

Golden Valley I Wind Farm

Critical Habitat Assessment – Avifauna

August 2019



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1. Introduction

1.1. Project background

BioTherm Energy (Pty) Ltd was successful in having its Golden Valley Wind Energy Facility being selected as Preferred Bidder. The Facility will have a maximum net production capacity of 117.72MW (nameplate installed capacity of 120MW). The facility is located within the Blue Crane Route Municipality in the Eastern Cape Province near the towns of Cookhouse and Bedford, South Africa. The site is split over seven privately owned farms and has been in prior use for grazing. The facility will consist of 48 x GW121 turbines over an area approximately 9 656 hectares (or 96.5km²). Turbines will have a hub height of 90m and a rotor diameter of 121m.

From the outset, turbines have been located outside all sensitive areas as identified during the Environmental Impact Assessment. In addition, prior to the finalisation of the facility layout, various site walk downs were conducted, such as bird and biodiversity, to ensure the turbines and their associated infrastructure are suitably located to prevent unnecessary environmental impact. Potential biodiversity impacts during construction and operation of wind facilities include temporary bird species displacement due to construction activities, disturbance to wildlife due to vehicles, machinery and workforce onsite, permanent habitat loss resulting from construction foundations for wind turbines, long-term behavioural displacement, collision risk for birds and bats during turbine and transmission line operations.

In addition to complying with all national requirements, BioTherm intends the facility to align with international good practice, including the International Finance Corporation's ("IFC") Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources. The Facility may be sited within (and have the potential to impact) critical habitat as defined by the International Finance Corporation's ("IFC") Performance Standard 6.

WildSkies Ecological Services was contracted by BioTherm to conduct a Critical Habitat Assessment and develop a Biodiversity Action Plan for the Golden Valley Wind Energy Facility (hereafter GVI). The CHA deals primarily with the actual Critical Habitat Determination (Step 3 in IFC Guidance Note 6 – June 2019). The first two steps, 'stakeholder consultation/literature review' and 'field data collection and verification of available information' were completed by prior studies of the site, primarily the Environmental Impact Assessment (2010-2011). These steps are supplemented in this document only where specifically necessary.

2. Methods

2.1. Ecological baseline

The baseline data collected by previous studies on the GVI site was used. These studies identify species which occur on site and in the surrounding area, and the extent to which they occur there. Since the collection of this baseline data some species' conservation status has changed, so this assessment has updated this aspect. The following information sources were consulted to determine a consolidated bird species list for the site:

- Avifaunal impact assessment for the “Cookhouse Wind Farm” which was the original name for a larger site including the Golden Valley I site and the Golden Valley II site (Endangered Wildlife Trust, 2010).
- 2012-2013 (12 months) Pre-construction bird monitoring for the GVI site (including the control site) (WildSkies, 2013).
- Avifaunal walk through for the site (WildSkies, 2015).
- 2014-2015 (12 months) Pre-construction bird monitoring for the GV II site (including a control site) (WildSkies, 2015).
- 2017-2018 (12 months) Pre-construction bird monitoring for the GVI site and control site (WildSkies, 2018).
- Various other avifaunal work in the broader area for other proposed and operational wind farms and power lines.
- Southern African Bird Atlas Project 1 and 2 data (Harrison *et al*, 1997; SABAP2 – accessed at www.adu.sabap2.org.za)

2.2. Area of Analysis

A Critical Habitat Assessment must not focus solely on the project site (GN58). An understanding should be obtained of the importance or uniqueness of the project site relative to the regional or global scale. It is necessary to identify an appropriate ecological scale for the determination of critical habitat. This is called the ‘Area of Analysis’ and is determined for each bird species with regular occurrence within the project’s ‘Area of Influence’. This exercise was undertaken for the GVI project, considering the baseline species information and the nature of the project.

2.3. Critical Habitat Determination

Critical habitat is defined in Paragraph 16 of the IFC Performance Standard 6 as “areas of high biodiversity value that include at least one or more of the five values specified below”:

- Criterion 1: Critically Endangered (CR) and/or Endangered (EN) species [numerical thresholds are set]
- Criterion 2: Endemic and/or restricted-range species [numerical thresholds are set]
- Criterion 3: Migratory and/or congregatory species [numerical thresholds are set]
- Criterion 4: Highly threatened and/or unique ecosystems [numerical thresholds are set]
- Criterion 5: Key evolutionary processes [Best available scientific information and expert opinion should be used to guide decision-making with respect to the relative “criticality” of a habitat in these cases]

Critical Habitat can also include internationally recognised areas of high biodiversity value. These could be areas meeting the criteria of IUCN’s Protected Area Categories 1a, 1b and 2 or Key Biodiversity Areas (including Important Bird Areas).

This Critical Habitat Assessment considered Criteria 1 to 4 above, as per the clients Terms of Reference.

These criteria are described in more detail below. Text in italics is directly copied from the IFC Guidance Note 6 (June, 2019).

Criterion 1: Critically Endangered and Endangered Species

GN70. Species threatened with global extinction and listed as CR and EN on the IUCN Red List of Threatened Species shall be considered as part of Criterion 1. GN14 Critically Endangered species face an extremely high risk of extinction in the wild. Endangered species face a very high risk of extinction in the wild.

GN71. As described in footnote 11 of Performance Standard 6, the inclusion of species in Criterion 1 that are listed nationally/regionally as CR or EN in countries that have adhered to IUCN guidance, GN15 shall be determined on a project-by-project basis in consultation with competent professionals.

GN72. Thresholds for Criterion 1 are the following:

(a) Areas that support globally-important concentrations of an IUCN Red-listed EN or CR species ($\geq 0.5\%$ of the global population AND ≥ 5 reproductive units GN16 of a CR or EN species).

(b) Areas that support globally-important concentrations of an IUCN Red-listed Vulnerable (VU) species, the loss of which would result in the change of the IUCN Red List status to EN or CR and meet the thresholds in GN72(a).

(c) As appropriate, areas containing important concentrations of a nationally or regionally listed EN or CR species.

The IUCN categories of extinction risk are as follows:

- *EXW – Extinct in the Wild – A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range.*
- *CR – Critically Endangered – Species facing an extremely high risk of extinction in the wild*
- *E – Endangered – Species facing a very high risk of extinction in the wild*
- *V- Vulnerable – Species facing a high risk of extinction in the wild*
- *NT – Near-threatened – A taxon is Near threatened when it has been valuated against the criteria but does not qualify for Critically Endangered, Endangered, or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future*
- *DD – Data Deficient – Inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status*
- *LC – Least Concern – A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near-threatened. Widespread and abundant taxa are included in this category.*

Criterion 2: Endemic and Restricted-range Species

GN74. For purposes of this Guidance Note, the term endemic is defined as restricted-range. Restricted range refers to a limited extent of occurrence (EOO).

- *For terrestrial vertebrates and plants, a restricted-range species is defined as those species that have an EOO less than 50,000 square kilometers (km²).*
- *For coastal, riverine, and other aquatic species in habitats that do not exceed 200 km width at any point (for example, rivers), restricted range is defined as having a global range of less than or equal to 500 km linear geographic span (i.e., the distance between occupied locations furthest apart).*

GN75. The threshold for Criterion 2 is the following:

- a) Areas that regularly hold $\geq 10\%$ of the global population size AND ≥ 10 reproductive units of a species.*

Criterion 3: Migratory and Congregatory Species

GN76. Migratory species are defined as any species of which a significant proportion of its members cyclically and predictably move from one geographical area to another (including within the same ecosystem).

GN77. Congregatory species are defined as species whose individuals gather in large groups on a cyclical or otherwise regular and/or predictable basis. Examples include the following:

- *Species that form colonies.*

- *Species that form colonies for breeding purposes and/or where large numbers of individuals of a species gather at the same time for non-breeding purposes (for example, foraging and roosting).*
- *Species that utilize a bottleneck site where significant numbers of individuals of a species occur in a concentrated period of time (for example, for migration).*
- *Species with large but clumped distributions where a large number of individuals may be concentrated in a single or a few sites while the rest of the species is largely dispersed (for example, wildebeest distributions).*
- *Source populations where certain sites hold populations of species that make an inordinate contribution to recruitment of the species elsewhere (especially important for marine species).*

GN78. Thresholds for Criterion 3 are the following:

- Areas known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle.*
- Areas that predictably support ≥ 10 percent of the global population of a species during periods of environmental stress.*

Criterion 4: Highly Threatened or Unique Ecosystems

GN79. *The IUCN is developing a Red List of Ecosystems, following an approach similar to the Red List for Threatened Species. The client should use the Red List of Ecosystems where formal IUCN assessments have been performed. Where formal IUCN assessments have not been performed, the client may use assessments using systematic methods at the national/regional level, carried out by governmental bodies, recognized academic institutions and/or other relevant qualified organizations (including internationally-recognized NGOs).*

GN80. *The thresholds for Criterion 4 are the following:*

- Areas representing $\geq 5\%$ of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN.*
- Other areas, not yet assessed by IUCN, but determined to be of high priority for conservation by regional or national systematic conservation planning.*

Ecosystems within the GVI Area of Influence were screened against the Criteria 4 requirements using available systems of ecosystem categorisation.

3. Critical Habitat Determination

3.1. Area of Influence/Analysis

The *Area of Influence* (AoI) for the project was determined to be the GVI site itself and a 5 kilometre buffer around its outer boundary and 2 kilometre buffer either side of the grid connection power line (6.5km long). The AoI consists of two vegetation types predominantly, the Bedford Dry Grassland in the flatter higher lying ground to the east, and the Great Fish Thicket on the slopes and lower lying ground in the west. The land use is livestock farming on the natural vegetation with intensive crop cultivation only in the west along the Great Fish River.

The *Area of Analysis* (AoA) and the rationale behind it has been described for each species below in Section 3.2. Three distinct areas were identified. For Cape Vulture an AoA of a 50km radius around the Agieskloof roost site was identified, to include the expected range of foraging vultures. The GVI site falls within this AoA (Figure 1).

For Blue Crane, Black Harrier and African Marsh-Harrier, which only use the more open Bedford Dry Grassland habitat, the AoA was focused on this habitat type. A large discrete block of this habitat type intersects with the site and extends to the east (Mucina & Rutherford, 2005). This block is approximately 1 290 km² in size.

For the remaining species an area of approximately 2 270km² has been deemed suitable (Figure 1). This was derived from applying a 20 kilometre buffer around the site boundary (including grid connection power line) amended slightly to exclude the mountainous area in the north-west, which differs ecologically.

We note that GN59 states that boundaries should be “equivalent in scale to areas mapped for practical site-based conservation management activities”. The most relevant protected area in the broader landscape is the Mountain Zebra National Park which is 2 750km². It appears then that our selected boundaries are appropriate.

These areas have been used to assess the applicability of the criteria and thresholds in the following sections. These AoA’s have allowed the consideration of direct, indirect and cumulative impacts of the GVI project.

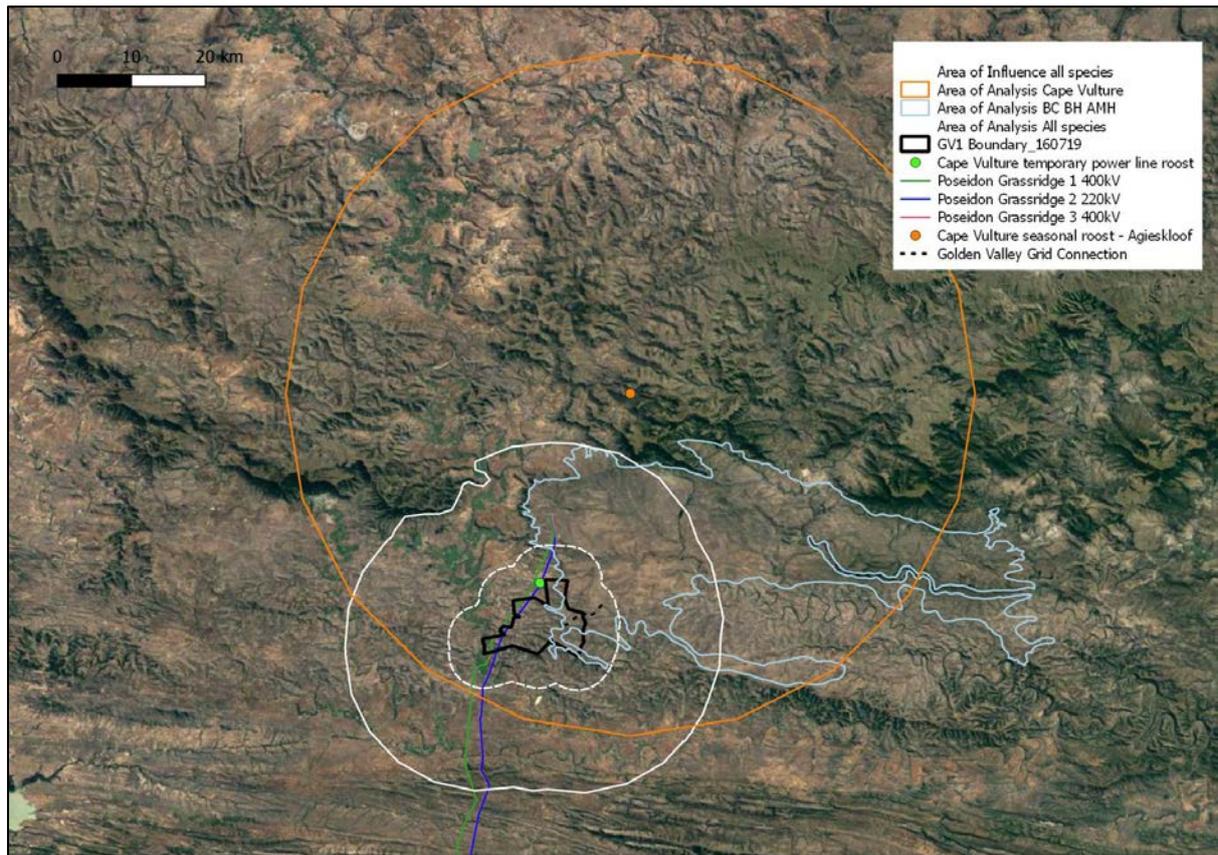


Figure 1. Area of Influence & Analysis for the GVI site.

