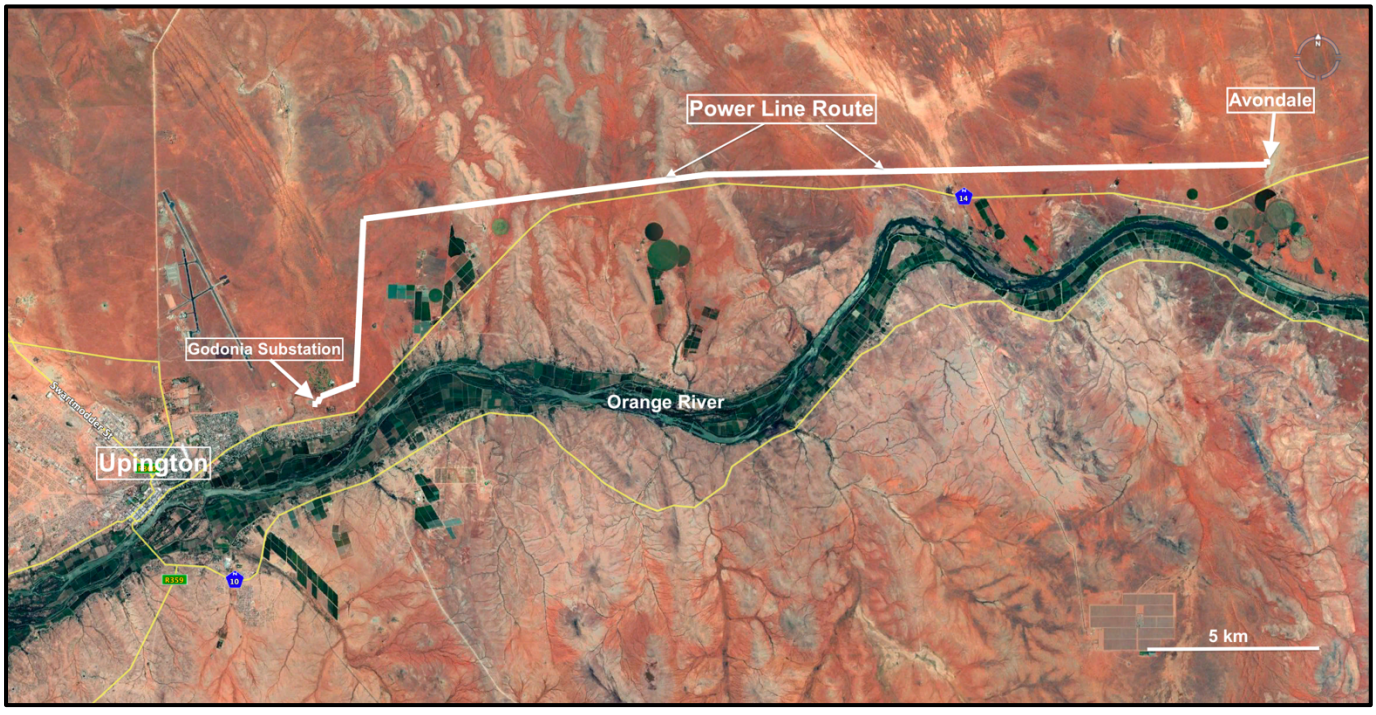


Figure 1. The white line represents the overhead power line route.

