



**BOTANICAL SOCIETY OF SOUTH AFRICA  
CONSERVATION UNIT**

PRIVATE BAG X 10, CLAREMONT 7735  
PHONES: 021-797-2284, FAX 021-761-5983  
EMAIL: .....@bsi.ac.za

TO: GUILLAUME NEL FROM: CHARL DE VILLIERS

FAX NUMBER: 418 6440 DATE: 27/01/2006

COMPANY: SEF TOTAL NO. OF PAGES: 7 (incl. this page)

PHONE NUMBER: SENDER'S REFERENCE NUMBER:

RE: KUDU INTEGRATION PROJECT

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The Botanical Society  
of South Africa



Die Botaniese Vereniging  
van Suid-Afrika

003-384 NPO

**Conservation Unit**

Private Bag X10, Claremont, 7735  
Tel: 27-21-789-8824 Fax: 027-21-781-5983; Email: [nsale@botanicalsociety.org](mailto:nsale@botanicalsociety.org)

27 January 2006

Strategic Environmental Focus (Pty) Ltd  
PO Box 6781  
ROGGEBAAI  
8012

Attention: Mr Guillaume Nel  
[guillaume@safa.co.za](mailto:guillaume@safa.co.za)  
Fax: (021) 418 6440

Dear Sir

**EIA process: Kudu Integration Project**  
**SEF-project code: 8041**  
**Authority reference number: 12/12/20/720**

Thank you for providing the Botanical Society of SA Conservation Unit with the opportunity to participate in this scoping process.

Our comments are limited to the biodiversity aspects of the proposed project, but are informed by the principle that environmental management must seek the best practicable environmental option, and that the primary way of achieving this is by means of a comparative assessment of all feasible alternatives.

In this regard, we believe that the following biodiversity considerations must be prioritised in the identification, assessment, evaluation and selection of alternative sitings and/or routing of project infrastructure and services:

**Succulent Karoo: biodiversity hotspot**

~~Please note that a precautionary and risk-averse approach is advised with regard to this project as the proposed transmission lines and new access roads will in their entirety traverse landscapes constituting a global biodiversity hotspot, the Succulent Karoo Biome.~~

The Succulent Karoo biome is one of 34 internationally recognised biodiversity "hotspots" and, besides the Horn of Africa, ~~the only one in the world (DEAT 2005; Millennium et al. 2005).~~

Advisory Committee: Ms Thérèse Brinkcote, Ms Isusile Brownie, Mr Tony Dold, Dr Peter Goodman, Ms Kristel Maza, Mr Warwick Stewart



*Biodiversity  
Hot spots*

Biodiversity 'hotspots' refer to regions that constitute global priorities for conservation action due to high levels of endemism as well as vulnerability to threatening processes. The National Spatial Biodiversity Assessment (Driver et al. 2008) has identified the Succulent Karoo Biome as one of nine broad priority areas for conservation action at a national scale.

The Succulent Karoo has an exceptionally diverse flora which is particularly rich in endemic bulbs and succulents. Altogether 40% of its 6 318 plant species are endemic, and 17% are listed in the IUCN's Red Data Book. Only 3.5% of the Succulent Karoo is formally protected, and its globally-important biodiversity is subject to a range of pressures.

**Succulent Karoo Ecosystem Plan (SKEP)**

The SKEP Framework for Action (Driver et al. 2003) has identified specific areas where vegetation is highly vulnerable and few options exist for achieving conservation targets. In these cases, most or even all remaining habitat that corresponds with the ecosystem or vegetation type in question is needed in order to meet a minimum target for the conservation of biodiversity pattern and its associated ecological processes.

Such areas with highly irreplaceable and vulnerable biodiversity occur among others between Port Nolloth and Lektarano, Kangoon and Sarsobak, and around Lubbeka-Vindanda respectively. The Gariesmond-Groenle-Juno corridor negotiates a number of landscape features that are important for the maintenance of ecological processes, including river corridors, soil and vegetation boundaries, quartz and gravel patches, and sand movement corridors.

Quartz patches, in particular, represent a habitat type that is almost uniquely associated with the Succulent Karoo Biome. Quartz patches are centres of plant endemism and species diversification. They are also delicate ecosystems that are sensitive to transformation. Once disturbed, they are virtually impossible to restore.

The SKEP expert maps are also very useful for broad-scale corridor selection as they highlight particular areas that are important for species richness and endemism and that would therefore require particular attention in planning.

Please note that although the SKEP maps are a vital planning tool, mapping was undertaken at a scale of 1:250 000. Considerable specialist input therefore will be required to develop a more finely-grained and detailed understanding of biodiversity features in the study area.

**Spatial recommendations and specialists' workshop**

In the light of the high global conservation value of the Succulent Karoo Biome, and the potential occurrence of critical habitats and landscape-scale spatial components of ecological processes that may occur within the transmission corridors, planning should seek to:

- Avoid any additional habitat loss in areas designated as highly irreplaceable for the achievement of biodiversity targets, including quartz and gravel patches, by the SKEP programme;
- Promote functional connectivity; and
- Reduce the fragmentation of habitat by appropriate restorative actions.



