

**Erf 11305 Walmer Low cost housing development**

**ECOLOGICAL ASSESSMENT**

**DRAFT REPORT V4**

**Prepared for:  
SRK Consulting**

**Prepared by:  
Scherman Collopy & Associates**  
1 Rossini Rd  
Pari Park  
PORT ELIZABETH  
6070



**Scherman Collopy and Associates cc**  
Environmental and Aquatic Management Consulting  
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## SPECIALIST REPORT DETAILS

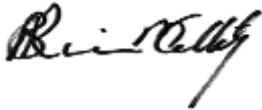
This report has been prepared as per the requirements of the Environmental Impact Assessment Regulations and the National Environmental Management Act (Act 107 of 1998), any subsequent amendments and any relevant National and / or Provincial Policies related to biodiversity assessments.

**Report prepared by:** Dr. Brian Colloty Pr.Sci.Nat. (Ecology) / Certified EAP / Member SAEIES & SASAqS

### **Expertise / Field of Study of authors:**

Brian holds the following degrees, BSc (Hons) Zoology, MSc Botany (Rivers), Ph.D Botany Conservation Importance rating (Estuaries) and has conducted ecological assessments from 2002 to present.

I, **Dr. Brian Michael Colloty** declare that this report has been prepared independently of any influence or prejudice as may be specified by the National Department of Environmental Affairs (DEA)



Signed:...

..... Date: .....24 September 2017.....

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## ACRONYMS

AIS	Alien Invasive Species (NEM:BA)
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CDB	Central Business District
CEN	CEN IEM Unit
ECBCP	Eastern Cape Biodiversity Conservation Plan (Berliner & Desmet, 2007)
ESA	Ecological Support Area
GIS	Geographic Information System
NEM:BA	National Environmental Management Biodiversity Act (Act no. 10 of 2004) as amended
NMBM	Nelson Mandela Bay Municipality
QDGC	Quarter Degree Square
SANBI	South African National Biodiversity Institute
SC&A	Scherman Colloty and Associates
SRK	SRK Consulting

## 1 Introduction

Scherman Colloty & Associates cc (SC&A) was appointed by SRK Consulting as an independent specialist to evaluate the current state and ecological importance of the remaining natural environment for the proposed development of residential erven within Erf 11305, Walmer. This is located in the Nelson Mandela Bay Municipality (NMBM) within the Eastern Cape Province. This development will also require various connections to supporting infrastructure such as electrical, sewer and bulk water services.

This document follows on from results obtained during a literature survey and, as well as utilising information from previous studies. A site visit was then conducted in September 2016, to verify the information obtained and ground-truth areas of particular concern.

Several important national and provincial conservation plans were also reviewed, with the results of those studies being included in this report. Most conservation plans are produced at a coarse scale so the actual status of the study area will be verified during the course of this assessment.

This report should also be read in conjunction with the separate aquatic (SC&A, 2014) and forest assessments (CEN, 2014) conducted within the site. The forest assessment is of particular relevance as this indicates the state and locality of protected forest patches and or tree species within the site. The spatial data from that survey was also included in this assessment. The aquatic assessment indicated that no waterbodies are located within the site and this was again confirmed during the site visit conducted in this study.

### 1.1 Terms of reference

The following Terms of Reference based on specialist knowledge of the study area and the approving authority requirements were established:

#### Objectives:

- To describe the relevant ecological (terrestrial) baseline conditions relating to the study area;
- To provide an inventory of communities/species/taxa confirmed in the area of investigation after the field studies;
- To describe the anticipated environmental impacts on the vegetation and natural animal life (terrestrial) in the area;
- To describe how the negative environmental impacts as described above should be managed; and
- To consider the cumulative impacts of this proposed development on the natural plant and animal life with respect to providing specific guidelines to the Environmental Management and Monitoring Plans.

Additional sources of information, amongst other included:

- South African Bird, Mammal and Frog Atlas Data Red Data books;
- South African Biodiversity Information Facility;
- PRECIS, Plants of South Africa (POSA);
- Threatened Species Programme;
- Provincial ordinances;
- Spatial Development Frameworks; and
- Biodiversity / conservation plans.

## 2 Limitations

In order to obtain a comprehensive understanding of the dynamics of both the floral and faunal components of both the terrestrial and aquatic environment as well as the status of endemic, rare or threatened species in any given area, assessments should always consider temporal and spatial scales within the study. However, due to time and budget constraints, long-term studies are rarely feasible, resulting in most specialist assessments being once off surveys.

Therefore, due to the scope of the work presented in this report, a detailed investigation over time / seasons was not possible. It should be emphasised that information, as presented in this document, only has reference to the study area(s) as indicated on the accompanying maps. Therefore, this information cannot be applied to any other area without detailed investigation.

Furthermore, additional information may come to light during a later stage of the process or development particularly as the area during the survey was dry and cool. This limited the number of species being observed, especially any bulbs, forbs or invertebrates. The survey period was limited by constant high winds, which affected the avifaunal observations, within the site, the bird species that utilise the area are however well known and information was thus drawn from past records and observations.

### 3 Site location

The proposed development site, Erf 11305 Walmer is situated approximately 4.5 km South West of the Port Elizabeth CBD. The present day land use around and within the site is characterised by vacant land, that is surrounded by open space areas (former race course and country club), housing (Walmer Heights & Walmer Gqebera Township) (Figure 1).



Figure 1: The proposed development site (red line) in relation to the surrounding environment



## 4 Methods

The following general methods were used in assessing the study area (Figure 1):

Flora:

- Provide a description of the general floristic species diversity and community composition;
- Evaluating the occurrence of potential Red Data taxa;
- Demarcating physiognomic units based on floristic relevés; and
- Provide an indication on the ecological condition (successional stage) of the predetermined physiognomic units.

Fauna:

- A detailed faunal assessment based on field observation;
- An evaluation of the occurrence of any of the listed conservation needy species.

## 5 Results

The study area is dominated by a mixture of:

- Forest patches (coastal forest pockets or clumps) (Plate 1),
- Degraded fynbos with (Plate 2) alien vegetation and / or with bush encroachment,
- Alien vegetation stands (thickets with more than 60% alien tree aerial cover) (Plate 3)
- Disturbed or cleared areas used for informal soccer fields or sand winning (Plate 4)



**Plate 1: A view of a small stand of coastal forest species that forms a small thicket or clump within the central portion of the site, with several fynbos related plants in the foreground**





Plate 2: Remnant fynbos area surrounded by alien and encroaching (*Vachellia karroo*) vegetation



Plate 3: A view of an alien *Acacia* stand that has outcompeted the fynbos species only allowing grasses (mostly encroaching species such as Kikuyu and Buffalo grass) to survive





**Plate 4: A disturbed area that is used as a soccer pitch (one of two) with dense stands of alien Eucalypts in the background**

According to the Mucina and Rutherford (2006) Vegmap, 2 regional vegetation types are present (Figure 2). These include:

- Algoa Sandstone Fynbos (FFs 29) – Endangered
- Algoa Dune Strandveld (AZs1) – Least Threatened

The Biodiversity Act (No 10 of 2004) (Amended, December 2011), lists 225 threatened ecosystems based on vegetation type (Vegmap). In Figure 3, Algoa Sandstone Fynbos Vegetation is listed as one of these vegetation types are listed by this Act. This indicates that any development greater 300m<sup>2</sup>, within this vegetation type requires a minimum of a Basic Assessment, and any impacts within intact vegetation must be rated as High.

The Algoa Dune Strandveld is not listed under this amendment, although the species typically associated with this vegetation types (namely the trees and shrubs) form the forest clumps observed and these are protected under the National Forestry Act.

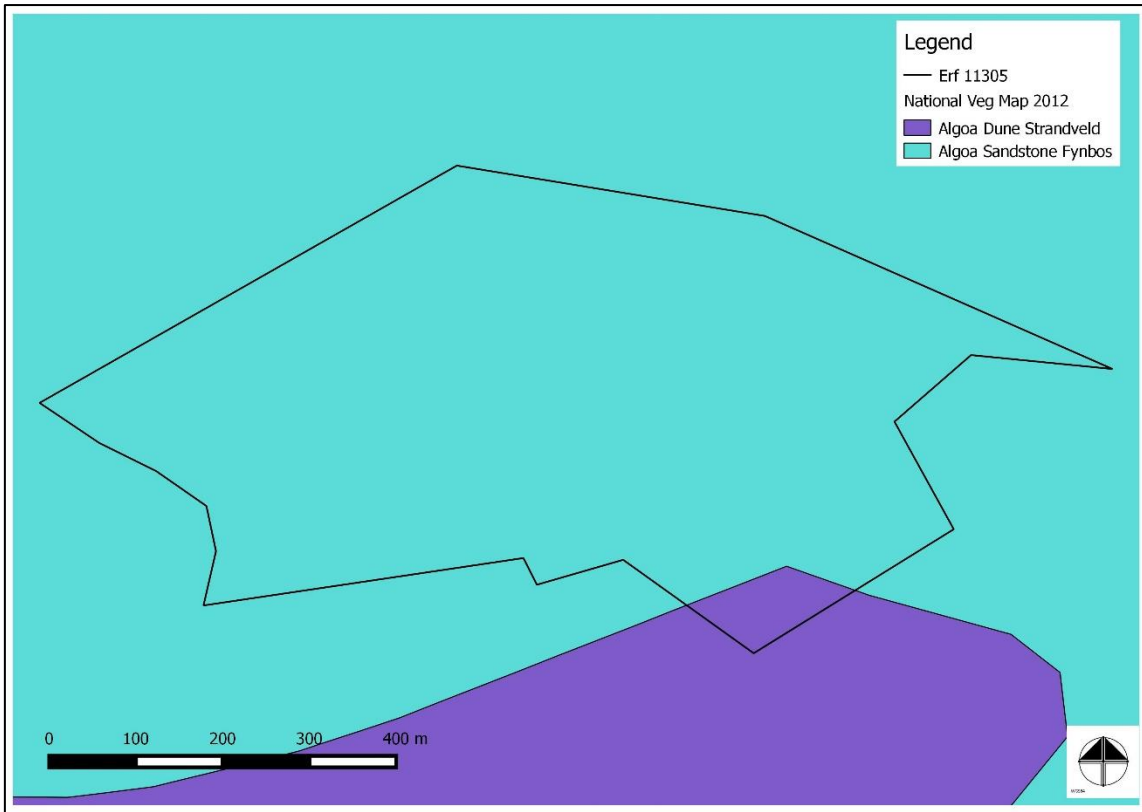


Figure 2: The proposed development in relation to the regional vegetation types as defined by Mucina & Rutherford (2006)

