

Erf 4784 - Stilbaai Lifestyle Village: Animal Species Compliance Statement



CHEPRI (PTY) LTD

December 4, 2020

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1 Introduction

The development of a Lifestyle Village on Erf 4874, Stilbaai has been proposed. A screening tool report of the site and its surroundings delineate the proposed development area as of high and medium sensitivity for a number of animal species. These are listed in Table 1 below.

This document serves as an Animal Species Compliance Statement in the light of the screening tool delineation and the true situation as assessed on site during a five hour site visit on 24 July 2019 by a Botanical and Terrestrial Biodiversity Specialist, Dr. Marius van der Vyver (SACNASP: Ecological Science, 118303). Another three smaller site visits were conducted on 21 and 22 November 2020, each of about an hour duration, to confirm the initial findings and further investigate the potential fauna species of conservation concern and their habitat preferences with reference to the proposed development site.

1.1 Birds

1.1.1 *Certhilauda brevirostris* | Agulhas Long-billed Lark

The Agulhas Long-billed Lark has a restricted range range centred on the Agulhas arable farmlands, from east of the Hottentots-Holland mountain range to Mossel Bay, and occupies a maximum of 15,000 km². The natural habitat of Agulhas long-billed lark is uncertain, since most of its range has been converted into stony wheatfields and pasture land, only 30% remaining as coastal fynbos or karoo scrub. It is endemic to South Africa. However, it appears to have adapted quite well to its modified habitats, like farmlands, although its distribution is patchy for unknown reasons.

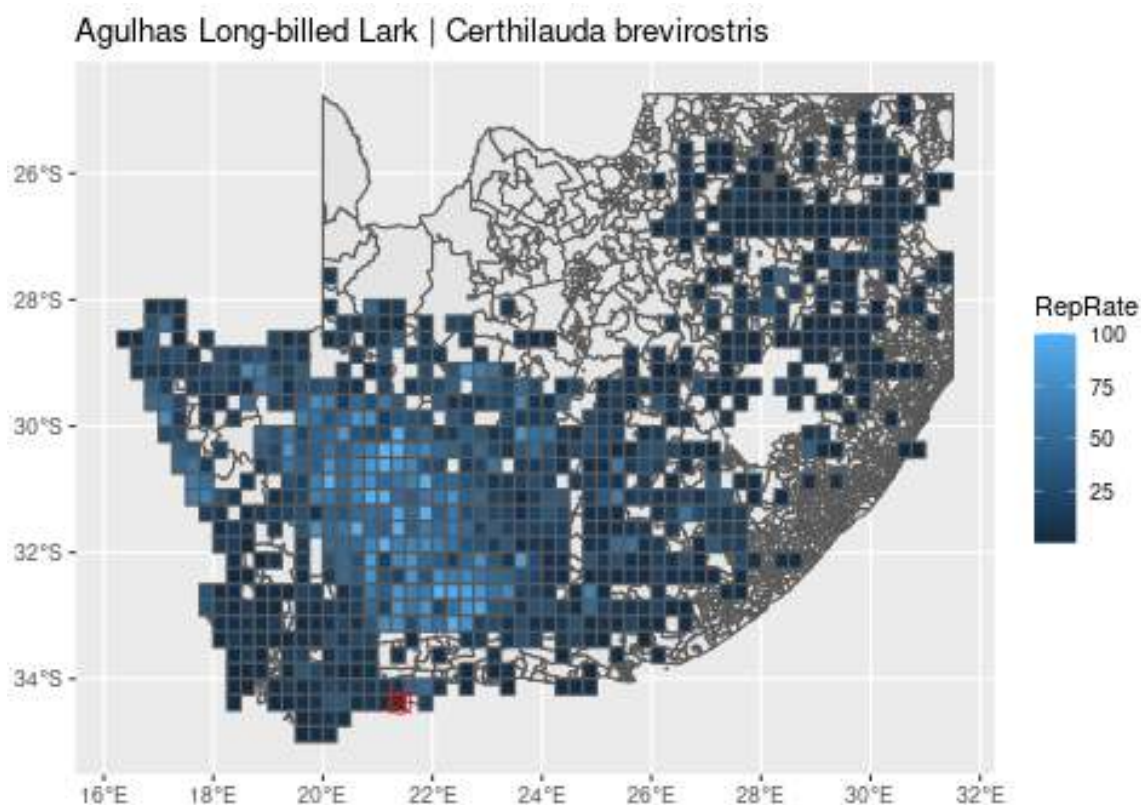


Figure 1: South African Bird Atlas Project (SABAP2) (Brooks, M and Ryan, P, 2020) reporting rates of the Agulhas Long-billed Lark to date. The red icon shows the quarter-degree square cell (resolution unit) within which the site is located.

1.1.2 *Bradypterus sylvaticus* | Knysna Warbler

The habitat of the Knysna Warbler is dense tangled scrub of forest edges, on or relatively near the coast. It has adapted to non-native bramble thickets and colonised suburban riparian woodland, though without any marked range expansion. Most breeding territories are established in dense vegetation along streams, and nests are placed very close to the ground. They may be highly philopatric - one of three colour-ringed nestlings was seen a year later occupying its parent territory. May undertake local migration.

