Specialist Avifaunal Assessment of Erf No. 21275, Mossel Bay

(SG code C05100070002127500000)

- Compliance Statement -

10 July 2021

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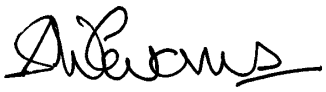
"Look after each individual animal, and its population will take care of itself"

Statement of Independence

I hereby declare that I have no conflict of interest with regards to these developments.



10 July 2021

Signed **Date**

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Abbreviations

AOO Area of Occupancy (see EOO)

BGIS Biodiversity Geographic Information System (http://bgis.sanbi.org/)

CBA Critical Biodiversity Area

CE Critically Endangered

CFM Cape Farm Mapper (https://gis.elsenburg.com/apps/cfm/)

EIA Environmental Impact Assessment

EN Endangered

EOO Extent of Occurrence (see AOO)

ESA Ecosystem Support Area

GIS Geographic Information System

GPS Global Positioning System Unit

Nt Near Threatened

SABAP South African Bird Atlas Project (http://sabap2.birdmap.africa/)

VU Vulnerable

Glossary

Area of occupancy (AOO) "is defined as the area within its 'extent of occurrence' which is occupied by a taxon (e.g., species), excluding cases of vagrancy. The measure reflects the fact that a taxon will not usually occur throughout the area of its extent of occurrence, which may contain unsuitable or unoccupied habitats." (IUCN 2001).

Biodiversity targets "The biological entities (species, communities, or ecosystems) that a project is trying to conserve" (Salafsky et al 2008). To make the definition more relevant to this document 'impact assessment' can be substituted for 'project'.

Critical Biodiversity Areas (CBA): "These are terrestrial (e.g. threatened vegetation type remnants) and/or aquatic features (e.g. vleis, rivers and estuaries), and the buffer areas along aquatic CBA features, whose safeguarding is critically required in order to meet biodiversity pattern and process thresholds. They are identified through a systematic biodiversity planning approach and represent the most land-efficient option to meeting all thresholds (Pool-Stanvliet et al. 2017)." On the maps CBA 1 are likely to be in a natural condition and CBA 2 are potentially degraded and should be rehabilitated.

Critically Endangered (CE) A species is CE when it meets the IUCN (2001) criteria, and it is considered to be facing an extremely high risk of extinction in the wild.

Cumulative Impacts cumulative impacts/effects can be defined as incremental effects of an activity when added to other past, present, and reasonably foreseeable future activities. These effects can result from individually minor but collectively significant actions taking place over time (Department of Environmental Affairs 2014).

Ecological Support Area (ESA): A supporting zone or area required to prevent the degradation of Critical Biodiversity Areas and protected areas. They can be aquatic features, e.g. specific river reaches which feed into aquatic Critical Biodiversity Areas; or terrestrial features, e.g. the riparian habitat surrounding and supporting aquatic Critical Biodiversity Areas, and are often vital for delivering ecosystem services (Pool-Stanvliet et al. 2017). On the maps ESA 1 are likely to be in a natural or near-natural condition (Functional) and ESA 2 are potentially degraded and should be rehabilitated.

Endangered (EN) A species is EN when it meets the IUCN (2001) criteria, and it is considered to be facing a very high risk of extinction in the wild.

Extent of occurrence (EOO) "is defined as the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon (e.g. species), excluding cases of vagrancy." (IUCN 2001).

Impacts are changes that are judged to have environmental, political, economic, or social significance to society (Partidário et al. 2012).

Least Concern (LC) A species is LC when it does not meet the criteria for Critically Endangered, Endangered, Vulnerable or Near Threatened. Abundant species are included in this category. (IUCN 2001).

Mitigation means to anticipate and either prevent or minimise the negative impacts and risks of an activity. It includes the rehabilitation or repair of impacts from adverse activities (Department of Environmental Affairs 2014).

Near Threatened (Nt) A species is Nt "when it has been evaluated 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." (IUCN 2001).

Residual Impacts "impacts that cannot be mitigated" (Senécal et al. 1999). Impacts that remain even after the design of mitigation measures.

Significant impacts "means an impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence" (Department of Environmental Affairs 2014).

Specialist "means a person that is generally recognised within the scientific community as having the capability of undertaking, in conformance with generally recognised scientific principles, specialist studies or preparing specialist reports, including due diligence studies and socio-economic studies" (Department of Environmental Affairs 2014). Natural science practitioners must be registered with the South African Council for Natural Scientific Professions (SACNASP), https://www.sacnasp.org.za/

Stresses "Attributes of a conservation target's ecology that are impaired directly or indirectly by human activities" (Salafsky et al 2008).

Threatened is a collective term referring to a group of species that each meets the IUCN (2001) criteria and is designated as either Critically Endangered, Endangered, or Vulnerable.

Threats or direct threats "The proximate human activities or processes that have caused, are causing, or may cause the destruction, degradation, and/or impairment of biodiversity targets" (Salafsky et al 2008).

Vulnerable (VU) a species is VU when it meets the IUCN (2001) criteria, and it is considered to be facing a high risk of extinction in the wild.

Executive Summary

Sustainable development is achieved by ensuring that the benefits people derive from ecosystems are maintained. Environmental Impact Assessments (EIA) contribute to achieving sustainable development. EIA is defined as 'the process of identifying, predicting, evaluating, and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made".

The screening report listed the site proposed for development (western portion of erf no. 21275) as having a combined animal species sensitivity of High. According to South African legislation an avifaunal assessment was therefore required. The aim of this avifaunal assessment is to identify, predict, evaluate, and mitigate the effects of developing a proposed storage facility on the western portion of erf no. 21275, Mossel Bay. The farm is in the Fynbos Biome (Mucina & Rutherford 2006).

The screening report listed four threatened birds (two Endangered and two Vulnerable to extinction) and one Near Threatened bird, and the list of birds for pentad 3405_2200 listed a further one threatened (Vulnerable) and two Near Threatened birds that could potentially occur on the site proposed for development. During the site visit on the 07 July 2021 none of the threatened or Near Threatened birds were observed on the site proposed for development. A single Black Harrier was observed foraging over an area approximately 1.1 km to the northwest of the centre of the site proposed for development. The absence of suitable feeding and/or breeding habitat explains the absence of some of the threatened and Near Threated birds on the site proposed for development. Some of the threatened and/or Near Threated birds may occasionally forage on the site proposed for development but no evidence of any of them breeding on the site was observed. The small size (< 5 ha) of the site proposed for development means that its development will have a minimal to no impact on any threated and Near Threatened birds. In addition, the availability of suitable habitat for some of the threatened and Near Threatened birds to the north and west of the site proposed for development is further confirmation that development of this site will have no detrimental effect on any threated and Near Threatened birds.

The site proposed for development is along the take-off and landing paths of aircraft from and to Mossel Bay Airport. The use of the site proposed for development the aerial foraging Black Harrier, and large birds such as Denham's Bustard, Secretarybird, and Blue

Crane would be potentially catastrophic for pilots, their aeroplanes, and these threatened and Near Threatened birds.

The proposed development of this storage facility is acceptable and will have minimal to no impact on any threatened or Near Threatened birds.

1. Introduction, scope, and purpose of this report

The screening report listed the site of the proposed development (western portion of erf no. 21275) as having a combined sensitivity for animal species of High (Sharples Environmental Services 2001). Consequently, in terms of Sections 24(5)(a) and (h), and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation (October 2020), "*An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of "very high" or "high" sensitivity for terrestrial animal species must submit a Terrestrial Animal Species Specialist Assessment Report*".

The aim of this avifaunal assessment is therefore to identify, predict, evaluate, and mitigate any effects of the proposed development of a storage facility on the western portion of erf no. 21275 on the four threatened and the one Near Threatened birds (Taylor et al. 2015), and their habitats, identified in the screening report. The site proposed for development is located in pentad 3405_2200. The list of birds for pentad 3405_2200 from the second Southern African Bird Atlas Project (http://sabap2.birdmap.africa/coverage/pentad/3405_2200) lists a further one threatened and two Near Threatened birds (Taylor et al. 2015) that were subsequently included in this assessment.

Sustainable development is achieved by ensuring that the benefits people derive from ecosystems are maintained. Ecosystems provide all the materials and services on which people's health, livelihoods and well-being depends (Brownlie et al. 2013). Ecosystems consist of the interactions between the living and non-living components of an area. Ecosystems are sustained by conserving their biodiversity which is the variety of life on Earth at the level of genes and species, and by conserving the habitats within ecosystems on which the species and people depend for their health, livelihoods, and well-being (Brownlie et al. 2013).

Environmental Impact Assessments (EIA) contribute to achieving sustainable development. EIA is defined as 'the process of identifying, predicting, evaluating, and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made" (Senécal et al. 1999).

The populations of threatened animals, including threatened birds, decline because of a reduction in adult longevity and/or a reduction in their breeding success, i.e., a reduction in their life-time reproductive output (e.g., Evans & Bouwman 2000). A loss of habitat quantity (e.g., urban development) or quality (e.g., overgrazing) and/or the disturbance of breeding birds (e.g., trampling of nests with eggs by livestock (McCann et al. 2001)) are examples of effects that reduce birds' longevity and/or their breeding success and result in a decline their populations (e.g., McCann et al. 2001, Evans et al. 2002). Adult longevity, especially for small, short-lived birds (< 50 g), is reduced by prolonged periods of food shortages, and/or by increases in their need to produce replacement clutches or broods lost to predation, prolonged poor weather conditions, and other causes (Martin 1995). Reduced adult longevity results in reduced lifetime reproductive output of birds and results in population decline. Reduced breeding success caused by increases in the need to produce replacement clutches or broods lost to predation, prolonged poor weather conditions, and other causes (Martin 1995) does not always result in reduced adult longevity, especially among large, long-lived birds (> 50 g). However, it still contributes to reduced lifetime reproductive output which results in population decline.

