1 INTRODUCTION

The Boikarabelo Power Line Project is to be developed by Ledjaja Coal (Pty) Ltd (Exxaro) on the farms Kruishout 271 LQ, Bitterfontein 272LQ, Kamiesbult 291 LQ, Groot-Zwart-Bult 290 LQ, STeenbokpan 295 LQ and Vangpan 294 LQ. These farms are situated north the town of Lephalale, in close proximity to Steenbokpan which lies in the Waterberg District Municipality (DM) of the Limpopo Province.

The objectives of this report are to summarise the summary findings of the Flora and Fauna within the area and assess the impact of the proposed change to the railway line development. The change to the railway line will be the movement of the lie from Groot-Zwart-Bult 290 LQ to Kamiesbult 291 LQ. The proposed rail line will run along the eastern boundary of Kamiesbult 291 LQ, around the 500m buffer, protecting the existing pan.

A desktop study was undertaken for the affected area which primarily considered the findings of two reports;

Fauna & Flora Report (for the farms Kalkpan 243 LQ, Kruishout 271 LQ, Zeekoevley 241 LQ, Vischpan 274 LQ, Witkopje 238 LQ, Draai Om 244 LQ, Osorno 700 LQ, Kruispad 242 LQ, Diepspruit 386 LQ, Waterberg District), ResGen South Africa (Pty) Ltd, Boikarabelo coal mine, July 2010; and

Flora and Fauna Assessment for Marapong-boikarabelo effluent transfer Project, Ledjaja Coal (Pty) Ltd, April 2012.

2 STUDY AREA

The affected environment is typical of the region, which lies within the Savannah Biome (Mucina and Rutherford, 2006) which is located in the Northern part of South Africa. Within the project area the vegetation varies between Sweet Bushveld and Mixed Bushveld, according to Van Rooyen & Bredenkamp (In Low and Rebelo, 1996). Fauna expected to occur on site include assemblages within terrestrial and wetland ecosystems: mammals, birds, reptiles, amphibians and invertebrates.

3 FLORA

3.1 Flora general description

The dominant tree species which occur in the area impacted by the power line Blue Thorn Acacia *(Acacia erubescens)* and Stink Shepherds Bush (*Boscia foetida).* Various other Acacia species such as Horned Thorn (*Acacia grandicornuta*), occur in this area, Sickle Bush

(Dichrostachys cinerea) Common Corkwood (*Commiphora pyracanthoides*) also occur. The Average Height is approximately 7 metres. Ground cover is good.

3.2 Flora Species of Special Concern

Five species listed as protected species by the National Forests Act (Act 89 of 1998) were, recorded within the greater study area. These species are Camel Thorn (*Acacia erioloba*), Shepherds Bush Tree (*Boscia albitrunca*), Leadwood (*Combretum imberbe*), Marula (*Sclerocarya birrea*) and Devil Thorn (*Harpagophytum procumbens)*. None of these species are expected to occur within this identified community.

4 FAUNA

4.1 General Description

The Development Area is rich in mammal species, typical if the bushveld as described;

Approximately Forty (40) mammal species were identified to occur within the area. The Project Area and Areas adjacent are being actively stocked with game. Game numbers have been controlled according to management measures;

One hundred and Forty (140) birds are known to occur within Development Area. According to Roberts (2012), almost 400 species of birds have been identified in the area; the majority of these birds are comprised of bushveld species;

Fifteen (15) Reptile Species are known to occur within Development Area. According to literature, the majority of the reptiles expected to occur within the study area are not expected to occur in areas where large scale game farming has diminished the grass layer. This is particular to snakes, as the small mammals which exist in the grassland habitat are not present. This grass layer is essential for invertebrates and most rodents to survive; without this grass layer these fauna species do not have shelter or food and thus have a negative impact on their abundance;

Ten (10) amphibian species are known to occur within Development Area. This is not regarded to be a good reflection of the species which do occur within the area; according to literature there are a collection of amphibians associated with the Savannah Biome. Due to the proximity of this site to the Pan it is expected that far greater numbers of amphibians would occur within this area; and

Twenty One (21) invertebrates were identified within the area. Greater numbers of invertebrates are expected to occur within the area.

