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Avifaunal Habitat Scan

of

KUTALO ROBERT STRACHAN STATION, SOUTH GERMISTON X 25 ON PORTION 103 OF THE FARM DRIEFONTEIN 87 IR

March 2017

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DECLARATION OF INDEPENDENCE:

I, Rihann Frans Geyser (690304 5248 084), declare that I:

- am committed to biodiversity conservation but concomitantly recognize the need for economic development. Whereas I appreciate the opportunity to also learn through the processes of constructive criticism and debate, I reserve the right to form and hold my own opinions and therefore will not willingly submit to the interests of other parties or change my statements to appease them
- act as an independent specialist consultant in the field of ornithology
- am subcontracted as specialist consultant by Galago Environmental CC for the proposed housing development for Kutalo Robert Strachan Station, South Germiston Ext. 25 on Portion 103 of the farm Driefontein 87 IR development described in this report
- have no financial interest in the proposed development other than remuneration for work performed
- neither have nor will have any vested or conflicting interests in the proposed development
- undertake to disclose to Galago Environmental CC and its client, and the competent authority, any material information that has or may have the potential to influence decisions by the competent authority as required in terms of the Environmental Impact Assessment Regulations, 2014.

Rihann F. Geyser

VERIFICATION STATEMENT

Mr Rihann F. Geyser is not registered as a Professional Natural Scientist with the S.A. Council for Natural Scientific Professions. This communication serves to verify that the avifaunal report compiled by Mr Rihann F. Geyser has been prepared under my supervision, and I have verified the contents thereof.

Declaration of Independence: I, Alan Charles Kemp (4405075033081), declare that I:

- am committed to biodiversity conservation but concomitantly recognize the need for economic development. Whereas I appreciate the opportunity to also learn through the processes of constructive criticism and debate, I reserve the right to form and hold my own opinions and therefore will not willingly submit to the interests of other parties or change my statements to appease them
- abide by the Code of Ethics of the S.A. Council for Natural Scientific Professions
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Dr. A.C. Kemp

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1. INTRODUCTION

Galago Environmental CC. was appointed to undertake an avifaunal habitat scan for the proposed housing development of Kutalo Robert Strachan Station, South Germiston X 25 on Portion 103 of the farm Driefontein 87 IR (hereinafter referred to as the study site). This is in accordance with the 2014 EIA Regulations emanating from Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998). The study site and the 500 m extended study area (e.s.a.) are hereafter referred to as the study area.

The primary objective was to determine the presence of Red Data avifaunal species and to identify suitable habitat for these species. Direct observations and published data apart, qualitative and quantitative habitat assessments were used to derive the presence /-absence of Red Data avifaunal species. A list of avifaunal species likely to be affected by the new development is compiled.

2. SCOPE AND OBJECTIVES OF THE STUDY

- To qualitatively and quantitatively assess the significance of the avifaunal habitat components, and current general conservation status of the property;
- To comment on ecologically sensitive areas;
- To comment on connectivity with natural vegetation and habitats on adjacent sites;
- To highlight potential impacts of the proposed development on the avifauna of the study site, and
- To provide management recommendations to mitigate negative and enhance positive impacts should the proposed development be approved.

3. STUDY AREA

3.1 Locality

The study site, ±4.7690 ha in extent, is situated at the Kutalo Station, Germiston South within the Gauteng province (Figure 1). Spatially the study site is defined by GPS coordinates 26º13’4.9545” S 28º11’27.7705” E measured in the centre of the study site.

Furthermore the study area is situated within the 2628AA (Johannesburg) quarter degree grid cell (q.d.g.c.) and more specifically within the 2610_2810 pentad (SABAP2 protocol. The study site is situated at an altitude of between 1 630 and 1 645 metres above sea level (m a.s.l.).