3.2. Criteria 1: Critically Endangered and Endangered species

The species shown in Appendix 1 have been recorded on site or in the surrounds by the previous studies cited in Section 2.1. Those species which are ‘Critically Endangered’, ‘Endangered’ or ‘Vulnerable’ globally (IUCN, 2019), or ‘Critically Endangered’ or ‘Endangered’ regionally (Taylor *et al*, 2015) are presented in Table 1 as candidate species and screened against Criterion 1 (and Criteria 2 & 3 for relevant species). The regional Red List (Taylor *et al*. 2015) was used for national species status as it is reasonably current and adhered to the IUCN criteria in its compilation.

Criterion 1 candidate species are described individually in more detail below, and also assessed against Criteria 2 and 3 where relevant:

Family Otididae

Ludwig’s Bustard *Neotis ludwigii*

Ludwig’s Bustard is classified as Endangered both regionally (Taylor *et al*, 2015) and globally (IUCN, 2019), and is a near endemic to South Africa. The population is decreasing (BirdLife International, 2016). This is a nomadic species, which has been recorded on the GVI site occasionally in small groups of up to 6 birds. No breeding birds were recorded by our work in the area. Few breeding

locations exist for the species through most of its range. The closest records we are aware of are at Cradock approximately 80km north of GVI. This species moves around the landscape in response to rainfall and optimal foraging conditions. This is therefore an extremely challenging species for which to develop an Area of Analysis. However, the site with 20km buffer is a large landscape unit that holds substantial suitable habitat for this species. We estimate that up to 30 birds could be present within the AoA from time to time. Much of the time there will be no birds in the area, when conditions are not right or are optimal elsewhere in the landscape. The global population was estimated at 114 000 birds in 2013 (Shaw, 2013) and 2016 (BirdLife International, 2016). On this basis this species does not meet any of the thresholds for Criterion 1.

Ludwig's Bustard is a near endemic, occurring in South Africa, Namibia, Angola and Lesotho. However its range far exceeds the IFC definition of range restricted (Extent of Occurrence $\leq 50\,000\text{km}^2$) and so does not trigger Criterion 2. The species is also a partial migrant (migrating within the region in response to environmental conditions) but does not meet the threshold under Criterion 3 ($\geq 1\%$ of global population or $\geq 10\%$ of global population during periods of environmental stress).

Southern Black Korhaan *Afrotis afra*

Southern Black Korhaan is classified as Vulnerable both regionally (Taylor *et al*, 2015) and globally (IUCN, 2019). This is a resident and sedentary species, which we recorded in small groups in the area surrounding the GVI site in 2013 (but not 2018). The species has also been recorded in the broader area by the Southern African Bird Atlas Project 1 and 2 (Harrison *et al*, 1997; www.sabap2.adu.org.za). The Area of Analysis determined for this species is the site plus a 20km buffer. This equates to a total AoA of $2\,270\text{km}^2$. This AoA holds substantial suitable habitat for this species at a landscape scale. We estimate a population of up to 50 birds could occur in the AoA. There is no global population estimate for this species (Taylor *et al*, 2015). Although we do not have a global population estimate for the species it seems very unlikely that even complete loss of this local population would justify an upgrade to Endangered status for the species.

Southern Black Korhaan is endemic to South Africa, but its EoE far exceeds the IFC definition of range restricted as its Extent of Occurrence is $156\,087\text{km}^2$ ($\geq 50\,000\text{km}^2$).

Family Gruidae

Grey Crowned Crane *Balearica regulorum*

Grey Crowned Crane is Endangered regionally and globally (Taylor *et al*, 2015; IUCN, 2019) and the population is decreasing (BirdLife International, 2016). We recorded the species once (two birds) in the AoI, approximately 9km north-east of site. This species is closely associated with wetlands and crop lands, neither of which is present on GVI. We have determined the AoA to be a 20km radius around the site (Figure 1). This equates to a total AoA of $2\,270\text{km}^2$. This AoA holds sufficient suitable

habitat for this species (both features being mostly closely associated with streams and drainage lines, and being fairly isolated in their occurrence) and we consider it to be an appropriate unit of analysis for the project. Within the AoA we estimate there to be up to 5 Grey Crowned Cranes (the 2 adults we recorded plus 3 offspring if breeding occurs although we have not confirmed such). The global population (of the South African subspecies *B. r. regulorum*) is estimated at 3 500 mature birds (Taylor *et al.*, 2015). On this basis this species does not meet any of the thresholds for Criterion 1.

Grey Crowned Crane is a congregatory species, with winter flocks of up to several hundred birds foraging and roosting together. The Criterion 3 thresholds are however not met ($\geq 1\%$ of global population or $\geq 10\%$ of global population during periods of environmental stress).

Blue Crane *Anthropoides paradiseus*

Blue Crane is classified as Near-threatened regionally (Taylor *et al.*, 2015) and Vulnerable globally (IUCN, 2019) and the population is stable. This species is resident in an area, congregating into flocks in the non-breeding winter and splitting into pairs and family units in the summer breeding season. During 2013 the species was recorded with reasonable regularity on site in groups of up to 14 birds and one nest was located on site. During 2018 the species was recorded in higher abundance on site and in groups of up to 20 birds. Four nests were located on site during breeding season. These were not within 300 metres of turbines (see Section 4 – SEA). Blue Cranes do not nest in the exact same location each year, partly since no physical nest is built, the eggs being laid in a scrape on the ground or at most a few pebbles or tufts of grass being scraped together. Birds do however tend to nest within a few hundred metres of the same location each year. The 300 metre buffer around nests imposed by the SEA while well meaning, is unlikely to be practically effective in protecting breeding sites. Our own approach was to ensure that connectivity between each nest site (which were each on mid-slopes) and the lower lying drainage lines, dams, wetlands, and the extensive Bedford Dry Grassland to the east was maintained (the area to the west being unsuitable thicket vegetation)(Figure 2).

We have determined the Area of Analysis to be a discrete unit of Bedford Dry Grassland, which occurs on the eastern portion of the GVI site and extends to the east. This unit of grassland occupies an area of approximately 1 290km². The more closed Great Fish Thicket is not appropriate habitat for the species. This AoA holds substantial suitable habitat for this species and we consider it to be an appropriate unit of analysis for the project. Within this AoA we estimate that up to 40 birds, including up to 8 nests could occur. As the global population estimate is of 25 500 mature birds (Taylor *et al.*, 2015; BirdLife International 2018), this does not constitute a regional concentration of this Vulnerable species, nor would the species be reclassified as Endangered should this local population be lost. There are far more concentrated and important populations in the eastern grasslands of South Africa, the Karoo and the Overberg Western Cape. On this basis this species does not meet the thresholds for Criterion 1 (Table 1).

Blue Cranes are near endemic to South Africa, although the species does not meet the IFC definition of restricted range as its Extent of Occurrence is 300 546km² ($\geq 50\ 000\text{km}^2$). Blue Crane is also a congregatory species, but does not meet the threshold of $\geq 1\%$ of global population or 10% during periods of environmental stress.

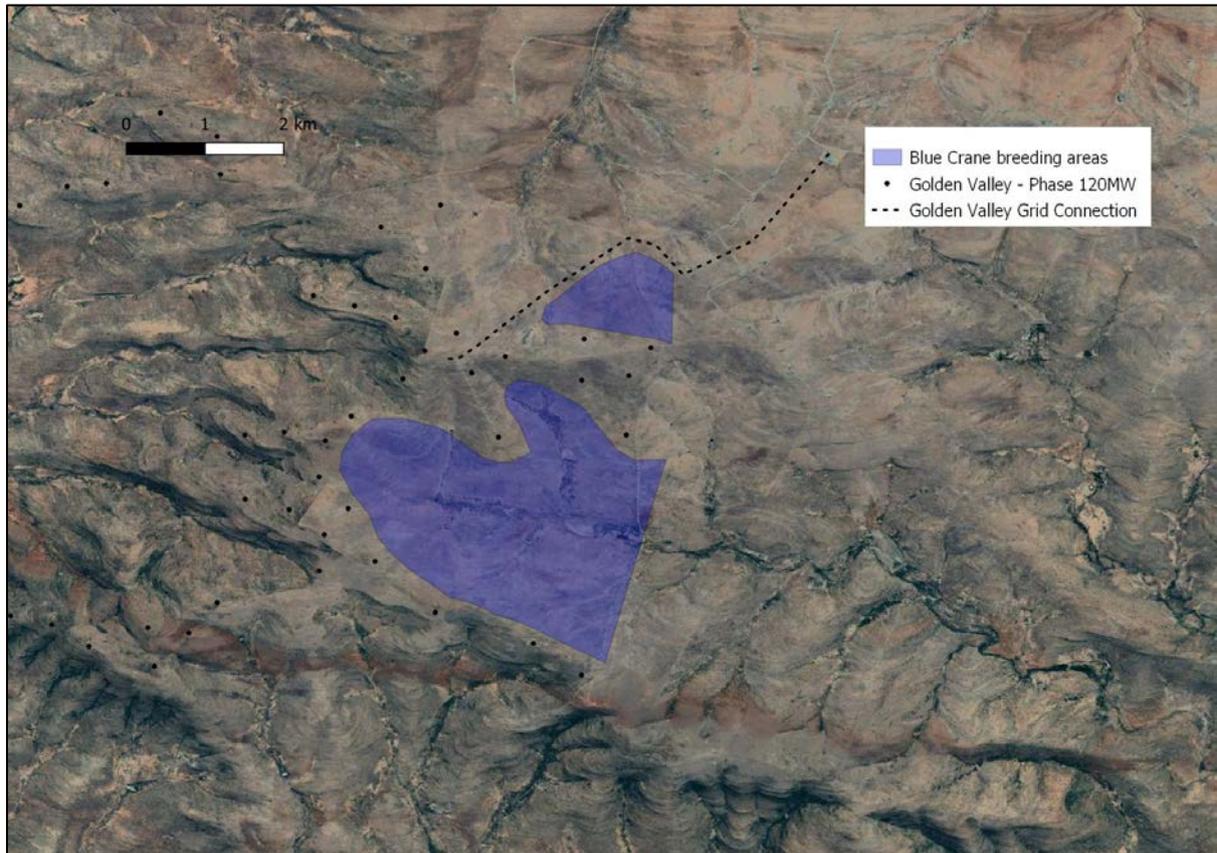


Figure 2. Blue Crane breeding areas.

Family Accipitridae

Black Harrier *Circus maurus*

Black Harrier is classified as Endangered both regionally (Taylor *et al*, 2015) and globally (IUCN, 2019) and is a partial migrant (migrating seasonally within its range). Single birds have been recorded on the GVI site several times during our studies to date. No pairs of birds or any indications of breeding have been recorded. Since this is an occasional visitor to site and may pass through relatively rapidly in some cases, the Area of Analysis determination is challenging once again. We have determined the Area of Analysis to be a discrete unit of Bedford Dry Grassland, which occurs on the eastern portion of the GVI site and extends to the east. This unit of grassland occupies an area of approximately 1 290km². The more closed Great Fish Thicket is not appropriate habitat for the species. This AoA holds substantial suitable habitat for this species and we consider it to be an appropriate unit of analysis for the project. We estimate that up to a maximum of 3 birds could visit

the AoA occasionally. The global population estimate is <1 000 birds (Taylor *et al*, 2015; & BirdLife International, 2016) and decreasing. On this basis this species does not meet any of the thresholds for Criterion 1.

Black Harrier is a South African endemic, and the worlds' most range restricted harrier. However its range (> 400 000km²) far exceeds the IFC definition of range restricted (Extent of Occurrence ≤50 000km²) and so does not trigger Criterion 2. The species is also a partial migrant (migrating within the region in response to environmental conditions) but does not meet the threshold under Criterion 3 (≥1% of global population or ≥10% of global population during periods of environmental stress).

African Marsh Harrier Circus ranivorus

African Marsh-Harrier is classified as Endangered regionally (Taylor *et al*, 2015) and Least Concern globally (IUCN, 2019). This species is typically resident and closely associated with true wetlands. We did not record the species on the GVI site, but it has been recorded in the broader area by the Southern African Bird Atlas Project 1 and 2 (Harrison *et al*, 1997; www.sabap2.adu.org.za). We have determined the Area of Analysis to be a discrete unit of Bedford Dry Grassland, which occurs on the eastern portion of the GVI site and extends to the east. This unit of grassland occupies an area of approximately 1 290km². The more closed Great Fish Thicket is not appropriate habitat for this species. Within the AoA we estimate the population to be up to 10 birds. The global estimate for the population is 10 000 to 100 000 birds (BirdLife International, 2016). On this basis the species does not meet the thresholds for Criterion 1 (Table 1).

