

**Botanical Impact Assessment Report for  
farm Kellershoogte (farm 4/172)  
in the Oudtshoorn district.**

**This report was prepared during June 2022 by:**

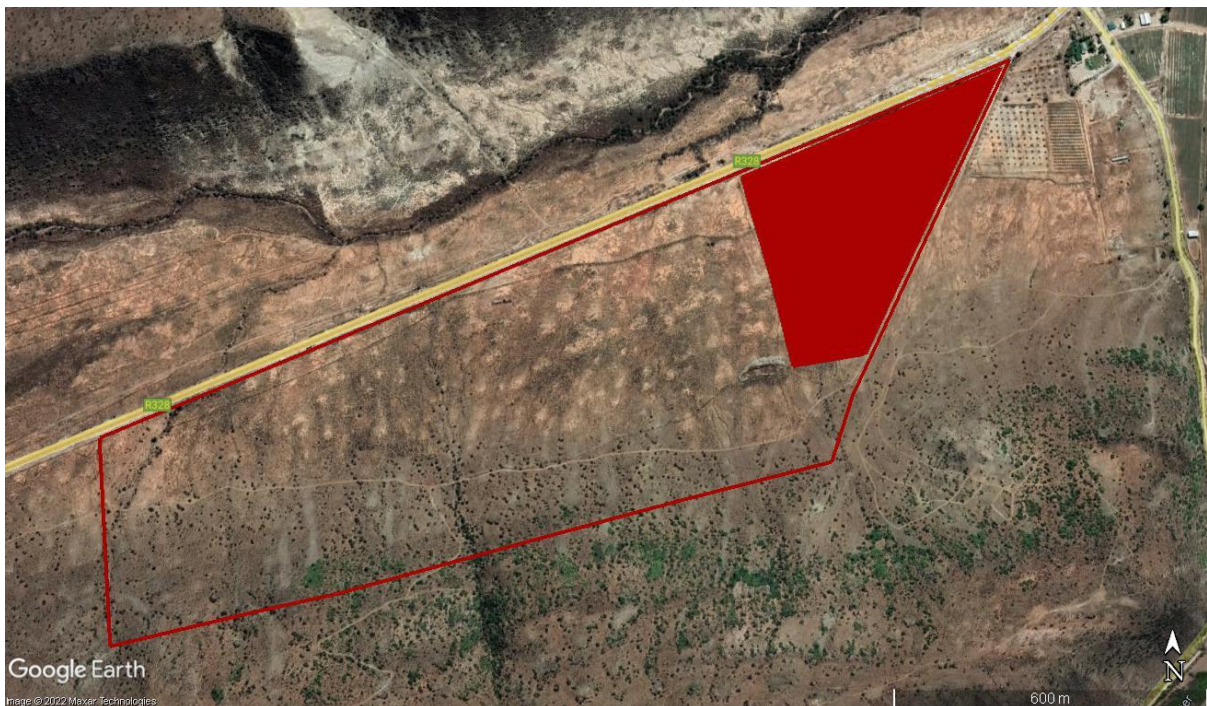
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## INTRODUCTION

Regalis Environmental Services CC was appointed to prepare a botanical specialist Impact Assessment report for an about 12.5 ha disturbed area where an orchard has been established and natural vegetation has been cleared. The landowner also wishes to extend the development area to an area of about 70 ha.

The alleged illegal activity of the ca. 12.5 ha development resulted in a Section 24G process application to the Western Cape Department of Environmental Affairs and Development Planning. The purpose of this report is to evaluate the botanical loss due to the already development area, as well of those of the proposed additional development area.

The location of the current and proposed development areas is indicated on Map 1.



**Map 1:** Location of the already disturbed area (solid red) and additional proposed development area is outlined in red.

Jan Vlok of RES surveyed the affected areas during June 2022 and my CV is provided in Appendage 1.

## METHODOLOGY, UNCERTAINTY AND ASSUMPTIONS

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](http://www.sanbi.redlist)) are, or may be present. All the plant species encountered could be identified with certainty even though it was an unfavorable season to survey the site. A thorough search was done in the undisturbed vegetation to determine if any rare and threatened plant species may have been affected in the already disturbed area.

Criteria used to evaluate the impact of the already disturbed and proposed accommodation units follow those recommended in:

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).
3. The protocols prescribed for a botanical impact assessment prescribed in Government Notice no. 1150 dated 30/10/2020.

To the best of my knowledge, I do not have to declare any assumptions or uncertainties regarding my findings.

## STUDY RESULTS

The affected national vegetation type is Eastern Little Karoo, the current formal status is Vulnerable, but a recent revision indicated that it should be upgraded to Endangered. The finer scale vegetation map indicate that the upper section of the site consists of Kandelaars Arid Spekboomveld and the lower area of Kandelaars Gannaveld (see Photo 1).