Although the exact mechanism is unknown, habitat loss results in a decline in the population of threatened birds and other animals. Birds are adapted to living, i.e., feeding; breeding; avoiding predators; and avoiding competition with other species etc., in specific habitats. Without the habitat to which a bird is adapted the bird does not occur. The mechanism by which habitat loss results in a decline in the populations of threatened birds is probably one or a combination of the following:

- Almost immediate death of the threatened birds caused by the loss of their habitat.
- The birds move to unsuitable habitat where they are unable to breed and ultimately die of old age. This is one reason a lag phase is often observed between the loss of habitat and declines in a population. Habitat fragmentation may result in animals being unable to reach alternative suitable habitat.
- The birds move to suitable habitat that is already occupied by conspecifics. The immigrants are chased by the territory holders from one territory to the next and they

are unable to acquire enough food or breed and ultimately die of either starvation or old age. This is another reason a lag phase is often observed between the loss of habitat and the decline in the population of a threatened bird.

- When the remaining habitat contains a small population then events like prolonged poor weather conditions or the progeny produced are of only one sex, result in poor breeding success and/or adult mortality and the population declines. The populations of most animals need to be above a minimum size for them to be stable. This minimum population size depends on the specific characteristics of each animal.

2. Methods

2.1. Maps, aerial photographs, data, and software used

General

- Screening report, 08 April 2021 (Sharples Environmental Services 2001).
- Microsoft® Bing™ Maps and Aerial Photographs (https://www.bing.com/maps).
- Farm boundaries from Cape Farm Mapper (https://gis.elsenburg.com/apps/cfm/).

Birds

- First Southern African Bird Atlas Project (SABAP 1, 1987 - 1991), resolution of a quarter degree grid cell (QDGC) (15' X 15') (Harrison *et al.* 1997).
- Second Southern African Bird Atlas Project (http://sabap2.birdmap.africa/) (SABAP 2, 2007 - ongoing) (http://sabap2.birdmap.africa/), resolution of a pentad (5' X 5'), nine pentads to a QDGC.
    - The list of birds recorded in pentad 3405_2200 was downloaded on the 01 July 2021.
- *The 2015 Eskom Red Data Book of Birds of South Africa Lesotho and Swaziland* (Taylor et al 2015).

Vegetation

- *The Vegetation Map of South Africa, Lesotho and Swaziland* (version 18) (South African National Biodiversity Institute 2006-2018).

Water Resources

- 2011 *Atlas of freshwater ecosystem priority areas in South Africa* (Nel et al. 2011)

- *Strategic Water Source Areas for surface water and groundwater* (Vector data) (Le Maitre et al. 2018a & b).

Conservation Priorities

- *2017 Western Cape Biodiversity Spatial Plan* (WCBSP) – Mossel Bay (Pool-Stanvliet et al. 2017).
- *National Protected Area Expansion Strategy for South Africa 2008* (Government of South Africa. 2010).

Software

- ArcGIS 10.8.1 (https://desktop.arcgis.com/en/).
- Microsoft Excel (https://www.office.com/) and LibreOffice Calc (https://www.libreoffice.org/).

2.2. Site inspection

- **Duration(s):**
  - 07 July 2021: 07h20-10h30
- **Dates:** 07 July 2021
- **Season:** Winter
- **Purpose:**
  - Determine whether any threated (Vulnerable, Endangered, and Critically Endangered) or Near Threated birds occur on the site proposed for development;
  - Determine whether any breeding and/or feeding habitat preferred by threatened or Near Threatened birds occurs on the site proposed for development; and
  - Assess the risks to threatened and Near Threatened birds and their habitats posed by the proposed development.

2.3. Identifying the threatened and Near Threatened birds

A list of threatened and Near Threatened birds to include in the assessment was obtained from the screening report (Sharples Environmental Consulting 2021) and from the list of birds for pentad 3405_2200 from SABAP 2 (Appendix 1). This is the pentad in which the property proposed for development is located.

The Black Stork (VU) and Greater Flamingo (Nt) were excluded from this assessment (Appendix 1). The Black Stork (VU) is associated with mountainous regions, breeding on ledges suitable cliffs, and is nomadic in winter (Hockey et al. 2005). The Greater Flamingo feeds exclusively in suitable shallow open water of which there is none on the property proposed for development (Hockey et al. 2005).

2.4. Assessing the on-site impacts

I visited the site on 07 July 2021 for c. 3 hours (07:20 to 10:30). I walked two transects and used BirdLasser to record the localities of where I heard and/or observed all birds (Figures 1 and 2, Appendix 1).

2.5. Assessing the cumulative impacts

An assessment of the impacts and mitigation if required.

2.6. Quality and age of the base data used

The base data used are of good quality and not older than one year.

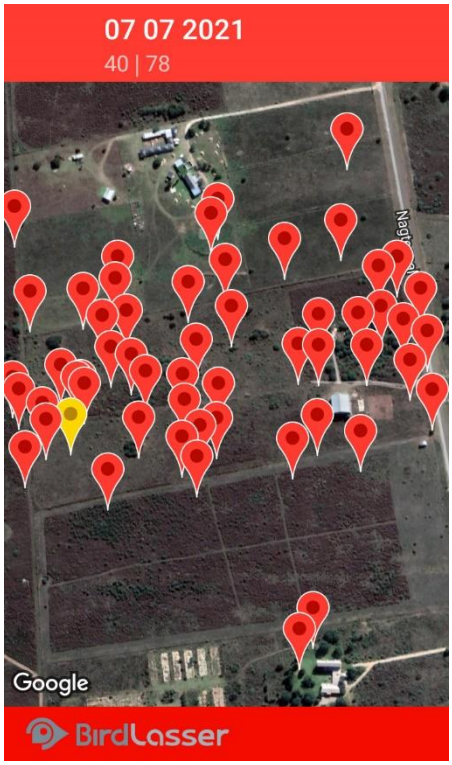

Figure 1. Screenshot of BirdLasser showing all the localities where birds were recorded (seen or heard) when I walked the two transects during the site visit.

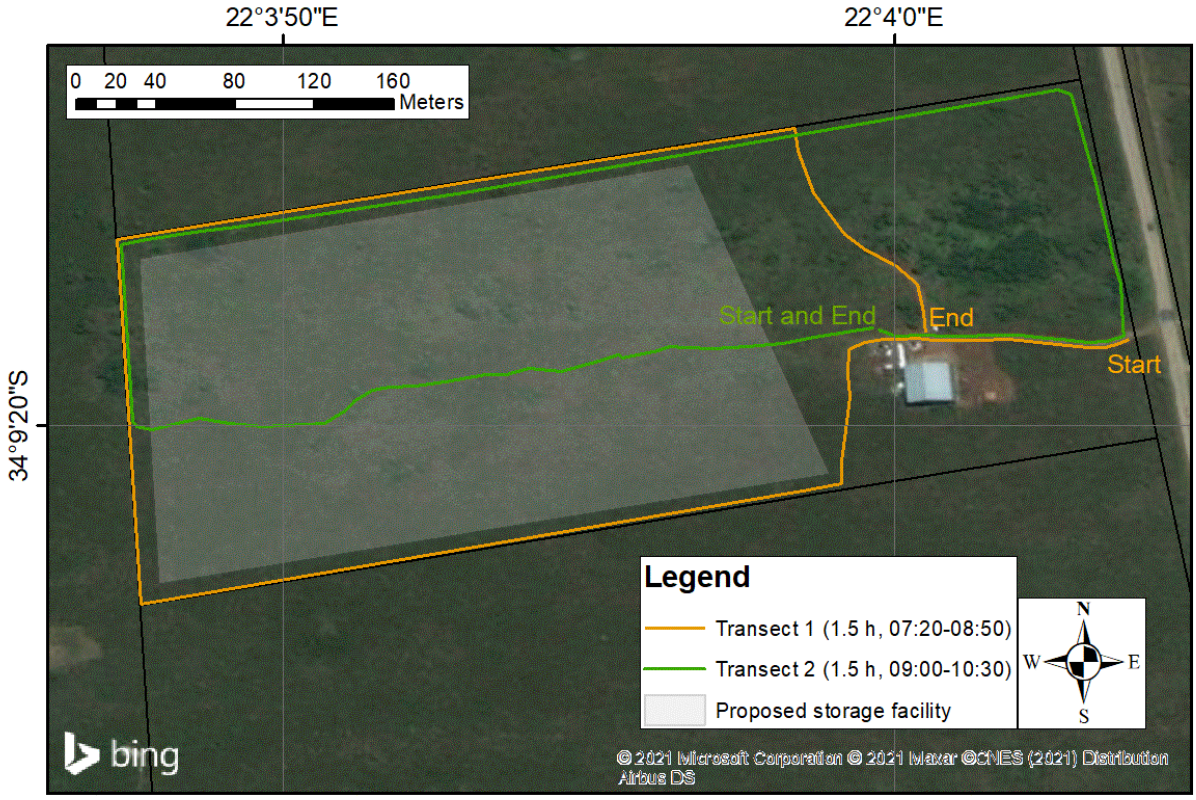

Figure 2. A map of the site proposed for development and the two transect routes. Transect 1 was walked clockwise from 07:20 – 08:50 and transect 2 was walked clockwise from 09:00 to 10:30.