Cape Vulture Gyps coprotheres

Cape Vulture is classified as Endangered both regionally (Taylor *et al*, 2015) and globally (IUCN, 2019; BirdLife International, 2017) and has a decreasing population. We made 5 observations of single birds in flight on the GVI site during our 2013 monitoring and no records for the species on site during our 2018 monitoring. This equates to an overall passage rate (both monitoring periods combined) of 0.009 birds/hour. This is an extremely low passage rate for such an easily detected (large & gregarious) bird species.

A seasonal (occupied in warmer months – September to March) Cape Vulture cliff roost site (called Agieskloof) exists approximately 35 kilometres north of the GVI site. It is believed that vultures recorded foraging on or near the GVI site originate from this roost. For clarity, the term 'roost' is used for sites where vultures congregate to sleep at night. These are most typically on cliffs, but can also be on the steel pylons of large electricity transmission lines or even trees (although these are normally very temporary). No breeding takes place at roosts. Vulture colonies on the other hand describe breeding colonies, always on cliffs for Cape Vultures. Roosting also takes place at breeding colonies (in the non-breeding season, and/or non-breeding birds).

Cape Vultures use seasonal roost sites such as Agieskloof to reduce their daily flight distance (and consequent energy requirements) through sleeping closer to foraging areas. Summer is the non-breeding season for this species and so the birds (including young birds) disperse more widely from breeding colonies. As with breeding colonies, roosts are most typically on ledges on vertical cliffs to provide protection from predation. At least one other roost site exists further north-east of Agieskloof, approximately 71km from the GVI site, but is not considered relevant to this assessment. We have monitored the Agieskloof roost site (35km north of GVI – Figure 3, 4) quarterly since September 2016 and recorded a maximum count of 86 birds in summer 2018. The number of vultures using this roost therefore fluctuates between 0 (through most of winter – March to August) and a maximum count of 86 birds in the warmer months. The number of birds using the roost can fluctuate quite significantly within the summer months presumably on account of birds sometimes using other roosts in the landscape, or even returning further east to breeding colonies on some nights. We presume this is all related to where in the landscape food is found each day. It is believed that this is a summer roost, with birds returning to the breeding colonies further to the east for the breeding season. No breeding records were made at the Agieskloof roost or anywhere else in the area, the closest known breeding colony being 150km to the north-east of GVI. These breeding colonies range in size from <10 breeding pairs to approximately 200 pairs (at the nearest large colony – Collywobbles – 264km east of GVI).

During March 2015, pre-construction bird monitoring for a different proposed wind farm nearby, Golden Valley II Wind Farm, recorded a temporary (used for at least 8 days) perching site on the existing Eskom Transmission lines approximately 3-4km off site to the north. This perch was used by up to 90 vultures presumably in response to a temporarily available food source. The location of this perch site and the transmission lines is included in the Cape Vulture AoA and shown in Figure 1. We have not recorded a repeat use of this site, or others on the transmission lines within the AoA since.

Movement of vultures in the local area has not yet been adequately studied. It is believed that vultures forage daily outwards from the Agieskloof and other roost sites. The surrounding area is almost all under some form of either livestock or game farming. This means that wild antelopes, cattle, horses, donkeys, sheep and goats would be available to the vultures as food when they die. Most farmers leave animals where they die and do not remove them unless autopsy is specifically required. This means that vulture food is dispersed through the landscape. We are not aware of any 'vulture restaurants' (regular feeding sites where carcasses are deliberately fed to vultures) anywhere near the AoI which could influence daily vulture movement in any way. We have not done any formal analysis of livestock/wildlife management systems in the area as relevant to the availability of food for vultures. At the provincial level it is believed that most of the more western roost sites (Figure 3) are utilised by vultures in the summer months when the birds are not breeding, and then largely vacated during winter when the birds' range contracts back towards the breeding colonies which are mostly to the east. No roosts or colonies exist further west than shown in Figure

4 except for the isolated Potberg colony in the Western Cape some 600-700km to the west of GVI. No movement between the Eastern Cape and Potberg populations has been confirmed to our knowledge. The GVI site therefore lies in the far west of the species range, in an area occupied mostly in summer. It is likely that birds move frequently between the westernmost roosts, but this movement would not bring them close to the GVI site. There are therefore no known corridors of connectivity for the species that would place them at risk on the GVI site. There are also no significant topographic or orthographic features on site that could be particularly attractive to vultures.

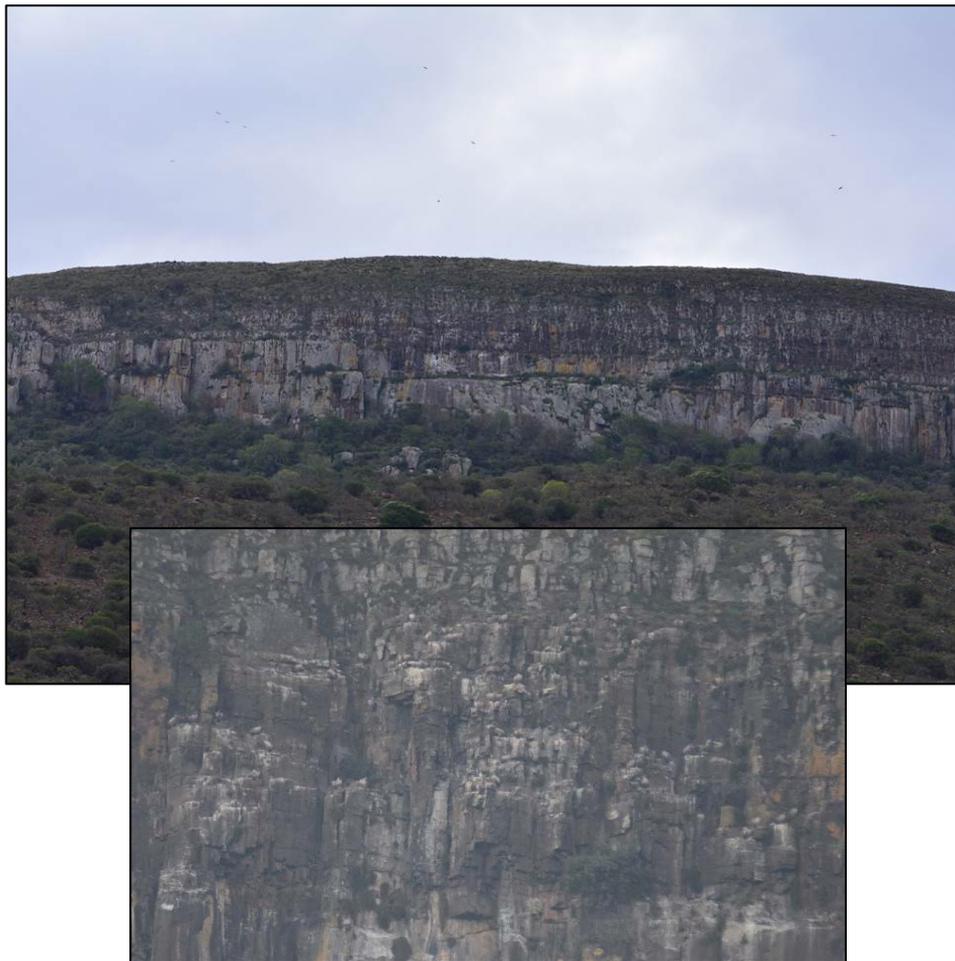


Figure 3. The Agieskloof Cape Vulture roost site.

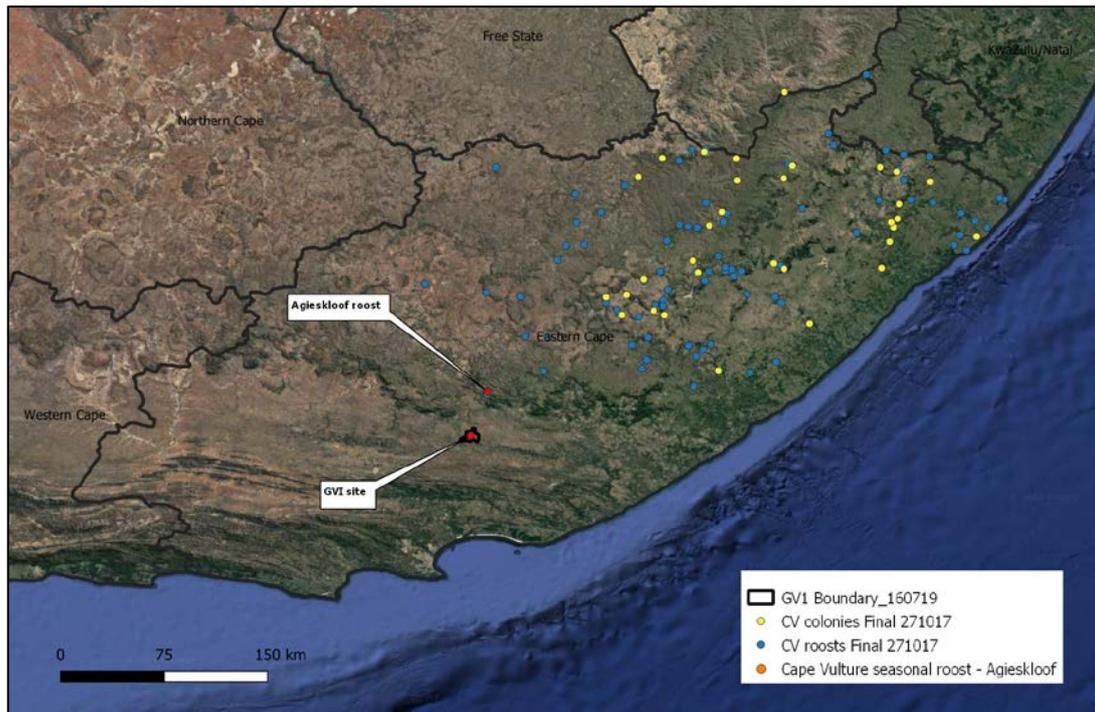


Figure 4. The position of the GVI site relative to Cape Vulture roosts & colonies.

To summarise the situation: vultures forage over the site and adjacent area (the AoI) occasionally, particularly in the summer months. This foraging is infrequent and appears to involve low numbers of birds in most cases. Presence of food may attract large numbers for a period, but this appears to be unusual as we recorded only one such occurrence during the monitoring undertaken so far.

We determine the AoA for this species to be a 50 kilometre radius around the Agieskloof roost site. This is based on the maximum usual foraging range for this species, which has been established by multiple authors, most recently Venter *et al* (2018). This equates to a total AoA of 7 854km² and the GVI site falls within this area. This AoA holds substantial suitable habitat for this species and we consider it to be an appropriate unit of analysis for the project. Within the AoA we estimate that up to 100 birds may be present in the summer months, and almost zero in winter when adult birds return to breeding colonies several hundred kilometres to the east. The most accurate comprehensive global estimate is of 12 000 birds in 1994 (Piper, 1994 & in Taylor *et al*, 2015). A more recent estimate is of 8 800 mature birds (based on 4 400 pairs – Taylor *et al*, 2015). Considering sub-adult and non-breeding adult birds also, it is likely that the total population would still be in the region of 12 000 birds. The IUCN Global estimate is of a global total of 14 100 birds (BirdLife International, 2017). We have used this estimate for this assessment. On this basis this species meets the Criterion 1 numerical threshold for both the percentage of population and the

presence of at least five reproductive units (taken as the number of mature individuals, as Agieskloof is not a nesting site)¹.

Cape Vulture is a near endemic to southern Africa. However its range far exceeds the IFC definition of range restricted (Extent of Occurrence $\leq 50\,000\text{km}^2$) and so does not trigger Criterion 2. The species is also a congregatory species, roosting and breeding in colonies, but does not meet the threshold under Criterion 3 ($\geq 1\%$ of global population or $\geq 10\%$ of global population during periods of environmental stress).

Because vultures are very wide ranging, simply using a defined AoA and the PS6 thresholds to determine Critical Habitat can be problematic. In light of this, IFC has developed additional internal guidance for identifying vulture Critical Habitat, with a number of further considerations related to vulture nesting, movements and foraging. These help to determine whether or not the area in question is truly of significant importance for the vultures. We make the following conclusions with respect to these additional considerations:

- The Agieskloof roost is sizeable ($> 0.5\%$ of the global population) and used regularly. This demonstrates that this landscape is important for this species.
- However, movement corridors are likely to be predominantly to the east of Agieskloof since it is positioned at the very western range of the population (with exception of the Potberg colony with which there does not seem to be regular interchange).
- The very low frequency of vulture observations on the GVI site suggests that the project site and surrounds are not favoured for foraging, and food may rarely be available.
- Topography of the wider landscape suggests that vultures are more likely to be foraging regularly in the rugged and mountainous terrain north of Cookhouse, and not so much in the relatively flat area where project is located.

Our initial determination, based on the additional IFC considerations, is therefore that that the GVI site is **not** in Critical Habitat.

Movements of vultures in the landscape will become clearer once birds are tracked as part of a research programme by the Endangered Wildlife Trust (this is described in more detail in the Golden Valley I Biodiversity Action Plan – WildSkies, 2019). This finding should therefore be kept under review.

