

D3.2: Animal Species Compliance Statement

ANIMAL COMPLIANCE STATEMENT
PROPOSED CARPE DIEM SOLAR PV FACILITY
located on Portion 5 of Farm Varkenslaagte No. 119 and
Portion 27 of Farm Doornfontein No. 118, Gauteng Province

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For

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1 INTRODUCTION & PROJECT UNDERSTANDING

Enviro-Insight CC was appointed to undertake a site sensitivity verification animal assessment to determine whether a compliance statement of full assessment is required for the proposed Carpe Diem Solar PV Facility located on Portion 5 of Farm Varkenslaagte No. 119 and Portion 27 of Farm Doornfontein No. 118 near Carletonville, Merafong City Municipality, Gauteng Province (Figure 1).

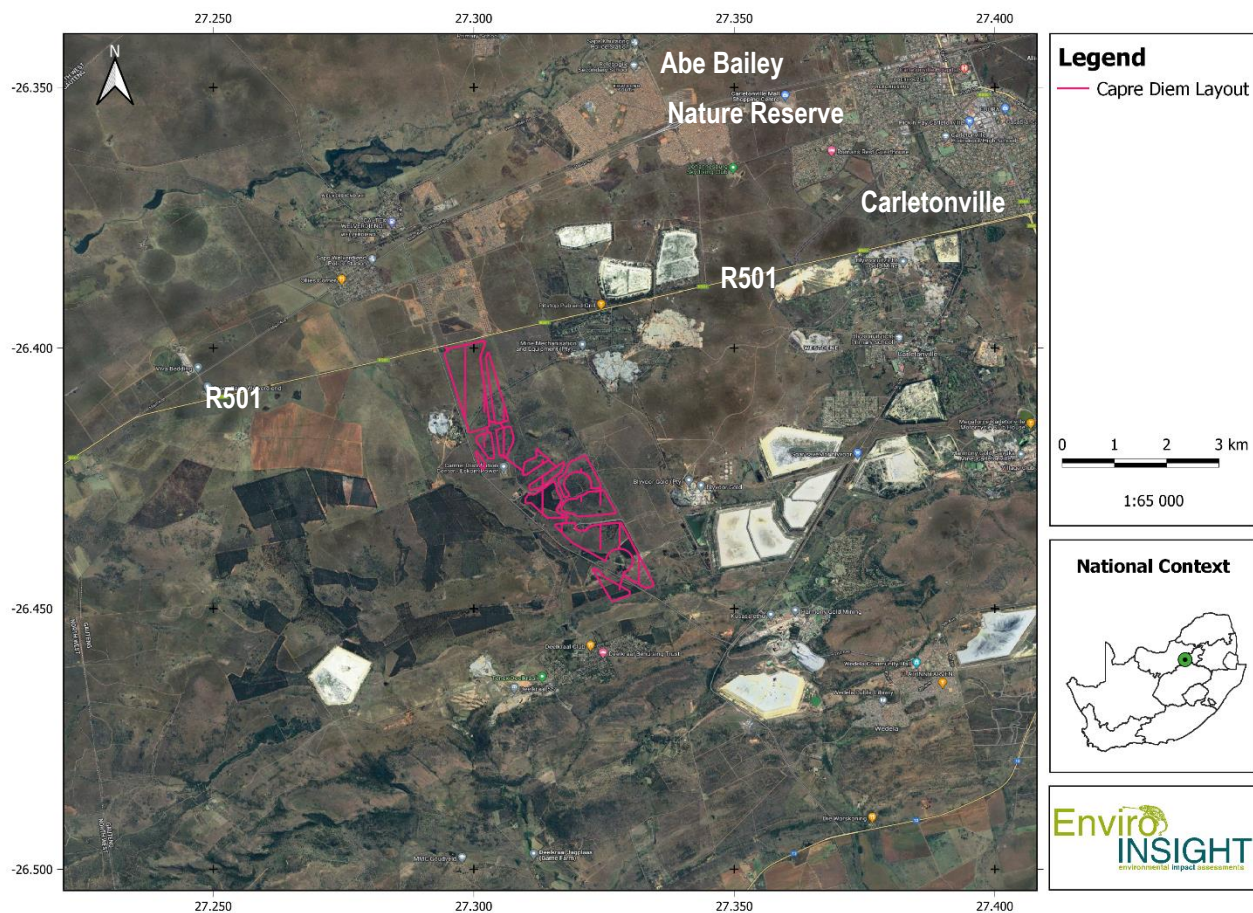


Figure 1: Proposed infrastructure layout within the study area.

