A rapid assessment of the Habitat, Biodiversity and Wetlands

Gilead Substation – diversion power line

Myezo EMS

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EXECUTIVE SUMMARY

BioAssets CC was appointed by Myezo Environmental Management Services (Pty) Ltd to do a rapid assessment of the Habitat, Biodiversity and Wetlands referred to as the "Gilead Substation diversion power line Assessment".

The objectives were:
BioAssets CC was appointed by Myezo Environmental Management Services (Pty) Ltd to do a general habitat, biodiversity and wetland desktop assessment and rapid field survey in order to determine the legal obligations for an application for an Environmental Authorisation for the proposed power line construction. The need is to replace the link of the existing Chloe/Gilead power line to the Gilead substation. A new link from the west of the substation will link to the existing power line (Figure 2).

The survey was done to confirm the presence of the wetlands and other related biological and habitat elements for the study area and included:

- Confirmation of the information provided in the Department of Environmental Affairs screening tool pertaining to the conservation status and vegetation types using the desktop maps for illustration of information and a site survey

- Confirmation of information pertaining to whether the study falls under any of these areas and using such reference material which provides such confirmation that such as South African National Biodiversity Institute National Biodiversity Assessment 2011 (NBA 2011):
  - A protected area identified in terms of NEMPAA, excluding conservancies
  - National Protected Area Expansion Strategy Focus areas
  - Sensitive areas as identified in an Environmental Management Framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority
  - Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans
  - Core areas in biosphere reserves
  - Areas within 10 kilometres from National Parks or World Heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a Biosphere Reserve
  - The presence or absence of any "Critical Biodiversity Areas and Ecological Support Areas"

Recommendations

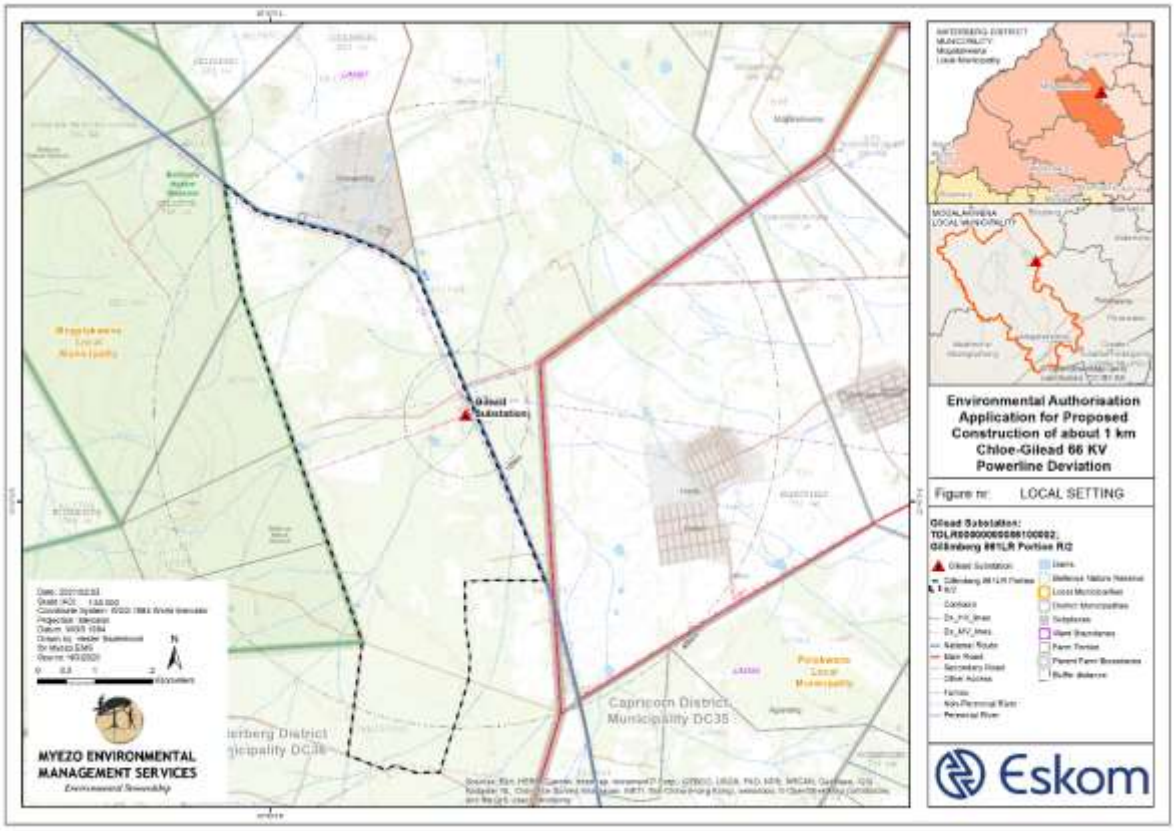
- The **wetland** (ephemeral drainage line) identified is in a modified condition – roads, grazing, wood harvesting and construction had some impacts on the system.

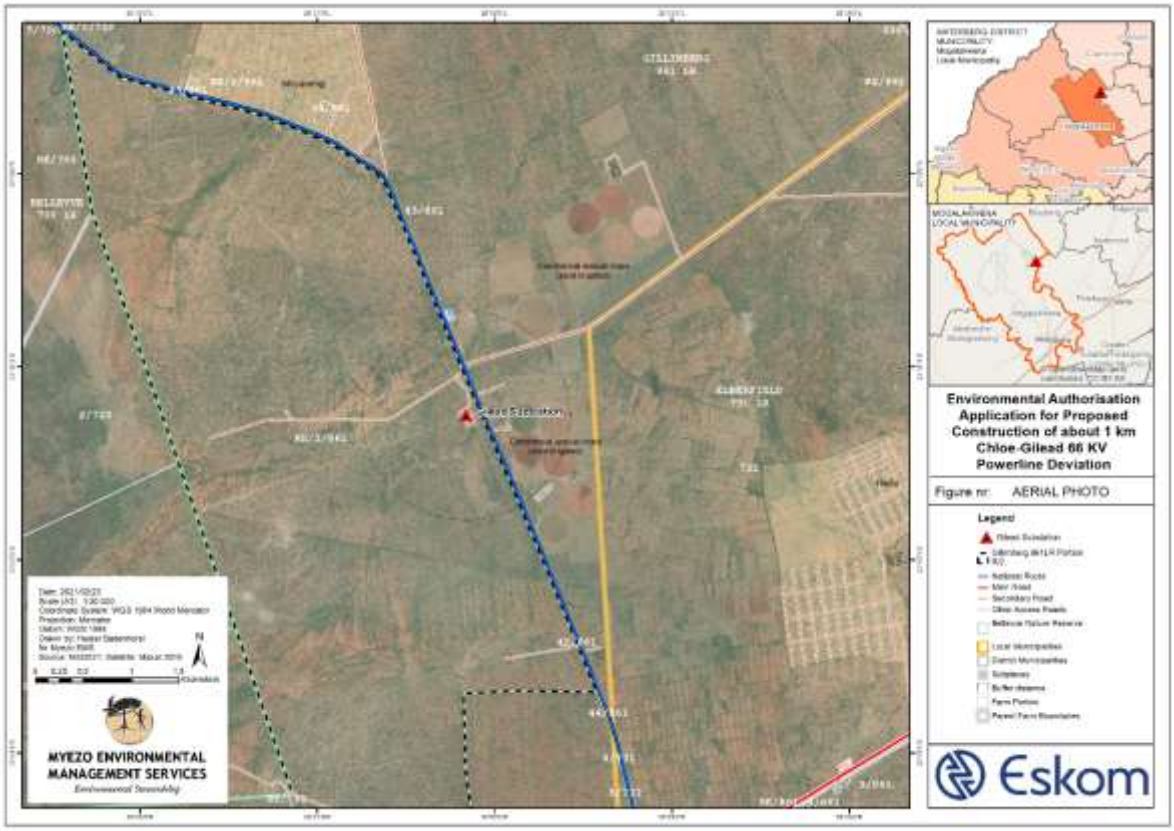
- No further detailed **mammal, herpetological and amphibian studies** are needed – no red data species present and the *Pyxicephalus edulis* will not be affected by the new proposed power line.

- The **vegetation** will not be negatively impacted, as the current vegetation along the proposed corridor is modified – mostly *Dichrostachys cinerea* in a dense stand, indicating some encroachment.

- It is recommended that the client must have **alien vegetation** management as part of the management strategy.

- With regards to the **avifauna**, the study area consists of two (2) habitat types observed during the site survey: 1) the larger area associated with the existing development (substation) and 2) the associated infrastructure (powerlines).
    - During the site survey one (1) threatened bird species was observed (*Torgos tracheliotus*).
    - Some other threatened species that were not observed during the site survey and has a high likeliness of occurring in and surrounding the study area, especially for foraging purposes are species including but are not limited to *Falco biarmicus* and *Coracias garrulus*.
    - Although the one (1) threatened species was observed during the site survey and with other threatened species with a high possibility of occurring in the area, this proposed project will not have a significant impact on the avifaunal species, as the alignment of the proposed project powerline will run parallel with existing infrastructure (powerlines).
    - It is however recommended that minimum impact to the bushveld vegetation during clearing must be affected. It is thus proposed that the clearance area be minimized to limit impacts.