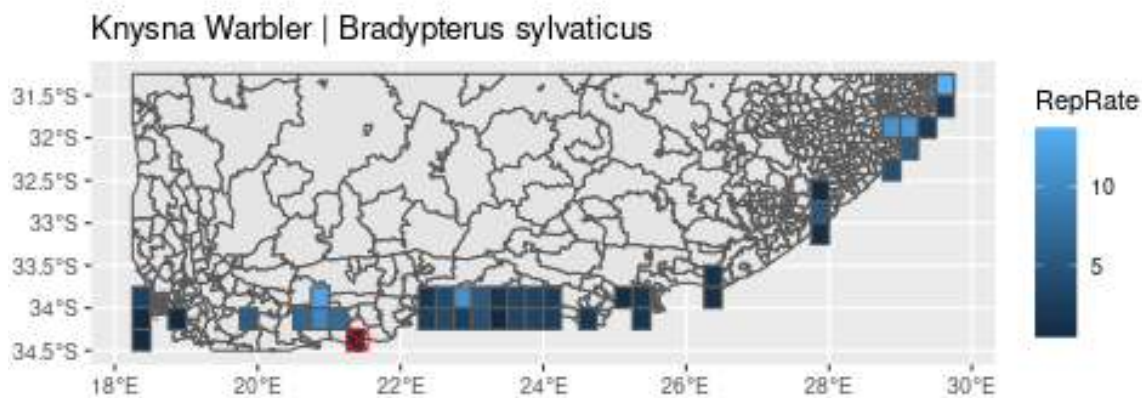


Figure 2: South African Bird Atlas Project (SABAP2) (Brooks, M and Ryan, P, 2020) reporting rates of the Knysna Warbler to date. The red icon shows the quarter-degree square cell (resolution unit) within which the site is located.

1.1.3 *Campethera notata* | Knysna Wood-pecker

The natural habitats of the Knysna Woodpecker are subtropical or moist lowland forests, moist savanna, and subtropical thicket (roberts1985birds). The few milkwood trees and large amount of Bietou on the small remaining fragment of natural vegetation on site can not be sufficiently characterised as preferred habitat types for this species to be present on site.

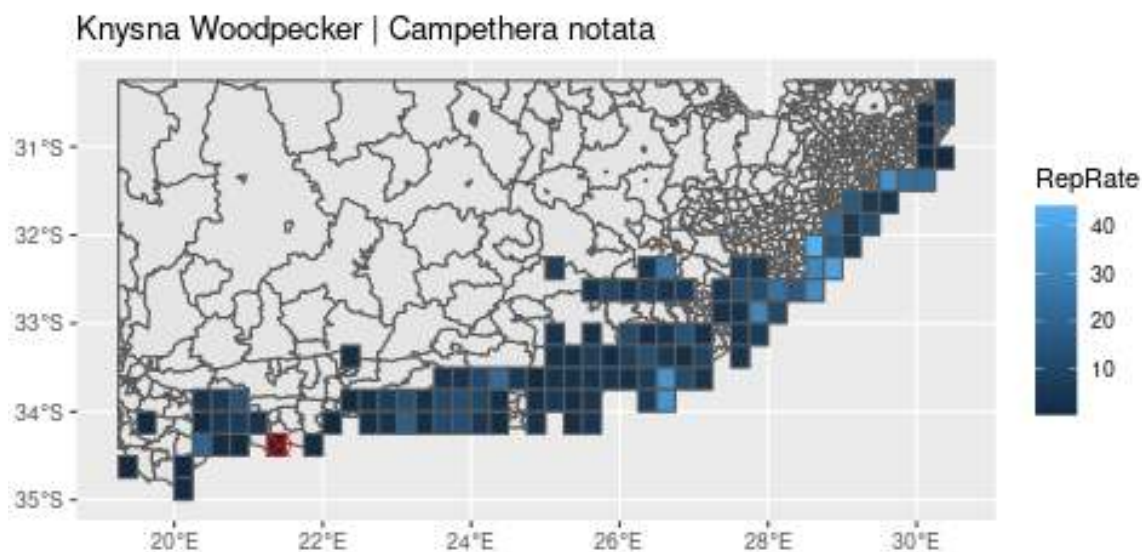


Figure 3: South African Bird Atlas Project (SABAP2) (Brooks, M and Ryan, P, 2020) reporting rates of the Knysna Woodpecker to date. The red icon shows the quarter-degree square cell (resolution unit) within which the site is located.



1.1.4 *Neotis denhami* | Denham's bustard

Denham's bustard is usually associated with grassland habitats, but can be found in a considerable range of secondary habitats including dense shrubland, light woodland, farmland, dried marsh and arid plains. It is the largest species within the Genus *Neotis*. It is unlikely that this bird will utilise the site which is surrounded by urban development, as it requires large swathes of grassland with minimal human disturbance.