3. Results

3.1. Site inspection, and relevance of the season to the outcomes of this assessment

The site inspection was completed on the 07 July 2021. Winter is not the optimal time for a site inspection. The threatened and Near Threatened birds all have resident populations in the region. The density of Black Harrier and Blue Crane in the area will be reduced as a proportion of their populations are migrants. The size of the large birds and the aerial foraging behaviour of the Black Harrier and African Marsh Harrier (Table 2) would make them easy to observe if they were present either on or near to the site proposed for development. If present, the active behaviour and vocalisations of Knysna Woodpecker, and the active behaviour of Agulhas Long-billed Lark would result in them being detectable on

or near to the site proposed for development. Due to its secretive nature and because it is silent in winter, the Knysna Warbler would be the most difficult to detect if present. Consequently, the presence or absence of the Knysna Warbler will be inferred from the availability of suitable breeding and feeding habitat (Table 2) present for the birds on the site proposed for development. An additional indication will be whether the Knysna Warbler has been recorded in pentad 3405_2200 by SABAP2. For these reasons, a site visit in winter was deemed feasible and was conducted.

3.2. Climate, topography, biodiversity, existing impacts

The site proposed for development is at an elevation of 165 m asl. Mean annual rainfall is 700-800 mm per year (Cape Farm Mapper ver 2.6).

Biome, and Vegetation Type

The site proposed for development is in the Fynbos Biome (Mucina & Rutherford 2006, South African National Biodiversity Institute 2006-2018). It is in Northern Langeberg Sandstone Fynbos (FFs15) vegetation type which is listed as of Least Concern (South African National Biodiversity Institute 2006-2018) (Figure 3). There is no indigenous forest on or near the site proposed for development (Figure 3).

The fynbos vegetation in the northeastern corner of the property was identified as sensitive by a study commissioned by the Mossel Bay municipality (R Brand pers. comm.). This area is not included in the site proposed for development of the storage facility.

Freshwater Ecosystem Priority Area (FEPA) sub-catchments

The site proposed for development is located within a sub-quaternary catchment that should be managed in a manner that maintains the status of the Blinde River as a designated river freshwater ecosystem priority area (river FEPA) (Nel et al. 2011) (Figure 4). The Blinde River is in good condition (River condition: A: Unmodified, natural, B: Largely natural) (Nel et al. 2011).

Strategic Water Source Areas

The site proposed for development is not located within any Strategic Water Source Areas (SWSA) for either surface or ground water (Le Maitre et al. 2018a & b). The nearest SWSA is for surface water, and it starts approximately 20 km to the northeast of the site proposed for development.

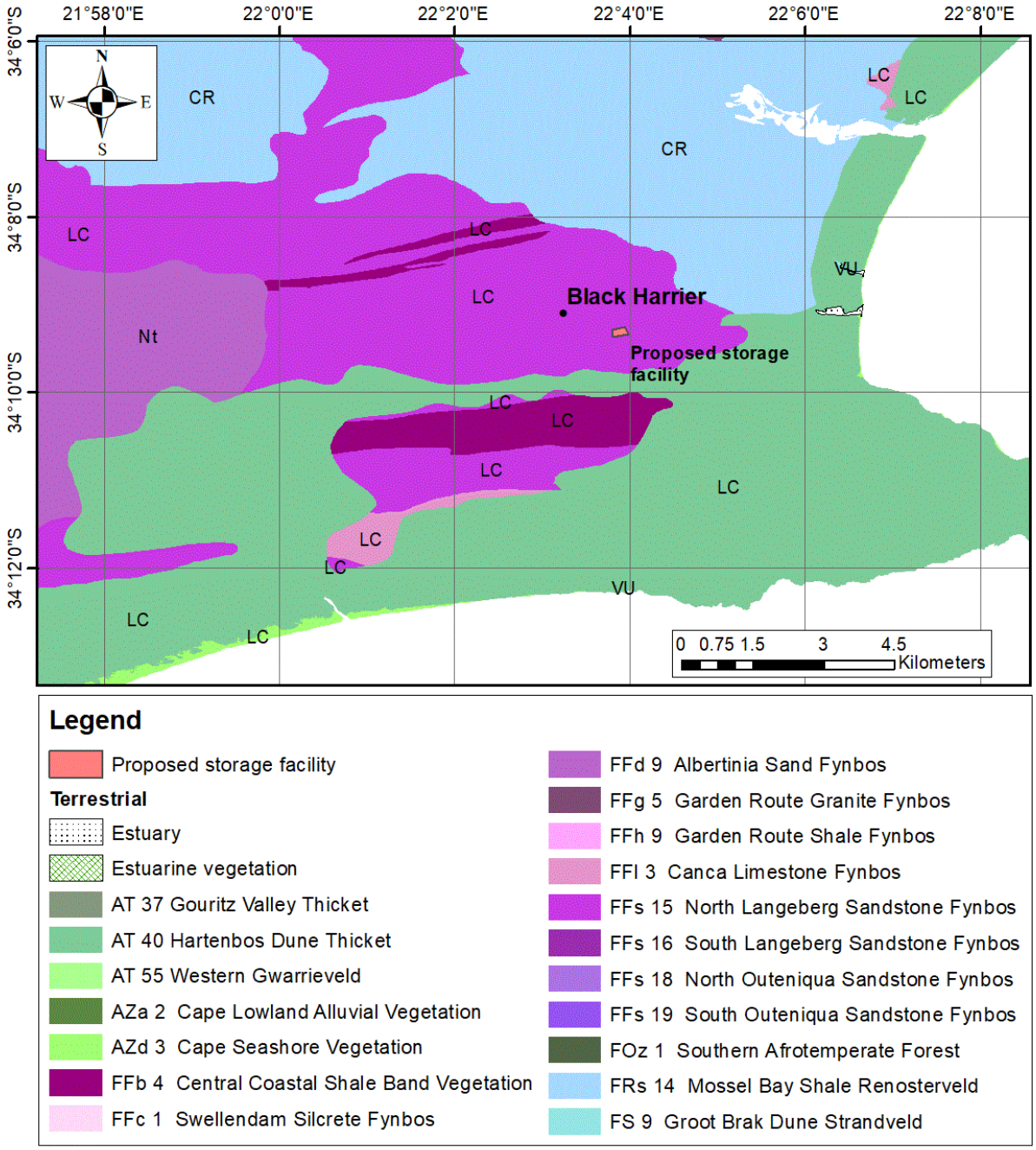

Figure 3. A map of the vegetation type in which the site proposed for development of the storage facility is located. The surrounding vegetation is also included.

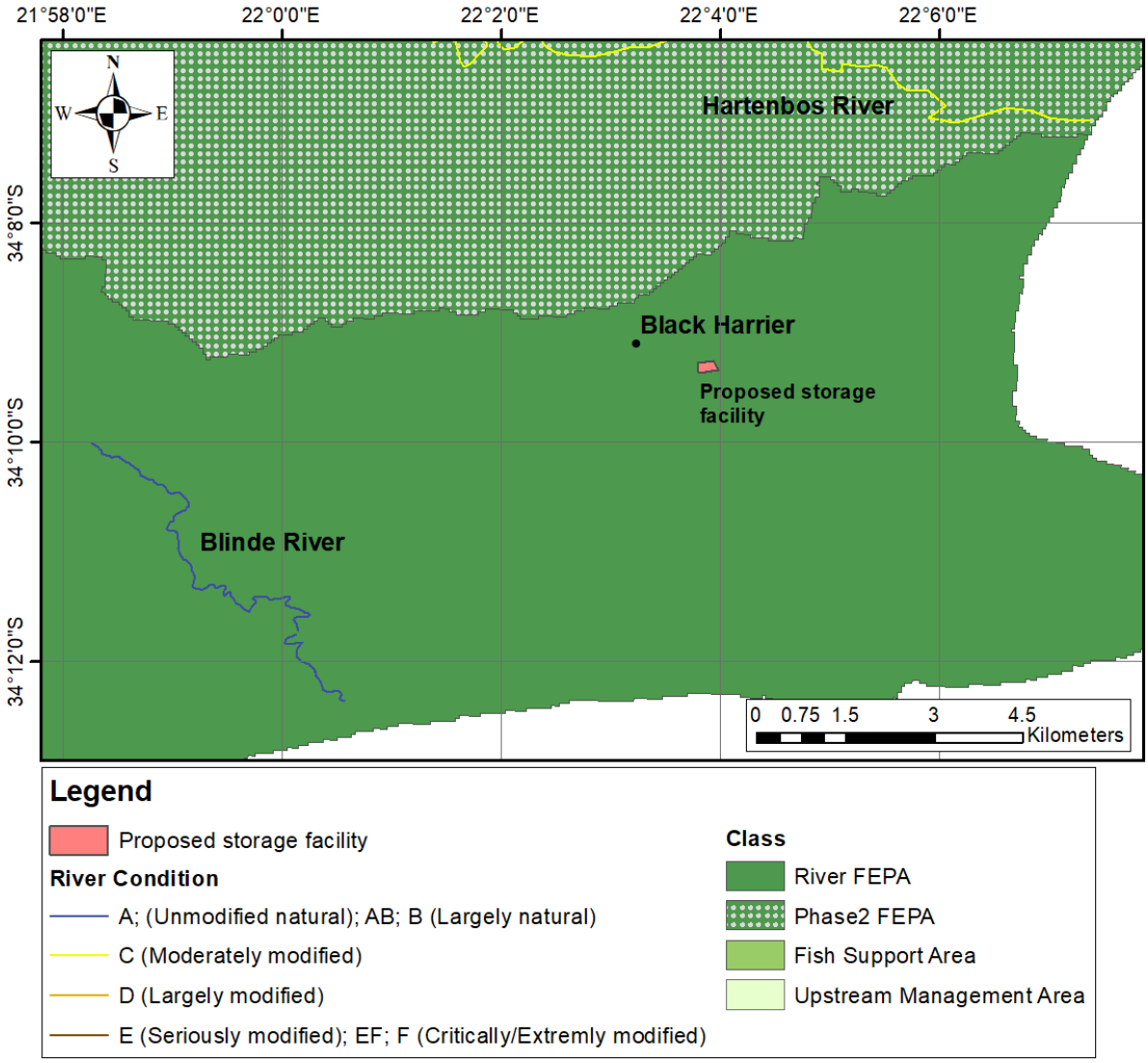

Figure 4. A map of the sub-quaternary catchment in which the site proposed for development t of a storage facility is located. The sub-quaternary catchment must be managed to ensure that the good quality of Blinde River identified as a Freshwater Ecosystem Priority Area is maintained.