It is also noted that three wind farms are operational already close to GVI and a further two at least have been authorised. These are to the north, north-east and east of the GVI site, between GVI and

¹ Although GN6 does not specify the approach for non-breeding sites, IUCN's Key Biodiversity Standard, on which PS6 Criterion 1a is based, notes that "For sites at which breeding does not occur, the reproductive-unit threshold should be translated into the equivalent number of mature individuals" (IUCN 2019, section 3.3).

the Agieskloof roost. Two of the operational wind farms have recorded Cape Vulture turbine collision fatalities to date. The cumulative impacts of wind farms on Cape Vulture are therefore of some concern in this area. We recommend a cumulative response by the wind farms, through collaboration on the above-mentioned research and partnership with relevant stakeholders such as Endangered Wildlife Trust and BirdLife South Africa (detailed in the Golden Valley I Biodiversity Action Plan – WildSkies, 2019).

Cape Vulture is of significant stakeholder concern and mitigation (and ongoing monitoring) will be needed to reduce potential risks to vultures through actions detailed in the GVI Biodiversity Action Plan. It is also a key species considered by the National Strategic Environmental Assessment (SEA) for wind energy, as described in more detail in Section 4 of this report.

Martial Eagle *Polemaetus bellicosus*

Martial Eagle is classified as Endangered regionally (Taylor *et al*, 2015) and Vulnerable globally (IUCN, 2019) and the population is decreasing. Single birds have been recorded occasionally on site. No breeding records or indications of breeding behaviour have been recorded. We determine the Area of Analysis to be the site plus a buffer of 20km (based on a precautionary addition to the best estimate home range radius of 9.5km – Boshoff, 1993). This equates to a total AoA of 2 270km². This AoA holds substantial suitable habitat for this species and we consider it to be an appropriate unit of analysis for the project. Within the AoA we estimate that up to 3 birds may reside. Our best possible global estimate is 16 000 birds. This is inferred from the regional population estimate of 800 mature birds (Taylor *et al*, 2015) and the statement by these authors that this exceeds 5% of the global population. On this basis this species does not meet any of the thresholds for Criterion 1.

Family Sagittariidae

Secretarybird *Sagittarius serpentarius*

Secretarybird is classified as Vulnerable regionally (Taylor *et al*, 2015) and globally (IUCN, 2019) and the population is decreasing (BirdLife International, 2016). During our work on site we recorded one pair of birds. The AoA is the site plus a 20km radius or 2 270km². This is based on a precautionary approach and consideration of the maximum home range of 230km² (Hockey *et al*, 2005)(which implies an 8.6km radius if circular). This AoA holds substantial suitable habitat for this species and we consider it to be an appropriate unit of analysis for the project. There is no global population estimate, however we infer from a regional population estimate of ≤ 10 000 mature birds which is ≥5% of global range that the global population could be approximately 200 000 birds. Within the AoA, we estimate that up to 10 pairs could occur. Although this is a rough estimate, it is clear that the AoA does not constitute a regional concentration of this Vulnerable species, nor would the species be reclassified as Endangered should this local population be lost. This species therefore does not meet the thresholds for Criterion 1 (Table 1).

Table 1. Screening of Criteria 1 candidate species.

Species (Regional, Global status)	Baseline data	Area of Analysis	Population estimate in Area of Analysis	Global population estimates	Criterion 1 Critically Endangered & Endangered Species		
					Threshold a (≥0.5% of glob population & ≥5 reproductive units for IUCN CR & EN)	Threshold b (Glob important concentration of IUCN VU species)	Threshold c (Important concentrations of regional CR & EN species)
Family Otididae							
Ludwig's Bustard <i>Neotis ludwigii</i> (EN, EN, Endemic but EoO 189 684km ² therefore not range restricted – Taylor <i>et al</i> , 2015)	2013 – 2 records made on site (6 birds & 1 bird). 1 bird recorded flying once during vantage point observations. 2018 - 1 flight of a single bird recorded, & 1 record of 1 bird during a driven transect. No breeding records were made.	Site + 20km radius. Total of approx. 2 270km ²	Up to 30 birds may occasionally visit the AoA.	114 000 birds (Shaw, 2013)	< threshold of 570 birds < 5 reproductive units	n/a	AoA population not important concentration of the species.
Southern Black Korhaan <i>Afrotis afra</i> (VU, VU, Endemic but EoO is 156 087km ² therefore not range restricted - Taylor <i>et al</i> , 2015)	We recorded up to 5 birds on site. 2013 - 6 birds from 4 incidental records on site. 2018 – not recorded on site but in broader area incidentally.	Site + 20km radius. Total of approx. 2 270km ²	Up to 50 birds	No global estimate.	n/a	AoA population not important concentration of the species.	n/a
Family Gruidae							
Grey Crowned Crane <i>Balearica regulorum</i> (EN, EN)	2018 – 2 birds recorded once 9km north-east of GVI on crop land, with flock of Blue Cranes.	Site + 20km radius. Total of approx. 2 270km ²	Up to 5 birds (1 pair + 3 juveniles if they breed)	3 500 mature birds (Taylor <i>et al</i> , 2015)	Threshold of 17.5 mature birds not exceeded. Only one breeding unit (assumed).	n/a	AoA population not important concentration of the species. As far as we are aware there may only be two adults birds in the AoA, which flock with Blue Cranes since no local flock of Grey Crowned Cranes exists.

Blue Crane <i>Anthropoides paradiseus</i> (NT, VU, Endemic but EoO is 300 546km ² therefore not range restricted - Taylor <i>et al</i> , 2015)	2013 - recorded with reasonable regularity on site, groups up to 14 birds, 1 nest located on site. 2018 - higher abundance, groups of up to 20. Four nest sites were located on site.	Discrete unit of Bedford Dry Grassland of approx. 1 290km ²	Up to 40 birds including 8 nests	25 500 mature birds (Taylor <i>et al</i> , 2015)	n/a	AoA population not important concentration of the species.	n/a
Family Accipitridae							
Black Harrier <i>Circus maurus</i> (EN, EN, Endemic but EoO is 174 886km ² therefore not range restricted - Taylor <i>et al</i> , 2015)	2013 - 3 flights of single birds recorded on site. 2018 – species not recorded. No breeding records were made.	Discrete unit of Bedford Dry Grassland of approx. 1290km ²	Up to 3 birds in AoA	< 1000 mature birds (Taylor <i>et al</i> , 2015).	< threshold of 5 birds < 5 reproductive units	n/a	AoA population not important concentration of the species.
African Marsh-Harrier <i>Circus ranivorus</i> (EN, LC)	We did not record this species on site, but the Southern African Bird Atlas Project 1 & 2 recorded it in the general area (Harrison <i>et al</i> , 1997; www.sabap2.adu.org.za).	Discrete unit of Bedford Dry Grassland of approx. 1 290km ²	Up to 10 birds	No global estimate, regional estimate of 6 000 – 10 000 mature birds (Taylor <i>et al</i> , 2015)	n/a	n/a	AoA population not important concentration of the species.
Cape Vulture <i>Gyps coprotheres</i> (EN, EN, Endemic but EoO is 211 852km ² therefore not range restricted - Taylor <i>et al</i> , 2015)	2013 - 5 flights of single birds on site. 2018 – no records on site. Up to 86 birds at Agieskloof roost (approximately 35km north of site) in warmer months. There are no breeding records for the area.	50km radius (based on daily core foraging range – Venter <i>et al</i> 2018) around Agieskloof roost – 7 853km ²	Up to 100 birds in summer, fewer in winter	14 100 (IUCN, 2019)	> 0.5% threshold of 71 birds, and more than five reproductive units (mature individuals)	n/a	AoA population not important concentration of the species. AoA is on the western margin of populations range and has birds seasonally not all year
Martial Eagle <i>Polemaetus bellicosus</i> (EN, VU)	2013 - 6 flights of single birds recorded. 2018 - 2 single birds on 2 flights	Site + 20km radius. Total of approx. 2 270km ² . (9.5km estimated home range radius (Boshoff, 1993) in Karoo - most similar habitat to GV I.)	Up to 3 birds (1 pair + 1 juvenile)	No global estimate. Regional population estimated 800 mature birds (Taylor <i>et al</i> , 2015), which is >5% of the global population. Global estimate therefore inferred to be approx. 16 000 birds.	n/a	AoA population not important concentration of the species.	AoA population not important concentration of the species.
Family Sagittariidae							
Secretarybird <i>Sagittarius serpentarius</i> (VU, VU)	Up to 1 pair of birds may reside on site (91km ²).	Site + 20km radius. Total of approx. 2 270km ² . Max home	Up to 10 pairs	No global estimate. Regional estimate < 10 000 mature birds	n/a	AoA population not important	n/a

	2013 - 4 birds from 2 incidental observation records on site. 2018 - 4 birds from 2 records on driven transects. 2 birds from 1 record on incidental observations.	range of 230km ² (Hockey <i>et al</i> , 2005) implies 8.6km radius if circular.		& ≥ 5% of global range. Global estimate therefore inferred to be approx. 200 000 birds.		concentration of the species.	
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3.3. Criteria 2: Endemic and restricted range species

Appendix 1 lists the bird species which are endemic or near-endemic to South Africa or the southern Africa region and occur within the GVI Area of Influence. These species were screened in terms of whether they meet the threshold of $\leq 50\,000\text{km}^2$ Extent of Occurrence. Where subspecies are relevant and have a subsection of the EoO the relevant subspecies for the GVI site was considered. None of these species meet this threshold as all of them have EoO exceeding $50\,000\text{km}^2$. There are therefore no species qualifying for Critical Habitat status under Criterion 2.

3.4. Criteria 3: Migratory and congregatory species

Appendix 1 lists the bird species which are migratory and/or congregatory and occur within the GVI Area of Influence. There are many species which fall into this category, but none of them was recorded or is likely to occur in the AoA in high enough abundance to meet the necessary thresholds. These species were screened in terms of whether they meet either $\geq 1\%$ of the global population or $\geq 10\%$ of the global population during periods of environmental stress. Appendix 1 presents a brief comment on the estimated population size within the AoA. For most of these common species accurate global population estimates are not available. However it is very unlikely that any of these species meet the threshold. No major roosts, colonies or migration bottlenecks or staging areas are present in the AoA for any of the relevant bird species.

There are therefore no Critical Habitat qualifying species under Criterion 3.

3.5. Criteria 4: Highly threatened or Unique Ecosystems

The vast majority of the GVI AoA is natural habitat, the only exception being intensively cultivated areas along the Great Fish River system (which is approximately 2.5km west of GVI), which have been modified for the production of crops and pastures. These areas however still provide suitable habitat to many bird species, some of which are threatened. The river complex does not however represent a critical habitat for any bird species

Only two IUCN Red List Ecosystem Assessments have been completed in South Africa, and neither of these is relevant to the GVI site (www.iucnrl.org/assessments/ - IUCN, 2019).

We consulted the most recent national biodiversity assessment information source for the ecosystem status in the Area of Influence in order to determine whether Criterion 4 would apply. The National Biodiversity Assessment (SANBI, 2011) identified ecosystems on two factors, 'ecosystem threat status' and 'ecosystem protection level'. Ecosystem threat status indicates the degree to which ecosystems are still intact. Ecosystem types are categorised as critically endangered (CR), endangered (EN), vulnerable (VU) or least threatened (LT), based on the proportion of each

ecosystem type that remains in good ecological condition relative to a series of thresholds. Ecosystem protection level tells us whether ecosystems are adequately protected or under-protected. Ecosystem types are categorised as not protected, poorly protected, moderately protected or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the Protected Areas Act.

The GVI Area of Analysis is comprised predominantly of the following ecosystem types according to SANBI (2011 – see Figure 5):

- Great Fish Thicket – ‘Least-threatened’ and ‘Poorly Protected’. This occurs on the GVI site itself.
- Bedford Dry Grassland – ‘Least-threatened’ and ‘Not Protected’. This occurs on the GVI site itself.
- Southern Karoo Riviere – ‘Least-threatened’ and ‘Hardly Protected’. This includes the Fish River system, which is off the GVI site itself.
- Cape Inland Salt Pans – ‘Vulnerable’ and ‘Poorly Protected’. There is one such pan approximately 6km south of the GVI site (Figure 5).
- Albany Broken Veld – ‘Least-threatened’ and ‘Hardly Protected’.