Gilead Substation
Capricorn District Municipality DC35
MYEZO ENVIRONMENTAL MANAGEMENT SERVICES
Environmental Stewardship
Environmental Authorisation Application for Proposed Construction of about 1 km Chloe-Gilead 66 KV Powerline Deviation
Figure nr: LOCAL SETTING
Gilead Substation:
TDLR00000000000100002;
Gilsenberg 881LR Portion R/2
Eskom


Gilead Substation
MYEZO ENVIRONMENTAL MANAGEMENT SERVICES
Environmental Stewardship
Environmental Authorisation Application for Proposed Construction of about 1 km Chloe-Gilead 66 KV Powerline Deviation
Figure nr: AERIAL PHOTO
Legend
Eskom

Declaration of Independence

The Environmental Impact Assessment Regulations (Regulation 17 of Government Notice No R354 of 2010), requires that certain information is included in specialist reports. The terms of reference, purpose of the report, methodologies, assumptions and limitations, impact assessment and mitigation (where relevant to the scope of work) and summaries of consultations (where applicable) are included within the main report. Other relevant information is set out below:

Expertise of author:

- Working in the field of ecology since 1996 and in specific vegetation related assessments since 2000.
- Worked in the field of freshwater ecology and wetlands since 2000.
- Involved with visual assessments since 2009.
- Is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (Reg. No. 400109/95).

Declaration of independence:

BioAssets in an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by BioAssets is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

BioAssets undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to BioAssets by the client, and in addition to information obtained during the course of this study, BioAssets present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.

_____ 17 May 2022

Dr Wynand Vlok Date

Assumptions and limitations

Availability of baseline information

Baseline information for the study of the site was obtained from historic maps, photographs and reports. The desktop survey provided adequate baseline information for the area and therefore this was not a constraint.

Constraints

The survey was conducted during the early summer season and is was a daytime survey only. Most of the different habitats at the site were investigated and it was therefore possible to complete a rapid survey and obtain information on the habitats that are present and the site, or that are likely to occur there. Access to portions of the nature reserve were not possible.

Bio-physical constraints

Weather conditions during the period were warm with a moderate wind blowing. The region has received little rainfall prior to the site visit and the vegetation was still dry (representing the late winter conditions). There was no standing water in the veld during the time of the survey, but the wetlands (seeps, channels and the Wilge River) had water. This will have obvious implications on the biodiversity that are likely to occur in the area. The late winter/early spring survey is not ideal for a more detailed biodiversity survey, but it gave a good indication of the current habitat changes and impacts. Information gathered during the field survey will assist in the rapid survey for the clients need related to the feasibility assessment with regards to the prospecting application and possible future exploration at the site.

Confidentially constraints

There were no confidentially constraints.

Implications for the study

Apart from the prevailing weather conditions at the site and the winter/early spring (limited rainfall) conditions, there were no other significant constraints that would negatively impact upon the assessment for the client (feasibility study to conduct prospecting on site). Access to most areas of the study site was possible, but if the client decides to continue, a detailed biodiversity study and wetland assessment and delineation must be done. There is sufficient good quality data available in the literature that partially negates the negative effect that the type of survey (prospecting feasibility assessment) had on the quality of the evaluation.

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1 INTRODUCTION

The client expressed the need for an assessment on the farm Gilead 729 LR (Figure 1) with regard to the vegetation, general faunal, avifaunal, wetland and general habitat on the site (Figure 2). This was done after the evaluation of the screening tool outputs (DEA), bioregional plans and critical biodiversity areas assessments and the desktop assessment was followed by the site survey on 12 February 2021.

1.1 Terms of Reference

BioAssets CC was appointed by Myezo Environmental Management Services (Pty) Ltd to do a general habitat, biodiversity and wetland desktop assessment and rapid field survey in order to determine the legal obligations for an application for an Environmental Authorisation for the proposed power line construction. The need is to replace the link of the existing Chloe/Gilead power line to the Gilead substation. A new link from the west of the substation will link to the existing power line (Figure 2).

The survey was done to confirm the presence of the wetlands and other related biological and habitat elements for the study area and included:

- Confirmation of the information provided in the Department of Environmental Affairs screening tool pertaining to the conservation status and vegetation types using the desktop maps for illustration of information and a site survey
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    - Areas within 10 kilometres from National Parks or World Heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a Biosphere Reserve
    - The presence or absence of any “Critical Biodiversity Areas and Ecological Support Areas”

1.2 Objectives of the Survey

The objectives were:

- To do a rapid desktop assessment to determine the relevant information contained in reports and related documents for the project area
- To do a rapid survey to determine the presence and extent of wetlands that will be affected by the proposed activity

- To assess the current state of the habitat on the property (farm Gilead 729 LR)
- To determine the current impacts on the vegetation on the property
- To do a avifaunal survey to determine the potential impacts of the deviation power line on the bird community
- To look for any other important biological component that can be affected by the development

1.3 The Study Area

The locality map for the study area is depicted in Figure 1 and 2, approximately 60km northwest of Mokopane in the Mogalakwena Municipal area, Limpopo Province.

Figure 1: Map of the study area – north of Mokopane in the Limpopo Province.

Figure 2: Aerial view of the study area the blue line represent the existing Cloe-Gilead power line with the red line the proposed diversion.

2 METHODOLOGY

2.1 Wetland Assessment

2.1.1 Desktop Assessment

A preliminary assessment was conducted to determine the presence of any wetlands of concern associated with the proposed deviation of the power line corridor. From the maps and other records, it was noted that an ephemeral drainage line is associated with the area to the northeast of the Gilead substation (Figure 1).

2.1.2 Field Investigation

The field investigation was undertaken on 15 February 2021 to assess and corroborate the delineated Wetland Zones present on the survey area.

The field procedure for the wetland delineation was mainly based on visual observations as access current state of the drainage line. As this was identified as an unchannelled valley bottom the assessment was done using "A practical field procedure for identification and delineation of wetlands and riparian areas (DWAF, 2005).

The riparian area is identified (where applicable) using the following indicators:

- the topography associated with the watercourse;
- vegetation; and
- alluvial soils and deposited material.

The following procedure was followed during the delineation of the drainage line:

- a desktop delineation was undertaken using 1:50 000 maps and satellite imagery of the study site;
- some areas for verification were identified; and
- once on site, the identified areas were visited.

2.1.3 Mapping

In addition to the information on the maps and aerial image, the outline and extent of the drainage line was confirmed.

2.1.4 Wetland Classification

SANBI's "Further development of a proposed National Classification System for South Africa" will be used to verify the classification of the wetlands within the study area (SANBI, 2009 – Table 1). The wetlands are classified up to level four, which includes the system, regional setting, landscape unit and hydrogeomorphic unit.

In addition the NFEPA classification indicate the area around to be listed as a Phase 2 FEPA (Figure 3). It is important to note that river FEPAs currently in an A or B ecological category may still require some rehabilitation effort, e.g. clearing of invasive alien plants and/or rehabilitation of river banks. From a biodiversity point of view, rehabilitation programmes should therefore focus on securing the

ecological structure and functioning of FEPAs before embarking on rehabilitation programmes in Phase 2 FEPAs or other areas. Phase 2 FEPAs were identified in moderately modified rivers (C ecological category), only in cases where it was not possible to meet biodiversity targets for river ecosystems in rivers that were still in good condition (A or B ecological category). River condition of these Phase 2 FEPAs should not be degraded further, as they may in future be considered for rehabilitation once FEPAs in good condition (A or B ecological category) are considered fully rehabilitated and well managed. Phase 2 FEPAs and their associated sub-quaternary catchments are shown in dark green with white dots (Nel et al, 2011).

The area associated with the substation falls into the Limpopo River Water Management area and the streams from the site drains into the Matlala River to the north. This river is a tributary of the Mogalakwena River (Sub Water Management Area) that is an important tributary of the Limpopo River.

Table 1: Wetland classification level 1 – 4 (SANBI, 2009).

