

**Botanical Sensitivity Analyses
for portions 66 & 67 of erf 443
of Plettenberg Bay.**

This report was prepared during December 2020 by:

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EXECUTIVE SUMMARY

I cannot find any reason why the currently proposed layout plan for the proposed development on these two properties (please see Appendage 2) should not be supported.

INTRODUCTION

The landowner of portions 66 and 67 of erf 443 of Plettenberg Bay wishes to redevelop the properties and a botanical sensitivity analysis is required for the natural vegetation remaining on the properties to guide the proposed new development.

Regalis Environmental Services CC was appointed as an independent consultant (see Appendix 1) to do a botanical sensitivity analysis of the property. The terms of reference for this assignment was to:

1. Evaluate the property regarding its environmental sensitivity for future potential development.
2. Prepare a map to indicate its botanical sensitivity at three levels; no-go area, moderately sensitive and not sensitive.
3. Prepare a document in which motivation is provided for the classification and mapping of the above three categories, in which the status of the affected vegetation types, occurrence of threatened plant species and the current Critical Biodiversity and Ecological Support Area maps are duly considered.

The location of the properties in Plettenberg Bay is indicated on Map 1.

Plett 66&67/443



Map 1: The boundaries of the properties are indicated in red.

Jan Vlok of RES surveyed the properties in November 2020 and the results of my field study and recommendations are provided here.

METHODOLOGY AND UNCERTAINTY REGARDING STUDY RESULTS

The national status of the affected vegetation type was determined by means of consulting Mucina *et al* (2006) and updates thereof [South African National Biodiversity Institute (2006-2019). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Online, <http://bgis.sanbi.org/Projects/Detail/186>, Version 2018]. The regional conservation value of the affected vegetation was determined by means of consulting the fine-scale conservation plan for the region by Pence (2017) [and updates thereof on Elsenburg's Cape Farm Mapper program].

The property was surveyed on foot to determine the ecological condition of the affected area and to establish if any rare or endangered plant species (*sensu* Raimondo *et al*, 2009 and updates thereof in www.sanbi.redlist) are, or may be present on the properties. Most of the vegetation on the properties burned in the 2018 fire, but recovered well enough to identify all the plant species present, including fire ephemerals. A thorough search was done for rare and threatened species known to occur on the general area (e.g. *Disa hallackii*, etc.). It is highly unlikely that any additional surveys will add to the species listed in this report.

I am thus confident that the methodology followed for a botanical sensitivity analyses complies with:

1. Appendix 6 of the 2014 National Environmental Management Act, 1998 (No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations (and as amended), detailing the requirements for specialist's reports; and,
2. The principals outlined in the *Guideline for Biodiversity Specialists* (WC: DEA&DP, 2005) and those of the *Western Cape Biodiversity Spatial Plan Handbook* (Pool-Stanvliet et al, 2017).

STUDY RESULTS

Following the national vegetation map the proposed development area consists of Goukamma Dune Thicket (status = Least Concerned) and a narrow strip of Garden Route Shale Fynbos (status = Vulnerable), see Map 2. The inclusion of Garden Route Shale Fynbos is, however, a mapping mistake due to the coarse scale of the national vegetation types. None of the species that are present on the properties are typical of Garden Route Shale Fynbos.

About half the extent of the properties was mapped as terrestrial Ecological Support Area in the 2017 regional conservation plan (see Map 3).



Map 2: National vegetation types on the property.



Map 3: Regional conservation plan for the affected area (from Pence; 2017).

The vegetation on the property is not in a healthy ecological condition and relatively poor in phytodiversity. The construction of the current infrastructure disturbed a major part of the affected area (See Photo 1). There is clear evidence that a major effort was made to combat alien plant species (mostly *Acacia cyclops*), but these plants returned in very dense stands over most of the property after the recent fire (See Photo 2).

The species recorded on the properties are typical of Goukamma Dune Thicket in being a mix of Thicket clumps in a Fynbos matrix. A total of 52 indigenous species were recorded and they are as follows:

Trees: *Apodytes dimidiata*, *Colpoon compressum*, *Euclea racemosa*, *Gymnosporia buxifolia*, *Searsia crenata*, *A. glauca*, *Hippobromus pauciflorus*, *Mystrozylon aethiopicum*, *Syderoxylon inerme* and *Tarchonanthus littoralis*.

Shrubs and herbs: *Agathosma apiculata*, *Anthospermum aethiopicum*, *Arctotis pinnatifida*, *Chaenostoma campanulatum*, *Grewia occidentalis*, *Helichrysum cymosum*, *H. teretifolium*, *Limoneum scabrum*, *Metalasia muricata*, *Osteospermum moniliferum*, *Passerina vulgaris*, *Pelargonium capitatum*, *Pharnaceum thunbergii*, *Polygala myrtillifolia*, *Salvia africana-lutea*, *Senecio elegans* *Tetragonia fruticosa* and *Zaluzianskya capensis*.

Creepers: *Asparagus aethiopicus*, *Cissampelos capensis*, *Cynanchum ellipticum*, *C. obtusifolium*, *Rhoicissus tridentata* and *Solanum africanum*.

Graminoids: *Cynodon dactylon*, *Cyperus ustitatus*, *Ehrharta villosa*, *Ficinia arenicola*, *F. oligantha*, *F. ramosissima*, *Hellmuthia membracacea*, *Imperata cylindrica*, *Melica racemosa*, *Pentameris pallida*, *Restio eleocharis* and *Stipagrostis zeyheri*.

Geophytes: *Anemone vesicatoria*, *Chasmanthe aethiopica* and *Cyanella lutea*.