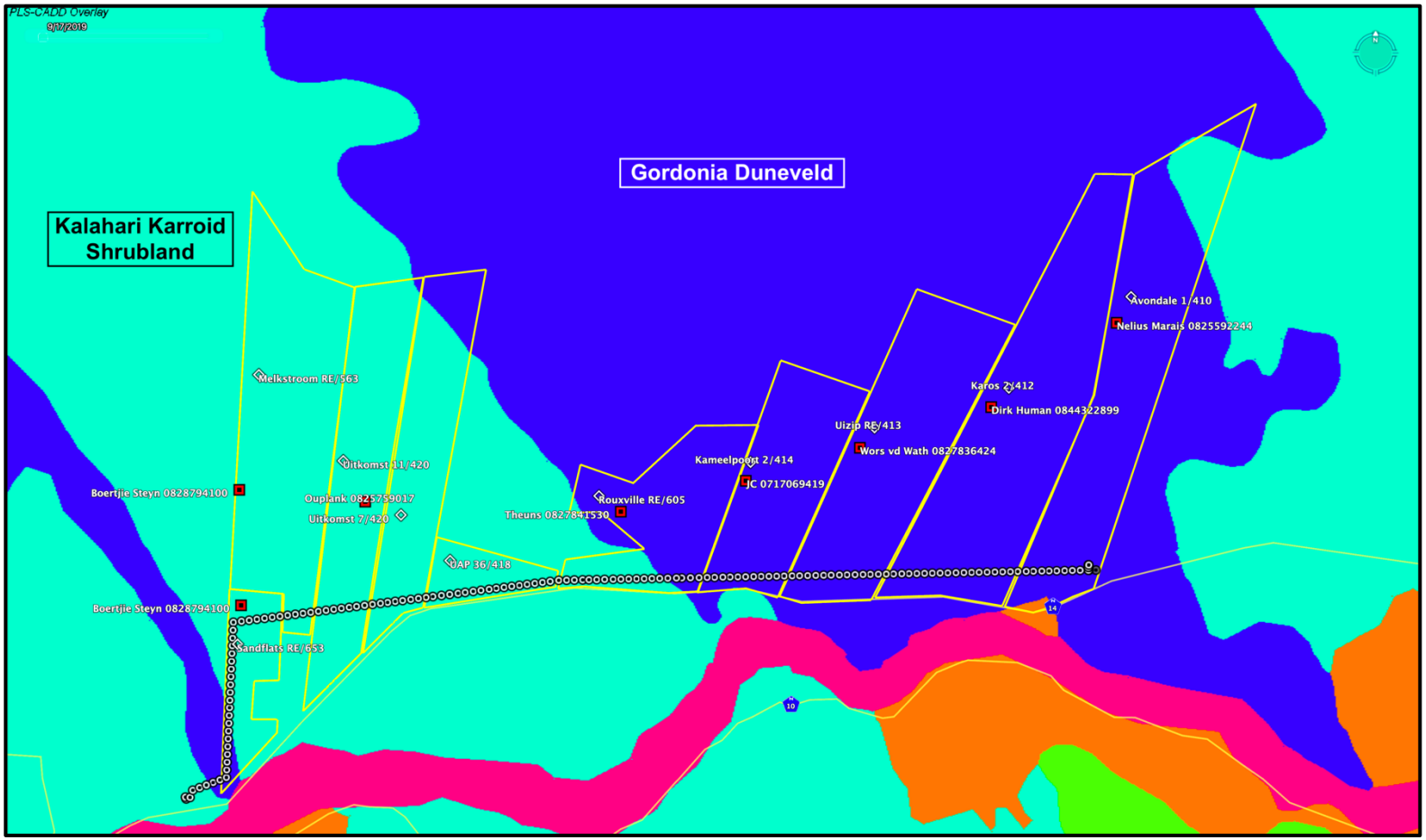


Figure 2. Portion of the Vegetation Map of South Africa, Lesotho, and Swaziland (VEGMAP) showing the power line (dotted line), farm portions and main vegetation types.