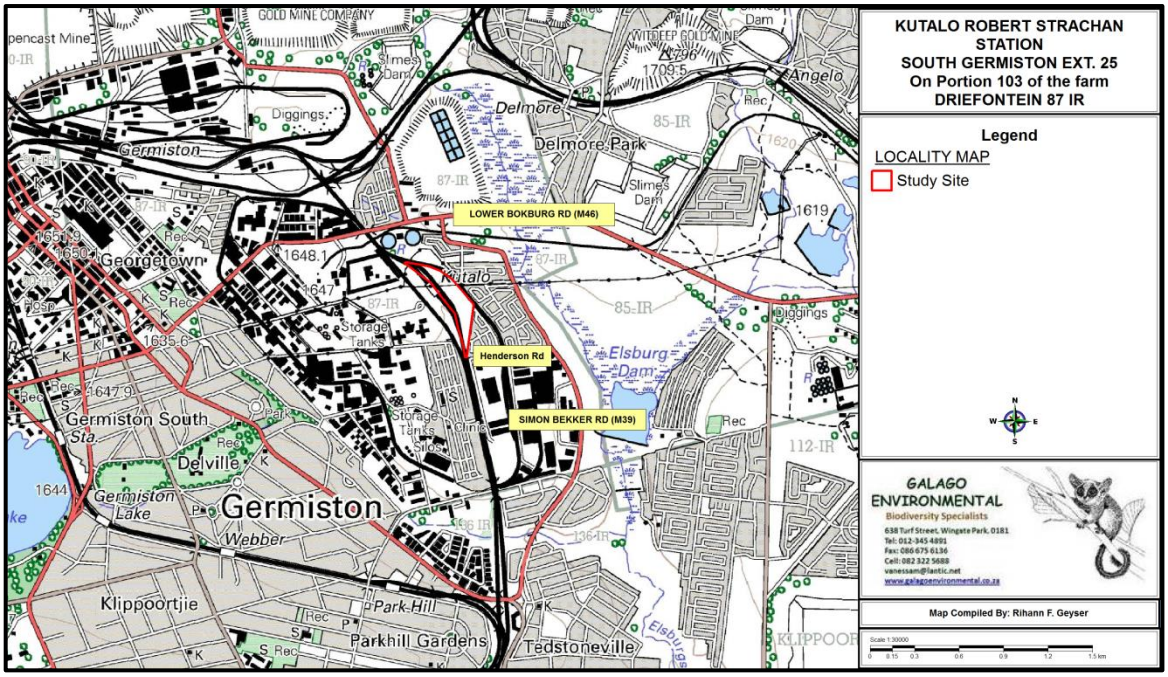

Figure 1: Locality map of the study area

3.2 Land Use

The study site is vacant and being used as a dumping area and for recreational sports activities such as rural soccer fields and is largely disturbed and overgrown by weeds and alien vegetation.

3.3 Biophysical Information

*3.3.1 **Vegetation type and landscape***

The study site is situated within the Mesic Highveld Grassland Bioregion of the Grassland Biome, more specifically within the Soweto Highveld Grassland (Gm 10) vegetation type according to Mucina and Rutherford (2006). There are none of the natural Soweto Highveld Grassland left on the study site.

In natural conditions the landscape consists of gentle to moderately undulating plains on the Highveld plateau supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus, Eragrostis racemosa, Heteropogon contortus* and *Tristachya leucothix*. In places where the natural vegetation is not disturbed only scattered small wetlands, narrow steams alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover (Mucina and Rutherford, 2006).

*3.3.2 **Climate***

The study site is situated in a summer-rainfall region with an average annual rainfall of 662 mm with cool-temperate climate and continentality (high extremes between maximum summer and minimum winter temperatures, frequent occurrence of frost, large diurnal thermic difference, especially in autumn and spring) (Mucina and Rutherford, 2006).

3.3.4 ***Conservation status of habitat***

This habitat type is considered endangered. Only a handful of patches are statutorily conserved or privately conserved. Almost half of the area has already been transformed by cultivation, urban sprawl, mining and building of road infrastructure. Some areas have been flooded by dams. Erosion is generally very low (Mucina and Rutherford, 2006).