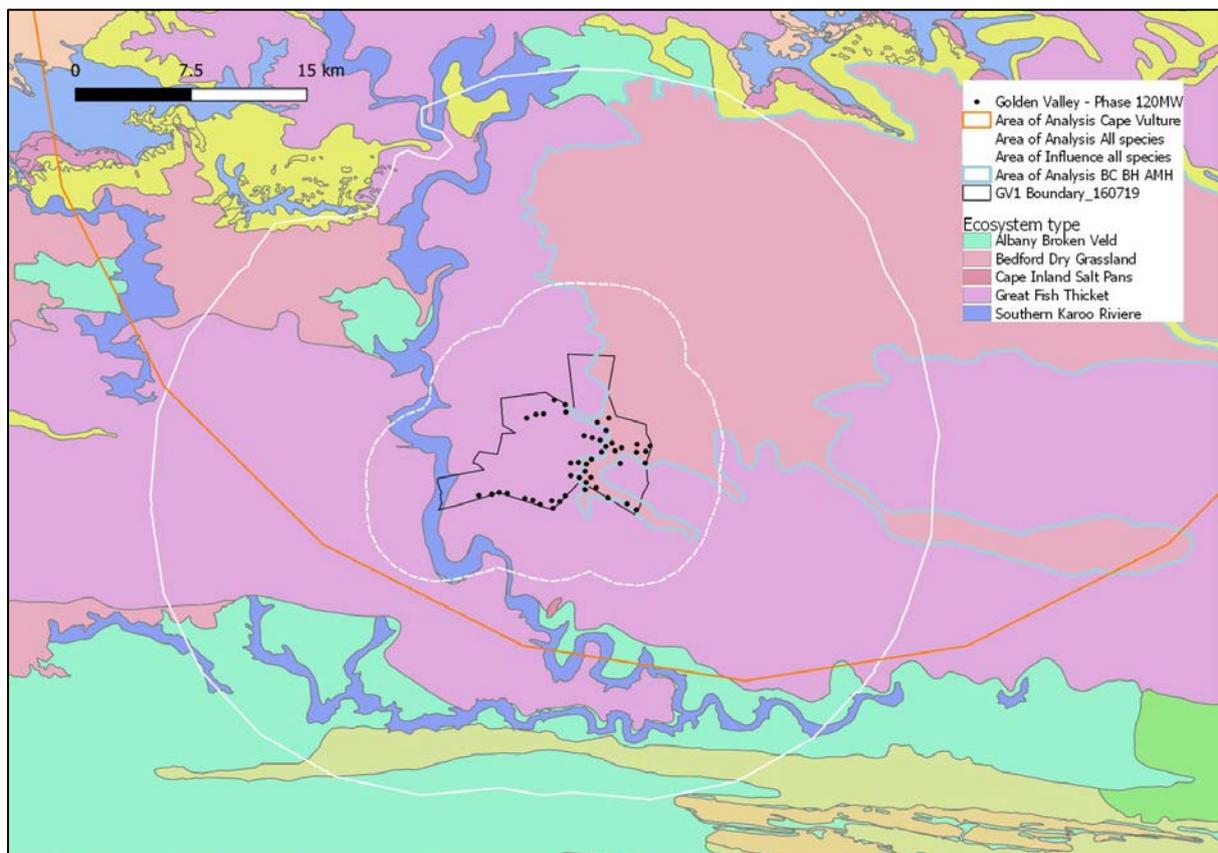


Figure 5. Ecosystem types present in the GVI Area of Analysis.

None of the ecosystems present in the Aoi meet the Criterion 4 thresholds ($\geq 5\%$ of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN or Other areas, not yet assessed by IUCN, but determined to be of high priority for conservation by regional or national systematic conservation planning). The single pan to the south of the GVI site is not sufficient of this habitat to meet this threshold. It will also not be impacted on at all by the GVI project activities.

There are no internationally or nationally recognised protected areas or areas of high biodiversity value intersecting the GVI Aoi. The closest Important Bird Area (Marnewick *et al*, 2015) is 58 kilometres to the north-east (the Katberg – Readsdales Forest Complex IBA). The closest protected area is the Bosberg Local Authority Nature Reserve 30 kilometres to the north-west of the site, at Somerset East. The closest national park is 38km to the south-west, the Addo Elephant National Park.

4. National Strategic Environmental Assessment

The Department of Environmental Affairs (DEA) committed to contributing to the implementation of the National Development Plan and National Infrastructure Plan by undertaking Strategic Environmental Assessments (SEAs) to identify adaptive processes that integrate the regulatory environmental requirements for Strategic Integrated Projects (SIPs) while safeguarding the environment. The first iteration of the wind and solar photovoltaic (PV) SEA was accordingly commissioned by DEA in 2013, in support of SIP 8, which aims to facilitate the implementation of sustainable green energy initiatives. This SEA identified areas where large scale wind and solar PV energy facilities can be developed in a manner that limits significant negative impacts on the environment, while yielding the highest possible socio-economic benefits to the country. These areas are referred to as Renewable Energy Development Zones (REDZs) (Department of Environmental Affairs, 2015). The gazetting of the output of this SEA was approved by Cabinet on 17 February 2016. A second Phase 2 SEA has also been initiated but is not relevant to the Golden Valley area.

Relevant to this assessment, the identification of potential REDZ avoided the following bird features: Important Bird Areas; Amur Falcon *Falco amurensis* & Lesser Kestrel *Falco naumannii* colonies + 10km buffer; Bearded Vulture *Gypaetus barbatus* nests +10km buffer; priority Cape Vulture colonies + 20km buffer; largest Cape Vulture colonies + 40km buffer; Saldanha flyway; Verlorenvlei flyway; and Lower Breede river +20km.

The GVI site falls within 'REDZ 3 – Cookhouse' (Figure 6). The avifaunal specialist component of the SEA report had the following to say about REDZ 3 – Cookhouse:

'Multiple casualties annually of vultures foraging on livestock carcasses on open farmland; could be sufficient to prevent successful re-colonisation of the western part of the Eastern Cape (Boshoff et al. 2011). Presence of Cape Vultures in the area presents problems for wind energy development. These problems may be surmountable provided that the existing guidelines and all suggested mitigation measures are adhered to, and the scale/extent of development is limited.'

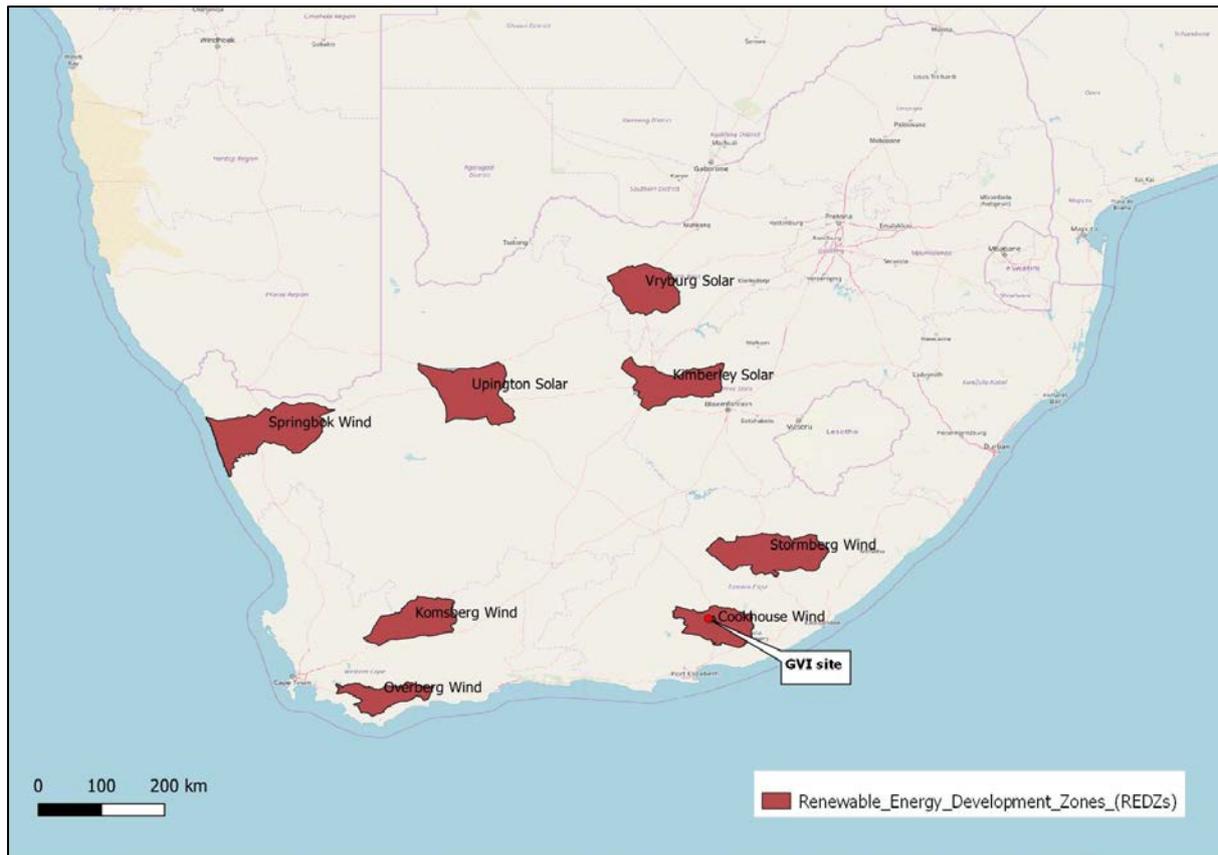


Figure 6. The position of the GVI site relative to the Renewable Energy Development Zones (REDZ)

Once REDZ areas were identified the avifaunal sensitivity within each REDZ was examined further (Department of Environmental Affairs, 2015).

Avifaunal factors considered in developing the sensitivity map for REDZ 3 – Cookhouse are as follows:

- Medium sensitivity
 - Within 5km of a 132kv or larger power line (possible roosting Cape Vultures & nesting large eagles, buzzards & falcons)
 - Presence data for threatened impact susceptible large terrestrial birds (from Southern African Bird Atlas Project)
- High sensitivity
 - 3km buffer around slopes $>75^\circ$
 - 20-40km buffer around known Cape Vulture roost sites
 - 150 to 300m from known Blue Crane nests
 - Within 5km of possible kestrel roost sites
 - 1 to 5km from known Lanner Falcon nest sites
- Very high sensitivity
 - Within 150m of known Blue Crane nests
 - Within 20km of known Cape Vulture roost sites

- Within 1km of major rivers (as avian flyways)
- Within 2km of selected Coordinated Waterbird Count sites

These features presented in Figure 7 (shape files used with permission from the CSIR), with the GVI site overlaid.

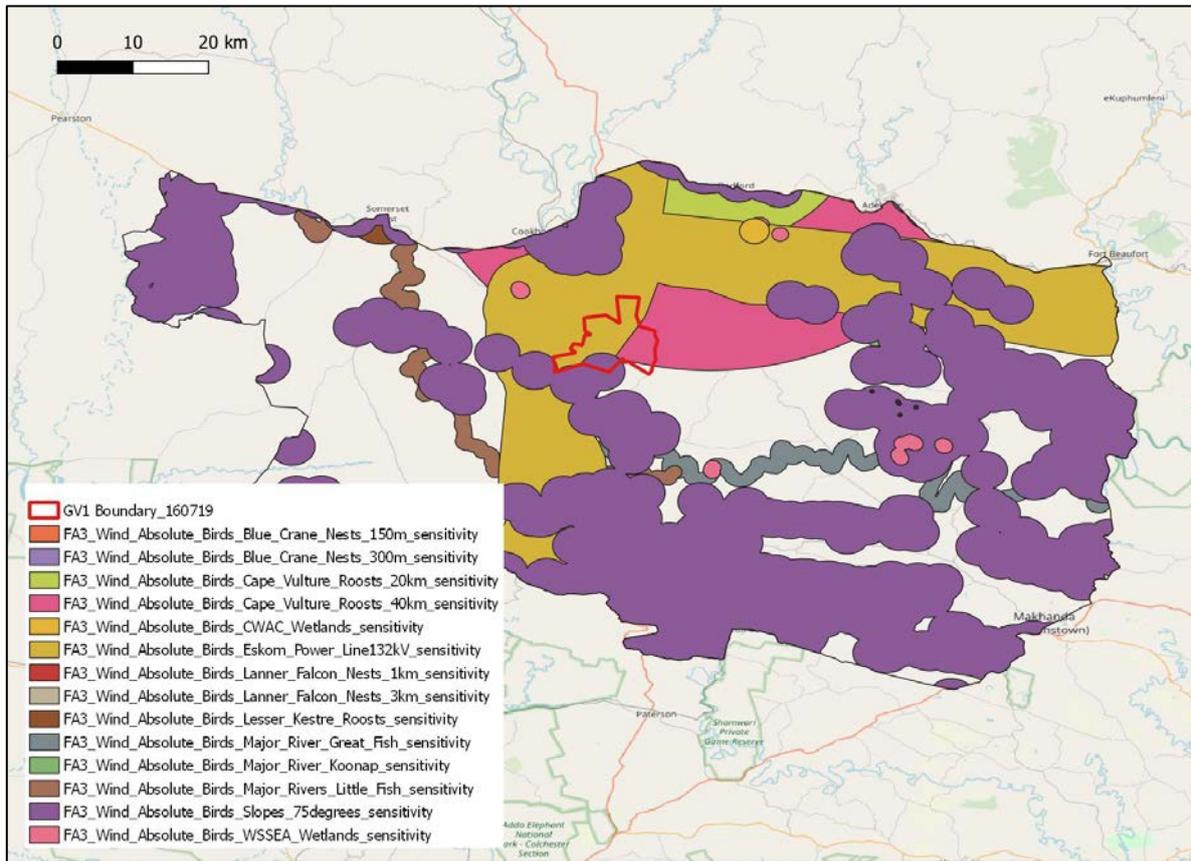


Figure 7. Avifaunal features within REDZ 3 – Cookhouse & the GVI site.

The GVI site is outside of the Very High sensitivity areas. It is within the High and Medium sensitivity category. Four features are relevant to the GVI site: most of the site falls within the 40km buffer around the Agieskloof Cape Vulture roost (High sensitivity); the southern edge of the site contains slopes of greater than 75° (High sensitivity); parts of the site fall within an area of ‘Presence data for threatened impact susceptible large terrestrial birds’ (Medium sensitivity)(these species are Blue Crane, Ludwig’s & Denham’s Bustard, & korhaans) and the western half of the site falls within the 5km buffer around power lines (Medium sensitivity). The implications of each sensitivity zone are presented in Table 2. It is noted that at GVI the buffer of 300 metres (as identified by the SEA) around Blue Crane nests has also been implemented.

Table 2. Requirements for each sensitivity zone.