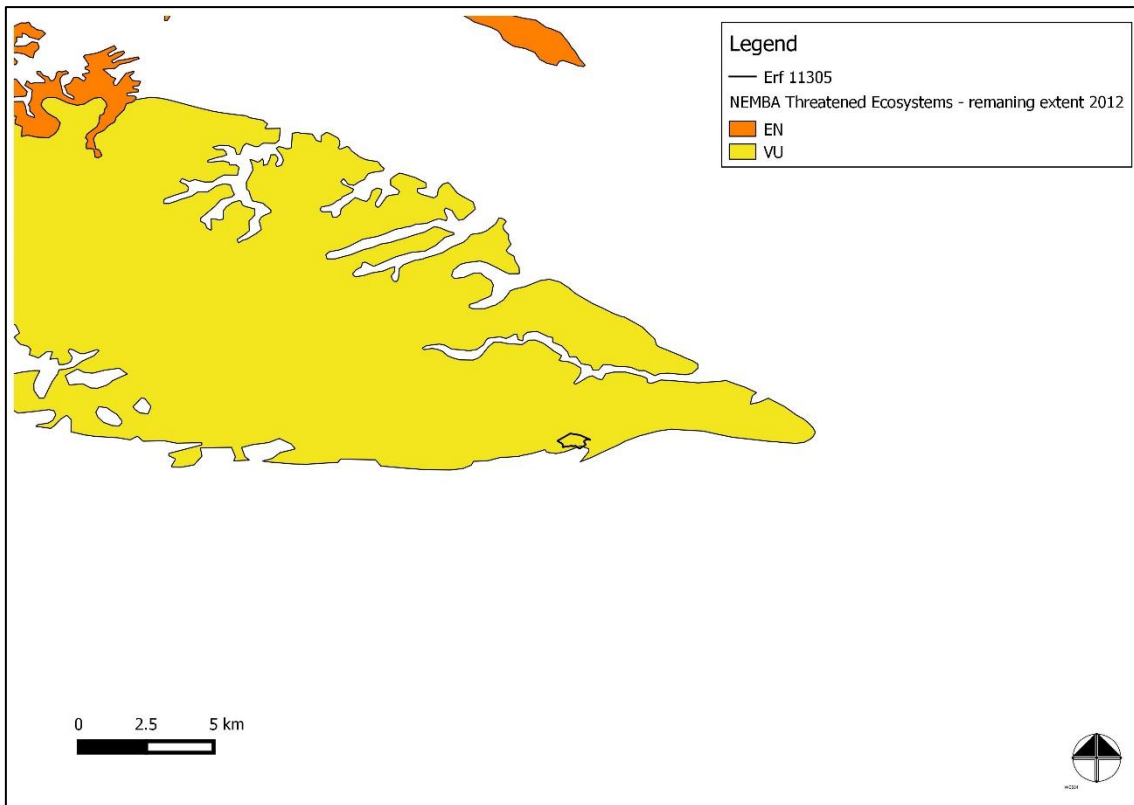
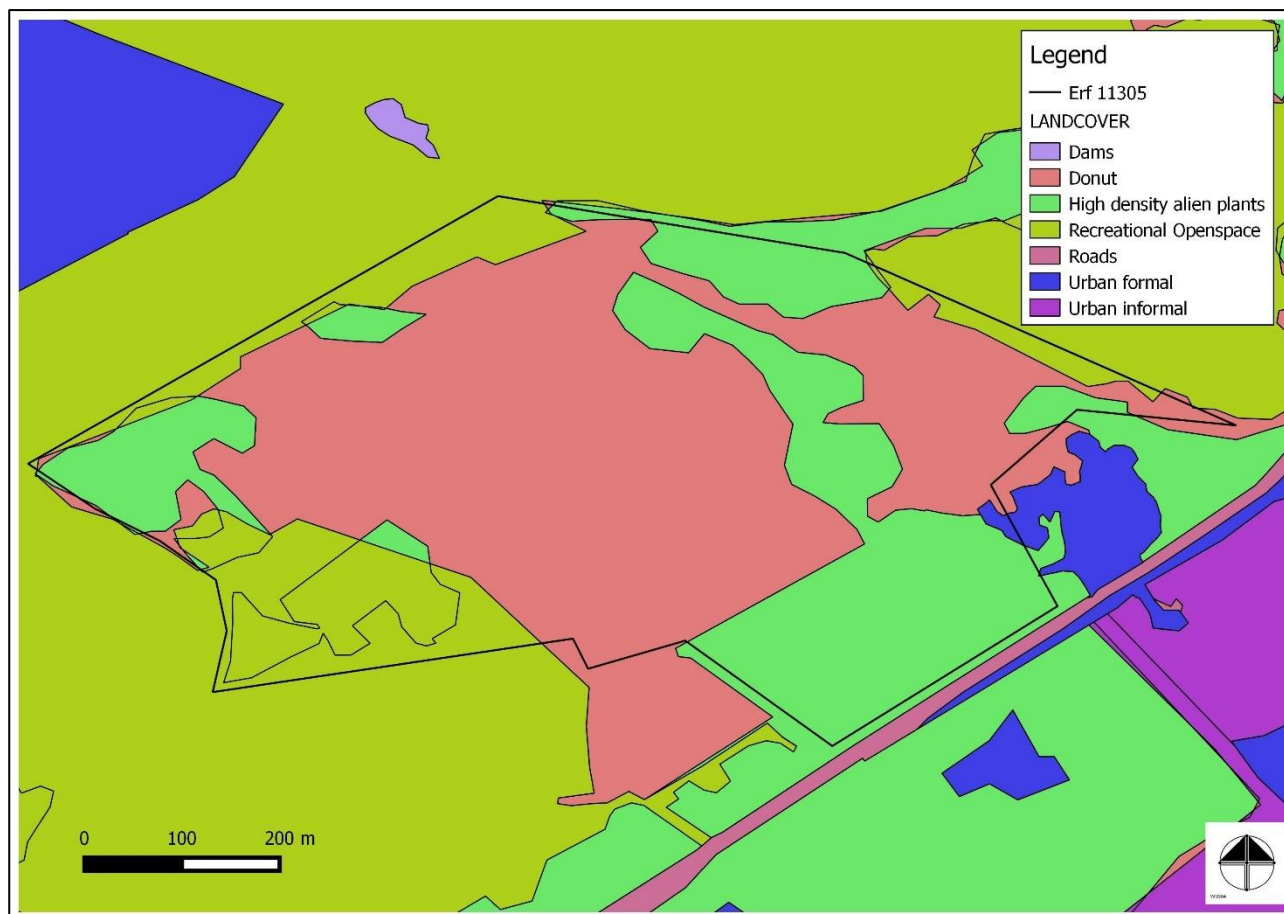


Figure 3: The original extent of vegetation types listed under the threatened ecosystems by the NEM: Biodiversity Act in relation to the study area

The NMBM Bioregional assessment, indicated that 2007 land cover was dominated by various vegetation types, which included High density alien vegetation, and undefined vegetation units (Figure 4)

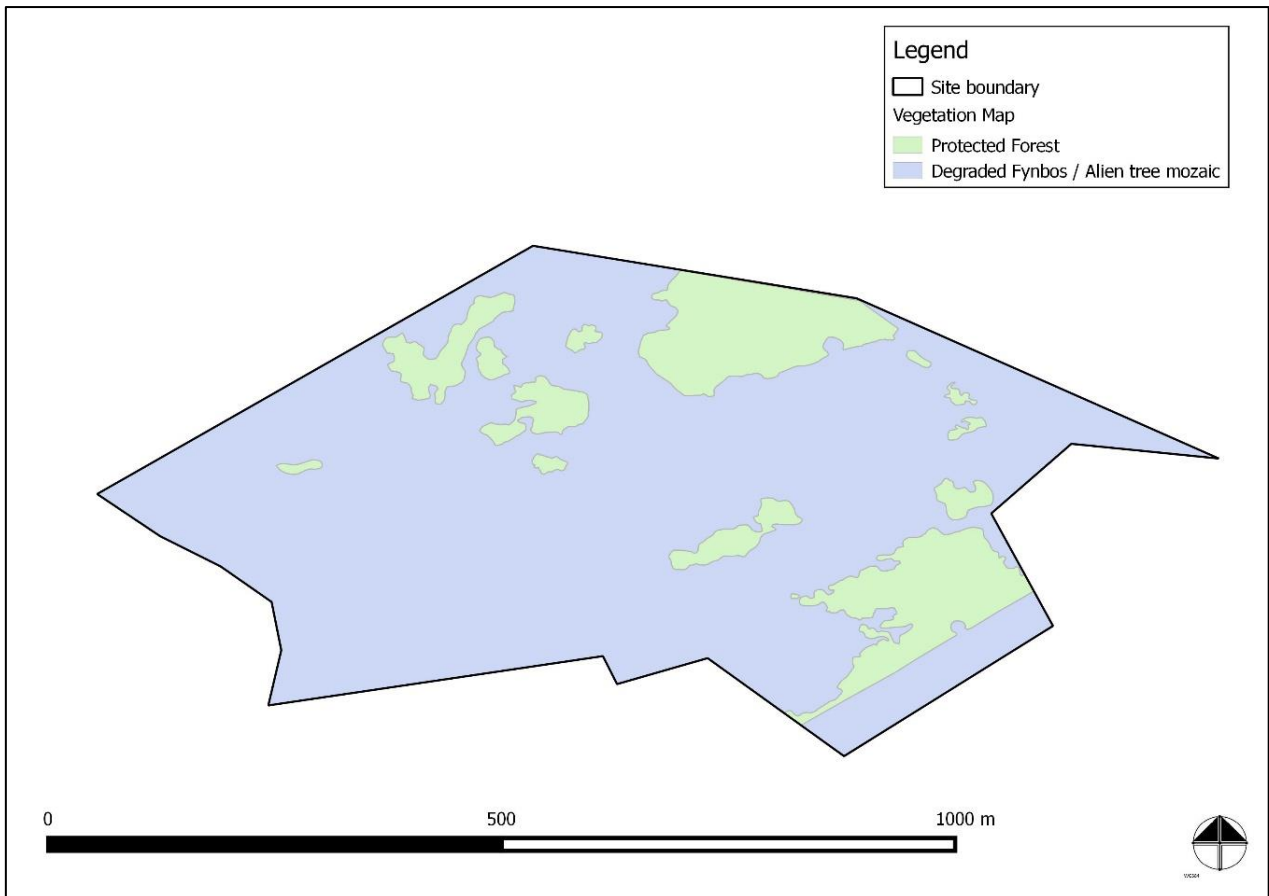


**Figure 4: Results of the NMBM Bioregional Plan Land Cover mapping**

Figure 5, however shows the results of the vegetation survey, and the current degree of transformation is higher than indicated in the past spatial databases. Other than the forest areas, the remaining fynbos is limited to small patches ranging from 2 – 25m<sup>2</sup>.

Simply stated, the study area is dominated by a mosaic of alien tree / shrubs and fynbos species, that ranges from 100% alien tree / grass cover to small fynbos areas with one or two alien plants. These small areas of natural vegetation are however important as they contain the highest proportion of plants protected under the Eastern Cape Provincial Nature Conservation Ordinance of 1974 (See table below), while the forest clumps contain species protected under the National Forestry Act.