2 APPROACH & METHODS

2.1 STUDY APPROACH

- The Spotted-necked Otter (*Hydricotis maculicollis*; IUCN Vulnerable) is associated with aquatic habitats (Ponsonby et al. 2016).
- Uvarov's Clonia (*Clonia uvarovi*, IUCN Vulnerable) occurs in tall, woodland savannah (Bazelet & Naskrecki, 2014).
- Potchefstroom Blue (*Lepidochrysops procera*, Regionally Rare) is endemic to South Africa, occurring over a large area (EOO 93,799 km²). However, it occupies a very small portion of this area.
- Highveld Blue (*Lepidochrysops praeterita*, IUCN Endangered) is a range-restricted endemic species of the Free State, Gauteng and North West Provinces in South Africa.
- The Maquassie Musk Shrew (*Crocidura maquassiensis*; IUCN Vulnerable) is strongly associated with wetlands

(Taylor et al. 2016). The species is extremely difficult to locate/ sample making the likelihood of successfully detecting them during a rapid faunal survey very low. Under such conditions the precautionary principle should be applied where it is assumed that the species is present in its preferred habitat and therefore, all suitable habitat within the study area would need to be buffered. As described below, this precautionary buffering has been applied.

- If a fieldwork exercise involving trapping were to take place and the species was detected on site in the preferred habitat, the recommended mitigation measure would be to buffer their preferred habitat which is in no way different from applying the precautionary approach described above. Consequently, the specialists evaluated that there would be no value in performing a costly fieldwork assessment as the outcome would not differ from applying the precautionary approach and assuming that the species are present on site in their preferred habitat.
- In summary, it was concluded that conducting fieldwork in order to appropriately assess and mitigate anticipated impacts from the proposed development on mammal species of conservation concern (SCC) was unnecessary, as long as the precautionary approach was applied, and the SCC were assumed to be present on site in their preferred habitat.

2.2 NATIONAL ENVIRONMENTAL SCREENING TOOL REPORTS

In accordance with the terrestrial animal species protocol published in Government Notice No. 1150 of 30 October 2020, the National Environmental Screening Tool was consulted (December 2021) to provide a list of SCC potentially affected by the proposed development.

2.3 LITERATURE REVIEW

- Relevant books and publications providing information on distribution ranges and/or conservation status of South African mammals were consulted to review the National Environmental Screening Tool predictions of mammal SCC occurrence in the study area.
- Mammal species nomenclature follows Child et al. (2016).
- The National Red List (Child *et al.* 2016)¹ was utilised to provide the most current account of the conservation status of mammals in South Africa.
- Skinner & Chimimba (2005) and Stuart & Stuart (1998) were consulted in order to provide baseline ecological information to inform the conclusions regarding SCC.
- The IUCN² and SANBI³ was utilised to provide the most current account of the conservation status of invertebrates.

2.4 HABITAT CHARACTERISATION & MAPPING

Habitat suitability was confirmed from the habitat descriptions and photographs collected during the survey by Samuel Laurence. Vegetation units, mostly botanical delineations, were converted to more structural habitat units of relevance for mammals, by the combination of certain vegetation units into a single macro-habitat. This process resulted in the identification of five structural habitat types, each of which are expected to have specific (albeit possibly overlapping)

¹ <https://www.ewt.org.za/resources/resources-mammal-red-list/>

² <https://www.iucnredlist.org/>

³ <https://speciesstatus.sanbi.org/taxa/lineage/188/>

mammal communities.