A small section of the proposed development area consists of a terrestrial Critical Biodiversity Area (CBA) and two of the water drainage lines are Ecological Support Areas (ESA). It is not clear why this isolated area has been identified as a CBA, but it probably due to an incorrect transformation data layer. There is nothing noteworthy about the phytodiversity or the ecological condition of the CBA site, except that the area has a higher density of *Vachellia karoo*, which may have given the impression that the area is in a better ecological condition.

There is no difference in the local soils, topography or previous management regime between the ca. 12.5 ha already disturbed site and the remainder of the proposed development area (see Photo's 1 & 2). It can be thus reasonably assumed that the vegetation in the disturbed area was similar to those in the remainder of the proposed development area.

The ecological condition of the affected vegetation varies from moderately to severely disturbed. The entire area was previously used for extensive ostrich grazing and they have had a moderate to severe negative impact (especially need feeding and watering points) on the vegetation. This is clear from the general lack of a biogenic crust, high number of footpaths, rarity of palatable species (e.g. *Osteospermum sinuatum*) and abundance of indicators of disturbance (e.g. *Galenia species*, *Leipoldtia schultzei*, *Ruschia cradockensis*, etc.). The phytodiversity of the area is thus low in comparison to similar sized areas that are in a near-pristine condition.



**Photo 1.** Vegetation in the already disturbed area on Kellershoogte. The orchard can be seen in the upper left hand side.



**Photo 2.** Vegetation in the proposed additional development area on Kellershoogte. Note the high number of ostrich footpaths in the foreground.

A total of only 93 species was found in the ca. 70 ha affected area. They are as follows;

**Trees:** *Euclea undulata*, *Gloveria integrifolia* and *Searsia undulata*.

**Shrubs and herbs:** *Aptosimum indivisum*, *Cadaba aphylla*, *Carissa haematocarpa*, *Chaenostoma revolutum*, *Chrysocoma tenuifolia*, *Cissampelos capensis*, *Cuspeida cernua*, *Dicerotheramnus rhinocerotis*, *Eriocephalus ericoides*, *Felicia muricata*, *Galenia africana*, *G. filiformis*, *G. papulosa*, *G. portulacea*, *G. secunda*, *Garuleum bipinnatum*, *Helichrysum rosum*, *H. zeyheri*, *Heliophila carnosa*, *Hermannia althaeifolia*, *Hirpicium alienatum*, *Ifloga glomerata*, *Leysera gnaphaloides*, *Limeum aethiopicum*, *Lycium ferocissimum*, *Monechma incanum*, *Oncosiphon pilulifera*, *Osteospermum sinuatum*, *Pegolettia baccharidifolia*, *P. retrofracta*, *Pentzia incana*, *Pteronia incana*, *P. pallens*, *Rhigozum obovatum*, *Senecio cotyledonis*, *Thesium lineatum*, *Tetragonia fruticosa*, *Zygophyllum lichtensteinii*, *Z. morgsana* and *Z. retrofractum*.

**Succulents:** *Adromischus filicaulis*, *A. triflorus*, *Aloe variegata*, *Augea capensis*, *Bulbine frutescens*, *B. longifolia*, *Cotyledon orbiculare*, *Crassula aborescens*, *C. cotyledonis*, *C. cultrata*, *C. expansa*, *C. muscosa*, *C. rupestris*, *C. subaphylla*, *C. tetragona*, *Euphorbia heptagona*, *E. ferox* subsp. *calitzdorpense*, *E. mauritanica*, *Haworthia viscosa*, *Hereroa aspera*, *Leipoldtia schultzei*, *Mesembryanthemum aitonis*, *M. dinteri*, *M. guerichianum*, *M. junceum*, *M. longistylum*, *M. noctiflorum*, *M. splendens*, *Othonna alba*, *O. carnosa*, *Piarranthus geminatus*, *Portulacaria afra*, *Ruschia cradockensis*, *R. grisea*, *R. pungens* and *Sarcostemma viminalis*.

**Grasses:** *Cenchrus ciliaris*, *Enneapogon scaber*, *Eragrostis curvifolia*, *E. plana*, *Fingerhuthia africana* and *Tribolium acutiflorum*.

**Geophytes:** *Asparagus aethiopicus*, *A. capensis*, *A. retrofracta*, *Cyphia digitata*, *Drimys anomala*, *Eriospermum capensis*, *Ornithogalum juncifolium*, *O. schoenlandii* and *Moraea polystachya*.

None of the species of conservation concern listed in the screening tool was found within the area. Most of these species occur in different habitat types. The only species that might have occurred in the area is *Glottiphyllum linguiforme*, but this species is very sensitive to trampling by ostriches and was probably extirpated long ago already. One of the taxa found

on the site, *Euphorbia ferox subsp. calitzdorpense* (Bruyns, 2018), should be regarded as a threatened species. This recently described taxon has not been formally evaluated yet, but warrants a status of Vulnerable.

Despite its transformed ecological state the area contains very few alien plant species. Only a few individuals of *Opuntia ficus-indica* and *Salsola kali* was noted.

