Erf 4784 - Stilbaai Lifestyle Village: Terrestrial Biodiversity Compliance Statement

CHEPRI (PTY) LTD

November 25, 2020

Contents

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 a section of the proposed development area as of very high relative terrestrial biodiversity importance. This document serves as a Terrestrial Biodiversity Compliance Statement in the light of this 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 and habitat attributes of the site.

2 Study area

2.1 National Vegetation Map and Hessequa Biodiversity Spatial Plan

The National Vegetation Map (updated 2019) delineates the area as Hartenbos Dune Thicket (see Figure 1 which is designated as Least Threatened (LT). The Hessequa Municipal Biodiversity Spatial Plan (2016) (see Figure 2 delineates the area with higher resolution. The development footprint falls here within an intersection of three distinct vegetation types, namely Albertinia Sand Fynbos (VU), Canca Limestone Fynbos (LT) and Southern Cape Valley Thicket (LT), one of which is classified as Vulnerable (VU) (see Figure 3). This and the designation of an aquatic biodiversity corridor by the Hessequa BSP, which is refuted here, are the likely reasons the area is flagged by the screening tool as of Very High Terrestrial Biodiversity Importance.

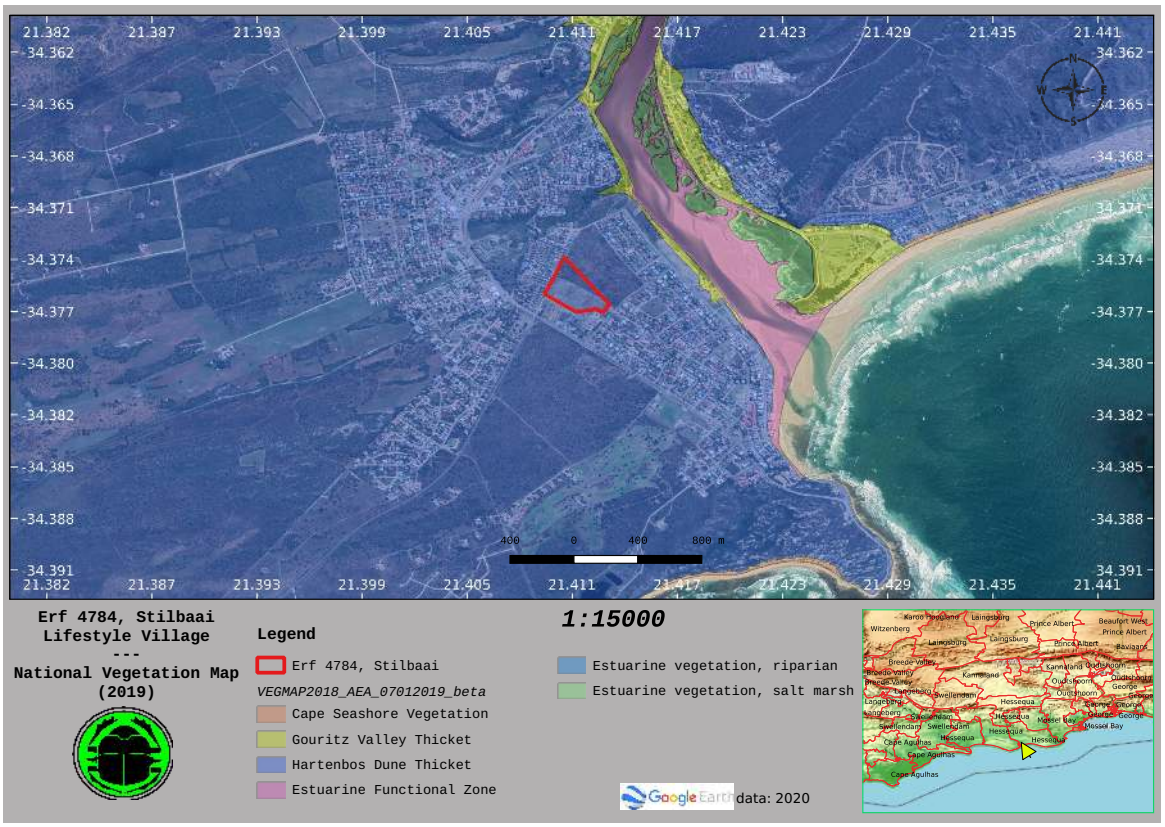

Figure 1: National Vegetation Map (updated 2019) delineation of Erf 4874, Stilbaai and surroundings.

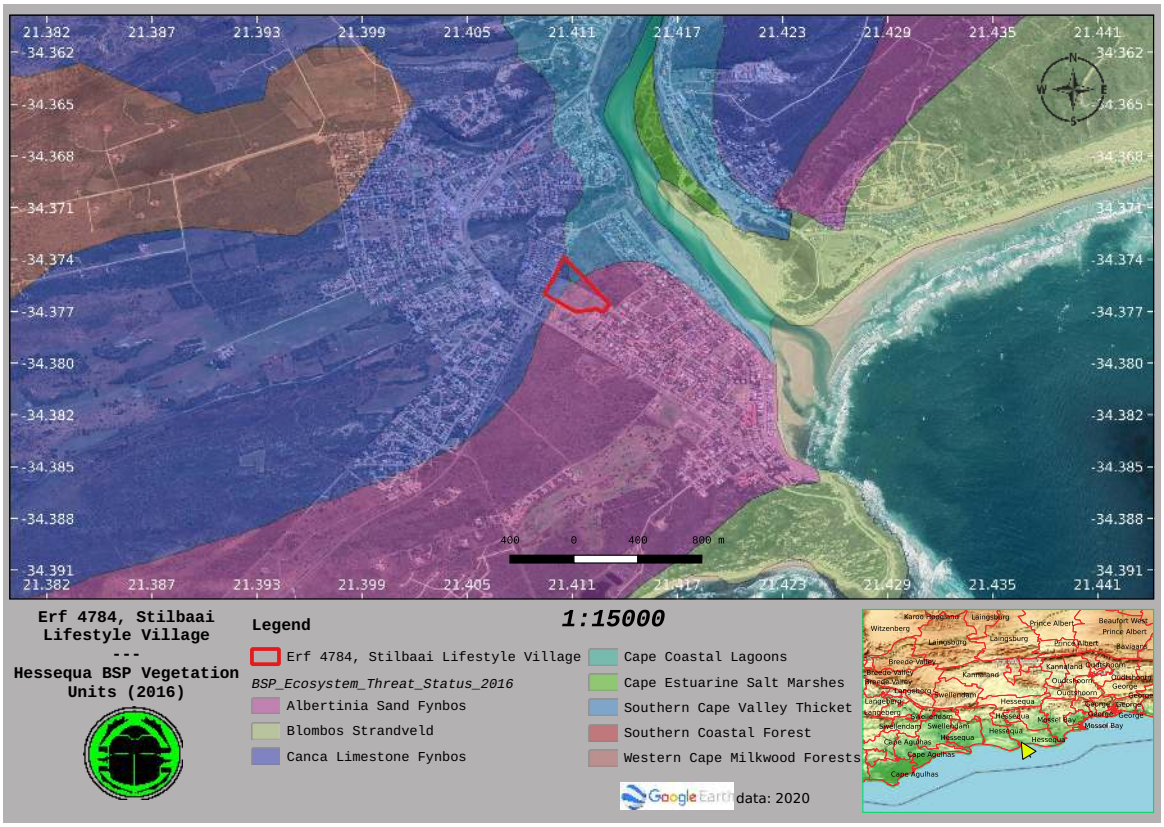

Figure 2: The higher resolution Hessequa Biodiversity Spatial Plan delineation of Erf 4874, Stilbaai and surroundings.