Level 1: System	Level 2: Regional setting	Level 3: Landscape unit	Level 4: Hydrogeomorphic (HGM) unit			
Connectivity to open ocean	Ecoregion	Landscape setting	HGM type	Longitudinal zonation / landform	Drainage - outflow	Drainage - inflow
			A	B	C	D
INLAND	DWAF Level 1 Ecoregions	SLOPE	Channel (river)	Mountain headwater stream	Not applicable	Not applicable
				Mountain stream	Not applicable	Not applicable
				Transitional river	Not applicable	Not applicable
				Rejuvenated bedrock fall	Not applicable	Not applicable
			Hillslope seep	Not applicable	With channel inflow	Not applicable
					Without channel inflow	Not applicable
			Depression	Not applicable	Exorheic	With channel inflow
						Without channel inflow
					Endorheic	With channel inflow
						Without channel inflow
					dammed	With channel inflow
						Without channel inflow
		VALLEY FLOOR	Channel (river)	Mountain stream	Not applicable	Not applicable
				Transitional river	Not applicable	Not applicable
				Rejuvenated bedrock fall	Not applicable	Not applicable
				Upper foothill river	Not applicable	Not applicable
				Lower foothill river	Not applicable	Not applicable
				Lowland river	Not applicable	Not applicable
				Rejuvenated foothill river	Not applicable	Not applicable
				Upland floodplain river	Not applicable	Not applicable

Level 1: System	Level 2: Regional setting	Level 3: Landscape unit	Level 4: Hydrogeomorphic (HGM) unit			
			Channelled valley-bottom wetland	Valley-bottom depression	Not applicable	Not applicable
				Valley-bottom flat	Not applicable	Not applicable
			Unchannelled valley-bottom wetland	Valley-bottom depression	Not applicable	Not applicable
				Valley-bottom flat	Not applicable	Not applicable
			Floodplain wetland	Floodplain depression	Not applicable	Not applicable
				Floodplain flat	Not applicable	Not applicable
			Depression	Not applicable	Exorheic	With channel inflow
						Without channel inflow
					Endorheic	With channel inflow
						Without channel inflow
					dammed	With channel inflow
						Without channel inflow
			Valleyhead seep	Not applicable	Not applicable	Not applicable
		PLAIN	Channel (river)	Lowland river	Not applicable	Not applicable
				Upland floodplain river	Not applicable	Not applicable
			Floodplain wetland	Floodplain depression	Not applicable	Not applicable
				Floodplain flat	Not applicable	Not applicable
			Unchannelled valley-bottom wetland	Valley-bottom depression	Not applicable	Not applicable
				Valley-bottom flat	Not applicable	Not applicable
			Depression	Not applicable	Exorheic	With channel inflow
						Without channel inflow
					Endorheic	With channel inflow
						Without channel inflow
			Flat	Not applicable	Not applicable	Not applicable
		BENCH (Hilltop/saddle/ shelf)	Depression	Not applicable	Exorheic	With channel inflow
						Without channel inflow
					Endorheic	With channel inflow
						Without channel inflow
			Flat	Not applicable	Not applicable	Not applicable

2.2 Biodiversity and associated Habitat Assessment

2.2.1 Desktop Assessment

For this assessment to determine the impact of the proposed deviation power line to the east and south of the Gilead substation (Figure 2) a general literature survey was conducted with regards to

the mammals, amphibians, reptiles and birds associated with the area (quarter degree square – 2328DB). No red data mammals, reptiles or amphibians are listed but a number of red data bird species are present and most are associated with the bushveld habitats.

The area surrounding the Gilead substation is listed as a biodiversity important area in the Limpopo Conservation Plan documents, with sections of the farm Gilead 729 LR included as an "Ecological Support (ESA)" (Figure 4). The vegetation unit for the area (Figure 5) indicate that it is referred to as the Makhado Sweet Bushveld (SVcb 20) (Mucina and Rutherford, 2006). This vegetation unit is associated with "lightly to moderately undulating plains sloping generally down to the north, with some hills in the southwest where the short and shrubby bushveld has a poorly developed grass layer. The plains are associated with an area south of the Soutpansberg, east of the Waterberg and on the apron surrounding the Blouberg and Lerataupje Mountains and north of the Polokwane Plateau and west of the escarpment, with extensions from Mokopane to the south and to the north near Vivo (altitude varies between 850 and 1 200 m). It is mentioned that this area is transitional between the higher-lying Polokwane Plateau and the lower-lying vegetation units of the Limpopo River Valley and is regarded as "Vulnarable" (Mucina and Rutherford, 2006).

The "NBB-DEFF Screening Report" was assessed as part of the background information available and actions that must be taken for the comprehensive studies. With regards to the "Terrestrial Biodiversity" the area is rated as of "High Sensitivity" importance.

2.2.2 Expected biota

Below are the only listed information regarding the biota associated with the area (FitzPatrick Institute of African Ornithology, 2021). It reflects the lists of expected frogs and reptiles in the quarter degree segment associated with the study site (2328DB).

2.2.3 Assumptions, gaps and limitations

The study was limited to a snapshot view during one site visit. The field investigation was undertaken on 15 February 2021 to assess and confirm the presence of any wetlands on site and to assess the possible impact of the proposed deviation of the power line on the habitat and the associated biota.

A rapid habitat assessment was conducted to determine the current state of the landscape and if any large negative impacts could be observed. This was done by a walk down through the farm portion (Gilead 729 LR – around the existing Gilead substation) and the immediate surrounding areas to the north, west and south. During the walk down, any sings of wild animals, frogs, reptiles and rare birds was noted and included visual observations, signs of habitation, tracks and scats/droppings.

Table 2: List of expected frogs at the Gilead substation site (FitzPatrick Institute of African Ornithology, 2021).

Family	***Genus and species***	**Common name**	**Conservation status**
Brevicepitidae	*Breviceps adspersus*	Bushveld Rain Frog	Least Concern
Hyperoliidae	*Kassina senegalensis*	Bubbling Kassina	Least Concern
Microhylidae	*Phrynomantis bifasciatus*	Banded Rubber Frog	Least Concern
Ptychadenidae	*Ptychadena anchietae*	Plain Grass Frog	Least Concern
Pyxicephalidae	*Cacosternum boettgeri*	Common Caco	Least Concern
Pyxicephalidae	*Pyxicephalus edulis*	African Bull Frog	Least Concern
Pyxicephalidae	*Tomopterna cryptotis*	Tremelo Sand Frog	Least Concern

Table 3: List of expected retiles at the Gilead substation site (FitzPatrick Institute of African Ornithology, 2021).

Family	*Genus and species*	Common name	Conservation status
Agamidae	*Acanthocercus atricollis*	Southern Tree Agama	Least Concern
Agamidae	*Agama aculeata distanti*	Distant's Ground Agama	Least Concern
Chamaeleonidae	*Chamaeleo dilepis*	Common Flap-neck Chameleon	Least Concern
Colubridae	*Dasypeltis scabra*	Rhombic Egg-eater	Least Concern
Colubridae	*Thelotornis capensis capensis*	Southern Twig Snake	Least Concern
Cordylidae	*Platysaurus guttatus*	Dwarf Flat Lizard	Least Concern
Gekkonidae	*Lygodactylus capensis*	Common Dwarf Gecko	Least Concern
Gekkonidae	*Pachydactylus capensis*	Cape Gecko	Least Concern
Lacertidae	*Heliobolus lugubris*	Bushveld Lizard	Least Concern
Lacertidae	*Ichnotropis capensis*	Ornate Rough-scaled Lizard	Least Concern
Lacertidae	*Nucras holubi*	Holub's Sandveld Lizard	Least Concern
Lacertidae	*Nucras intertexta*	Spotted Sandveld Lizard	Least Concern
Leptotyphlopidae	*Leptotyphlops incognitus*	Incognito Thread Snake	Least Concern
Scincidae	*Panaspis wahlbergi*	Wahlberg's Snake-eyed Skink	Least Concern
Scincidae	*Trachylepis varia sensu lato*	Common Variable Skink	Least Concern

Table 4: List of red data species and CITES species in Limpopo Province (LEDET State of the Environment Report, 2004). The probability of occurrence is obtained from Skinner and Chimimba (2005).

Category	Common Name	Scientific Name	Does suitable habitat occur on site? (Yes/No)	Probability of the species occurring on site? (high/medium/low)
Critically Endangered	Black rhinoceros	*Diceros bicornis*	No	Very low
	Juliana's golden mole	*Neamblysomus julianae*	No	Very low
Endangered	African wild dog	*Lycaon pictus*	No	Very low
Vulnerable	African elephant	*Loxodonta africana*	Yes	Very low
	Gunning's golden mole	*Neamblysomus gunningi*	No	Very low
	Cheetah	*Acinonyx jubatis*	Yes	Very low
	Lion	*Panthera leo*	Yes	Very low
	Black-footed cat	*Felis nigripes*	No	Very low
Near Threatened	White rhinoceros	*Ceratotherium simum*	Yes	Very low
CITES Appendix	**Common Name**	**Scientific Name**	**Does suitable habitat occur on site? (Yes/No)**	**Probability of the species occurring on site? (high/medium/low)**
Appendix 1	Black-footed cat	*Felis nigripes*	No	Very low
	Leopard	*Panthera pardus*	Limited	Low
	Cheetah	*Acinonyx jubatus*	Yes	Very low
	Black rhinoceros	*Diceros bicornis*	No	Very low
Appendix 2	African elephant	*Loxodonta africana*	Yes	Very low
	Chacma baboon	*Papio ursinus*	Yes	Medium
	Vervet monkey	*Cercopithecus aethiops*	Limited	Low
	Samango monkey	*Cercopithecus mitis*	No	Very low
	Greater galago	*Otolemur crassicaudatus*	No	Very low
	South African galago	*Galago moholi*	Yes	Medium
	Spotted-necked otter	*Lutra maculicollis*	No	Very low
	African clawless otter	*Aonyx capensis*	No	Low
	Caracal	*Caracal caracal*	Yes	Low
	Serval	*Leptailurus serval*	No	Very low
	African wild cat	*Felis sylvestris*	No	Very low
	Lion	*Panthera leo*	Yes	Very low
	Hippopothamus	*Hippopothamus amphibious*	No	Very low
	White rhinoceros	*Ceratotherium simum*	Yes	Very low
	Pangolin	*Manis temminckii*	Yes	Very low