SKEP

SKEP maps

*Corridor workshop*

In this regard, it is strongly recommended that an inter-disciplinary, corridor workshop be convened to draw on expert knowledge and experience of the area which can be used to identify major issues or "show-stoppers" that can be dealt with through positive planning. The SKEP maps can provide the spatial biodiversity context for such an expert gathering.

The specialist workshop should identify, on the basis of an informed screening exercise, route alternatives that can be taken forward into scoping.

#### National Environmental Management Principles

*NEMA principles*

We would strongly recommend that all reports for this environmental process firmly demonstrate how the proponent intends compliance with the National Environmental Management Principles (s 2, National Environmental Management Act 107 of 1998) which *inter alia* dictate that environmental management must:

- Avoid, minimise or remedy disturbance of ecosystems and loss of biodiversity;
- Avoid degradation of the environment;
- Avoid jeopardising ecosystem integrity;
- Pursue the best practicable environmental option by means of integrated environmental management;
- Protect the environment as the people's common heritage;
- Control and minimise environmental damage; and
- Pay specific attention to management and planning procedures pertaining to sensitive, vulnerable, highly dynamic or stressed ecosystems.

We understand these to be "bedrock" principles that serve as guidelines for all decision-making that may affect the environment. As such, it is incumbent upon the proponent to show how the proposed activity would comply with these principles and thereby contribute towards the achievement of sustainable development as defined by Act 107 of 1998 as amended.

#### Recommendations: Biodiversity ToR

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In order to ensure that biodiversity is adequately addressed in this environmental process, it is recommended that:

1. The attached Terms of Reference are used as a guideline for drafting. In consultation with the respective provincial biodiversity conservation authorities, appropriate terms of reference for the biodiversity specialist study/ies;
2. The biodiversity specialist studies reflect a co-ordinated, inter-disciplinary, approach to the identification and assessment of impacts; and
3. Findings are presented as an integrated impact statement on biodiversity pattern and process.
4. Where relevant and feasible, conservation gains should be emphasised.

The Pinnaac Forum ecosystem guidelines for environmental assessment in the Western Cape (Halse, In De Villiers et al, 2005, pp 58-81) can be consulted to identify critical issues that should be addressed when undertaking biodiversity assessments in the Succulent Karoo. The guidelines can be obtained from the Conservation Unit, Botanical Society of SA.

Dr Philip Lesinael  
Dr Charlie Boucher

083 628 2570  
083 628 2570

The SKEP conservation plan can be obtained from the SA National Biodiversity Institute's Biodiversity GIS Unit, Ph (021) 789 8888 or [Willoughby@sanbi.org](mailto:Willoughby@sanbi.org).

Lastly, will you kindly register the BotSoc Conservation Unit as an Interested and Affected Party for the remainder of this EIA process.

Please contact the undersigned in the event of queries.

Your sincerely,

  
CHARL DE VILLIERS  
Project leader, Biodiversity in Environmental Assessment

cc Dr Bruce McKenzie, Botanical Society of SA [bcm@web.co.za](mailto:bcm@web.co.za)  
Ms Verne Bowe, CapeNature [verne@capenature.gov.za](mailto:verne@capenature.gov.za)  
Mr Owen Henderson, Conservation International [Owen.Henderson@sanbi.org](mailto:Owen.Henderson@sanbi.org)  
Ms Daphne Harney, SKEP [harney@sanbi.org](mailto:harney@sanbi.org)

#### References

- Brownlie S (2005) *Guideline for involving biodiversity specialists in EIA processes: Edition 1*. CSIR Report No ENV-S-C 2005 083 C. Republic of South Africa. Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.
- Department of Environmental Affairs and Tourism (2005) *South Africa's National Biodiversity Strategy and Action Plan: Final Draft*, May 2005. DEAT, Pretoria.
- De Villiers CC, Brownlie S, Clark B, Day EG, Driver A, Euston-Brown DIW, Helms NA, Holmes PM, Job N, Rebelo AB (2005) *Fynbos Forum Ecosystem Guidelines for Environmental Assessment in the Western Cape*. Fynbos Forum and Botanical Society of South Africa, Kirstenbosch.
- Driver A, Desmet P, Rouget M, Cowling R. & Maza, K (2003) *Succulent Karoo Ecosystem Plan - Biodiversity component technical report*, Cape Conservation Unit, Report CCU 1/03, Botanical Society of South Africa.
- Driver A, Maza K, Lombard AT, Nel J, Rouget, M, Turpie JK, Cowling RM, Desmet P, Goodman F, Harris J, Jones Z, Reyers B, Sink K & Strauss T (2004) *South African National Spatial Biodiversity Assessment 2004: Summary Report and Appendices*. SA National Biodiversity Institute, Kirstenbosch.
- Mittermeier RA, Gil PR, Hoffman M, Pilgrim J, Brooks T, Mittermeier CG, Lamoreaux J and GAB de Fonseca (2005) *Hotspots revisited: Earth's biologically richest and most endangered terrestrial ecoregions*. CEMEX, Agrupación Semá Medra, S.C., Mexico.

