

**RESIDENTIAL DEVELOPMENT AT THE PROPOSED
"NORTHGATE" SITE, SOL PLAATJE MUNICIPALITY,
KIMBERLEY, NORTHERN CAPE PROVINCE,
SOUTH AFRICA**

**THE POSSIBLE IMPACT OF DEVELOPMENT ON THE
VERTEBRATE FAUNA**

An Ecological Impact Assessment

By

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November 2007

EXECUTIVE SUMMARY

A one-day (23/10/2007) specialist survey was carried out to determine the impact of residential housing development on the vertebrate fauna at the proposed Northgate site, Kimberley, Northern Cape Province. Available literature and the MMK mammal database suggest a total composition of approximately 64 mammal, 204 bird, 40 reptile and six amphibian species for the Kimberley Thornveld complex. This survey indicated the presence of 14 (22%) mammal, 55 (27%) bird, eight (20%) reptile and two (33%) amphibian species at the proposed site. No Red Data Book (RDB) species was recorded. Habitat destruction and fragmentation are considered the main negative impacts on vertebrate species, while contamination of the genetic integrity of species and an increase in predator-prey interactions also play a role. These impacts can be reduced by certain mitigation measures, such as preserving the natural vegetation, especially protected tree species, as far as possible, as well as Government regulated control of development and the creation of green belts and undisturbed areas within the area of development. A proper awareness campaign to promote the advantages of cat sterilization and the containment of dogs within the property perimeter can also play a role in lessening impacts on the vertebrate population. No animal rescue is foreseen, but slow moving species e.g. tortoises, can be moved to adjacent, undisturbed areas. The encountered species are not unique to the Northern Cape and the proposed development should not impact negatively on the ultimate survival or dynamics of the encountered taxa. The impact of the housing development on the local Kamfersdam flamingo population can pose a problem, but a flamingo expert addressed this aspect.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
INTRODUCTION	4
OBJECTIVES OF THE SURVEY.....	5
APPROACH TO SURVEY.....	6
METHODS	6
ASSESSMENT.....	6
Species Diversity and Ecological Status	6
1. Mammalifauna.....	7
2. Avifauna	7
3. Herpetofauna.....	9
PREDICTED IMPACTS ON THE VERTEBRATE FAUNA.....	10
MITIGATION MEASURES	11
ANIMAL RESCUE.....	12
CONCLUSION	12
DEFINITION OF TECHNICAL TERMS	13
REFERENCES.....	13

INTRODUCTION

MVD Kalahari/Group 1 is currently investigating the feasibility of developing 4 066 erven for housing, schools, shopping centers and places of worship at a pre-determined site, located to the north of Kimberley, which is to be known as Northgate. The proposed activity will take place at Portion 16, Middle Camp of the farm Roodepan no. 70 (241.2917 ha), Portion 42 of the farm Roodepan no. 70 (123.3406 ha) and Remainder of Portion 30 of the farm Roodepan no. 70 (1.8997 ha), Kimberley District (Fig. 1). The site is approximately 384.1 ha in size of which 288.98 ha are earmarked for development. It is envisaged that the project duration will be seven (7) years and that it will be developed in a phased approach. Eight (8) phases are foreseen to complete the project. In order to determine the possible impact of such activities on the diversity and ecological status of the faunal component at the proposed areas of development, I was approached by Mr Hennie Erasmus, an independent environmental consultant, acting on the behalf of MVD Kalahari/Group 1, to carry out a specialist survey of the proposed area earmarked for development. The investigated taxa included the mammalifauna (mammals), avifauna (birds) and herpetofauna (reptiles & amphibians). Although reference is made to the flamingoes at Kamfersdam in this report, this study is concentrated on the actual site of development, the reason being that a flamingo specialist was appointed to address the impact of the development on the resident flamingo population at Kamfersdam.