4. METHODS

An two hour site visit was conducted on 14 March 2017 to identify possible sensitive avifaunal habitat systems. During this visit the observed and derived presence of Red Data avifaunal species associated with the recognized habitat types of the study site, were recorded. This was done with due regard to the well recorded global distributions of Southern African Red Data avifauna, coupled to the qualitative and quantitative nature of recognized habitats.

4.1 Field Surveys

Avifaunal species were identified visually, using 10X42 Bushnell Legend binoculars and a 20X-60X Pentax spotting scope, and by call, and where necessary were verified from Sasol Birds of Southern Africa (Sinclair *et al*., 2011) and Southern African Bird Sounds (Gibbon, 1991).

The 500 m of adjoining properties or extended study area was scanned or surveyed for important avifaunal species and habitats.

During the site visit, avifaunal species were identified by visual sightings or aural records along random transect walks. No trapping or mist netting was conducted, since the terms of reference did not require such intensive work. In addition, avifaunal species were also identified by means of feathers, nests, signs, droppings, burrows or roosting sites. Locals were interviewed to confirm occurrences or absences of species.

4.2 Desktop Surveys

The presence of suitable habitats was used to deduce the likelihood of presence or absence of avifaunal species, based on authoritative tomes, scientific literature, field guides, atlases and databases. This can be done irrespective of season.

The likely occurrence of key Red Data avifaunal species was verified according to distribution records obtained during the Southern African Bird Atlas Project 1 (SABAP1) period from 1981 to 1993 (Harrison *et al.* 1997) and the most recent avifaunal distribution data were obtained from the current SABAP2 project which commenced on 1 July 2007.

The occurrence and historic distribution of all Red Data avifaunal species recorded for the q.d.g.c. 2628AA, were verified from SABAP1 (southern Africa Bird Atlas Project 1) data (Harrison *et al.* 1997) and the current SABAP2 project (SABAP2 data for the 22628AA q.d.g.c. and for the 2610_2810 pentad) (sabap2.adu.org.za). The reporting rate for Red Data avifaunal species likely to occur on the study site, based on Harrison *et al*. (1997), was scored between 0 – 100% and was calculated as follows: Total number of cards on which a species was reported during the Southern African Bird Atlas SABAP1 and, Red Data species only, the current SABAP2 project period X 100 ÷ total number of cards for the particular q.d.g.c. (Harrison *et al*., 1997) and pentad(s) (SABAP2). It is important to note that a q.d.g.c. (SABAP1 Protocol) covers a large area:

for example, q.d.g.c. 2628AA covers an area of ±27 X 25 km (±693 km²) (15 minutes of latitude by 15 minutes of longitude, 15' x 15') and a pentad (SABAP2 Protocol) and area of ±8 X 7.6 km (5 minutes of latitude by 5 minutes of longitude, 5' x 5') and it is possible that suitable habitat will exist for a certain Red Data avifaunal species within this wider area surrounding the study site. However, the specific habitat(s) found on site may not suit the particular Red Data species, even though it has been recorded for the q.d.g.c. or pentad. For example, the Cape Vulture occurs along the Magaliesberg but will not favour the habitat found within the Pretoria CBD, both of which are in the same q.d.g.c. Red Data bird species were selected and categorised according to Barnes (2000) and Taylor *et al.* (2015).

