



3 June 2023

**BOTANICAL AND TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT: CLAY MATERIAL SOURCE FOR KLEINVLEI DAM, KLEINVLEI 209/1, CERES, KOUEBOKKEVELD**

As the appointed botanical specialist for assessment of the botany and terrestrial biodiversity of the proposed site for extraction of clay for construction of the Kleinvlei Dam:

**Section 1.**

(a) I have not conducted a site visit to the proposed site to extract clay for the construction of the Kleinvlei Dam. This report is based on a desktop study using supplied photographs and maps.

**Section 2.**

a. **Specialist:** Dr David J. McDonald, Bergwind Botanical Surveys & Tours CC, 14A Thomson Road, Claremont. Telephone: 021-671-4056; mobile – 082-876-4051.  
SACNASP Reg. No. 400094/06 Ecological Science (Curriculum Vitae appended)

b. **Declaration of independence:**

I David Jury McDonald, 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:

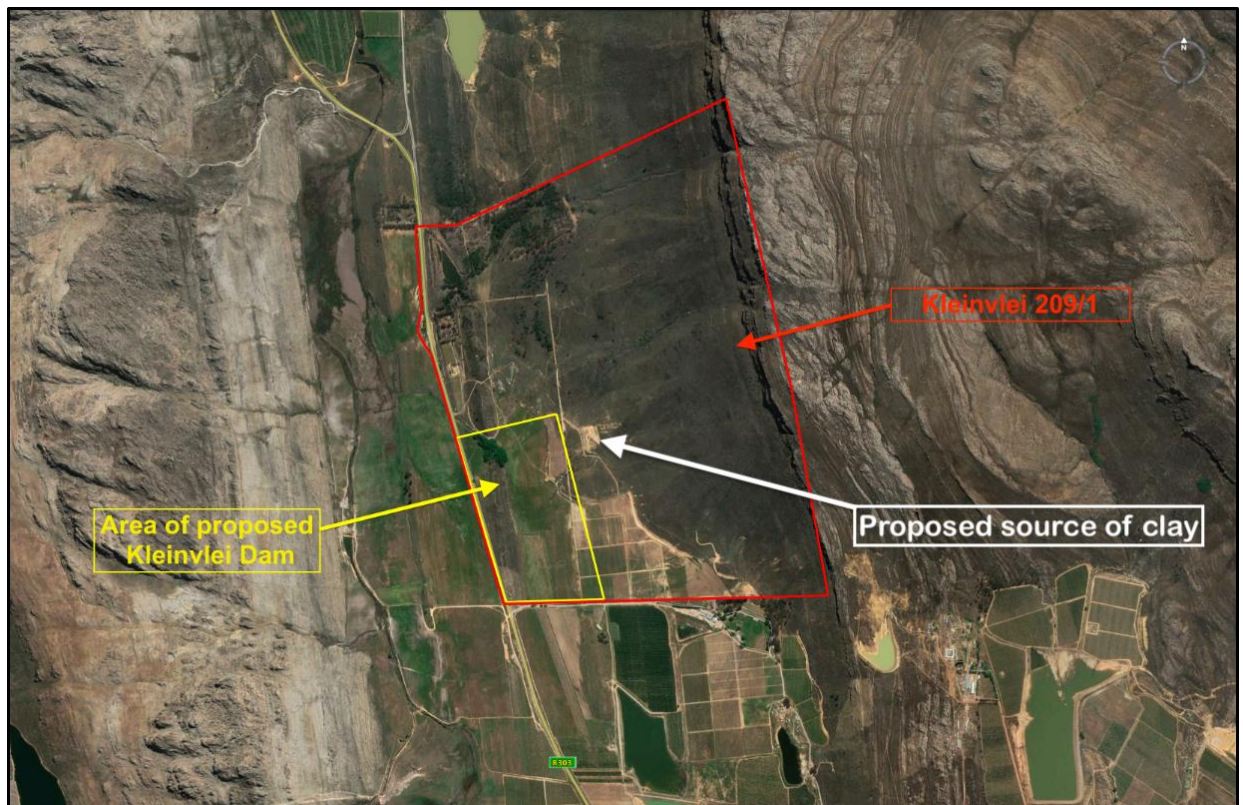
- in terms of the general requirement to be independent:
- other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity;
- 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).



