FAUNAL, FLORAL, WETLAND AND AQUATIC ASSESSMENT AS PART OF THE ENVIRONMENTAL ASSESSMENT AND AUTHORISATION PROCESS FOR THE PROPOSED RIETVLEI COLLIERY OUTSIDE MIDDELBURG, MPUMALANGA PROVINCE

Prepared for

WSP Group

April 2014

SECTION C– Faunal Assessment

Prepared by:	**Scientific Aquatic Services**
Report author	**M Hanekom**
Report reviewer	**S. van Staden (Pr. Sci. Nat)**
Report Reference:	**SAS 213295**
Date:	**April 2014**

Scientific Aquatic Services CC
CC Reg No 2003/078943/23
Vat Reg. No. 4020235273
91 Geldenhuis Rd
Malvern East, Ext 1
2007
Tel: 011 616 7893
Fax: 086 724 3132
E-mail: admin@sasenvironmental.co.za

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

EIA	Environmental Impact Assessment
EAP	Environmental Assessment Practitioner
IUCN	International Union for Conservation of Nature
LC	Least Concern
MP SoER	Mpumalanga Province State of the Environment Report
NYBA	Not yet been assessed
POC	Probability of Occurrence
QDS	Quarter Degree Square
RDL	Red Data Listed
RDSIS	Red Data Listed Species
SAS	Scientific Aquatic Services
TSS	Total Species Score
TT	Threatened Taxa
VU	Vulnerable

1. INTRODUCTION

1.1 Background

Scientific Aquatic Services (SAS) was appointed to conduct a faunal, floral, wetland and aquatic assessment as part of the Environmental Assessment (EIA) and authorisation process for the proposed Rietvlei Colliery, hereafter referred to as the "subject property". The subject property is situated south-east of the R555, outside Middelburg, Mpumalanga Province (25°40'18.59"S 29°39'16.47"E). The total area of the subject property extends over approximately 747.16ha.

The subject property is surrounded by properties on which agricultural activities dominate. The ecological assessment was done with special focus on areas earmarked for mining footprint as well as areas of considered of higher ecological importance and sensitivity. The surrounding area was however considered as part of the desktop assessment of the area. The land is currently used for forestry purposes with areas of edible crop lands also located on the subject property.

The purpose of the report is to present the faunal inventories of species encountered on site, to determine and describe the habitat, communities and ecological state of the subject property. Red Data Sensitivity Index Score (RDSIS) were implemented o provide an indication of the potential red data faunal species that could reside in the area. Through this, it will allow informed decision making by the authorities, proponent and Environmental Assessment Practitioner (EAP) consultants.

1.2 Assumptions and Limitations

The following assumptions and limitations are applicable to this report section:

- Due to the nature and habits of most faunal taxa it is unlikely that all species would have been observed during a site assessment of limited duration. Therefore, site observations are compared with literature studies where necessary; and
- With ecology being dynamic and complex, some aspects (some of which may be important) may have been overlooked. It is, however, expected that most faunal communities have been accurately assessed and considered.

2. FAUNAL METHOD OF ASSESSMENT

2.1 Desktop Study

Initially a desktop study was undertaken to gather background information regarding the site and its surrounding areas. All relevant authorities were consulted regarding conservational species lists, as well as all the latest available literature utilised to gain a thorough understanding of the area and its surrounding habitats. This information and further literature reviews were then used to determine the potential biodiversity lists for the proposed development site and surrounding areas. This information incorporated (amongst others) data on vegetation types, habitat suitability and biodiversity potential coupled to this information.

2.2 General site survey

Three visits were undertaken during two full days in April, October 2011 and January 2014 to determine the ecological status of the proposed development sites and the surrounding area (see Section A for site maps). A reconnaissance 'drive around' followed then by a thorough 'walk through' was undertaken to determine the general habitat types found throughout the subject property and, following this, specific study sites or habitat regions were chosen that were representative of the habitats found within the area. Special emphasis was placed on potential areas that may support Red Data Listed (RDL) species. Sites were investigated on foot to identify the occurrence of the *dominant* communities, species and habitat diversities. The presence of any faunal inhabitants of the subject property was also assessed through direct visual observation or identifying them through calls, tracks, scats and burrows, with emphasis being placed on determining if any RDL species occur within the subject property.

2.3 Fauna

Faunal habitat units were identified and faunal species were recorded during the subject property assessment. It is important to note that due to the nature and habits of fauna it is unlikely that all species will have been recorded during the site assessment. In addition the levels of anthropogenic, farming and other activities in the subject property and surrounding area may determine whether species will be observed. The faunal categories covered are; Mammals; Avifauna; Reptiles; Amphibians; Invertebrates and Araneae in the results section and includes a definition for the general faunal habitat within the subject property.

Mammals

Small mammals are unlikely to be directly observed in the field because of their nocturnal/crepuscular and cryptic nature. A simple and effective solution to this problem is to use Sherman traps. A Sherman trap is a small aluminium box with a spring-loaded door. Once the animal is inside the trap, it steps on a small plate that causes the door to snap shut, thereby capturing the individual. Trapping took place within relatively undisturbed small mammal habitat identified throughout the subject property. In the event of capturing a small mammal during the night, the animal would be photographed and then set free unharmed early the following morning. Traps were baited with a universal mixture of oats, peanut butter, and fish paste.

Larger faunal species were recorded during the assessment with the use of visual identification, spoor, call and dung. Observed mammals will be verified in Smither's (2000) Mammals of Southern Africa, A Field guide.

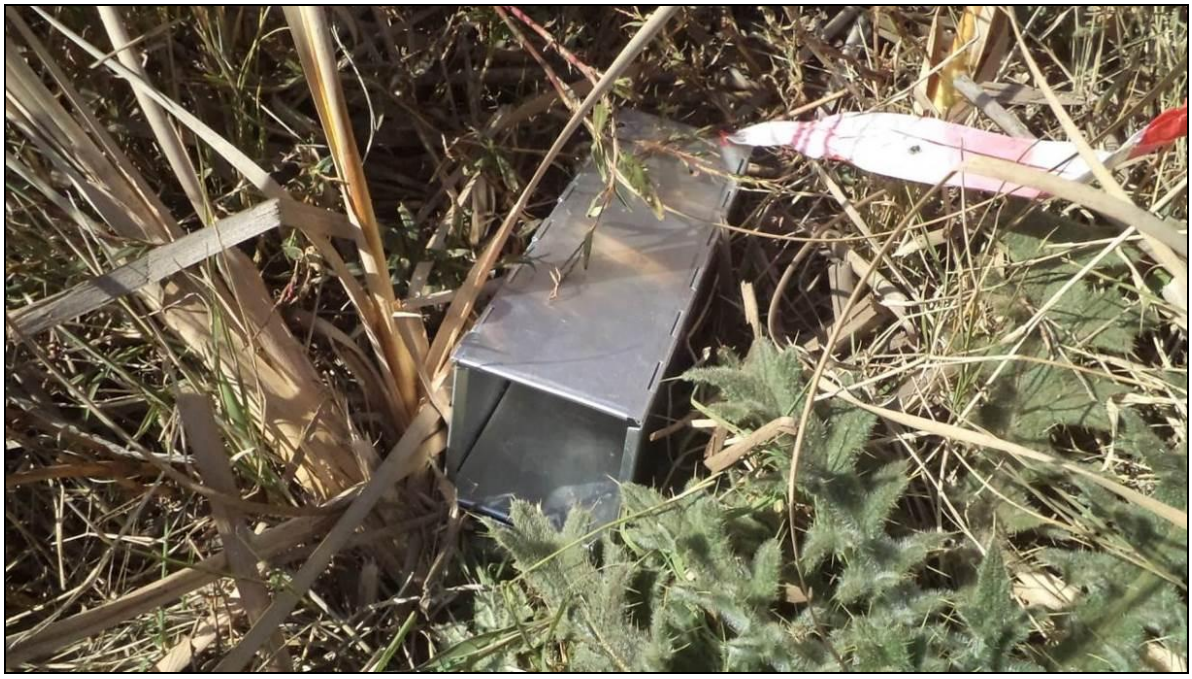

Figure 1: Sherman trap and bait used to capture small mammal species.

Avifauna

The complete list of bird species expected for the Quarter Degree Square (QDS) 2529DA (Roberts Multimedia Birds of Southern Africa) is included in Appendix 2a. The Southern African Bird Atlas Project 2 species list for the quarter degree square 2529DA is listed on the website (http://sabap2.adu.org.za) and was also compared with the recent field survey database of birds identified on the subject property during the April, October 2011 and January 2014 surveys. Field surveys were undertaken utilising a pair of binoculars and

birdcall identification techniques were also utilised during the assessment in order to accurately identify avifaunal species. Avifaunal species are referenced using Birds of Southern Africa (Sinclair *et al*, 2002).

Reptiles

Reptiles were physically identified during the field survey. Areas where reptiles were likely to reside, specifically wetland areas which were associated with rocky outcrop areas, were also investigated. Throughout the subject property there were limited suitable rocky out crop areas which reptile species favour. Nonetheless, the data gathered during the assessment along with the habitat analysis provided an accurate indication of which reptile species are likely to occur on the subject property. Reptiles identified will be verified in Reptile species in Southern Africa by Alexander and Marais (2008).

Amphibians

All amphibian species encountered within the subject property were recorded during the field assessment with the use of direct visual identification along with other identification aids such as call identification. Amphibian species flourish in and around wetland and riparian areas. It is in these areas that specific attention was given to searching for amphibian species. However, it is unlikely that all amphibian species will have been recorded during the site assessment, due to their cryptic nature and habits, varied stages of life cycles, seasonal and temporal fluctuations within the environment. However, the data gathered during the assessment along with a habitat analysis provided an accurate indication of which amphibian species are likely to occur on the subject property. Frog species are referenced in du Preez and Carruthers (2009).

Invertebrates

A list of visually identified and observed invertebrate species was compiled during the field surveys. However, due to their cryptic nature and habits, varied stages of life cycles, seasonal and temporal fluctuations within the environment, it is unlikely that all invertebrate species will have been recorded during the site assessment periods. Nevertheless, the data gathered during the assessment along with a habitat analysis provided an accurate indication of which invertebrate species are likely to occur on the subject property. Invertebrate species will be referenced in Picker *et al* (2004).