4.3 Specific Requirements

During the site visit, the study site was surveyed visually and its habitats assessed for the potential occurrence of priority Red Data avifauna, according to GDARD's requirements for Biodiversity Assessments, Version 3 (March 2014) and C-Plan Version 3.3 (2011), as well as for any other Red Data avifaunal species: The priority Red Data avifaunal species for Gauteng are (in Roberts VII order and nomenclature, Hockey *et al*. 2005):

- Half-collared Kingfisher (*Alcedo semitorquata*)
- African Grass Owl (*Tyto capensis*)
- White-bellied Korhaan (*Eupodotis senegalensis*)
- Blue Crane (*Anthropoides paradiseus*)
- African Finfoot (*Podica senegalensis*)
- Cape Vulture (*Gyps coprotheres*)
- African Marsh Harrier (*Circus ranivorus*)
- Martial Eagle (*Polemaetus bellicosus*)
- Secretarybird (*Sagittarius serpentarius*)
- Lesser Kestrel (*Falco naumanni*)
- Greater Flamingo (*Phoenicopterus roseus*)
- Lesser Flamingo (*Phoenicopterus minor*)
- White-backed Night Heron (*Gorsachius leuconotus*)
- Black Stork (*Ciconia nigra*)

No particular reference was made to the occurrence of any Red Data avifaunal species on or surrounding the study site according to GDARD's biodiversity requirements.

5. RESULTS

5.1 Avifaunal Habitat Assessment

Three major avifaunal habitat systems were identified within the study area. These habitat systems are as follow (Figure 2):

- Disturbed open space areas
- Disturbed and Transformed Area
- Wetland Area

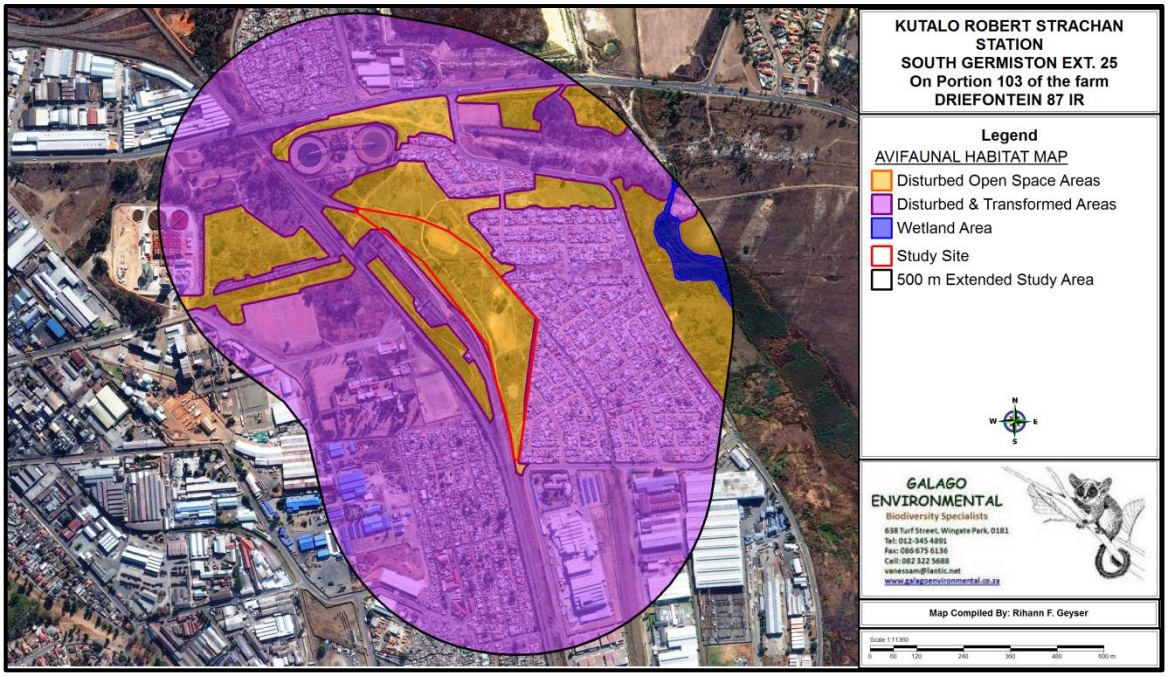

Figure 2: **Avifaunal species habitat systems identified on the study site and within the study area.**

Open disturbed open space area:

The entire area within the boundaries of the study site consists of open areas that are highly disturbed and that has been transformed by past and present human activities. There is no remaining natural vegetation and the site is largely overgrown by weeds and alien vegetation Figure 3).