## Section 3.

### (a) The Site Location

The proposed Kleinvlei Dam is on the farm Kleinvlei 209/1, Ceres in the Witzenberg Municipality, (Figure 1) that lies east of the R303, the main road that runs through the Kouebokkeveld. In turn, the proposed site for quarrying clay for the dam wall is at a disturbed site immediately east of the future dam inundation level (Figure 1). The area of the proposed clay pit is ~ 3 200 m<sup>2</sup> on shale sediments of the Ceres Subgroup, Bokkeveld Group.



**Figure 1.** Aerial image Google Earth Pro™ showing the location of the proposed clay source.

### (b) The Vegetation

Both the proposed Kleinvlei Dam and clay quarry lie within an area that is classified and mapped as supporting Kouebokkeveld Shale Fynbos (Figure 2). As described by the author (McDonald, 2021), the area of the proposed dam is completely transformed. The area of the clay quarry is also highly disturbed with extensive bare and eroded areas. Where vegetation occurs, it is secondary vegetation dominated by *Dicerotheramnus rhinocerotis* (renosterbos) that is well-known for recolonising disturbed sites (Figures 3—5).



**Figure 2.** Vegetation map (SANBI, 2019) showing that the proposed Kleinvlei Dam and clay quarry lie within an area formerly supporting Kouebokkeveld Shale Fynbos.



**Figure 3.** A view westwards over the proposed clay quarry site showing extensive bare areas with erosion (Photo supplied).



**Figure 4.** A view northwards over the proposed clay quarry site showing extensive bare areas, and scattered, weedy renosterbos shrubs (Photo supplied).