Mapping individual areas of intact Fynbos areas or functional Fynbos habitats was however not possible, due to the high alien plant cover, which also changed over time. In viewing the aerial satellite images between 2004 – 2016 (Source Google Earth), there are constantly changes within the plant cover within the site either due to clearing, grazing and or alien plant growth (Figure 6). This was also supported in the Forest Assessment (CEN, 2014).



**Figure 5: Results of the vegetation survey conducted in this assessment and the CEN forest assessment**





**Figure 6: Aerial images indicating the increase in alien vegetation cover from 2004(a), 2010(b), 2015(c) and 2016(d) resulting in a loss of the fynbos vegetation (see blue arrow in 2010)**

The following plant species were observed during the survey within the study area associated with areas outside of the forest patches (Note additional tree species are listed in the forest survey (CEN, 2014):

PNCO = Protected under the Provincial Nature Conservation Ordinance, National Forestry Act = Protected under the act  
Invasive = Listed by the Conservation of Agricultural Resources Act (CARA)

Species	Common Name	Conservation Status
<i>Agathosma capensis</i>	Buchu	
<i>Aspalthas</i>		
<i>Brachylena discolor</i>	Coast Silver Oak	
<i>Chrysanthemoides monilefera</i>	Bush tick berry	
<i>Commelina africana</i>		
<i>Cotula coronopifolia</i>		
<i>Cymbopogon spp</i>	Narrow-leaved turpentine grass	
<i>Cynodon dactylon</i>	Kweek	
<i>Digitaria eriantha</i>	Finger grass	
<i>Erica glandulosa</i>	Erica	PNCO
<i>Erica zeyheriana</i>	Erica	PNCO
<i>Moraea polystacha</i>	Iris	PNCO
<i>Euclea natalensis</i>	Natal guarri	
<i>Euryops munitus</i>		
<i>Felicia echinata</i>	Dune daisy	
<i>Anagallis arvensis</i>	Scarlet pimpernel	
<i>Heliophila suavissima</i>	Snowy sunflax	
<i>Morella quercifolia</i>	Oak leaf myrica	
<i>Helichrysum anomalum</i>	Everlasting	
<i>Hyparrhenia hirta</i>	Common Thatching Grass	
<i>Hypoxis rigidula</i>	African potato	
<i>Metalasia densa</i>	Blombos	
<i>Metalasia muricata</i>	Blombos	
<i>Osyris compressa</i>	Sandalwood	
<i>Passerina corymbosa</i>		
<i>Passerina rigida</i>		
<i>Phyllica ericoides</i>		
<i>Searsia crenata</i>	Dune crow-berry	
<i>Searsia glauca</i>	Blue kuni bush	
<i>Searsia tomentosa</i>	Real wild currant	
<i>Stenotaphrum secundatum</i>	Buffalo Grass	
<i>Acacia cyclops</i>	Rooikrans	Invasive
<i>Acacia longifolia</i>	Long-leave Wattle	Invasive
<i>Acacia saligna</i>	Port Jackson	Invasive
<i>Casuarina spp</i>	Beefwood	Invasive
<i>Lantana camara</i>	Lantana	Invasive
<i>Ricinus communis</i>	Caster oil plant	Invasive
<i>Rubus rigidus</i>	Bramble	Invasive
<i>Solanum spp</i>	Potato Bush (Garden escapee)	Invasive
<i>Tecoma stans</i>	Yellow bells (Garden escapee)	Invasive
<i>Melia azedarach</i>	Syringa	Invasive
<i>Traagus racemosus</i>	Large Carrot-seed grass	Invasive
<i>Tecomaria spp</i>		
<i>Zanthoxylon capense</i>		
<i>Vachellia karroo</i>	Sweet-thorn	Encroaching species
<i>Searsia pyroides</i>		
<i>Scutia myrtina</i>		
<i>Azima tetracantha</i>		
<i>Carpobrotus edulis</i>	Sour fig	PNCO (mesem)
<i>Senecio ilicifolius</i>	Sprinkaanbos	
<i>Eucalyptus camaldulensis</i>	Red gum	Invasive
<i>Leptospermum laevigatum</i>		
<i>Hypoxis argentea</i>		
<i>Aspalathus subtingens</i>		
<i>Pelargonium spp</i>		PNCO
<i>Sideroxylon inerme</i>	White Milkwood	National Forestry Act



In summary, 56 dominant plant species were observed during the assessment, which included 5 protected under the Eastern Cape PNCO, 1 protected under the National Forestry Act, while 12 are listed as invaders under the Conservation of Agricultural Resources Act (CARA).

The faunal assessment was based on known distribution records or supported by field observations. Table 1 and 2 lists the relevant faunal groups, their presence or likelihood to occur within the study area, together with their associated conservation status. The majority of species listed as well as observed with a conservation status were found in association with the Forest/Thicket vegetation or beyond the site associated with local water features such as the ponds found on the golf course. The majority of these species were listed by the PNCO.

**Table 1: List of species recorded or likely to occur in the general study area, together with the conservation status**

Key =

Y (and bold text) = Observed; U = Unconfirmed, but within the distribution range.

Taxon	Common Name	RDB/SSC	Presence <sup>x</sup>
<b>Amphibians</b>			
<i>Amietophrynus pardalis</i>	Eastern Leopard Toad	PNCO, IUCN LC	U
<b><i>Amietophrynus rangeri</i></b>	<b>Raucous Toad</b>	<b>PNCO, IUCN LC</b>	<b>Y Ponds located within golf course</b>
<i>Breviceps adspersus pentheri</i>	Penther's Rain Frog	PNCO, IUCN LC	U
<b><i>Cacosternum boettgeri</i></b>	<b>Common caco</b>	<b>PNCO, IUCN LC</b>	<b>Y Ponds located within golf course</b>
<i>Cacosternum nanum</i>	Bronze Caco	PNCO, IUCN LC	U
<i>Hyperolius marmoratus</i>	Painted Reed Frog	PNCO, IUCN LC	U
<i>Kassina senegalensis</i>	Bubbling Kassina	PNCO, IUCN LC	U
<i>Semnodactylus wealii</i>	Rattling Frog	PNCO, IUCN LC	U
<i>Strongylopus fasciatus</i>	Striped Stream Frog	PNCO, IUCN LC	U
<i>Strongylopus grayii</i>	Clicking Stream Frog	PNCO, IUCN LC	U
<i>Tomopterna delalandii</i>	Cape Sand Frog	PNCO, IUCN LC	U
<i>Vandijkophrynus angusticeps</i>	Cape sand Toad	PNCO, IUCN LC	U
<b><i>Xenopus laevis</i></b>	<b>Common Platanna</b>	<b>PNCO, IUCN LC</b>	<b>Y Ponds located within golf course</b>
<b>Reptiles</b>			
<i>Acontias gracilicauda</i>	Thin tailed legless skink	PNCO, IUCN LC	U
<i>Acontias lineicauda</i>	Algoa legless skink	PNCO, IUCN NT	U
<i>Acontias meleagris orientalis</i>	Eastern legless skink	PNCO, IUCNLC	U
<i>Acontias percivali tasmani</i>	Tasman's legless skink	PNCO, IUCN LC	U
<i>Agama atra</i>	Southern rock agama	PNCO, IUCN LC	U
<i>Aspidelapse lubricus</i>	Cape coral snake	PNCO, IUCN LC	U
<b><i>Bitis arietans</i></b>	<b>Puff adder</b>	<b>PNCO, IUCN LC</b>	<b>Y</b>
<b><i>Bradypodion ventrale</i></b>	<b>Southern Dwarf Chameleon</b>	<b>PNCO, IUCN LC, CITIES 2</b>	<b>Y Thickets / Forests previously observed on Victoria Drive</b>
<i>Causus rhombeatus</i>	Night adder	PNCO, IUCN LC	U
<i>Chersina angulata</i>	Angulate tortoise	PNCO, IUCN LC, CITIES 2	U
<b><i>Cordylus cordylus</i></b>	<b>Cape girdled lizard</b>	<b>PNCO, IUCN LC, CITIES 2</b>	<b>Y</b>
<i>Cordylus tasmani</i>	Tasman's girdled lizard	CITES 2 ,PNCO, IUCN VU	U
<i>Crotaphopeltis hotamboeia</i>	Herald snake	PNCO, IUCN LC	U
<i>Dasyplettis scabra</i>	Rhombic egg eater	PNCO, IUCN LC	U
<b><i>Dispholidus typus</i></b>	<b>Boomslang</b>	<b>PNCO, IUCN LC</b>	<b>Y</b>
<b><i>Duberria lutrix</i></b>	<b>Slug eater</b>	<b>PNCO, IUCN LC</b>	<b>Y</b>
<i>Gerrhosaurus flavigularis</i>	Yellow throated plated lizard	PNCO, IUCN LC	U
<i>Hemachatus haemachatus</i>	Rinkhals	PNCO, IUCN LC	U
<b>Mammals</b>			
<i>Amblysomus corriae</i>	Fynbos golden mole	PNCO, IUCN NT	U
<i>Amblysomus hottentotus</i>	Hottentot Golden Mole	PNCO, IUCN DD	U
<i>Aonyx capensis</i>	African clawless otter	PNCO, IUCN LC	U
<i>Atilax paludinosus</i>	Marsh mongoose	PNCO, IUCN LC	U