Figure 3: Disturbed open area overgrown by weeds and alien vegetation

Only the more common avifaunal species that are able to adapt to areas changed by man will make use of this habitat system. None of these species that occur within these habitat systems are threatened.

Disturbed and Transformed Areas:
The rest of the study area is disturbed and has been transformed by past and present human activities. These areas include roads, housing and industrial development and cleared areas.

As with the above mentioned habitat system only the more common avifaunal species that are able to adapt to areas changed by man will make use of this habitat system. None of the species that occur within these habitat systems are threatened.

Wetland Area
The wetland area is situated on the eastern border of the study area. This wetland area is mainly disturbed, flanked with disturbed areas overgrown by weeds and alien vegetation. Human presence around the wetland is high and the wetland does not offer suitable habitat for Red Data avifaunal species. There are also no connectivity between the study site and the wetland area and any development on the study site will not have a negative effect on the wetland area. Only the more common avifaunal species associated with aquatic and semi-aquatic vegetation are likely to make use of this habitat system.

5.2 Threatened and Red Listed Bird Species

The following Red Data avifaunal species were recorded for the 2628AA q.d.g.c. according to the SABAP1 data (Harrison *et al.* 1997) and the SABAP2 data for the 2628AA q.d.g.c. and more specifically the 2610_2810 pentad in which the study area is situated (sabap2.adu.org.za March 2017) (Table 1).

Table 1: Red Data avifaunal species recorded for the 2628AA q.d.g.c.

SCIENTIFIC NAMES	COMMON NAMES*	Reporting Rate (%)**		
		SABAP1	SABAP2	Pentad
Oxyura maccoa	Maccoa Duck (**LC/NT**)	**2**	**<1**	**2(n=1)**
Coracias garrulus	European Roller (**LC/NT**)	**<1**	**<1**	0
Alcedo semitorquata	Half-collared Kingfisher (**NT/NT**)	**<1**	**<1**	0
Tyto capensis	African Grass Owl (**VU/VU**)	**1**	**<1**	0
Eupodotis senegalensis	White-bellied Korhaan (**VU/VU**)	**2**	**0**	0
Anthropoides paradiseus	Blue Crane (**VU/NT**)	**1**	**<1**	0
Crex crex	Corn Crake (**VU/LC**)	**<1**	**0**	0
Rostratula benghalensis	Greater Painted-snipe (**NT/VU**)	**<1**	**0**	0
Glareola nordmanni	Black-winged Pratincole (**NT/NT**)	**<1**	**0**	0
Gyps coprotheres	Cape Vulture (**VU/EN**)	**<1**	**<1**	0
Circus ranivorus	African Marsh Harrier (**VU/EN**)	**<1**	**<1**	0
Aquila verreauxii	Verreauxs' Eagle (**LC/VU**)	**<1**	**<1**	0
Aquila ayresii	Ayres's Hawk-Eagle (**NT/LC**)	**<1**	**0**	0
Polemaetus bellicosus	Martial Eagle (**VU/EN**)	**<1**	**<1**	0
Sagittarius serpentarius	Secretarybird (**NT/VU**)	**1**	**<1**	0
Falco naumanni	Lesser Kestrel (**VU/LC**)	**<1**	**<1**	0
Falco biarmicus	Lanner Falcon (**NT/VU**)	**1**	**<1**	0
Falco peregrinus	Peregrine Falcon (**NT**)	0	**1**	0
Phoenicopterus ruber	Greater Flamingo (**NT/NT**)	**1**	**2**	**36(n=24)**
Phoenicopterus minor	Lesser Flamingo (**NT/NT**)	**<1**	**1**	0

