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**CONSULTING**

# Ecological Assessment for the Vredesvallei landfill site

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- Addendum B – Declaration of Independence
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- Addendum F – Frog species observed in the area (ADU database)
- Addendum G – Butterfly and scorpion species observed in the area (ADU database)



## 1. Introduction

Pachnoda Consulting (and Kyllinga Consulting) has been appointed by SE Solutions to conduct an ecological assessment of the site including:

- Desktop analyses and literature reviews of existing ecology-related information, including available recent and historic aerial photographs.
- Site surveys to identify ecology-related risk features at each site by a Pr. Sci. Nat. Specialist, who will also delineate and assess sensitive areas.
- The creation of an ecological sensitivity spatial data (e.g. shapefiles) based on site surveys and desktop assessments, which can be used for map production.
- Description of identified sensitive areas/ species and other ecological indicators.
- Description of the conservation status and threat status of all vegetation types and faunal species identified on each site.

## 2. Site

### 2.1. Location

The site is located approximately 1.4km to the east of the town Vredesvallei, in the Kai Garib local municipality, Northern Cape. The site is located in a rural area outside the developed area. The border with Namibia is located approximately 23km to the west-north-west. The site is located in the Riemvasmaak Community Conservancy and the Augrabies National Park is present to the south of the site. Riemvasmaak is located approximately 17km to the east of the site. The Orange River is located to the south of the site and the Molopo River (a non-perennial river) is present to the east of the site. The confluence of the two rivers is located approximately 1km to the south of the site.

## 3. Background information

### 3.1. Vegetation

The site falls in the Lower Gariep Broken Veld vegetation type (Mucina & Rutherford 2006). The vegetation type is present on irregular plains, hills and low mountains. The vegetation is sparse and dominated by dwarf shrubs and shrubs, with several perennial grass and herb species and conspicuous annual species in the spring. Scattered tree groups are present on foot slopes and the slopes of koppies.

Several small trees are present in the vegetation type, including *Acacia mellifera*, *Commiphora gracilifrons*, *Pappia capensis* and *Ziziphus mucronata*. Several species of tall and dwarf shrubs are also present in the vegetation type, as well as several succulent shrub species, such as *Ceraria namaquensis*, *Euphorbia avasmontana*, *Kleinia longifolia* and *Lycium bosciifolium*. Several grass species are also present, including several *Aristida*, *Stipagrostis*, *Eragrostis* and *Enneapogon* species. The endemic succulent shrub *Ruschia punens* are also present in the vegetation type.

According to Mucina & Rutherford (2006) the vegetation type is classified as Least Threatened, even though only small patches are statutorily conserved in the Augrabies Falls National Park. The vegetation type is not listed in the “National list of ecosystems that are threatened and in need of protection” under the National Environmental Management: Biodiversity Act (Act 10 of 2004) as published in the Government Notice of 11 December 2011.



Figure 1. Locality of the Vredesvallei landfill site.



### 3.2. Centres of endemism

The Succulent Karoo Region is a floristic unit in the western portion of the Northern Cape Province and in portions of the Western Cape Province, and contains several centres of floristic endemism. This region mostly overlaps with the Succulent Karoo Biome (Van Wyk & Smith 2001).

The Vredesvallei site is located on the edge of the Gariep Centre of Floristic Endemism, which forms part of the Succulent Karoo Region. The Orange River valley cuts through the centre and also forms the boundary between South Africa and Namibia along most of its length in this Gariep Centre. The Gariep Centre is located in the north-western corner of the Northern Cape Province and the southern portion of Namibia. It is roughly L shaped extending northwards along the coast, and inland along the Orange River Valley to Augrabies. The Richtersveld is also included in the Gariep Centre.

The vegetation in the Gariep Centre consists mostly of xerophytic semi-desert shrubland with a high dominance of leaf succulents, which is the area is classified as the Succulent Karoo Biome. Succulent species are less dominant in the eastern portions of the centre. The Orange River is the only permanent watercourse in the area and the associated vegetation is mesophytic gallery bush and other riverine vegetation. Trees and shrubs are sparsely distributed and mostly confined to the banks of the Orange River, dry watercourses, springs and rocky mountainous areas. The vegetation is related to the geomorphology, geology and climate of the region.

Plant families with high endemism in the centre include the Asteraceae, Crassulaceae, Euphorbiaceae, Geraniaceae, Liliaceae, Mesembryanthemaceae, Portulacaceae and Zygophyllaceae. The Gariep Centre has the greatest variety of succulent species on earth. Most of these species are in the Mesembryanthemaceae, with approximately 60% of genera being endemic to the region, but several other families also has a high diversity of succulent endemic species in the centre.

## 4. Methods

### 4.1. Vegetation Assessment

Aerial photographs of the site were investigated and habitat units identified. A list of the species that has been recorded in the quarter degree grid (2820AC) and the grid directly adjacent (2820CA) has been downloaded from SIBIS (<http://sibis.sanbi.org/>). From this list, a list of Red Data species, medicinal plant species and invasive plant species were extracted. These lists were used to inform the assessment.

The site visit took place on 15 October 2015. The vegetation in each of the habitat units on site were recorded and a Braun-Blanquette cover-abundance (Table 1) were assigned to each species. The vegetation was recorded along random transect walks, on site and adjacent to the site. Braun-Blanquette cover-abundance values were not assigned to species located outside the site. The habitat adjacent to the site is assumed to be similar to the habitat prior to commissioning of the landfill. A search for the Red Data species was also conducted on site and adjacent to the site.



Table 1. Braun-Blanquette cover-abundance scale used.

Value	Cover
+	Less than 1% crown cover – As single individual or a few very small individuals.
1	1-5% crown cover
2a	6-12% crown cover
2b	13-25% crown cover
2m	Numerous small individuals or seedlings spread across the site, with a crown cover of no more than 25%
3	26-50% crown cover
4	51-75% crown cover
5	76-100% crown cover

#### 4.2. Fauna Assessment

Species lists of species that have been recorded on site were downloaded from the Virtual Museum on the Animal Demography Unit website (<http://vmus.adu.org.za/>), and a bird species list was downloaded from the South African Bird Atlas Project (SABAP2) website (<http://sabap2.adu.org.za/>). A list of the threatened bird species from the area has also been downloaded from SIBIS. These lists include species that were recorded in the area by various observers and which may therefore be present on site.