Protected Areas Expansion Strategy

The site of the proposed development of a storage facility is not located in any area currently identified for future expansion of South Africa's protected area network (Government of South Africa 2010).

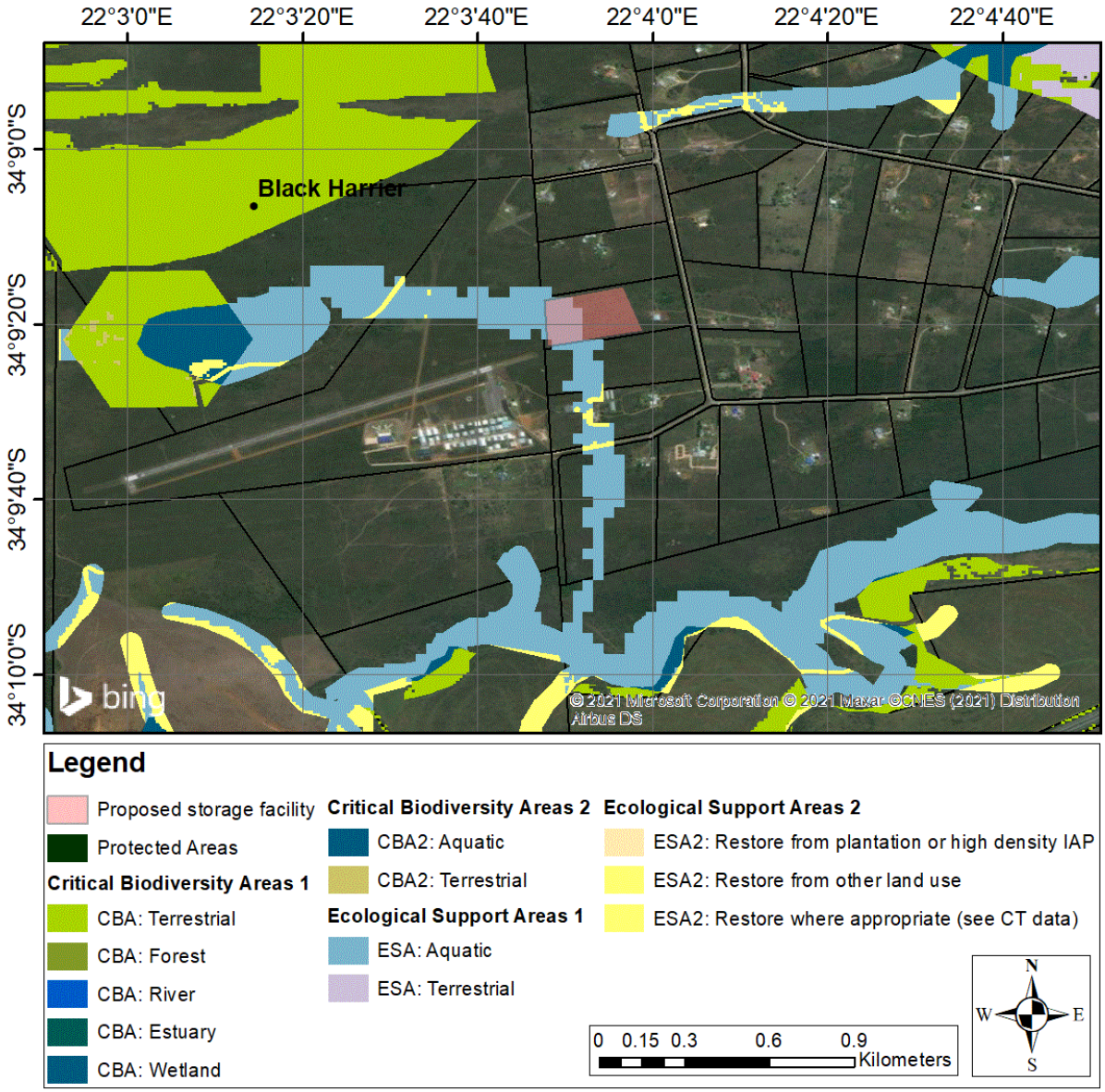

Figure 5. The Critical Biodiversity Areas (CBA) and Ecosystem Support Areas (ESA) from the 2017 Western Cape Biodiversity Spatial Plan (WCBSP).

Priorities for Conserving the Biodiversity of the Western Cape

According to the Western Cape Spatial Biodiversity Plan, the western half of the site proposed for the development of a storage facility is in an Ecosystem Support Area (ESA) (Pool-Stanvliet et al. 2017) (Figure 5). This ESA is required to prevent the degradation of the Critical Biodiversity Areas (CBAs) to the northwest and south of the site proposed for development (Figure 5). The areas designated as ESA 1 are considered to be in a near natural condition whereas rehabilitation is recommended for the areas designated as ESA 2 (Pool-Stanvliet et al. 2017). The same distinction applies to the areas designated as CBA 1 and 2 (Pool-Stanvliet et al. 2017).

3.3. Identified Sensitivities

The site proposed for development is located within a sub-quaternary catchment that should be managed in a manner that maintains the status of the Blinde River as a river FEPA (Nel et al. 2011) (Figure 4).

The western half of the site proposed for the development of a storage facility is in an Ecosystem Support Area (ESA) (Pool-Stanvliet et al. 2017) (Figure 5).

3.4. Assumptions, uncertainties, and gaps in knowledge

The avifauna of the upper reaches of the Blinde River FEPA have not been well surveyed as the area is largely inaccessible. The Blinde River FEPA is in pentad 3410_2200. Aerial photographs (Bing and Google Maps) suggest that this area may be suitable habitat for Knysna Warbler, and this species has been recorded in this pentad.

3.5. Threatened and Near Threatened birds

The screening report listed four threatened (two Endangered and two Vulnerable to extinction) birds and one Near Threatened bird, and the list of birds for pentad 3405_2200 listed a further one threatened (Vulnerable) and two Near Threatened birds that could potentially occur on the site proposed for development (Table 1, Appendix 1). During the site visit none of the threatened or Near Threatened birds were observed on the site proposed for development (Figure 2).

African Marsh Harrier, Knysna Woodpecker, and Knysna Warbler

Although included in the screening report, African Marsh Harrier, Knysna Woodpecker, and Knysna Warbler have not been recorded in pentad 3405_2200 by SABAP2 (Appendix 1). This indicates that these three bird species are unlikely to occur on the property proposed for development (Figure 2). The absence of suitable foraging and breeding wetland habitat for African Marsh Harrier (Simmons 2005) explains its absence from the site proposed for development (Table 2). The absence of large enough trees with natural cavities as nesting sites (Tarboton 2005) for Knysna Woodpecker explains its absence from the site proposed for development. The tall and dense vegetation on the north-eastern corner of the property may contain suitable habitat for Knysna Warbler but is probably not extensive enough and is not adjacent to indigenous forest or a watercourse (Smith 2005) (Figure 2). This area is not included in the area proposed for development.

The remainder of the property, including the area proposed for development; does not contain suitable breeding or feeding thicket or indigenous forest habitat for Knysna Warbler.

Black Harrier

Following the site inspection, during continued bird atlassing (birding) in the area, a single Black Harrier was observed foraging over an area approximately 1.1 km to the northwest of the centre of the site proposed for development (Figure 6). Black Harrier may occasionally forage over the site proposed for development. However, due to its small size (< 5 ha) and the large amount of suitable foraging and breeding fynbos habitat (Simmons et al. 2005) remaining to the north and west of the site proposed for development, this development will have no impact on Back Harrier.

Denham's Bustard, Secretarybird, and Blue Crane

Denham's Bustard, Secretarybird, and Blue Crane are birds that walk and forage on the ground (Allan 2005a & b, Dean & Simmons 2005). These three species may occasionally forage on the site proposed for development. However, due to its small size (< 5 ha) and the large amount of suitable foraging fynbos habitat remaining to the north and west of the site proposed for development, this development will have no impact on the feeding habitat of these three species. No evidence of breeding sites of Denham's Bustard and Blue Crane (Allan 2005a & b) were observed on the property. Secretarybirds' nest in the crowns of trees, usually thorn trees (Dean & Simmons 2005). None of the trees on the site proposed for development are large enough to contain the nest of a Secretarybird, and consequently, no Secretarybird nests were observed during the site visit.

Agulhas Long-billed Lark

The Agulhas Long-billed Lark has been recorded in pentad 3405_2200 by SABAP2 (Appendix 1). Only the vegetation that has been cut short along the inside perimeter of the fences, and the first half of the track down the middle of the site proposed for development; contain potential breeding and feeding habitat (Ryan & Dean 2005, De Kock & Lee 2019) for Agulhas Long-billed Lark (Table 2). The site proposed for development is on the very eastern edge of the distribution range of the Agulhas Long-billed Lark and the birds were probably observed in the western section of this pentad by SABAP2 (Ryan & Dean 2005). The small area (< 0.5 ha) and locality probably preclude the presence of Agulhas Long-billed Lark, and none were observed during the site visit.