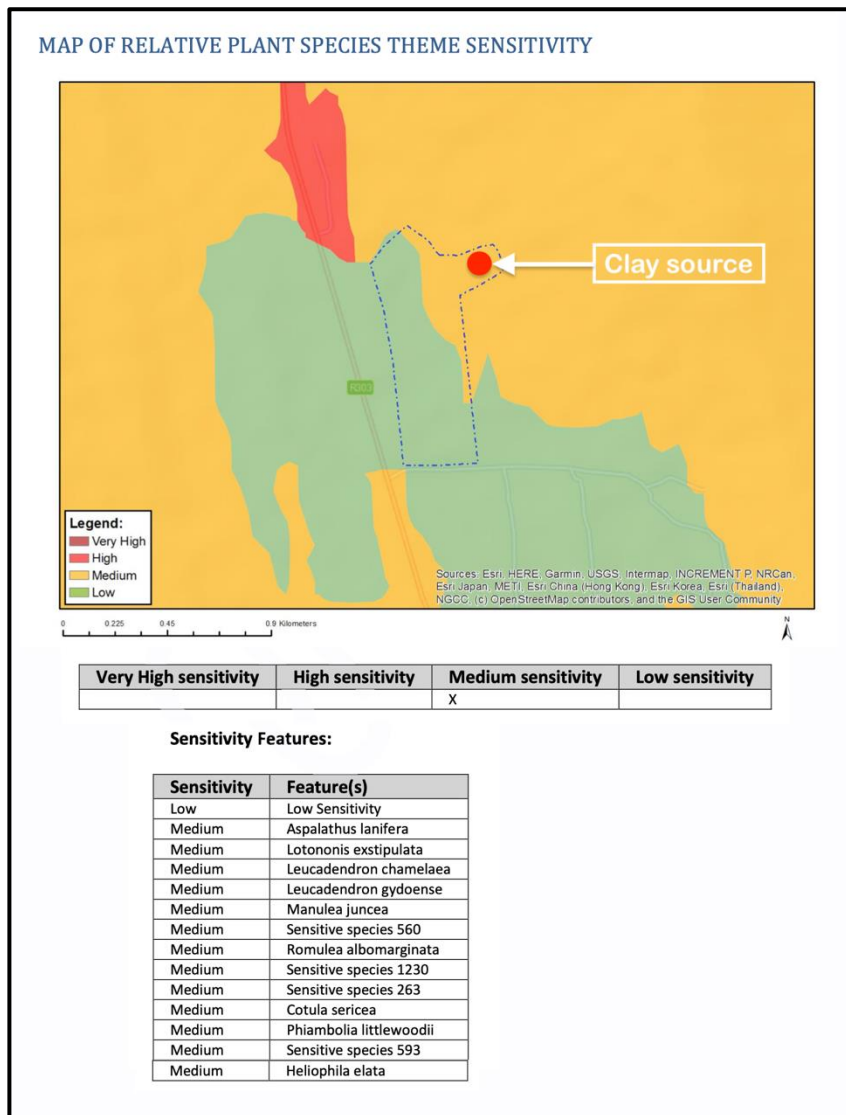


**Figure 5.** The clay-rich soil derived from shale sediments that is exposed due to historical disturbance. The vegetation is secondary and not botanically sensitive (Photo supplied).

## (c) Site Sensitivity

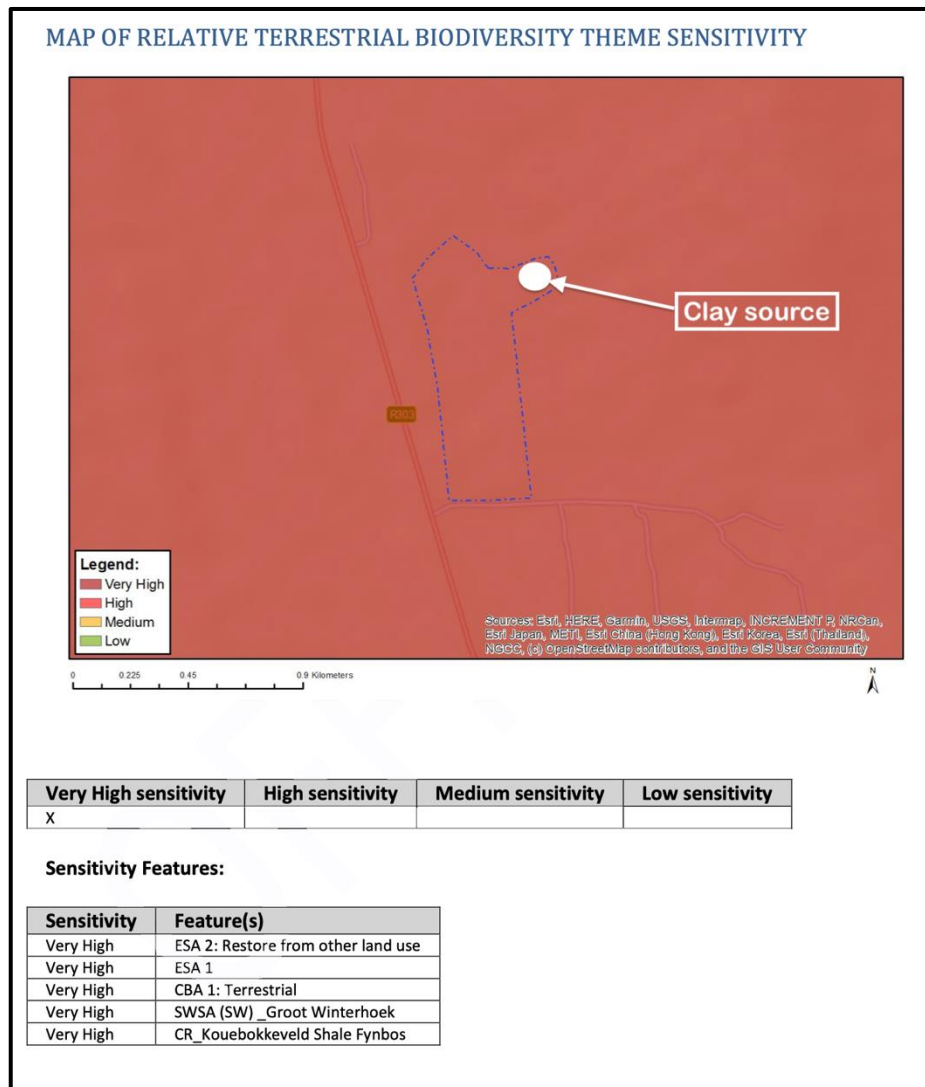
### c.1 National Web-based Environmental Screening Tool