The site visit took place on 15 October 2015. Species were recorded along random walks, mainly on the edges of the landfill and adjacent to the landfill, but also in the surrounding areas. The site was mostly investigated for available habitat and species observed on site during the site visit were noted. Potential habitat for Red Data species were also noted in the surrounding area. No trapping took place.

## 5. Results

### 5.1. Vegetation

The landfill is located at the edge of an old cultivated field, adjacent to a rocky outcrop. The vegetation in the old cultivated field and on site is dominated by *Mesembryanthemum cf barklyi*, with *Zygophyllum dregeanum* succulent shrubs and a few large clumps of *Stipagrostis namaquensis*. Large bare areas (approximately 95%) are present (Figure 2). The site has a very low species composition and the species observed on site are listed in Table 2, below. The observed species are fairly common and none of the observed species are of conservation importance. *Mesembryanthemum cf barklyi* is a weedy species, commonly associated with disturbances, including ploughed fields and road reserves.



Figure 2. Bare soil and vegetation on and adjacent to the site.

Table 2. Plant species observed on site

Species	On site	Adjacent to site
<i>Acacia mellifera</i>		X
<i>Boscia albitrunca</i>		X
<i>Enneapogon desvauxii</i>	+	X
<i>Euphorbia dredgiana</i>		X
<i>Mesembryanthemum cf barklyi</i>	2m	X
<i>Stipagrostis namaquensis</i>	+	X
<i>Zygophyllum dregeanum</i>	2a	X

#### 5.1.1. Invasive species

A list of alien and invasive species has been published in the Government Gazette of 1 August 2014 in the Alien and Invasive Species Regulations (AIS) under the National Environmental Management, Biodiversity Act, 2004 (Act no. 10 of 2004) (NEMBA). No invasive species were recorded in the quaternary degree catchment, but the alien species *Tribulus terrestris* was recorded in the area.





## 5.2. Species of conservation importance

Several species of conservation importance were recorded in the quarter degree catchment. Five plant species were recorded in the quaternary degree catchment and are included in Table 3 below. No habitat is present for the species of conservation importance on site and none of the species are expected to be present. A description of the habitat requirements of the species and the availability of habitat is indicated in Table 3.

Table 3. Plant species of conservation importance recorded in quaternary catchment 2820AC & 2820CA.

Family Name	Species Name	Common Name	Category	IUCN Category	Habitat	Habitat present
Apocynaceae	<i>Hoodia gordonii</i>		Plants	DDD	Arid habitats from coastal to mountainous. On gentle to steep shale ridges, found from dry, rocky places to sandy spots in riverbeds.	None on site
Asparagaceae	<i>Asparagus stipulaceus</i>		Plants	NT	Coastal dunes.	None on site
Asphodelaceae	<i>Aloe dichotoma</i>	Kokerboom	Plants	VU	On the north-facing slopes of hills in Namaqualand.	None on site
Fabaceae	<i>Vachellia erioloba</i> (= <i>Acacia erioloba</i> )	Camel Thorn	Plants	Declining	Deep sandy soils in arid to semi-arid areas or along dry river beds or on alluvial soils.	None on site
Mesembryanthemaceae	<i>Dinteranthus wilmotianus</i>		Plants	NT	Alluvial gravel.	None on site

NT - Near Threatened

NL - Not Listed

VU - Vulnerable

DDD - Data Deficient, insufficient information

## 5.3. Fauna

### 5.3.1. Mammals

Several fauna species can possibly occur on site. Several domestic species were observed in the surroundings, including donkeys, goats and dogs. The area is used by the community for grazing and these species are therefore expected. The species on site is common to the area and not of significant conservation importance.

The species observed on site is not a comprehensive list of the species that may be present on site. For a more comprehensive list, please refer to Addendum C.

The species of conservation importance that has been observed in the area are listed in Table 4 below. Only two of these species falls within one of the threat categories: *Equus zebra subsp. Hartmannae*



(Hartmann's Zebra) and *Cistugo seabrae* (Angolan Wing-gland Bat). Both of these species were probably recorded in the Augrabies National Park and are unlikely to be present on the site.

Table 4. Mammal species of conservation importance observed in the area

Family	Species	Common name	Red list category
Equidae	<i>Equus zebra subsp. hartmannae</i>	Hartmann's Zebra	Endangered
Macroscelididae	<i>Elephantulus intufi</i>	Bushveld Elephant Shrew	Data Deficient
Muridae	<i>Gerbilliscus leucogaster</i>	Bushveld Gerbil	Data Deficient
Muridae	<i>Parotomys littledalei</i>	Littledale's Whistling Rat	Near Threatened
Mustelidae	<i>Mellivora capensis</i>	Honey Badger	Near Threatened
Petromuridae	<i>Petromus typicus</i>	Dassie Rat	Near Threatened
Soricidae	<i>Crocidura cyanea</i>	Reddish-gray Musk Shrew	Data Deficient
Vespertilionidae	<i>Cistugo seabrae</i>	Angolan Wing-gland Bat	Vulnerable

### 5.3.2. Avifauna

The bird species listed in Table 5 were also observed around the site during the site visit, but no species of conservation importance were observed on site during the site visit. A list of bird species previously recorded in the area is included in Addendum D.

Table 5. Bird species observed in the vicinity of the Vredesvallei landfill during the site visit.

Species name	Common name
<i>Passer melanurus</i>	Cape Sparrow
<i>Stenostira scita</i>	Fairy Flycatcher
<i>Pycnonotus nigricans</i>	African Red-eyed Bulbul

Foraging habitat is present adjacent to the site for four of the bird species of conservation importance, and possible breeding habitat is present for two of the bird species in the area. Two of these species has however been reclassified as being Near Threatened (Table 3). The landfill site is however small and is unlikely to have a significant impact on these species.



Table 6. Bird species of conservation importance recorded in quaternary catchment 2820AD.