2.3 Avifaunal

A desktop study and literature review of the study area was conducted to gather information prior to the site assessment. The following literature was consulted and is also considered key references for the assessment:

- Hockey et al. (2005), was used for general information of relevant bird species. This also provided basic information with regards to the breeding, location, and preferred nesting habitat of relevant bird species. Where necessary, species were verified using Sasol Birds of Southern Africa (Sinclair et al., 2011);
- The conservation status of the threatened bird species observed or that could potentially occur on the study area was categorised using the National Red List Categories (IUCN, 2014) of IUCN (International Union for Conservation of Nature); and
- Distributional data was collected from the South African Bird Atlas Project 1 and 2 (SABAP2; 2020). The distribution of bird species is very important especially based on their preferred habitat and climate. The main difference between SABAP 2, which started in 2007 from SABAP 1, is that sampling is done on a more detailed scale in terms of pentad grids (5minute x 5minute), were as a total of nine (9) pentads (15minute x 15minute) equals to one (1) Quarter Degree Grid Cell (QDGC). Therefore, the data collected in SABAP2 is more site-specific. The study area falls within the 2335_2850 pentad grid.

2.3.1 Field survey and data collection

A list of expected species was obtained from SABAP2 and used as reference during the field survey. This ensured that bird species, especially threatened species, could be focussed on during the survey. The site survey was conducted during the summer on the 15 February 2021 and a total of 2 hours was specifically focussed on identification of species. All recognisable habitats were identified on site and assessed to observe any associated avifauna species present in the specific habitat. Besides visual observations, bird species were identification by means of their, calls and other signs such as nest, droppings, and feathers.

A comprehensive species list for the study area was compiled, using all the species previously recorded in and around the 2335_2850 QDGC (Southern African Bird Atlas Project 2, 2020). The geographical position of each bird species observed during the site survey will be logged using the Bird Lasser Smart Phone Application.

All bird observations during the site survey will be processed and submitted to the SABAP2. The project protocol allows for two types of surveys/cards to be submitted and include the “Full Protocol” and the “Ad-hoc Protocol”:

- Full Protocol: This protocol requires at least two (2) hours of active surveying within a specific pentad.
- Ad-hoc Protocol: This protocol includes surveying of less than two (2) hours within a pentad.

2.3.2 Avifauna sensitivity (Threatened and Near Threatened bird species)

The SABAP2 (Southern African Bird Atlas Project 2, 2020) data base was consulted to determine if any threatened or non-threatened species occur within the 2335_2850 QDGC. The threatened species previously recorded within the QDGC was examined prior to the site survey (Roberts VII, Hockey et al. 2005; Taylor et al., 2015) and special attention was applied to identify these listed threatened species. A full array of observation methods, such as visual sightings, nesting sites, bird calls and possible habitat was utilised during the assessment. As seen in Figure 6 the Gilead substation is to east of the Water Berg Important Bird Areas (IBA) of South Africa.

2.3.3 Avifauna sensitivity scale

- **High** – This is regarded as a sensitive ecosystem with a high vulnerability towards disturbing factors and important features with regards to protecting and maintaining the existing ecosystem on the specific site. These areas usually represent important bird features such as bird fly paths, high bird diversity and/or suitable habitat for threatened bird species. This area should be protected and be classified as a no-go area;
- **Medium** - These areas are slightly lower than the high category in terms of sensitivity and may therefore occur along a sensitive ecosystems or ecological area. These areas should also be protected through implementing adequate mitigation measures. This will prevent the area from any potential threats introduced to the area; and
- **Low** – This area may be highly disturbed or degraded and therefore have little ecological function. This may be categories as a low disturbance area with regards to the specific project.

2.3.4 Limitations and assumptions

- Most of the data obtained from references such as SABAP1 and 2 and other research platforms where assumed to be true and accurate. The specific pentad used in SABAP2 only had four (4) historical cards (1 Full protocols and 3 Ad-hoc protocols) submitted, excluding the full protocol done for this specific survey. The pentad only had a total list of approximately 92 species (including the card submitted for this study) that can potentially occur within the pentad. Therefore, the QDGC was used which includes all adjacent pentads of the pentad 2335_2850.
- There were no nocturnal surveys conducted. Therefore, excluding the possibility of sighting nocturnal species such as some owl and nightjar species.
- A one-day field assessment was conducted and this potentially resulted in not recording all species within the study area or pentad.

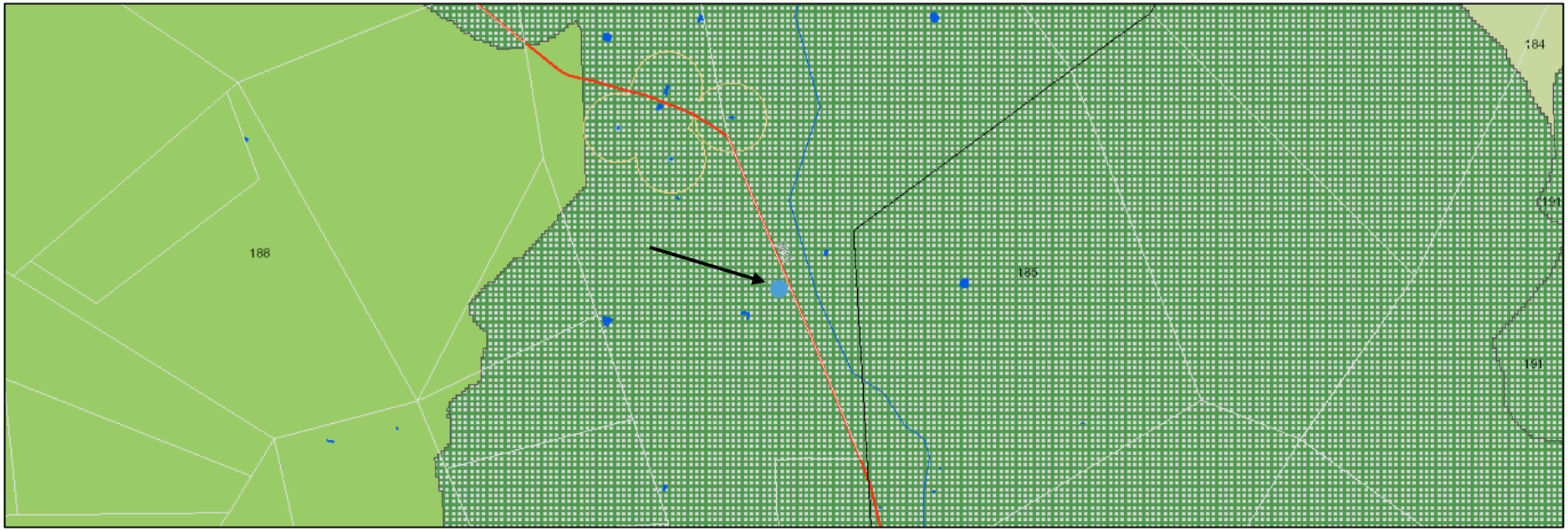

Figure 3: The Gilead substation site (blue circle with arrow) indicate the area around to be classified as a Phase 2 FEPA (Nel et al, 2011) with the drainage line east of the road (ephemeral channel) draining north towards the Matlala River.