The National Web-based Environmental Screening Tool (screening tool) was applied to the area of the proposed Kleinvelei Dam and the area earmarked as the source of clay although, strictly speaking, this statement is only about the clay source. The analysis outcome for the polygon encompassing the proposed dam and clay pit sites for the 'PLANT SPECIES THEME' is LOW SENSITIVITY for most of the dam site and MEDIUM SENSITIVITY for the northeast part of the dam footprint and the clay quarry (Figure 6). This result is inaccurate; the clay source has **LOW SENSITIVITY**. The list of sensitive plant species is also given as part of Figure 6. It is assumed that none of these species occur on the quarry site due to the high level of disturbance and current absence of Koue Bokkeveld Shale Fynbos.



**Figure 6.** Outcome of the screening tool analysis for plant species sensitivity, erroneously indicating that the area of the clay source has MEDIUM sensitivity.

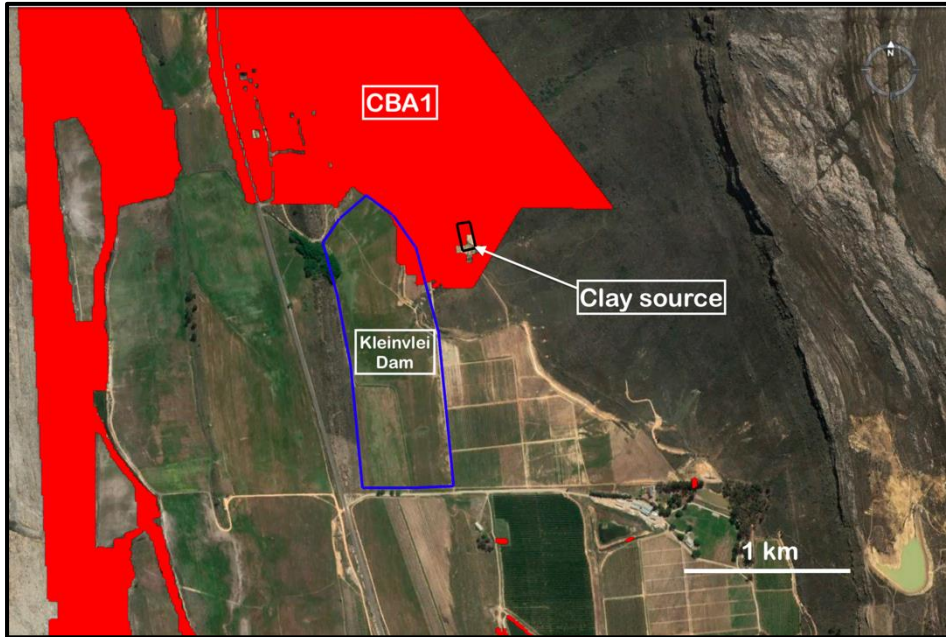
The analysis outcome for the TERRESTRIAL BIODIVERSITY THEME SENSITIVITY is VERY HIGH (Figure 7). This is categorically not so for the clay quarry area. Despite being surrounded by a Critical Biodiversity Area (CBA1) the disturbed proposed clay quarry site is not classified as such. The environmental screening tool is misleading; the clay quarry site has **LOW SENSITIVITY**.