Common name	Taxon name	Regional Red List Status 2014	Regional Red List Status 2000	Habitat	Habitat present on site
Bustard, Kori	<i>Ardeotis kori</i>	Vulnerable	Near Threatened	Dry thornveld, grassland and semi-desert near tree cover.	Foraging habitat
Korhaan, Karoo	<i>Eupodotis vigorsii</i>	Near Threatened	Least Concern	Desert and semi-desert of the Karoo, or wheat fields.	Foraging habitat
Falcon, Lanner	<i>Falco biarmicus</i>	Near Threatened	Vulnerable	Occur in wide range of habitats but avoids forests.	Foraging habitat, possibly breeding habitat in the larger area
Eagle, Martial	<i>Polemaetus bellicosus</i>	Endangered	Vulnerable	Savanna, but present in any habitat from desert to forest edge.	Foraging habitat, possibly breeding habitat in the area

### 5.3.3. Herpetofauna

#### 1.1.1.1. Reptiles

Numerous reptile species were recorded in the area (Addendum E), probably mostly in the mountainous areas around the site, but several species may also be present on site. All of the species, however, has a status of Least Concern or had not been evaluated. No reptile species of conservation importance are therefore expected on the site and the landfill is not expected to have a significant impact on the reptiles of the area.

#### 1.1.1.2. Frogs

A few frog species were recorded in the area and are included in Addendum F, but no species of conservation importance are expected at the site or in close proximity to the site.

### 5.3.4. Invertebrates

Numerous butterfly and scorpion species has been recorded in the area (Addendum G), none of which is threatened. Numerous other invertebrate species are also expected to be present in the area and on site. No species of conservation importance are however expected on site.

## 6. Buffer recommendations

A buffer zone is intended as an area to mitigate the impact of the development on sensitive features on site. Since the landfill is already in use and no floral or faunal species of conservation concern were identified on site, no buffer zone is applicable to the site.

## 7. Sensitivity

No sensitive features are present on site or north of the site, but the rocky outcrops (Figure 3) to the south of the site should be considered to be of moderate sensitivity and conservation importance.



*Figure 3. Rocky outcrop located to the south of the site.*



## 8. Impact assessment and mitigation recommendations

Table 7. Impact assessment table for the Vredesvallei landfill site.

Nature	Extent	Duration	Intensity	Probability	Status	Significance without mitigation	Significance with mitigation and rehabilitation	Confidence	Reversibility	Replaceability	Cumulative
Loss of habitat and indigenous species	Site	Long term	Low	Possible	Negative	Low	No Impact	High	Largely irreversible	Large areas of habitat and indigenous vegetation remain	No
Loss of habitat for species of conservation importance	Site	Permanent	Low	Improbable	Negative	No Impact	No Impact	Moderate	Moderately reversible	Replaceable	No
Loss of ecological corridors	Site	Long term	Low	Improbable	Negative	No Impact	No Impact	Moderate	No impact	No impact	No
Infestation by invasive plant species	Local	Long term	Low-Medium	Improbable	Negative	Low	No Impact	Moderate	Reversible with mitigation measures	Replaceable	No
Infestation by pest species	Local	Long term	Low-Medium	Possible	Negative	Low	No Impact	Moderate	Reversible with mitigation measures	Replaceable	No



### **Loss of habitat and indigenous species**

The habitat on site is partially transformed by the landfill in place. Some habitat and indigenous species remain on site and adjacent to the site. At present the landfill are in disuse and will be rehabilitated and closed. The site is currently locked and some dumping is taking place outside the fence.

#### *Mitigation:*

- Clean up the surrounding areas and move the litter into an approved landfill area.
- Dumping activities must be confined to the fenced area.
- Vehicle movement must be restricted to the fenced area and the road to the landfill and should not disturb additional vegetation and habitat.
- Rehabilitation activities should focus on clearing the litter from the area outside the landfill and establishing a soil cover over the litter on site.

### **Loss of habitat for species of conservation importance**

No species of conservation importance are likely to utilise the habitat on site. Some of the species may however utilise the rocky hills to the south of the site. The landfill, or closure and rehabilitation activities, may not be expanded into this area.

### **Ecological corridors**

Given the relatively small size of the site and the large undeveloped area surrounding it, the impact is negligible. No mitigation is therefore required.

### **Infestation by invasive plant species**

Invasive plant species tend to establish in disturbed areas. The species must however be transported to these areas in some way. Although this is not a problem at present, there is a possibility that invasive plant species can spread to and from the site, should viable seed or plant parts be dumped at the landfill. Since this has not happened to date, the risk of this happening is considered to be low.

#### *Mitigation:*

- If populations of invasive species do establish on site these should be controlled.
- The spread of invasive and weedy species from the site should be easy to observe, but if in doubt, consult a specialist.
- Care must be taken not to control indigenous species.

### **Infestation by animal pest species**

Landfill sites can potentially provide habitat and food to several indigenous and alien pests and scavengers, including rats (*Rattus rattus* & *Rattus norvegicus*), mice (*Mus musculus*), jackals (*Canis* sp.),



feral dogs (*Canis domesticus*) and feral cats (*Felis catus*). Several bird species including crows (*Corvus* sp.) and Grey-headed gulls (*Larus cirrocephalus*), as well as insect species such as flies (*Musca domestica*) may also become a problem. Pests and scavengers are however only a problem when food sources and breeding habitat are available. At present the site is fairly free of food sources and is unlikely to be infested by pests.

*Mitigation:*

- Cover newly dumped rubbish containing food scraps at least once a week.
- If excessive numbers of flies are present the rubbish must be covered at the end of each day.

## 9. Conclusion

The landfill site is not utilised on a frequent basis and natural habitat still remains on site. The site and surrounding area is however very poorly vegetated and large bare areas are present, with only a few plant and animal species present. The site is therefore not considered to be of high conservation importance.



