



NICK HELME BOTANICAL SURVEYS

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Pri.Sci.Nat # 400045/08

TERRESTRIAL BIODIVERSITY VERIFICATION STUDY FOR THE WETLAND REHABILITATION PROJECT ON Re/37 GROOTPLAAT, PIKETBERG, WESTERN CAPE.

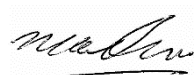
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DECLARATION OF INDEPENDENCE

In terms of Chapter 5 of the National Environmental Management Act of 1998 specialists involved in Impact Assessment processes must declare their independence and include an abbreviated Curriculum Vitae.

I, N.A. Helme, do hereby declare that I am financially and otherwise independent of the client and their consultants, and that all opinions expressed in this document are substantially my own.



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Since 1997 I have been based in Cape Town, and have been working as a specialist botanical consultant, specialising in the diverse flora of the south-western Cape. Since the end of 2001 I have been the Sole Proprietor of Nick Helme Botanical Surveys, and have undertaken over 2000 site assessments in this period.

A selection of relevant previous botanical work is as follows:

- Scoping and Constraints studies for Cape Winelands Airport (PHS Consulting 2022-2024)
- Macassar WWTW IA (Zutari 2023)
- Strandfontein Coastal Node IA (Infinity Environmental 2024)
- Hazendal Ptns 31 & 33 (Monique Sham 2024)
- N7 weighbridge IA (SES 2023)
- Botanical assessment of proposed development on Ptn 29 of Farm 410 Caledon (PHS Consulting 2022)
- Botanical assessment of proposed prospecting on Draaihoek 10, Redelinghuys (Khula Environmental 2022)

- Botanical assessment of proposed development on Ptn 10 of Broken Hill 88, Heidelberg (Isikhova 2021)
- Terrestrial Ecology impact assessment of proposed Zandheuveld phosphate mine, Saldanha (Exigo3 2020)
- Botanical assessment of proposed new cultivation on Welbedacht farm, Tra Tra Mountains (Footprint Environmental 2020)
- Botanical assessment of Droogerivier farm Leipoldtville (Footprint Environmental 2018)
- Botanical assessment of Sebulon farm, Redelinghuys (Natura Libra Environmental Services 2018)
- Botanical assessment of proposed cultivation on Farm Andriesgrond, Clanwilliam (Cederberg Environmental Assessment Practise 2015)
- Assessment of proposed Elandsfontein phosphate mine, east of Langebaan (Braaf Environmental 2014)
- Scoping study of proposed Photovoltaic Solar Energy Facility near Graafwater (Savannah Environmental 2012)
- Scoping study of proposed Olifants River Wind Energy Facility near Lutzville (Savannah Environmental 2011)
- Fine Scale vegetation mapping project in NW Sandveld (CapeNature 2007)

CONDITIONS RELATING TO THIS REPORT:

The methodology, findings, results, conclusions and recommendations in this report are based on the author's best scientific and professional knowledge, and on referenced material and available knowledge. Nick Helme Botanical Surveys and its staff reserve the right to modify aspects of the report, including the recommendations and conclusions, if and when additional relevant information becomes available.

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1. INTRODUCTION

This terrestrial biodiversity verification study was requested to inform the planning and authorisation process being followed for the proposed rehabilitation of wetlands on Grootplaat farm (Rem 37), on the western section of the Piketberg, in the Western Cape. The study area (just a small part of Rem 37, totalling about 2132ha) is shown in Figure 1. A brief project description is as follows:

1. The valley bottom wetland and its instream dams will be rehabilitated to improve ecological function and habitat.
2. This will involve:
 - a. Invasive alien plant clearing and management of bracken fern
 - b. Dam outflow replacement / rehabilitation to improve low flows
 - c. Earthworks to reshape disturbed wetland areas and reinstate more natural flows
 - d. Structural stabilisation including placement of some gabion weirs to raise groundwater levels and reduce erosion
 - e. Revegetation, indigenous planting, and onsite indigenous nursery with propagation from surrounding indigenous vegetation
 - f. Wetland crossing formalisation in the form of boardwalks.