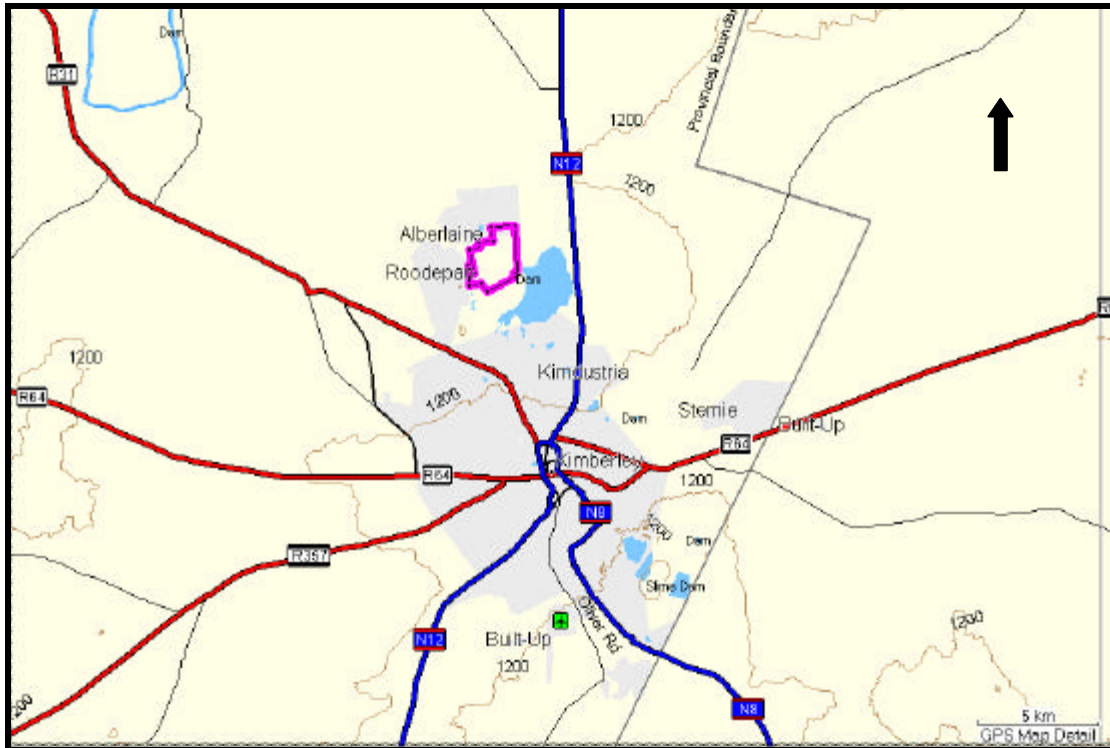


Figure 1. Area map depicting the site (in magenta) earmarked for possible future residential development.

OBJECTIVES OF THE SURVEY

- ✍ To apply relevant literature and known museum (MMK) records to determine the diversity and eco-status of the mammalifauna, avifauna and herpetofauna at the proposed area of development;
- ✍ To carry out a field survey to gain an indication of the diversity and eco-status of the above-mentioned taxa which inhabit the proposed area of development, as well as the presence of unique habitats that might need further investigation or protection;
- ✍ To assess the possible impact of the proposed development on these taxa and/or habitats.

APPROACH TO SURVEY

- ✍ Consulting of known distribution (McGregor Museum databases) and relevant literature to determine the diversity, ecological status and distribution of relevant species.
- ✍ Conducting of a one-day field survey at the proposed area of development.
- ✍ Comprising an EIA report to summarize the findings and, where applicable, make recommendations.

METHODS

In order to specify and describe the vertebrate faunal component (mammalifauna, avifauna and herpetofauna) at the proposed site of development, a one-day survey, 23/10/2007, was carried out. The survey covered the entire locale of earmarked development. Species diversity was mainly attained by means of direct or indirect sighting methods (animal, spoor, burrows, scats, digital photographs) whilst traversing the areas by vehicle or on foot (walk-over land survey).

ASSESSMENT

Species Diversity and Ecological Status

The White Paper on the conservation and sustainable use of South Africa's biodiversity and the National Environmental Management Act (107 of 1998) specifies that due care be taken to conserve and avoid negative impacts on biodiversity, as well as the sustainable, equitable and efficient use of biological resources. The composition and eco-status of vertebrate species, which were encountered at the proposed areas earmarked for development, are depicted in Tables 1-3.

1. Mammalifauna

Available literature and the MMK mammal database suggest a total composition of approximately 64 mammal species for the Kimberley Thornveld, as recently described by Mucina & Rutherford (2006), most of which fall within the small mammal category. This survey, combined with previous investigations, indicated the presence of 14 mammal species for the proposed area, which accounts for 22% of the overall total (Table 1). No Red Data Book (RDB) species was recorded during the survey. The Aardvark, previously listed as Vulnerable, was removed from the RDB list in 2004.

Table 1. Composition of the mammalifauna that was encountered at the proposed area of development.

