



NICK HELME BOTANICAL SURVEYS

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Eskom GC: Land Development
Megawatt Park
Johannesburg
ATT: Mr John Geeringh

Dear John

Comment on proposed biodiversity offset for 400kV powerline from Oranjemund – Gromis – Juno (Kudu Integration Project).

Thank you for asking me to comment on the proposed biodiversity offset for this project, as required by the Record of Decision (RoD) issued on 6 Nov 2007. My botanical impact assessment of the entire route was dated November 2006.

The total final route will cross about 10km of the Richtersveld National Park (Klein Duin section) and about 11km of the Namaqua National Park east of Hondeklipbaai, making a total of about 21km. Assuming that the total disturbance footprint will comprise the access tracks (0.4ha footprint/km), and the pylon footings (0.1ha footprint/km), it is calculated that about 0.5ha will be disturbed per km, which means that about 10.5ha will be disturbed within the SANParks area. If one uses the total servitude area through SANParks land the total is about 55ha. The RoD required an offset ratio of 1: 10-20 for impacts within the SANParks area, which implies an offset area of at least 105 – 210ha, or 550 – 1100ha if one uses the total servitude area as the base factor. The Botanical Impact Assessment for this project, which presumably informed the RoD (Helme 2006) recommended a biodiversity offset of at least 100ha for the Oranjemund – Gromis section of the route.

The proposed offset on the eastern side of the Vyftienmyl se Berg is about 930ha in extent, and thus within the recommended offset size range, using the servitude area, and is significantly bigger than the recommended offset area if one uses the total likely development footprint with SANParks land as the base factor. The size

of the proposed offset area is thus strongly supported from a botanical perspective.

The botanical EIA and the RoD both recommended adding the offset in the Oranjemund area, with the latter referring to an addition to the newly declared Oranjemund Ramsar site. However, there are various problems associated with acquiring a suitable property here for biodiversity conservation. Most importantly much of the southern border of the Ramsar site is adjacent to Alexander Bay settlement, which comprises of dwellings, roads, a large (now apparently defunct) farm, a golfcourse and extensive mining areas with associated disturbance, and thus there is little intact habitat allowing for ecological connectivity to the south. The Grootderm farm would be a suitable consideration for an offset in terms of biodiversity value (being a recognised priority for conservation), but it is not adjacent to the Ramsar site and lies to the east of the site, separated by State Land about 4km wide. Secondly, the Grootderm property is apparently subject to a land claim, which makes negotiation for an offset or purchase at this stage very difficult (but presumably not impossible given that a servitude over the land has been obtained), but it should be noted that it does not necessary rule out the future option of conservation orientated land use on the property, should the owners be willing.

Given that it has proven impractical to purchase and conserve additional land in the Orange River mouth area, an alternative was investigated by Eskom. With the relatively recent establishment of the Richtersveld and Namaqua National Parks in the area it was believed that the most practical solution was to add conservation worthy land to SANParks, in fulfilment of the biodiversity offset requirement. After various negotiations it was decided that the most suitable offset was to acquire some 930ha of land on the eastern edge of Vyftienmyl se Berg (see Figure 1), some 22km inland of Port Nolloth, and add this to the Richtersveld National Park, which already borders on the western side of this land portion.

Dr Philip Desmet wrote a letter in May 2001 outlining the botanical importance of the Vyftienmyl se Berg, and concluded that he believed it likely that it would prove to be within the top 1% of conservation priorities with the whole Namaqualand region, and various subsequent analyses have indeed shown this to be the case. I have personally had the privilege of exploring the Vyftienmyl se Berg area with Dr Desmet and am thus familiar with the exceptional botanical diversity and endemism of this area, and I therefore strongly support the acquisition and formal conservation of the remaining eastern portion of this truly

unique botanical hotspot. Although it was not highlighted in the EIA or the RoD as a target area for the biodiversity offset I believe the conservation of this area would help conserve an irreplaceable national conservation priority area, and thus falls within the general ambit of what the required biodiversity offset is supposed to achieve. The fact that it is adjacent to an area already managed by SANParks (see Figure 1) makes it doubly suitable, and it is an obvious fit that ticks all the boxes for biodiversity conservation.