Figure 1: Map showing the Grootplaat study area (wetlands, dams and streams).

2. TERMS OF REFERENCE

The ToR are as follows:

- Undertake a site visit in the optimal season for botanical observations in the region
- Identify and describe the vegetation in the study area and place it in a regional context, including its status in terms of the Western Cape Spatial Biodiversity Plan (CBA/ESA/ONA, etc)
- Identify and locate any (likely) plant Species of Conservation Concern in the study area and immediate surrounds, based on observation, literature and iNaturalist website review; assess the status of the SoCC according to the new Specialist Protocols for Biodiversity Assessment
- Provide an overview and map of the botanical conservation significance (sensitivity) of the area (Google Earth kmz files to be provided) and indicate if this differs from the Screening Tool mapping (Medium for plant species), and if so how
- Indicate the acceptability of the project proposals from a botanical perspective
- Identify and describe the potential impacts of the proposed development
- Provide any required mitigation measures to help minimise botanical impacts.

3. LIMITATIONS, ASSUMPTIONS & METHODOLOGY

The study area was visited on 11 September 2026, which is within the optimal spring flowering season in this winter rainfall area, and seasonal constraints were thus minimised. Confidence in the accuracy of the botanical findings is fairly high. The author has undertaken extensive work within both the vicinity of the study area and in the region over the last 25 years, which facilitates the making of local and regional comparisons and inferences of habitat quality and conservation value.

Various parts of the study area were surveyed on foot, and all plants in these habitats were noted. Photographs of the area and some of the plants were made using a Fuji mirrorless slr camera, as well as with a Xiaomi 14T cellphone. Photographs taken on site have been uploaded to the biodiversity website inaturalist.org. Satellite imagery dated March 2024 (prior to alien tree removal) was used to inform the assessment, and for mapping. Proposed developments were as outlined above and in the maps provided by Infinity.

The botanical sensitivity of an area is a product of plant species diversity, plant community composition, rarity of habitat, degree of habitat degradation, rarity of species, ecological viability and connectivity, restorability of habitat, vulnerability to impacts, and reversibility of threats.

4. REGIONAL CONTEXT OF THE VEGETATION

The study area lies within the Core Cape Subregion (CCR) of the Greater Cape Floristic Region (GCFR; Manning & Goldblatt 2012). The study area is also part of the Fynbos biome and is located within the Southwest Fynbos bioregion (a finer scale classification; Mucina & Rutherford 2006). The GCFR is one of only six Floristic Regions in the world, and it is also by far the smallest floristic region. The Core Cape Subregion occupies only 0.1% of the world's land surface, and supports about 9700 plant species, almost half of all the plant species in southern Africa, and some 20% of the plant species in sub-Saharan Africa. About 68% of all the species in the Cape region do not occur elsewhere, and many have very small home ranges (these are known as narrow endemics). Most of the lowland habitats are under pressure from agriculture, urbanisation and alien plants, and thus many of the range restricted species are also under severe threat of extinction, as habitat is reduced to extremely small fragments. Data from the Threatened Species program (Red Listing) for South Africa indicate that 67% of the rare or threatened plant species in the country occur only in the southwestern Cape, and these total over 1800 species (Raimondo *et al* 2009). It should thus be clear that the southwestern Cape is a major national and global conservation priority, and is quite unlike anywhere else in the country in terms of the number of threatened plant species. Developments in this area thus need to take this into account.

The study area is part of the Northwest Fynbos bioregion. This bioregion has a fairly distinct and very rich flora, with a particularly high number of locally and regionally endemic plant species, as well as plant Species of Conservation Concern (Raimondo *et al* 2009).