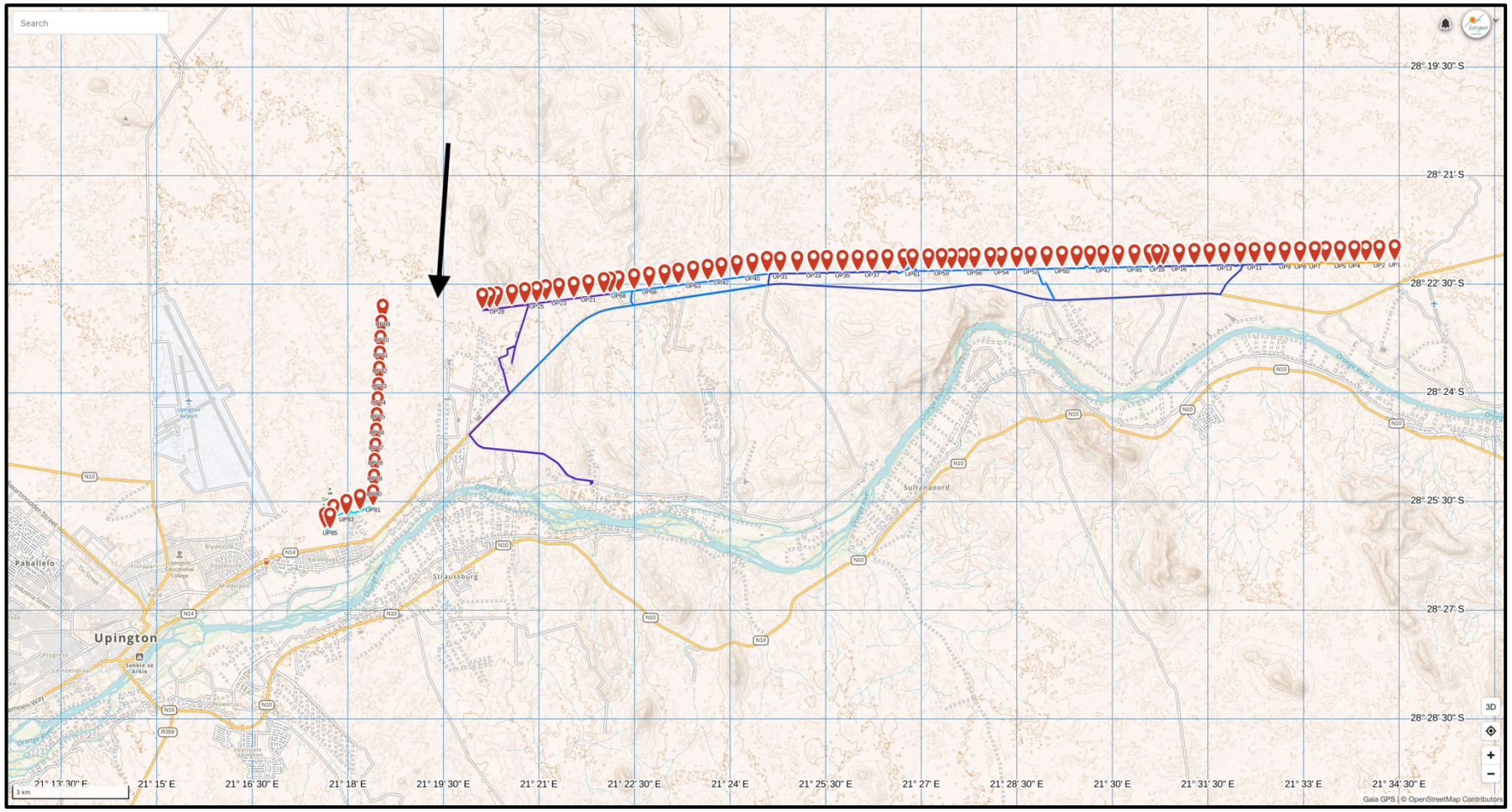


Figure 3. The existing Avondale-Gordonia Substation power line route. The red icons represent the sample waypoints. The black arrow indicates the section of the route on the farms Melkstroom and Sandflats that was inaccessible.

4. Terrain: Topography and Soils

The terrain varies along the length of the power line route with mostly 'flat' to shallowly undulating topography (Figure 4). In a few places there are dunes of red Kalahari Group sand. The 'red dunes' are found in the east but are not prominent at any point along the route. Where they occur, they are low but have relatively stable sand and support plant species typical of Kalahari dunes (Figure 5).

Figure 4. View westwards along the power line route showing typical Kalahari Karroid Shrubland.

Figure 5. The power line route traversing a typical red Kalahari dune of Gordonia Duneveld.

The soils are important in terms of biodiversity because they influence the habitat for terrestrial animals that include birds, reptiles and mammals. (Arthropods are excluded here but are recognized as an important part of the ecosystem).

5. Climate

Upington and the outlying areas receive summer rainfall, occurring from October to April with a peak in autumn (March) (Figure 6). The climate is arid with a mean annual rainfall of 150—180 mm. The winters (June—August) are cold and dry and the summers (November to February) are hot with low rainfall until March when the rainfall reaches a peak but is still low.

The weather at the time of the site visit was clear and sunny during the day but cold at night.