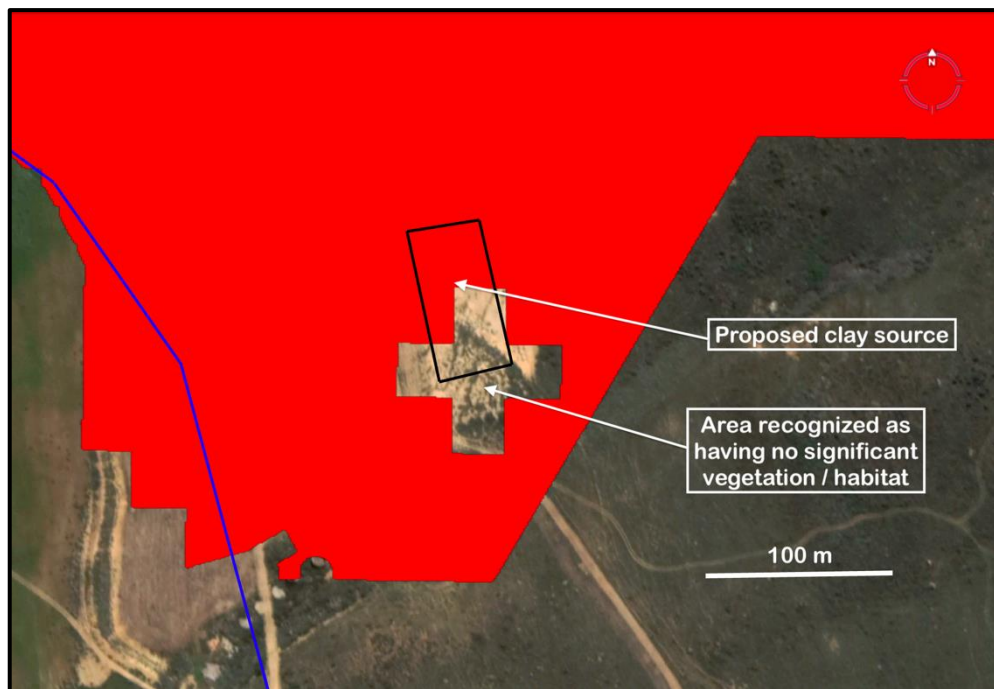
**Figure 7.** Outcome of the screening tool analysis for plant species sensitivity, erroneously indicating that the area of the clay source has VERY HIGH sensitivity.

### c.2 The Western Cape Biodiversity Spatial Plan

The Western Cape Spatial Plan (WCBSP) shapefiles for biodiversity (Pence 2017; Pool-Stanvliet *et al.* 2017), were overlaid on the site using Google Earth (Pro) (Figure 8). The mapping indicates that virtually the entire quarry site area is within an area classified as Critical Biodiversity Area 1 (CBA1) but the site itself is excluded from the CBA1 (Figures 8a & 8b).



**Figure 8a.** The WCBSP map for Witzenberg Municipality overlaid on a Google Earth Pro™ image of the site, showing that clay source site is within but not part of a CBA1 area.