The CapeNature Spatial Biodiversity Plan (CapeNature 2023) has mapped priority conservation areas throughout the province, using best available data, and the resultant maps display Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). The relevant extract is shown in Figure 2. Most of the study area is mapped as Ecological Support Area 1, a relatively low level of priority, with the surrounding areas mapped as transformed (no shading). This mapping is largely

supported by my observations, although parts of the wetland are actually in good enough condition, even now, to have been mapped as CBAs.

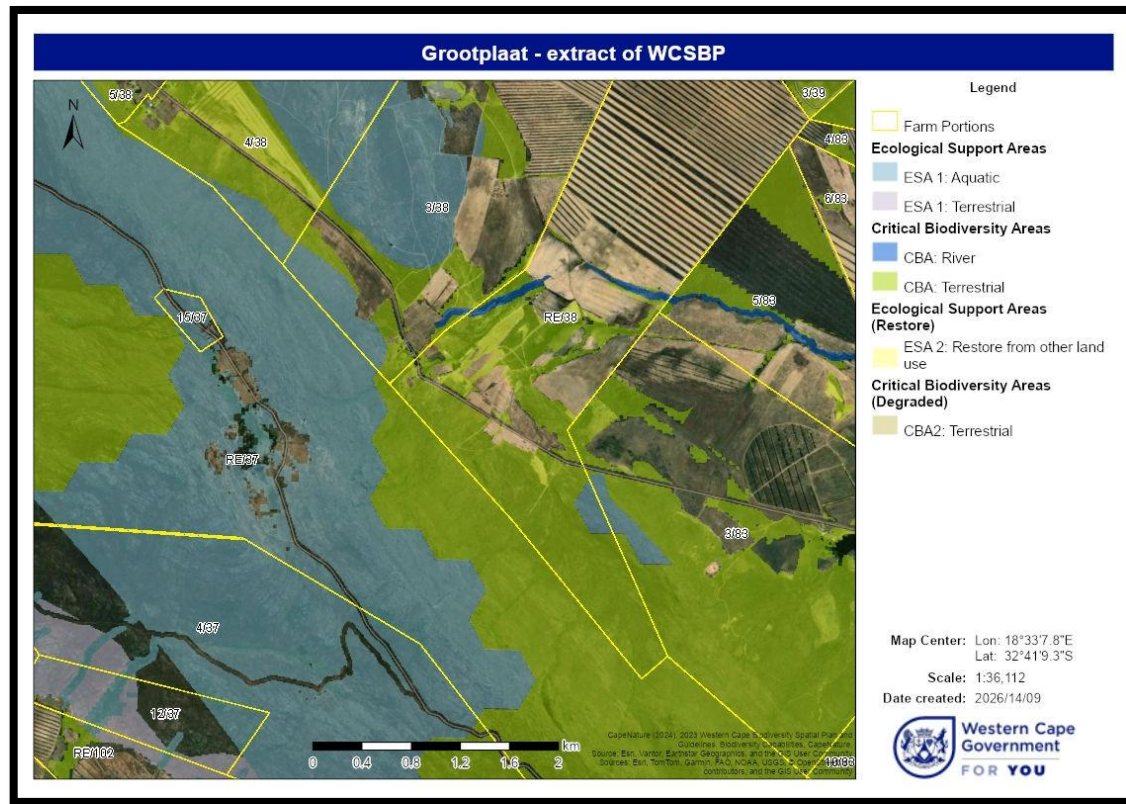


Figure 2: Extract of the Western Cape Spatial Biodiversity Plan (CapeNature 2023) showing that most of the study area is mapped as Ecological Support Area 1, a relatively low level of priority, with the surrounding areas mapped as transformed (no shading). This mapping is largely supported by my observations, although parts of the wetland are actually in good enough condition, even now, to have been mapped as CBAs.