Spiders and Scorpions

Within the subject property there were limited suitable habitats, such as rocky outcrop areas and undisturbed natural land, where spiders and scorpions are likely to reside. The subject property comprised primarily of transformed habitat for agriculture purposes. The wetland and riparian habitat holds limited habitat for a diverse spider and scorpion score, due to high levels of disturbance. Thus there is limited suitable habitat for RDL Mygalomorphae arachnids (Trapdoor and Baboon spiders) as well as RDL scorpions within the subject property. Observed spiders and scorpions will be referenced in Leroy and Leroy (2003).

2.4 Red Data Species Assessment

Fauna and the RDSIS

Given the restrictions of field assessments to identify all the faunal species that possibly occur on a particular property, the RDSIS has been developed to provide an indication of the potential red data faunal species that could reside in the area, while simultaneously providing a quantitative measure of the subject property's' value in terms of conserving faunal diversity. The RDSIS is based on the principles that when the knowledge of the species' historical distribution is combined with a field assessment that identifies the degree to which the property supports a certain species' habitat and food requirements, inferences can be made about the chances of that particular species residing on the property. Repeating this procedure for all the potential red data faunal species of the area and collating this information then provides a sensitivity measure of the property that has been investigated. The detailed methodology to determine the RDSIS of the property is presented below:

Probability of Occurrence (POC): Known distribution range (D), habitat suitability of the site (H) and availability of food sources (F) on site were determined for each of the species. Each of these variables is expressed a percentage (where 100% is a perfect score). The average of these scores provided a Probability of Occurrence (POC) score for each species. The POC value was categorised as follows:

- **0-20% = Low;**
- **21-40% = Low to Medium;**
- **41-60% = Medium;**
- **61-80% = Medium to High and**
- **81-100% = High**

POC = (D+H+F)/3

Total Species Score (TSS): Species with POC of more than 60% (High-medium) were considered when applying the RDSIS. A weighting factor was assigned to the different to International Union for Conservation of Nature and Natural Resources (IUCN) categories providing species with a higher conservation status, a higher score. This weighting factor was then multiplied with the POC to calculate the total species score (TSS) for each species. The weighting as assigned to the various categories is as follows:

- **Data Deficient = 0.2;**
- **Rare = 0.5;**
- **Near Threatened = 0.7;**
- **Vulnerable = 1.2;**
- **Endangered = 1.7 and**
- **Critically Endangered = 2.0**.

TSS = (IUCN weighting*POC) where POC > 60%

Average Total Species (Ave TSS) and Threatened Taxa Score (Ave TT): The average of all TSS potentially occurring on the site is calculated. The average of all the Threatened taxa (TT) (*Near threatened*, *Vulnerable*, *Endangered* and *Critically Endangered)* TSS scores are also calculated. The average of these two scores (Ave TSS and Ave TT) was then calculated in order to add more weight to threatened taxa with POC higher than 60%.

Ave = Ave TSS [TSS/No of Spp] + Ave TT [TT TSS/No of Spp]/2

Red Data Sensitivity Index Score (RDSIS): The average score obtained above and the sum of the percentage of species with a POC of 60% or higher of the total number of Red Data Listed species listed for the area was then calculated. The average of these two scores, expressed as a percentage, gives the RDSIS for the area investigated.

RDSIS = Ave + [Spp with POC>60%/Total no Of Spp*100]/2

RDSIS interpretation:

Table 1: RDSIS value interpretation with regards to RDL mammal importance on the subject property.

RDSIS Score	RDL mammal importance
0-20%	**Low**
21-40%	**Low-Medium**
41-60%	**Medium**
60-80%	**High-Medium**
81-100%	**High**

3. RESULTS

The subject property comprises of transformed habitat, which includes grassland, plantation and agricultural lands, and wetland habitat which comprises of pans and sections of the Selons River (refer to maps in Section A). Transformed habitat comprises of pockets of grassland between plantations and agricultural lands. Due to plantations, agricultural land use and alien encroachment there is little diversity in faunal habitat. The transformed grassland may provide habitat for many common avifaunal and small mammal species, whilst the wetland habitat may provide suitable habitat for additional faunal species. The subject property location as well as current and prior land uses will have a marked impact on the faunal diversity found within the subject property. Refer to Section B (Floral report) for habitat description and photos. The faunal results included all faunal observations for April, October 2011 and January 2014 site visits.

3.1 Mammals

Visual and field signs of *Canis mesomelas* (Black Backed Jackal), *Cynictis penicillata* (Yellow Mongoose) and *Lepus saxatilis* (Scrub hare) were noted within the subject area. *Sylvicapra gimmia* (Common Duiker) field signs were also observed. The majority of the subject property has been significantly transformed, however, the wetland areas especially at the pans present on the subject property still provide sufficiently intact habitat for many mammals. The wetland areas are also the habitat unit where nearly all of the mammal species were encountered. Baited Sherman traps were utilised to capture small mammals which may inhabit the subject property. Traps were placed in areas where suitable small mammal habitat was observed. No small mammals were successfully trapped during the exercise. However, the presence of raptor birds (Black-Shouldered Kite) indicates that a significant small mammal population is likely to be present on the subject property.

Some other common mammal species that may occur within the subject property are the *Suricata suricatta* (Meerkat), *Cryptomys hottentotus* (Common Mole rat), *Leptailurus serval* (Serval), *Hystrix africaeaustralis* (South African Porcupine), *Crocidura mariquensis* (Swamp musk shrew) and the *Otomys angoniensis* (Angoni vlei rat) to name a few. The above mentioned mammal species are not regionally threatened species (Mpumalanga State of the Environment Report; MP SoER, 2003) and are considered Least Concern by the IUCN (2014).

A list of the recorded mammal species during the surveys is listed in the table below.

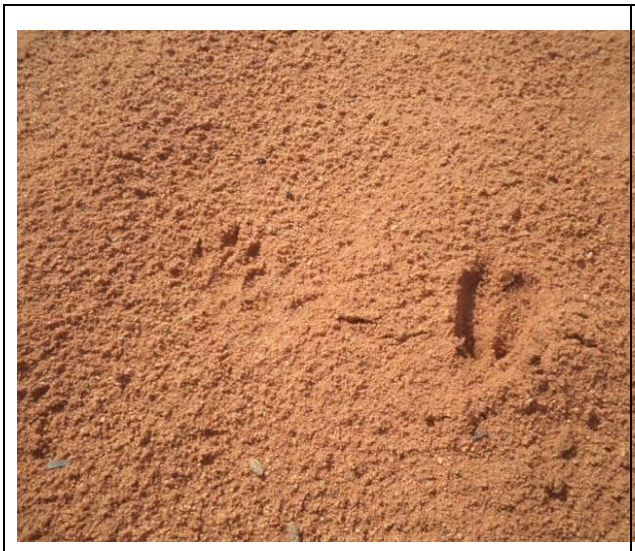

Figure 2: Spoor of the *Canis mesomelas* (Black Backed Jackal) and *Sylvicapra gimmia* (Common Duiker)

Figure 3: Pan 1 where Sherman traps were set out and most sightings occurred

Table 2: Mammal special recorded during the site survey.

Species	Common name	MP SoER 2003 RDL	IUCN 2014 RDL
Cynictis penicillata	Yellow Mongoose	LC	LC
Canis mesomelas	Black Backed Jackal	LC	LC
Lepus saxatilis	Scrub hare	LC	LC
Sylvicapra gimmia	Common Duiker	LC	LC

LC = Least Concern

In terms of conservation, no RDL or threatened mammal species were encountered during the field assessments. Furthermore, the likelihood of any threatened mammal species as listed in Appendix 1 being encountered within the subject property is considered to be low due to the transformed nature of the majority of the subject property. Thus it is unlikely that RDL or sensitive mammal species will utilise the site for habitation or foraging purposes. RDL mammal species from the MP SoER, 2003 and the IUCN RDL

are listed in Appendix 1. This list was compiled by Cohen and Camacho (2002a) for the MP SoER report (2003).

3.2 Avifauna

All bird species seen or heard during this time of the assessment were recorded. Surveys were conducted across the entire subject property and in the immediate surroundings.

Due to the subject property consisting of predominantly *Eucalyptus sp.* plantations, agricultural lands and transformed grasslands, there is very little grassland habitat and there was thus a low diversity of grassland avifaunal species recorded. The likelihood of grassland bird species flying onto the subject property to forage is however good. The list below indicates avifaunal species that were observed during the April, October 2011 and January 2014 site visits. Species encountered were concentrated near the pans and Selons River. The avifaunal species found in the subject property are common species found within the region. These avifaunal species are all categorised as species of Least Concern by the IUCN (2014). See the table below for all identified bird species observed along with their regional (MP SoER, 2003) and global (2014, IUCN) status.

Table 3: Bird species recorded during the bird survey.

Scientific Name	Common Name	MP SoER 2003 RDL	IUCN 2014 RDL
Numida meleagris	Helmeted Guineafowl	LC	LC
Streptopelia senegalensis	Laughing Dove	LC	LC
Streptopelia capicola	Cape Turtle Dove	LC	LC
Columba livia	Rock Dove	LC	LC
Fulica cristata	Red Knobbed Coot	LC	LC
Alopochen aegyptiaca	Egyptian Goose	LC	LC
Plectropterus gambensis	Spur-Winged Goose	LC	LC
Vanellus armatus	Blacksmith Plover	LC	LC
Lanius collaris	Common Fiscal Shrike	LC	LC
Elanus caeruleus	Black Shouldered Kite	LC	LC
Anhinga rufa	African Darter	LC	LC
Euplectes progne	Long tailed Widowbird	LC	LC
Cisticola juncidis	Zitting cisticola	LC	LC
Bubulcus ibis	Cattle Egret	LC	LC
Bostrychia hagedash	Hadeda ibis	LC	LC
Phalacrocorax africanus	Reed Cormorant	LC	LC
Ardea cinerea	Grey Heron	LC	LC
Ardea purpurea	Purple Heron	LC	LC
Egretta intermedia	Yellow-Billed Egret	LC	LC
Plegadis falcinellus	Glossy Ibis	LC	LC
Anas undulata	Yellow-Billed Duck	LC	LC

Scientific Name	Common Name	MP SoER 2003 RDL	IUCN 2014 RDL
Anas hottentota	Hottentot Teal	LC	LC
Gallinula chloropus	Common Moorhen	LC	LC
Actophilornis africanus	African Jacana	LC	LC
Amaurornis flavirostris	Black Crake	LC	LC
Ploceus velatus	Southern Masked Weaver	LC	LC

LC = Least Concern

No global or regional RDL avifaunal species as listed in the table below or in Appendix 2 were identified during the site survey. Mention must be made that faunal species, especially avifaunal species, are mobile and are capable of moving primarily in search for new foraging resources. Thus, there is a significant probability that the *Sagittarius serpentarius* (Secretarybird), *Circus ranivorus* (African Marsh Harrier), *Falco peregrinus minor* (Peregrine Falcon), *Tyto capensis* (African Grass Owl) and the *Geronticus calvus* (Bald Ibis) may be present within the subject property specifically for foraging purposes specifically near the wetland habitat units. No sightings of these above mentioned RDL bird species were recorded during the site survey.