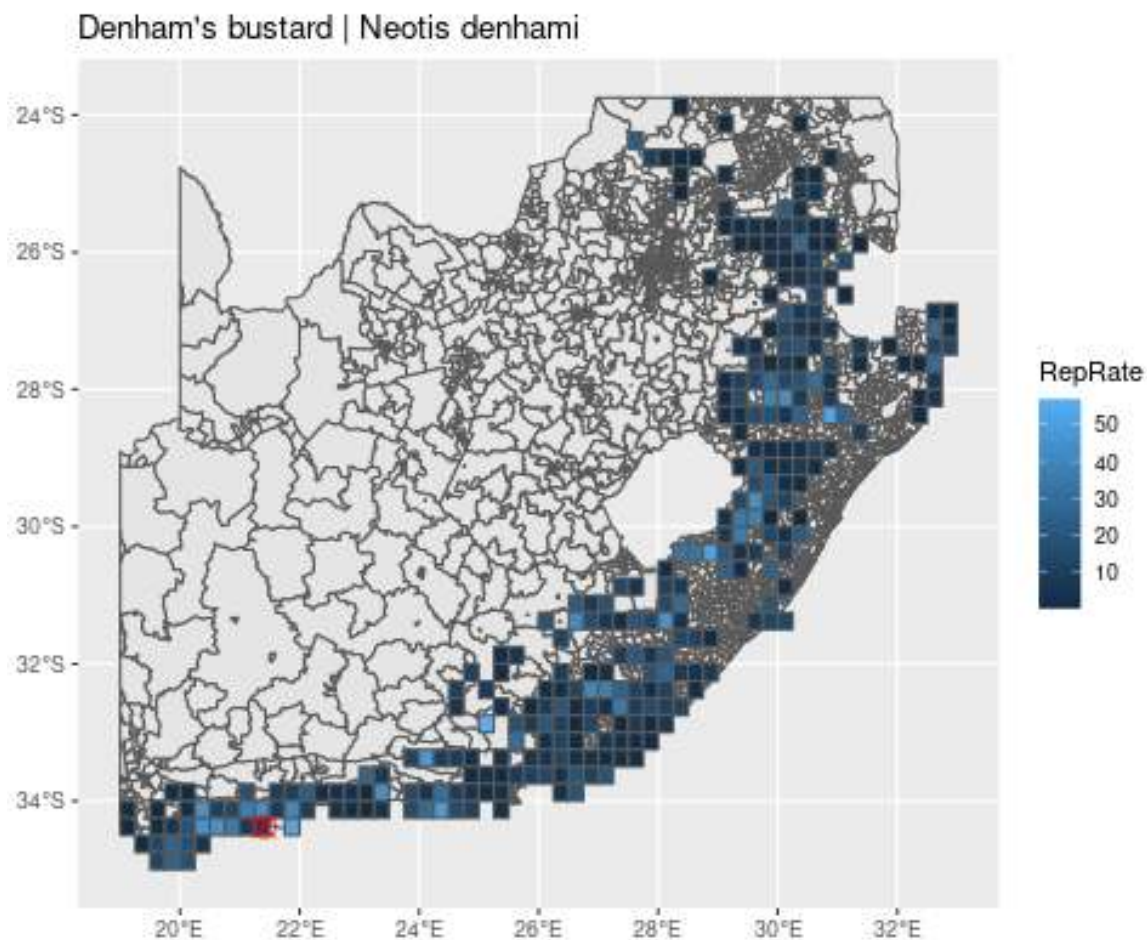


Figure 4: South African Bird Atlas Project (SABAP2) (Brooks, M and Ryan, P, 2020) reporting rates of Denham's Bustard to date. The red icon shows the quarter-degree square cell (resolution unit) within which the site is located.

1.2 Invertebrates

1.2.1 *Thestor claassensi* | Claassen's skolly

In terms of habitat, Claassen's Skolly is associated with coastal rocky outcrops (Woodhall, 2020) in the Stillbay, Vermaaklikheid and Puntjie areas in the Western Cape. It may also occur on flat coastal fynbos and limestone ridges. There is currently no data on its larval food. Its flight period is from November to early December.

1.2.2 *Aneurphymus montanus* | Yellow-winged Agile Grasshopper

The description provided by Brown (1960) provided the best means of identification in the field.

"This stout bodied insect is found locally common amongst partly burnt stands of evergreen Sclerophyll in the rocky foothills. It is an active geophilous insect which readily flies off when disturbed and is easily distinguished in flight by the pale lemon base of the hind wing. . . When captured and handled both sexes have the objectionable habit of regurgitating a dark brown fluid which readily stains the fingers." (Brown, 1960)

Note the habitat is given as evergreen Sclerophyll-covered rocky foothills. The proposed development site is mostly on mowed strandveld (70%) (refer to the Terrestrial Biodiversity Compliance Statement) on relatively deep sandy soils (strandveld). A portion (30%) of Natural Vegetation is present with some sclerophyllous elements, but the proposed site is not located rocky foothills but sandveld. A search on foot for scattering grasshoppers on three separate occasions found no individuals of **Aneurphymus montanus** on this strip of natural vegetation.

1.2.3 *Aloeides thyra orientis* | Red Copper

The Red Copper is found on flatlands, coastal landscapes, mountains and rocky ledges. Its larval food is *Aspalathus acuminata*, *Aspalathus laricifolia* and *Aspalathus cymbiformis* (Woodhall, 2020), none of which were found growing on the site. Its larvae is associated with *Lepisota capensis* ants (Woodhall, 2020). In terms of flight period it has several broods during the summer months with peaks in October and February.

1.2.4 *Chrysothrix brooksi tearei* | Brook's opal

Brook's Opal is found in flatlands and hillsides in fynbos and Succulent Karoo. Its flight period is from September to April with peaks in December and March. Its larval food is noted as *Thesium* spp. and *Zygophyllum* spp. Isolated members of both these genera were found growing on site. Its larvae is associated with *Crematogaster peringueyi* ants (Woodhall, 2020).

2 Methods

The findings of this report is derived from a desktop study and a five hour site visit on 24 July 2019 by a Botanical and Terrestrial Biodiversity Specialist, Dr. Marius van der Vyver (SACNASP: Ecological Science, 118303). Three shorter site visits were conducted specifically to assess fauna sensitivity of the site on 21 and 22 November 2020 (Summer), each of about an hour duration, one in the early morning at first light, the other two during mid and late afternoon, respectively. These site visits were conducted specifically to coincide with the flight period of all three butterfly species identified by the screening tool.