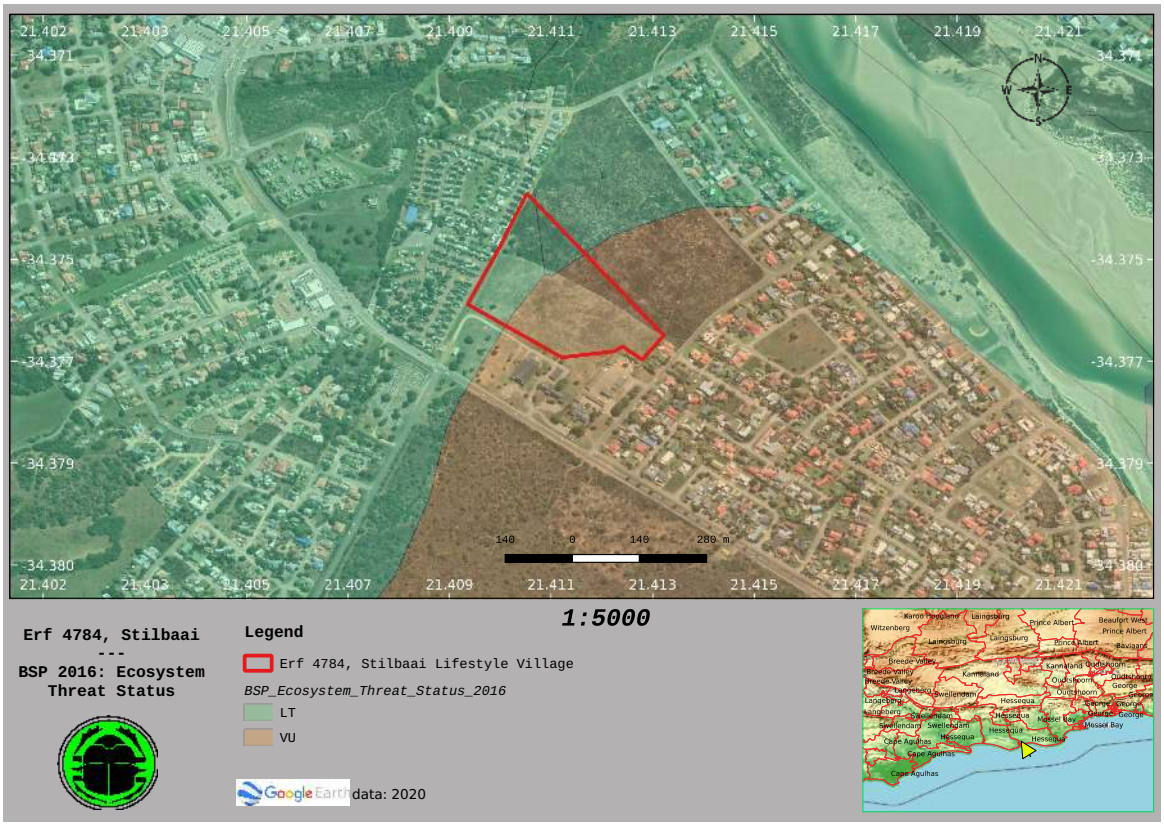

Figure 3: Hessequa Ecosystem Threat Status of Erf 4874, Stilbaai and surroundings.