Taxon	Common Name	RDB/SSC	Presence <sup>x</sup>
<i>Caracal caracal</i>	Caracal	PNCO, IUCN LC	U
<b><i>Cercopithecus pygerythrus</i></b>	<b>Vervet monkey</b>	<b>PNCO, IUCN LC</b>	<b>Y</b>
<i>Chlorotalpa duthieae</i>	Duthie's golden mole	PNCO, IUCN LC	U
<i>Crociodura cyanea</i>	Reddish-Grey Musk Shrew	PNCO, IUCN DD	U
<i>Crociodura flavescens</i>	Greater red musk shrew	PNCO, IUCN LC	U
<b><i>Cryptomys hottentotus</i></b>	<b>African mole rat</b>	<b>PNCO, IUCN LC</b>	<b>Y</b>
<b><i>Cynictis penicillata</i></b>	<b>Yellow mongoose</b>	<b>PNCO, IUCN LC</b>	<b>Y</b>
<i>Dendromus melanotis</i>	Grey climbing mouse	PNCO, IUCN LC	U
<i>Dendromus mesomelas</i>	Brant's climbing mouse	PNCO, IUCN LC	U
<b><i>Felis catus</i></b>	<b>Domestic cat</b>	<b>Alien</b>	<b>Y (Houses)</b>
<i>Felis silvestris</i>	African wild cat	PNCO, IUCN LC	U
<i>Galerella pulverulenta</i>	Cape grey mongoose	PNCO, IUCN LC	U
<i>Genetta genetta</i>	Small spotted genet	PNCO, IUCN LC	U
<i>Genetta tigrina</i>	Large spotted genet	PNCO, IUCN LC	U
<b><i>Georychus capensis</i></b>	<b>Cape mole rat</b>	<b>PNCO, IUCN LC</b>	<b>Y</b>
<i>Graphiurus murinus</i>	Woodland dormouse	PNCO, IUCN LC	U
<i>Graphiurus ocellatus</i>	Spectacled dormouse	PNCO, IUCN LC	U
<i>Herpestes ichneumon</i>	Large grey mongoose	PNCO, IUCN LC	U
<i>Hystrix africaeaustralis</i>	Cape porcupine	PNCO, IUCN LC	U
<i>Ictonyx striatus</i>	Striped pole cat	PNCO, IUCN LC	U
<i>Lepus saxatilis</i>	Scrub hare	PNCO, IUCN LC	U
<i>Macroscelides proboscideus</i>	Round eared elephant shrew	PNCO, IUCN LC	U
<i>Mastomys natalensis</i>	Natal multimammate mouse	PNCO, IUCN LC	U
<i>Mellivora capensis</i>	Honey badger	PNCO, IUCN CITES 3 NT	U
<i>Micaelamys namaquensis</i>	Namaqua rock mouse	LC	U
<i>Mus minutooides</i>	Pygmy mouse	LC	U
<i>Mus musculus</i>	House mouse	Alien	U
<b><i>Myosorex varius</i></b>	<b>Forest Shrew</b>	<b>PNCO, IUCN DD</b>	<b>Y</b>
<i>Neoromicia capensis</i>	Cape serotine bat	PNCO, IUCN LC	U
<i>Nycteris thebaica</i>	Egyptian slit faced bat	PNCO, IUCN LC	U
<i>Orycteropus afer</i>	Aardvark	PNCO, IUCN LC	U
<i>Otocyon megalotis</i>	Bat eared fox	PNCO, IUCN LC	U
<i>Otomys irroratus</i>	Vlei rat	PNCO, IUCN LC	U
<i>Otomys unisulcatus</i>	Bush vlei rat	PNCO, IUCN LC	U
<i>Panthera pardus</i>	Leopard	PNCO, IUCN LC	U
<i>Papio cynocephalus ursinus</i>	Chacma baboon	PNCO, IUCN LC	U
<i>Philantomba monticola</i>	Blue duiker	PNCO, IUCN CITES2 VU	U
<i>Poecilogale albinucha</i>	African striped weasel	PNCO, IUCN VU	U
<i>Potamochoerus larvatus</i>	Bush pig	PNCO, IUCN LC	U
<i>Raphicerus campestris</i>	Steenbok	PNCO, IUCNLC	U
<i>Raphicerus melanotis</i>	Grysbok	PNCO, IUCNLC	U
<b><i>Rattus rattus</i></b>	<b>House rat</b>	<b>PNCO, IUCN LC</b>	<b>Y (in rubble)</b>
<b><i>Rhabdomys pumilio</i></b>	<b>Four striped grass mouse</b>	<b>PNCO, IUCN LC</b>	<b>Y</b>
<i>Saccostomus campestris</i>	Pouched mouse	PNCO, IUCNLC	U
<i>Suncus infinitesimus</i>	Least dwarf shrew	PNCO, IUCN E	U
<i>Sylvicapra grimmia</i>	Common duiker	PNCO, IUCN LC	U
<i>Tragelaphus scriptus</i>	Bush buck	PNCO, IUCN LC	U
<i>Vulpes chama</i>	Cape Fox	PNCO, IUCN LC	U

According to the South African Bird Atlas Project (SABAP2), an average of 271 bird species has been recorded in the quarter degree grid cells (QDGC) that overlaps with the study site. ([www.sabap2.adu.org.za](http://www.sabap2.adu.org.za)). However, several of the birds listed are marine species or water birds and would not be observed within the site (See Appendix 1) due to the lack of these habitat within the site.

Table 2 lists birds common to the region and have been observed in the past with their conservation status as per Taylor *et al.*, 2015. Although several raptors use or fly over the site, only one is listed as Regionally Vulnerable, namely the Lanner Falcon (*Falco biarmicus*). This falcon is listed Least Concern globally. The observed species mostly make use of the forest pockets or open grass areas for roosting or foraging. The vast majority of species were observed flying over the site.

**Table 2: A list of 98 bird species that have been observed within the study area or flying over the site**  
 Where Conservation status: E = endangered, V = vulnerable, NT = near-threatened, P = protected, Ra = raptor or owl, B = Listed in Appendix II of the Bonn Convention, WA = listed in Annexure 2 of the African-Eurasian Waterbird Agreement, RL = IUCN Red List; SA = South African Red Data Book (Taylor *et al.*, 2015), DEA = Threatened and Protected Species Regulations (DEAT 2007).

Common Name	Scientific name	Conservation status
Apalis, Bar-throated	<i>Apalis thoracica</i>	
Apalis, Yellow-breasted	<i>Apalis flavida</i>	
Batis, Cape	<i>Batis capensis</i>	
Bokmakierie, Bokmakierie	<i>Telophorus zeylonus</i>	
Boubou, Southern	<i>Laniarius ferrugineus</i>	
Bulbul, Cape	<i>Pycnonotus capensis</i>	
Bulbul, Dark-capped	<i>Pycnonotus tricolor</i>	
Bunting, Golden-breasted	<i>Emberiza flaviventris</i>	
Bush-shrike, Olive	<i>Telophorus olivaceus</i>	
Buzzard, Forest	<i>Buteo trizonatus</i>	Ra
Buzzard, Jackal	<i>Buteo rufofuscus</i>	Ra
Buzzard, Steppe	<i>Buteo vulpinus</i>	Ra
Canary, White-throated	<i>Crithagra albogularis</i>	
Canary, Yellow	<i>Crithagra flaviventris</i>	
Canary, Yellow-fronted	<i>Crithagra mozambicus</i>	
Cisticola, Lazy	<i>Cisticola aberrans</i>	
Cisticola, Zitting	<i>Cisticola juncidis</i>	
Coucal, Burchell's	<i>Centropus burchellii</i>	
Crow, Cape	<i>Corvus capensis</i>	
Crow, Pied	<i>Corvus albus</i>	
Cuckoo, Diderick	<i>Chrysococcyx caprius</i>	
Cuckoo, Klaas's	<i>Chrysococcyx klaas</i>	
Dove, Laughing	<i>Streptopelia senegalensis</i>	
Dove, Namaqua	<i>Oena capensis</i>	
Dove, Red-eyed	<i>Streptopelia semitorquata</i>	
Dove, Rock	<i>Columba livia</i>	
Dove, Tambourine	<i>Turtur tympanistria</i>	
Drongo, Fork-tailed	<i>Dicrurus adsimilis</i>	
Eagle, Long-crested	<i>Lophaetus occipitalis</i>	Ra -Nests in Mount Pleasant and hunts in study area – named Larry.
Eagle-owl, Spotted	<i>Bubo africanus</i>	Ra
Egret, Cattle	<i>Bubulcus ibis</i>	
Egret, Little	<i>Egretta garzetta</i>	
Egret, Yellow-billed	<i>Egretta intermedia</i>	
Falcon, Lanner	<i>Falco biarmicus</i>	Ra VU (Regional) Least Concern (Globally)
Falcon, Peregrine	<i>Falco peregrinus</i>	Ra
Fiscal, Common (Southern)	<i>Lanius collaris</i>	
Flycatcher, Fiscal	<i>Sigelus silens</i>	
Flycatcher, Spotted	<i>Muscicapa striata</i>	

Common Name	Scientific name	Conservation status
Goose, Egyptian	<i>Alopochen aegyptiacus</i>	-
Goshawk, African	<i>Accipiter tachiro</i>	Ra
Goshawk, Southern Pale Chanting	<i>Melierax canorus</i>	Ra
Guineafowl, Helmeted	<i>Numida meleagris</i>	-
Harrier-Hawk, African	<i>Polyboroides typus</i>	Ra
Heron, Black-headed	<i>Ardea melanocephala</i>	
Heron, Goliath	<i>Ardea goliath</i>	
Heron, Grey	<i>Ardea cinerea</i>	
Ibis, African Sacred	<i>Threskiornis aethiopicus</i>	
Ibis, Hadedda	<i>Bostrychia hagedash</i>	
Kestrel, Rock	<i>Falco rupicolus</i>	Ra
Kite, Black-shouldered	<i>Elanus caeruleus</i>	Ra
Kite, Yellow-billed	<i>Milvus aegyptius</i>	Ra
Lapwing, Blacksmith	<i>Vanellus armatus</i>	
Lapwing, Black-winged	<i>Vanellus melanopterus</i>	
Lapwing, Crowned	<i>Vanellus coronatus</i>	
Martin, Brown-throated	<i>Riparia paludicola</i>	
Masked-weaver, Southern	<i>Ploceus velatus</i>	
Mousebird, Red-faced	<i>Urocolius indicus</i>	
Mousebird, Speckled	<i>Colius striatus</i>	
Night-Heron, Black-crowned	<i>Nycticorax nycticorax</i>	
Nightjar, Fiery-necked	<i>Caprimulgus pectoralis</i>	
Olive-pigeon, African	<i>Columba arquatrix</i>	
Oriole, Black-headed	<i>Oriolus larvatus</i>	
Osprey, Osprey	<i>Pandion haliaetus</i>	Ra
Pigeon, Speckled	<i>Columba guinea</i>	
Raven, White-necked	<i>Corvus albicollis</i>	
Robin-chat, Cape	<i>Cossypha caffra</i>	
Seedeater, Streaky-headed	<i>Crithagra gularis</i>	
Shrike, Red-backed	<i>Lanius collurio</i>	
Sparrow, Cape	<i>Passer melanurus</i>	
Sparrow, House	<i>Passer domesticus</i>	
Sparrowhawk, Little	<i>Accipiter minullus</i>	Ra
Starling, Cape Glossy	<i>Lamprotornis nitens</i>	
Starling, Common	<i>Sturnus vulgaris</i>	
Starling, Red-winged	<i>Onychognathus morio</i>	
Sunbird, Amethyst	<i>Chalcomitra amethystina</i>	
Sunbird, Collared	<i>Hedydipna collaris</i>	
Sunbird, Greater Double-collared	<i>Cinnyris afer</i>	
Sunbird, Grey	<i>Cyanomitra veroxii</i>	
Sunbird, Malachite	<i>Nectarinia famosa</i>	
Sunbird, Southern Double-collared	<i>Cinnyris chalybeus</i>	
Swallow, Barn	<i>Hirundo rustica</i>	

Common Name	Scientific name	Conservation status
Swallow, Greater Striped	<i>Hirundo cucullata</i>	
Swallow, Lesser Striped	<i>Hirundo abyssinica</i>	
Swallow, White-throated	<i>Hirundo albigularis</i>	
Swift, African Black	<i>Apus barbatus</i>	
Swift, Little	<i>Apus affinis</i>	
Swift, White-rumped	<i>Apus caffer</i>	
Thick-knee, Spotted	<i>Burhinus capensis</i>	
Thrush, Olive	<i>Turdus olivaceus</i>	
Turaco, Knysna	<i>Tauraco corythaix</i>	
Turtle-dove, Cape	<i>Streptopelia capicola</i>	
Wagtail, Cape	<i>Motacilla capensis</i>	
Waxbill, Common	<i>Estrilda astrild</i>	
Weaver, Spectacled	<i>Ploceus ocularis</i>	
Weaver, Yellow	<i>Ploceus subaureus</i>	
White-eye, Cape	<i>Zosterops virens</i>	
Whydah, Pin-tailed	<i>Vidua macroura</i>	
Wood-dove, Emerald-spotted	<i>Turtur chalcospilos</i>	

## 5.1 Biodiversity Conservation Plans

The provincial conservation authority, Eastern Cape Department of Economic Development, Environment Affairs & Tourism (DEDEAT) together with a broad range of stakeholders assessed the conservation status of the province using a GIS based Systematic Conservation Planning System (Berliner and Desmet, 2007). The Eastern Cape Biodiversity Conservation Plan (ECBCP) was produced containing conservation related maps for the province. Several criteria were used in the assessment to determine Terrestrial and Aquatic Critical Biodiversity Areas. The study area intersects Terrestrial CBA 1 and 2 habitats (Figure 7).