5. THE VEGETATION AND ITS SENSITIVITY

According to the SA Vegetation Map the entire study area falls within what is mapped as **Piketberg Sandstone Fynbos** (Mucina & Rutherford 2023). No copy of this map is included as it adds no real value. Based on my ground-truthing I agree with this mapping. This vegetation type is listed as being of Least Concern on a national basis (Government of South Africa 2022). Some 82% of the original total extent of this vegetation unit still remains, <1% is formally conserved, and the conservation target is 29% of total extent (Rouget *et al* 2004).

Indigenous vegetation cover in the study area ranges from 5-100% (see Plates 1-3). Habitat diversity is high. Some areas are permanent wetland with near intact flora and others are floodplain and seep that have been heavily disturbed and support almost no indigenous species currently. The areas fringing the actual study area are characterised by exposed sandstone bedrock, and support a high diversity of plant species, including all the SoCC recorded in the immediate area. Many different alien invasive plant species are present, ranging from mature pines, gums, poplars and oak trees to annual herbs and grasses. Many of the woody alien invasives (*Quercus*, *Pinus*, *Eucalyptus*, *Acacia* and *Populus*) have already been largely removed from the actual project area, but some of the smaller woody species still remain (*Acacia mearnsii*, *A. longifolia*, *A. saligna*, *Eucalyptus* sp., *Sesbania punicea*).

Notable indigenous species seen in the wetland areas in the study area include *Fuirena hirsuta*, *Zantedeschia aethiopica*, *Carpha glomerata*, *Athanasia crithmifolia*, *Halleria lucida*, *Pteridium aquilinum*, *Senecio halimifolius*, *Cliffortia ruscifolia*, *Aponogeton distachyos*, *Psoralea* sp., *Anatherum eucomum*, *Laurembergia repens*, *Juncus lomatophyllus*, *Capeochloa cincta*, *Nidorella ulmifolia*, and *Cotula turbinata*.

No plant Species of Conservation Concern (SoCC) were recorded within the proposed project area, and none are likely to occur here. Some of the many SoCC recorded (even during this brief survey) within 1000m of the project footprint area include *Leucospermum profugum* (Vulnerable), *Leucadendron discolor* (Vulnerable), *Geissorhiza adriaanii* (not yet assessed; known only from this property), *Adenandra marginata* ssp. *mucronata* (Rare), *Babiana lineolata* (Endangered), *Aspalathus pendula* (Near Threatened), *Leucadendron loranthifolium* (Near Threatened), *Muraltia arachnoidea* (Near Threatened), *Phyllica cuspidata* var. *cuspidata* (Vulnerable) and *Metalsia juniperoides* (Endangered).



Plate 1: View of dense riparian vegetation downstream from the second lowest dam, where proposed boardwalk will go (foreground).



Plate 2: View of bracken wetland area, with *Senecio halimifolius* in foreground at right.



Plate 3: View of upper part of wetland, looking south, with some of the many felled alien trees piled up at left.



Plate 4: Overview of study area, with undisturbed rocky sandstone vegetation fringing the main valley and riparian area. These rocky sandstone areas are where most of the recorded plant SoCC can be found.

5.1 Botanical Sensitivity

The botanical sensitivity in the project area is all Low and Medium at a regional scale (see Figure 3). This is in line with the Screening Tool which maps the whole area as Medium sensitivity for Plant Species.

The Low sensitivity is informed by the underlying vegetation type being widespread and of Least Concern, the heavy previous soil disturbance in these areas, the absence of plant Species of Conservation Concern, the lack of habitat diversity, the absence of high sensitivity rocky and well developed gravelly areas, and low indigenous plant cover and low plant diversity, being dominated by widespread, weedy or alien species.

Medium sensitivity areas also lack any recorded plant SoCC, but have a higher habitat and indigenous plant diversity and a lower percentage of alien invasive species (at least since initial alien clearing), due to lower levels of soil disturbance in these areas.