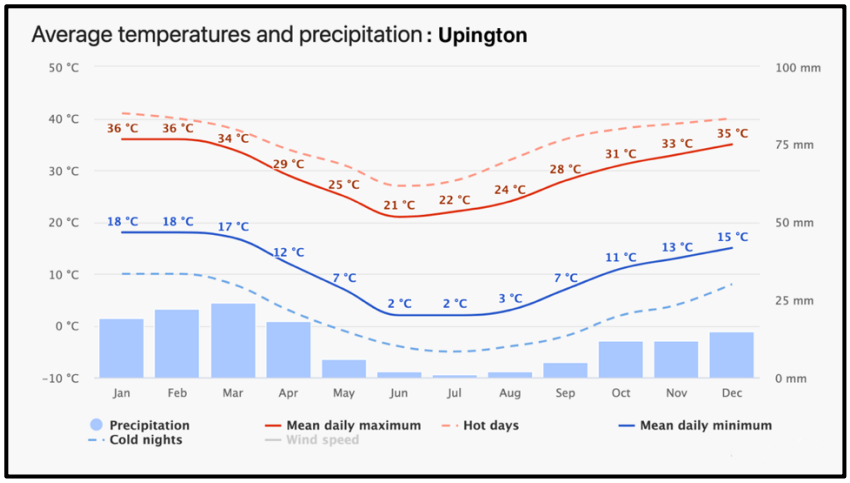


Figure 6. Average rainfall and temperatures for Upington modelled from 30 years of data (Source: Meteoblue)

6. Limitations and Assumptions

The most important limitation for the assessment of biodiversity in the target area was the season. The most ideal time would be in the summer after rain when most reptiles, birds and mammals would be most active. However, bird activity was still noted with passerine species being common and winter-breeding raptors, in this instance Verreaux's Eagle and possibly Martial Eagle actively nesting. Migrant birds were, however, absent. The impression obtained is that the study area has a low to moderate terrestrial animal diversity and that is unlikely to change much in the warmer, wetter time of the year.

7. Disturbance regime

Disturbance in the study area along the power line route is limited to the effects of grazing by cattle and sheep and the clearing of shrubs along the Eskom servitude. The grazing was not heavy except in the far west near the Gordonia Substation where there is indiscriminate overgrazing. The shrubs are removed from the Eskom servitude to prevent earthing of the power lines in the event of fires occurring under them.

Senegalia mellifera has pioneer tendencies and hence encroaches when there is disturbance of the soil. This is the main species that is removed along the Eskom servitude.

8. Animal Diversity Sensitivity

The determination of animal diversity and sensitivity should ideally be assessed over a number of seasons and a number of years. In addition, it would be worth setting live traps and camera traps to obtain some indication of the small and medium animals that may occur in the area targeted for the power line project. Unfortunately, this is beyond a compliance statement assessment and so there is a level of assumption and speculation as to the levels of animal diversity.

8.1 Mammals

Since the study area is on farms where livestock are run, there are no large predators. Therefore most of the mammals would be small to medium-sized rodents, felids, and canids. A list of mammal species likely to occur based on the distribution maps in ***Stuarts' Guide Field Guide to Mammals of Southern Africa*** (in alphabetical order according to common name) are:

Aardvark, Aardwolf, African Striped Weasel, African Wildcat, Bat-eared Fox, Black-backed Jackal, Brown Hyaena, Cape Fox, Cape Hare, Cape Short-tailed Gerbil, Caracal, Common Warthog, Desert Pygmy Mouse, Four-striped Grass Mouse, Gemsbok, Grey Climbing Mouse, Ground Pangolin, Honey Badger, Porcupine, Rock Dassie, Sable Antelope (introduced) (Figure 7), Scrub Hare, Slender Mongoose (reddish form), Small Grey Mongoose, Small-spotted Genet, Southern African Ground Squirrel, Southern African Springhare, Springbok, Steenbok, Striped Polecat, Suricate (meerkat) and Yellow Mongoose.

Figure 7. Sable Antelope (male) introduced on the farm 'Aquila'.

8.2 Reptiles

Numerous reptiles such as snakes, lizards and tortoises are found in the study area but none of these were encountered during the field visit. Snakes that are most likely to be encountered in the summer months are Cape Cobra, Black Spitting Cobra, (Figure 8), Puff Adder and Mole Snake amongst others. Given the sandy soils, it is likely that the habitat supports sand lizards.