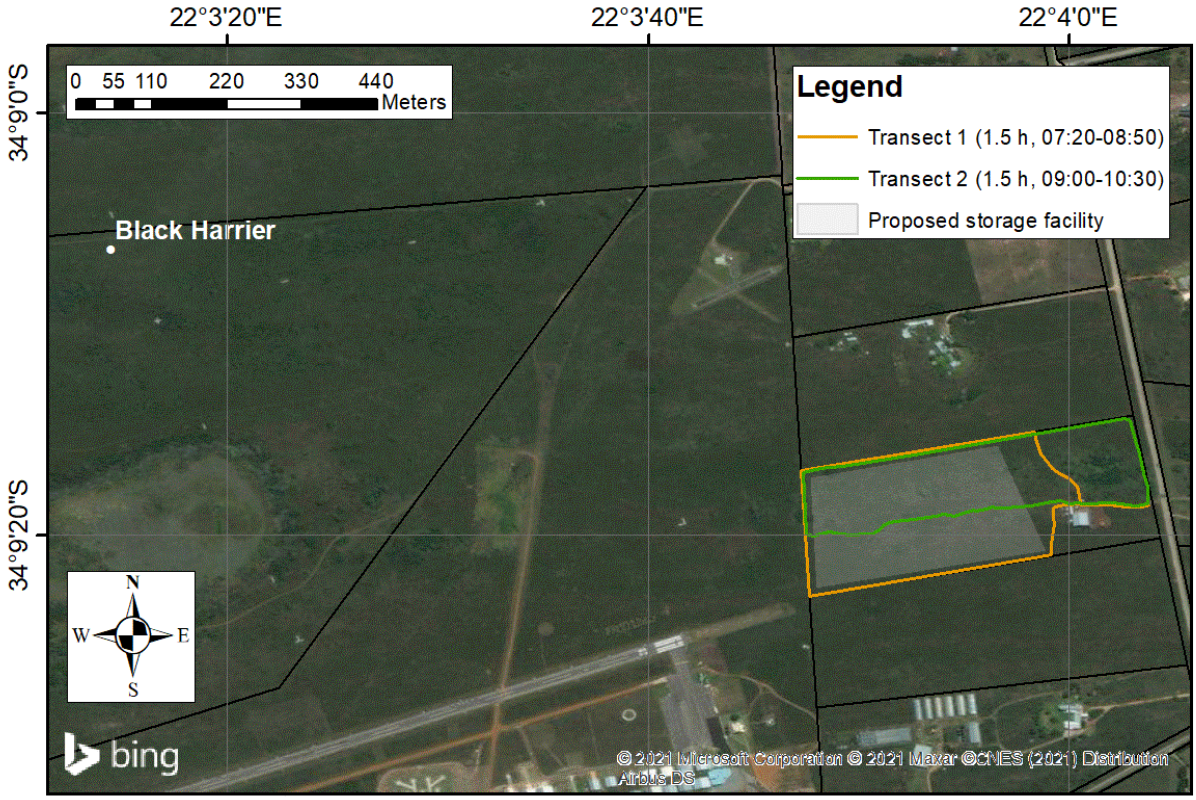

Figure 6. The locality where a Black Harrier was observed foraging approximately 1.1 km northwest of the site proposed for development.

Aerial Foraging Birds, Large Birds, and Mossel Bay Airport

The site proposed for development is along the take-off and landing paths of aircraft from and to Mossel Bay Airport (Figure 6). The use of the site proposed for development the aerial foraging Black Harrier (Simmons et al. 2005), and large birds such as Denham's Bustard, Secretarybird, and Blue Crane (Allan 2005a & b, Dean & Simmons 2005) would be potentially catastrophic for pilots, their passengers and aeroplanes, and these threatened and Near Threatened birds.

Table 1. The five species of birds threatened with extinction identified by the screening report, and an additional three species identified from the SABAP 2 list for pentad 3405_2200 in which the site proposed for development is located.

No	Common name	Scientific name	Global status	Regional Status (Taylor et al. 2015)	Sensitivity (Scoping Report)	Source
169	Black Harrier	*Circus maurus*	VU	EN	High	Screening report/SABAP 2
167	African Marsh Harrier	*Circus ranivorus*		EN	High	Screening report
219	Denham's Bustard	*Neotis denhami*	Nt	VU	Medium	Screening report/SABAP2
448	Knysna Woodpecker	*Campethera notata*	Nt	Nt	Medium	Screening report
611	Knysna Warbler	*Bradypterus sylvaticus*	VU	VU	Medium	Screening report
105	Secretarybird	*Sagittarius serpentarius*	VU	VU		SABAP 2
216	Blue Crane	*Anthropoides paradisea*	VU	Nt		SABAP 2
4123	Agulhas Long-billed Lark	*Certhilauda brevirostris*		Nt		SABAP 2

CE: Critically Endangered, EN: Endangered, VU: Vulnerable, and Nt: Near Threatened

Table 2. A brief description of suitable breeding and feeding habitat for each of the eight threated or near threatened birds that were considered during this assessment.

No	Common name	Scientific name	Breeding Habitat	Feeding Habitat	Reference
169	Black Harrier	*Circus maurus*	Ground, in fynbos, renosterveld, dry grassland and croplands.	Aerial over fynbos, renosterveld, dry grassland, and croplands.	Simmons et al. 2005
167	African Marsh Harrier	*Circus ranivorus*	Inland and coastal wetlands, and adjacent moist grassland.	Aerial over inland and coastal wetlands, and adjacent moist grassland.	Simmons 2005
219	Denham's Bustard	*Neotis denhami*	Ground, in fynbos, grassland, shrublands, and cultivated fields.	Ground, in fynbos, grassland, shrublands, and cultivated fields.	Allan 2005b
448	Knysna Woodpecker	*Campethera notata*	Nest holes (c. 45 mm) excavated in dead tree trunks.	Coastal and riparian forests, and in thornveld and *Euphorbia* thickets.	Tarboton 2005
611	Knysna Warbler	*Bradypterus sylvaticus*	Dense tangled thickets on the edge of indigenous forests and riparian forests.	Dense tangled thickets on the edge of indigenous forests and riparian forests.	Smith 2005
105	Secretarybird	*Sagittarius serpentarius*	In the crowns of trees in open grasslands with scattered trees or shrubs.	Favours open grasslands with scattered trees or shrubs.	Dean & Simmons 2005
216	Blue Crane	*Anthropoides paradisea*	Ground, in mostly natural grassland but also cultivated pastures and croplands.	Ground, in mostly natural grasslands but also in wetlands, cultivated pastures and croplands.	Allan 2005a
4123	Agulhas Long-billed Lark	*Certhilauda brevirostris*	Ground, sparsely vegetated shrublands and agricultural fields.	Ground, sparsely vegetated shrublands and agricultural fields.	Ryan & Dean 2005, De Kock & Lee 2019

4. Assessment

The proposed development of this storage facility (< 5 ha) will not have any detrimental impact on any threatened and Near Threated birds or their breeding and feeding habitats (Figures 2 and 3).

Development of the western half of the area proposed for development is in an ESA (Pool-Stanvliet et al. 2017) that provides the link between CBAs to the northwest and south (Figure 5). Development of the proposed storage facility in this ESA will not affect the movement of the three threatened and two Near Threated birds identified to be present in pentad 3405_2200 by SABAP 2 (Table 1, Appendix 1). This is because none of these birds are secretive and when moving from one foraging or breeding area to another are not restricted to any specific habitats. However, development in this ESA may affect the movement of other forms of terrestrial biodiversity, and this will need to be considered in the complete Environmental Impact Assessment for this proposed development.

The location of this proposed development in a sub-quaternary catchment of the Blinde River FEPA (Nel et al. 2011) (Figure 4), will not impact on any threatened or Near Threated birds or their habitats. This is because the small scale of this development (< 5 ha) is unlikely to affect the good status (A, AB or B) of the Blinde River (Figure 4). As the status of the Blinde River FEPA will remain unchanged there will consequently not be any impact on any birds that inhabit the river and the riparian vegetation.

5. Cumulative Impacts

None

6. Acceptability of the proposed development

The proposed development is acceptable and will have minimal to no impacts on any threatened or Near Threatened birds.

7. Conditions and monitoring requirements for EMPr or EA

None

8. Consultation

Mr Rufus Brand (063 676 8059) is currently renting the property on which the development of a storage facility is proposed.

No further consultation was required or conducted.

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10. Appendices

Appendix 1: List of birds recorded in pentad 3405_2200 by SABAP 2, and on the 07 July 2021 during the site visit.

Appendix 2: Curriculum Vitae of Dr Steven W Evans

Appendix 3: SACNASP Certificate, Steven W Evans

Appendix 1. List of birds recorded in pentad 3405_2200 during SABAP 2, and on the 07 July 2021 during the site visit. The global (Global status) and regional (Regional status) populations of birds that are at some risk of going extinct are indicated. The birds with regional populations that are threatened or Near Threatened and likely to be affected by the proposed development are indicated in the column 'Affected Threatened Birds'. (ref = reference number from SABAP 2, CE = Critically Endangered, EN = Endangered, VU = Vulnerable, Nt = Near Threatened, EOO = extent of occurrence).