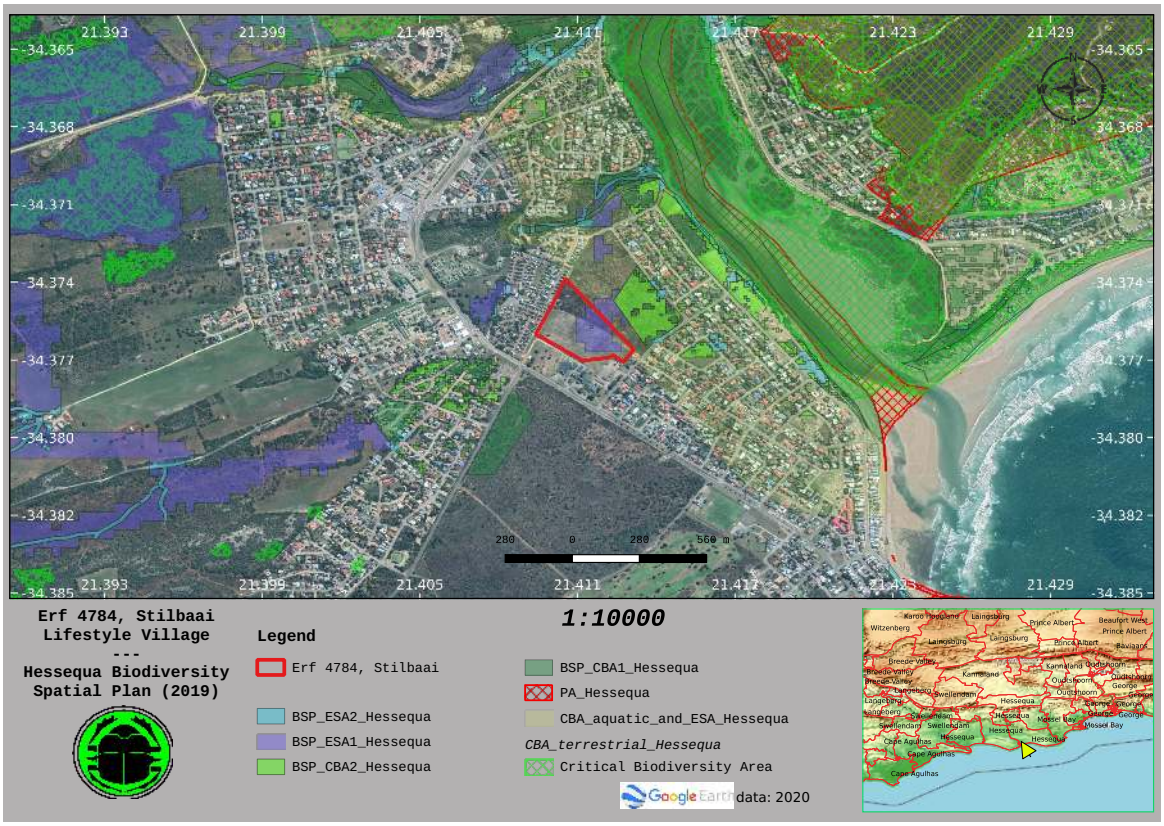

Figure 4: Hessequa Biodiversity Spatial Plan's Critical Biodiversity Area (CBA) delineation of Erf 4874, Stilbaai and surroundings.

3 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). The initial site inspection was conducted in Winter time (July) and for the purposes of a terrestrial biodiversity assessment in this specific area, the effect of seasonal variation on the results reported here is negligable. Another three shorter site visits were conducted on 21 and 22 November 2020 (Summer), each of about an hour duration, one in the early morning at first light, the other two in the afternoon. During the second visit the findings of the first visit were confirmed and additional investigations into fauna biodiversity features were conducted.

Recent Google Earth^{TM} imagery were used to delineate the communities found on site and identify species of concservation concern (SOCC). The Hessequa Biodiversity Spatial Plan (2016) as well as the National Vegetation Map (Mucina et al., 2018) and the Western Cape biodiversity spatial plan handbook (Pool-Stanvliet et al., 2017) were extensively consulted, along with relevant field guides. Natural areas were identified from the Google Earth images and possible ecologic al corridors identified. All identified features were then ground-truthed during the site inspection. The area was investigated by walking around and identifying all plant (and fauna) species and noting all observed distubances that impact on the site. Photographs were taken where relevant and a GPS device were used to mark SOCCs.