SCIENTIFIC NAMES	COMMON NAMES*	Reporting Rate (%)**		
		SABAP1	SABAP2	Pentad
Mycteria ibis	Yellow-billed Stork (**NT/EN**)	**<1**	**<1**	0
Ciconia nigra	Black Stork (**NT/VU**)	**<1**	**<1**	0
Ciconia abdimii	Abdim's Stork (**LC/NT**)	**1**	**<1**	0
Ephippiorhynchus senegalensis	Saddle-billed Stork (**EN/EN**)	**<1**	**0**	0
Leptoptilos crumeniferus	Marabou Stork (**NT/NT**)	**<1**	**<1**	0
Mirafra cheniana	Melodious Lark (**NT/LC**)	**<1**	**0**	0
	TOTAL SPECIES:	**25**	**19**	**2**

*Red data status according to Barnes (2000)/Red Data status according to Taylor *et al* (2015)
Latest bird names according to BirdLife South Africa Checklist of Birds in South Africa (2016)
**The reporting rate of SABAP1 and SABAP2 is calculated as follows: Total number of cards on which a species was reported X 100 ÷ total number of cards for a particular quarter degree grid cell.
The reporting rate for each species is the percentage for the q.d.g.c. according to the SABAP 1 (Harrison *et al.* 1997) and the current SABAP 2. The colour codes of the SABAP2 reporting rate indicate the following; Red = decrease in reporting rate, Green = increase in reporting rate and Blue= stable reporting rate compared to the SABAP1 data.
Red Data avifaunal species categories: EX= Extinct (regionally), **CR** = Critically Endangered **EN** = Endangered, **VU** = Vulnerable, **NT** = Near-threatened, **LC** = Least Concern, **DD** = Data Deficient, **NR** = Not Recognised by BirdLife International, **NA** = Not Assessed (Taylor *et al* 2015).

A total of 26 Red Data avifaunal species have been recorded within the 2628AA q.d.g.c. during the SABAP1 period (Harrison *et al*. 1997) and the current SABAP2 period, 25 during the SABAP1 period , 19 during the current SABAP2 period and 2 for the pentad (SABAP2) in which the study area is situated (sabap2.adu.org.za March 2017)(Table 2).

A total of 50% (n=13) of the Red Data Species recorded for the 2628AA q.d.g.c. indicate a decrease in reporting rate, 13% (n=3) an increase in reporting rate and 38% (n=10) remains stable.

6. FINDINGS AND POTENTIAL IMPLICATIONS

The entire study site is highly disturbed and has been transformed by past and present human activities and does not offer suitable habitat for any of the Red Data avifaunal species recorded for the 2628AA q.d.g.c.

7. LIMITATIONS, ASSUMPTIONS AND GAPS IN KNOWLEDGE

The Galago Environmental team has appropriate training and registration, as well as extensive practical experience and access to wide-ranging data bases to consider the derived species lists with high limits of accuracy. In this instance the biodiversity of all Alignments has to a greater or lesser extent been jeopardized, which renders the need for field surveys unnecessary. In instances where uncertainty exists regarding the presence of a species it is listed as a potential occupant, which renders the suggested mitigation measures and conclusions more robust.

Even though every care is taken to ensure the accuracy of this report, environmental assessment studies are limited in scope, time and budget. Discussions and proposed mitigations are to some extent made on reasonable and informed assumptions built on *bone fide* information sources, as well as deductive reasoning. Deriving a 100% factual report based on field collecting and observations can only be done over several years and seasons to account for fluctuating environmental conditions and migrations. Since environmental impact studies deal with dynamic natural systems additional information may come to light at a later stage. Galago Environmental can thus not accept responsibility for conclusions and mitigation measures made in good faith based on own

databases or on the information provided at the time of the directive. This report should therefore be viewed and acted upon with these limitations in mind.

The site surveys was done during several hours in one day and not on a regular basis during several season over a period of time thus the avifaunal biodiversity could change slightly as more species are confirmed from the various habitat system within the study area. The time of the day and weather condition also as has an effect on the number of species recorded in the study area during the site visit. The general assessment of species rests mainly on the 1997 SABAP1 atlas data (Harrison et al. 1997) and the current data for the SABAP2 period for comparison, so any limitations in either of those studies will by implication also affect this survey and conclusions.