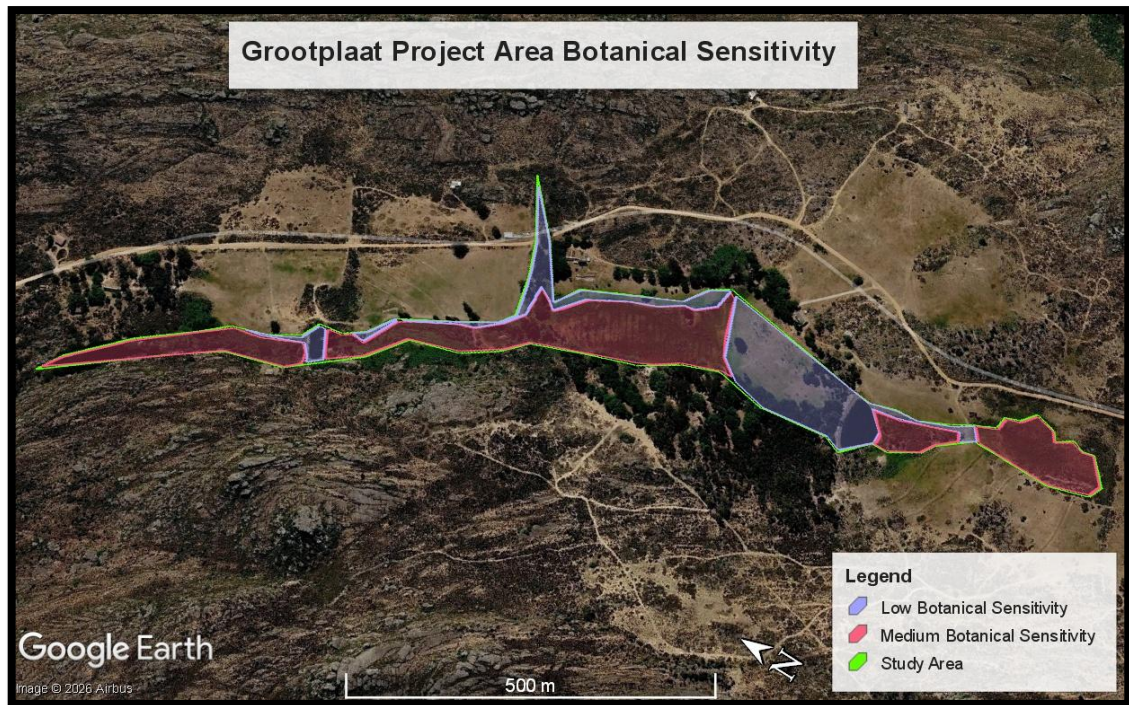


Figure 3: Botanical Sensitivity map of the study area.

6. CONCLUSIONS AND RECOMMENDATIONS

- The study area is deemed to be of Low and Medium botanical sensitivity, in line with the Screening Tool mapping.
- No plant SoCC were recorded within the project footprint area, and none are likely to occur. Numerous SoCC occur within 1000m of the project area, mostly in the rocky areas undisturbed by previous activities (and these would thus be mapped as High sensitivity areas). The primary current threat to the species in the undisturbed surrounding areas is lack of fire, as the vegetation is already very old (>25 years), and many plants (including some of the SoCC) are already senescent (dying of old age), as this is a fire driven vegetation type, with an optimal fire frequency of once every 12-15 years (Helme & Rebelo 2016). A program of managed burns is thus advised in these surrounding areas, which would also reduce the very real risk of runaway wildfires burning the whole area (and infrastructure) at once.
- The proposed wetland rehabilitation measures in the study area are likely to have a long term Medium positive impact on the flora and terrestrial ecology in this area, and are thus strongly supported.
- Suggested mitigation includes much of what is happening already and what is planned, notably removal of as many alien invasive plant species as

possible, using appropriate methodology (as per Martens *et al* 2021), replanting degraded and remodelled areas with suitable locally indigenous plant species, and undertaking a sequence of managed burns in the very old surrounding veld.

7. REFERENCES

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