The site and its associated adjacent area still harbouring natural vegetation was investigated by walking around and looking out for target species identified by the screening tool (and mentioned above). In terms of birds, each of the four birds' distinctive calls were studied beforehand and listening surveys of 5-10 minute intervals were randomly conducted on the larger site and its adjacent area under natural vegetation. While moving around on site, care was taken to note all grasshoppers and butterflies moving within our field of vision and all were investigated to ascertain whether a species belonged to one of the four listed invertebrate fauna species. Available photos of these were studied, along with the fieldguide of Woodhall (2020) before embarking on the surveys.

3 Results

3.1 Site Investigation and existing habitat

None of the fauna species listed by the screening tool were found on site during our three consecutive site visits. The reporting rates (Brooks, M and Ryan, P, 2020) of the bird species for the quarter-degree square area within which the site is located is very low, compared to other areas within each species' distribution range (see Figure 1, Figure 2, Figure 3 and Figure 4).



3.1.1 *Brachylaena serrata* - *Raphanus raphanistrum* Mowed Strandveld

The *Brachylaena serrata* - *Raphanus raphanistrum* Mowed Strandveld community is around 3.71 ha in size. It is regularly mowed, presumably by the municipality and consequently consists of a very low herbaceous layer, with a few bush-clumps distributed across the area. It is dominated by Red Signal Grass (*Brachiara serrata*) and Wild Raddish (*Raphanus raphanistrum*), with a range of species able to persist under regular mowing pressure. contains some photographs taken of this community and Table 8 list the plant species and their conservation status encountered here.



Figure 5: Four photographs of the Mowed Strandveld community.

3.1.2 *Osteospermum moniliferum* - *Thamnochortus insignis* Strandveld

The vegetation is dominated by Bietou (*Osteospermum moniliferum*) and Albertinia Thatching Grass (*Thamnochortus insignis*, 'Dekriet' in Afrikaans), and slightly invaded by Prickly Pear (*Opuntia ficus-indica*). The species diversity is relatively poor, and if left untouched may be conducive to the development of more woody thicket and/or proteoid plant species.

As indicated in the Botanical Impact Study, the site is mostly (70%) transformed by regular mowing. The intact area that comprise of remnant natural vegetation is impacted by the harvesting of dekriet (*Thamnochortus insignis*) and is comprehensively described in the Botanical Impact Assessment which identified the whole remnant intact area as *Osteospermum moniliferum* - *Thamnochortus insignis* Strandveld.

3.2 Proposed development impact on fauna species features

The proposed development is considered to have a low impact on any significant animal features. None of the listed SOC species were found present on site. Seventy percent of the site footprint is already transformed through regular mowing (likely to serve as a firebreak). The remaining 30% is impacted through some harvesting of thatch material. The semi-intact area is a relatively homogenous vegetation type on a slightly undulating sand dune dominated by Bietou and Albertinia Thatch Grass. The relatively little thicket elements apart from