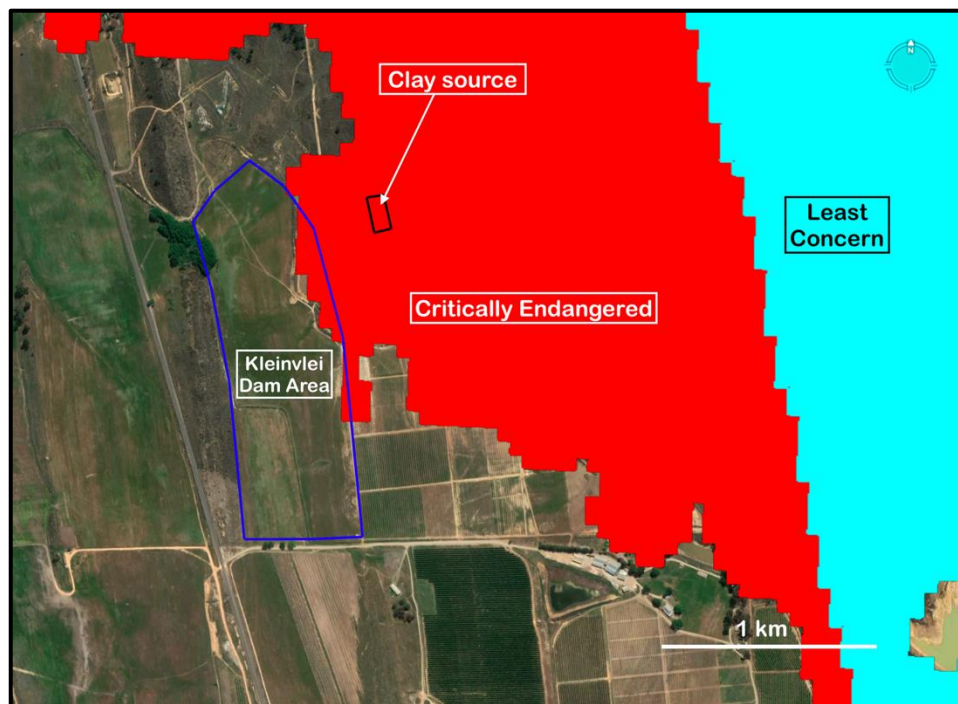


**Figure 8b.** Magnified portion of the WCBSP map overlaid on a Google Earth Pro™ image of the site. The unshaded area indicates a low sensitivity habitat not included in CBA1.

The habitat at the proposed clay quarry site is so disturbed that it is doubtful that any birds or small mammals would use this area.

### c.3 Red Listed Ecosystems

The Red Listed Ecosystems Classification (SANBI, 2021) classifies the entire clay quarry site as **CRITICALLY ENDANGERED** (Figure 9). This classification is based partly on the WCBS and apparent vegetation on the site determined from aerial images but does not include any ground-truthed data. This is a major short-coming since it bears no relation to the actual condition and vegetation found on the site. Potentially, in terms of substrate and climate, this site could support Kouebokkeveld Shale Fynbos (as was the case originally), but now it has no threatened habitat present and is thus incorrectly classified. It should be classified as **LEAST CONCERN**.



**Figure 9.** The Red Listed Ecosystems shapefile overlaid on a Google Earth Pro™ image of the site, indicating that the site is erroneously classified and included within a CRITICALLY ENDANGERED (CR) ecosystem.



## Section 4: Conclusions

No critically endangered Kouebokkeveld Shale Fynbos is found on the clay quarry site. Disturbance of the site apparently goes back many years, with ALL the fynbos having been removed. The intense original disturbance and lack of active restoration has resulted in extreme transformation of the site. Only scattered stands of weedy renosterbos shrubs occur, with the field stratum absent. There is no possibility of Kouebokkeveld Shale Fynbos ever being restored to its natural state so the sensitivity of the habitat would remain VERY LOW with consequently VERY LOW conservation value.

There is no reason to prevent use of the site for quarrying clay, and this compliance statement is not subject to any conditions.

## Section 5: References

McDonald, D.J. 2021. Botanical Assessment: Proposed Kleinvlei Dam, Farm Kleinvlei 209/1, Ceres, Witzenberg Municipality, Western Cape Province. Unpublished report for EnviroAfrica.

Pence, G.Q.K. 2017. The Western Cape Biodiversity Spatial Plan: Technical Report. Unpublished report. Western Cape Nature Conservation Board (CapeNature), Cape Town.

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

South African National Biodiversity Institute (SANBI) 2019, Vegetation Map of South Africa, Lesotho and Swaziland [vector geospatial dataset] 2023. Available from the Biodiversity GIS website <http://bgis.sanbi.org/SpatialDataset/Detail/18>.