## 10. References & further reading

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## Addendum A – CV

### CURRICULUM VITAE

Name: **Catharina Elizabeth Venter** trading as Kyllinga Consulting  
Position: Senior Ecologist and Wetland Scientist  
Date of Birth: 29 December 1979  
Nationality: South African  
Languages: Afrikaans, English

#### EDUCATIONAL QUALIFICATIONS

- M.Sc (Botany), University of Pretoria (2003)
- B.Sc Hons (Botany), University of Pretoria (2001)
- B.Sc (Environmental Sciences), University of Pretoria (2000). Majored in Geography and Botany
- Matriculated, Sasolburg High School (1997)

#### Additional

- Introduction to ArcGIS 1 (2006)
- Bringing your data into ArcGIS (2006)
- Introduction to ArcView 3.x (2003).

#### FIELDS OF EXPERTISE

- **Ecological Assessment:**  
Ecological Assessments as part of the Environmental Impact Assessment Process
- **Wetland Assessment:**  
Wetland Assessments as part of the Environmental Impact Assessment Process and Water Use Applications, as well as rehabilitation plans for wetlands, including planning or the Working for Wetlands programme. Large scale wetland assessments (catchment scale).
- **GIS:**  
Compilation of maps for submission as part of Environmental Impact Assessment Process. Creating spatial databases and large scale wetland maps (catchment scale). Projection conversions and matching/overlying different format GIS maps.
- **Environmental Impact Assessment**  
Undertaken numerous Environmental Scoping Reports, as required by the Environment Conservation Act, 1989 (Act 73 of 1989), the National Environmental Management Act, 1998 (Act 107 of 1998), as amended and the Development Facilitation Act, 1995 (Act 67 of 1995). Project experience includes the establishment of various housing typologies, golf courses, commercial and industrial projects, infrastructure development (roads), resorts and/or game lodges as well as filling stations.
- **Public Participation:**  
Undertaken numerous public participation processes, ranging from basic to extensive, as required by relevant environmental legislation.

#### MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Professional Natural Scientist (Pr.Sci.Nat) in the field of Botanical Science (Reg no. 400048/08)
- Member of the Botanical Society of South Africa



## **EMPLOYMENT HISTORY EXPERIENCE**

### **Kyllinga Consulting (July 2015 - present)**

Senior Ecologist responsible for wetland and ecological specialist assessments.

### **Spatial Ecological Consulting (February 2010 – June 2015)**

Senior Ecologist responsible for wetland and ecological specialist assessments.

- Wetland Related Assessments  
More than 40 wetland assessments conducted between 2010 and 2015.
- Vegetation Assessments  
Approximately 16 vegetation assessments between 2010 and 2015.
- Management Plans  
Completed two ecological management plans.

### **MSA Group Services (previously Exigent Environmental CC) (August 2004 – January 2010)**

Environmental Scientist responsible for ecological and wetland assessments and the compilation of maps. Also conducted various scoping and EIA applications and EMPRs.

- Ecological Assessments  
In excess of 50 ecological assessments conducted between 2004 and 2010, including managing the inclusion of the fauna specialist assessments.
- Wetland Assessments  
More than 60 wetland verification projects, wetland delineations and wetland assessments, completed between 2004 and 2010.
- As well as:  
Rehabilitation Projects; Fatal Flaw / Screening Assessments; National Department of Agriculture Authorisations; Mining Related Assessments; Private, Public Partnership Projects; Resource Management Plans (RMP); Environmental Management Plans; Environmental Management Programme; Environmental Exemption Processes; Basic Assessments; Environmental Impact Assessments

### **Part-time employment (2002-2004)**

Tutor for botany practicals; Assisting Wildlife management students with Braun-Blanquette analysis; Researcher for a project on the vegetation communities and ecology of the Kruger National Park; Research assistant for the analysis of street trees in Tshwane urban forest; Various part time projects related to vegetation and wetlands

## **COUNTRIES OF WORK EXPERIENCE**

- South Africa
- Lesotho
- Botswana
- Mozambique

## **PAPERS AND PUBLICATIONS**



Co-author and data contributor to: SIEBEN, E. *et al.* The vegetation of inland wetlands with salt-tolerant vegetation in South Africa: description, classification and explanatory environmental factors, submitted to the South African Journal of Botany for review in Feb 2015.

Co-author and data contributor to: SIEBEN, E. *et al.* The herbaceous vegetation of subtropical freshwater wetlands in South Africa: description, classification and explanatory environmental factors, submitted to the South African Journal of Botany for review in Feb 2015.

Co-author and data contributor to: SIEBEN, E. *et al.* The vegetation of grass lawn wetlands of floodplains and pans in semi-arid regions of South Africa: description, classification and explanatory environmental factors, submitted to the South African Journal of Botany for review in Jan 2015.

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#### **PRESENTATIONS**

Venter, C.E.; Bredenkamp, G.J. & Grundling, P-L. 2003. Plant community types, and their association with habitat factors as ecosystem driving forces, of Mfabeni Swamp. *Environment of the St Lucia Wetland: Processes of Change*, Cape Vidal, September 4<sup>th</sup>- 7<sup>th</sup>, 2003.

#### **Poster Presentations**

Venter, C.E.; Bredenkamp, G.J.; Grundling P-L. 2002. Baseline vegetation surveys of rehabilitated peatland on Rietvlei Nature Reserve. SAAB Convergence. Grahamstown.

Venter, C.E.; Bredenkamp, G.J.; Grundling P-L. 2003. Vegetation change on rehabilitated peatland on Rietvlei Nature Reserve. SAAB Convergence. Pretoria.