3 LEGISLATIVE FRAMEWORK

3.1 NATIONAL ENVIRONMENTAL SCREENING TOOL AND ENVIRONMENTAL THEME PROTOCOLS

3.1.1 Screening Report

The Minister of Environment, Forestry and Fisheries, gave notice that the submission of a report generated from the national web-based environmental screening tool, as contemplated in Regulation 16(1)(b)(v) of the Environmental Impact Assessment Regulations, 2014, published under Government Notice No. R982 in Government Gazette No. 38282 of 4 December 2014, as amended, will be compulsory from 4 October 2019 when submitting an application for environmental authorisation in terms of regulation 19 and regulation 21 of the Environmental Impact Assessment Regulations, 2014.

In addition, a set of protocols that an applicant needs to adhere to in the Environmental Authorisation (EA) process were developed and on 20 March 2020 and 30 October 2020 the Minister of Forestry, Fisheries and the Environment gazetted the Protocols for national implementation purposes. The gazette 'Procedures to be followed for the Assessment and Minimum Criteria for Reporting of Identified Environmental Themes in terms of Section 24(5)(a) and (h) of the National Environmental Management Act (1998) when Applying for Environmental Authorisation' were developed for the plant species and animal species themes, which were amended in July 2023.

The protocols set requirements for the assessment and reporting of environmental impacts of activities requiring EA. The higher the sensitivity rating of the features on the proposed site as identified by the screening tool report, the more rigorous the assessment and reporting requirements. Based on the environmental screening tool reports generated for the report, the Animal Combined Sensitivity Theme is indicated as a combination of Medium and High (low surface area) sensitivity in areas that are said to contain the following Sensitivity Feature(s).

4 RESULTS

4.1 REVIEW OF NATIONAL ENVIRONMENTAL SCREENING TOOL LIST

Based on the environmental screening tool reports generated for the report (**Error! Reference source not found.**) the Animal Combined Sensitivity Theme is indicated as a combination of Medium and High (low surface area) sensitivity in areas that are said to contain the following Sensitivity Feature(s).

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY

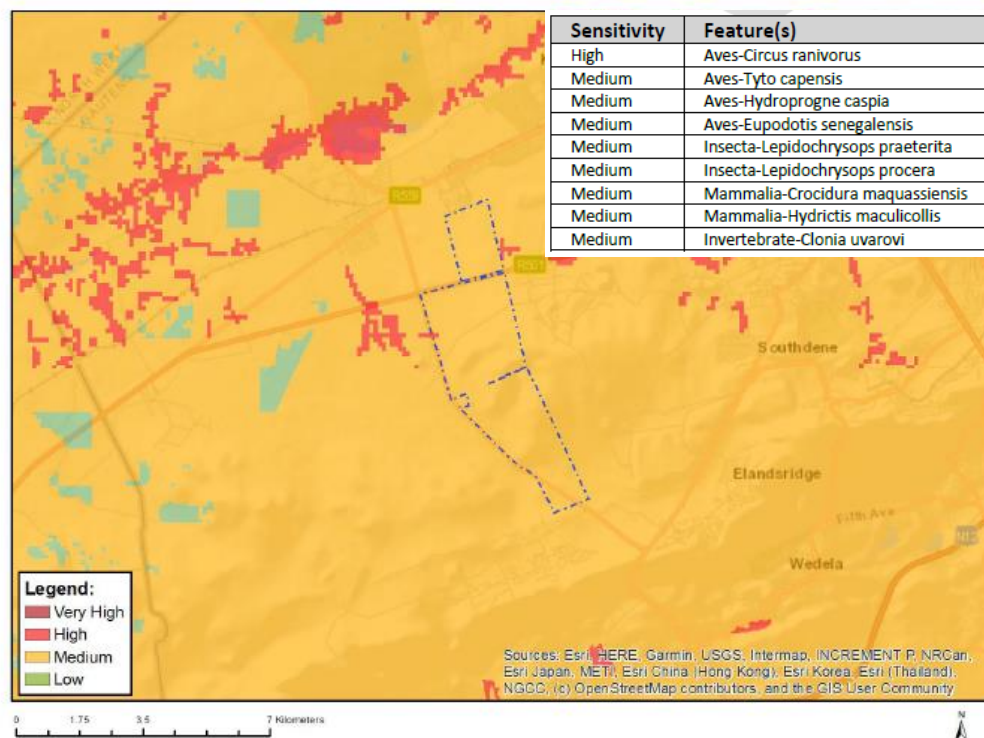


Figure 2: Screening Tool Report on the Animal Species Theme.