From the maps it is clear the CBA's are a result of the potential sensitive habitats based on the vulnerable / endangered vegetation types (Figure 6). However, this study has shown that none of these natural habitats remain within the Terrestrial CBAs.

Figure 8 presents a finer scale map of the study area compiled as part of the NMBM Bioregional Plan, which was promulgated in 2014. The results of the assessment conducted by SRK Consulting (2014), indicated that due to the level of impact and alien plant cover, the study area contains no species with conservation concern (mostly NMBM endemics), Ecological Support Areas or Critical Biodiversity Areas (Figure 8).

Note - Species of special concern in this context does not relate to Protected species as listed in this report, but any Threatened or Endemic species located within NMBM.



Figure 7: The Eastern Cape Biodiversity Conservation Plan (Berliner & Desmet, 2007), terrestrial CBAs

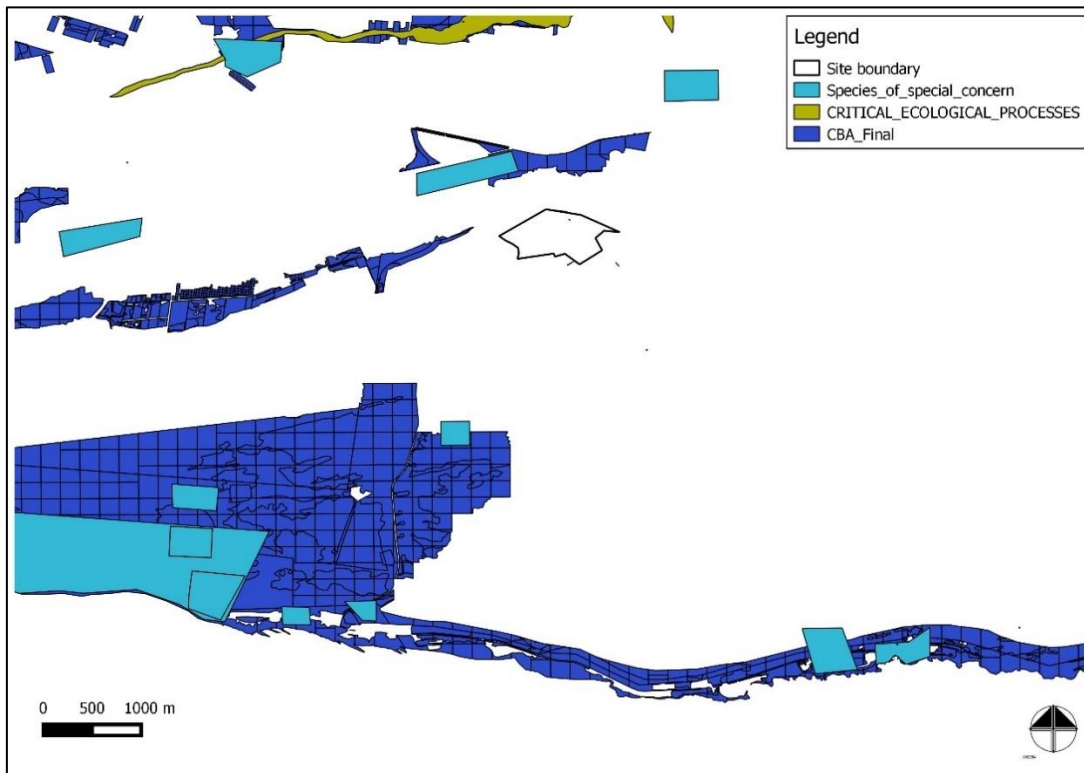


Figure 8: A map illustrating the Critical Biodiversity Areas (CBA), Ecological Support Areas (ESA) and areas containing Species of Special Concern as indicated in the NMBM Bioregional Conservation Plan

## 5.2 Ecological Sensitivity analysis

Based on the findings of this study, the various habitats (vegetation) could be ranked in terms of sensitivity to development, using the following criteria, listed in order of importance:

- Contained Species of Special Concern (SSC)
  - Habitat was protected under a form of legislation
  - Exhibited a high degree of biodiversity
  - Exhibited a limited degree of degradation
  - A unique habitat that is not well represented within the region
  - Provided an important ecosystem role or support system, e.g. ecological corridor
  - Listed as Critical Biodiversity Area and still contained natural vegetation to support this ranking
- Habitats containing near natural and unique habitat **were rated as High**
  - All intact vegetation units, which contained protected flora, were rated **Moderate – High**
  - All unimproved vegetation types and dams were rated as **Moderate**, i.e. these have been impacted upon, but are still able to contribute at the landscape level towards ecosystem function and / or assist in the maintenance of ecological corridors
  - All modified, transformed or man-made systems were rated as **Low**. These systems have limited restoration / rehabilitation potential, but still provide a form of habitat.

Based then on this rational only the forest habits or clumps were rated with a HIGH sensitivity, while the remaining areas, although containing some protected species were rated as LOW due to the level of impact observed, i.e. no intact vegetation units or habitats remain (Figure 9).

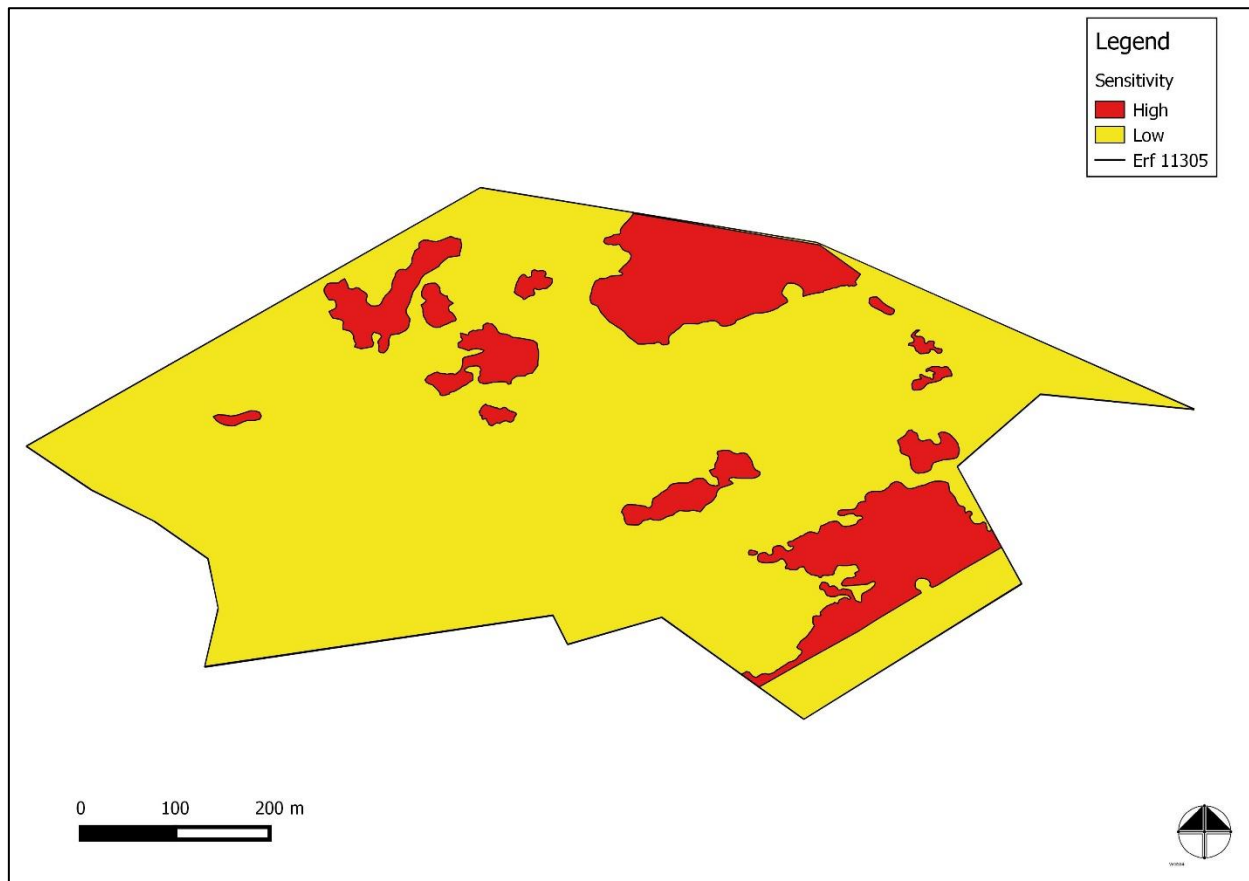


Figure 9: Spatial representation of the habitat sensitivity of the remaining habitats within the study area



## 6 Potential impact description

The following issues been identified together with potential impacts which will be assessed as follows:

Issue 1 – Destruction of natural habitat.

Impact 1 - loss of intact habitat and removal of vegetation

Impact 2 - loss of Critical Biodiversity Areas (CBA) and habitat fragmentation

Issue 2 – Loss of endangered species

Impact 3 – loss of rare and endangered species

Issue 3 – Introduction or spread of alien vegetation

Impact 4 – introduction or spread of alien or invasive plants

## 7 Impact Assessment

### 7.1 Impact 1: Loss of habitat and removal of vegetation

#### *Nature of the impact*

Due to the nature of the project, vegetation will be cleared and replaced with roads, housing and supporting infrastructure (e.g. pipelines and transmission cables). This will have the greatest impact in areas where intact vegetation is unavoidable in particular the forest areas. The remaining fynbos areas would also be impacted upon, but with the rate of alien encroachment within the site, it was difficult to determine these accurately as these remaining areas were so small.

#### *Significance of impacts without mitigation*

The construction phase would have the greatest impact on the surrounding vegetation. This will definitely result in the disturbance of the vegetation and soils within the site especially when considering the forest complex and to a lesser degree the fynbos. Although the scale of disturbance in the construction period on the surrounding vegetation is small, the state and importance of the forest types the intensity would be rated High. The overall significance is thus Medium without mitigation, i.e. all vegetation is removed. (Table 3). This would apply for both layout options A and B, without mitigation. When compared to the No-Go option, and the current rate of alien tree invasion and overgrazing, the magnitude of the impact is also rated as High and the significance as High.