COMMON NAME	SCIENTIFIC NAME
Cape Hare	<i>Lepus capensis</i>
African Mole-rat	<i>Cryptomys hottentotus</i>
Cape Porcupine	<i>Hystrix africaeaustralis</i>
Springhare	<i>Pedetes capensis</i>
South African Ground Squirrel	<i>Xerus inauris</i>
Four-striped Grass Mouse	<i>Rhabdomys pumilio</i>
Hairy-footed Gerbil	<i>Gerbillurus paeba</i>
Bushveld Gerbil	<i>Tatera leucogaster</i>
Suricate	<i>Suricata suricatta</i>
Yellow Mongoose	<i>Cynictis penicillata</i>
Slender Mongoose	<i>Galerella sanguinea</i>
Aardvark	<i>Orycteropus afer</i>
Common Duiker	<i>Sylvicapra grimmia</i>
Steenbok	<i>Rhapicerus campestris</i>

2. Avifauna

According to available literature and the MMK museum bird database, a total of approximately 204 bird species could be encountered in the Kimberley Thornveld complex. This survey, combined with previous investigations, indicated the

presence of 55 bird species for the proposed area, which accounts for 27% of the overall total (Table 2). No Red Data species was encountered. It must be kept in mind, however, that all raptor (birds of prey) species, over and above a possible RDB status, are categorized as protected wild animals in the Northern Cape Province.

The presence of water-associated birds could be attributed to the large dirt dam at the site.

Table 2. Composition of the avifauna that was encountered in the proposed area of development (ticked species).

COMMON NAME	SCIENTIFIC NAME
Common Ostrich	<i>Struthio camelus</i>
Cattle Egret	<i>Bubulcus ibis</i>
African Sacred Ibis	<i>Threskiornis aethiopicus</i>
Glossy Ibis	<i>Plegadis falcinellus</i>
Hadedda Ibis	<i>Bostrychia hagedash</i>
Egyptian Goose	<i>Alopochen aegyptiaca</i>
South African Shelduck	<i>Tadorna cana</i>
Yellow-billed Duck	<i>Anas undulata</i>
Gabar Goshawk	<i>Melierax gabar</i>
Southern Pale Chanting Goshawk	<i>Melierax canorus</i>
Rock Kestrel	<i>Falco rupicolus</i>
Helmeted Guineafowl	<i>Numida meleagris</i>
Northern Black Korhaan	<i>Afrotis afraoides</i>
Crowned Lapwing	<i>Vanellus coronatus</i>
Blacksmith Lapwing	<i>Vanellus armatus</i>
Black-winged Stilt	<i>Himantopus himantopus</i>
Spotted Thick-knee	<i>Burhinus capensis</i>
Speckled Pigeon	<i>Columba guinea</i>
Cape Turtle-Dove	<i>Streptopelia capicola</i>
Laughing Dove	<i>Streptopelia senegalensis</i>
Namaqua Dove	<i>Oena capensis</i>
DiderickCuckoo	<i>Chrysococcyx caprius</i>
Little Swift	<i>Apus affinis</i>
White-backed Mousebird	<i>Colius colius</i>
Brown-hooded Kingfisher	<i>Halcyon albiventris</i>

COMMON NAME	SCIENTIFIC NAME
European Bee-eater	<i>Merops apiaster</i>
African Hoopoe	<i>Upupa africana</i>
Common Scimitarbill	<i>Rhinopomastus cyanomelas</i>
Acacia Pied Barbet	<i>Tricholaema leucomelas</i>
Fawn-coloured Lark	<i>Calendulauda africanoides</i>
Sabota Lark	<i>Calendulauda sabota</i>
Spike-heeled Lark	<i>Chersomanes albofasciata</i>
Barn Swallow	<i>Hirundo rustica</i>
Fork-tailed Drongo	<i>Dicrurus adsimilis</i>
Pied Crow	<i>Corvus albus</i>
African Red-eyed Bulbul	<i>Pycnonotus nigricans</i>
Familiar Chat	<i>Cercomela familiaris</i>
Kalahari Scrub-Robin	<i>Cercotrichas paena</i>
Chestnut-vented Tit-babbler	<i>Parisoma subcaeruleum</i>
Desert Cisticola	<i>Cisticola aridulus</i>
Black-chested Prinia	<i>Prinia flavicans</i>
Fiscal Flycatcher	<i>Sigelus silens</i>
Pirit Batis	<i>Bias pirit</i>
Cape Wagtail	<i>Motacilla capensis</i>
African Pipit	<i>Anthus cinnamomeus</i>
Common Fiscal	<i>Lanius collaris</i>
Cape Glossy Starling	<i>Lamprotornis nitens</i>
Orange River White-eye	<i>Zosterops pallidus</i>
White-browed Sparrow-weaver	<i>Plocepasser mahali</i>
Cape Sparrow	<i>Passer melanurus</i>
Scaly-feathered Finch	<i>Sporopipes squamifrons</i>
Southern Masked-Weaver	<i>Ploceus velatus</i>
Black-throated Canary	<i>Crithagra atrogularis</i>
Yellow Canary	<i>Crithagra flaviventris</i>
Lark-like Bunting	<i>Emberiza impetuani</i>

3. Herpetofauna

An approximate total of 40 reptile and six amphibian species, none of which appear in the current RDB, may be encountered in the Kimberley Thornveld complex. This survey, combined with previous investigations, indicated the

presence of eight (8) reptile and two (2) amphibian species for the proposed area (Table 3). All tortoise species currently enjoy protected status. The recorded Marsh Terrapin was encountered in a water-filled dirt dam at the proposed site.