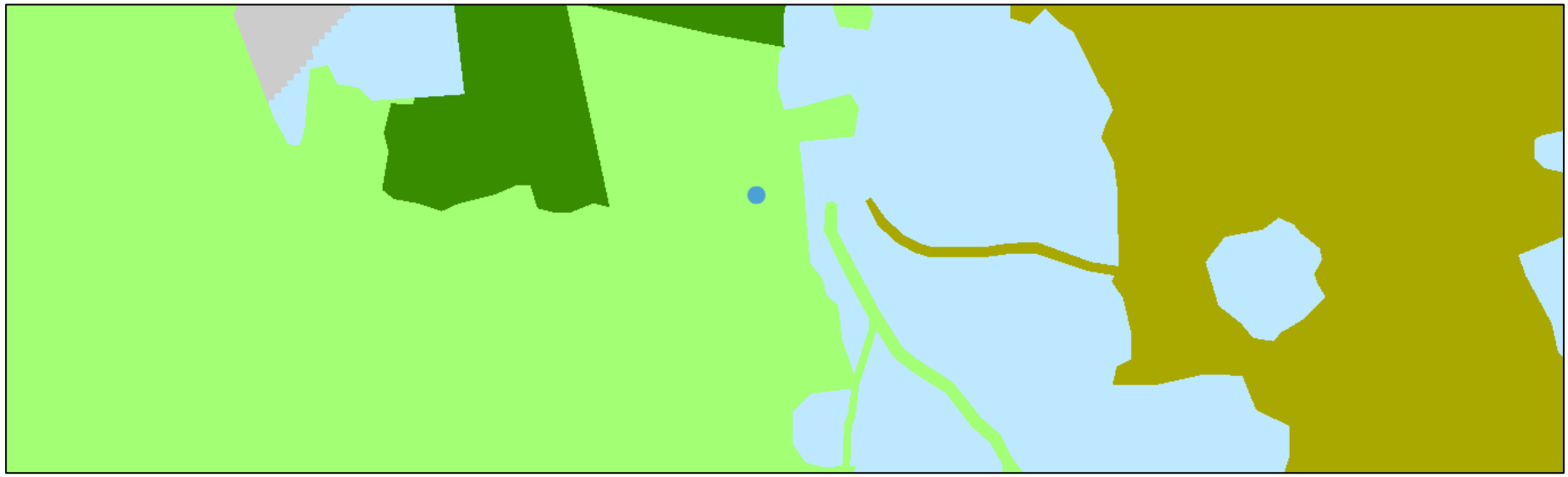

Figure 4: Extract of the study area on the Limpopo Province Biodiversity Plan indicating the study area (blue circle) falls within the Ecological Support Area (ESA – light green).

Figure 5: The vegetation map indication the area of the survey site (farm Gilead 729 LR) falling into the Makhado Sweet Bushveld (SVcb 20) (light blue coloured circle) (Mucina and Rutherford, 2006).

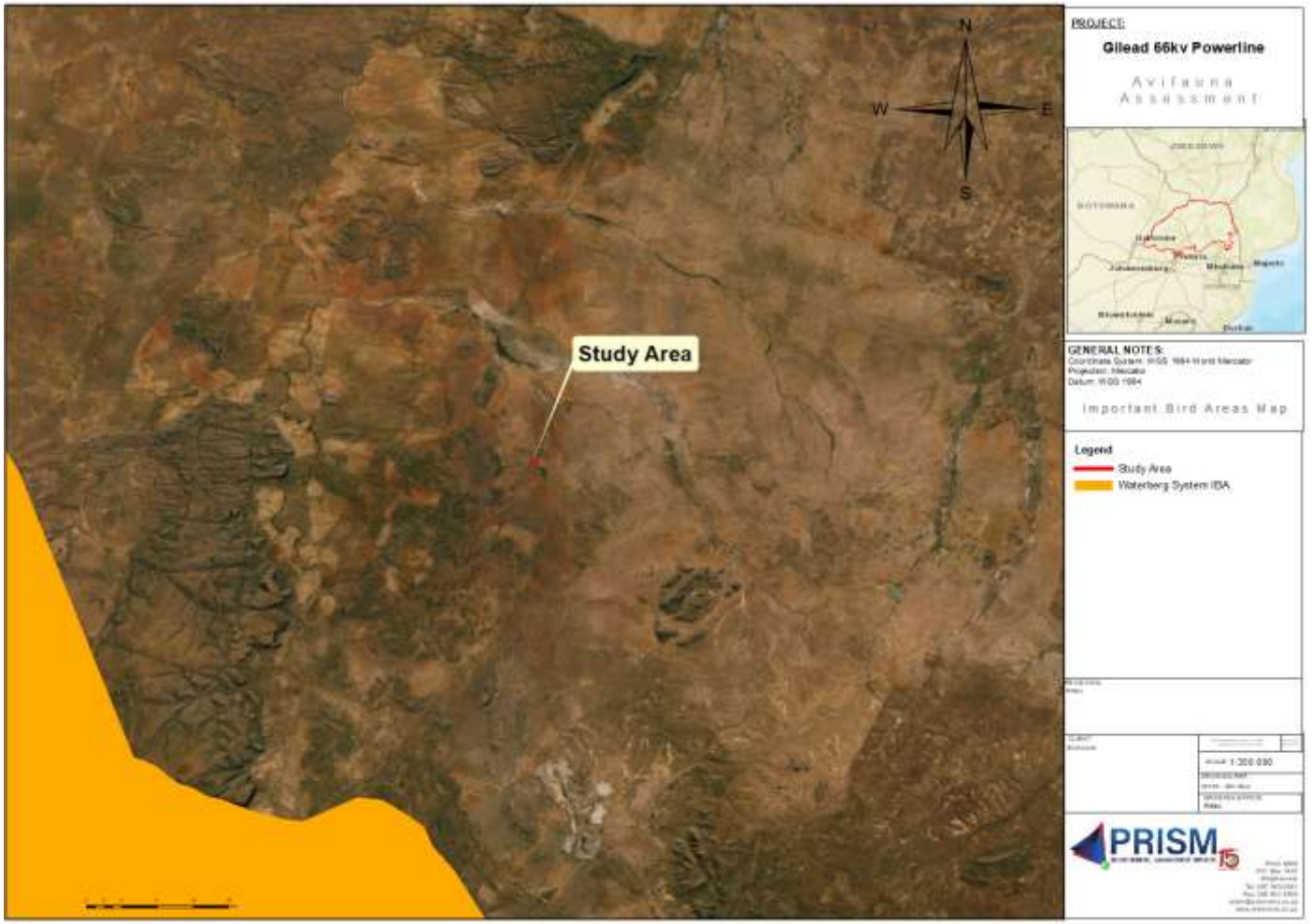

Figure 6: Important Bird Areas – associated with the study area – the Waterberg System IBA to the east.

3 RESULTS

3.1 Wetland Delineation

3.1.1 Desktop Assessment

During the desktop investigation, one (1) possible area where wetlands could occur was identified on or in close proximity to the study site that would be affected by the proposed development activities.

The National Wetland Map version 5 (NWM5) as presented by SANBI was scrutinised and no wetland area was identified on or in close proximity to the study site that could be affected by the proposed activities. The only water resource noted was the ephemeral drainage line flowing in a south to north direction into the Matlala River to the northeast of the study site. According to the SANBI Classification (2009) (Table 1) this ephemeral drainage line looks to be an “Unchannelled valley-bottom set on a Plain”.

3.1.2 Field Assessment

The field investigation was undertaken on 15 February 2021 to assess and confirm the absence or presence of any other water resources associated within or near the proposed corridor of the power line. Just to the south of the substation, a farm dam in the ephemeral system was noted. This was probably constructed as a cattle drinking facility many years ago (prior to 2005). This depression will not be impacted by the deviation power line, as it will join the existing Cloe/Gilead power line north of the depression, at the boundary of the substation. It is recommended to ensure that the power line is constructed as close to the substation as legally possible.

When looking at the indicators with regards to identifying and mapping the riparian zone the following is noted:

3.1.2.1 Topography associated with the water course

The area associated with the drainage line flowing in a southerly to northerly direction is on a flat plains area. To the west and southwest, some high ground (approximately 5.5km away) drain towards the northeast and water will flow towards the Matlala River. In the vicinity of the substation, the terrain is very flat with no steeper slopes that one can detect. The channel of the drainage line is not well defined and during the site visit it is clear that recent activities (roads and construction) have an impact on the flow of surface water after rain events. Therefore no clear channels can be identified, but from the historic images and the site investigation, it is clear that water from the substation terrain drains to the northeast and east into the drainage line which in turn drains to the northeast, across the N11 towards the Matlala River.

3.1.2.2 Vegetation

During the field survey, there was no clear indication of vegetation indicating a riparian zone on the eastern section near the N11. Some larger trees around the farm dam and the drainage line to the southwest is visible, but vey opaque to the northeast, indicating the flow of water was disrupted since the construction of the impoundment. The new deviation line will have no direct impact on the vegetation associated with the impoundment of the drainage line.

3.1.2.3 Alluvial soils and deposited material

During the field survey, no alluvial soils that can be associated with the ephemeral channel was observed. As mentioned, the changes to the general habitat with historic activities (agricultural – presumed grazing) and the construction of the N11 and substation had some minor impacts on the habitat. The new power line deviation will have no visible impacts (unless aggravated erosion occur) on the ephemeral channel in its current state.

Table 5 gives a summary of the wetland (ephemeral drainage line) classification.

Table 5: Wetland Classification of the ephemeral stream at the Gilead Substation.

Level 1: System	**Level 2: Regional setting**	**Level 3: Landscape unit**	**Level 4: Hydrogeomorphic (HGM) unit**	
Connectivity to open ocean	**Ecoregion**	**Landscape setting**	**HGM type**	**Longitudinal zonation / landform**
			A	**B**
INLAND	DWAF Level 1 Ecoregions	VALLEY FLOOR	Unchannelled valley-bottom wetland	Valley-bottom flat

Figure 7: View of the ephemeral stream (blue line) and the farm dam – 2005 Google Earth image.