Spp no.	Common name	Scientific name	Global status	Regional status	Endemicity EOO > 74%	Recorded during the site visit	Threatened and Near Threatened birds likely to occur on the site proposed for development	Affected Threatened birds	Included in the screening report
1	Common Ostrich	*Struthio camelus*							
4	Great Crested Grebe	*Podiceps cristatus*							
6	Little Grebe	*Tachybaptus ruficollis*							
47	White-breasted Cormorant	*Phalacrocorax lucidus*							
50	Reed Cormorant	*Microcarbo africanus*							
52	African Darter	*Anhinga rufa*							
54	Grey Heron	*Ardea cinerea*							
55	Black-headed Heron	*Ardea melanocephala*							
59	Little Egret	*Egretta garzetta*							
61	Western Cattle Egret	*Bubulcus ibis*				yes			
69	Black-crowned Night Heron	*Nycticorax nycticorax*							
72	Hamerkop	*Scopus umbretta*							
79	Black Stork	*Ciconia nigra*		VU					
80	White Stork	*Ciconia ciconia*							
81	African Sacred Ibis	*Threskiornis aethiopicus*							
83	Glossy Ibis	*Plegadis falcinellus*							
84	Hadada Ibis	*Bostrychia hagedash*				yes			
85	African Spoonbill	*Platalea alba*							
86	Greater Flamingo	*Phoenicopterus roseus*		Nt					

88	Spur-winged Goose	*Plectropterus gambensis*							
89	Egyptian Goose	*Alopochen aegyptiaca*				yes			
90	South African Shelduck	*Tadorna cana*							
94	Cape Shoveler	*Spatula smithii*							
95	African Black Duck	*Anas sparsa*							
96	Yellow-billed Duck	*Anas undulata*							
97	Red-billed Teal	*Anas erythrorhyncha*							
98	Cape Teal	*Anas capensis*							
105	Secretarybird	*Sagittarius serpentarius*	VU	VU					
113	Peregrine Falcon	*Falco peregrinus*							
119	Amur Falcon	*Falco amurensis*							
123	Rock Kestrel	*Falco rupicolus*							
129	Yellow-billed Kite	*Milvus aegyptius*							
130	Black-winged Kite	*Elanus caeruleus*				yes			
139	Booted Eagle	*Hieraaetus pennatus*							
149	African Fish Eagle	*Haliaeetus vocifer*							
152	Jackal Buzzard	*Buteo rufofuscus*			South African	yes			
154	Common Buzzard	*Buteo buteo*							
155	Forest Buzzard	*Buteo trizonatus*			South African				
159	Black Sparrowhawk	*Accipiter melanoleucus*							
169	Black Harrier	*Circus maurus*	VU	EN	South African				yes
176	Grey-winged Francolin	*Scleroptila afra*			South African				
181	Cape Spurfowl	*Pternistis capensis*			South African				
189	Common Quail	*Coturnix coturnix*				yes			
192	Helmeted Guineafowl	*Numida meleagris*				yes			
210	Common Moorhen	*Gallinula chloropus*							
212	Red-knobbed Coot	*Fulica cristata*							
216	Blue Crane	*Grus paradisea*	VU	Nt	South African				
219	Denham's Bustard	*Neotis denhami*	Nt	VU					yes

238	Three-banded Plover	*Charadrius tricollaris*							
242	Crowned Lapwing	*Vanellus coronatus*				yes			
245	Blacksmith Lapwing	*Vanellus armatus*							
253	Little Stint	*Calidris minuta*							
269	Pied Avocet	*Recurvirostra avosetta*							
270	Black-winged Stilt	*Himantopus himantopus*							
275	Spotted Thick-knee	*Burhinus capensis*							
287	Kelp Gull	*Larus dominicanus*							
288	Grey-headed Gull	*Chroicocephalus cirrocephalus*							
311	Speckled Pigeon	*Columba guinea*				yes			
312	African Olive Pigeon	*Columba arquatrix*							
314	Red-eyed Dove	*Streptopelia semitorquata*				yes			
316	Cape Turtle Dove	*Streptopelia capicola*				yes			
317	Laughing Dove	*Spilopelia senegalensis*							
318	Namaqua Dove	*Oena capensis*							
348	Jacobin Cuckoo	*Clamator jacobinus*							
351	Klaas's Cuckoo	*Chrysococcyx klaas*							
352	Diederik Cuckoo	*Chrysococcyx caprius*							
368	Spotted Eagle-Owl	*Bubo africanus*							
378	Common Swift	*Apus apus*							
380	African Black Swift	*Apus barbatus*							
383	White-rumped Swift	*Apus caffer*							
385	Little Swift	*Apus affinis*							
390	Speckled Mousebird	*Colius striatus*				yes			
392	Red-faced Mousebird	*Urocolius indicus*							
394	Pied Kingfisher	*Ceryle rudis*							
397	Malachite Kingfisher	*Corythornis cristatus*							
402	Brown-hooded Kingfisher	*Halcyon albiventris*							
418	African Hoopoe	*Upupa africana*							

463	Large-billed Lark	*Galerida magnirostris*			South African				
488	Red-capped Lark	*Calandrella cinerea*							
493	Barn Swallow	*Hirundo rustica*							
495	White-throated Swallow	*Hirundo albigularis*							
498	Pearl-breasted Swallow	*Hirundo dimidiata*							
502	Greater Striped Swallow	*Cecropis cucullata*							
506	Rock Martin	*Ptyonoprogne fuligula*							
509	Brown-throated Martin	*Riparia paludicola*							
510	Banded Martin	*Riparia cincta*							
511	Black Saw-wing	*Psalidoprocne pristoptera*							
517	Fork-tailed Drongo	*Dicrurus adsimilis*							
522	Pied Crow	*Corvus albus*				yes			
523	Cape Crow	*Corvus capensis*							
524	White-necked Raven	*Corvus albicollis*				yes			
531	Cape Penduline Tit	*Anthoscopus minutus*							
543	Cape Bulbul	*Pycnonotus capensis*			South African	yes			
546	Terrestrial Brownbul	*Phyllastrephus terrestris*							
551	Sombre Greenbul	*Andropadus importunus*				yes			
568	Capped Wheatear	*Oenanthe pileata*							
570	Familiar Chat	*Oenanthe familiaris*							
576	African Stonechat	*Saxicola torquatus*				yes			
581	Cape Robin-Chat	*Cossypha caffra*				yes			
583	Karoo Scrub Robin	*Cercotrichas coryphoeus*			South African	yes			
604	Lesser Swamp Warbler	*Acrocephalus gracilirostris*							
609	Little Rush Warbler	*Bradypterus baboecala*							
618	Cape Grassbird	*Sphenoeacus afer*			South African	yes			
621	Long-billed Crombec	*Sylvietta rufescens*							
622	Bar-throated Apalis	*Apalis thoracica*				yes			
629	Zitting Cisticola	*Cisticola juncidis*							

631	Cloud Cisticola	*Cisticola textrix*			South African				
637	Neddicky	*Cisticola fulvicapilla*				yes			
638	Grey-backed Cisticola	*Cisticola subruficapilla*				yes			
639	Wailing Cisticola	*Cisticola lais*							
646	Levaillant's Cisticola	*Cisticola tinniens*							
659	Layard's Warbler	*Curruca layardi*			South African				
665	Fiscal Flycatcher	*Melaenornis silens*			South African				
672	Cape Batis	*Batis capensis*							
686	Cape Wagtail	*Motacilla capensis*							
692	African Pipit	*Anthus cinnamomeus*							
694	Plain-backed Pipit	*Anthus leucophrys*							
703	Cape Longclaw	*Macronyx capensis*				yes			
707	Southern Fiscal	*Lanius collaris*				yes			
709	Southern Boubou	*Laniarius ferrugineus*			South African				
713	Southern Tchagra	*Tchagra tchagra*			South African				
722	Bokmakierie	*Telophorus zeylonus*				yes			
733	Common Starling	*Sturnus vulgaris*				yes			
745	Red-winged Starling	*Onychognathus morio*							
746	Pied Starling	*Lamprotornis bicolor*			South African				
749	Cape Sugarbird	*Promerops cafer*			South African	yes			
751	Malachite Sunbird	*Nectarinia famosa*				yes			
753	Orange-breasted Sunbird	*Anthobaphes violacea*			South African	yes			
758	Greater Double-collared Sunbird	*Cinnyris afer*			South African				
760	Southern Double-collared Sunbird	*Cinnyris chalybeus*			South African	yes			
772	Amethyst Sunbird	*Chalcomitra amethystina*							
784	House Sparrow	*Passer domesticus*							
786	Cape Sparrow	*Passer melanurus*				yes			

799	Cape Weaver	*Ploceus capensis*			South African	yes			
803	Southern Masked Weaver	*Ploceus velatus*							
805	Red-billed Quelea	*Quelea quelea*				yes			
808	Southern Red Bishop	*Euplectes orix*							
810	Yellow Bishop	*Euplectes capensis*							
843	Common Waxbill	*Estrilda astrild*							
846	Pin-tailed Whydah	*Vidua macroura*							
857	Cape Canary	*Serinus canicollis*							
863	Brimstone Canary	*Crithagra sulphurata*							
865	White-throated Canary	*Crithagra albogularis*							
866	Yellow Canary	*Crithagra flaviventris*				yes			
867	Streaky-headed Seedeater	*Crithagra gularis*							
873	Cape Bunting	*Emberiza capensis*							
940	Rock Dove	*Columba livia*							
1016	Mallard	*Anas platyrhynchos*							
1172	Cape White-eye	*Zosterops virens*			South African	yes			
4123	Agulhas Long-billed Lark	*Certhilauda brevirostris*		Nt	South African				
4131	Burchell's Coucal	*Centropus burchellii*							
4139	Karoo Prinia	*Prinia maculosa*			South African	yes			
4140	Cape Clapper Lark	*Mirafra apiata*				yes			
4142	Southern Grey-headed Sparrow	*Passer diffusus*							
10004	Domestic Goose	*Anser anser*							
10877	Nicholson's Pipit	*Anthus nicholsoni*							
Included in the screening report but to date, not recorded by SABAP 2 in pentad 3405_2200:									
167	African Marsh Harrier	*Circus ranivorus*		EN					yes
448	Knysna Woodpecker	*Campethera notata*	Nt	Nt	South African				yes

611	Knysna Warbler	*Bradypterus sylvaticus*	VU	VU	South African				yes

Appendix 2: Curriculum Vitae of Dr Steven W Evans

CURRICULUM VITAE

15/10/2020

STEVEN WILLIAM EVANS Pr. Sci. Nat.