Sensitivity class	Requirements	Permit requirements
Very high	Development in these areas is discouraged. The onus is on any would be developer to provide sound empirical evidence of sustainability in spite of the impact sensitivities identified.	Authorisation should be denied in terms of NEMA BirdLife South Africa should be requested to review any development proposal and advise accordingly
High	No streamlining possible – the full prescribed period of assessment and monitoring is required in accordance with the best practice guidelines. Particular attention should be paid to key sensitivities identified.	BirdLife South Africa should be requested to review any development proposal and the outcomes of assessments and monitoring and advise accordingly before authorisation can be considered in terms of NEMA
Medium	No streamlining possible – the full prescribed period of assessment and monitoring is required in accordance with the best practice guidelines. No realistic possibility of relaxing these requirements in light of initial survey results	BirdLife South Africa should be requested to review any development proposal and the outcomes of assessments and monitoring and advise accordingly before authorisation can be considered in terms of NEMA
Low	Streamlining is unlikely in these areas – the full prescribed period of assessment and monitoring is required in accordance with the best practice guidelines. It may be possible to relax some of these requirements in light of initial survey results.	BirdLife South Africa should be requested to review any development proposal and the outcomes of assessments and monitoring and advise accordingly before authorisation can be considered in terms of NEMA

The avifaunal specialist component of the SEA report made the following additional recommendations:

- *Keep wind farms outside of the designated Very High sensitivity buffer area around the Aggieskloof roost site.*
- *Survey vulture foraging patterns within the High sensitivity buffer around the roost to determine areas of high use and buffer accordingly. Best done using tracking devices on a representative sample of birds from the area.*
- *Only embark on tracking studies in collaboration with accredited ornithologists*
- *Investigate management of vulture access to stock mortalities to ensure that opportunities to feed close to or within a wind farmed area are minimised.*

The GVI site has complied with the points in Table 2, having completed full pre-construction bird monitoring in accordance with the best practice guidelines, and having given BirdLife South Africa opportunity to comment on the project during the EIA process and subsequent amendment public consultation processes.

GVI has also complied with the first bullet point recommendation above. The latter three recommended actions are currently underway for the area through the initiative of an operational

wind farm nearby. This research is implemented by the Endangered Wildlife Trust. We recommend that GVI collaborate with and supplement this existing programme. These requirements are elaborated on in the GVI Biodiversity Action Plan (WildSkies, 2019).

We also note that BirdLife South Africa (BLSA) formally registered their dissatisfaction with the SEA process and in particular the inadequate (in their view) consideration given to avifaunal data in the initial identification of the REDZ. A large part of their concern was for Cape Vulture. For REDZ 3 – Cookhouse specifically BLSA made the following comment: “Cumulative negative impacts on Cape Vultures are also a major concern, particularly in proposed REDZs 3 and 4....The SEA recommends that vulture movements should ideally be studied using tracking devices. We question whether it is sensible or strategic to encourage investment and costly, lengthy studies for areas where the large-scale development of wind energy is unlikely to be sustainable. It is also important to note that while tracking devices can provide valuable data on bird movements, it cannot replace site surveys. Given the wide-ranging movements of vultures, which are likely to span more than one wind farm, such studies should ideally not be linked to individual projects, but should rather be coordinated at a regional/REDZ level. Any proposed tracking of vultures must include clear research objectives, and must be conducted by suitably qualified and experienced specialists”.

5. Critical Habitat Determination – summary statement

We conclude that there are no factors (either species or ecosystem) that would qualify the GVI site as falling in Critical Habitat.

The site is classified as Natural Habitat as defined by the IFC PS6 paragraph 13 *“Natural habitats are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an areas primary ecological functions and species composition.”*

The client is therefore required to demonstrate that:

- No other viable alternatives within the region exist for development of the project on modified habitat
- Consultation has established the views of stakeholders, including Affected Communities, with respect to the extent of conversion and degradation
- Any conversion or degradation is mitigated according to the mitigation hierarchy

Mitigation measures must be designed to achieve no net loss of biodiversity where feasible. Appropriate actions include:

- Avoiding impacts on biodiversity through the identification and protection of set-asides
- Implementing measures to minimise habitat fragmentation, such as biological corridors
- Restoring habitats during operations and/or after operations
- Implementing biodiversity offsets

In this case, clearance or alteration of the natural habitat on site for the construction of the wind farm is not of major concern. However as a component of natural habitat, the bird species on site could be impacted on. Fatalities of bird species would constitute a degradation of natural habitat. Any such impacts will need to be offset to achieve no net loss if feasible. The most important species identified for the GVI site are Cape Vulture and Blue Crane. In the case of Cape Vulture in particular there is significant stakeholder concern around new wind farms in this area, given the conservation status of the species and the recorded turbine collision fatalities to date. It is essential that the GVI project apply suitable and adequate mitigation from the outset in order to ensure that impacts are kept to an absolute minimum and that any residual impacts are offset. It is also essential that GVI collaborate with stakeholders and existing research and mitigation programmes in the area. Cape Vulture is a wide ranging species and will best be guarded by a collective response by wind farms in the area. The Biodiversity Action Plan will outline how this should be achieved.

6. References

Boshoff, A.F. 1993. Density, breeding performance and stability of Martial Eagles *Polemaetus bellicosus* breeding on electricity pylons in the Nama-Karoo, South Africa. In Wilson RT (ed) Birds and the African Environment: Proc. Of the 8th Pan-Afr. Ornithol. Congr. Pp 95-504

BirdLife International 2017. *Gyps coprotheres* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2017: e.T22695225A118592987.

<http://dx.doi.org/10.2305/IUCN.UK.20173.RLTS.T22695225A118592987.en>. Downloaded on 24 July 2019.

BirdLife International 2018. *Neotis ludwigii* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2018: e.T22691910A129456278.

<http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22691910A129456278.en>. Downloaded on 24 July 2019.

BirdLife International 2017. *Circus maurus*. *The IUCN Red List of Threatened Species* 2017: e.T22695379A118433168. <http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22695379A118433168.en>.

Downloaded on 24 July 2019.

BirdLife International 2018. *Anthropoides paradiseus*. *The IUCN Red List of Threatened Species* 2018: e.T22692109A131477983. <http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22692109A131477983.en>.

Downloaded on 24 July 2019.

BirdLife International 2018. *Polemaetus bellicosus*. *The IUCN Red List of Threatened Species* 2018: e.T22696116A129915349. <http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22696116A129915349.en>.

Downloaded on 24 July 2019.

BirdLife International 2016. *Sagittarius serpentarius*. *The IUCN Red List of Threatened Species* 2016: e.T22696221A93549951. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22696221A93549951.en>.

Downloaded on 24 July 2019.

BirdLife International 2016. *Circus ranivorus*. *The IUCN Red List of Threatened Species* 2016: e.T22695352A93504602. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22695352A93504602.en>.

Downloaded on 24 July 2019.

BirdLife International 2016. *Balearica regulorum*. *The IUCN Red List of Threatened Species* 2016: e.T22692046A93334893. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22692046A93334893.en>.

Downloaded on 24 July 2019.

BirdLife South Africa. 2018. Cape Vulture and Wind Farms: Guidelines for impact assessment, monitoring and mitigation. August 2018. Compiled by Dr Morgan Pfeiffer and Samantha Ralston-Paton

Department of Environmental Affairs, 2015. Strategic Environmental Assessment for wind and solar photovoltaic energy in South Africa. CSIR Report Number: CSIR/CAS/EMS/ER/2015/0001/B. Stellenbosch.

Endangered Wildlife Trust, 2010. Avifaunal impact assessment for the “Cookhouse Wind Farm” (which was the original name for a larger site including the Golden Valley I site and the Golden Valley II site). Unpublished report submitted to EOH-CES.

Jenkins, A.R., Van Rooyen, C.S., Smallie, J., Harrison, J.A., Diamond, M., Smit-Robbinson, H.A. & Ralston, S. 2015. “Best practice guidelines for assessing and monitoring the impact of wind energy facilities on birds in southern Africa” Unpublished guidelines

KBA Standards and Appeals Committee (2019). Guidelines for using a Global Standard for the Identification of Key Biodiversity Areas. Version 1.0. Prepared by the KBA Standards and Appeals Committee of the IUCN Species Survival Commission and IUCN World Commission on Protected Areas. Gland, Switzerland: IUCN. viii + 148pp.

DOI: <https://doi.org/10.2305/IUCN.CH.2019.KBA.1.0.en>

Taylor, M.R., Peacock, F., & Wanless, R. 2015. The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. BirdLife South Africa, Johannesburg. In press.

Venter JA, Martens FR, and Wolter K. 2018. Recommended conservation buffer sizes derived from movement data of breeding adult Cape (*Gyps coprotheres*) in South Africa. Nelson Mandela University unpublished report.

WildSkies, 2013. Pre-construction bird monitoring for the Golden Valley I site. Unpublished report submitted to Terrapower.

WildSkies, 2015. Avifaunal walk through for the Golden Valley I Wind Farm. Unpublished report submitted to EOH-CES.

WildSkies, 2018. Pre-construction bird monitoring for the Golden Valley I Wind Farm. Unpublished report submitted to BioTherm.

Appendix 1. Bird species data for Golden Valley I Wind Farm.

Common name	Taxonomic name	Recorded by SABAP1/2	Recorded by WildSkies work	Regional status (Taylor et al 2015)	Global status (IUCN 2019)	Endemic /near	Migratory	Congregatory	Comment
Ostrich, Common	<i>Struthio camelus</i>	1							
Grebe, Little	<i>Tachybaptus ruficollis</i>	1	1		LC				
Pelican, Great White	<i>Pelecanus onocrotalus</i>	1		VU	LC			1	Not recorded anywhere near AoA SABAP2
Cormorant, White-breasted	<i>Phalacrocorax carbo</i>	1						1	<50 within AoA
Cormorant, Reed	<i>Phalacrocorax africanus</i>	1	1						
Darter, African	<i>Anhinga rufa</i>	1							
Heron, Grey	<i>Ardea cinerea</i>	1	1						
Heron, Black-headed	<i>Ardea melanocephala</i>	1	1						
Heron, Goliath	<i>Ardea goliath</i>	1							
Heron, Purple	<i>Ardea purpurea</i>	1							
Egret, Great	<i>Egretta alba</i>	1						1	<500 within AoA
Egret, Little	<i>Egretta garzetta</i>	1						1	<500 within AoA
Egret, Yellow-billed	<i>Egretta intermedia</i>	1						1	<500 within AoA
Egret, Cattle	<i>Bubulcus ibis</i>	1	1						
Night-Heron, Black-crowned	<i>Nycticorax nycticorax</i>	1							
Hamerkop	<i>Scopus umbretta</i>	1	1						
Stork, Yellow-billed	<i>Mycteria ibis</i>	1		EN	LC				Not recorded anywhere near AoA SABAP2
Stork, Black	<i>Ciconia nigra</i>	1		VU	LC				
Stork, White	<i>Ciconia ciconia</i>	1					1	1	<500 within AoA
Ibis, African Sacred	<i>Threskiornis aethiopicus</i>	1	1					1	<500 within AoA
Ibis, Hadedra	<i>Bostrychia hagedash</i>	1	1					1	<500 within AoA
Spoonbill, African	<i>Platalea alba</i>	1	1						
Flamingo, Greater	<i>Phoenicopterus ruber</i>	1		NT	LC			1	<50 within AoA
Goose, Spur-winged	<i>Plectropterus gambensis</i>	1	1					1	<500 within AoA
Goose, Egyptian	<i>Alopochen aegyptiacus</i>	1	1					1	<500 within AoA

Shelduck, South African	<i>Tadorna cana</i>	1	1						
Shoveler, Cape	<i>Anas smithii</i>	1	1				1		<500 within AoA
Duck, African Black	<i>Anas sparsa</i>	1							
Duck, Yellow-billed	<i>Anas undulata</i>	1	1				1		<500 within AoA
Teal, Red-billed	<i>Anas erythrorhyncha</i>	1	1				1		<500 within AoA
Teal, Cape	<i>Anas capensis</i>	1	1				1		<500 within AoA
Teal, Hottentot	<i>Anas hottentota</i>	1					1		<500 within AoA
Duck, White-faced	<i>Dendrocygna viduata</i>	1					1		<500 within AoA
Pochard, Southern	<i>Netta erythrophthalma</i>	1					1		<500 within AoA
Secretarybird	<i>Sagittarius serpentarius</i>	1	1	VU	VU				<20 birds within AoA
Vulture, Cape	<i>Gyps coprotheres</i>	1		EN	EN	1	1		Up to 100 within AoA
Falcon, Peregrine	<i>Falco peregrinus</i>	1							
Falcon, Lanner	<i>Falco biarmicus</i>	1		VU	LC				
Hobby, Eurasian	<i>Falco subbuteo</i>	1					1		<5 within AoA occasionally
Falcon, Amur	<i>Falco amurensis</i>	1	1				1	1	<500 within AoA
Kestrel, Greater	<i>Falco rupicoloides</i>	1	1						
Kestrel, Rock	<i>Falco rupicolus</i>	1	1						
Kestrel, Lesser	<i>Falco naumanni</i>	1					1	1	<500 within AoA
Kite, Yellow-billed	<i>Milvus aegyptius</i>	1					1		<100 within AoA
Kite, Black-shouldered	<i>Elanus caeruleus</i>	1	1						
Eagle, Verreaux's	<i>Aquila verreauxii</i>	1	1	VU	LC				
Eagle, Long-crested	<i>Lophaetus occipitalis</i>	1							
Eagle, Booted	<i>Aquila pennatus</i>	1							LC
Eagle, Martial	<i>Polemaetus bellicosus</i>	1	1	EN	VU				<3 birds within AoA
Eagle, African Crowned	<i>Stephanoaetus coronatus</i>	1		VU	NT				No suitable habitat within AoA
Fish-eagle, African	<i>Haliaeetus vocifer</i>	1	1						LV
Buzzard, Jackal	<i>Buteo rufofuscus</i>	1	1				1		<20 within AoA
Buzzard, Steppe	<i>Buteo vulpinus</i>	1	1				1		<100 within AoA
Sparrowhawk, Rufous-chested	<i>Accipiter rufiventris</i>	1							
Sparrowhawk, Little	<i>Accipiter minullus</i>	1	1						
Sparrowhawk, Black	<i>Accipiter melanoleucus</i>	1							
Goshawk, African	<i>Accipiter tachiro</i>	1	1						
Goshawk, Gabar	<i>Melierax gabar</i>	1							
Goshawk, Southern Pale Chanting	<i>Melierax canorus</i>	1	1						