4.2 ANIMAL SPECIES OF CONSERVATION CONCERN

Firstly, the results must be related to the delineated habitat analysis as shown as Figure 3. This provides ecological weight and proof to the species-specific conclusions rendered below.

4.2.1 Maquassie Musk Shrew (*Crocidura maquassiensis*; IUCN Vulnerable B2ab(ii,iii,iv))

This species has an extensive global distribution with an estimated extent of occurrence of 721,746 km² spanning South Africa, Swaziland and Zimbabwe (Cassola 2016). Although tolerant of a range of different habitats, this species is dependent on moist habitats such as montane grasslands, coastal forests and riparian or wetland areas. Consequently, Taylor et al. (2016) used wetlands as a proxy for suitable habitat when conducting the Red List assessment for this species. It follows therefore that such wetland habitat is likely to represent ideal conditions for this species and should be protected from degradation as indicated in Taylor et al. (2016).

This species is extremely difficult to trap/ sample (Taylor et al. 2016) rendering short term trapping exercises redundant and since this study area falls within the global range of the species, the precautionary principle is applied, and it is assumed that the species is present in the wetland habitats within **the Project Area of Influence** but not within the affected development footprint. Therefore, the species is all but absolved from any further impact analysis.

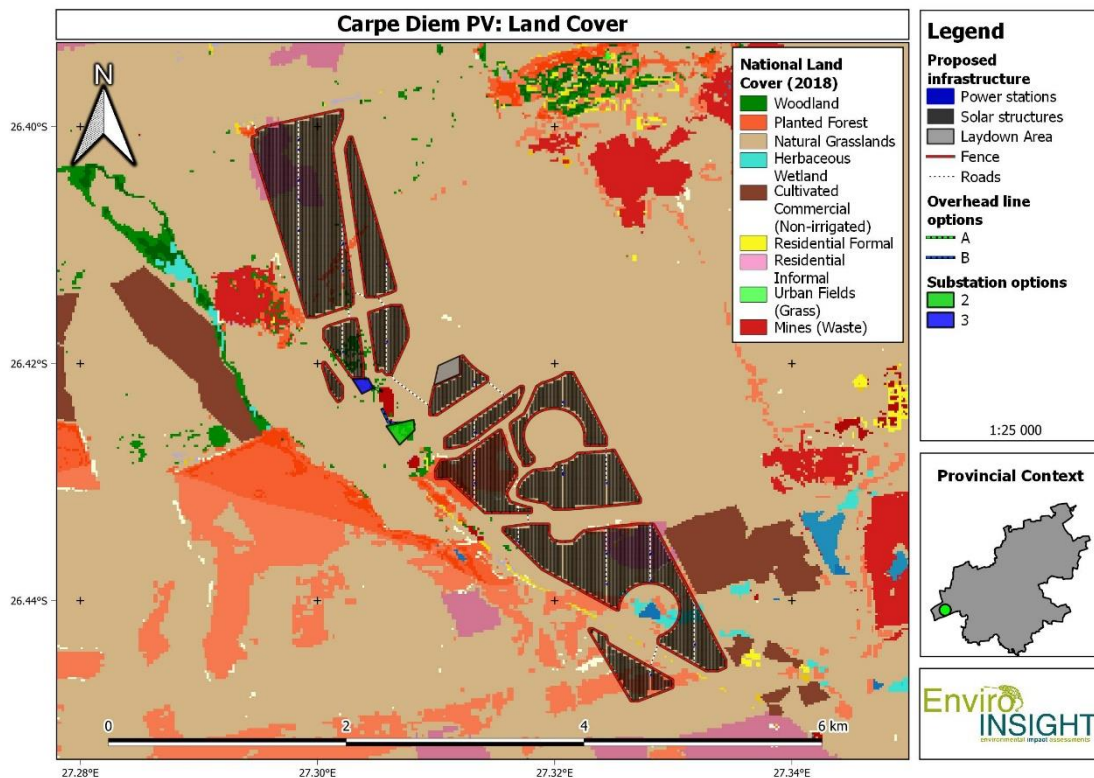


Figure 3: Animal Habitats for the Carpe Diem PVSEF.