The operational phase of the project would have limited impact on the surrounding vegetation once the plants are allowed to re-establish themselves in any remaining areas, however, the irreversible loss of species assemblages could occur. No additional mitigation measures are proposed for the operational phase.

#### *Proposed mitigation*

- Clearing of natural vegetation should be kept to a minimum, keeping the width and length of the earth works required.
- Construction activities should not exceed the proposed construction boundaries to avoid the secondary impact of construction and increasing the areas that would require clearing and rehabilitation
- A search and rescue operation for both plants and fauna (particularly reptiles) must be initiated prior to the commencement of any construction once the required permits are in place. Applications must be submitted to relevant authorities where applicable.
- Re-vegetation as part of a rehabilitation plan is always advocated, however due the nature of the project, such as the grassed public open space areas that will be required, this may not be practical. the shallow topsoil layer be stockpiled separately from the subsoil layers, should the excavation exceed 0.5 m. When the construction has been completed, then the topsoil layers, which contain seed and vegetative material, should be reinstated last thus allowing plants to rapidly re-colonise the bare soil areas.

- Alien plant regrowth should also be monitored, and any such species should be removed during the construction phase.

#### *Significance of impacts with mitigation*

This will definitely result in the disturbance of the vegetation and soils within the site especially when considering the sensitivity of the remaining natural forest vegetation. Due to the site scale of disturbance in the construction period on the surrounding vegetation when compared to its current state / importance, i.e. the magnitude would be low, the overall significance of would be rated as Very Low with mitigation (Layout Option B), while the impacts for Layout Option A would remain Low, i.e. the layout accounts for forested areas but no allowance is made for a buffer that would allow for fynbos / grassy communities to developed providing additional habitat, but also removing for the most part the direct construction impact (construction encroachment) on the forest areas (Table 3). Option A, is thus a long-term impact as additional habitat (fynbos) is also lost, that would have been contained in the buffer zone.

Option B, with the buffer also then allows for the slight loss of vegetation due to the inclusion of the required storm water ponds.

The operational phase of the project would have limited impact on the surrounding vegetation once the plants are allowed to re-establish themselves in any remaining areas however, the irreversible loss of species assemblages could occur.

## **7.2 Impact 2: Loss of Critical Biodiversity Areas (CBA) and habitat fragmentation**

#### *Nature of the impact*

Based on the information contained within the NMBM Bioregional Plan, the site is not within any fine scale Critical Biodiversity Areas, Ecological Support Areas. The site is also isolated from the North and East by transformed areas, however it would be important to retain the forest areas within the site. These could then act as corridors between the site and surrounding areas that still contain natural vegetation to the west and south. However due to rate of grazing and alien tree growth, this loss would continue within the No-Go option.

#### *Significance of impact without mitigation*

It is anticipated that this impact would be definite if undisturbed areas are used (i.e. fragmentation of open space corridors) would be a local impact, resulting in a long-term impact of Medium intensity for the construction and then continue into the operational phase, resulting in a Medium significance for both layout Options A and B, and would be High for the No-Go option (Table 3).

#### *Proposed mitigation*

- Construction activities should not exceed the proposed construction boundaries to avoid the secondary impact of construction and increasing the areas that would require clearing and rehabilitation
- Alien plant regrowth should also be monitored, and any such species should be removed during the construction phase.

#### *Significance of impact with mitigation*

With the above mitigation measures in place, the impact on fragmentation would remain local area, resulting in a short-term impact, resulting in a Low (with mitigation) significance (Table 3). This is assuming that the proposed infrastructure will be placed leaving the forest areas (inclusive a buffer) intact as proposed for layout Option B. Option B will still result in a long-term reduction in habitat fragmentation within the greater site, but does allow for continued connectivity between many of the forest sites.

The significance of layout Option A was rated as Medium, as it increases the degree of fragmentation resulting in even smaller isolated forest areas, which have difficulty in retaining any of their current form or function, particularly within an urban setting.

### 7.3 Impact 3: Loss of species of special concern

#### *Nature of impact*

Any loss of systems could possibly result in the loss of species of special concern within the habitats as a result of their destruction during the construction phase. However, only a few flora and fauna species of special concern were evident during the study within the fynbos and coastal forest areas. The lack of any rainfall seemed to preclude the early growth or appearance of species known to occur in the area so as precautionary step, it is important that as much of the natural forests areas be retained and allowed to function, as a number of protected (PNCO / NFA), species listed do occur. No Threatened or Endangered (Red Data) plant species were observed directly within the site (i.e. only one bird species the Vulnerable Lanner Falcon, which flew over the site but usually avoids forests / thickets). The loss of any species would also continue during the No-Go option.

#### *Significance of impact without mitigation*

The impact would be rated as a regional impact due to the species under consideration. The impact would persist into the long-term however finding large numbers of these species listed in this report, these are anticipated to occur in the remaining fynbos areas surrounding the forests, thus the intensity and significance of the impact intensity would be Low (Option B) (Table 3). The impact significance would be rated as Medium without mitigation for Option A, as with no buffer additional species associated with the grassy fynbos would also be lost. The No-go Option with the continued expected loss of species, was rated as High.

#### *Proposed mitigation*

- A search and rescue operation for both plants and fauna (particularly reptiles) must be initiated prior to the commencement of any construction once the required permits are in place.
- Re-vegetation as part of a rehabilitation plan is always advocated, however due the nature of the vegetation, this may not be practical. The shallow topsoil layer must be stockpiled separately from the subsoil layers, should the excavation exceed 0.5 m. When the construction has been completed, then the topsoil layers, which contain seed and vegetative material, should be reinstated last thus allowing plants to rapidly re-colonise the bare soil areas. During the construction period, the stockpiles must be monitored and any alien seedlings must be removed.
- Alien plant regrowth should also be monitored, and any such species should be removed (including from topsoil stockpiles) during the construction phase.

#### *Significance of impact with mitigation*

The impact would persist into the long-term however with the proposed mitigations both the magnitude and significance of the impact would be Very Low (Table 3) for Option B, and Low for Option A. This is based on the fact that with no buffer, a number of Protected Fynbos species, would still be lost, and little to no remaining habitat for these species would be retained.

## 7.4 Impact 4: The potential spread of alien vegetation

### *Nature of the impact*

12 invasive plant species were recorded during the survey and only small areas did not contain any of these trees or shrubs. (Note this report amendment also consulted the National Environmental Management: Biodiversity Act – Alien Invasive Species lists).

### *Significance of impact without mitigation*

Without mitigation measures in place, the impact on the alien vegetation would continue to cover the site over time (no-go) and would be rated as High, however site clearing in the construction phase will result in removal of the alien plants resulting in Low impact (-ve) (Table 3). The significance of this impact would be the same regardless of the development layout alternative.

### *Proposed mitigation*

- Alien plant regrowth should also be monitored, and any such species should be removed during the construction and operational phases.

### *Significance of impact with mitigation*

With the above mitigation measures in place, the impact on the vegetation would remain within the site, with re-vegetation happening within a short time period, resulting in a Very Low probable impact significance with mitigation (Table 3). This is also based on the condition that during the operational phase on-going clearing and maintenance practices must be employed by the developer, this would result in a positive impact.

**Table 3: Summary Impact table with or without mitigation**

Reference to Option A or Option B = Layout Options from Metroplan dated 1 September 2017.

Impact	Mitigation	Extent	Intensity	Duration	Consequence	Probability	Significance	Confidence
Impact 1 - loss of habitat and removal of vegetation during construction	Without (Applies to Options A & B)	Local (1)	Medium (2)	Long-term (3)	Medium (6)	Definite	Medium (-ve)	High
	With (Option A)	Local (1)	Low (1)	Long-term (3)	Low (5)	Definite	Low (-ve)	High
	With (Option B)	Local (1)	Low (1)	Short-term (1)	Very Low (3)	Definite	Very Low (-ve)	High
	No-Go	Regional (2)	Medium (2)	Long-term (3)	High (7)	Definite	High (-ve)	High
Impact 1 - loss of habitat and removal of vegetation during operations	Without (Applies to Options A & B)	Local (1)	Medium (2)	Long-term (3)	Medium (6)	Definite	Medium (-ve)	High
	With (Applies to Options A & B)	Local (1)	Low (1)	Long-term (3)	Low (5)	Possible	Very Low (-ve)	High
Impact 2 - Habitat fragmentation during construction and operation	Without (Applies to Options A & B)	Local (1)	Medium (2)	Long-term (3)	Medium (6)	Definite	Medium (-ve)	High
	With (Option A)	Local (1)	Medium (2)	Long-term (3)	Medium (6)	Definite	Medium (-ve)	High
	With (Option B)	Local (1)	Low (1)	Long-term (3)	Low (5)	Probable	Low (-ve)	High
	No-Go	Regional (2)	Medium (2)	Long-term (3)	High (7)	Definite	High (-ve)	High
Impact 3 – Loss of species of special concern during construction and operation	Without (Option A)	Regional (2)	Low (1)	Long-term (3)	Medium (6)	Definite	Medium (-ve)	High
	Without (Option B)	Local (1)	Low (1)	Long-term (3)	Low (5)	Probable	Low (-ve)	High
	With (Option A)	Local (1)	Low (1)	Long-term (3)	Low (5)	Probable	Low (-ve)	High
	With (Option B)	Local (1)	Low (1)	Long-term (3)	Low (5)	Possible	Very Low (-ve)	High
	No-Go	Regional (2)	Medium (2)	Long-term (3)	High (7)	Definite	High (-ve)	High
Impact 4 – Introduction of alien and invasive species during construction and operation	Without (Applies to Option A & B)	Local (1)	Low (1)	Long-term (3)	Low (5)	Definite	Low (-ve)	High
	With (Applies to Option A & B)	Local (1)	Low (1)	Short-term (1)	Very Low (3)	Probable	Very Low (+ve)	High
	No-Go	Regional (2)	Medium (2)	Long-term (3)	High (7)	Definite	High (-ve)	High

## 8 Conclusion and recommendations

The results, based on the available information and the site investigations, show that the proposed development could impact on a number of sensitive and / or important terrestrial habitats.

For this purpose, it is recommended that the natural coastal forest be avoided and no new infrastructure is placed within this habitat (See Figure 7). In this regard, it is also recommended that Design Option B be implemented as a minimum. This would firstly retain all the forest areas observed as well provide a buffer or ecotone that surrounds these areas, except those areas containing the proposed stormwater ponds. The buffer area would be dominated by grassy fynbos species, thus ensuring that all the current habitats observed will be protected/ conserved. Secondly this would promote or retain some degree of habitat corridor with the surrounding areas, while providing a variety of habitat, i.e. not only forested areas. In doing so the loss of vegetation, protected species and corridors (Impacts 1, 2 and 3) will not only be reduced from Medium to Low / Very Low, but from definite to probable in most instances.