Marsh-harrier, African	<i>Circus ranivorus</i>	1		EN	LC			< 10birds within AoA
Harrier, Black	<i>Circus maurus</i>	1		EN	EN	1	1	<3 within AoA, EoO > 50 000km ²
Harrier-Hawk, African	<i>Polyboroides typus</i>	1	1					
Osprey	<i>Pandion haliaetus</i>	1						
Francolin, Grey-winged	<i>Scleroptila africanus</i>	1	1			1	1	<500 within AoA
Francolin, Red-winged	<i>Scleroptila levaillantii</i>	1					1	<500 within AoA
Spurfowl, Red-necked	<i>Pternistis afer</i>	1	1				1	<500 within AoA
Quail, Common	<i>Coturnix coturnix</i>	1	1				1	<500 within AoA
Guineafowl, Helmeted	<i>Numida meleagris</i>	1	1				1	<500 within AoA
Rail, African	<i>Rallus caerulescens</i>	1						
Crake, Corn	<i>Crex crex</i>	1					1	<20 within AoA
Crake, Black	<i>Amaurornis flavirostris</i>	1						
Flufftail, Striped	<i>Sarothrura affinis</i>	1		VU	LC			
Swamphen, African Purple	<i>Porphyrio madagascariensis</i>	1						
Moorhen, Common	<i>Gallinula chloropus</i>	1						
Coot, Red-knobbed	<i>Fulica cristata</i>	1	1				1	<500 within AoA
Finfoot, African	<i>Podica senegalensis</i>	1		VU	LC			No habitat within AoA
Crane, Grey Crowned	<i>Balearica regulorum</i>	1	1	EN	EN		1	Up to 5 within AoA
Crane, Blue	<i>Anthropoides paradiseus</i>	1	1	NT	VU	1	1	Up to 40 within AoA, EoO > 50 000km ²
Bustard, Kori	<i>Ardeotis kori</i>	1		NT	NT			
Bustard, Ludwig's	<i>Neotis ludwigii</i>	1	1	EN	EN			<30 birds within AoA
Bustard, Denham's	<i>Neotis denhami</i>	1	1	VU	NT			
Korhaan, White-bellied	<i>Eupodotis senegalensis</i>	1	1	VU	LC			
Southern Black Korhaan	<i>Afrotis afra</i>	1		VU	VU	1		<50 birds within AoA, EoO > 50 000km ²
Plover, Common Ringed	<i>Charadrius hiaticula</i>	1						
Plover, Kittlitz's	<i>Charadrius pecuarius</i>	1						
Plover, Three-banded	<i>Charadrius tricollaris</i>	1	1					
Lapwing, Crowned	<i>Vanellus coronatus</i>	1	1					
Lapwing, Black-winged	<i>Vanellus melanopterus</i>	1						
Lapwing, Blacksmith	<i>Vanellus armatus</i>	1	1					
Snipe, African	<i>Gallinago nigripennis</i>	1						
Sandpiper, Curlew	<i>Calidris ferruginea</i>	1					1	< 100 within AoA
Stint, Little	<i>Calidris minuta</i>	1					1	< 100 within AoA
Ruff	<i>Philomachus pugnax</i>	1					1	< 100 within AoA
Sandpiper, Common	<i>Actitis hypoleucos</i>	1					1	< 100 within AoA

Sandpiper, Marsh	<i>Tringa stagnatilis</i>	1		1	< 100 within AoA
Greenshank, Common	<i>Tringa nebularia</i>	1		1	< 100 within AoA
Sandpiper, Wood	<i>Tringa glareola</i>	1	1	1	< 100 within AoA
Avocet, Pied	<i>Recurvirostra avosetta</i>	1			
Stilt, Black-winged	<i>Himantopus himantopus</i>	1	1		
Thick-knee, Water	<i>Burhinus vermiculatus</i>	1			
Thick-knee, Spotted	<i>Burhinus capensis</i>	1	1		
Cursorer, Burchell's	<i>Cursorius rufus</i>	1		VU	LC
Cursorer, Double-banded	<i>Rhinoptilus africanus</i>	1		NT	LC
Gull, Grey-headed	<i>Larus cirrocephalus</i>	1			
Tern, Caspian	<i>Sterna caspia</i>	1			
Tern, White-winged	<i>Chlidonias leucopterus</i>	1		1	<500 within AoA
Tern, Whiskered	<i>Chlidonias hybrida</i>	1	1	1	<500 within AoA
Pigeon, Speckled	<i>Columba guinea</i>	1	1	1	<500 within AoA
Olive-pigeon, African	<i>Columba arquatrix</i>	1	1		
Dove, Red-eyed	<i>Streptopelia semitorquata</i>	1	1		
Turtle-dove, Cape	<i>Streptopelia capicola</i>	1	1		
Dove, Laughing	<i>Streptopelia senegalensis</i>	1	1		
Dove, Namaqua	<i>Oena capensis</i>	1	1		
Dove, Tambourine	<i>Turtur tympanistria</i>	1			
Wood-dove, Emerald-spotted	<i>Turtur chalcospilus</i>	1	1		
Dove, Lemon	<i>Aplopelia larvata</i>	1			
Lourie, Knysna	<i>Tauraco corythaix</i>	1			
Turaco, Schalow's	<i>Tauraco schalowi</i>	1			
Cuckoo, Common	<i>Cuculus canorus</i>	1		1	< 100 within AoA
Cuckoo, Red-chested	<i>Cuculus solitarius</i>	1	1	1	< 100 within AoA
Cuckoo, Black	<i>Cuculus clamosus</i>	1	1	1	< 100 within AoA
Cuckoo, Great Spotted	<i>Clamator glandarius</i>	1	1	1	< 100 within AoA
Cuckoo, Jacobin	<i>Clamator jacobinus</i>	1	1	1	< 100 within AoA
Cuckoo, African Emerald	<i>Chrysococcyx cupreus</i>	1		1	< 100 within AoA
Cuckoo, Klaas's	<i>Chrysococcyx klaas</i>	1	1	1	< 100 within AoA
Cuckoo, Diderick	<i>Chrysococcyx caprius</i>	1	1	1	< 100 within AoA
Coucal, Burchell's	<i>Centropus burchelli</i>	1			
Owl, Barn	<i>Tyto alba</i>	1			
Wood-owl, African	<i>Strix woodfordii</i>	1			

Scops-owl, African	<i>Otus senegalensis</i>	1	1			
Eagle-owl, Cape	<i>Bubo capensis</i>	1			LC	
Eagle-owl, Spotted	<i>Bubo africanus</i>	1	1			
Eagle-owl, Verreaux's	<i>Bubo lacteus</i>	1				
Nightjar, European	<i>Caprimulgus europaeus</i>	1			1	< 100 within AoA
Nightjar, Rufous-cheeked	<i>Caprimulgus rufigena</i>	1			1	< 100 within AoA
Nightjar, Fiery-necked	<i>Caprimulgus pectoralis</i>	1	1			
Swift, Common	<i>Apus apus</i>	1			1	< 500 within AoA
Swift, African Black	<i>Apus barbatus</i>	1	1			
Swift, White-rumped	<i>Apus caffer</i>	1	1		1	< 500 within AoA
Swift, Horus	<i>Apus horus</i>	1				
Swift, Little	<i>Apus affinis</i>	1	1			
Swift, Alpine	<i>Tachymarptis melba</i>	1			1	< 500 within AoA
Palm-swift, African	<i>Cypsiurus parvus</i>	1				
Mousebird, Speckled	<i>Colius striatus</i>	1	1			
Mousebird, White-backed	<i>Colius colius</i>	1				
Mousebird, Red-faced	<i>Urocolius indicus</i>	1	1			
Trogon, Narina	<i>Apaloderma narina</i>	1				
Kingfisher, Pied	<i>Ceryle rudis</i>	1				
Kingfisher, Giant	<i>Megaceryle maximus</i>	1				
Kingfisher, Half-collared	<i>Alcedo semitorquata</i>	1		NT	LC	
Kingfisher, Malachite	<i>Alcedo cristata</i>	1				
Pygmy-Kingfisher, African	<i>Ispidina picta</i>	1				
Kingfisher, Brown-hooded	<i>Halcyon albiventris</i>	1	1			
Bee-eater, European	<i>Merops apiaster</i>	1			1	<100 within AoA
Bee-eater, White-fronted	<i>Merops bullockoides</i>	1			1	<100 within AoA
Roller, European	<i>Coracias garrulus</i>	1		NT	LC	1 < 20 within AoA
Hoopoe, African	<i>Upupa africana</i>	1	1			
Wood-hoopoe, Green	<i>Phoeniculus purpureus</i>	1	1			
Scimitarbill, Common	<i>Rhinopomastus cyanomelas</i>	1				
Hornbill, Crowned	<i>Tockus alboterminatus</i>	1	1			
Ground-hornbill, Southern	<i>Bucorvus leadbeateri</i>	1		EN	VU	Not recorded within AoA, further north
Barbet, Black-collared	<i>Lybius torquatus</i>	1	1			
Barbet, Acacia Pied	<i>Tricholaema leucomelas</i>	1	1			
Tinkerbird, Red-fronted	<i>Pogoniulus pusillus</i>	1	1			

Honeyguide, Greater	<i>Indicator indicator</i>	1	1					
Honeyguide, Lesser	<i>Indicator minor</i>	1						
Honeybird, Brown-backed	<i>Prodotiscus regulus</i>	1						
Woodpecker, Ground	<i>Geocolaptes olivaceus</i>	1		LC	NT	1		EoO > 50 000km ²
Woodpecker, Knysna	<i>Campethera notata</i>	1		NT	NT	1		EoO > 50 000km ²
Woodpecker, Cardinal	<i>Dendropicos fuscescens</i>	1	1					
Woodpecker, Bearded	<i>Dendropicos namaquus</i>	1						
Woodpecker, Olive	<i>Dendropicos griseocephalus</i>	1						
Wryneck, Red-throated	<i>Jynx ruficollis</i>	1						
Lark, Melodious	<i>Mirafra cheniana</i>	1	1			1		EoO > 50 000km ²
Lark, Rufous-naped	<i>Mirafra africana</i>	1	1					
Lark, Sabota	<i>Calendulauda sabota</i>	1						
Lark, Large-billed	<i>Galerida magnirostris</i>	1	1			1		subspecies <i>G.m.harei</i> considered, EoO > 50 000km ²
Cape Clapper Lark	<i>Mirafra apiata</i>	1				1		subspecies <i>M.a.apiata</i> considered, EoO > 50 000km ²
Lark, Spike-heeled	<i>Chersomanes albofasciata</i>	1	1					
Lark, Eastern Long-billed	<i>Certhilauda semitorquata</i>	1	1			1		subspecies <i>C.s.algida</i> considered, EoO > 50 000km ²
Sparrowlark, Grey-backed	<i>Eremopterix verticalis</i>	1						
Lark, Red-capped	<i>Calandrella cinerea</i>	1	1					
Swallow, Barn	<i>Hirundo rustica</i>	1	1			1	1	<500 within AoA
Swallow, White-throated	<i>Hirundo albigularis</i>	1	1			1	1	<500 within AoA
Swallow, Pearl-breasted	<i>Hirundo dimidiata</i>	1	1			1	1	<500 within AoA
Swallow, Greater Striped	<i>Hirundo cucullata</i>	1	1			1	1	<500 within AoA
Swallow, Lesser Striped	<i>Hirundo abyssinica</i>	1	1			1	1	<500 within AoA
Cliff-swallow, South African	<i>Hirundo spilodera</i>	1				1	1	<500 within AoA
Martin, Rock	<i>Hirundo fuligula</i>	1	1				1	<500 within AoA
House-martin, Common	<i>Delichon urbicum</i>	1				1	1	<500 within AoA
Martin, Brown-throated	<i>Riparia paludicola</i>	1	1				1	<500 within AoA
Martin, Banded	<i>Riparia cincta</i>	1	1			1		<500 within AoA
Saw-wing, Black (Southern race)	<i>Psolidoprocne holomelaena</i>	1	1			1		<500 within AoA
Cuckoo-shrike, Black	<i>Campephaga flava</i>	1						
Cuckoo-shrike, Grey	<i>Coracina caesia</i>	1						