## CONCLUSIONS AND RECOMMENDATIONS

The ca. 70 ha affected area consists of moderately to severely transformed Eastern Little Karoo vegetation, of which the status should be regarded as Endangered (albeit not gazetted yet). A small portion of the affected area consists of a CBA and ESA. The reason why this isolated patch was classed as a CBA is not clear and it is probably an error in the data that were used. One of the species that was found is not currently regarded as threatened, but it would once evaluated.

Despite not botanically rich in species and in a degraded ecological condition I regard part of the area as sensitive for the reasons noted above. The area that is regarded as most sensitive (best ecological condition, ESA and with populations of *Euphorbia ferox subsp. calitzdorpense* present) is indicated on Map 2.



**Map 2:** The proposed development area is outlined in red., the already disturbed area in solid red and the sensitive area in solid green. To my opinion the sensitive area should not be developed.



The two mitigation actions that are proposed are as follows;

1. That the sensitive area marked on Map 2 is not developed.
2. That the sensitive area marked on Map 2 is not exposed to grazing by ostriches for a period of 20 years.

My impact assessments for the construction and operational phase, as well as the cumulative impacts (with and without mitigation actions) are provided in Appendage 2.

## REFERENCES

Bruyns, P.V., 2018. New taxa in *Euphorbia* (Euphorbiaceae) in southern Africa. *Haseltonia* 25 (30-56).

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.

## APPENDAGE 1: CV OF CONSULTANT.

### Johannes Hendrik Jacobus Vlok

#### Biographical Information

Birth: 6<sup>th</sup> 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 50 scientific and popular articles published in international & national journals as primary or as co-author. Delivered several keynote and >20 other verbal papers at scientific forums on ecological and floristic studies. Delivered >300 presentations to civil society (public meetings, radio, newspaper and television) on plant ecology and conservation. Current ResearchGate rating > 26 and has > 1 700 citations.

#### 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 >R30 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 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 Magistrate and Supreme Court cases.

Research associate of Nelson Mandela University (Saasveld campus).

### **Professional Membership**

Registered at South African Council for Natural Scientific Professions (SACNASP) as botanical scientist with membership number 130942.

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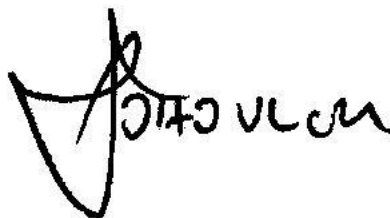
**APPENDAGE 2: BOTANICAL IMPACT ASSESMENT FOR THE PROPOSED DEVELOPMENT ON KELLERSHOOGTE.**

<b>CONSTRUCTION &amp; OPERATIONAL PHASES</b>		
	<b>Alternative 1: 70 Ha development</b>	<b>Alternative 2: No-Go Option</b>
	<b>Impact:</b>	
Potential impact and risk (description):	<b>Loss of sensitive terrestrial and aquatic vegetation.</b>	<b>Loss of sensitive terrestrial and aquatic vegetation.</b>
Nature of impact:	<b>Additional loss of vegetation.</b>	<b>Limited loss of vegetation.</b>
Extent and duration of impact:	<b>Local and permanent.</b>	<b>Local and permanent.</b>
Intensity	<b>High</b>	<b>High</b>
Consequence of impact or risk:	<b>Loss of to be classified as Endangered vegetation type and a threatened species.</b>	<b>Limited loss of to be classified as Endangered vegetation type and a threatened species</b>
Probability of occurrence:	<b>High</b>	<b>High</b>
Degree to which the impact may cause irreplaceable loss of resources:	<b>Medium</b>	<b>Low</b>
Degree to which the impact can be reversed:	<b>Irreversible</b>	<b>Irreversible</b>
Indirect impacts:	<b>Moderate</b>	<b>Low</b>
Cumulative impact prior to mitigation:	<b>Moderate</b>	<b>Low</b>
<b>Significance rating of impact prior to mitigation (e.g., Low, Medium, Medium-High, High, or Very-High)</b>	<b>Medium</b>	<b>Low</b>
Degree to which the impact can be avoided:	<b>High</b>	<b>High</b>
Degree to which the impact can be managed:	<b>High</b>	<b>High</b>
Degree to which the impact can be mitigated:	<b>Medium</b>	<b>High</b>
Proposed mitigation:	<ol style="list-style-type: none"> <li>1. Do not develop sensitive area.</li> <li>2. Prevent further ostrich grazing in sensitive site.</li> </ol>	<b>Prevent further ostrich grazing in sensitive site.</b>
Residual impacts:	<b>None, unlikely that development will affect adjacent vegetation.</b>	<b>None</b>
Cumulative impact post mitigation:	<b>None</b>	<b>None</b>
<b>Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)</b>	<b>Medium</b>	<b>Low</b>

### APPENDAGE 3: DECLARATION OF INDEPENDANCE

I J.H.J. Vlok as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
  - ~~○ am not independent, but another specialist (the “Review Specialist”) that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);~~
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).



Signature of the Specialist:

Name of Company:

Date:

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Regalis Environmental Services CC

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24<sup>th</sup> June 2022

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