Figure 8: View of the ephemeral stream (blue line) and the farm dam – 2018 Google Earth image.

3.2 Biodiversity and Habitat Assessment

The assessment of the habitat on the farm Gilead 729 LR indicate some historical agricultural activities (mostly grazing and the construction of the farm dam in the drainage line) (Figure 7 and 8). In general the habitat around the substation is moderately modified. This relates to the old substation that was replaced with the new facility, numerous power line corridors, the N11 road, wood harvesting and the grazing and trampling related to the agricultural activities.

The new power line corridor (Figure 2) will have a negligible impact on the habitat in general. Limited clearing is recommended, including leaving the basal layer (grass layer) intact to prevent erosion and intrusion of alien invasive vegetation.

3.2.1 Vegetation

The vegetation unit (Makhado Sweet Bushveld (SVcb 20) – Figure 5, Section 2.2.1).

The woody species in the proposed corridor is dominated by *Dichrostachys* cinerea as a result of bush encroachment (result of disturbances) with *Vachellia tortilis* a secondary encroacher. Other woody species in or adjacent to the corridor include *Grewia flava, Ehretia rigida* and *Ziziphus mucronata*. Outside the corridor in the surrounding landscape other woody species noted were *Grewia monticola, Boscia foetida, Sclerocarya birrea, Peltophorum africanum, Senegalia nigrescens, S. mellifera, Vachellia rehmanniana* and *Terminalia sericea*.

With regards to the basal layer the following graminoides dominated: *Anthephora pubescens*, *Aristida stipitata* subsp. *graciliflora*, *Enneapogon scoparius*, *Brachiaria nigropedata*, *Eragrostis trichophora*, *Panicum maximum*, *Schmidtia pappophoroides* and *Urochloa mosambicensis*.

A number of alien invasives are present and include: *Cereus jamacaru, Melia azedarach, Tagetes minuta* and *Agave sisalana*.

There are no red data or protected species associated with the proposed new corridor of the deviation power line.

3.2.2 Faunal/herpetological/amphibian assessment

The rapid survey and time of the year must be taken into consideration when reporting on the survey. During the field survey, no signs were noted of the presence of any wild mammals - e.g. tracks or scats.

With regards to the amphibians, some tadpoles of *Pyxicephalus edulis* and *Cacosternum boettgeri* were observed in the farm impoundment. It must be emphasised that the new proposed deviation power line will not affect or impact on the amphibians.

During the field survey, only two lizards were noted dashing into the long grass. No clear observation was possible, but it was in both cases representatives of the *Nucras spp.* probably *Nucras holubi*.

3.3 Species richness and summary statistics

According to the SABAP2 (2021), a total of 184 bird species and 11 threatened and near threatened species have been recorded in the 2335_2850 QDGC (Appendix 1: Expected and observed bird species). This equals to 46% of approximate 399 species listed for this region (Hockey *et al*., 2005).

Despite the high bird diversity in this region, the proposed project site is limited with regards to habitat diversity. This due to the study area having a habitat type of Bushveld which covers most of the study area. Based on the habitat that is present and observed during the site assessment, only a total of 40 species which includes 1 threatened bird species was confirmed during the investigation, keeping in made the limitation. This equals to 22% of the expected number of bird species and 10% of the expected threatened and near threatened species obtained from SABAP2.

Table 6 list the number of observed species inclusive of the red listed species is very low in comparison with the total number of expected species for the study area. This is due to the listed limitations for the site assessment. Limitations included the lack of cards submitted in the QDGC and the total time spend on the study area. The study area also provides possible habitat in terms of foraging and nesting grounds for other expected species and red listed species. Table 7 is a summary of the "Threatened" and "Near-Threatened" bird species that could occur within the proposed site area based on their distribution and suitable habitat.

Table 6: A summary table of the total number of species and red listed species expected to occur and observed within the proposed study area.

	Expected (SABAP2, 2021)	Observed	Observed percentage (%)
Total number of species	184	40	22
Number of Red Listed Species	11	1	9

3.4 Avifaunal sensitivity

3.4.1 Areas of low avifaunal sensitivity

Areas with low sensitivity includes "Transformed and Disturbed" areas and the surrounded associated Bushveld. Although this area has been regarded as low sensitivity it does not mean that it this area does not inhabit any foraging or breeding areas for no threatened and threatened bird species. Threatened bird species such as the Lanner Falcon (*Falco biarmicus*) would still use this area as suitable foraging and breeding habitat (Palons). Species such as European Roller (*Coracias garrulus*) will use the area only for foraging purposes.

Table 7: Threatened and near-threatened bird species that could occur within the proposed site area based on their distribution and suitable habitat.

Species	Global Conservation Status (Bird Life SA, 2016)	Regional Conservation Status (Bird Life SA, 2016)	Recorded during SABAP 2	Recorded during site assessment	Preferred Habitat (Hockey, *et al.*, 2005)	Likelihood of occurrence
Oxyura maccoa (Maccoa Duck)	Vulnerable	Near Threatened	Yes	No	Prefers permanent wetlands in open grassland.	Unlikely, lack of preferred habitat. Only recorded once in 2013.
Aquila verreauxii (Verreaux's Eagle)	Least Concern	Vulnerable	Yes	No	Prefers mountains and rocky areas with cliffs.	Unlikely, lack of preferred habitat. Only recorded once in 2013.
Leptoptilos crumeniferus (Marabou Stork)	Least Concern	Near Threatened	Yes	No	Favouring open areas. Common at wetlands, dams, pans, and rivers.	Unlikely, due to lack of preferred habitat.
Mycteria ibis (Yellow-billed Stork)	Least Concern	Endangered	Yes	No	Shorelines of most inland freshwater bodies.	Unlikely, due to lack of preferred habitat.
Falco biarmicus (Lanner Falcon)	Least Concern	Vulnerable	Yes	No	Favours open grassland or woodland. Breeding sites near cliffs or pylons.	Likely, for foraging purposes and breeding site.
Coracias garrulus (European Roller)	Least Concern	Near Threatened	Yes	No	Open woodlands, perching on open dead branches. Do not breed in South Africa	Likely, for foraging purposes. Non breeder to South Africa.
Sagittarius serpentarius (Secretarybird)	Vulnerable	Vulnerable	Yes	No	Favours open grassland with scattered trees or shrubs. Nest usually placed on flat thorn trees.	Likely, for foraging purposes and potential breeding habitat. Only recorded once in 2013.
Ciconia nigra (Black Stork)	Least Concern	Vulnerable	Yes	No	Associated with mountains regions, but not restricted to them.	Unlikely, only foraging purposes. Only recorded once in 2013. No, breeding habitat.
Gyps coprotheres (Cape Vulture)	Endangered	Endangered	Yes	No	Linked to cliff breeding areas.	Unlikely, might be for foraging purposes. No, breeding habitat. Only recorded once in 2013.
Torgos tracheliotus (Lappet-faced Vulture)	Endangered	Endangered	Yes	Yes	Favours semi-arid open woodlands. Nest placed on crown of isolated flat-topped tree.	Likely, to be seen as a flyby. Unlikely, lack of breeding habitat.
Gyps africanus (White-backed Vulture)	Critical Endangered	Critical Endangered	Yes	No	Woodland and Bushveld	Likely, to be seen as a flyby. Unlikely, lack of breeding habitat. Only recorded once in 2013.

4 REASONED OPINION AND RECOMMENDATIONS

- The **wetland** (ephemeral drainage line) identified is in a modified condition – roads, grazing, wood harvesting and construction had some impacts on the system.
- No further detailed **mammal, herpetological and amphibian studies** are needed – no red data species present and the *Pyxicephalus edulis* will not be affected by the new proposed power line.
- The **vegetation** will not be negatively impacted, as the current vegetation along the proposed corridor is modified – mostly *Dichrostachys cinerea* in a dense stand, indicating some encroachment.
- It is recommended that the client must have **alien vegetation** management as part of the management strategy.
- With regards to the **avifauna**, the study area consists of two (2) habitat types observed during the site survey: 1) the larger area associated with the existing development (substation) and 2) the associated infrastructure (powerlines).
    - During the site survey one (1) threatened bird species was observed (*Torgos tracheliotus*).
    - Some other threatened species that were not observed during the site survey and has a high likeliness of occurring in and surrounding the study area, especially for foraging purposes are species including but are not limited to *Falco biarmicus* and *Coracias garrulus*.
    - Although the one (1) threatened species was observed during the site survey and with other threatened species with a high possibility of occurring in the area, this proposed project will not have a significant impact on the avifaunal species, as the alignment of the proposed project powerline will run parallel with existing infrastructure (powerlines).
    - It is however recommended that minimum impact to the bushveld vegetation during clearing must be affected. It is thus proposed that the clearance area be minimized to limit impacts.

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Figure 9: General view of the area where the proposed deviation will exit the Gilead Substation to the west.