Figure 1: The area outlined in blue is the proposed offset area, being adjacent to the area already within the Richtersveld National Park (Klein Duin section; green shading).

It does however need to be pointed out that the area adjacent to the Orange River Ramsar site and the proposed Vyftienmyl offset area are very different in terms of their structure, vegetation and floristics. Whilst both are within the Succulent Karoo biome and the Gariep Centre of Endemism, they fall within different bioregions as per Mucina & Rutherford (2006). The immediate vicinity of the Ramsar area is regarded as part of the Southern Namib Desert Bioregion, whilst the Vyftienmylberg area is within the Richtersveld Bioregion. The Grootderm area is largely flat and windswept, and characterised by gravel and sand, overlying various shallowly buried rocks, including schists and limestone, whilst Vyftienmyl se Berg is a large quartzite outcrop with very little deep sand or gravel. The latter supports a vegetation type that is endemic to this single mountain, and is renowned as a “fog oasis”, whereas the key area along the route south of the substation supports Western Gariep Lowland Desert and Western Gariep Plains Desert (see Figure 2) with lower fog incidence than Vyftienmyl, and the two areas have very little in common from a vegetation perspective.

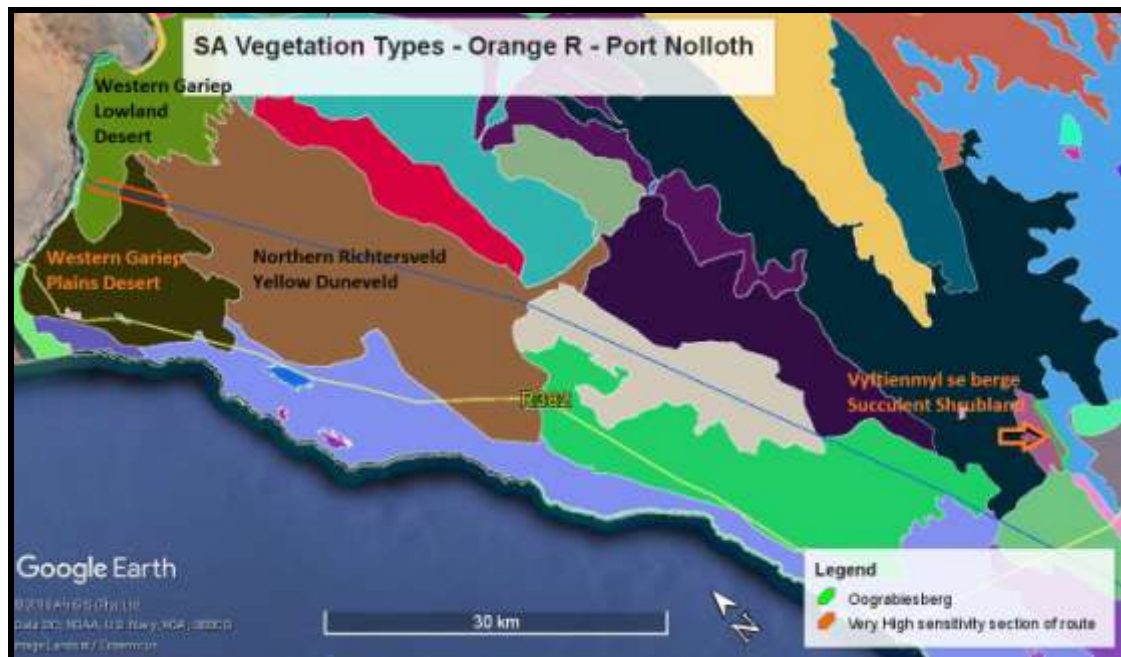


Figure 2: Extract of the SA vegetation map of the area, showing the powerline route between the Orange River and the road east of Port Nolloth (yellow line at bottom right), as well as the Very High sensitivity area south of the Orange River that was the primary trigger for the need for the biodiversity offset.

It is way beyond the scope of this report to do a full floristic comparison of the two areas, as extensive fieldwork would be required over various seasons in order to do that, but the following is a brief synopsis.