4 Results

4.1 Site description

The botanical impact study gives a detailed description of the vegetation communities on site. Please refer to that study for the vegetation delienation (Figure 7 in that report) and photographs of the site and of the

vegetation communities described below (Figures 10 and 11 in that report).

4.1.1 *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.

4.1.2 *Osteospermun moniliferum - Thamnochortus insignis* Strandveld

The vegetation is dominated by Bietou (*Osteospermum moniliferum*) and Albertinia Thatching Grass (*Thamnochortus insignis*, 'Dekriet' in Afrikaans), and slighty 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 *Osteospermun moniliferum - Thamnochortus insignis* Strandveld.

4.2 Hessequa BSP (2016) ESA1 and ESA2 designations

The Hessequa Biodiversity Spatial Plan (BSP) has a section designated as ESA1 (Ecological Support Area) that crosses into the site and a very small ESA2 area delineated for the site area (Figure 4). The ESA areas are described as not essential for meeting biodiversity targets, but play an important role in supporting the

Figure 6: *Osteospermun moniliferum - Thamnochortus insignis* Strandveld

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functioning of PAs or CBAs, and are often vital for delivering ecosystem services. The management objectives of ESA1 areas entail maintenance in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised. The management objectives of an ESA2 area are to restore and/or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement. In this case both the ESA designations (1 and 2) identifies this area as a watercourse feature, which we refute. See the Aquatic specialists' compliance statement as support for this refutation. It is possible that in the past a temporary wetland established in the designated area (Figure 4) but currently there are no signs of it.

4.3 Hessequa BSP Ecosystem Threat Status

Figure 2 and Figure 3 show the designation of two vegetation types as vulnerable.

4.3.1 Albertina Sand Fynbos (VU)

The existing intact vegetation (a patch of approximately 22130 m^2) resembles mostly that described as Albertinia Sand Fynbos (Mucina et al., 2018), while the area designated as Vulnerable (VU) is not larger than The vegetation on site is devoid of endemic (and other) proteoid taxa, and apart from the identified remaining Milkwood trees (*Sideroxylon inerme*) as well as the other plant species of conservation concern identified by the screening tool and Mucina et al. (2018). The vegetation on site is dominated by Bietou and Thatching Reed (*Thamnochorthus* spp.) species and likely kept in this state (i.e. sedge-dominated fynbos instead of proteoid fynbos) by the ad-hoc thatch harvesting activities on the site.

4.3.2 Southern Cape Valley Thicket (LT)

The North-western corner of the intact patch of vegetation reveal some thicket elements, mainly in the form of Milkwood trees. This patch is small ($< 1800m^2$) and relatively transformed. This patch is too small to qualify as intact Southern Cape Valley Thicket as a seperate vegetation unit, and the thicket elements are common to thicket elements present in Albertinia Sand Fynbos as described by Mucina et al. (2018).

4.4 Proposed development impact on terrestrial biodiversity features

The proposed development will have a low impact on any significant biodiversity features. 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 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.

4.5 Ecosystem processes and corridors

The remaining intact vegetation section present on site is part of a larger adjacent intact area of circa 121 105 m^2 in size. This larger area is however part of an ecological corridor that extends to the river to the north of the site and intersected by a road. It is unlikely that fire, a necessary process in the maintenance of fynbos ecosystems, will be allowed to significantly affect this larger section of natural vegetation as more than 90% of its borders are occupied by urban development and the local Municipal Offices (South-western boundary). It

is clear that the current area is used for harvesting thatching reed on an ad-hoc basis, and thus the fynbos is maintained as a sedge-dominated fynbos vegetation type.

The Municipal offices on the south-western boundary of the site, and the relatively busy main road on its southern boundary have already interrupted the potential of the site as an ecological corridor to the larger section of natural vegetation to the south of the local municipality buildings. The small section of natural vegetation present on site is thus the southern tip of a relatively isolated natural vegetation fragment surrounded by urban development.