Table 4: RDL avifaunal species with a POC of more than 60%

Scientific Name	Common Name	MP SoER 2003 RDL	IUCN 2014 RDL	POC
Tyto capensis	African Grass Owl	VU	LC	66
Falco peregrinus minor	Peregrine Falcon	VU	NYBA	64
Geronticus calvus	Southern Bald Ibis	VU	VU	62
Circus ranivorus	African Marsh Harrier	VU	LC	66
Sagittarius serpentarius	Secretary bird	-	VU	68

VU = Vulnerable, LC = Least Concern

The impact of associated mining activates on possible RDL threatened avifaunal species should be minimal provided the mining activities and associated infrastructure are not allowed to encroach on the sensitive wetland habitat areas (refer to sensitivity maps in the Floral report). All sensitive buffer zones should also be kept strictly off limits to mining personnel, to limit the increase in anthropogenic activities and thus lower impacts from a conservation point of view.

3.3 Reptiles

No suitable rocky ridge outcrops were identified within the subject property. Only one reptile species was identified during the assessment and this was near the Selons River namely, *Lycodonomorphus rufulus* (Common Brown Water Snake). It is anticipated that commonly occurring reptile species might inhabit the wetland areas on the subject property. However, reptiles are notoriously difficult to detect, are well camouflaged, may occur subterranean and have good senses to hide from predators, thus making identification of reptiles difficult. The above mentioned reptile specie is not a RDL threatened species (Appendix 3, MP SoER, 2003) and is classified as Least Concerned by the IUCN (2014).

The table below presents the reptile species encountered during the assessment.

Table 5: Reptile species recorded during the survey.

Species	Common name	MP SoER 2003 RDL	IUCN 2014 RDL
Lycodonomorphus rufulus	Common Brown Water Snake	LC	LC

LC = Least Concern

No reptile RDL species were encountered and none are expected to occur due to the levels of habitat transformation and the limited suitable reptile habitat available. The proposed mining development will thus not pose a significant threat to RDL reptile species conservation provided that the sensitive zones in the sensitivity map and mitigation activities are adhered to (refer to Section A for sensitivity maps).

3.4 Amphibians

One amphibian species was noted during the field assessment, namely the *Xenopus laevis* (Common platanna).This low diversity was potentially due to the largely nocturnal habits of amphibians and the limited habitat units available to support amphibians within the subject property. Amphibian species will favour the wetland habitat areas within the subject property.

Common species which may occur in the surrounding region include the *Ptychadena anchietae* (Plain Grass Frog), *Afrana angolensis* (Common River frog), *Cacosternum boettgeri* (Common Caco), *Kassina senegalensis* (Bubbling kassina), *Amietophrynus gutturalis* (Guttural toad), *Tomopterna natalensis* (Natal sand frog) and the *Ptychadena mossambica* (Striped grass frog) all of which are considered not threatened (MP SoER, 2003 and the IUCN, 2014).

Table 6: Amphibian species identified during the assessment of the subject property

Scientific names	Common name	MP SoER 2003 RDL	IUCN 2014 RDL
Xenopus laevis	Common platanna	LC	LC

LC = Least Concern

RDL amphibian species are listed in Appendix 4. The only amphibian species listed as being of conservational concern in relation to the subject property is the *Pyxicephalus adspersus* (Giant Bullfrog) (MP SoER, 2003). *P. adspersus* breed in shallow waters and can occupy temporary floodplains and rapidly drying pool areas and are also known to travel vast distances and may utilise wetlands as migratory corridors in favourable conditions. *P. adspersus* species RDSIS scores high for distribution and food potential but low for breeding habitat since the lack of extensive areas with shallow seasonal pans / wetlands will limit the ability for this species to successfully breed on the site. *P. adspersus* thus scores 63% POC on the subject property.

Table 7: RDL amphibian species with a POC of more than 60%

Amphibian species	Common name	MP SoER 2003 RDL	IUCN 2014 RDL	POC
Pyxicephalus adspersus	Giant African bullfrog	VU	LC	63

VU = Vulnerable, LC = Least Concern

Never the less, the proposed development is likely to pose a low threat to amphibian species provided that the sensitivity map (refer to section A) is adhered to as amphibian species will most likely to be restricted to the wetland habitat areas which are situated within wetland sensitive areas throughout the subject property (refer to section A, sensitivity maps).

3.5 Invertebrates

The invertebrate assessment conducted was a general assessment with the purpose of identifying common species and taxa in the subject property. As such, the invertebrate assessment will not be an indication of the complete invertebrate diversity potential of the proposed development site and surrounding area. No evidence was encountered of the Mygalomorphae arachnids (Trapdoor and Baboon spiders) in the subject property, although it should be noted that these species are notoriously difficult to detect. A representation of commonly encountered families in the Insecta class that were observed during the assessment is listed in the table below.

Table 8: General results from invertebrate collecting during the assessment of the subject property

Insects	Comments
Order: Lepidoptera (Butterflies & Moths) Family: Nymphalidae Subfamily: Danainae *Danaus chrysippus aegyptius* (African monarch)	Visual observations: These are all commonly occurring species typical of the locality and habitat.
Order: Orthoptera (Grasshoppers, Crickets & Locusts) Family: Acrididae Family: Gryllidae	Visual observations and sweep netting.
Order: Hymenoptera & Isoptera (Ants, Bees, Termites & Wasps) Family: Apidae *Apis mellifera scutellata (African honey bee)* Family: Formicidae Family: Termitidae Family: Vespidae	Visual observations.
Order: Hemiptera (Bugs) Family: Buprestidae	Visual observations showed this taxon to be commonly represented throughout the subject property.

Metisella meninx or commonly known as the Marsh Sylph (Butterfly) is an invertebrate noted as vulnerable by MP SoER 2003. The subject property falls within the distribution range noted for *M. Meninx*. No *M. meninx* was identified during the assessment but its preferred habitat comprises of wetlands where *Leersia hexandra* (marsh grass) is dominant. No *L. hexandra* grass was observed during the survey and the presence of *M meninx* will thus have a low possibility of occurrence within the subject property.

The proposed development will not pose a threat to invertebrate conservation in the region and no other RDL invertebrate species are likely to occur within the range of influence of the proposed project. However, by conserving the wetland areas and implementing a suitable buffer zone (see Section A), the habitat for several invertebrate species will be conserved.

3.6 Spider and scorpions

Trapdoor and Baboon spiders are listed as threatened throughout South Africa (Dippenaar-Schoeman, 2002). All baboon spider species from the genus; *Ceratgyrus, Harpactira* and *Pterinochilus* are protected under NEMBA status for South Africa. All scorpion species from the genus; *Hadogenes, Opisthacanthus* and *Opistophthalmus* are also protected under NEMBA status for South Africa.

There is no threatened spider or scorpion species lists of conservational interest provided by the Mpumalanga Province (MP SoER, 2003). Therefore, a record of threatened spiders and scorpions was acquired from the most resent RDL spider and scorpion data available for South Africa using the SANBI threatened species database (http://www.speciesstatus.sanbi.org).

No RDL spiders or RDL scorpions were encountered within the subject property, although it should be noted that these species are notoriously difficult to detect. Within the subject property specific attention was paid with the identification of suitable habitat for spiders and scorpions. Specific attention was paid to near the rocky outcrop habitat area in the east of the subject property.

The only spider species found was *Adriana* sp (tube web spider) which was found within the wetland/pan habitat area. This species is considered common and not threatened.

Thus the proposed development will not pose a threat to spider and scorpion conservation in the subject property, provided that the sensitive habitat areas are conserved (refer to sensitivity map in Section A).

4. FAUNAL RED DATA SPECIES ASSESSMENT

Regional Mpumalanga RDL species taken into consideration for calculation of the RDSIS are indicated in the Appendix section for all taxa as indicated throughout the report. Six (6) RDL threatened species found to have a 60% or greater probability of being associated with the subject property are presented in the table below. These species RDSIS score high due to distribution and foraging criteria and low for favourable habitat. These species are likely to occur during foraging times.

Table 9: Threatened faunal species with a 60% or greater Probability of Occurrence (POC) on the subject property

Scientific Name	Common Name	MP SoER 2003 RDL	IUCN 2014 RDL	POC
Tyto capensis	African Grass Owl	VU	LC	66
Falco peregrinus minor	Peregrine Falcon	VU	NYBA	64
Geronticus calvus	Southern Bald Ibis	VU	VU	62
Circus ranivorus	African Marsh Harrier	VU	LC	66
Sagittarius serpentarius	Secretary bird	-	VU	68
Pyxicephalus adspersus	Giant African bullfrog	VU	LC	63

VU = Vulnerable, LC = Least Concern

The species presented in the table above were then used to calculate the RDSIS for the site, the results of which are presented in the following table.

Table 10: Red Data Sensitivity Index Score calculated for the subject property.

Red Data Sensitivity Index Score	
Average Total Species Score	**66**
Average Threatened Taxa Score	**78**
Average (Ave TSS + Ave TT/2)	**72**
% Species greater than 60% POC	**9%**
RDSIS of Site	**40%**

The RDSIS assessment of the property provided a moderate score of 40%, indicating a moderate importance in terms of RDL faunal species conservation within the subject property. In terms of the proposed development project, should the wetlands and associated buffer zones be preserved, habitat requirements for the above RDL species will be maintained to a large degree and will significantly limit the impact of the proposed mining development on the faunal assemblages.

The proposed activities are thus deemed not to pose a threat to faunal conservation in the region and no RDL faunal species are likely to occur within the range of influence of the proposed activities with the exception of possible RDL bird species mentioned above.

5. SENSITIVITY MAPPING

An overall sensitivity map was created with the use of the results from the aquatic, floral, faunal and wetland assessment of the subject property. The majority of the faunal species with a POC of 60% or more also inhabit the wetland areas. As a result, pan 1, 2, 3 and 6 were deemed to be of a highly sensitive nature. These areas were mapped and a sensitivity map was produced, which is presented in Section A of this report. A buffer zone was incorporated into the sensitivity map to protect the wetland features.