Furthermore, alien clearing must take place during the construction and operational phases to bring about a positive impact in this regard. This coupled to a Search and Rescue operation for any plants or animals prior to construction would minimise any additional impacts.

Lastly with regard the potential placement of the Stormwater Ponds within the forested areas. It is suggested that these be placed within any disturbed areas within these forest patches and not within any intact or mature forest areas. It is also suggested that the smaller ponds be located as far as possible within non-forest areas of the public open spaces. The final placement should then be reviewed by a botanist to ensure each of the remaining habitats will be viable.

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[www.saherps.net/sarca/index.php](http://www.saherps.net/sarca/index.php)



**10 Appendix 1: Complete bird list for the study area region**

QDGC	Common_name	Taxon_name
3425BA	Quail, Common	<i>Coturnix coturnix</i>
3425BA	Peacock, Common	<i>Pavo cristatus</i>
3425BA	Spurfowl, Red-necked	<i>Pternistis afer</i>
3425BA	Francolin, Grey-winged	<i>Scleroptila africanus</i>
3425BA	Francolin, Red-winged	<i>Scleroptila levaillantii</i>
3425BA	Guineafowl, Crested	<i>Guttera edouardi</i>
3425BA	Guineafowl, Helmeted	<i>Numida meleagris</i>
3425BA	Duck, White-faced	<i>Dendrocygna viduata</i>
3425BA	Goose, Egyptian	<i>Alopochen aegyptiacus</i>
3425BA	Teal, Cape	<i>Anas capensis</i>
3425BA	Teal, Red-billed	<i>Anas erythrorhyncha</i>
3425BA	Duck, Mallard	<i>Anas platyrhynchos</i>
3425BA	Shoveler, Cape	<i>Anas smithii</i>
3425BA	Duck, African Black	<i>Anas sparsa</i>
3425BA	Duck, Yellow-billed	<i>Anas undulata</i>
3425BA	Pochard, Southern	<i>Netta erythrophthalma</i>
3425BA	Goose, Spur-winged	<i>Plectropterus gambensis</i>
3425BA	Shelduck, South African	<i>Tadorna cana</i>
3425BA	Honeyguide, Lesser	<i>Indicator minor</i>
3425BA	Woodpecker, Knysna	<i>Campethera notata</i>
3425BA	Woodpecker, Cardinal	<i>Dendropicos fuscescens</i>
3425BA	Woodpecker, Olive	<i>Dendropicos griseocephalus</i>
3425BA	Barbet, Black-collared	<i>Lybius torquatus</i>
3425BA	Tinkerbird, Red-fronted	<i>Pogoniulus pusillus</i>
3425BA	Barbet, Acacia Pied	<i>Tricholaema leucomelas</i>
3425BA	Hornbill, Crowned	<i>Tockus albeterminatus</i>
3425BA	Hoopoe, African	<i>Upupa africana</i>
3425BA	Kingfisher, Malachite	<i>Alcedo cristata</i>
3425BA	Kingfisher, Half-collared	<i>Alcedo semitorquata</i>
3425BA	Kingfisher, Brown-hooded	<i>Halcyon albiventris</i>
3425BA	Kingfisher, Pied	<i>Ceryle rudis</i>
3425BA	Kingfisher, Giant	<i>Megaceryle maximus</i>
3425BA	Bee-eater, European	<i>Merops apiaster</i>
3425BA	Bee-eater, White-fronted	<i>Merops bullockoides</i>
3425BA	Mousebird, Speckled	<i>Colius striatus</i>
3425BA	Mousebird, Red-faced	<i>Urocolius indicus</i>
3425BA	Cuckoo, Diderick	<i>Chrysococcyx caprius</i>
3425BA	Cuckoo, Klaas's	<i>Chrysococcyx klaas</i>
3425BA	Cuckoo, Jacobin	<i>Clamator jacobinus</i>
3425BA	Cuckoo, Black	<i>Cuculus clamosus</i>

QDGC	Common_name	Taxon_name
3425BA	Cuckoo, Red-chested	<i>Cuculus solitarius</i>
3425BA	Swift, Little	<i>Apus affinis</i>
3425BA	Swift, African Black	<i>Apus barbatus</i>
3425BA	Swift, White-rumped	<i>Apus caffer</i>
3425BA	Palm-swift, African	<i>Cypsiurus parvus</i>
3425BA	Swift, Alpine	<i>Tachymarptis melba</i>
3425BA	Owl, Barn	<i>Tyto alba</i>
3425BA	Eagle-owl, Spotted	<i>Bubo africanus</i>
3425BA	Nightjar, Fiery-necked	<i>Caprimulgus pectoralis</i>
3425BA	Dove, Lemon	<i>Aplopelia larvata</i>
3425BA	Olive-pigeon, African	<i>Columba arquatrix</i>
3425BA	Pigeon, Speckled	<i>Columba guinea</i>
3425BA	Dove, Rock	<i>Columba livia</i>
3425BA	Dove, Namaqua	<i>Oena capensis</i>
3425BA	Turtle-dove, Cape	<i>Streptopelia capicola</i>
3425BA	Dove, Red-eyed	<i>Streptopelia semitorquata</i>
3425BA	Dove, Laughing	<i>Streptopelia senegalensis</i>
3425BA	Wood-dove, Emerald-spotted	<i>Turtur chalcospilos</i>
3425BA	Dove, Tambourine	<i>Turtur tympanistria</i>
3425BA	Crake, Black	<i>Amaurornis flavirostris</i>
3425BA	Coot, Red-knobbed	<i>Fulica cristata</i>
3425BA	Moorhen, Common	<i>Gallinula chloropus</i>
3425BA	Swamphen, African Purple	<i>Porphyrio madagascariensis</i>
3425BA	Crake, Baillon's	<i>Porzana pusilla</i>
3425BA	Rail, African	<i>Rallus caerulescens</i>
3425BA	Sandpiper, Common	<i>Actitis hypoleucos</i>
3425BA	Turnstone, Ruddy	<i>Arenaria interpres</i>
3425BA	Sanderling, Sanderling	<i>Calidris alba</i>
3425BA	Knot, Red	<i>Calidris canutus</i>
3425BA	Sandpiper, Curlew	<i>Calidris ferruginea</i>
3425BA	Stint, Little	<i>Calidris minuta</i>
3425BA	Snipe, African	<i>Gallinago nigripennis</i>
3425BA	Godwit, Bar-tailed	<i>Limosa lapponica</i>
3425BA	Curlew, Eurasian	<i>Numenius arquata</i>
3425BA	Whimbrel, Common	<i>Numenius phaeopus</i>
3425BA	Ruff, Ruff	<i>Philomachus pugnax</i>
3425BA	Greenshank, Common	<i>Tringa nebularia</i>
3425BA	Jacana, African	<i>Actophilornis africanus</i>
3425BA	Thick-knee, Spotted	<i>Burhinus capensis</i>
3425BA	Thick-knee, Water	<i>Burhinus vermiculatus</i>
3425BA	Plover, Common Ringed	<i>Charadrius hiaticula</i>
3425BA	Plover, Greater Sand	<i>Charadrius leschenaultii</i>
3425BA	Plover, White-fronted	<i>Charadrius marginatus</i>

QDGC	Common_name	Taxon_name
3425BA	Plover, Chestnut-banded	<i>Charadrius pallidus</i>
3425BA	Plover, Kittlitz's	<i>Charadrius pecuarius</i>
3425BA	Plover, Three-banded	<i>Charadrius tricollaris</i>
3425BA	Oystercatcher, African Black	<i>Haematopus moquini</i>
3425BA	Stilt, Black-winged	<i>Himantopus himantopus</i>
3425BA	Plover, American Golden	<i>Pluvialis dominica</i>
3425BA	Plover, Grey	<i>Pluvialis squatarola</i>
3425BA	Avocet, Pied	<i>Recurvirostra avosetta</i>
3425BA	Lapwing, Blacksmith	<i>Vanellus armatus</i>
3425BA	Lapwing, Crowned	<i>Vanellus coronatus</i>
3425BA	Lapwing, Black-winged	<i>Vanellus melanopterus</i>
3425BA	Skua, Subantarctic	<i>Catharacta antarctica</i>
3425BA	Tern, Whiskered	<i>Chlidonias hybrida</i>
3425BA	Gull, Grey-headed	<i>Larus cirrocephalus</i>
3425BA	Gull, Kelp	<i>Larus dominicanus</i>
3425BA	Gull, Hartlaub's	<i>Larus hartlaubii</i>
3425BA	Gull, Franklin's	<i>Larus pipixcan</i>
3425BA	Jaeger, Parasitic	<i>Stercorarius parasiticus</i>
3425BA	Tern, Little	<i>Sterna albifrons</i>
3425BA	Tern, Bridled	<i>Sterna anaethetus</i>
3425BA	Tern, Damara	<i>Sterna balaenarum</i>
3425BA	Tern, Swift	<i>Sterna bergii</i>
3425BA	Tern, Caspian	<i>Sterna caspia</i>
3425BA	Tern, Roseate	<i>Sterna dougallii</i>
3425BA	Tern, Sooty	<i>Sterna fuscata</i>
3425BA	Tern, Common	<i>Sterna hirundo</i>
3425BA	Tern, Arctic	<i>Sterna paradisaea</i>
3425BA	Tern, Sandwich	<i>Sterna sandvicensis</i>
3425BA	Tern, Antarctic	<i>Sterna vittata</i>
3425BA	Sparrowhawk, Black	<i>Accipiter melanoleucus</i>
3425BA	Sparrowhawk, Little	<i>Accipiter minullus</i>
3425BA	Sparrowhawk, Rufous-chested	<i>Accipiter rufiventris</i>
3425BA	Goshawk, African	<i>Accipiter tachiro</i>
3425BA	Buzzard, Jackal	<i>Buteo rufofuscus</i>
3425BA	Buzzard, Forest	<i>Buteo trizonatus</i>
3425BA	Buzzard, Steppe	<i>Buteo vulpinus</i>
3425BA	Marsh-harrier, African	<i>Circus ranivorus</i>
3425BA	Kite, Black-shouldered	<i>Elanus caeruleus</i>
3425BA	Fish-eagle, African	<i>Haliaeetus vocifer</i>
3425BA	Eagle, Long-crested	<i>Lophaelus occipitalis</i>
3425BA	Goshawk, Southern Pale Chanting	<i>Melierax canorus</i>
3425BA	Kite, Yellow-billed	<i>Milvus aegyptius</i>
3425BA	Osprey, Osprey	<i>Pandion haliaetus</i>