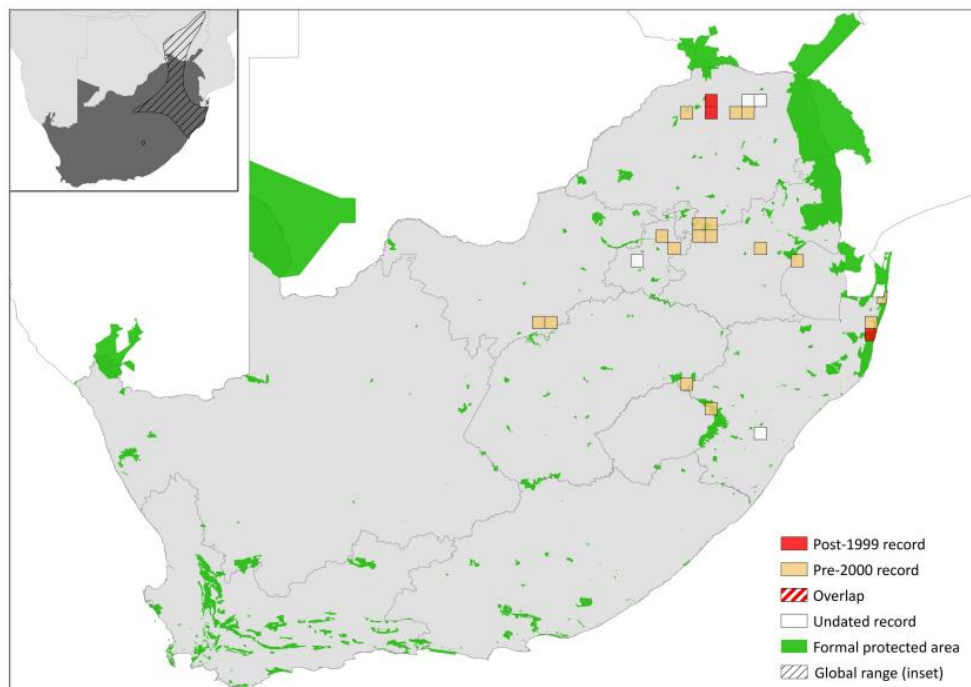


Figure 4: Distribution records in South Africa for Maquassie Musk Shrew (*Crocidura maquassiensis*) and global range [reproduced from Taylor et al. 2016].

4.2.2 Spotted-necked Otter (*Hydrictis maculicollis*; IUCN Vulnerable B2ab(ii,iii,iv))

Although these otters have a large extent of occurrence, they are restricted to areas of permanent fresh water, offering

good shoreline cover and an abundant prey base, which means the area of occupancy is substantially smaller and difficult to quantify (Reed-Smith et al. 2015). Overall, the population may be declining as river habitat is lost to development and infestations of alien species in riparian areas, and riverside vegetation degradation from overgrazing. Habitat loss and degradation is exacerbated by human disturbance, including both direct and indirect persecution and/or hunting, reduction of denning sites and diminishment of the species (Ponsonby et al. 2016).

Adequate riparian vegetation, in the form of long grass, reeds, or bushes, is also essential to provide cover (Perrin & d'Inzillo Carranza 2000b), especially during periods of inactivity (Perrin & d'Inzillo Carranza 2000a). Spotted-necked Otters are thought to inhabit freshwater habitats where water is not silt-laden, and is unpolluted, and rich in small fishes (Perrin & Carugati 2000a; d'Inzillo Carranza & Rowe-Rowe 2013). However, anecdotal observations suggest they can occur, and can be common, in relatively polluted rivers, such as the Braamfonteinspruit, Jukskei River and Blesbokspruit, Gauteng Province (Ponsonby, thesis, in prep.) and the Vaal River (Power 2014). More surveys are needed to determine at what threshold of water quality otter densities decline. Limited suitable habitat (riparian vegetation) is present for the species, and the watercourses have been excluded from the proposed development footprint.