6. IMPACT ASSESSMENT

The tables below serve to summarise the significance of perceived impacts on the faunal biodiversity of the subject property. The tables present the impact assessment according to the method described above. The tables also indicate the required mitigatory measures needed to minimise the impact. The tables present an assessment of the significance of the impacts taking into consideration the available mitigatory measures assuming that they are fully implemented.

6.1 Impact Discussion

The impact tables below serve to summarise the significance of perceived impacts on the faunal biodiversity of the subject property. The tables present the impact assessment according to the method described in Section A and also indicate the mitigation measures required to minimise the impacts. In addition, an assessment of the significance of the perceived impacts is presented, taking into consideration the available mitigating measures assuming that they are fully implemented.

6.1.1 IMPACT 1: Impact on faunal habitat and ecological structure

Activities leading to impact

Pre-Construction	Construction	Operational	Decommissioning and Closure
Poor planning leading to the placement of infrastructure within sensitive faunal habitat areas with special mention of wetland areas which have a higher biodiversity capacity	Site clearing and removal of vegetation and encroachment of alien floral species	On-going disturbance of faunal habitat within surrounding areas due to human activities associated with mining activities	Disturbance of faunal habitat as part of demolition and closure activities
Inadequate design of infrastructure leading to changes to faunal habitat and biodiversity	Construction of infrastructure leading to migratory corridor alterations which alter faunal behavioural patterns and over all biodiversity	Risk of introduction of alien plant species and further transformation of natural faunal habitat	Insufficient aftercare and maintenance leading to post closure impacts on faunal habitat due to poor management
Inadequate design of infrastructure leading to faunal food source pollution	Erosion as a result of infrastructure development and storm water runoff	Erosion as a result of storm water runoff	Ineffective monitoring of rehabilitation due to poor management
	Indiscriminate driving through surrounding open veld	Indiscriminate driving through of surrounding open veld	
	Construction of access roads within sensitive habitat areas	Risk of discharge, spillages and deliberate dumping of pollutants into the surrounding environment	
	Risk of discharge, spillages and deliberate dumping of pollutants into the surrounding environment		
	Fire hazards leads to loss of habitat due to increased personnel		

Aspects of faunal ecology affected

Pre-Construction	Construction	Operational	Decommissioning and Closure
Loss of important faunal habitat due to poor planning	Changes to faunal habitat through alien floral species proliferation leading to a loss of faunal habitat within the construction footprint	Changes to faunal habitat through alien floral species proliferation during operational activities	Direct impact on faunal habitat during decommissioning
	Changes to the faunal community due to habitat loss and transformation	Changes to the faunal community due to habitat loss and transformation	Changes to the faunal community due to habitat loss and transformation

Without Management	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
	5	3	3	3	5	8	11	88 (Medium-high

Essential mitigation measures:

- Development should be excluded from the riparian habitat, as indicated on the sensitivity map.
- No areas falling outside of the subject property may be cleared for construction purposes.
- Areas of increased ecological importance and sensitivity, such as the river and wetland habitat areas, should be considered during all phases of the proposed mine.
- The boundaries of the development footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas.
- The proposed development footprint areas should remain as small as possible.
- All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction and maintenance vehicles and personnel.
- Edge effects of all construction and operational activities, such as erosion and alien plant species proliferation, which may affect faunal habitat within surrounding areas, need to be strictly managed in all areas of increased ecological sensitivity.
- Ensure that construction and maintenance related waste or spillage and effluent do not affect the sensitive habitat and impact on the associated buffer zones.
- In the event of a breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced to prevent the ingress of hydrocarbons into the topsoil.
- No trapping or hunting of fauna is to take place. Access control must be implemented to ensure that no illegal trapping or poaching takes place.
- Alien and invasive vegetation control should take place throughout all phases of the development.

- All construction and operational mining related vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the proposed mine development activities.
- Any natural areas beyond the development footprint, which have been affected by the construction activities, must be rehabilitated using indigenous grass species.
- Rehabilitate all faunal habitat areas to ensure that faunal ecology is re-instated.

Recommended mitigation measures:

- Fence construction footprint areas to contain all activities within designated areas.
- It is recommended that a speed limit of 40km/h is implemented on all maintenance and mining roads running through the subject property in order to minimise risk to RDL and other fauna from vehicles.
- Education and awareness campaigns on RDL faunal species and their habitat are recommended to help increase awareness, respect and responsibility towards the environment for all staff and contractors.

With Management	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
	5	3	2	2	5	8	9	72 (Medium-Low)

Probable latent impacts:

- Loss of faunal habitat may lead to altered faunal biodiversity.
- Decrease in faunal species diversity may occur throughout the subject property due to transformation of faunal habitat.

6.1.2 IMPACT 2: Impact on faunal diversity and ecological integrity

Activities leading to impact

Pre-Construction	Construction	Operational	Decommissioning and Closure
Poor planning leading to the placement of infrastructure within sensitive faunal habitat areas with special mention of wetland areas which have a higher biodiversity capacity	Decline in faunal diversity due to disturbance in study area	Collision of operational vehicles with faunal species	Insufficient aftercare and maintenance leading to post closure impacts on faunal diversity due to poor management and rehabilitation of faunal habitat
Inadequate design of infrastructure leading to changes to faunal habitat and biodiversity	Collision of construction vehicles with faunal species	Poaching due to increased personnel	Ineffective monitoring of rehabilitation due to poor management
	Vehicles accessing site through sensitive faunal habitat areas		
	Poaching due to increased personnel		
	Fire hazards leads to loss of habitat due to increased personnel		

Aspects of faunal ecology affected

Pre-Construction	Construction	Operational	Decommissioning and Closure
	Loss of faunal biodiversity leading to changes on faunal behavioural patterns	Loss of faunal biodiversity leading to changes on faunal behavioural patterns	Loss of faunal biodiversity
	Changes to the faunal community assemblage	Changes to the faunal community assemblage	Changes to the faunal community assemblage

Without Management	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
	5	3	3	3	5	8	11	88 (Medium-high)

Essential mitigation measures:

- The proposed development footprint areas should remain as small as possible and where possible be

confined to already disturbed areas.

- Sensitivity map needs to be taken into consideration during the construction phase.
- Ensure that migratory connectivity is maintained where appropriate, especially in the sensitive faunal habitat unit areas.
- Should any RDL or other common faunal species be found within the development footprint area, these species should be relocated to similar habitat within the vicinity of the subject property with the assistance of a suitably qualified specialist.
- No trapping or hunting of fauna is to take place.
- All informal fires in the vicinity of construction areas should be prohibited.
- Vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the proposed development activities.

Recommended mitigation measures:

- Education on identification for any RDL faunal species that may be found within the subject property.
- It is recommended that a speed limit of 40km/h is implemented on all roads running through the subject property during the construction as well as operational phase in order to minimise risk to RDL and other fauna from vehicles.
- Speed humps should be constructed to help manage vehicle speed to mitigate collision with faunal species.
- Education and awareness campaigns on faunal species and their habitat are recommended to help increase awareness, respect and responsibility towards the environment for all staff and contractors.

With Management	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
	3	3	2	2	5	6	9	54 (Medium-low)

Probable latent impacts:

- A decrease in faunal species diversity may lead to loss of species richness over time.

6.1.3 IMPACT 3: Impact on faunal species of conservational concern

Activities leading to impact

Pre-Construction	Construction	Operational	Decommissioning and Closure
Poor planning leading to the placement of infrastructure within sensitive faunal habitat areas for potential RDL faunal species	Vegetation and habitat clearing resulting in foraging habitat loss for potential RDL faunal species	Vegetation and habitat clearing resulting in foraging habitat loss for potential RDL faunal species	Ineffective rehabilitation and monitoring leading to latent impacts
	Collision of construction vehicles with potential species of conservational concern	Collision of construction vehicles with potential species of conservational concern	Ineffective monitoring of rehabilitation due to poor management
	Increased poaching risk of potential species of conservational concern and due to increased human activity on site	Increased poaching risk of potential species of conservational concern and due to increased human activity on site	Loss of faunal habitat and further potential RDL faunal biodiversity due to poor rehabilitation planning
	Increased risk of informal fires due to increased human activity on site	Increased risk of informal fires due to increased human activity on site	Ineffective rehabilitation and fire hazards due to decommissioning activities

Aspects of faunal ecology affected

Pre-Construction	Construction	Operational	Decommissioning and Closure
	Loss of species of conservational concern individuals	Loss of species of conservational concern individuals	Ineffective monitoring of rehabilitation due to poor management may lead to a loss of conservational concerned RDL species
	Changes of the species of conservational concern faunal community, within the greater region, due to habitat loss and transformation	Changes of the species of conservational concern faunal community, within the greater region, due to habitat loss and transformation	Changes to the potential RDL faunal community, within the greater region, due to ineffective monitoring of rehabilitation leading to habitat loss and transformation

Without Management	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
	3	3	3	3	5	6	11	66 (Medium-low)

Essential mitigation measures:

- All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction and operational vehicles and personnel.
- No trapping or hunting of fauna is to take place.
- Edge effects of all construction and operational activities, such as erosion and alien plant species proliferation, which may affect faunal habitat, need to be strictly managed in these areas.
- Should any RDL species be noted within the subject property, these species should be relocated to similar habitat within or in the vicinity of the subject property with the assistance of a suitably qualified specialist.
- All informal fires in the vicinity of construction areas should be prohibited.
- Vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the proposed development activities.

Recommended mitigation measures:

- Education on identification for any potential RDL faunal species that may be found within the subject property.
- Awareness campaigns are recommended to highlight the conservation of RDL faunal species, specifically for the avifaunal species highlighted in this report.
- It is recommended that a speed limit of 40km/h is implemented on all roads running through the subject property during the construction phase in order to minimise risk to RDL and other fauna from vehicles.
- Speed humps may be constructed to help slow vehicles and help mitigate collision with faunal species.

With Management	Probability of Impact	Sensitivity of receiving environment	Severity	Spatial scale	Duration of impact	Likelihood	Consequence	Significance
	2	3	1	2	5	5	8	40 (Low)

Probable latent impacts:

- Decrease in potential RDL faunal species diversity may lead to loss of species richness overtime throughout the greater region outside of the study area.
- Education and awareness campaigns are advised on potential RDL faunal species identification for all staff members and contractors.