690918 5059 082

Date of birth:	18/09/1969	**Marital status:**	Single
Age:	51	**Gender:**	Male
Nationality:	South African Citizen		

ADDRESS	Postal:	Residential:
	70 van der Riet Str	70 van der Riet Str
	Oudtshoorn	Oudtshoorn
	6620	6620
	Western Cape	Western Cape
	South Africa	South Africa

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ResearchGate Portfolio: *https://www.researchgate.net/profile/Steven_Evans3*

EDUCATION:

2010: I was awarded my PhD in Zoology (Ornithology and Conservation Ecology), North-West University, Potchefstroom Campus, entitled “The Conservation Ecology and Breeding Biology of the Blue Swallow *Hirundo atrocaerulea*, Sundevall 1850, in South Africa”. I graduated on the 14 May 2010”.

EXPERIENCE:

2020 - present

- Completed specialist avifaunal (bird) assessments for Environmental Impact Assessments (EIAs) (e.g. for Greenfire Enviro).
  - Brief report on five bird species of conservation concern on the farm Spitzkop.
  - Specialist Avifaunal Assessment for Kruisrivier.

- Editor and Proofreader of documents written in English for Greenwood English, Guangzhou, China.
- Working as a Bird Guide in the Little Karoo.

2018 - 2019: Working as a Bird Guide in the Little Karoo.

- Designed, assessed, and mapped hiking, mountain biking and running trails on Louvain Guest Farm in the Langkloof.
- Contributed to the first election of the Board of Directors of the Garden Route Biosphere Reserve (GRBR).

2014 - 2017: Post-Doctorate Fellowship, SARCHI Chair, University of Venda. The fellowship involved:

- developing and implementing research projects on birds in the Vhembe Biosphere Reserve in conjunction with post-graduate students,
- assist with supervising post-graduate students,
- presenting training courses on statistics for post-graduate students,
- publishing the findings of my research in peer-reviewed scientific journals,
- further research on the Blue Swallow,
- presentations on research work I am involved in too the general public, academics and peers.
- lecturing on Avian Phylogenetics to the second year Zoology students

Current computer software skills: MICROSOFT (WINDOWS 10, WORD, EXCEL, ACCESS, POWERPOINT), LIBRE OFFICE (WRITER, CALC, BASE & IMPRESS), ARCGIS 10 and SPATIAL ANALYST, TERRSET and its LAND CHANGE MODELLER, FRAGSTATS, QGIS, GARMIN BASECAMP, PRISM 4 (Statistics), DISTANCE 6 r 2, R, R-STUDIO and numerous packages, MEGA 5 (phylogenetic analysis), TPSDIG2 and MORPHOJ (Geometric morphometrics research) READIRIS PRO 8, GOOGLE EARTH, SKYPE, AUDACITY (sound recording, editing and playback), BREEZEBROWSER PRO (photograph viewing and editing), ADOBE PHOTOSHOP ELEMENTS 10.0 (processing photographs), ADOBE DREAMWEAVER CS 4 & plug-ins (website design) NEAT IMAGE (reduce 'noise' in a photo), VORTEX 10, AND ROBERTS MULTIMEDIA.

2012 - 2013: Post-Doctorate Fellowship in the School for Environmental Sciences and Development, North-West University. The fellowship involves:

- further research on the Blue Swallow and other swallow species,
- publishing the findings of my research in peer-reviewed scientific journals,
- fundraising for research projects,
- presenting training courses on bird-ringing and population risk assessment using Vortex,

- presentation on research work I am involved in too the general public, academics and peers.
- lecturing on Animal Behaviour (Ethology) to third year Zoology students.

2011: Post-Doctorate Fellowship in the School for Environmental Sciences and Development, North-West University. The fellowship involves:

- further research on the Blue Swallow and other swallow species,
- publishing the findings of my research in peer-reviewed scientific journals,
- research on waterbirds,
- fundraising for research projects,
- assisting Masters, and Doctorate students complete their theses,
- Presenting training courses on bird-ringing and population risk assessment using Vortex,
- presentation on research work I am involved in too the general public, academics and peers.

2009 – 2010: I continued with research on the Blue Swallow (Kaapsehoop and Grasskop areas, Mpumalanga).

- I wrote up my extensive research findings for publication in peer-reviewed scientific journals and as popular articles.
- I continued with Avitourism ventures.
- I designed websites for small and large businesses (see www.vitrex.co.za) and taking the photographs of company products (architectural and industrial photography) for use on the companies websites and in printed advertisements (www.africanphotographs.co.za).
- I continued with wildlife photography and submit suitable photographs to AfriPics (photo library).

2006 – 2008: Manager of the Endangered Wildlife Trusts Blue Swallow and Oribi Working Groups. This involved conservation planning (strategic), advocacy, research, monitoring and survey work, publicity, marketing, education and awareness, habitat protection, restoration, and management.

2004 – 2006: Manager of the Endangered Wildlife Trusts Poison Working Group. This involved overseeing the activities of 3 staff members, liaison with national government authorities, liaison with the pesticide industry and industry representative bodies and project development and fundraising.

- Co-presented/co-facilitated a two-part Building on Experience: Management Training Course to Species Working Group Coordinators from 18 NGO's in Africa. Other course contributors where staff of the Royal Society for the Protection of Birds and BirdLife International.

2003: Manager of BirdLife South Africa's Species & Sites Conservation Unit. Managing the unit involved supervising two staff members as well as technical and administrative contributions to the following Africa wide and South Africa based projects.

Africa wide:

- March 2001 – March 2004: Action Plans for the Conservation of Globally Threatened Birds in Africa.
- Capacity established for participative action plan implementation for globally threatened bird species in Africa.

National - South Africa:

- March 2003 – September 2004: The development of local guides in South Africa – job creation and capacity building for ecotourism development and conservation in the Northern Cape.
- February 2002 & 2003: Building on Experience: Management training for South African NGO's and potential project partners.
- June 2002 – June 2006: Mayibuye Wetland Project: Somoho, The Green Trust and BirdLife South Africa.
- May 2003: Reduce the decline of the White-winged Flufftail population and reduce the rate of wetland loss in South Africa (BLSA – White-winged Flufftail Action Group).
- November 2002: Halt the decline of the Cape Parrot population, reduce the rate of forest loss and improve the quality of available forest in priority sites.
- May 2003: Manager of the Blue Swallow Working Group of the Endangered Wildlife Trust. This involves co-ordinating a network of people working towards the conservation of the Blue Swallow and its grassland/wetland habitats in South Africa.

1998 – 2003: Important Bird Areas Project Manager with BirdLife South Africa for the implementation of conservation action, advocacy, and monitoring for the conservation of the Important Bird Areas selected for South Africa.

2002 – 2004: Chair of the newly established (June 2002) African Blue Swallow Working Group. This group consists of a network of NGO and government representatives from all ten Blue Swallow countries. This network initiates conservation projects aimed at conserving the Blue Swallow and its unique grassland/wetland habitats.

- Started work on developing BirdLife South Africa's Species Conservation Programme.

2000 – 2004: Manager of the Blue Swallow Working Group of the Endangered Wildlife Trust. This involves co-ordinating a network of people working towards the conservation of the Blue Swallow and its grassland/wetland habitats in South Africa.

CONTRIBUTIONS TO PROJECTS

- First South African Bird Atlas Project: I submitted over 100 field sheets.
- Second South African Bird Atlas Project, http://sabap2.adu.org.za/index.php, active contributor since 2007 – ongoing, registration no. 284.
- South African Reptile Conservation Assessment, http://sarca.adu.org.za/, active contributor since 2007 – ongoing.
- South African Butterfly Conservation Assessment, http://sabca.adu.org.za/, active contributor since 2007 – ongoing.

SPECIAL ACHIEVEMENTS

June – August 2017: I received a scholarship (Euros 6000) from the German Academic Exchange Service (Deutscher Akademischer Austausch Dienst (DAAD)) and University of Bonn (Euros 2000) to complete a three-month sabbatical at the University of Bonn, Institute of Crop Science and Resource Conservation, Agro- and Production Ecology. The sabbatical involved looking at the functional traits of birds and whether these are related to the functional traits of the habitats the birds inhabit or not.

2014 – 2017: Obtained a Post-Doctorate Fellowship at the University of Venda, Thohoyandou. Obtained funding (R 42 000) to complete surveys of Blue Swallows in the Marungu Highlands, DRC in October – December 2015. Obtained funding (R 300 000) to complete a three-year project on African Crowned Eagles *Stephanoaetus coronatus* in the Soutpansberg Mountains.

2011 – 2013: Obtained a Post-Doctorate Fellowship at North-West University, Potchefstroom Campus

2006: Obtained a bursary from North-West University that covered the tuition fees for my PhD studies.

2002: I served as the elected Chair of the African Blue Swallow Working Group.

- I served as the elected Chair of the Council for the BirdLife Africa Partnerships Technical Advisory Committee.
- I served as the elected Chair of the Council for the BirdLife Africa Partnerships African Species Working Group.