4.2 Fauna Species of Special Concern

A number of the Species which are known to occur within Development Area are listed as Red Data (IUCN, 2012) and are Nationally or Provincially Protected.

Mammals

Mammals which are provincially listed as *Species of Special Concern* include Tsessebe (*Damaliscus lunatus*), Buffalo (*Syncerus caffer)*, and Brown Hyaena (*Parahyaena brunnea)*. These species are additionally provincially protected (LEMA, 2003).

Tsessebe (*Damaliscus lunatus*) is Nationally listed as ***Endangered*****,** which means this species is facing high risk of extinction in the wild in the near future, although they are not Critically endangered species (TOPS, NEMBA, 2007).

Cheetah (*Acinonyx jubatus)* and Leopard (*Patherus pardus*) are similarly listed as Protected according to LEDET, nationally listed as ***Endangered****,* which means that this species is at high risk of extinction in the wild, despite not being *Critically Endangered* (TOPS, NEMBA, 2007).

Honey Badger (*Mellivora capensis*) and Brown Hyaena (*Parahyaena brunnea)* is listed as a species with **High Conservation Value** according to TOPS (TOPS, NEMBA, 2007).

Birds

All birds are protected by Provincial legislation; Bataleur (*Terathopius ecaudatus)* and Kori Bustard (*Ardeotis kori)* are listed as ***Specially protected species*** (LEMA, 2003). As well as being nationally listed as ***Endangered****,* which means that this species is at high risk of extinction in the wild, despite not being *Critically Endangered.*

Reptiles

A **Vulnerable** reptile which could potentially occur in the area is the Southern African Python (*Python sebae*), this species is similarly Provincially Protected (LEMA, 2003).

Amphibians

The African Bullfrog (*Pyxicephalus adspersus)* which was not identified, however is known to occur within the area is a Provincially Protected species (LEMA, 2003) as well as listed as a species with **High Conservation Value** according to TOPS (TOPS, NEMBA, 2007).

Invertebrates

Golden Brown Baboon Spider (*Augacephalus breyeri*) is listed as a species with **High Conservation Value** according to TOPS (TOPS, NEMBA, 2007).

5 IMPACTS

General anticipated issues of the construction of the Powerline include;

Loss of vegetation communities;

A loss of the vegetation which occurs within this area will definitely occur, this is regarded to be a minor impact due to the limited extent.

Loss of biodiversity;

Loss of faunal habitat will occur. The fauna which currently use this area are able to move away and use areas adjacent.

Loss of Species of Special concern; and

The power line is likely to impact avifauna the greatest. The infrastructure will possibly result in the electrocution of birds as well as birds colliding with power lines.

Electrocution of birds on overhead lines is an important cause of unnatural mortality of raptors and storks. Electrocution occurs when a bird attempts to perch on the electrical structure. This causes a short circuit which results in the bird mortality. If the standard Eskom Bird Perch is used, the risk of electrocution should be acceptably low.

Collisions are most heavily impacted upon are bustards, storks, cranes and various species of water birds. These species are genrlly heavy bodied and therefore their manoeuvrability is limited. This results in their colliding with the power lines. Many of these species happen to be listed as Red Data.

Loss of ecosystem services.

The functionality of the ecosystem will be decreased through the disturbance by the development. Multiple negative outcomes will result. The primary negative issue anticipated is a loss of habitat.

Loss of habitat;

The impact of moving the Power line to the Western side of the pan will result in fragmentation and isolation of the Pan from the surrounding bushveld. This will result in restricting the natural movement by faunal species to and from the pan water resource and decreasing the habitat potential.

6 CONCLUSION AND RECOMMENDATIONS

The movement of the power line to the current proposed position is regarded to have limited additional negative impact on the flora and fauna.

The disturbance of faunal movement to and from the pan water resource is regarded to be the greatest impact, particularly the possible electrocution and collisions by birds moving to and from the pan water source and habitat.

It is recommended that an ecological audit take place before and during construction to ensure that fauna (including flora) species including Red Data species that might be harmed be relocated.