The Vyftienmyl se Berg has a much higher (possibly more than ten times) biomass than the Grootderm area, due to the rocky, quartzite terrain, the far greater topographic diversity and the fog trapping effects that radically supplement the available moisture. Not surprisingly the area also has a higher overall plant diversity, possibly as much as twice the overall diversity of the Grootderm area. All the known rarities on the massif are succulents, and include *Conophytum jucundum ssp marlothii* (near endemic), *C. bolusiae ssp. bolusiae* (VU; endemic), *C. fraternum* (Rare), *C. francoiseae* (VU; endemic), *C. obscurum ssp barbatum* (VU), *C. stephaniai ssp. stephaniai* (VU; endemic), *Mitrophyllum abbreviatum* (VU; endemic), *M. grande* (near endemic), *Namaquanthus vanheerdei* (VU), *Schlechteranthus maximiliani* (VU), *Tylecodon bodleyae* (CR), *Bulbine lavrani* (VU; incl. by some in *B. dissimilis*), *B. torsiva* (DDT: near endemic), *B. vitrea* (VU; incl. in *B. quartzicola* by some), *Anacampseros scopata* (Rare; endemic), *Gasteria pillansii var hallii* (EN). Numerous other rarities are shared with some of the adjacent Richtersveld rocky hills.

Although topographically less diverse the Grootderm area supports what would appear to be an even longer list of plant rarities, including: *Portulacaria pygmaea* (EN; near endemic); *Crassula brevifolia var psammophila* (VU; near endemic), *Crassula plegmatoides* (VU); *C. sladenii* (EN), *Tylecodon schaeferianus* (VU); *Euphorbia melanohydrata* (EN; near endemic); *Monsonia multifida* (EN; near endemic); *Bulbine ophiophylla* (EN; near endemic); *Phyllopodium namaense* (VU); *P. hispidulum* (EN); *Strumaria bidentata* (CR; endemic); *Calobota acanthoclada* (EN), *Anacampseros gariensis* (EN; endemic), *Cheiridopsis brownii* (EN; near endemic), *Rhyssolobium dumosum* (EN), *Astridia citrina* (EN), *Cynanchum meyeri* (VU), *Euphorbia herrei* (CR; endemic), *Aridaria vespertina* (EN), *Babiana namaquensis* (VU) and *Othonna furcata* (near endemic). It should also be noted that the famous Alexander Bay lichen fields (just east of the main road) are still completely unprotected, and very vulnerable to damage or loss, and formal conservation of these areas should be pursued by the relevant conservation agencies in the area (DTEC and SANParks).

From a biogeographic and conservation perspective the Grootderm area is the higher priority, as the habitats there are currently completely unconserved in South Africa (with the exception of the Ramsar area, which is mainly riverine), although a large portion of the key gravel plains habitat is now protected north of the Orange River in the new Sperrgebiet National Park. The portions in South Africa are thus under threat of further habitat loss (mining, agriculture, offroad vehicles), and support the only South African representations of these habitat units.

The Vyftienmyl se Berg supports a different but unique assemblage of species, and is of extremely high conservation priority as a result, but at least 75% of it is already conserved within the Klein Duin section of the Richtersveld National Park. The remaining unconserved habitat is also steeper and rockier than the Grootderm area, and is thus less likely to become severely degraded (although it could be degraded by heavy grazing).

It is not really possible to provide a simple table comparing loss of habitat in the Grootderm area (associated with the powerline construction) with the conservation gain associated with an offset in the Vyftienmyl se Berg, as one is not comparing like for like. However, the ratios of habitat loss to habitat gain have been outlined on page 1 of this report, and the proposed 930ha Vyftienmyl se Berg offset ticks all the boxes in this regard.

In conclusion, the two areas – Grootderm and Vyftienmyl se Berg – are both national and regional conservation priorities, but are very different in terms of their topography, likely threats and floristics. The Grootderm area presents a more immediate conservation priority in that it is entirely unconserved within South Africa, but it would unfortunately appear that no land portions adjacent to the Ramsar site are currently available for a biodiversity offset consideration. It would thus appear reasonable that the 930ha Vyftienmyl se Berg option be pursued as the required biodiversity offset for this project, as the conservation of this area would be a very welcome addition to the Richtersveld National Park and the overall SA conservation estate. Both SANParks and DTEC should in any event actively pursue expansion of the conservation areas in this semi-arid global plant hotspot.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Nick Helme', with a horizontal line underneath.

Nick Helme