6.2 Impact Assessment Conclusion

Based on the above assessment it is evident that there are three possible impacts on the faunal ecology within the subject property. Table 11 below summarizes the findings, indicating the significance of each impact before management takes place and the likely significance of the impacts if management and mitigation takes place. From the table it is evident that prior to management measures being put in place, two of the impacts are medium-high level impacts and one impact is a medium-low level impact. If effective management takes place, all impacts could be reduced to a lower level impact.

Table 11: A summary of the results obtained from the assessment of faunal ecological impacts.

Impact	Unmanaged	Managed
1: Impact on faunal habitat and ecological structure	Medium-high	Medium-low
2: Impact on faunal diversity and ecological integrity	Medium-high	Medium-low
3: Impact on potential RDL faunal species	Medium-low	Low

6.3 Cumulative impacts

At present due to extensive mining of minerals occurring in the Middelburg and the surrounding areas, along with extensive agriculture, the regional cumulative impacts a lack of and loss of suitable natural faunal habitat has result. The animal diversity is to be considered to be of a low abundance.

Cumulative impacts include:

- The loss of habitat through future mining activities and other activities associated to mining activities, may contribute towards lowering of the overall sensitivity of faunal communities within the region. The cumulative impact from habitat encroachment in the subject property may be considered to be high as the loss of habitat will contribute to an overall loss of faunal biodiversity.

No RDL faunal species were observed during the site survey. There are six (6) RDL species that have a Probability of Occurrence (POC) greater than 60%, namely; Sagittarius serpentarius (Secretarybird), Circus ranivorus (African Marsh Harrier), Falco peregrinus minor (Peregrine Falcon), Tyto capensis (African Grass Owl), the Geronticus calvus (Bald Ibis) and Pyxicephalus adspersus (Giant Bullfrog). Cumulative transformation and loss of habitat within the region may result in these species, as well as a number of

common species known to occur within the Middelburg region, relocating and leading to the disappearance of these species in the region.

Effective rehabilitation and effective closure of the mining operation during the closure and decommissioning phase is essential in order to minimise cumulative impacts resulting from the mining activities on the faunal assemblage of this area.

7. RECOMMENDATIONS

After conclusion of this ecological assessment, it is the opinion of the ecologists that the proposed mixed development be considered favourably provided that the following essential mitigation measures as listed below are adhered to:

Mining footprint

- Subject property footprint should remain as small as possible and should not encroach on wetland areas and associated sensitive buffers. This can be achieved by fencing footprint areas to contain all activities within designated sensitive areas.
- Special care and thought when pre construction and designing of infrastructure should be taken into account to decrease the footprint left behind during all phases of construction right through till after decommissioning and closure.
- Demarcate all sensitive areas and ensure that these areas are off-limits to construction vehicles and personnel.
- No dumping of waste should take place within the study area. If any spills or waste deposits occur, they should be immediately cleaned up.

Faunal

- It is recommended that a speed limit of 40km/h is implemented on all roads running through the subject property area in order to minimise risk to RDL and other fauna from vehicles.
- Educate construction and personnel about the importance of the natural faunal species and biodiversity of the natural surroundings.
- Education and awareness campaign on identification for any RDL faunal species that may be found within the subject property.
- Signs must be erected along all roads on the property cautioning people driving through the property that fauna are present, thereby creating a heightened awareness regarding faunal conservation.

- All informal fires on the subject property should be prohibited. Where a burning regime is implemented, it should be overseen by a qualified and experienced professional.
- No trapping or hunting of fauna is to take place. Access control must be implemented to ensure that no illegal trapping or poaching takes place.
- Ensure that migratory connectivity is maintained where appropriate, especially in the wetland areas.

8. REFERENCES

Alexander, G and Marais, J 2008 Second Edition. *A guide to the reptiles of Southern Africa.*Struik Publishers, Cape Town.

Barnes, K.N. (Ed). 2000. *The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland.* Birdlife South Africa, Johannesburg, RSA.

Branch, B. 1998. Third Edition. *Field Guide to Snakes and other Reptiles in Southern Africa.* Struik Publishers (Pty) Ltd, Cape Town, RSA

Branch, W.R. (Ed). 1988. *South African Red Data Book of Reptiles and Amphibians.* South African National Scientific Programmes Report No. 151

Carruthers, V. 2001. *Frogs and frogging in Southern Africa.* Struik Publishers (Pty) Ltd, Cape Town, RSA

Dippenaar-Schoeman, A. S. 2002. *Baboon and Trapdoor spiders of Southern Africa: an identification manual*. Plant Protection Research Institute Handbook 13, Agricultural Research Council, Pretoria. 130 pp.

Henning, G.A & Henning, S.F. 1989*. *South African Red Data Book of Butterflies.* South African National Scientific Programmes Report No. 158

Leeming, J. 2003. *Scorpions of Southern Africa.* Struik Publishers (Pty) Ltd, Cape Town, RSA

Leroy, A. & Leroy, J. Second Edition. 2003. *Spiders of Southern Africa.* Struik Publishers (Pty) Ltd, Cape Town, RSA

Marais, J. 2004. *A complete guide to the Snakes of Southern Africa.* Struik Publishers (Pty) Ltd, Cape Town, RSA

MP SoER, 2003. 2003 Mpumalanga State of the Environment Report.

Mpumalanga Department of Agriculture, Conservation and Environment, Nelspruit.

Minter, L.R., Burger, M., Harrison, J.A., Braack, H.H., Bishop, P.J., & Kloepfer, D. (Eds). 2004. *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland.* SI/MAB Series #9. Smithsonian Institute, Washington, DC, USA.

Picker. M., Griffiths. C. & Weaving. A. 2004. New Edition. *Field Guide to Insects of South Africa.* Struik Publishers (Pty) Ltd, Cape Town, RSA

Roos, P and Henning CC, G 2002.*The marsh sylph life history and description. Appendix A;* Environmental Impact Assessment: Proposed Gautrain Rapid Rail Link.

Rutherford, M.C. & Westfall, R. H. 1994.*Biomes of Southern Africa: An objective categorization.* National Botanical Institute, Pretoria, RSA.

Sinclair, I., Hockey, P. & Tarboton, W. 2002. Third Edition. *Sasol Birds of Southern Africa.* Struik Publishers, Cape Town, RSA

Smithers, R. H. N. 2000. Third Edition. Edited by Peter Apps. *The Mammals of the Southern African. A Field Guide.* Struik Publishers, Cape Town, RSA.

Walker, C. 1988. Fourth Edition. *Signs of the Wild.* Struik Publishers (Pty) Ltd, Cape Town, RSA

Woodhall, S. 2005. *Field Guide to Butterflies of South Africa.*Struik Publishers (Pty) Ltd, Cape Town, RSA

Endangered Wildlife Trust (Conservation Breeding Specialist Group). 2004. *Red Data Book of the Mammals of South Africa: A conservation Assessment.*

http://www.iucnredlist.org/about/red-list-overview

FAUNAL APPENDICES

Appendix 1: RDL Mammalian species that occur in the Mpumalanga Province (MP SoER, 2003)

English Name	Species	Status
Cape mole rat	*Georychus capensis yatesi*	EN
Sclater's golden mole	*Chlorotalpa sclateri montana*	CR
Highveld golden mole	*Amblysomus septentrionalis*	VU
Rough-haired golden mole	*Chrysospalax villosus rufopallidus*	CR
Rough-haired golden mole	*Chrysospalax villosus rufus*	EN
Juliana's golden mole	*Neamblysomus julianae*	EN
Robust golden mole	*Amblysomus robustus*	VU
Meester's golden mole	*Amblysomus hottentotus meesteri*	VU
Laminate vlei rat	*Otomys laminatus*	VU
Peak-saddle horseshoe bat	*Rhinolophus blasii empusa*	EN
Lesser long-fingered bat	*Miniopterus fraterculus*	VU
Welwitsch's hairy bat	*Myotis welwitschii*	EN
Short-eared trident bat	*Cloeotis percivali australis*	EN
Antbear	*Orycteropus afer*	NE
Oribi	*Ourebia ourebi*	VU
African striped weasel	*Poecilogale albinucha*	NE
Wild dog	*Lycaon pictus*	EN
Pangolin	*Manis temminckii*	VU
Aardwolf	*Proteles cristatus*	NE
African Leopard	*Panthera pardus*	NE
Natal red rock rabbit	*Pronolagus crassicaudatus ruddi*	NE

Appendix 2: List threatened bird species which occur in Mpumalanga (MP SoER, 2003).

English Name	Species	Status
Whitewinged Flufftail	*Sarothrura ayresi*	CR
Rudd's Lark	*Heteromirafra ruddi*	CR
Yellowbreasted Pipit	*Hemimacronyx chloris*	VU
Bald Ibis	*Geronticus calvus*	VU
Botha's Lark	*Spizocorys fringillaris*	EN
Wattled Crane	*Bugeranus carunculatus*	CR
Blue Crane	*Anthropoides paradiseus*	VU
Grey Crowned Crane	*Balearica reguloru,*	VU
Blue Swallow	*Hirundo atrocaerulea*	CR
Pinkthroated Twinspot	*Hypargos margaritatus*	NT
Chestnutbanded Plover	*Charadrius pallidus*	NT
Striped Flufftail	*Sarothrura affinis*	VU
Southern Ground Hornbill	*Bucorvus leadbeateri*	VU
Blackrumped Buttonquail	*Turnix hottentotta nana*	EN
Blue Korhaan	*Eupodotis caerulescens*	VU
Stanley's Bustard	*Neotis denhami*	VU
African Marsh Harrier	*Circus ranivorus*	VU
Grass Owl	*Tyto capensis*	VU
Whitebellied Korhaan	*Eupodotis cafra*	VU
Saddlebilled Stork	*Ephippiorhynchus senegalensis*	CR
Lappetfaced Vulture	*Torgos tracheliotos*	EN
Whiteheaded Vulture	*Trigonoceps occipitalis*	EN
Bateleur	*Terathopius ecaudatus*	VU
Cape Vulture	*Gyps coprotheres*	VU
Martial Eagle	*Polemaetus bellicosus*	VU
Peregrine Falcon	*Falco peregrinus minor*	VU
Taita Falcon	*Falco fasciinucha*	NT

Appendix 2a: Roberts Multimedia Birds of Southern Africa listing bird species expected to occur in the QDS 2529DA