QDGC	Common_name	Taxon_name
3425BA	Harrier-Hawk, African	<i>Polyboroides typus</i>
3425BA	Eagle, African Crowned	<i>Stephanoaetus coronatus</i>
3425BA	Falcon, Lanner	<i>Falco biarmicus</i>
3425BA	Falcon, Peregrine	<i>Falco peregrinus</i>
3425BA	Kestrel, Rock	<i>Falco rupicolus</i>
3425BA	Grebe, Black-necked	<i>Podiceps nigricollis</i>
3425BA	Grebe, Little	<i>Tachybaptus ruficollis</i>
3425BA	Tropicbird, Red-tailed	<i>Phaethon rubricauda</i>
3425BA	Gannet, Cape	<i>Morus capensis</i>
3425BA	Darter, African	<i>Anhinga rufa</i>
3425BA	Cormorant, Reed	<i>Phalacrocorax africanus</i>
3425BA	Cormorant, Cape	<i>Phalacrocorax capensis</i>
3425BA	Cormorant, White-breasted	<i>Phalacrocorax carbo</i>
3425BA	Cormorant, Crowned	<i>Phalacrocorax coronatus</i>
3425BA	Heron, Grey	<i>Ardea cinerea</i>
3425BA	Heron, Goliath	<i>Ardea goliath</i>
3425BA	Heron, Black-headed	<i>Ardea melanocephala</i>
3425BA	Heron, Purple	<i>Ardea purpurea</i>
3425BA	Heron, Squacco	<i>Ardeola ralloides</i>
3425BA	Egret, Cattle	<i>Bubulcus ibis</i>
3425BA	Egret, Yellow-billed	<i>Egretta intermedia</i>
3425BA	Egret, Little	<i>Egretta garzetta</i>
3425BA	Bittern, Little	<i>Ixobrychus minutus</i>
3425BA	Night-Heron, Black-crowned	<i>Nycticorax nycticorax</i>
3425BA	Hamerkop, Hamerkop	<i>Scopus umbretta</i>
3425BA	Flamingo, Lesser	<i>Phoenicopterus minor</i>
3425BA	Ibis, Hageda	<i>Bostrychia hagedash</i>
3425BA	Spoonbill, African	<i>Platalea alba</i>
3425BA	Ibis, African Sacred	<i>Threskiornis aethiopicus</i>
3425BA	Openbill, African	<i>Anastomus lamelligerus</i>
3425BA	Stork, White	<i>Ciconia ciconia</i>
3425BA	Penguin, African	<i>Spheniscus demersus</i>
3425BA	Shearwater, Cory's	<i>Calonectris borealis</i>
3425BA	Giant-petrel, Southern	<i>Macronectes giganteus</i>
3425BA	Giant-petrel, Northern	<i>Macronectes halli</i>
3425BA	Storm-petrel, Wilson's	<i>Oceanites oceanicus</i>
3425BA	Shearwater, Sooty	<i>Puffinus griseus</i>
3425BA	Albatross, Indian Yellow-nosed	<i>Thalassarche carteri</i>
3425BA	Albatross, Shy	<i>Diomedea cauta</i>
3425BA	Albatross, Yellow-nosed	<i>Diomedea chlororhynchos</i>
3425BA	Albatross, Black-browed	<i>Thalassarche melanophris</i>
3425BA	Fiscal, Common (Southern)	<i>Lanius collaris</i>
3425BA	Shrike, Red-backed	<i>Lanius collurio</i>

QDGC	Common_name	Taxon_name
3425BA	Batis, Cape	<i>Batis capensis</i>
3425BA	Raven, White-necked	<i>Corvus albicollis</i>
3425BA	Crow, Pied	<i>Corvus albus</i>
3425BA	Crow, Cape	<i>Corvus capensis</i>
3425BA	Drongo, Fork-tailed	<i>Dicrurus adsimilis</i>
3425BA	Puffback, Black-backed	<i>Dryoscopus cubla</i>
3425BA	Boubou, Southern	<i>Laniarius ferrugineus</i>
3425BA	Oriole, Black-headed	<i>Oriolus larvatus</i>
3425BA	Flycatcher, Fairy	<i>Stenostira scita</i>
3425BA	Tchagra, Southern	<i>Tchagra tchagra</i>
3425BA	Bush-shrike, Olive	<i>Telophorus olivaceus</i>
3425BA	Bokmakierie, Bokmakierie	<i>Telophorus zeylonus</i>
3425BA	Paradise-flycatcher, African	<i>Terpsiphone viridis</i>
3425BA	Crested-flycatcher, Blue-mantled	<i>Trochocercus cyanomelas</i>
3425BA	Scrub-robin, Karoo	<i>Cercotrichas coryphoeus</i>
3425BA	Scrub-robin, White-browed	<i>Cercotrichas leucophrys</i>
3425BA	Scrub-robin, Brown	<i>Cercotrichas signata</i>
3425BA	Robin-chat, Cape	<i>Cossypha caffra</i>
3425BA	Flycatcher, African Dusky	<i>Muscicapa adusta</i>
3425BA	Flycatcher, Spotted	<i>Muscicapa striata</i>
3425BA	Stonechat, African	<i>Saxicola torquatus</i>
3425BA	Flycatcher, Fiscal	<i>Sigelus silens</i>
3425BA	Thrush, Olive	<i>Turdus olivaceus</i>
3425BA	Starling, Black-bellied	<i>Lamprotornis corruscus</i>
3425BA	Starling, Cape Glossy	<i>Lamprotornis nitens</i>
3425BA	Starling, Red-winged	<i>Onychognathus morio</i>
3425BA	Starling, Common	<i>Sturnus vulgaris</i>
3425BA	Tit, Southern Black	<i>Parus niger</i>
3425BA	Swallow, Lesser Striped	<i>Hirundo abyssinica</i>
3425BA	Swallow, White-throated	<i>Hirundo albigularis</i>
3425BA	Swallow, Greater Striped	<i>Hirundo cucullata</i>
3425BA	Swallow, Pearl-breasted	<i>Hirundo dimidiata</i>
3425BA	Martin, Rock	<i>Hirundo fuligula</i>
3425BA	Swallow, Barn	<i>Hirundo rustica</i>
3425BA	Saw-wing, Black (Southern race)	<i>Psalidoprocne holomelaena</i>
3425BA	Martin, Brown-throated	<i>Riparia paludicola</i>
3425BA	Greenbul, Sombre	<i>Andropadus importunus</i>
3425BA	Brownbul, Terrestrial	<i>Phyllastrephus terrestris</i>
3425BA	Bulbul, Dark-capped	<i>Pycnonotus tricolor</i>
3425BA	Bulbul, Cape	<i>Pycnonotus capensis</i>
3425BA	Apalis, Yellow-breasted	<i>Apalis flavida</i>
3425BA	Apalis, Bar-throated	<i>Apalis thoracica</i>
3425BA	Cameroptera, Green-backed	<i>Cameroptera brachyura</i>

QDGC	Common_name	Taxon_name
3425BA	Cisticola, Lazy	<i>Cisticola aberrans</i>
3425BA	Neddicky, Neddicky	<i>Cisticola fulvicapilla</i>
3425BA	Cisticola, Zitting	<i>Cisticola juncidis</i>
3425BA	Cisticola, Grey-backed	<i>Cisticola subruficapilla</i>
3425BA	Cisticola, Levaiant's	<i>Cisticola tinniens</i>
3425BA	Prinia, Karoo	<i>Prinia maculosa</i>
3425BA	White-eye, Cape	<i>Zosterops virens</i>
3425BA	Reed-warbler, Great	<i>Acrocephalus arundinaceus</i>
3425BA	Reed-warbler, African	<i>Acrocephalus baeticatus</i>
3425BA	Swamp-warbler, Lesser	<i>Acrocephalus gracilirostris</i>
3425BA	Warbler, Marsh	<i>Acrocephalus palustris</i>
3425BA	Rush-warbler, Little	<i>Bradypterus baboecala</i>
3425BA	Warbler, Knysna	<i>Bradypterus sylvaticus</i>
3425BA	Warbler, Willow	<i>Phylloscopus trochilus</i>
3425BA	Grassbird, Cape	<i>Sphenoeacus afer</i>
3425BA	Sunbird, Collared	<i>Hedydipna collaris</i>
3425BA	Sunbird, Amethyst	<i>Chalcomitra amethystina</i>
3425BA	Sunbird, Greater Double-collared	<i>Cinnyris afer</i>
3425BA	Sunbird, Southern Double-collared	<i>Cinnyris chalybeus</i>
3425BA	Sunbird, Malachite	<i>Nectarinia famosa</i>
3425BA	Sunbird, Grey	<i>Cyanomitra veroxii</i>
3425BA	Weaver, Thick-billed	<i>Amblyospiza albifrons</i>
3425BA	Pipit, African	<i>Anthus cinnamomeus</i>
3425BA	Pipit, Plain-backed	<i>Anthus leucophrys</i>
3425BA	Waxbill, Swee	<i>Coccygia melanotis</i>
3425BA	Waxbill, Common	<i>Estrilda astrild</i>
3425BA	Bishop, Yellow	<i>Euplectes capensis</i>
3425BA	Bishop, Southern Red	<i>Euplectes orix</i>
3425BA	Firefinch, African	<i>Lagonosticta rubricata</i>
3425BA	Firefinch, Red-billed	<i>Lagonosticta senegala</i>
3425BA	Longclaw, Cape	<i>Macronyx capensis</i>
3425BA	Wagtail, African Pied	<i>Motacilla aguimp</i>
3425BA	Wagtail, Cape	<i>Motacilla capensis</i>
3425BA	Sparrow, Southern Grey-headed	<i>Passer diffusus</i>
3425BA	Sparrow, House	<i>Passer domesticus</i>
3425BA	Sparrow, Cape	<i>Passer melanurus</i>
3425BA	Weaver, Dark-backed	<i>Ploceus bicolor</i>
3425BA	Weaver, Cape	<i>Ploceus capensis</i>
3425BA	Weaver, Village	<i>Ploceus cucullatus</i>
3425BA	Weaver, Spectacled	<i>Ploceus ocularis</i>
3425BA	Weaver, Yellow	<i>Ploceus subaureus</i>
3425BA	Masked-weaver, Southern	<i>Ploceus velatus</i>
3425BA	Mannikin, Bronze	<i>Spermestes cucullatus</i>

QDGC	Common_name	Taxon_name
3425BA	Whydah, Pin-tailed	<i>Vidua macroura</i>
3425BA	Bunting, Golden-breasted	<i>Emberiza flaviventris</i>
3425BA	Canary, White-throated	<i>Crithagra albogularis</i>
3425BA	Canary, Cape	<i>Serinus canicollis</i>
3425BA	Canary, Yellow	<i>Crithagra flaviventris</i>
3425BA	Seed-eater, Streaky-headed	<i>Crithagra gularis</i>
3425BA	Canary, Yellow-fronted	<i>Crithagra mozambicus</i>
3425BA	Canary, Forest	<i>Crithagra scotops</i>
3425BA	Canary, Brimstone	<i>Crithagra sulphuratus</i>
3425BA	Duck, Hybrid Mallard	<i>Anas hybrid</i>
3425BA	Coucal, Burchell's	<i>Centropus burchellii</i>
3425BA	Turaco, Knysna	<i>Tauraco corythaix</i>
3425BA	Gull, Lesser Black-backed	<i>Larus fuscus</i>
3425BA	Petrel, White-chinned	<i>Procellaria aequinoctialis</i>
3425BA	Albatross, Shy	<i>Thalassarche cauta</i>