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**RECOMMENDED TERMS OF REFERENCE FOR THE CONSIDERATION OF BIODIVERSITY  
IN ENVIRONMENTAL ASSESSMENT AND DECISION-MAKING**

**Botanical Society of SA Conservation Unit, Private Bag X10, CLAREMONT, 7735**

Tel: 27-21-799-8884 Fax: 27-21-761-8883

Inquiries: [Paikley@sanbi.org](mailto:Paikley@sanbi.org)

1. Provide a general overview of the affected area in terms of connectivity, corridors, and ecological viability of the affected area.
2. In terms of biodiversity pattern, identify or describe:

**2.1 Community and ecosystem level**

- a. The main vegetation type<sup>1</sup>, its aerial extent and interaction with neighbouring types, soils or topography.
- b. The types of plant communities that occur in the vicinity of the site.
- c. Threatened or vulnerable ecosystems (cf. new SA vegetation map/National Spatial Biodiversity Assessment<sup>2</sup>, conservation plans <http://cpu.uwc.ac.za>, WCNCB State of Biodiversity Report <http://www.conservation.org.za/know-how/html/sobintro.html>, etc).
- d. The types of animal communities (fish, invertebrates, avian, mammals, reptiles etc).

**2.2 Species level**

- a. Red Data Book species (give location if possible using GPS).
- b. The viability of and estimated population size of the RDB species that are present (include the degree of confidence in prediction based on availability of information and specialist knowledge, i.e. High=70-100% confident, Medium 40-70% confident, low 0-40% confident).
- c. The likelihood of other RDB species, or species of conservation concern, occurring in the vicinity (include degree of confidence).

**2.3 Other pattern issues**

- a. Any significant landscape features or rare or important vegetation/faunal associations such as seasonal wetlands, alluvium, oopsa, quartz patches or salt marshes in the vicinity.
- b. The extent of alien plant cover of the site, and whether the infestation is the result of prior soil disturbance such as ploughing or quarrying (alien cover resulting from disturbance is generally more difficult to restore than infestation of undisturbed sites).
- c. The condition of the site in terms of current or previous land uses.

<sup>1</sup> Macina L., Rutherford MC and Powrie LW (eds) (2004) Vegetation Map of South Africa, Lesotho and Swaziland. Shapefiles of basic "mapping units". Beta Version 4.0, February 2004. National Botanical Institute, Cape Town. Obtainable from SA National Biodiversity Institute, Ph (021) 799 8800 or [percipient@nbi.ac.za](mailto:percipient@nbi.ac.za) Conditions apply.  
<sup>2</sup> <http://sp.nbi.ac.za> Go to "incoming", go to "NSBA Vol 1 Terrestrial Component Oct 04 Appendix A&B.pdf"

3. In terms of biodiversity processes, identify or describe:
- The key ecological "drivers" of ecosystems on the site and in the vicinity, such as fire.
  - Any spatial component of an ecological process that may occur at the site or in its vicinity (i.e. corridors such as watercourses, upland-lowland gradients, migration routes, coastal linkages or inland-trending dunes, and vegetation boundaries such as edaphic interfaces, upland-lowland interfaces or biome boundaries).
  - Any possible changes in key processes, e.g. increased fire frequency or drainage/artificial recharge of aquatic systems.
  - The condition and functioning of rivers and wetlands (if present) in terms of: possible changes to the channel, flow regime (surface and groundwater) and naturally-occurring riparian vegetation.
  - Would the conservation of the site lead to greater viability of the adjacent ecosystem by securing any of the functional factors listed in (1)?
4. Would the site or neighbouring properties potentially contribute to meeting regional conservation targets for both biodiversity pattern and ecological processes? For information on conservation and biodiversity targets, contact the CapeNature Conservation Planning Unit (CPU), <cpu\_help@sabi.org> or <http://con.uwa.ac.za> or the CapeNature Land Use Advisory Unit, Ph (021) 866-6000.
5. Is this a potential candidate site for conservation stewardship? Contact CapeNature at Ph (028) 314-0173 for information on the stewardship programme.
6. What is the significance of the potential impact of the proposed project, alternatives and related activities – with and without mitigation – on biodiversity pattern and process (including spatial components of ecological processes) at the site, landscape and regional scales?
7. Indicate on a topographical map or orthomosaic, preferably at a scale  $\leq 1:10\ 000$ :
- The area that would be impacted by the proposed development;
  - The location of vegetation, habitat and spatial components of ecological processes that should not be developed or otherwise transformed; and
  - Areas that must remain intact as corridors or ecological "stepping stones" to maintain ecosystem functioning, including fires in fire-prone systems.
8. Recommend actions that should be taken to prevent or, if prevention is not feasible, to mitigate impacts and restore disturbed vegetation or ecological processes. Indicate how preventative and remedial actions will be scheduled to ensure long-term protection, management and restoration of affected ecosystems and biodiversity.
9. Indicate limitations and assumptions, particularly in relation to seasonality.
10. Indicate how biodiversity considerations have been used to inform socio-economic aspects of the proposed project, e.g. through changes to the location or layout of infrastructure, or retaining public access to biodiversity-related amenities or resources such as beaches or grazing.

Not practical, too large