4.6 Discussion and Recommendations

The impact of the proposed development of the Stilbaai Lifestyle Village on sensitive Terrestrial Biodiversity features is considered low. The Botanical Impact Study identified some mitigation measures, such as either planning around existing milkwood trees, which were the only plant species of conservation concern identified on site or replacing them with seedlings where this is not possible.

Since the proposed development will likely transform 90% or more of the development footprint, there are no additional mitigation measures to mitigate for the loss of some of the terrestrial biodiversity features identified here.

4.7 Conclusion

Based on a thorough desktop study and site inspection, the impact of the proposed development of the Stilbaai Lifestyle Village on sensitive Terrestrial Biodiversity features is considered low. The remaining patch of natural vegetation on the north-eastern side of the proposed site is part of a slightly larger and relatively isolated fragment, more than 90% surrounded by urban development and cut off from adjacent natural areas by roads and urban development. Apart from the milkwood trees that were identified as the only species of conservation concern present and the related mitigation measures suggested by the Botanical Impact Study, no other SOCCs were detected and no additional mitigation measures are recommended.

References

Mucina, L., M. Rutherford, and L. Powrie, eds. (2018). *The Vegetation Map of South Africa, Lesotho and Swaziland*. South African National Biodiversity Institute.

Pool-Stanvliet, R., A. Duffell-Canham, G. Pence, and R. Smart (2017). 'The Western Cape biodiversity spatial plan handbook'. *Stellenbosch: CapeNature*.

5 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.

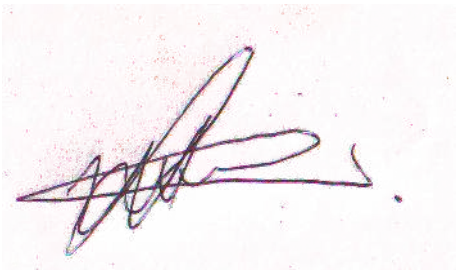
Name of Company

CHEPRI (PTY) LTD SCIENTIFIC SERVICES

Name of Specialist Consultant

DR. ML VAN DER VYVER

Signature of Specialist Consultant



Date

NOVEMBER 25, 2020

6 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 1: 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 Resoiuorce Management (NRM) division.	Project Scientist	2019
BMK consulting engineers	Rehabilitation Management Guidelines: Diepsloot Footbridge construction	Diepsloot, Johannes-burg	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, Mulders-drift, 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 1: 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 1: 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	Dunnottar, 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 1: 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 1: 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, Mpumulanga	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 diffent 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 1: 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: Portulacaria afra as an ecosystem engineer.	Krompoort, Rhinoster-hoek, 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 Restoration Ecology.	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 (Portulacaria afra)-rich subtropical thicket.	Various locations within the Southern and Eastern Cape	Assessment of local environmental and management factors affecting spekbooom 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 (Portulacaria afra) thicket restoration protocol.	Various locations within the Southern and Eastern Cape	Assessment of various propagule treatments and planting protocols affecting spekbooom restoration efficacy on 275 experimental restoration plots on a biome-wide scale (Thicket-wide Plot Experiment)	Restoration ecologist, Statistical analyst	2011-2017

Table 1: 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 abovegroound 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 Mnquma Municipality, Eastern Cape.	Mnquma Municipality, Transkei, Eastern Cape	I was responible 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 1: 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, Mpumu-langa	Biodiversity (Flora and Fauna) impact study for a proposed road.	Biodiversity scientist	2010
Envirobalance (Pty) Ltd	Karino Wetland Rehabilitation and Management Plan.	Nelspruit, Mpumu-langa	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 1: 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 ecologal 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, Mpumu-langa	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, Mpumu-langa	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 1: 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 1: 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 Transfrontier Park	Reserve management duty, 4x4 trail guide, field guide	Field ranger, Field guide, 4x4 trail guide	2003