R=Resident ;**E**=Endemic ; **BM**=Breeding Migrant ; **NBM**=Non breeding Migrant; **V**=Vagrant ; **A**=Abundant ; **VC**=Very Common ; **C**=Common ; **U**=Uncommon ; **R**=Rare ; **#**=Rare bird Record

SA Bird	English Common Name			Map Status	Scientific Name	
1	Ostrich			R-C	Struthio	camelus
6	Great	Crested		R-U/C	Podiceps	cristatus
8	Dabchick			R-VC	Tachybaptus	ruficollis
55	Whitebreasted	Cormorant		R-VC	Phalacrocorax	lucidus
58	Reed	Cormorant		R-VC	Phalacrocorax	africanus
60	Darter			R-C	Anhinga	rufa
62	Grey	Heron		R-C	Ardea	cinerea
63	Blackheaded	Heron		R-VC	Ardea	melanocephala
64	Goliath	Heron		R-U/C	Ardea	goliath
65	Purple	Heron		R-C	Ardea	purpurea
66	Great	White	Egret	R-C	Egretta	alba
67	Little	Egret		R-C	Egretta	garzetta
68	Yellowbilled	Egret		R-C	Egretta	intermedia
69	Black	Egret		R-C	Egretta	ardesiaca
71	Cattle	Egret		R-A	Bubulcus	ibis
72	Squacco	Heron		R-C	Ardeola	ralloides
74	Greenbacked	Heron		R-U	Butorides	striatus
76	Blackcrowned	Night	Heron	R-U	Nycticorax	nycticorax
78	Little	Bittern		R-U	Ixobrychus	minutus
80	Bittern			R-U	Botaurus	stellaris
81	Hamerkop			R-VC	Scopus	umbretta
83	White	Stork		NBM-C	Ciconia	ciconia
84	Black	Stork		R-U	Ciconia	nigra
85	Abdim's	Stork		NBM-U	Ciconia	abdimii
89	Marabou	Stork		R-U	Leptoptilos	crumeniferus
90	Yellowbilled	Stork		NBM-U	Mycteria	ibis
91	Sacred	Ibis		R-VC	Threskiornis	aethiopicus
92	Bald	Ibis		E-C	Geronticus	calvus
93	Glossy	Ibis		R-C	Plegadis	falcinellus
94	Hadeda	Ibis		R-A	Bostrychia	hagedash
95	African	Spoonbill		R-C	Platalea	alba
96	Greater	Flamingo		R-U/C	Phoenicopterus	ruber
97	Lesser	Flamingo		R-U/C	Phoenicopterus	minor
99	Whitefaced	Duck		R-VC	Dendrocygna	viduata
100	Fulvous	Duck		R-U	Dendrocygna	bicolor
101	Whitebacked	Duck		R-U	Thalassornis	leuconotus
102	Egyptian	Goose		R-VC	Alopochen	aegyptiacus
103	South	African	Shelduck	E-U	Tadorna	cana
104	Yellowbilled	Duck		R-U/VC	Anas	undulata
105	African	Black	Duck	R-C	Anas	sparsa
106	Cape	Teal		R-U	Anas	capensis

SA Bird	English Common Name			Map Status	Scientific Name	
107	Hottentot	Teal		R-U/C	Anas	hottentota
108	Redbilled	Teal		R-C	Anas	erythrorhyncha
112	Cape	Shoveller		E-U	Anas	smithii
113	Southern	Pochard		R-C	Netta	erythrophthalma
114	Pygmy	Goose		R-U	Nettapus	auritus
115	Knobbilled	Duck		R-U	Sarkidiornis	melanotos
116	Spurwinged	Goose		R-VC	Plectropterus	gambensis
117	Maccoa	Duck		R-U/VC	Oxyura	maccoa
118	Secretarybird			R-U/C	Sagittarius	serpentarius
122	Cape	Vulture		E-U	Gyps	coprotheres
126	Black	Kite		NBM-U	Milvus	migrans
126.1	Yellowbilled	Kite		BM-U	Milvus	aegyptius
127	Blackshouldered	Kite		R-VC	Elanus	caeruleus
128	Cuckoo	Hawk		R-U	Aviceda	cuculoides
130	Honey	Buzzard		NBM-U	Pernis	apivorus
131	Black	Eagle		R-C	Aquila	verreauxii
133	Steppe	Eagle		NBM-U	Aquila	nipalensis
135	Wahlberg's	Eagle		BM-U	Aquila	wahlbergi
136	Booted	Eagle		NBM-U	Hieraaetus	pennatus
137	African	Hawk	Eagle	R-C	Hieraaetus	spilogaster
138	Ayres'	Eagle		NBM-U	Hieraaetus	ayresii
140	Martial	Eagle		R-U	Polemaetus	bellicosus
141	Crowned	Eagle		R-C	Stephanoaetus	coronatus
142	Brown	Snake	Eagle	R-C	Circaetus	cinereus
143	Blackbreasted	Snake	Eagle	R-C	Circaetus	pectoralis
148	African	Fish	Eagle	R-U	Haliaeetus	vocifer
149	Steppe	Buzzard		NBM-C	Buteo	vulpinus
152	Jackal	Buzzard		E-U	Buteo	rufofuscus
154	Lizard	Buzzard		R-C	Kaupifalco	monogrammicus
156	Ovambo	Sparrowhawk		R-U	Accipiter	ovampensis
157	Little	Sparrowhawk		R-U	Accipiter	minullus
158	Black	Sparrowhawk		R-U	Accipiter	melanoleucus
159	Little	Banded	Goshawk	R-U	Accipiter	badius
160	African	Goshawk		R-C	Accipiter	tachiro
161	Gabar	Goshawk		R-U/C	Melierax	gabar
164	Eurasian	Marsh	Harrier	NBM-U	Circus	aeruginosus
165	African	Marsh	Harrier	R-U	Circus	ranivorus
166	Montagu's	Harrier		NBM-U	Circus	pygargus
167	Pallid	Harrier		NBM-U	Circus	macrourus
168	Black	Harrier		NBM-U	Circus	maurus
169	Gymnogene			R-C	Polyboroides	typus
170	Osprey			NBM-U	Pandion	haliaetus
171	Peregrine	Falcon		NBM-U	Falco	peregrinus
172	Lanner	Falcon		R-U	Falco	biarmicus
173	Northern	Hobby	Falcon	NBM-U	Falco	subbuteo

SA Bird	English Common Name			Map Status	Scientific Name	
179	Western	Redfooted	Kestrel	NBM-U	Falco	vespertinus
180	Eastern	Redfooted	Kestrel	NBM-C	Falco	amurensis
181	Rock	Kestrel		R-U	Falco	rupicolis
182	Greater	Kestrel		R-U	Falco	rupicoloides
183	Lesser	Kestrel		NBM-C	Falco	naumanni
188	Coqui	Francolin		R-C	Peliperdix	coqui
189	Crested	Francolin		R-U	Dendroperdix	sephaena
191	Shelley's	Francolin		R-C	Scleroptila	shelleyi
192	Redwing	Francolin		R-U	Scleroptila	levaillantii
196	Natal	Francolin		E-U	Pternistis	natalensis
199	Swainson's	Francolin		E-VC	Pternistis	swainsonii
200	Common	Quail		R-U	Coturnix	coturnix
201	Harlequin	Quail		BM-U	Coturnix	delegorguei
203	Helmeted	Guineafowl		R-VC	Numida	meleagris
205	Kurrichane	Buttonquail		R-U	Turnix	sylvatica
208	Blue	Crane		E-U	Anthropoides	paradisea
210	African	Rail		R-C	Rallus	caerulescens
211	Corncrake			NBM-U	Crex	crex
212	African	Crake		BM-U	Crecopsis	egregia
213	Black	Crake		R-C	Amaurornis	flavirostris
214	Spotted	Crake		Rare	Porzana	porzana
215	Baillon's	Crake		R-U	Porzana	pusilla
217	Redchested	Flufftail		R-U	Sarothrura	rufa
223	Purple	Gallinule		R-C	Porphyrio	madagascariensis
226	Common	Moorhen		R-C	Gallinula	chloropus
228	Redknobbed	Coot		R-VC	Fulica	cristata
229	African	Finfoot		R-U	Podica	senegalensis
231	Stanley's	Bustard		R-C	Neotis	denhami
233	Whitebellied	Korhaan		E-C	Eupodotis	barrowii
234	Blue	Korhaan		E-VC	Eupodotis	caerulescens
237	Redcrested	Korhaan		E-VC	Eupodotis	ruficrista
238	Blackbellied	Korhaan		R-C	Eupodotis	melanogaster
239.1	Whitewinged	Korhaan		E-VC	Eupodotis	afraoides
240	African	Jacana		R-U	Actophilornis	africanus
242	Old	World Painted	Snipe	R-U	Rostratula	benghalensis
245	Ringed	Plover		NBM-U	Charadrius	hiaticula
248	Kittlitz's	Plover		R-C	Charadrius	pecuarius
249	Threebanded	Plover		R-VC	Charadrius	tricollaris
252	Caspian	Plover		NBM-U	Charadrius	asiaticus
255	Crowned	Plover		R-VC	Vanellus	coronatus
257	Blackwinged	Plover		R-C	Vanellus	melanopterus
258	Blacksmith	Plover		R-VC/A	Vanellus	armatus
260	Wattled	Plover		R-VC	Vanellus	senegallus
262	Ruddy	Turnstone		NBM-U	Arenaria	interpres
264	Common	Sandpiper		NBM-C	Actitis	hypoleucos