Drongo, Fork-tailed	<i>Dicrurus adsimilis</i>	1	1				
Oriole, Eurasian Golden	<i>Oriolus oriolus</i>	1					
Oriole, Black-headed	<i>Oriolus larvatus</i>	1	1				
Crow, Pied	<i>Corvus albus</i>	1	1			1	<500 within AoA
Crow, Cape	<i>Corvus capensis</i>	1	1			1	<500 within AoA
Raven, White-necked	<i>Corvus albicollis</i>	1	1				
Tit, Grey	<i>Parus afer</i>	1	1			1	subspecies <i>P.a.arens</i> considered, EoO > 50 000km ²
Tit, Southern Black	<i>Parus niger</i>	1	1				
Penduline-tit, Cape	<i>Anthoscopus minutus</i>	1	1				
Blackcap, Bush	<i>Lioptilus nigricapillus</i>	1			VU	VU	
Bulbul, Cape	<i>Pycnonotus capensis</i>	1				1	EoO > 50 000km ²
Bulbul, African Red-eyed	<i>Pycnonotus nigricans</i>	1					
Bulbul, Dark-capped	<i>Pycnonotus tricolor</i>	1	1				
Brownbul, Terrestrial	<i>Phyllastrephus terrestris</i>	1					
Greenbul, Sombre	<i>Andropadus importunus</i>	1	1				
Thrush, Olive	<i>Turdus olivaceus</i>	1	1				
Rock-thrush, Cape	<i>Monticola rupestris</i>	1				1	EoO > 50 000km ²
Rock-thrush, Sentinel	<i>Monticola explorator</i>	1			LC	NT	1 subspecies <i>M.e.explorator</i> considered, EoO > 50 000km ²
Wheatear, Mountain	<i>Oenanthe monticola</i>	1					
Chat, Karoo	<i>Cercomela schlegelii</i>	1					
Wheatear, Capped	<i>Oenanthe pileata</i>	1	1				
Chat, Buff-streaked	<i>Oenanthe bifasciata</i>	1				1	EoO > 50 000km ²
Chat, Familiar	<i>Cercomela familiaris</i>	1	1				
Chat, Sickle-winged	<i>Cercomela sinuata</i>	1	1			1	subspecies <i>C.s.sinuata</i> considered, EoO > 50 000km ²
Cliff-chat, Mocking	<i>Thamnolaea cinnamomeiventris</i>	1					
Chat, Anteating	<i>Myrmecocichla formicivora</i>	1	1				
Stonechat, African	<i>Saxicola torquatus</i>	1	1				
Robin-chat, Chorister	<i>Cossypha dichroa</i>	1					
Robin-chat, Cape	<i>Cossypha caffra</i>	1	1				
Scrub-robin, Karoo	<i>Cercotrichas coryphoeus</i>	1	1				
Scrub-robin, White-browed	<i>Cercotrichas leucophrys</i>	1	1				

Robin, White-starred	<i>Pogonocichla stellata</i>	1			
Warbler, Garden	<i>Sylvia borin</i>	1			
Warbler, Willow	<i>Phylloscopus trochilus</i>	1	1		
Eremomela, Yellow-bellied	<i>Eremomela icteropygialis</i>	1	1		
Swamp-warbler, Lesser	<i>Acrocephalus gracilirostris</i>	1			
Reed-warbler, African	<i>Acrocephalus baeticatus</i>	1			
Warbler, Marsh	<i>Acrocephalus palustris</i>	1		1	<100 within AoA
Rush-warbler, Little	<i>Bradypterus baboecala</i>	1			
Grassbird, Cape	<i>Sphenoecus afer</i>	1			
Warbler, Rufous-eared	<i>Malcorus pectoralis</i>	1	1		
Crombec, Long-billed	<i>Sylvietta rufescens</i>	1	1		
Apalis, Bar-throated	<i>Apalis thoracica</i>	1	1		
Apalis, Yellow-breasted	<i>Apalis flavida</i>	1			
Eremomela, Karoo	<i>Eremomela gregalis</i>	1		1	EoO > 50 000km ²
Camaropectera, Green-backed	<i>Camaropectera brachyura</i>	1	1		
Camaropectera, Grey-backed	<i>Camaropectera brevicaudata</i>	1			
Cisticola, Zitting	<i>Cisticola juncidis</i>	1	1		
Cisticola, Desert	<i>Cisticola aridulus</i>	1			
Cisticola, Cloud	<i>Cisticola textrix</i>	1	1		
Cisticola, Wing-snapping	<i>Cisticola ayresii</i>	1	1		
Neddicky, Neddicky	<i>Cisticola fulvicapilla</i>	1	1		
Cisticola, Grey-backed	<i>Cisticola subruficapilla</i>	1	1		
Cisticola, Wailing	<i>Cisticola lais</i>	1			
Cisticola, Levaillant's	<i>Cisticola tinniens</i>	1			
Cisticola, Lazy	<i>Cisticola aberrans</i>	1	1		
Prinia, Tawny-flanked	<i>Prinia subflava</i>	1			
Prinia, Black-chested	<i>Prinia flavicans</i>	1			
Prinia, Karoo	<i>Prinia maculosa</i>	1	1	1	subspecies <i>P.m.exultans</i> considered, EoO > 50 000km ²
Prinia, Spotted	<i>Prinia hypoxantha</i>	1			
Warbler, Namaqua	<i>Phragmacia substriata</i>	1			
Flycatcher, Spotted	<i>Muscicapa striata</i>	1		1	<100 within AoA
Flycatcher, African Dusky	<i>Muscicapa adusta</i>	1	1		
Tit-babbler, Chestnut-vented	<i>Parisoma subcaeruleum</i>	1	1		
Tit-babbler, Layard's	<i>Parisoma layardi</i>	1		1	subspecies <i>S.i.subsolanum</i> considered, EoO >

									50 000km ²
Flycatcher, Chat	<i>Bradornis infuscatus</i>	1							
Flycatcher, Southern Black	<i>Melaenornis pammelaina</i>	1	1						
Flycatcher, Fiscal	<i>Sigelus silens</i>	1	1			1			subspecies <i>S.s.lawsoni</i> considered, EoO > 50 000km ²
Woodland-warbler, Yellow-throated	<i>Phylloscopus ruficapilla</i>	1							
Batis, Cape	<i>Batis capensis</i>	1							
Batis, Chinspot	<i>Batis molitor</i>	1	1						
Batis, Pirit	<i>Batis pririt</i>	1							
Flycatcher, Fairy	<i>Stenostira scita</i>	1				1			subspecies <i>S.s.saturatior</i> considered, EoO > 50 000km ²
Crested-flycatcher, Blue-mantled	<i>Trochocercus cyanomelas</i>	1							
Paradise-flycatcher, African	<i>Terpsiphone viridis</i>	1	1						
Wagtail, Cape	<i>Motacilla capensis</i>	1	1						
Pipit, African	<i>Anthus cinnamomeus</i>	1	1						
Pipit, Long-billed	<i>Anthus similis</i>	1	1						
Pipit, Plain-backed	<i>Anthus leucophrys</i>	1	1						
Pipit, Buffy	<i>Anthus vaalensis</i>	1							
Pipit, African Rock	<i>Anthus crenatus</i>	1			NT	LC	1		EoO > 50 000km ²
Longclaw, Cape	<i>Macronyx capensis</i>	1	1						
Shrike, Lesser Grey	<i>Lanius minor</i>	1							
Fiscal, Common (Southern)	<i>Lanius collaris</i>	1	1						
Shrike, Red-backed	<i>Lanius collurio</i>	1							
Boubou, Southern	<i>Laniarius ferrugineus</i>	1	1						
Puffback, Black-backed	<i>Dryoscopus cubla</i>	1							
Tchagra, Southern	<i>Tchagra tchagra</i>	1					1		subspecies <i>T.t.caffrariae</i> considered, EoO > 50 000km ²
Tchagra, Black-crowned	<i>Tchagra senegalus</i>	1							
Bush-shrike, Olive	<i>Telophorus olivaceus</i>	1	1						
Bush-shrike, Orange-breasted	<i>Telophorus sulfureopectus</i>	1	1				1		EoO > 50 000km ²
Bokmakierie, Bokmakierie	<i>Telophorus zeylonus</i>	1	1						
Bush-shrike, Grey-headed	<i>Malaconotus blanchoti</i>	1							
Starling, Common	<i>Sturnus vulgaris</i>	1	1					1	<500 within AoA

Myna, Common	<i>Acridotheres tristis</i>	1		1	<500 within AoA
Starling, Wattled	<i>Creatophora cinerea</i>	1	1		
Starling, Cape Glossy	<i>Lamprotornis nitens</i>	1	1		
Starling, Black-bellied	<i>Lamprotornis corruscus</i>	1			
Starling, Pale-winged	<i>Onychognathus naboroupp</i>	1			
Starling, Red-winged	<i>Onychognathus morio</i>	1	1	1	<500 within AoA
Starling, Pied	<i>Spreo bicolor</i>	1	1	1	EoO > 50 000km ²
Sugarbird, Cape	<i>Promerops cafer</i>	1		1	EoO > 50 000km ²
Sunbird, Malachite	<i>Nectarinia famosa</i>	1	1		
Sunbird, Greater Double-collared	<i>Cinnyris afer</i>	1	1	1	EoO > 50 000km ²
Sunbird, Southern Double-collared	<i>Cinnyris chalybeus</i>	1	1	1	subspecies <i>C.c.chalybeus</i> considered, EoO > 50 000km ²
Sunbird, Dusky	<i>Cinnyris fuscus</i>	1	1		
Sunbird, Grey	<i>Cyanomitra veroxii</i>	1			
Sunbird, Collared	<i>Hedydipna collaris</i>	1			
Sunbird, Amethyst	<i>Chalcomitra amethystina</i>	1	1		
White-eye, Cape	<i>Zosterops pallidus</i>	1	1	1	both subspecies considered, EoO > 50 000km ²
Sparrow-weaver, White-browed	<i>Plocepasser mahali</i>	1			
Sparrow, House	<i>Passer domesticus</i>	1	1		
Sparrow, Cape	<i>Passer melanurus</i>	1	1		
Sparrow, Grey-headed	<i>Passer diffusus</i>	1			
Petronia, Yellow-throated	<i>Petronia superciliaris</i>	1	1		
Finch, Scaly-feathered	<i>Sporopipes squamifrons</i>	1			
Weaver, Dark-backed	<i>Ploceus bicolor</i>	1			
Weaver, Spectacled	<i>Ploceus ocularis</i>	1			
Weaver, Village	<i>Ploceus cucullatus</i>	1	1		
Weaver, Cape	<i>Ploceus capensis</i>	1	1	1	EoO > 50 000km ²
Masked-weaver, Southern	<i>Ploceus velatus</i>	1	1		
Weaver, Thick-billed	<i>Amblyospiza albifrons</i>	1		1	<5000 within AoA
Quelea, Red-billed	<i>Quelea quelea</i>	1			
Bishop, Southern Red	<i>Euplectes orix</i>	1	1		
Bishop, Yellow	<i>Euplectes capensis</i>	1			
Bishop, Yellow-crowned	<i>Euplectes afer</i>	1			
Widowbird, Red-collared	<i>Euplectes ardens</i>	1	1		

Widowbird, Long-tailed	<i>Euplectes progne</i>	1	1	
Finch, Red-headed	<i>Amadina erythrocephala</i>	1	1	
Waxbill, Swee	<i>Coccyzygia melanotis</i>	1		
Firefinch, African	<i>Lagonosticta rubricata</i>	1		
Firefinch, Red-billed	<i>Lagonosticta senegala</i>	1		
Waxbill, Common	<i>Estrilda astrild</i>	1	1	
Quailfinch, African	<i>Ortygospiza atricollis</i>	1	1	
Whydah, Pin-tailed	<i>Vidua macroura</i>	1	1	
Indigobird, Dusky	<i>Vidua funerea</i>	1	1	
Canary, Cape	<i>Serinus canicollis</i>	1		
Canary, Forest	<i>Crithagra scotops</i>	1		
Canary, Yellow-fronted	<i>Crithagra mozambicus</i>	1	1	
Canary, Black-throated	<i>Crithagra atrogularis</i>	1		1 Subspecies <i>S.a. alario</i> considered, EoO > 50 000km ²
Canary, Black-headed	<i>Serinus alario</i>	1	1	
Canary, Brimstone	<i>Crithagra sulphuratus</i>	1	1	
Canary, White-throated	<i>Crithagra albogularis</i>	1		
Canary, Yellow	<i>Crithagra flaviventris</i>	1		
Seedeater, Streaky-headed	<i>Crithagra gularis</i>	1	1	
Bunting, Lark-like	<i>Emberiza impetuani</i>	1	1	
Bunting, Cinnamon-breasted	<i>Emberiza tahapisi</i>	1	1	
Bunting, Cape	<i>Emberiza capensis</i>	1	1	
Bunting, Golden-breasted	<i>Emberiza flaviventris</i>	1	1	
Dove, Rock	<i>Columba livia</i>	1		
Korhaan, Northern Black	<i>Afrotis afraoides</i>	1		
Coucal, White-browed	<i>Centropus superciliosus</i>	1		
Prinia, Drakensberg	<i>Prinia hypoxantha</i>	1		
Thrush, Karoo	<i>Turdus smithi</i>	1		1 EoO > 50 000km ²
Lark, Eastern Clapper	<i>Mirafra fasciolata</i>	1	1	
Turaco, Livingstone's	<i>Tauraco livingstonii</i>	1		
Sparrow, Northern Grey-headed	<i>Passer griseus</i>	1		
Coucal, Burchell's	<i>Centropus burchellii</i>	1		
Turaco, Knysna	<i>Tauraco corythaix</i>	1		
Korhaan, Southern Black	<i>Afrotis afra</i>	1	1	

Sparrow, Southern Grey-headed	<i>Passer diffusus</i>	1	1
Warbler, Bleating	<i>Camaroptera brachyura</i>	1	