4.2.3 Uvarov's Clonia (*Clonia uvarovi*, IUCN Vulnerable B1ab(i,iii))

The threat status of Uvarov's Clonia is Vulnerable under criterion B1. Its extent of occurrence is relatively small (~5,000 km²), it has only been recorded in five locations, and the area, extent and quality of its habitat are expected to be in decline due to grazing pressure, cultivation, urban development, invasive alien plants and climate change. Furthermore, this species is not known to occur in any protected areas. The species inhabits tall woodland savannah and is endemic to the highveld region of South Africa and has only been recorded from Gauteng and North-West Provinces.

This species occurs in tall, woodland savannah in areas which are under intensive grazing pressure by livestock and wildlife, cultivation with non-timber crops, urban development, and invasion by alien plant species such as *Lantana* spp., bugweed (*S. mauritianum*) and other non-native weed species. Furthermore, climate change is already causing increasingly frequent extreme weather events in these regions, which is liable to drastically effect the distribution of grasses, the katydid's food plant.

It may be present in the Bushveld habitat, and accordingly development within this area should be reduced. As per the Terrestrial Biodiversity assessment, the proposed solar development should avoid the bushveld (ridge) habitat. Active rehabilitation of the habitat post-construction is required to promote and enhance the bushveld habitat. This includes removal of alien invasive species and limiting cattle grazing.

4.2.4 Potchefstroom Blue (*Lepidochrysops procera*, Regionally Rare)

This species is endemic to South Africa, occurring over a large area (Extent of Occurrence 93,799 km²). However, it occupies a very small portion of this area. The taxon is a rare habitat specialist with relatively few known locations, several of which are under some degree of threat. However, such threats are not thought to be significant currently and the taxon is listed as Least Concern.

It occurs in rocky areas in grassland (and grassy areas in savanna), where its larval host plant, *Ocimum obovatum*, occurs. The early stages are unrecorded, but the presence of the host ant (probably a *Camponotus* species) will be an additional requisite. The species has been recorded between Carletonville and Fochville (Figure 5), as well as in the vicinity of Westonaria. Since it is a rare habitat specialist, and the presence of the host plant is required, the presence of the species is difficult to confirm. The proposed OHPL will however have minimal impacts on the species habitat, and active

rehabilitation and planting of *B. obovatum* could enhance the species habitat, if present in the area.