Figure 10: The condition of the basal layer along the corridor to the west.

Figure 11: The view of the southern corridor following the fence of the Gilead Substation.

Figure 12: A view of the view of the corridor (southern boundary of the substation) to the link with the exiting Chloe/Gilead power line.

Figure 13: A view of the impoundment – not affected by the new deviation power line.

Figure 14: A view of some of the bull frog tadpoles.

Figure 15: A *Pyxicephalus edulis* tadpole.

Appendix 1: Expected and observed bird species.

	Common group	Common species	Genus	Species	(n)	Latest Record	Survey Observed	Status (Regional and Global)
1	Apalis	Bar-throated	Apalis	thoracica	1	2013/05/01		LC
2	Babbler	Arrow-marked	Turdoides	jardineii	2	2021/02/15	Yes	LC
3	Babbler	Southern Pied	Turdoides	bicolor	1	2013/12/14		LC
4	Barbet	Acacia Pied	Tricholaema	leucomelas	1	2013/12/14		LC
5	Barbet	Black-collared	Lybius	torquatus	1	2013/05/01		LC
6	Barbet	Crested	Trachyphonus	vaillantii	1	2015/07/01		LC
7	Batis	Chinspot	Batis	molitor	1	2021/02/15	Yes	LC
8	Bee-eater	European	Merops	apiaster	1	2013/12/14		LC
9	Bee-eater	Little	Merops	pusillus	1	2013/05/01		LC
10	Bee-eater	Southern Carmine	Merops	nubicoides	1	2013/12/14		LC
11	Bishop	Southern Red	Euplectes	orix	1	2013/12/14		LC
12	Boubou	Southern	Laniarius	ferrugineus	2	2018/11/10		LC
13	Brubru	Brubru	Nilaus	afer	1	2013/12/14		LC
14	Buffalo-weaver	Red-billed	Bubalornis	niger	1	2015/07/01		LC
15	Bulbul	African Red-eyed	Pycnonotus	nigricans	1	2015/07/01		LC
16	Bulbul	Dark-capped	Pycnonotus	tricolor	2	2021/02/15	Yes	LC
17	Bunting	Golden-breasted	Emberiza	flaviventris	2	2021/02/15	Yes	LC
18	Bunting	Lark-like	Emberiza	impetuani	1	2013/05/01		LC
19	Bush-shrike	Grey-headed	Malaconotus	blanchoti	1	2013/12/14		LC
20	Bush-shrike	Orange-breasted	Telophorus	sulfureopectus	2	2018/11/10		LC
21	Buzzard	Steppe	Buteo	vulpinus	2	2021/02/15	Yes	LC
22	Camaroptera	Grey-backed	Camaroptera	brevicaudata	1	2015/07/01		LC

Threatened & Near Threatened Categories	
Critical Endangered	CR
Endangered	EN
Vulnerable	VU
Near Threatened	NT
Least Concern	LC

23	Canary	Black-throated	Crithagra	atrogularis	1	2013/05/01		LC
24	Canary	Yellow	Crithagra	flaviventris	1	2013/05/01		LC
25	Canary	Yellow-fronted	Crithagra	mozambicus	1	2013/12/14		LC
26	Cisticola	Desert	Cisticola	aridulus	1	2013/12/14		LC
27	Cisticola	Rattling	Cisticola	chiniana	2	2021/02/15	Yes	LC
28	Cisticola	Zitting	Cisticola	juncidis	1	2013/12/14		LC
29	Cliff-chat	Mocking	Thamnolaea	cinnamomeiventris	1	2013/05/01		LC
30	Coot	Red-knobbed	Fulica	cristata	1	2013/12/14		LC
31	Coucal	Burchell's	Centropus	burchellii	1	2013/12/14		LC
32	Crombec	Long-billed	Sylvietta	rufescens	2	2021/02/15	Yes	LC
33	Crow	Cape	Corvus	capensis	1	2013/05/01		LC
34	Crow	Pied	Corvus	albus	1	2013/12/14		LC
35	Cuckoo	Black	Cuculus	clamosus	1	2013/12/14		LC
36	Cuckoo	Diderick	Chrysococcyx	caprius	2	2021/02/15	Yes	LC
37	Cuckoo	Jacobin	Clamator	jacobinus	2	2021/02/15	Yes	LC
38	Cuckoo	Klaas's	Chrysococcyx	klaas	1	2013/12/14	Yes	LC
39	Cuckoo	Levaillant's	Clamator	levaillantii	1	2013/12/14		LC
40	Cuckoo	Red-chested	Cuculus	solitarius	1	2014/12/18		LC
41	Cuckoo-shrike	Black	Campephaga	flava	1	2013/12/14		LC
42	Dove	Laughing	Streptopelia	senegalensis	1	2013/12/14		LC
43	Dove	Namaqua	Oena	capensis	1	2013/12/14		LC
44	Dove	Red-eyed	Streptopelia	semitorquata	1	2021/02/15	Yes	LC
45	Dove	Rock	Columba	livia	1	2013/12/14		LC
46	Drongo	Fork-tailed	Dicrurus	adsimilis	1	2013/12/14		LC
47	Duck	Maccoa	Oxyura	maccoa	1	2013/05/01		NT,VU
48	Duck	White-faced	Dendrocygna	viduata	1	2013/05/01		LC

49	Duck	Yellow-billed	Anas	undulata	1	2013/05/01		LC
50	Eagle	Verreaux's	Aquila	verreauxii	1	2013/05/01		VU,LC
51	Eagle	Wahlberg's	Aquila	wahlbergi	1	2013/12/14		LC
52	Egret	Cattle	Bubulcus	ibis	1	2015/07/01		LC
53	Eremomela	Burnt-necked	Eremomela	usticollis	2	2021/02/15	Yes	LC
54	Eremomela	Yellow-bellied	Eremomela	icteropygialis	1	2013/05/01		LC
55	Falcon	Lanner	Falco	biarmicus	1	2013/12/14		VU,LC
56	Finch	Cut-throat	Amadina	fasciata	1	2015/07/01		LC
57	Finch	Red-headed	Amadina	erythrocephala	1	2013/05/01		LC
58	Finch	Scaly-feathered	Sporopipes	squamifrons	1	2021/02/15	Yes	LC
59	Firefinch	Jameson's	Lagonosticta	rhodopareia	1	2021/02/15	Yes	LC
60	Fiscal	Common (Southern)	Lanius	collaris	1	2013/05/01		LC
61	Flycatcher	Marico	Bradornis	mariquensis	1	2021/02/15	Yes	LC
62	Flycatcher	Southern Black	Melaenornis	pammelaina	1	2018/11/10		LC
63	Flycatcher	Spotted	Muscicapa	striata	2	2021/02/15	Yes	LC
64	Francolin	Coqui	Peliperdix	coqui	1	2014/12/18		LC
65	Francolin	Crested	Dendroperdix	sephaena	1	2013/12/14		LC
66	Go-away-bird	Grey	Corythaixoides	concolor	1	2021/02/15	Yes	LC
67	Goose	Egyptian	Alopochen	aegyptiacus	1	2013/05/01		LC
68	Goshawk	Gabar	Melierax	gabar	1	2013/12/14		LC
69	Grebe	Little	Tachybaptus	ruficollis	1	2013/12/14		LC
70	Greenbul	Yellow-bellied	Chlorocichla	flaviventris	1	2014/12/18		LC
71	Guineafowl	Helmeted	Numida	meleagris	1	2013/12/14		LC
72	Helmet-shrike	White-crested	Prionops	plumatus	1	2015/07/01		LC
73	Heron	Grey	Ardea	cinerea	1	2013/05/01		LC
74	Honeyguide	Lesser	Indicator	minor	1	2013/05/01		LC

75	Hoopoe	African	Upupa	africana	1	2015/07/01		LC
76	Hornbill	African Grey	Tockus	nasutus	1	2015/07/01		LC
77	Hornbill	Southern Red-billed	Tockus	rufirostris	1	2015/07/01		LC
78	Hornbill	Southern Yellow-billed	Tockus	leucomelas	1	2013/12/14		LC
79	House-martin	Common	Delichon	urbicum	1	2013/12/14		LC
80	Kestrel	Greater	Falco	rupicoloides	1	2013/05/01		LC
81	Kingfisher	Striped	Halcyon	chelicuti	1	2014/12/18		LC
82	Kingfisher	Woodland	Halcyon	senegalensis	1	2013/12/14		LC
83	Kite	Black-shouldered	Elanus	caeruleus	1	2013/05/01		LC
84	Kite	Yellow-billed	Milvus	aegyptius	1	-		LC
85	Korhaan	Red-crested	Lophotis	ruficrista	1	2013/12/14		LC
86	Lapwing	Blacksmith	Vanellus	armatus	1	2013/05/01		LC
87	Lapwing	Crowned	Vanellus	coronatus	1	2015/07/01		LC
88	Lark	Monotonous	Mirafra	passerina	1	2013/12/14		LC
89	Lark	Rufous-naped	Mirafra	africana	1	2013/12/14		LC
90	Lark	Sabota	Calendulauda	sabota	1	2013/12/14		LC
91	Lark	Short-clawed	Certhilauda	chuana	1	2013/05/01		LC
92	Masked-weaver	Southern	Ploceus	velatus	2	2021/02/15	Yes	LC
93	Mousebird	Red-faced	Urocolius	indicus	1	2013/12/14		LC
94	Mousebird	Speckled	Colius	striatus	1	2015/07/01		LC
95	Myna	Common	Acridotheres	tristis	2	2021/02/15	Yes	LC
96	Neddicky	Neddicky	Cisticola	fulvicapilla	1	2013/12/14		LC
97	Oriole	Black-headed	Oriolus	larvatus	3	2018/11/10		LC
98	Owlet	Pearl-spotted	Glaucidium	perlatum	1	2021/02/15	Yes	LC
99	Oxpecker	Red-billed	Buphagus	erythrorhynchus	1	2013/12/14		LC