SA Bird	English Common Name			Map Status	Scientific Name	
265	Green	Sandpiper		NBM-U	Tringa	ochropus
266	Wood	Sandpiper		NBM-C	Tringa	glareola
269	Marsh	Sandpiper		NBM-C	Tringa	stagnatilis
270	Greenshank			NBM-C	Tringa	nebularia
272	Curlew	Sandpiper		NBM-C	Calidris	ferruginea
274	Little	Stint		NBM-C	Calidris	minuta
281	Sanderling			NBM-U	Calidris	alba
284	Ruff			NBM-C	Philomachus	pugnax
286	Ethiopian	Snipe		R-C	Gallinago	nigripennis
289	Curlew			NBM-U	Numenius	arquata
290	Whimbrel			NBM-U	Numenius	phaeopus
294	Pied	Avocet		R-U	Recurvirostra	avosetta
295	Blackwinged	Stilt		R-C	Himantopus	himantopus
297	Spotted	Dikkop		R-C	Burhinus	capensis
298	Water	Dikkop		R-C	Burhinus	vermiculatus
300	Temminck's	Courser		R-U	Cursorius	temminckii
305	Blackwinged	Pratincole		NBM-C	Glareola	nordmanni
315	Greyheaded	Gull		R-U/C	Larus	cirrocephalus
322	Caspian	Tern		R-U	Sterna	caspia
338	Whiskered	Tern		BM-C	Chlidonias	hybridus
339	Whitewinged	Tern		NBM-U/C	Chlidonias	leucopterus
348	Feral	Pigeon		R-C	Columba	livia
349	Rock	Pigeon		R-VC	Columba	guinea
350	Rameron	Pigeon		R-C	Columba	arquatrix
352	Redeyed	Dove		R-VC	Streptopelia	semitorquata
354	Cape	Turtle	Dove	R-A	Streptopelia	capicola
355	Laughing	Dove		R-A	Streptopelia	senegalensis
356	Namaqua	Dove		R-C	Oena	capensis
358	Greenspotted	Dove		R-A	Turtur	chalcospilos
359	Tambourine	Dove		R-U	Turtur	tympanistria
361	African	Green	Pigeon	R-U	Treron	calva
373	Grey	Lourie		R-VC	Corythaixoides	concolor
374	Eurasian	Cuckoo		NBM-U	Cuculus	canorus
375	African	Cuckoo		BM-U	Cuculus	gularis
377	Redchested	Cuckoo		BM-C	Cuculus	solitarius
378	Black	Cuckoo		BM-U	Cuculus	clamosus
380	Great	Spotted	Cuckoo	BM-U	Clamator	glandarius
381	Striped	Cuckoo		BM-U	Clamator	levaillantii
382	Jacobin	Cuckoo		BM-U	Clamator	jacobinus
385	Klaas's	Cuckoo		BM-U	Chrysococcyx	klaas
386	Diederik	Cuckoo		BM-C	Chrysococcyx	caprius
391	Burchell's	Coucal		R-U	Centropus	burchellii
392	Barn	Owl		R-C	Tyto	alba
393	Grass	Owl		R-U	Tyto	capensis

SA Bird	English Common Name			Map Status	Scientific Name	
395	Marsh	Owl		R-C	Asio	capensis
396	African	Scops	Owl	R-C	Otus	senegalensis
397	Whitefaced	Owl		R-U/C	Ptilopsus	granti
398	Pearlspotted	Owl		R-C	Glaucidium	perlatum
400	Cape	Eagle	Owl	R-U	Bubo	capensis
401	Spotted	Eagle	Owl	R-C	Bubo	africanus
402	Giant	Eagle	Owl	R-U	Bubo	lacteus
404	Eurasian	Nightjar		NBM-U	Caprimulgus	europaeus
405	Fierynecked	Nightjar		R-C	Caprimulgus	pectoralis
408	Freckled	Nightjar		R-VC	Caprimulgus	tristigma
411	Eurasian	Swift		NBM-U	Apus	apus
412	Black	Swift		BM-U	Apus	barbatus
415	Whiterumped	Swift		BM-C	Apus	caffer
416	Horus	Swift		BM-U	Apus	horus
417	Little	Swift		R-VC	Apus	affinis
418	Alpine	Swift		BM-U/C	Tachymarptis	melba
421	Palm	Swift		R-C	Cypsiurus	parvus
424	Speckled	Mousebird		R-VC	Colius	striatus
426	Redfaced	Mousebird		R-VC	Urocolius	indicus
428	Pied	Kingfisher		R-C	Ceryle	rudis
429	Giant	Kingfisher		R-C	Megaceryle	maxima
430	Halfcollared	Kingfisher		R-U	Alcedo	semitorquata
431	Malachite	Kingfisher		R-U	Alcedo	cristata
432	Pygmy	Kingfisher		BM-C	Ispidina	picta
433	Woodland	Kingfisher		BM-U/C	Halcyon	senegalensis
435	Brownhooded	Kingfisher		R-C/VC	Halcyon	albiventris
437	Striped	Kingfisher		R-VC	Halcyon	chelicuti
438	Eurasian	Bee-eater		NBM-VC	Merops	apiaster
443	Whitefronted	Bee-eater		R-C	Merops	bullockoides
444	Little	Bee-eater		R-VC	Merops	pusillus
445	Swallowtailed	Bee-eater		R-U	Merops	hirundineus
446	Eurasian	Roller		NBM-U	Coracias	garrulus
447	Lilacbreasted	Roller		R-VC	Coracias	caudata
449	Purple	Roller		R-C	Coracias	naevia
451	African	Hoopoe		R-VC	Upupa	africana
452	Redbilled	Woodhoopoe		R-VC	Phoeniculus	purpureus
454	Scimitarbilled	Woodhoopoe		R-VC	Rhinopomastus	cyanomelas
457	Grey	Hornbill		R-C	Tockus	nasutus
458	Redbilled	Hornbill		R-U	Tockus	erythrorhynchus
459	Southern	Yellowbilled	Hornbill	E-VC	Tockus	leucomelas
464	Blackcollared	Barbet		R-VC	Lybius	torquatus
465	Pied	Barbet		E-U	Tricholaema	leucomelas
470	Yellowfronted	Tinker	Barbet	R-VC	Pogoniulus	chrysoconus
473	Crested	Barbet		R-U/VC	Trachyphonus	vaillantii
474	Greater	Honeyguide		R-C	Indicator	indicator

SA Bird	English Common Name			Map Status	Scientific Name	
476	Lesser	Honeyguide		R-U	Indicator	minor
478	Sharpbilled	Honeyguide		R-U	Prodotiscus	regulus
481	Bennett's	Woodpecker		R-U	Campethera	bennettii
483	Goldentailed	Woodpecker		R-U	Campethera	abingoni
486	Cardinal	Woodpecker		R-C	Dendropicos	fuscescens
487	Bearded	Woodpecker		R-U	Dendropicos	namaquus
489	Redthroated	Wryneck		R-C	Jynx	ruficollis
494	Rufousnaped	Lark		R-VC	Mirafra	africana
495.2	Eastern	Clapper	Lark	E-U	Mirafra	fasciolata
496	Flappet	Lark		R-U	Mirafra	rufocinnamomea
498	Sabota	Lark		E-U	Calendulauda	sabota
506	Spikeheeled	Lark		E-VC	Chersomanes	albofasciata
507	Redcapped	Lark		R-C	Calandrella	cinerea
508	Pinkbilled	Lark		E-C	Spizocorys	conirostris
518	Eurasian	Swallow		NBM-VC	Hirundo	rustica
520	Whitethroated	Swallow		BM-C	Hirundo	albigularis
523	Pearlbreasted	Swallow		R-U	Hirundo	dimidiata
524	Redbreasted	Swallow		BM-C	Hirundo	semirufa
526	Greater	Striped	Swallow	BM-VC	Hirundo	cucullata
527	Lesser	Striped	Swallow	BM-VC	Hirundo	abyssinica
528	South	African Cliff	Swallow	BM-C	Hirundo	spilodera
529	Rock	Martin		R-VC	Hirundo	fuligula
530	House	Martin		NBM-U	Delichon	urbica
532	Sand	Martin		NBM-U	Riparia	riparia
533	Brownthroated	Martin		R-C	Riparia	paludicola
534	Banded	Martin		BM-C	Riparia	cincta
536	Black	Sawwing	Swallow	BM-C	Psalidoprocne	holomelaena
538	Black	Cuckooshrike		R-C	Campephaga	flava
541	Forktailed	Drongo		R-VC	Dicrurus	adsimilis
545	Blackheaded	Oriole		R-VC	Oriolus	larvatus
547	Black	Crow		R-VC	Corvus	capensis
548	Pied	Crow		R-C	Corvus	albus
552	Ashy	Tit		E-C	Parus	cinerascens
554	Southern	Black	Tit	E-VC	Parus	niger
557	Cape	Penduline	Tit	E-U	Anthoscopus	minutus
558	Grey	Penduline	Tit	R-U	Anthoscopus	caroli
560	Arrowmarked	Babbler		R-VC	Turdoides	jardineii
568	Blackeyed	Bulbul		R-A	Pycnonotus	tricolor
576	Kurrichane	Thrush		R-U/VC	Turdus	libonyanus
577	Olive	Thrush		R-VC	Turdus	olivaceus
577.1	Karoo	Thrush		E-VC	Turdus	smithi
580	Groundscraper	Thrush		R-VC	Psophocichla	litsipsirupa
581	Cape	Rockthrush		E-C	Monticola	rupestris
582	Sentinel	Rockthrush		E-U	Monticola	explorator
586	Mountain	Chat		E-VC	Oenanthe	monticola

SA Bird	English Common Name			Map Status	Scientific Name	
587	Capped	Wheatear		R-U	Oenanthe	pileata
589	Familiar	Chat		R-C	Cercomela	familiaris
593	Mocking	Chat		R-C	Thamnolaea	cinnamomeiventris
595	Anteating	Chat		E-VC	Myrmecocichla	formicivora
596	Stonechat			R-VC	Saxicola	torquata
601	Cape	Robin		R-VC	Cossypha	caffra
602	Whitethroated	Robin		E-C	Cossypha	humeralis
613	Whitebrowed	Robin		R-U/VC	Cercotrichas	leucophrys
615	Kalahari	Robin		E-VC	Cercotrichas	paena
619	Garden	Warbler		NBM-U	Sylvia	borin
621	Titbabbler			E-C	Parisoma	subcaeruleum
625	Icterine	Warbler		NBM-U	Hippolais	icterina
628	Great	Reed	Warbler	NBM-U	Acrocephalus	arundinaceus
631	African	Marsh	Warbler	BM-C	Acrocephalus	baeticatus
633	Eurasian	Marsh	Warbler	NBM-U	Acrocephalus	palustris
634	Eurasian	Sedge	Warbler	NBM-U	Acrocephalus	schoenobaenus
635	Cape	Reed	Warbler	R-C	Acrocephalus	gracilirostris
637	Yellow	Warbler		R-U	Chloropeta	natalensis
638	African	Sedge	Warbler	R-C	Bradypterus	baboecala
643	Willow	Warbler		NBM-C	Phylloscopus	trochilus
645	Barthroated	Apalis		R-U	Apalis	thoracica
651	Longbilled	Crombec		R-VC	Sylvietta	rufescens
653	Yellowbellied	Eremomela		R-C	Eremomela	icteropygialis
657.1	Greybacked	BleatingWarbler		R-VC	Camaroptera	brevicaudata
661	Grassbird			E-C	Sphenoeacus	afer
664	Fantailed	Cisticola		R-C	Cisticola	juncidis
665	Desert	Cisticola		R-U/C	Cisticola	aridulus
666	Cloud	Cisticola		R-C	Cisticola	textrix
667	Ayres'	Cisticola		R-C	Cisticola	ayresii
668	Palecrowned	Cisticola		R-U	Cisticola	cinnamomeus
670	Wailing	Cisticola		R-C	Cisticola	lais
672	Rattling	Cisticola		R-C	Cisticola	chinianus
677	Levaillant's	Cisticola		R-VC	Cisticola	tinniens
679	Lazy	Cisticola		R-U	Cisticola	aberrans
681	Neddicky			R-C	Cisticola	fulvicapillus
683	Tawnyflanked	Prinia		R-VC	Prinia	subflava
685	Blackchested	Prinia		E-VC	Prinia	flavicans
686.1	Spotted	Prinia		E-C	Prinia	hypoxantha
689	Spotted	Flycatcher		NBM-U	Muscicapa	striata
693	Fantailed	Flycatcher		R-U	Myioparus	plumbeus
694	Black	Flycatcher		R-C	Melaenornis	pammelaina
695	Marico	Flycatcher		E-C/VC	Bradornis	mariquensis
696	Pallid	Flycatcher		R-C	Bradornis	pallidus
698	Fiscal	Flycatcher		E-VC	Sigelus	silens
700	Cape	Batis		R-VC	Batis	capensis