South African National Biodiversity Institute (SANBI). 2021 Red List of Ecosystems (RLE) for terrestrial realm for South Africa - remnants [Vector] 2021. Available from the Biodiversity GIS website, downloaded on 30 August 2022



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Signature of the specialist:

## Appendix: Curriculum Vitae

**Dr David Jury McDonald Pr. Sci. Nat.**

**Name of Company:** Bergwind Botanical Surveys & Tours CC. (Independent consultant)

**Work and Home Address:** 14 A Thomson Road, Claremont, 7708

**Tel:** (021) 671-4056 **Mobile:** 082-876-4051 **Fax:** 086-517-3806

**E-mail:** [dave@bergwind.co.za](mailto:dave@bergwind.co.za)

**Website:** [www.bergwind.co.za](http://www.bergwind.co.za)

**Profession:** Botanist / Vegetation Ecologist / Consultant / Tour Guide

**Date of Birth:** 7 August 1956

### Employment history:

- 19 years with National Botanical Institute (now SA National Biodiversity Institute) as researcher in vegetation ecology.
- Five years as Deputy Director / Director Botanical & Communication Programmes of the Botanical Society of South Africa
- 17 years as private independent Botanical Specialist consultant (Bergwind Botanical Surveys & Tours CC)

**Nationality:** South African (ID No. 560807 5018 080)

**Languages:** English (home language) – speak, read and write  
Afrikaans – speak, read and write

### Membership in Professional Societies:

- South Africa Association of Botanists
- International Association for Impact Assessment (SA)
- South African Council for Natural Scientific Professions (**Ecological Science, Registration No. 400094/06**)
- Field Guides Association of Southern Africa

### Key Qualifications:

- Qualified with a M. Sc. (1983) in Botany and a PhD in Botany (Vegetation Ecology) (1995) at the University of Cape Town.
- Research in Cape fynbos ecosystems and more specifically mountain ecosystems.
- From 1995 to 2000 managed the Vegetation Map of South Africa Project (National Botanical Institute).
- Conducted botanical survey work for AfriDev Consultants for the Mohale and Katse Dam projects in Lesotho from 1995 to 2002. A large component of this work was the analysis of data collected by teams of botanists.
- **Director: Botanical & Communication Programmes** of the Botanical Society of South Africa (2000—2005), responsible for communications and publications; involved with conservation advocacy particularly with respect to impacts of development on centres of plant endemism.
- Further tasks involved the day-to-day management of a large non-profit environmental organisation.
- **Independent botanical consultant** (2005 – to present) over 300 projects have been completed related to environmental impact assessments in the Western, Southern and Northern Cape, Karoo and Lesotho. A list of reports (or selected reports for scrutiny) is available on request.

## Higher Education

Degrees obtained  
and major subjects passed:

B.Sc. (1977), University of Natal, Pietermaritzburg  
Botany III  
Entomology II (Third year course)

B.Sc. Hons. (1978) University of Natal, Pietermaritzburg  
Botany (Ecology /Physiology)

M.Sc. - (Botany), University of Cape Town, 1983.  
Thesis title: 'The vegetation of Swartboschkloof, Jonkershoek,  
Cape Province'.

PhD (Botany), University of Cape Town, 1995.  
Thesis title: 'Phytogeography endemism and diversity of the  
fynbos of the southern Langeberg'.

Certificate of Tourism: Guiding (Culture: Local)  
Level: 4 Code: TGC7 (Registered Tour Guide: WC 2969).

## Employment Record:

January 2006 – present: Independent specialist botanical consultant and tour guide in own company:

**Bergwind Botanical Surveys & Tours CC**

August 2000 - 2005 : Deputy Director, later Director Botanical & Communication Programmes,  
Botanical Society of South Africa

January 1981 – July 2000 : Research Scientist (Vegetation Ecology) at National  
Botanical Institute

January 1979—Dec 1980 : National Military Service

*Further information is available on my company website: [www.bergwind.co.za](http://www.bergwind.co.za)*