**Addendum B – Declaration of Independence**

<b>Specialist:</b>	Ina Venter, trading as Kyllinga Consulting		
<b>Nature of specialist study compiled:</b>	Wetland Assessment		
<b>Contact person:</b>	Ina Venter		
<b>Postal address:</b>	53 Oakley street, Rayton		
<b>Postal code:</b>	1001	<b>Cell:</b>	083 370 0850
<b>Telephone:</b>	012 734 5642	<b>Fax:</b>	
<b>E-mail:</b>	i.venter@telkomsa.net		
<b>Qualifications relevant experience:</b>	& M.Sc. Botany		
<b>Professional affiliation(s) (if any)</b>	South African National Association of Scientific Professions		



I, CE Venter (Ina) , declare that -

General declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in Regulation 8;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

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Signature of specialist:

Ina Venter, trading as Kyllinga Consulting

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Name of company:

21 October 2015

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Date:



**Addendum C – Mammal species observed in the area (ADU database)**

<b>Family</b>	<b>Species</b>	<b>Common name</b>	<b>Red list category</b>
Bovidae	<i>Antidorcas marsupialis</i>	Springbok	Least Concern
Bovidae	<i>Oreotragus oreotragus</i>	Klipspringer	Least Concern
Bovidae	<i>Oryx gazella</i>	Gemsbok	Least Concern
Bovidae	<i>Syncerus caffer</i>	African Buffalo	Least Concern
Bovidae	<i>Tragelaphus oryx</i>	Common Eland	Least Concern
Bovidae	<i>Tragelaphus strepsiceros</i>	Greater Kudu	Least Concern
Canidae	<i>Canis mesomelas</i>	Black-backed Jackal	Least Concern
Canidae	<i>Otocyon megalotis</i>	Bat-eared Fox	Least Concern
Canidae	<i>Vulpes chama</i>	Cape Fox	Least Concern
Cercopithecidae	<i>Cercopithecus pygerythrus subsp. pygerythrus</i>	Vervet Monkey	Least Concern
Cercopithecidae	<i>Chlorocebus pygerythrus</i>	Vervet Monkey	Not listed
Cercopithecidae	<i>Papio ursinus</i>	Chacma Baboon	Least Concern
<b>Equidae</b>	<b><i>Equus zebra subsp. hartmannae</i></b>	<b>Hartmann's Zebra</b>	<b>Endangered</b>
Felidae	<i>Felis nigripes</i>	Black-footed Cat	Least Concern
Felidae	<i>Felis silvestris</i>	Wildcat	Least Concern
Felidae	<i>Panthera pardus</i>	Leopard	Least Concern
Giraffidae	<i>Giraffa camelopardalis subsp. camelopardalis</i>	Nubian Giraffe	Least Concern
Giraffidae	<i>Giraffa camelopardalis subsp. giraffa</i>	The South African Giraffe	Least Concern
Herpestidae	<i>Cynictis penicillata</i>	Yellow Mongoose	Least Concern
Hyaenidae	<i>Proteles cristata</i>	Aardwolf	Least Concern
Leporidae	<i>Lepus saxatilis</i>	Scrub Hare	Least Concern
Leporidae	<i>Pronolagus rupestris</i>	Smith's Red Rock Hare	Least Concern
<b>Macroscelididae</b>	<b><i>Elephantulus intufi</i></b>	<b>Bushveld Elephant Shrew</b>	<b>Data Deficient</b>
Macroscelididae	<i>Elephantulus rupestris</i>	Western Rock Elephant Shrew	Least Concern
Macroscelididae	<i>Macroscelides proboscideus</i>	Short-eared Elephant Shrew	Least Concern
Molossidae	<i>Sauromys petrophilus</i>	Roberts's Flat-headed Bat	Least Concern
Molossidae	<i>Tadarida aegyptiaca</i>	Egyptian Free-tailed Bat	Least Concern
Muridae	<i>Aethomys namaquensis</i>	Namaqua Rock Mouse	Least Concern
Muridae	<i>Desmodillus auricularis</i>	Cape Short-tailed Gerbil	Least Concern
Muridae	<i>Gerbilliscus brantsii</i>	Highveld Gerbil	Least Concern
<b>Muridae</b>	<b><i>Gerbilliscus leucogaster</i></b>	<b>Bushveld Gerbil</b>	<b>Data Deficient</b>
Muridae	<i>Gerbilliscus paeba</i>	Paeba Hairy-footed Gerbil	Least Concern



Muridae	<i>Gerbilliscus vallinus</i>	Brush-tailed Hairy-footed Gerbil	Least Concern
Muridae	<i>Mastomys coucha</i>	Southern African Mastomys	Least Concern
<b>Muridae</b>	<b><i>Parotomys littledalei</i></b>	<b>Littledale's Whistling Rat</b>	<b>Near Threatened</b>
Muridae	<i>Rhabdomys pumilio</i>	Xeric Four-striped Grass Rat	Least Concern
Muridae	<i>Thallomys nigricauda</i>	Black-tailed Thallomys	Least Concern
Mustelidae	<i>Ictonyx striatus</i>	Striped Polecat	Least Concern
<b>Mustelidae</b>	<b><i>Mellivora capensis</i></b>	<b>Honey Badger</b>	<b>Near Threatened</b>
Nesomyidae	<i>Malacothrix typica</i>	Large-eared African Desert Mouse	Least Concern
Nesomyidae	<i>Petromyscus collinus</i>	Pygmy Rock Mouse	Least Concern
Nesomyidae	<i>Saccostomus campestris</i>	Southern African Pouched Mouse	Least Concern
Pedetidae	<i>Pedetes capensis</i>	South African Spring Hare	Least Concern
<b>Petromuridae</b>	<b><i>Petromus typicus</i></b>	<b>Dassie Rat</b>	<b>Near Threatened</b>
Procaviidae	<i>Procavia capensis</i>	Rock Hyrax	Least Concern
Rhinolophidae	<i>Rhinolophus damarensis</i>		Not listed
Sciuridae	<i>Xerus inauris</i>	South African Ground Squirrel	Least Concern
<b>Soricidae</b>	<b><i>Crocidura cyanea</i></b>	<b>Reddish-gray Musk Shrew</b>	<b>Data Deficient</b>
<b>Vespertilionidae</b>	<b><i>Cistugo seabrae</i></b>	<b>Angolan Wing-gland Bat</b>	<b>Vulnerable</b>
Vespertilionidae	<i>Neoromicia capensis</i>	Cape Serotine	Least Concern
Viverridae	<i>Genetta genetta</i>	Common Genet	Least Concern