SA Bird	English Common Name			Map Status	Scientific Name	
701	Chinspot	Batis		R-C	Batis	molitor
706	Fairy	Flycatcher		NBM-C	Stenostira	scita
710	Paradise	Flycatcher		BM-VC	Terpsiphone	viridis
711	African	Pied	Wagtail	R-U	Motacilla	aguimp
713	Cape	Wagtail		R-VC	Motacilla	capensis
714	Yellow	Wagtail		NBM-C	Motacilla	flava
716	Grassveld	Pipit		R-VC	Anthus	cinnamomeus
717	Longbilled	Pipit		R-U	Anthus	similis
718	Plainbacked	Pipit		R-U	Anthus	leucophrys
719	Buffy	Pipit		R-U	Anthus	vaalensis
720	Striped	Pipit		R-U	Anthus	lineiventris
723	Bushveld	Pipit		R-U	Anthus	caffer
727	Orangethroated	Longclaw		E-VC	Macronyx	capensis
731	Lesser	Grey	Shrike	NBM-U	Lanius	minor
732	Fiscal	Shrike		R-A	Lanius	collaris
733	Redbacked	Shrike		NBM-VC	Lanius	collurio
735	Longtailed	Shrike		R-VC	Corvinella	melanoleuca
736	Southern	Boubou		E-VC	Laniarius	ferrugineus
739	Crimsonbreasted	Shrike		E-VC	Laniarius	atrococcineus
740	Puffback			R-A	Dryoscopus	cubla
741	Brubru			R-U	Nilaus	afer
743	Threestreaked	Tchagra		R-U	Tchagra	australis
744	Blackcrowned	Tchagra		R-VC	Tchagra	senegala
746	Bokmakierie			E-VC	Telophorus	zeylonus
748	Orangebreasted	Bush	Shrike	R-U	Telophorus	sulfureopectus
751	Greyheaded	Bush	Shrike	R-VC	Malaconotus	blanchoti
753	White	Helmetshrike		R-VC	Prionops	plumatus
758	Indian	Myna		R-VC	Acridotheres	tristis
759	Pied	Starling		E-C	Spreo	bicolor
760	Wattled	Starling		R-U	Creatophora	cinerea
761	Plumcoloured	Starling		BM-VC	Cinnyricinclus	leucogaster
764	Glossy	Starling		E-C/VC	Lamprotornis	nitens
769	Redwinged	Starling		R-VC	Onychognathus	morio
772	Redbilled	Oxpecker		R-U	Buphagus	erythrorhynchus
775	Malachite	Sunbird		R-U/VC	Nectarinia	famosa
779	Marico	Sunbird		R-VC	Cinnyris	mariquensis
785	Greater	Doublecollared	Sunbird	E-U	Cinnyris	afra
787	Whitebellied	Sunbird		R-U	Cinnyris	talatala
792	Black	Sunbird		R-VC	Chalcomitra	amethystina
796	Cape	White-eye		E-VC	Zosterops	virens
799	Whitebrowed	Sparrowweaver		R-U/VC	Plocepasser	mahali
801	House	Sparrow		R-VC	Passer	domesticus
803	Cape	Sparrow		E-A	Passer	melanurus
804	Southern	Greyheaded	Sparrow	E-VC	Passer	diffusus
805	Yellowthroated	Sparrow		R-C	Petronia	superciliaris

SA Bird	English Common Name			Map Status	Scientific Name	
806	Scalyfeathered	Finch		E-VC	Sporopipes	squamifrons
807	Thickbilled	Weaver		R-U	Amblyospiza	albifrons
810	Spectacled	Weaver		R-VC	Ploceus	ocularis
811	Spottedbacked	Weaver		R-U/VC	Ploceus	cucullatus
813	Cape	Weaver		E-VC	Ploceus	capensis
814	Masked	Weaver		R-VC	Ploceus	velatus
815	Lesser	Masked	Weaver	R-U	Ploceus	intermedius
819	Redheaded	Weaver		R-U	Anaplectes	rubriceps
820	Cuckoofinch			BM-U	Anomalospiza	imberbis
821	Redbilled	Quelea		R-VC	Quelea	quelea
824	Red	Bishop		R-VC	Euplectes	orix
826	Golden	Bishop		R-C	Euplectes	afer
827	Yellowrumped	Widow		R-U/C	Euplectes	capensis
828	Redshouldered	Widow		R-U/VC	Euplectes	axillaris
829	Whitewinged	Widow		R-C	Euplectes	albonotatus
831	Redcollared	Widow		R-VC	Euplectes	ardens
832	Longtailed	Widow		R-A	Euplectes	progne
834	Melba	Finch		R-U	Pytilia	melba
840	Bluebilled	Firefinch		R-C	Lagonosticta	rubricata
841	Jameson's	Firefinch		R-U	Lagonosticta	rhodopareia
842	Redbilled	Firefinch		R-U	Lagonosticta	senegala
844	Blue	Waxbill		R-VC	Uraeginthus	angolensis
845	Violeteared	Waxbill		E-U	Granatina	granatina
846	Common	Waxbill		R-VC	Estrilda	astrild
847	Blackcheeked	Waxbill		R-U	Estrilda	erythronotos
850	Swee	Waxbill		E-U	Estrilda	melanotis
852	Quail	Finch		R-C	Ortygospiza	atricollis
854	Orangebreasted	Waxbill		R-C	Amandava	subflava
855	Cutthroat	Finch		R-C	Amadina	fasciata
856	Redheaded	Finch		E-U/VC	Amadina	erythrocephala
857	Bronze	Mannikin		R-VC	Lonchura	cucullata
860	Pintailed	Whydah		R-VC	Vidua	macroura
861	Shafttailed	Whydah		E-U	Vidua	regia
862	Paradise	Whydah		R-U	Vidua	paradisaea
864	Black	Widowfinch		R-U/C	Vidua	funerea
867	Steelblue	Widowfinch		R-U	Vidua	chalybeata
869	Yelloweyed	Canary		R-U/VC	Serinus	mozambicus
870	Blackthroated	Canary		R-VC	Serinus	atrogularis
872	Cape	Canary		R-U/VC	Serinus	canicollis
881	Streakyheaded	Canary		R-C	Serinus	gularis
884	Goldenbreasted	Bunting		R-U/VC	Emberiza	flaviventris
885	Cape	Bunting		R-U	Emberiza	capensis
886	Rock	Bunting		R-VC	Emberiza	tahapisi
887	Larklike	Bunting		E-U	Emberiza	impetuani

Appendix 3: Threatened reptile species of Mpumalanga (MP SoER, 2003).

English Name	Species	Status
Haacke's flat gecko	*Afroedura haackei*	EN
Abel Erasmus Pass flat gecko	*Afroedura sp.*	EN
Mariepskop flat gecko	*Afroedura sp.*	EN
Rondavels flat gecko	*Afroedura sp.*	EN
Forest/Natal purpleglossed snake	*Amblyodipsas concolor*	VU
Lowveld shieldnosed snake	*Aspidelaps scutatus intermedius*	VU
Dwarf chameleon	*Bradypodion transvaalense complex*	VU
Sungazer/ Giant girdled lizard	*Cordylus giganteus*	VU
Barberton girdled lizard	*Cordylus warreni barbertonensis*	VU
Lebombo girdled lizard	*Cordylus warreni warreni*	VU
Swazi rock snake	*Lamprophis swazicus*	VU
Transvaal flat lizard	*Platysaurus orientalis orientalis*	NT
Wilhelm's flat lizard	*Platysaurus wilhelmi*	VU
Montane burrowing skink	*Scelotes mirus*	LC
Breyer's longtailed seps	*Tetradactylus breyeri*	VU

Appendix 4: Threatened amphibian species of Mpumalanga (MP SoER, 2003).

English Name	Species	Status
Karoo Toad	*Bufo gariepensis nubicolus*	VU
Natal Ghost Frog	*Heleophryne natalensis*	VU
Spotted Shovel-Nosed Frog	*Hemisus guttatus*	VU
Yellow Striped Reed Frog	*Hyperolius semidiscus*	VU
Plain Stream Frog	*Strongylopus wageri*	VU
Giant Bullfrog	*Pyxicephalus adspersus*	VU
Greater Leaf-Folding Frog	*Afrixalus fornasinii*	VU
Whistling Rain Frog	*Breviceps sp.*	VU

Appendix 5: Threatened invertebrate species of Mpumalanga (MP SoER, 2003).

English Name	Species	Status
Barbara’s Copper	*Aloeides barbarae*	EN
Cloud Copper	*Aloeides nubilis*	VU
Rossouw’s Copper	*Aloeides rossouwi*	EN
Stoffberg Widow	*Dingana fraterna*	EN
Irving’s Blue	*Lepidochrysops irvingi*	VU
Swanepoel’s Blue	*Lepidochrysops swanepoeli*	EN
Jeffery’s Blue	*Lepidochrysops jefferyi*	EN
Rossouw’s Blue	*Lepidochrysops rossouwi*	VU
Marsh Sylph*	*Metisella meninx*	VU