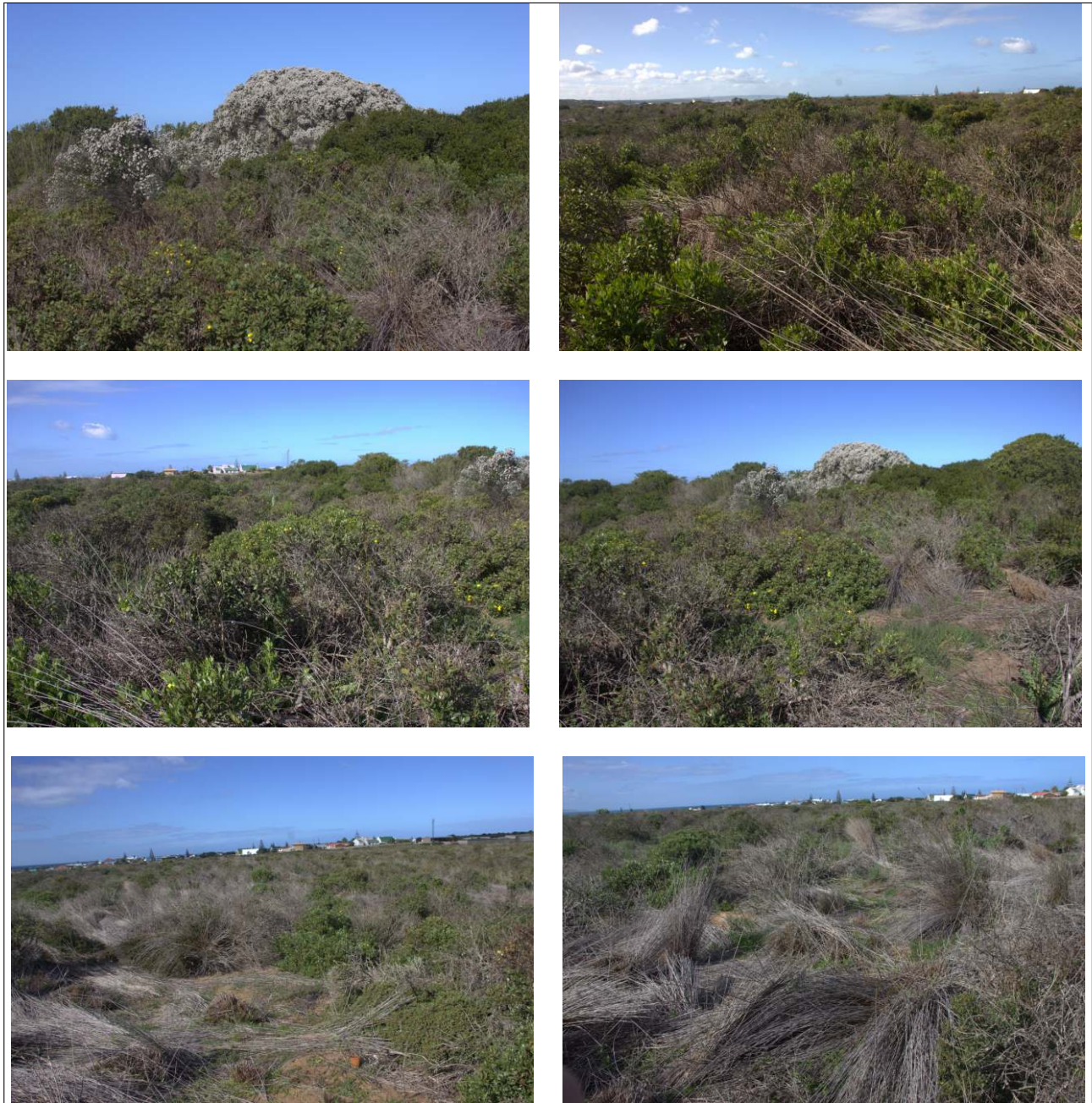


Figure 6: *Osteospermum moniliferum* - *Thamnochortus insignis* Strandveld

Order	Species	Common name	Sensitivity	L.O. *
Aves	<i>Bradypterus sylvaticus</i>	Knysna Warbler	High	Low
Aves	<i>Neotis denhami</i>	Stanley's bustard	High	Low
Aves	<i>Certhilauda brevirostris</i>	Agulhas long-billed lark	High	Low
Aves	<i>Campethera notata</i>	Knysna Wood-pecker	High	Low
Insecta	<i>Thestor claassensi</i>	Claassen's skolly	Medium	Low
Insecta	<i>Aneuryphymus montanus</i>	Yellow-winged Agile Grasshopper	Medium	Low
Insecta	<i>Aloeides thyra orientis</i>	Red Copper	Medium	Low
Insecta	<i>Chrysoritis brooksi tearei</i>	Brook's opal	Medium	Low

/*/ Likelihood of occurrence on site

Table 1: A table showing each of the sensitive animal species identified by the screening tool to potentially occur on site with a likelihood of occurrence (L.O.) rating.

the established Milkwood trees (and Blombos/Bietou) indicated in the botanical study, are located around these trees.

The fragmented section of natural vegetation remaining adjacent to the proposed development site has already lost much of its long-term ecosystem functioning due to its lost connectivity to other areas of natural vegetation surrounding it. Fire is also unlikely to be allowed within this suburban environment due to the potential damage to property.

Although some elements of the original habitat for animal species is present on about 30% of the plot, this habitat is generally suboptimal given its location surrounded by urban developments. Birds and flying insects like butterflies are able to cross many anthropogenic barriers along ecological corridors. It is therefore possible that some members of the identified species of conservation concern can cross into the site area, but is unlikely to nest or remain for long due to its largely transformed nature and in many cases suboptimal in terms of habitat requirements. Refer to Table 1 for a summary of the listed species.

3.3 Discussion and Recommendations

The impact of the proposed development of the Stilbaai Lifestyle Village on sensitive animal species is considered low. The site is considered suboptimal habitat for all of the bird species listed as sensitive to the area, and no evidence of the occurrence of any of the listed invertebrate species, apart from isolated individual plants that may qualify as larval food for the Red Copper were found on site. Most of the site is transformed by regular mowing presumable as a fire break. The remaining 30% is impacted by ad-hoc thatching reed harvesting and relatively species poor.

3.4 Conclusion

Based on a thorough desktop study and three site visits, the impact of the proposed development of the Stilbaai Lifestyle Village on sensitive animal species is considered low.

References

- Brooks, M and Ryan, P (2020). *Southern African Bird Atlas Project 2*. Data collection. Version 1.35. Animal Demography Unit, Department of Zoology, University of Cape Town. eprint: [accessed via GBIF.org on 2020-12-01](https://www.gbif.org/occurrence/2020-12-01).
- Brown, H. D. (1960). 'New grasshoppers (Acridoidea) from the Great Karroo and the South Eastern Cape Province'. *Journal of the entomological Society of Southern Africa* 23.1, pp. 126–143.
- Woodhall, S. (2020). *Field guide to butterflies of South Africa*. Bloomsbury Publishing.



4 Declaration of Independence

I, Dr. Marius L van der Vyver, hereby declare that I

- Act as the independent specialist in this application;
- 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 and that there are no circumstances that may compromise my objectivity in performing such work;

- 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;

- Will comply with the Act, regulations and all other applicable legislation;
- Have no, and will not engage in, conflicting interests in the undertaking of the activity;
- 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.

I further declare that all the particulars furnished by me in this form are true and correct; and acknowledge that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.

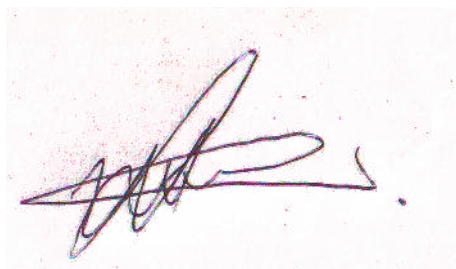
Name of Company

CHEPRI (PTY) LTD SCIENTIFIC SERVICES

Name of Specialist Consultant

DR. ML VAN DER VYVER

Signature of Specialist Consultant



Date

DECEMBER 4, 2020

5 Specialist details

Dr. Marius L. van der Vyver holds a PhD in Botany from Nelson Mandela University and has more than 15 years' experience as an ecologist and botanist. He is registered with the South African Council of Natural Scientific Professions (SACNASP) as an ecological scientist (reg.no. 118303) and a member of the South African Association of Botanists (SAAB).