**Addendum D – Bird species observed in the area (SABAP2 database)**

<b>Common name</b>	<b>Taxon name</b>	<b>Regional Red List Status 2014</b>
Swamp-warbler, Lesser	<i>Acrocephalus gracilirostris</i>	Not listed
Jacana, African	<i>Actophilornis africanus</i>	Not listed
Korhaan, Northern Black	<i>Afrotis afroides</i>	Not listed
Lovebird, Rosy-faced	<i>Agapornis roseicollis</i>	Not listed
Kingfisher, Malachite	<i>Alcedo cristata</i>	Not listed
Goose, Egyptian	<i>Alopochen aegyptiacus</i>	Not listed
Darter, African	<i>Anhinga rufa</i>	Not listed
Swift, Little	<i>Apus affinis</i>	Not listed
Swift, White-rumped	<i>Apus caffer</i>	Not listed
Eagle, Booted	<i>Aquila pennatus</i>	Not listed
Heron, Grey	<i>Ardea cinerea</i>	Not listed
Heron, Goliath	<i>Ardea goliath</i>	Not listed
Heron, Black-headed	<i>Ardea melanocephala</i>	Not listed
Batis, Pririt	<i>Batis pririt</i>	Not listed
Ibis, Hadeda	<i>Bostrychia hagedash</i>	Not listed
Lark, Fawn-coloured	<i>Calendulauda africanoides</i>	Not listed
Chat, Familiar	<i>Cercomela familiaris</i>	Not listed
Scrub-robin, Kalahari	<i>Cercotrichas paena</i>	Not listed
Lark, Karoo Long-billed	<i>Certhilauda subcoronata</i>	Not listed
Kingfisher, Pied	<i>Ceryle rudis</i>	Not listed
Sunbird, Dusky	<i>Cinnyris fuscus</i>	Not listed
Mousebird, White-backed	<i>Colius colius</i>	Not listed
Pigeon, Speckled	<i>Columba guinea</i>	Not listed
Dove, Rock	<i>Columba livia</i>	Not listed
Crow, Pied	<i>Corvus albus</i>	Not listed
Robin-chat, Cape	<i>Cossypha caffra</i>	Not listed
Starling, Wattled	<i>Creatophora cinerea</i>	Not listed



Canary, White-throated	<i>Crithagra albogularis</i>	Not listed
Canary, Black-throated	<i>Crithagra atrogularis</i>	Not listed
Canary, Yellow	<i>Crithagra flaviventris</i>	Not listed
Palm-swift, African	<i>Cypsiurus parvus</i>	Not listed
Drongo, Fork-tailed	<i>Dicrurus adsimilis</i>	Not listed
Egret, Little	<i>Egretta garzetta</i>	Not listed
Bunting, Cape	<i>Emberiza capensis</i>	Not listed
Bunting, Lark-like	<i>Emberiza impetuani</i>	Not listed
Waxbill, Common	<i>Estrilda astrild</i>	Not listed
<b>Korhaan, Karoo</b>	<b><i>Eupodotis vigorsii</i></b>	<b>Near Threatened</b>
Fish-eagle, African	<i>Haliaeetus vocifer</i>	Not listed
Martin, Rock	<i>Hirundo fuligula</i>	Not listed
Swallow, Barn	<i>Hirundo rustica</i>	Not listed
Starling, Cape Glossy	<i>Lamprotornis nitens</i>	Not listed
Fiscal, Common (Southern)	<i>Lanius collaris</i>	Not listed
Goshawk, Southern Pale Chanting	<i>Melierax canorus</i>	Not listed
Bee-eater, Swallow-tailed	<i>Merops hirundineus</i>	Not listed
Wagtail, Cape	<i>Motacilla capensis</i>	Not listed
Dove, Namaqua	<i>Oena capensis</i>	Not listed
Wheatear, Mountain	<i>Oenanthe monticola</i>	Not listed
Starling, Pale-winged	<i>Onychognathus nabouroup</i>	Not listed
Tit-babbler, Chestnut-vented	<i>Parisoma subcaeruleum</i>	Not listed
Tit, Ashy	<i>Parus cinerascens</i>	Not listed
Sparrow, House	<i>Passer domesticus</i>	Not listed
Sparrow, Cape	<i>Passer melanurus</i>	Not listed
Cormorant, Reed	<i>Phalacrocorax africanus</i>	Not listed
Cormorant, White-breasted	<i>Phalacrocorax carbo</i>	Not listed
Weaver, Sociable	<i>Philetairus socius</i>	Not listed
Warbler, Namaqua	<i>Phragmacia substriata</i>	Not listed



Masked-weaver, Southern	<i>Ploceus velatus</i>	Not listed
Prinia, Black-chested	<i>Prinia flavicans</i>	Not listed
Sandgrouse, Double-banded	<i>Pterocles bicinctus</i>	Not listed
Sandgrouse, Namaqua	<i>Pterocles namaqua</i>	Not listed
Bulbul, African Red-eyed	<i>Pycnonotus nigricans</i>	Not listed
Martin, Brown-throated	<i>Riparia paludicola</i>	Not listed
Turtle-dove, Cape	<i>Streptopelia capicola</i>	Not listed
Dove, Red-eyed	<i>Streptopelia semitorquata</i>	Not listed
Dove, Laughing	<i>Streptopelia senegalensis</i>	Not listed
Swift, Alpine	<i>Tachymarptis melba</i>	Not listed
Bokmakierie, Bokmakierie	<i>Telophorus zeylonus</i>	Not listed
Barbet, Acacia Pied	<i>Tricholaema leucomelas</i>	Not listed
Thrush, Karoo	<i>Turdus smithi</i>	Not listed
Mousebird, Red-faced	<i>Urocolius indicus</i>	Not listed
Lapwing, Blacksmith	<i>Vanellus armatus</i>	Not listed
White-eye, Orange River	<i>Zosterops pallidus</i>	Not listed