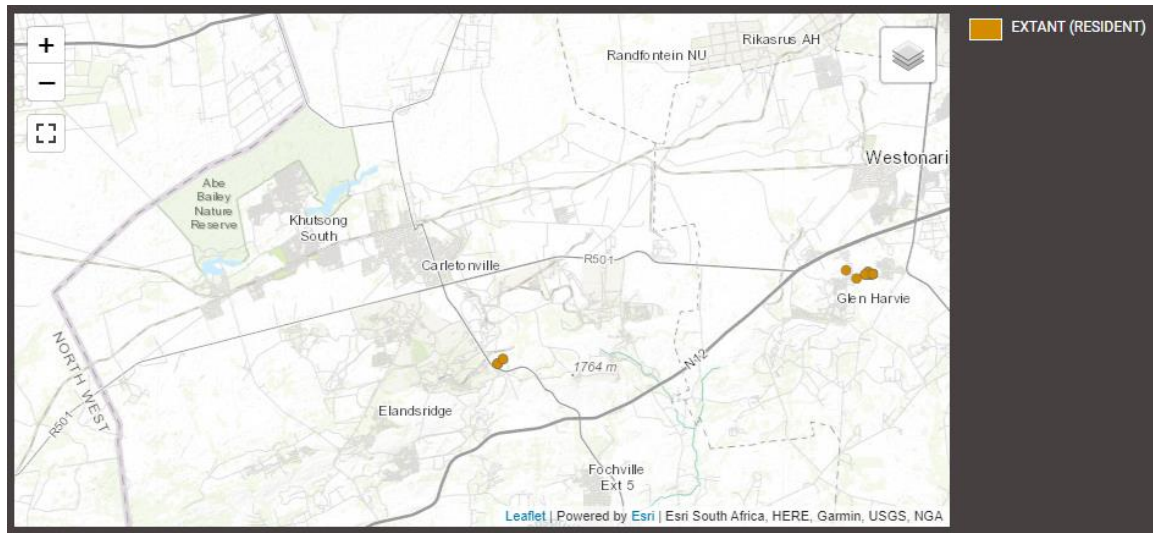


Figure 5: Geographic range of Southern African Lepidoptera Conservation Assessment project 2018. *Lepidochrysops procera*. The IUCN Red List of Threatened Species. Version 2023-1.

5 CONCLUSION

Uvarov's Clonia, *Lepidochrysops praeterita* and *Lepidochrysops procera* will be all but unaffected by the proposed development especially in context with the prevailing current impacts on site. The likelihood of occurrence of the species is marginal at best but given the moderate to high impact development footprint on the species, avoidance of the bushveld habitat is the only option here. Both the Maquassie Musk Shrew (*Crocidura maquassiensis*; IUCN Vulnerable) and Spotted-neck Otter (*Hydricus maculicollis*; IUCN Vulnerable) are considered (under the precautionary principle) to occur within the watercourse habitats in the study area. The presence of these species elevates the site ecological importance (SEI) of the river/riparian/wetland habitats to HIGH. Habitats with a High SEI should be avoided by development infrastructure and activities (SANBI 2020).

6 REFERENCES

- Bazelet, C. & Naskrecki, P. 2014. *Clonia uvarovi*. The IUCN Red List of Threatened Species 2014: e.T20659011A56181509. <https://dx.doi.org/10.2305/IUCN.UK.2014-3.RLTS.T20659011A56181509.en>.
- Cassola F. 2016. *Crocidura maquassiensis* (errata version published in 2017). The IUCN Red List of Threatened Species 2016: e.T5576A115075148. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T5576A22303779.en>.
- Dobson, J.C.H. 2020. *Lepidochrysops praeterita*. The IUCN Red List of Threatened Species 2020: e.T161319448A168302462. <https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T161319448A168302462.en>.
- Dobson, J.C.H. & Dobson, C.M. 2020. *Lepidochrysops procera*. The IUCN Red List of Threatened Species 2020: e.T161319657A168304931. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T161319657A168304931.en>.
- Perrin MR, Carranza ID, Linn IJ. 2000. Use of space by the spotted-necked otter in the KwaZulu-Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30:15–21.
- Perrin MR, Carugati C. 2000a. Habitat use by the Cape clawless otter and the spotted-necked otter in the KwaZulu-Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30:103–113.
- Perrin MR, Carugati C. 2000b. Food habits of coexisting Cape clawless otter and spotted-necked otter in the KwaZulu-Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30:85–92.
- Perrin MR, d'Inzillo Carranza I. 2000a. Activity patterns of the spotted-necked otter in the Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30:1–7.
- Perrin MR, d'Inzillo Carranza I. 2000b. Habitat use by spottednecked otters in the KwaZulu-Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30:8-14
- Ponsonby DW, Rowe-Rowe D, Power RJ, Somers MJ. 2016. A conservation assessment of *Hydricictis maculicollis*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.
- Reed-Smith J, Jacques H, Somers MJ. 2015. *Hydricictis maculicollis*. The IUCN Red List of Threatened Species 2015: e.T12420A21936042.
- Skinner JD, Chimimba C.T. 2005. *The Mammals of the Southern African Subregion* (New Edition). Cambridge University Press. South Africa.
- Skinner JD, Chimimba C.T. 2005. *The Mammals of the Southern African Subregion* (New Edition). Cambridge University Press. South Africa.
- South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. V3.1.
- Stuart C, Stuart T. (1998). *A Field Guide to the Tracks and Signs of Southern and East Africa*. South Africa: Southern Book Publishers.
- Taylor PJ, Baxter RM, Power RJ, Monadjem A, Child MF. 2016. A conservation assessment of *Crocidura maquassiensis*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

7 APPENDIX 1: QUALIFICATIONS