Furthermore the number of atlas cards received and the diversity of habitat systems surveyed for avifaunal species within a q.d.g.c. or pentad or lack thereof could also have an effect on the Red Data avifaunal diversity that could potentially occur on the study site.

8. RECOMMENDED MITIGATION MEASURES

The following mitigation measures are proposed by the specialist:

- Where possible, **work should be restricted to one area at a time**, as this will give the smaller birds, mammals and reptiles a chance to weather the disturbance in an undisturbed zone close to their natural territories.
- The contractor must ensure that no fauna is disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.
- Alien and invasive plants must be removed.

9. CONCLUSIONS

The study area does not offer suitable habitat for the Red Data avifaunal species recorded for the 2628AA q.b.g.c. These Red Data avifaunal species are habitat specific and unable to adapt to areas changed by man. In general the reporting rate of all Red Data avifaunal species recorded for the q.d.g.c. is very low at 1% and less and they are unlikely to make use of the habitat systems in the study area. The entire study site and study area can be regarded as low sensitive (Figure 4) and a full avifaunal survey is not deemed necessary.

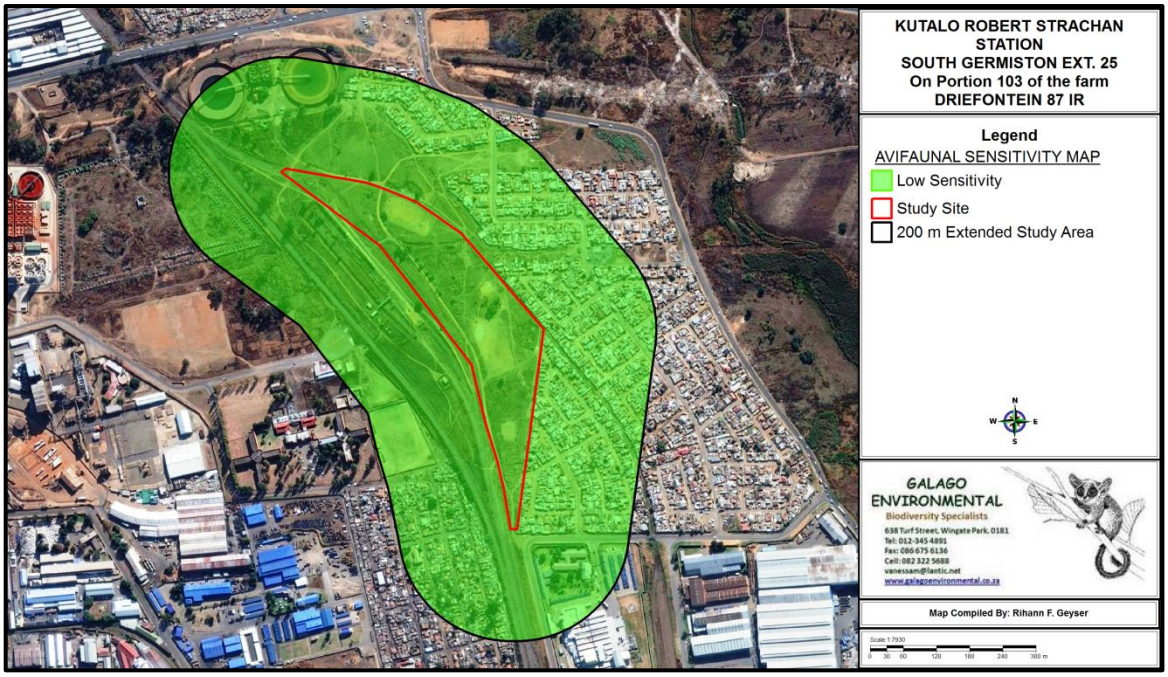

Figure 4: Avifaunal sensitivity map

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