Table 2: Project experience table: Dr. M.L. van der Vyver

Client	Name	Location	Description	Role	Year
Nelson Mandela University	Associate Researcher – NRM Restoration Research Group	Eastern and Western Cape	Research manager of a restoration team to investigate and promote spekboom restoration with funding from the Department of Environmental Affairs, Forestry and Fisheries' Natural Resource Management (NRM) division.	Project Scientist	2019
BMK consulting engineers	Rehabilitation Management Guidelines: Diepsloot Footbridge construction	Diepsloot, Johannesburg	Guidelines for rehabilitation after construction of a pedestrian footbridge over a wetland, Diepsloot, Gauteng	Restoration Ecologist	2019
Envirobalance (Pty) Ltd	Biodiversity Impact Assessment with specialist Vegetation and Mammal Studies for Calmera Estate, Cradel of Mankind.	Cradle of Mankind, Muldersdrift, Gauteng	Biodiversity Impact Study including a specialist Vegetation (botanical) and Mammal study for assessing the impacts of a low-impact residential development	Biodiversity Scientist	Ongoing
Wild Summit Group, Kamala Game Reserve	Ecological Risk Assessment for the introduction of Red Deer (Cervus elaphus) on Kamala Game Reserve.	Eastern Cape, South Africa	Determine the ecological risk involved with the introduction of a population of Red Deer on Kamala Game Reserve.	Ecological Scientist	2019
Integrated Data Management (IDM) (Pty.) Ltd.	Determining trends in Electricity usage from data provided by Maputo Hospital	Maputo, Mozambique	Statistical analyses of energy usage of electricity monitoring data	Statistical analyst	2018
IDM, Arcellor Mittal	Energy usage analysis from a steel factory, Arcellor Mittal	Port Elizabeth, South Africa	Statistical analyses of energy usage of electricity monitoring data	Statistical analyst	2018

Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
Wild Summit Group, Kamala Game Reserve	Ecological Risk Assessment for the maintenance of an existing population of Barbary Sheep on Kamala Game Reserve.	Eastern Cape, South Africa	Determine the ecological risk involved with the maintenance of an existing population of Barbary sheep on Kamala Game Reserve.	Ecological Scientist	2018
Resilience Environmental Advice, Enviro-mining, Suralco LCC	Monitoring system for the Revegetation Index – Suralco LCC Mine Closure Project.	Surinam, South America	Develop a monitoring system for the rehabilitation and revegetation of ferro-bauxite mines, based on the inputs of various Biodiversity specialists.	Restoration ecologist, Statistical analyst	2018
CSIR	Biomass estimation of subtropical thicket vegetation in Addo Elephant National Park for calibration with LiDAR and radiometric sensor data.	Addo Elephant National Park, Eastern Cape.	Biomass estimation of aboveground vegetation across Addo Elephant National Park for calibration with LiDAR and radiometric sensor data	Botanical specialist, Statistical analyst	2018
African Centre of Coastal Paleosciences, NMU	Vegetation community identification and plant species list for phytolith research on specific extant vegetation types in the Garden Route and Klein Karoo area	Southern Cape including Garden Route and Little Karoo	Botanical input to a post-doc researching phytolith composition in relation to extant vegetation types.	Botanical specialist	2018
Bothalia (academic journal)	Peer-review of a research paper on restoration ecology for publication in the academic journal Bothalia	NA	Peer-review of a research paper on restoration ecology for publication in the academic journal Bothalia	Restoration ecologist	2018

Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
Rhodes University	Develop allometric models for estimating Biomass of Honeybush tea plants	NA	Specialist assistance to develop allometric models from commercially planted and wild honeybush plants sampled	Statistical analyst	2017
C4ES (Pty) Ltd	Statistical analysis and R code development for applying boundary line analysis to various soil datasets	NA	Develop new and debug existing R code to implement the boundary line analysis method and quantile regression to various soil datasets	Statistical analyst	2017
Envirobalance (Pty) Ltd	Biodiversity Screening Report for a proposed township development, Dunottar, Gauteng	Dunottar, Gauteng	Biodiversity impact screening report on a closed-down gold mine site.	Biodiversity scientist	2017
KDS Consortium (Pty) Ltd	Biodiversity Screening Report for a proposed township development, Tshivhazwaulu Extension 1	Makhado area, Limpopo	Biodiversity impact screening report for township development	Biodiversity scientist	2017
Envirobalance (Pty) Ltd	Wetland delineation for Calmera Estate, Cradle of Mankind.	Cradle of Mankind, Mulders-drift, Gauteng	Wetland delineation for a proposed Basic Assessment for a housing development	Wetland specialist	2017
Journal of Applied Ecology (academic journal)	Peer-review of a research paper on restoration ecology for publication in the academic Journal of Applied Ecology	NA	Peer-review of a research paper on restoration ecology for publication in the academic Journal of Applied Ecology	Restoration ecologist	2017



Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
Arid Land Research and Management (academic journal)	Peer-review of a research paper on restoration ecology for publication in the academic Journal of Arid Land Research and Management	NA	Peer-review of a research paper on restoration ecology for publication in the academic Journal of Arid Land Research and Management	Restoration ecologist	2016
Sigwela and Associates (Pty) Ltd / DEA (National Resource Management Programmes)	Restoration of Forest Vegetation in Matiwane, near Port St. Johns, Eastern Cape	Port St. Johns area, Eastern Cape.	Monitoring of ongoing forest restoration project and establish research sites to ascertain the feasibility of different clearing protocols and treatments for the restoration of grassland habitat after alien plant clearing by WfW teams.	Restoration ecologist	2016
PeerJ (academic journal)	Peer-review of a research paper on restoration ecology for publication in the academic journal PeerJ	NA	Peer-review of a research paper on restoration ecology for publication in the academic journal PeerJ	Restoration ecologist	2015
Forests, Trees and Livelihoods (academic Journal)	Peer-review of a research paper on restoration ecology for publication in the academic journal Forests, Trees and Livelihoods	NA	Peer-review of a research paper on restoration ecology for publication in the academic journal Forests, Trees and Livelihoods	Botanical specialist	2014
Gamtoos Irrigation Board	Develop allometric models for biomass estimation of 5 major alien invasive plants in the Nelson Mandela Metropolitan area.	Port Elizabeth	Develop allometric models by destructively harvesting a number of prominent Invasive Alien Plant Species	Botanical specialist, Statistical analyst	2013-2014

Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
USK Consulting (Pty) Ltd	Ecological Impact Assessment for the proposed Swartwater Solar Energy Facility, Northern Cape	Swartwater, Northern Cape	Botanical and Fauna specialist study	Biodiversity scientist	2013
USK Consulting (Pty) Ltd	Ecological Impact Assessment for the proposed Wesley Wind Energy Facility, Eastern Cape	Wesley, Eastern Cape	Biodiversity (Flora and Fauna) impact specialist study of a proposed Wind Energy Project	Biodiversity scientist	2012
Envirobalance (Pty) Ltd	Ecological Impact Assessment for the proposed Albert Luthuli (Badplaas) Landfill Site	Badplaas, Mpumalanga	Biodiversity (Flora and Fauna) impact specialist study for a proposed landfill site	Biodiversity scientist	2012
Envirobalance (Pty) Ltd	Ecological Screening Report – Kuruman Housing Development and Wastewater Treatment Works	Kuruman, Northern Cape	Biodiversity (Flora and Fauna) screening study for a proposed landfill site	Biodiversity scientist	2012
USK Consulting (Pty) Ltd	Air Quality monitoring at East London Port Harbour	East London, Eastern Cape	Procure, install maintain and manage air quality monitoring instruments and weather stations and analyse data	Environmental scientist	2010-2011
NMU Restoration Research Group	Active restoration of woody canopy dominants in degraded south african semi-arid thicket is neither ecologically nor economically feasible	Krompoort, Rhinosterhoek, Eastern Cape	Experiment with planting nursery-grown propagules in spekboom restoration stands of different ages. Analysis and reporting on the ecological and economic implications of results. Publish results in Journal of Applied Vegetation Science.	Restoration ecologist	2011-2012



Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
NMU Restoration Research Group, DEA	Spontaneous return of biodiversity in restored subtropical thicket: <i>Portulacaria afra</i> as an ecosystem engineer.	Krompoort, Rhinosterhoek, Eastern Cape	Survey plant biodiversity and above and belowground carbon pools in different stands ranging from 0-50 years under spekboom restoration treatment and intact stands, and compare results to gauge restoration success in terms of biodiversity. Publish results in the journal <i>Restoration Ecology</i> .	Restoration ecologist	2011-2012
USK Consulting (Pty) Ltd / BCM	Water quality monitoring at Roundhill municipal landfill site in Buffalo City Municipality	East London, Eastern Cape	Water sampling from various locations around and inside the municipal landfill site and lab analysis interpretation and reporting against norms and allowable limits.	Environmental scientist	2010-2011
DEA (National Resource Management Programmes), NMU	Habitat and herbivory impact efficient ecological restoration of spekboom (<i>Portulacaria afra</i>)-rich subtropical thicket.	Various locations within the Southern and Eastern Cape	Assessment of local environmental and management factors affecting spekboom restoration efficacy on 275 experimental restoration plots on a biome-wide scale (Thicket-wide Plot Experiment)	Restoration ecologist, Statistical analyst	2011-2017
DEA (National Resource Management Programmes), NMU	Plant larger truncheons deeper: more effective spekboom (<i>Portulacaria afra</i>) thicket restoration protocol.	Various locations within the Southern and Eastern Cape	Assessment of various propagule treatments and planting protocols affecting spekboom restoration efficacy on 275 experimental restoration plots on a biome-wide scale (Thicket-wide Plot Experiment)	Restoration ecologist, Statistical analyst	2011-2017

Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
DEA (National Resource Management Programmes), NMU	Contrasted aboveground carbon pool estimations of intact and degraded (Portulacaria afra)-rich subtropical thicket show terrestrial carbon offset potential.	Various locations within the Southern and Eastern Cape	I developed 40 different species-specific allometric models for estimating aboveground biomass of subtropical thicket vegetation	Botanical specialist, Statistical analyst	2011-2017
C4ES (academic journal) / PrimaKlima (academic journal)	Monitoring of aboveground carbon pools on rehabilitated spekboomveld for three sites in the Eastern Cape.	Kaboega, Klipplaat, Jansenville and Uitenhage areas, Eastern Cape	Monitor and quantify aboveground carbon of spekboom restoration plots as terrestrial carbon offsets	Restoration ecologist	2011-2014
USK Consulting (Pty) Ltd	Strategic Environmental Assessment (SEA) for Mquma Municipality, Eastern Cape.	Mquma Municipality, Transkei, Eastern Cape	I was responsible for the biodiversity (Fauna and Flora) component including extensive mapping and verification/ground-truthing of areas delineated by the Eastern Cape Biodiversity Plan. I managed the GIS component of the project.	Biodiversity scientist and GIS analyst	2011
Envirobalance (Pty) Ltd	Weltevreden Park Wetland Delineation Study, Centurion.	Weltevreden Park, Gauteng	Wetland delineation and map for a BA for proposed housing development	Wetland specialist	2011



Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
USK Consulting (Pty) Ltd / Afrisam	Biodiversity Management Plan for Afrisam Dudfield Mine, Lichtenburg	Lichtenburg, North West	A biodiversity management plan including a vegetation map an alien plant control plan and an ecological management plan of a small protected area adjacent to the mining area with plant checklist, botanical baseline, veld condition assessment, game and stocking rate recommendation	Biodiversity scientist	2010
Envirobalance (Pty) Ltd	Vegetation Screening Report: Kuruman Housing development and Wastewater treatment works	Kuruman, Northern Cape	Botanical screening study for a proposed landfill site	Botanical specialist	2010
Envirobalance (Pty) Ltd	Ecological Impact Assessment: Ga-Oria to Tsate road – Sekhukhuneland, Limpopo	Steelpoort area, Mpumalanga	Biodiversity (Flora and Fauna) impact study for a proposed road.	Biodiversity scientist	2010
Envirobalance (Pty) Ltd	Karino Wetland Rehabilitation and Management Plan.	Nelspruit, Mpumalanga	Wetland delineation and rehabilitation plan	Wetland specialist	2010
USK Consulting (Pty) Ltd	Ecological Screening for Tsolo Junction Development, Eastern Cape	Tsolo, Transkei, Eastern Cape	Biodiversity (Flora and Fauna) screening study for a proposed road	Biodiversity specialist	2010
USK Consulting (Pty) Ltd	A number of Basic Assessments Reports	East London Area, Eastern Cape	Standard Basic Assessments and various inputs to EIA reports.	Environmental consultant	2009-2011



Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
USK Consulting (Pty) Ltd	Ecological screening report - Riverland Orchard Farm 799/37 Gonubie	Gonubie, Eastern Cape	Biodiversity (Flora and Fauna) screening study for a proposed agricultural clearing	Botanical specialist	2008
Savannah Environmental (Pty) Ltd / Eskom	Scoping report: Ankerlig Power Station Conversion and transmission integration project, Western Cape.	Mossel Bay LM	I co-authored the scoping report and made two site visits and attended public meetings.	Environmental consultant	2008
Savannah Environmental (Pty) Ltd / Eskom	Environmental Management Plan for Ingula Transmission line	Ingula, Ladysmith area, KwaZulu Natal	I developed an environmental management plan for the construction of a large transmission line across sensitive ecological communities in the KwaZulu Natal midlands.	Environmental scientist	2008
Savannah Environmental (Pty) Ltd / Eskom	Environmental Impact Assessment for building water infrastructure at Medupi Power Plant	Medupi, Limpopo Province	EIA and scoping for a proposed water infrastructure including extensive pipelines and reservoirs	Environmental consultant	2008
Savannah Environmental (Pty) Ltd / Eskom	Environmental Compliance Officer (ECO) for construction of pipeline for disposal of waste water and ash at Duvha Power Station, Witbank	Witbank, Mpumalanga	Environmental compliance project auditing the construction activities of a pipeline for the disposal of waste water and ash at Duvha Power Station, Witbank.	Environmental Compliance Officer	2008
Savannah Environmental (Pty) Ltd / DWAF	On-site ECO for construction of the De Hoop Dam and realignment of the provincial road	Steelpoort area, Mpumalanga	Independent Environmental Compliance Monitoring of a large dam construction project (DWAF) and an associated project involving the consequent realignment of the provincial road	Environmental Compliance Officer	2007-2008



Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
Pidwa Conservation Projects (Pty) Ltd	Research and Monitoring support to Pidwa Reserve Management, part of the Greater Makalali Conservation Area, with paying volunteers.	Greater Makalali Conservation Area near Gravelotte, Limpopo	Research and monitoring within a large big-5 game reserve, specifically in terms of Elephant impacts on vegetation, leopard population and home range study, game monitoring and census, alien plant control, predation preferences of lions and management of international paying volunteers and post graduate students	Project and research manager	2006-2007
Siyafunda Conservation Projects (Pty) Ltd	Research and Monitoring support to Makalali Reserve Management, part of the Greater Makalali Conservation Area, with paying volunteers.	Greater Makalali Conservation Area near Hoedspruit, Limpopo	Research and monitoring within a large big-5 game reserve, specifically elephant group behaviour with regards to the reserve immuno-contraception program, predation preferences of predators on reserve, hyaena monitoring and home range calculations, elephant impacts on vegetation, leopard population and home range study, game monitoring and census, alien plant control and management of international paying volunteers and post graduate students	Volunteer facilitator, Monitoring officer	2004-2006
Tshwane University of Technology	Botanical surveys, vegetation condition assessments and game stocking recommendation on tribal lands in view of the potential establishment of a reserve.	Greater Giyani region, Limpopo	Botanical surveys, vegetation condition assessments and game stocking recommendation on tribal lands in view of the potential establishment of a reserve (3-month contract).	Botanical specialist	2004



Table 2: Project experience table: Dr. M.L. van der Vyver (*continued*)

Client	Name	Location	Description	Role	Year
Cambridge University, Kalahari Meerkat Project	International research station on small reserve focussed mostly on the behavioural ecology of Meerkats.	Kuruman River Reserve, Van Zylsrus, Northern Cape	Reserve management and research technician	Research technician, Reserve infrastructure manager.	2003-2004
SANParks	Field ranger	Kgalagadi Transfronter Park	Reserve management duty, 4x4 trail guide, field guide	Field ranger, Field guide, 4x4 trail guide	2003