Table 3. Composition of the herpetofauna that was encountered in the proposed area of development (ticked species).

Species	Scientific Names
Bushveld Lizard	<i>Heliobolus lugubris</i>
Cape Cobra	<i>Naja nivea</i>
Ground Agama	<i>Agama a. aculeata</i>
Leopard Tortoise	<i>Geochelone pardalis</i>
Marsh Terrapin	<i>Pelomedusa subrufa</i>
Puff Adder	<i>Bitis arietans</i>
Spotted Sand Lizard	<i>Pedioplanis lineoocellata pulchella</i>
Variegated Skink	<i>Mabuya v. variegata</i>
Common Caco	<i>Cacosternum boettgeri</i>
Karoo Toad	<i>Bufo gariiepensis</i>

PREDICTED IMPACTS ON THE VERTEBRATE FAUNA AT THE SITE

Impacts	Criteria	Impact
1. Habitat destruction (loss)	Scale	Site specific
	Severity	High
	Certainty	Definite
2. Habitat fragmentation	Scale	Site specific
	Severity	Medium
	Certainty	Definite
3. Contamination of the genetic integrity of species	Scale	Surrounds
	Severity	Low-Medium
	Certainty	Possible
4. Predator-prey interaction	Scale	Site & surrounds
	Severity	Low-medium
	Certainty	Possible

The most significant impacts on the vertebrate fauna at the actual site of development and immediate surrounds will be habitat destruction and habitat

fragmentation. Contamination of the genetic integrity of the African Wild Cat (*Felis silvestris*), a species known to occur in the general area (e.g. Dronfield Reserve), is also possible as this species readily hybridises with the domestic cat. An increase in the hunting activities by especially dogs (small game species and even livestock) and cats (birds, small mammal and reptile species), can also impact negatively on the vertebrate component. These impacts can be reduced by certain mitigation measures as indicated below.

The main concern at this stage seems to be the well-being and ultimate survival of the flamingos (Near-threatened RDB status) at the nearby Kamfersdam as a result of possible changes in the water quality and quantity, the possible result of the proposed residential development. This important aspect, however, has been addressed by an independent flamingo specialist and should be reflected in the forthcoming EIA report.

MITIGATION MEASURES

The indigenous trees and shrubs, especially *Acacia erioloba* and *Boscia albitrunca*, should be preserved as far as possible. Both these trees enjoy protected status and also form important food sources and habitats for various mammal and bird species. The underbrush normally associated with these species also forms an important microhabitat for a number of vertebrate species. Government regulated control of development and the creation of green belts and undisturbed areas within the area of development in order to maintain some form of ecological integrity. A proper awareness campaign to promote the advantages of cat sterilization and the containment of dogs within the property perimeter can play a role in the containment of genetic pollution of species and can also address the problem, to a certain extent, of “introduced” predators impacting on the local vertebrate population.

ANIMAL RESCUE

Although no animal rescue is foreseen, slow moving species, e.g. tortoises, can be moved to adjacent, undisturbed areas.

CONCLUSION

A one-day (23/10/2007) specialist survey was carried out to determine the impact of residential housing development on the vertebrate fauna at the proposed Northgate site. The survey depicted the actual and previously recorded number of species encountered in the areas earmarked for future residential development. An overall total of 14 mammal, 55 bird, eight reptile and two amphibian species has been recorded for the proposed site of development. No Red Data Book (RDB) species was recorded.

Habitat destruction and fragmentation are the main negative impacts on vertebrate species, while contamination of the genetic integrity of species and an increase in predator-prey interaction are considered lesser impacts. These impacts can be reduced by certain mitigation measures, such as preserving the natural vegetation, especially protected tree species, as far as possible, as well as Government regulated control of development and the creation of green belts and undisturbed areas within the area of development. A proper awareness campaign to promote the advantages of cat sterilization and the containment of dogs within the property perimeter can also be considered mitigation measures.

None of the encountered vertebrate species at the site is unique to the Northern Cape Province and residential housing development at the Northgate site should not impact negatively on the ultimate survival or dynamics of the encountered taxa. The impact of the housing development on the local Kamfersdam flamingo population can pose a problem, but this aspect was addressed by a flamingo expert.

DEFINITION OF TECHNICAL TERMS

- ✍ **EIA** – Environmental Impact Assessment
- ✍ **RDB** – Red Data Book.

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