Succulents: *Carpabrotus edulis*, *Crassula expansa* and *Mesembryanthemum crystallinum*.

No rare or threatened species were found or are suspected to occur on the proposed development site.



Photo 1: Disturbed vegetation in the vicinity of the existing infrastructure on the eastern side of the properties.



Photo 2: Dense regrowth of alien vegetation (*Acacia cyclops*) on the western part of the properties. Very few indigenous species were found in this dense stand of alien plants as it is the second rotation of dense infestation.

CONCLUSIONS AND RECOMMENDATIONS

Regarding the local and regional botanical conservation value and sensitivity of the affected vegetation on the properties my general findings are as follows:

1. The vegetation on the properties is not a threatened national vegetation type (Goukamma Dune Thicket; status = Least Concerned).
2. About half of the properties has been identified as an Ecological Support Area (ESA1), but the affected dune system has lost most of its ecological value.
3. The affected area is not very rich in indigenous plant species (52 species were found), as most of the vegetation has either been disturbed with the construction of current infrastructure and/or dense invasion by alien plants (mostly *Acacia cyclops*).
4. No rare or threatened species were found (or are suspected to occur) on the properties.
5. I did not find any sensitive area on the properties, but the strip of vegetation between the properties and the beach consists of a very sensitive primary dune system.

Regarding important ecological processes operating in the general area and potential ecological corridor value of the affected vegetation, my findings are as follows:

1. The terrestrial vegetation along the dune system east of the wetland is highly fragmented due to high density development on most of the properties. This dune system can hence no longer act as an important ecological corridor.
2. There are no known ecological processes acting between the wetland west of the properties and the beach east of the properties.
3. Although the vegetation is periodically exposed to fire, the development on this property will not negatively affect the natural spread of fire which the nearby wetland requires periodically.
4. I hence believe that additional development on the properties will not have a negative impact on any important ecological processes operating in the general area.

I cannot find any reason why the currently proposed layout plan for the proposed development on these two properties (please see Appendage 2) should not be supported. Important issues that should be considered in a future more comprehensive impact assessment are;

1. Permission must be attained from the relevant authority (DAFF) to remove any of the specially protected Milkwood trees (*Sideroxynon inerme*) that still occur on the properties, even though they are small due to the recent fire.
2. The primary dune system east of the properties should not be disturbed during the construction or operational phases of the development. If access will be allowed to the beach, then a board walk system will have to be constructed to minimize disturbance of this sensitive area.

REFERENCES

Mucina, L., Rutherford, M.C. and Powrie, L.W. (eds.), 2006. Vegetation Map of South Africa, Lesotho and Swaziland. 1:1 000 000 scale sheet maps. SANBI, Pretoria.

Pence, G.Q.K., 2017. Western Cape Biodiversity Framework 2017. Status Update: Critical Biodiversity Areas of the Western Cape. Unpublished CapeNature report.

Pool-Stanvliet, R., Duffel-Canham, A., Pence, G. & Smart, R. 2017. Western Cape Biodiversity Spatial Plan Handbook. Stellenbosch, CapeNature.

Raimondo, D., Von Staden, L., Foden, W., Victor, J.E., Helme, N.A., Turner, R.C.,

Kamundi, D.A. & Manyama, P.A., 2009. Red List of South African plants.

Strelitzia 25, SANBI, Pretoria.

CURRICULUM VITAE

Johannes Hendrik Jacobus Vlok

Biographical Information

Birth: 6th December 1957, Calvinia, South Africa.

Identity Number: 571206 5133 089

Criminal Record: None.

Married to Anne Lise Schutte-Vlok and we have one daughter, Marianne Helena Vlok.

Education

1975 Matriculated at Bellville High School.

1982 Diploma in Forestry, Saasveld Forestry College.

1997 MSc (*Cum Laude*), University of Natal.

Employment

1982-1990. Department of Forestry (later Water Affairs, Forestry and Environmental Affairs), as research technician.

1990-1997. Cape Nature Conservation, as regional botanist.

1997-present. Self employed as environmental advisor (Regalis Environmental Services).

Research Output

One book and more than 30 scientific and popular articles published in international & national journals as primary or as co-author. Delivered three keynote and >20 other verbal papers at scientific forums on ecological and floristic studies. Delivered >300 presentations to civil society in public meetings and *via* other media (radio, newspaper and television) on

plant ecology and conservation. Current ResearchGate rating >25 with > 1 000 citations of my papers.

Awards

2003. Leslie Hill medal. **Succulent Society of South Africa.**

2006. Gold award. **C.A.P.E.**

2006. Certificate of Appreciation. **Western Cape Conservation Stewardship Association.**

2008. Special Award. **CapeNature**

2010. Marloth medal. **Botanical Society of South Africa.**

Consultation & Advisory Capacity

Consultant to WWF-SA, Cape Nature and SANPARKS to determine conservation status of land. Several of the studies resulted in the purchase of the properties, now amounting to a value of >R100 million.

Consultant to National, Provincial and private institutions for vegetation restoration projects, environmental impact assessment and environmental management plans. Some of these assignments won national awards.

Referee for many international and national scientific articles and donor funded grants.

Classified, described and mapped Forest, Subtropical Thicket, Fynbos and Succulent Karoo vegetation units in four major donor funded projects.

Expert witness in several Magistrate and Supreme Court cases.

Research Associate of Nelson Mandela University.

Prepared > 250 botanical impact assessments for proposed developments.

APPENDIX 2: LAYOUT PLAN OF PROPOSED DEVELOPMENT EVALUATED IN THIS ASSESSMENT.