Figure 8. Black Spitting Cobra (*Naja nigricincta woodii*)

8.3 Birds

Sociable Weavers (Figure 11) are probably the commonest passerine birds and nest in *Vachellia erioloba* (camelthorn) trees or on the power line pylons (Figures 12). In addition, there are a few chat species, such as Ant-eating Chat (Figure 13) as well as larks, in particular Fawn-coloured Lark (Figure 14), Kalahari Scrub Robin (Figure 15) and Dusky Sunbird (Figure 16) observed feeding on the flowers of the herbaceous *Blepharis mitrata*.

Figure 11. Sociable Weaver above, with a communal nest in *Vachellia erioloba* (camelthorn) below.

Figure 12. Sociable Weavers' nest on one of the power line pylons.

Figure 13. Ant-eating Chat

Figure 14. Fawn-coloured Lark

Figure 15. Kalahari Scrub-robin

Figure 16. Male Dusky Sunbird in eclipse plumage feeding on the flowers of *Blepharis mitrata* (Acanthaceae)

Not many raptors were observed during the site visit and Black-winged Kite was noticeably absent as were other small raptors such as kestrels, although one Greater Kestrel was observed. This is ascribed to the apparent scarcity of small rodents in the study area at the time of the site visit.

Two Martial Eagle nests were recorded high on pylons, some distance from each other. It appeared that only the one on the western north-south leg of the power line route was being used. An individual of this species was observed wheeling high in the sky but not at either of the nests.

In contrast, it was pleasing to observe a pair of Verreaux's Eagles actively nesting on the farm Uitkomst. Their nest is on the top of a Sociable Weavers' nest on one of the power line pylons. There did not appear to be a chick at the time of observing these birds (Figures 17—20).

Figure 17. The female Verreaux's Eagle leaving the nest on top of a Sociable Weavers' nest on a power line pylon.

Figure 18. The pair of Verreaux's Eagles resting on the pylon above their nest.

Figure 19. The male Verreaux's Eagle in flight (identifiable because of smaller size than female and the female has damaged feathers of the right wing).

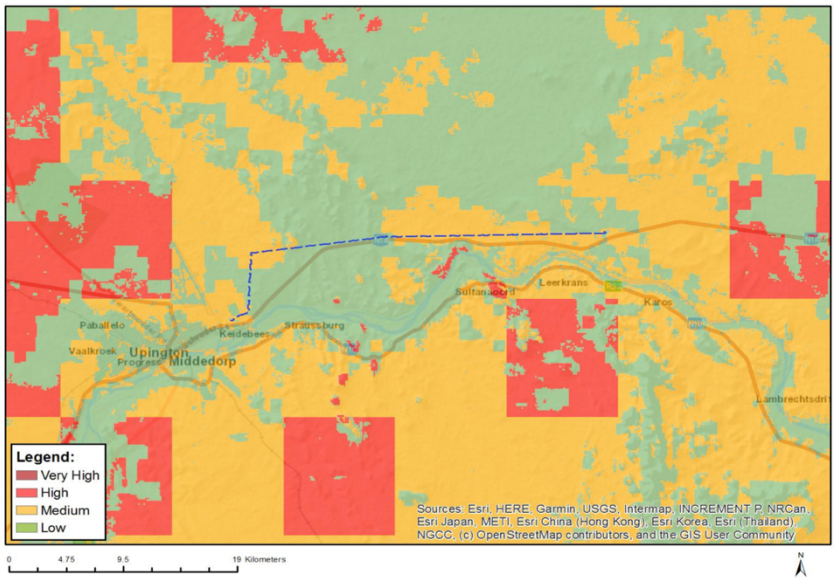
Figure 20. The male Verreaux's Eagle perched on a rock on the koppie above the nest. This koppie is likely to have a good population of rock dassies (*Procavia capensis*) for the provisioning of the chick.

9. Site sensitivity

9.1 Site sensitivity as determined using the National Web-based Environmental Screening Tool.

The National Web-based Environmental Screening Tool was applied to the target area (Figure 21). According to this tool, the target area has **Medium to Low Sensitivity** for the Relative Animal Species Theme. Special note is made of *Aquila verreauxii* (Verreaux's Eagle or Black Eagle) as a sensitive species, and this was verified on the site. However, no Ludwig's Bustards (*Neotis ludwigii*) were observed, and this is ascribed to the winter season and the lack of insects for food.