**Addendum E – Reptile species observed in the area (ADU database)**

<b>Family</b>	<b>Species</b>	<b>Common name</b>	<b>Red list category</b>	<b>Atlas region endemic</b>
Agamidae	<i>Agama</i> sp.		Not listed	
Agamidae	<i>Agama aculeata subsp. aculeata</i>	Common Ground Agama	Least Concern (SARCA 2014)	
Agamidae	<i>Agama anchietae</i>	Anchieta's Agama	Least Concern (SARCA 2014)	
Agamidae	<i>Agama atra</i>	Southern Rock Agama	Least Concern (SARCA 2014)	
Agamidae	<i>Agama knobeli</i>	Knobel's Rock Agama	Not listed	
Amphisbaenidae	<i>Zygaspis quadrifrons</i>	Kalahari Dwarf Worm Lizard	Least Concern (SARCA 2014)	
Colubridae	<i>Boaedon capensis</i>	Brown House Snake	Least Concern (SARCA 2014)	
Colubridae	<i>Dasypeltis scabra</i>	Rhombic Egg-eater	Least Concern (SARCA 2014)	
Colubridae	<i>Dipsina multimaculata</i>	Dwarf Beaked Snake	Least Concern (SARCA 2014)	
Colubridae	<i>Lycophidion capense subsp. capense</i>	Cape Wolf Snake	Least Concern (SARCA 2014)	
Colubridae	<i>Prosymna frontalis</i>	Southwestern Shovel-snout	Least Concern (SARCA 2014)	
Colubridae	<i>Psammophis namibensis</i>	Namib Sand Snake	Least Concern (SARCA 2014)	
Colubridae	<i>Psammophis notostictus</i>	Karoo Sand Snake	Least Concern (SARCA 2014)	
Colubridae	<i>Psammophis trinasalis</i>	Fork-marked Sand Snake	Least Concern (SARCA 2014)	
Colubridae	<i>Telescopus beetzii</i>	Beetz's Tiger Snake	Least Concern (SARCA 2014)	
Colubridae	<i>Telescopus semiannulatus subsp. polystictus</i>	Damara Tiger Snake	Least Concern (SARCA 2014)	
Cordylidae	<i>Karusasaurus polyzonus</i>	Karoo Girdled Lizard	Least Concern (SARCA 2014)	
<b>Cordylidae</b>	<b><i>Platysaurus broadleyi</i></b>	<b>Augrabies Flat Lizard</b>	<b>Least Concern (SARCA 2014)</b>	<b>Yes</b>
Elapidae	<i>Aspidelaps lubricus subsp. lubricus</i>	Coral Shield Cobra	Not listed	
Elapidae	<i>Naja nigricincta subsp. woodi</i>	Black Spitting Cobra	Least Concern (SARCA 2014)	
Elapidae	<i>Naja nivea</i>	Cape Cobra	Least Concern (SARCA 2014)	
Gekkonidae	<i>Chondrodactylus</i> sp.		Not listed	
Gekkonidae	<i>Chondrodactylus angulifer subsp. angulifer</i>	Common Giant Ground Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Chondrodactylus bibronii</i>	Bibron's Gecko	Least Concern (SARCA 2014)	



Gekkonidae	<i>Chondrodactylus turneri</i>	Turner's Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Lygodactylus bradfieldi</i>	Bradfield's Dwarf Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Pachydactylus atorquatus</i>	Augrabies Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Pachydactylus haackei</i>	Haacke's Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Pachydactylus latirostris</i>	Quartz Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Pachydactylus montanus</i>	Namaqua Mountain Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Pachydactylus punctatus</i>	Speckled Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Pachydactylus rugosus</i>	Common Rough Gecko	Least Concern (SARCA 2014)	
Gekkonidae	<i>Ptenopus garrulus subsp. maculatus</i>	Spotted Barking Gecko	Least Concern (SARCA 2014)	
Gerrhosauridae	<i>Cordylus subsp. subtessellatus</i>	Dwarf Plated Lizard	Least Concern (SARCA 2014)	
Lacertidae	<i>Meroles suborbitalis</i>	Spotted Desert Lizard	Least Concern (SARCA 2014)	
Lacertidae	<i>Nucras tessellata</i>	Western Sandveld Lizard	Least Concern (SARCA 2014)	
Lacertidae	<i>Pedioplanis inornata</i>	Plain Sand Lizard	Least Concern (SARCA 2014)	
Lacertidae	<i>Pedioplanis lineocellata subsp. lineocellata</i>	Spotted Sand Lizard	Least Concern (SARCA 2014)	
Lacertidae	<i>Pedioplanis namaquensis</i>	Namaqua Sand Lizard	Least Concern (SARCA 2014)	
Leptotyphlopidae	<i>Namibiana occidentalis</i>	Western Thread Snake	Least Concern (SARCA 2014)	
Scincidae	<i>Acontias gariensis</i>	Gariiep Blind Legless Skink	Least Concern (SARCA 2014)	
Scincidae	<i>Acontias lineatus</i>	Striped Dwarf Legless Skink	Least Concern (SARCA 2014)	
Scincidae	<i>Trachylepis occidentalis</i>	Western Three-striped Skink	Least Concern (SARCA 2014)	
Scincidae	<i>Trachylepis sparsa</i>	Karasburg Tree Skink	Least Concern (SARCA 2014)	
Scincidae	<i>Trachylepis spilogaster</i>	Kalahari Tree Skink	Least Concern (SARCA 2014)	
Scincidae	<i>Trachylepis sulcata subsp. sulcata</i>	Western Rock Skink	Least Concern (SARCA 2014)	
Scincidae	<i>Trachylepis variegata</i>	Variegated Skink	Least Concern (SARCA 2014)	
Testudinidae	<i>Psammobates oculifer</i>	Serrated Tent Tortoise	Least Concern (SARCA 2014)	
Testudinidae	<i>Psammobates tentorius subsp. verroxii</i>	Verrox's Tent Tortoise	Not listed	



Testudinidae	<i>Stigmochelys pardalis</i>	Leopard Tortoise	Least Concern (SARCA 2014)	
Typhlopidae	<i>Rhinotyphlops schinzi</i>	Schinz's Beaked Blind Snake	Least Concern (SARCA 2014)	
Varanidae	<i>Varanus albigularis subsp. albigularis</i>	Rock Monitor	Least Concern (SARCA 2014)	
Varanidae	<i>Varanus niloticus</i>	Water Monitor	Least Concern (SARCA 2014)	
Viperidae	<i>Bitis arietans subsp. arietans</i>	Puff Adder	Least Concern (SARCA 2014)	