100	Palm-swift	African	Cypsiurus	parvus	1	2013/05/01		LC
101	Paradise-flycatcher	African	Terpsiphone	viridis	1	2018/11/10		LC
102	Paradise-whydah	Long-tailed	Vidua	paradisaea	1	2013/12/14		LC
103	Petronia	Yellow-throated	Petronia	superciliaris	1	2013/12/14		LC
104	Pigeon	Speckled	Columba	guinea	1	2013/05/01		LC
105	Pipit	African	Anthus	cinnamomeus	1	2013/05/01		LC
106	Pipit	Striped	Anthus	lineiventris	1	2014/12/18		LC
107	Plover	Three-banded	Charadrius	tricollaris	1	2013/05/01		LC
108	Prinia	Black-chested	Prinia	flavicans	2	2021/02/15	Yes	LC
109	Prinia	Tawny-flanked	Prinia	subflava	2	2021/02/15	Yes	LC
110	Puffback	Black-backed	Dryoscopus	cubla	1	2015/07/01		LC
111	Pytilia	Green-winged	Pytilia	melba	2	2021/02/15	Yes	LC
112	Quelea	Red-billed	Quelea	quelea	1	2013/12/14		LC
113	Robin-chat	White-throated	Cossypha	humeralis	1	2021/02/15	Yes	LC
114	Roller	European	Coracias	garrulus	2	2013/12/14		NT,LC
115	Roller	Lilac-breasted	Coracias	caudatus	1	-		LC
116	Sandpiper	Wood	Tringa	glareola	1	2013/12/14		LC
117	Secretarybird	Secretarybird	Sagittarius	serpentarius	1	2013/05/01		VU,VU
118	Scimitarbill	Common	Rhinopomastus	cyanomelas	1	2015/07/01		LC
119	Scrub-robin	Kalahari	Cercotrichas	paena	1	2013/12/14		LC
120	Scrub-robin	White-browed	Cercotrichas	leucophrys	1	2013/12/14		LC
121	Shrike	Crimson-breasted	Laniarius	atrococcineus	1	2013/12/14		LC
122	Shrike	Lesser Grey	Lanius	minor	1	2013/12/14		LC
123	Shrike	Magpie	Urolestes	melanoleucus	3	2013/12/14		LC
124	Shrike	Red-backed	Lanius	collurio	2	2021/02/15	Yes	LC

125	Shrike	Southern White-crowned	Eurocephalus	anguitimens	1	2013/05/01		LC
126	Snake-eagle	Black-chested	Circaetus	pectoralis	2	2018/11/10		LC
127	Snake-eagle	Brown	Circaetus	cinereus	1	2013/12/14		LC
128	Sparrow	Cape	Passer	melanurus	1	2021/02/15	Yes	LC
129	Sparrow	Great	Passer	motitensis	1	2013/05/01		LC
130	Sparrow	House	Passer	domesticus	1	2015/07/01		LC
131	Sparrow	Southern Grey-headed	Passer	diffusus	2	2021/02/15	Yes	LC
132	Sparrow-weaver	White-browed	Plocepasser	mahali	2	2013/12/14		LC
133	Spoonbill	African	Platalea	alba	1	2013/05/01		LC
134	Spurfowl	Natal	Pternistis	natalensis	1	2014/12/18		LC
135	Spurfowl	Swainson's	Pternistis	swainsonii	2	2021/02/15	Yes	LC
136	Starling	Cape Glossy	Lamprotornis	nitens	2	2021/02/15	Yes	LC
137	Starling	Red-winged	Onychognathus	morio	1	2021/02/15	Yes	LC
138	Starling	Violet-backed	Cinnyricinclus	leucogaster	1	2013/12/14		LC
139	Starling	Wattled	Creatophora	cinerea	1	2013/05/01		LC
140	Stilt	Black-winged	Himantopus	himantopus	1	2013/05/01		LC
141	Stork	Black	Ciconia	nigra	1	2013/05/01		VU,LC
142	Stork	Marabou	Leptoptilos	crumeniferus	1	2013/12/14		NT,LC
143	Stork	Yellow-billed	Mycteria	ibis	1	2013/12/14		EN,LC
144	Sunbird	Amethyst	Chalcomitra	amethystina	1	2018/11/10		LC
145	Sunbird	Marico	Cinnyris	mariquensis	2	2021/02/15	Yes	LC
146	Sunbird	White-bellied	Cinnyris	talatala	3	2021/02/15	Yes	LC
147	Swallow	Barn	Hirundo	rustica	1	2013/12/14		LC
148	Swallow	Greater Striped	Hirundo	cucullata	2	2021/02/15	Yes	LC
149	Swallow	Lesser Striped	Hirundo	abyssinica	1	2013/12/14		LC

150	Swallow	Red-breasted	Hirundo	semirufa	1	2013/12/14		LC
151	Swift	African Black	Apus	barbatus	1	2013/12/14		LC
152	Swift	Alpine	Tachymarptis	melba	1	-		LC
153	Swift	Little	Apus	affinis	1	2021/02/15	Yes	LC
154	Swift	White-rumped	Apus	caffer	1	2014/12/18		LC
155	Tchagra	Black-crowned	Tchagra	senegalus	1	2013/12/14		LC
156	Tchagra	Brown-crowned	Tchagra	australis	1	2013/12/14		LC
157	Teal	Red-billed	Anas	erythrorhyncha	1	2013/05/01		LC
158	Tern	Whiskered	Chlidonias	hybrida	1	2013/05/01		LC
159	Thrush	Groundscraper	Psophocichla	litsipsirupa	1	2015/07/01		LC
160	Thrush	Kurrichane	Turdus	libonyanus	1	2013/12/14		LC
161	Tinkerbird	Yellow-fronted	Pogoniulus	chrysoconus	1	2013/05/01		LC
162	Tit	Ashy	Parus	cinerascens	1	2013/12/14		LC
163	Tit	Southern Black	Parus	niger	1	2015/07/01		LC
164	Tit-babbler	Chestnut-vented	Parisoma	subcaeruleum	2	2021/02/15	Yes	LC
165	Tit-flycatcher	Grey	Myioparus	plumbeus	1	2014/12/18		LC
166	Turtle-dove	Cape	Streptopelia	capicola	1	2015/07/01		LC
167	Vulture	Cape	Gyps	coprotheres	1	2013/05/01		EN,EN
168	Vulture	Lappet-faced	Torgos	tracheliotus	1	2021/02/15	Yes	EN,EN
169	Vulture	White-backed	Gyps	africanus	1	2013/05/01		CR,CR
170	Wagtail	Cape	Motacilla	capensis	1	2013/05/01		LC
171	Warbler	Icterine	Hippolais	icterina	1	2014/12/18		LC
172	Warbler	Olive-tree	Hippolais	olivetorum	1	2013/12/14		LC
173	Warbler	Willow	Phylloscopus	trochilus	1	2013/12/14		LC
174	Waxbill	Black-faced	Estrilda	erythronotos	1	2021/02/15	Yes	LC
175	Waxbill	Blue	Uraeginthus	angolensis	2	2021/02/15	Yes	LC
176	Waxbill	Violet-eared	Granatina	granatina	1	2013/05/01		LC

177	Weaver	Spectacled	Ploceus	ocularis	2	2021/02/15	**Yes**	**LC**
178	Whitethroat	Common	Sylvia	communis	1	2021/02/15	**Yes**	**LC**
179	Whydah	Shaft-tailed	Vidua	regia	1	2013/05/01		**LC**
180	Widowbird	White-winged	Euplectes	albonotatus	1	2013/12/14		**LC**
181	Wood-dove	Emerald-spotted	Turtur	chalcospilos	1	2013/12/14		**LC**
182	Wood-hoopoe	Green	Phoeniculus	purpureus	1	2013/12/14		**LC**
183	Woodpecker	Cardinal	Dendropicos	fuscescens	1	2021/02/15	**Yes**	**LC**
184	Wren-warbler	Barred	Calamonastes	fasciolatus	1	2013/12/14		**LC**