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Medium	Aves-Neotis ludwigii
Medium	Aves-Aquila verreauxii

Figure 21. The output of the National Web-based Screening Tool for the power line target area (dotted blue line), showing terrestrial animal sensitivity.

9.1 Site sensitivity as determined in the field

Observations recorded in the field are in general agreement with the classification of the screening tool. It was surprising that no Secretary Birds were observed but this could also be due to migration out of the area in winter.

10. Conclusions

It is generally concluded that the Terrestrial Animal Species Sensitivity is moderate to low along the entire power line route. One of the important matters to pay attention to, however, is the need for bird alert flappers to be attached to the power lines. This is particularly important for large raptors such as Verreaux's Eagle and Martial Eagle as well as Ludwig's Bustard's that often fly at night and are casualties of collisions with power lines.

Report submitted: 17 August 2021

Appendix 1: Curriculum Vitae

Dr David Jury McDonald Pr. Sci. Nat.

Name of Company: Bergwind Botanical Surveys & Tours CC. (Independent consultant)

Work and Home Address: 14 A Thomson Road, Claremont, 7708

Tel: (021) 671-4056 **Mobile:** 082-876-4051 **Fax:** 086-517-3806

E-mail: dave@bergwind.co.za

Website: www.bergwind.co.za

Profession: Botanist / Vegetation Ecologist / Consultant / Tour Guide

Date of Birth: 7 August 1956

Employment history:

- Nineteen years with National Botanical Institute (now SA National Biodiversity Institute) as researcher in vegetation ecology.
- Five years as Deputy Director / Director Botanical & Communication Programmes of the Botanical Society of South Africa
- Fifteen years as private independent Botanical Specialist consultant (Bergwind Botanical Surveys & Tours CC)

Nationality: South African (ID No. 560807 5018 080)
Languages: English (home language) – speak, read and write
Afrikaans – speak, read and write

Membership in Professional Societies:

- South Africa Association of Botanists
- International Association for Impact Assessment (SA)
- South African Council for Natural Scientific Professions (**Ecological Science, Registration No. 400094/06**)
- Field Guides Association of Southern Africa

Key Qualifications:

- Qualified with a M. Sc. (1983) in Botany and a PhD in Botany (Vegetation Ecology) (1995) at the University of Cape Town.
- Research in Cape fynbos ecosystems and more specifically mountain ecosystems.
- From 1995 to 2000 managed the Vegetation Map of South Africa Project (National Botanical Institute).
- Conducted botanical survey work for AfriDev Consultants for the Mohale and Katse Dam projects in Lesotho from 1995 to 2002. A large component of this work was the analysis of data collected by teams of botanists.
- **Director: Botanical & Communication Programmes** of the Botanical Society of South Africa (2000—2005), responsible for communications and publications; involved with

conservation advocacy particularly with respect to impacts of development on centres of plant endemism.

- Further tasks involved the day-to-day management of a large non-profit environmental organisation.
- **Independent botanical consultant** (2005 – to present) over 300 projects have been completed related to environmental impact assessments in the Western, Southern and Northern Cape, Karoo and Lesotho. A list of reports (or selected reports for scrutiny) is available on request.

Higher Education

Degrees obtained
and major subjects passed:

B.Sc. (1977), University of Natal, Pietermaritzburg
Botany III
Entomology II (Third year course)

B.Sc. Hons. (1978) University of Natal, Pietermaritzburg
Botany (Ecology /Physiology)

M.Sc. - (Botany), University of Cape Town, 1983.
Thesis title: 'The vegetation of Swartboschkloof, Jonkershoek, Cape Province'.

PhD (Botany), University of Cape Town, 1995.
Thesis title: 'Phytogeography endemism and diversity of the fynbos of the southern Langeberg'.

Certificate of Tourism: Guiding (Culture: Local)
Level: 4 Code: TGC7 (Registered Tour Guide: WC 2969).

Employment Record:

January 2006 – present: Independent specialist botanical consultant and tour guide in own company: **Bergwind Botanical Surveys & Tours CC**
August 2000 - 2005 : Deputy Director, later Director Botanical & Communication Programmes, Botanical Society of South Africa
January 1981 – July 2000 : Research Scientist (Vegetation Ecology) at National Botanical Institute
January 1979—Dec 1980 : National Military Service

Further information is available on my company website: www.bergwind.co.za