**Addendum F – Frog species observed in the area (ADU database)**

<b>Family</b>	<b>Species</b>	<b>Common name</b>	<b>Red list category</b>	<b>Atlas region endemic</b>
Bufonidae	<i>Amietophrynus gutturalis</i>	Guttural Toad	Least Concern	
Bufonidae	<i>Amietophrynus poweri</i>	Power's Toad	Least Concern	
Bufonidae	<i>Amietophrynus rangeri</i>	Raucous Toad	Least Concern	
Bufonidae	<i>Vandijkophrynus gariensis</i> <i>subsp. gariensis</i>	Karoo Toad (subsp. gariensis)	Not listed	
Microhylidae	<i>Phrynomantis annectens</i>	Marbled Rubber Frog	Least Concern	
<b>Pyxicephalidae</b>	<b><i>Amietia queckettii</i></b>	<b>Queckett's River Frog</b>	<b>Least Concern</b>	<b>Yes</b>
<b>Pyxicephalidae</b>	<b><i>Pyxicephalus adspersus</i></b>	<b>Giant Bull Frog</b>	<b>Near Threatened</b>	
Pyxicephalidae	<i>Tomopterna cryptotis</i>	Tremelo Sand Frog	Least Concern	



## Addendum G – Butterfly and scorpion species observed in the area (ADU database)

### Butterflies

Family	Species	Common name	Red list category
HESPERIIDAE	<i>Gomalia elma subsp. elma</i>	Green-marbled skipper	Least Concern (SABCA 2013)
HESPERIIDAE	<i>Spialia</i>		Not listed
HESPERIIDAE	<i>Spialia diomus subsp. ferax</i>	Common sandman	Least Concern (SABCA 2013)
HESPERIIDAE	<i>Spialia mafa subsp. mafa</i>	Mafa sandman	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Aloeides</i>		Not listed
LYCAENIDAE	<i>Aloeides damarensis subsp. damarensis</i>	Damara copper	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Aloeides simplex</i>	Dune copper	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Argyraspodes argyraspis</i>	Warrior silver-spotted copper	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Azonus ubaldus</i>	Velvet-spotted babul blue	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Brephidium metophis</i>	Tinktinkie blue	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Cacyreus marshalli</i>	Common geranium bronze	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Chilades trochylus</i>	Grass jewel	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Chrysochrysis chrysochrysis</i>	Karoo opal	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Cigaritis phanes</i>	Silvery bar	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Crudaria leroma</i>	Silver spotted grey	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Lampides boeticus</i>	Pea blue	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Leptotes</i>		Not listed
LYCAENIDAE	<i>Leptotes brevidentatus</i>	Short-toothed zebra blue	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Leptotes pirithous subsp. pirithous</i>	Common zebra blue	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Stugeta subinfusata subsp. reynoldsi</i>	Dusky marbled sapphire	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Tuxentius hesperis</i>	Western pie	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Tylopaedia sardonix subsp. sardonix</i>	King copper	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Zintha hintza subsp. hintza</i>	Hintza pierrot	Least Concern (SABCA 2013)
LYCAENIDAE	<i>Zizeeria knysna subsp. knysna</i>	African grass blue	Least Concern (SABCA 2013)
NYMPHALIDAE	<i>Acraea neobule subsp. neobule</i>	Wandering donkey acraea	Least Concern (SABCA 2013)





NYMPHALIDAE	<i>Acraea stenobea</i>	Suffused acraea	Least Concern (SABCA 2013)
NYMPHALIDAE	<i>Acraea trimeni</i>	Trimen's acraea	Least Concern (SABCA 2013)
NYMPHALIDAE	<i>Charaxes jasius subsp. saturnus</i>	Foxy charaxes	Least Concern (SABCA 2013)
NYMPHALIDAE	<i>Danaus chrysippus subsp. orientis</i>	African monarch, Plain tiger	Least Concern (SABCA 2013)
NYMPHALIDAE	<i>Junonia hierta subsp. cebrene</i>	Yellow pansy	Least Concern (SABCA 2013)
NYMPHALIDAE	<i>Junonia orithya subsp. madagascariensis</i>	Eyed pansy	Least Concern (SABCA 2013)
NYMPHALIDAE	<i>Vanessa cardui</i>	Painted lady	Least Concern (SABCA 2013)
NYMPHALIDAE	<i>Ypthima asterope subsp. hereroica</i>	African ringlet	Least Concern (SABCA 2013)
PIERIDAE	<i>Belenois aurota</i>	Brown-veined white	Least Concern (SABCA 2013)
PIERIDAE	<i>Catopsilia florella</i>	African migrant	Least Concern (SABCA 2013)
PIERIDAE	<i>Colotis</i>		Not listed
PIERIDAE	<i>Colotis euippe subsp. mediata</i>	Smoky orange tip	Not listed
PIERIDAE	<i>Colotis euippe subsp. omphale</i>	Smoky orange tip	Least Concern (LC)
PIERIDAE	<i>Colotis evenina subsp. evenina</i>	Orange tip	Least Concern (SABCA 2013)
PIERIDAE	<i>Colotis lais</i>	Kalahari orange tip	Least Concern (SABCA 2013)
PIERIDAE	<i>Eurema hapale</i>	Pale grass yellow	Not listed
PIERIDAE	<i>Pinacopteryx eriphia subsp. eriphia</i>	Zebra white	Least Concern (SABCA 2013)
PIERIDAE	<i>Pontia helice subsp. helice</i>	Common meadow white	Least Concern (SABCA 2013)
PIERIDAE	<i>Teracolus agoye subsp. bowkeri</i>	Speckled sulphur tip	Least Concern (SABCA 2013)
PIERIDAE	<i>Teracolus eris subsp. eris</i>	Banded gold tip	Least Concern (SABCA 2013)

### Scorpions

Family	Species	Red list category
BUTHIDAE	<i>Parabuthus schlechteri</i>	Not listed
BUTHIDAE	<i>Parabuthus villosus</i>	Not listed
BUTHIDAE	<i>Uroplectes sp.</i>	Not listed
BUTHIDAE	<i>Uroplectes carinatus</i>	Not listed
SCORPIONIDAE	<i>Opisththalmus wahlbergii</i>	Not listed