1999 – 2003: I served as the BirdLife African Partnership endorsed Focal Point for the

- Convention on the Conservation of Migratory Species of Wild Animals and African Eurasian Migratory Water Bird Agreement on the BirdLife Africa Partnerships African Policy and Advocacy Working Group.

1992: I obtained a bursary from Potchefstroom University for CHE that covered all expenses for my MSc studies.

- I was elected the student representative on the Faculty of Sciences Committee, Potchefstroom University for CHE, for the year.

1989: I was elected the annual chair of the Potchefstroom University for CHE Bird Club – Aves.

PUBLICATIONS.

JOURNAL PUBLICATIONS:

- **Evans, S.W.** 2021. The wing morphology traits of resident birds that spend a large amount of time per day flying are similar to those of migrant birds. *Journal for Ornithology* 162(3): 765-778
- **Evans, S.W.** 2021. The time-activity budgets of breeding Blue Swallows *Hirundo atrocaerulea* and the effects of weather on nestling growth. *Ostrich* 92(2): 113-123
- Foord, S.H., Swanepoel, L.H., **Evans, S.W.**, Schoeman, C.S., Erasmus, B.F.N., Schoeman, M.C., Keith, M., Smith, A., Mudau E.V., Maree, N., Nembudani N., Dippenaar-Schoeman, A.S., Munyai, T.C., & Taylor, P.J. 2018. Animal taxa contrast in their scale-dependent responses to land use change in rural Africa. *PLoS* ONE 13(5): e0194336. doi: 10.1371/journal.pone.0194336
- **Evans, S.W.** 2018. The effect of nest site orientation on the breeding success of Blue Swallows' *Hirundo atrocaerulea* in South Africa. *African Journal of Ecology* 56(1): 91 – 100. doi: 10.1111/aje.12421
- Muyemeki, L, Burger, R., Piketh, S. & **Evans, S.W.** 2017. Bird species richness and densities in relation to sulphur dioxide gradients and environmental variables. *Ostrich*
- **Evans, S.W.** 2017. An assessment of land cover change as a source of information for conservation planning in the Vhembe Biosphere Reserve. *Applied Geography* 82: 35-47.
- **Evans, S.W.** Cole, N., Kylin, H., Choong Kwet Yive, N.S., Tatayah, V., Merven, J., and Bouwman, H. 2016. The protection of the marine birds and sea turtles of St Brandon's Rock, Indian Ocean, must be based on the entire atoll as an ecosystem. *African Journal of Marine Science* 38(3): 317-327 DOI:10.2989/1814232X.2016.1198720
- **Evans, SW.** 2016 Short note on the activities of breeding Angola Swallows *Hirundo angolensis. Biodiversity Observations* 7.48: 1-6.
- Barrow L.N., Dalton, D.L., Kotze, A. & **Evans S.W.** 2016. Geographically widespread mitochondrial lineages of the African saw-wings inconsistent with species boundaries. *Ostrich* 87(3): 271-275.
- Bouwman, H., **Evans S.W.**, Cole, N., Choong Kwet Yive, N.S., Kylin, H. 2016. The flip-or-flop boutique: Marine debris on the shores of St Brandon's Rock, an isolated tropical atoll in the Indian Ocean will be published in Marine Environmental Research. *Marine Environmental Research* 114: 58 – 64. DOI: 10.1016/j.marenvres.2015.12.013
- **Evans, S.W**., Baker, E.M., Baker, N.E. & Cilliers, D. 2016. Current distribution and population size of the Blue Swallow *Hirundo atrocaerulea* in the southern Tanzanian highlands. *Ostrich* 87(1): 37 – 46. **DOI:**10.2989/00306525.2015.1110843

- **Evans, S.W.**, Monadjem, A., Roxburgh, L., McKechnie, A., Baker, L., Kizungu, R.B., Little, I.T., Matsvimbo, F., Mulwa, R.K., Mwizabi, D., Nalwanga, D., Ndang'ang'a, K. & Combrink L. 2015. Current Conservation Status of the Blue Swallow *Hirundo atrocaerulea* in Africa. *Ostrich* 86 (3): 195–211. **DOI:**10.2989/00306525.2015.1047808
- O'Brian, G.C., Jacobs, F., **Evans, S.W.,** Smit, N.J. 2015. Unique in flight avivourous behaviour of an African Tigerfish (*Hydrocynus vittatus*). *Journal of Fish Biology* 84(1): 263–266.
- Cilliers, D., **Evans S.W.,** Coetzee, H., van Rensburg, L. 2013. Developing a site selection tool to assist reintroduction efforts for the Southern Ground-Hornbill *Bucorvus leadbeateri*. *Ostrich* 84(2): 101-111.
- **Evans, S.W.** & Bouwman, H. 2011. An unusual nesting site of a Mascarene Martin *Phedina borbonica* on Mauritius. *Ostrich*, 82(2): 155 – 156.
- Kylin, H., Bouwman, H & **Evans, S.W**. 2011. Evaluating threats to an endangered species by proxy: air pollution as threat to the blue swallow (*Hirundo atrocaerulea*) in South Africa. *Environ Sci Pollut Res* 18(2): 282-90 DOI 10.1007/s11356-010-0369-0
- **Evans, S.W.** & Bouwman, H. 2010. Historical and current distribution, population size, and possible migration routes of the Blue Swallow *Hirundo atrocaerulea* in Africa. *Bird Conservation International*, volume 20 issue 3: 240 – 254. DOI: 10.1017/S0959270910000158
- **Evans, S.W.** & Bouwman, H. 2010. Habitat selection by blue swallows *Hirundo atrocaerulea* Sundevall, 1850 breeding in South Africa and its implications for conservation *African Journal of Ecology,* 48: 871-879. DOI: 10.1111/j.1365-2028.2009.01183.x
- Kylin, H., Bouwman, H & **Evans, S.W.** 2009. Using proxies to elucidate environmental threats to endangered species. *Integrated Environmental Assessment and Management.* 5(3): 484 – 486.
- Bouwman, H & **Evans, S.W.** 1997. Die migrasie en bewaring van voëls in 'n Suider Afrikaanse konteks. *Die Suid Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie*, 16 (4) 150 – 159.
- **Evans, S.W.** & Bouwman, H. 1993. Levels of DDT in the liver tissue of two duck species from the Pongolo Floodplain. *Ostrich* Vol 64: 46 - 47.
- **Evans, S.W.** & Lotter, L. & Bouwman, H. 1993. A technique for obtaining small blood volumes from birds for organochlorine analyses. *Ostrich* Vol 66: 34 -35.

PROCEEDINGS PUBLICATIONS:

- **Evans, S.W.,** Hoffmann, D & Sande, E. 2007. Effective planning for the conservation of threatened species in Africa. *Ostrich* 78(2): 164 (abstract only).
- Byaruhanga, A. & **Evans, S.W.** 2007. Blue Swallow conservation in the non-breeding season. *Ostrich* 78(2): 163 (abstract only).

- **Evans, S.W.** 2002. Site Monitoring. International Ornithological Congress. Abstract Volume. p. 29. (abstract only)
- **Evans, S.W.** & Bouwman, H. 2000. The Geographic Variation and Potential Risk of DDT in the Blood of Pied Kingfishers from Northern KwaZulu-Natal, South Africa. *Ostrich 71 (1 & 2): 351 - 354*.
- **Evans, S.W.** & Bouwman, H. 2000. The Influence of Mist and Rain on the Reproductive Success of the Blue Swallow *Hirundo atrocaerulea (1995 96)*. *Ostrich 71 (1 & 2): 83 - 86.*
- Rijke, A.M., Jesser, W.A., **Evans, S.W**. & Bouwman, H. 2000. Water Repellency and Feather Structure of the Blue Swallow *Hirundo atrocaerulea*. *Ostrich 71 (1 & 2): 143 - 145.*
- **Evans, S.W.** & Bouwman, H. 1993. DDT levels in the blood of Pied Kingfisher *Ceryle rudis* from KwaZulu, South Africa. *Proc. VIII Pan-Afr. Orn. Congr.*
- **Evans, S.W.** 1993. Levels of DDT in the liver tissue of two duck species from the Pongolo flood plain, KwaZulu, South Africa. *Proc. VIII Pan-Afr. Orn. Congr.* (Abstract only)

CONTRIBUTION TO BOOKS.

- **Evans, S.W.** 2015. Blue Swallow *Hirundo atrocaerulea.* In: Taylor M.R., Peacock, F., Wanless, R.M. (eds.). 2015 Eskom Red Data Book of Birds of South Africa Lesotho and Swaziland. BirdLife South Africa, Johannesburg.
- **Evans, S.W.** & Smit-Robinson, H.A. Tarboton, W.R. 2015. White-winged Flufftail *Sarothrura ayresi*. In: Taylor M.R., Peacock, F., Wanless, R.M. (eds.). 2015 Eskom Red Data Book of Birds of South Africa Lesotho and Swaziland. BirdLife South Africa, Johannesburg.
- **Evans, S.W.** 2015. Yellow-billed Stork *Mycteria ibis*. In: Taylor M.R., Peacock, F., Wanless, R.M. (eds.). 2015 Eskom Red Data Book of Birds of South Africa Lesotho and Swaziland. BirdLife South Africa, Johannesburg.
- **Evans, S.W.** & Peacock F. 2015. Yellow-throated Sandgrouse *Pterocles gutturalis*. In: Taylor M.R., Peacock, F., Wanless, R.M. (eds.). 2015 Eskom Red Data Book of Birds of South Africa Lesotho and Swaziland. BirdLife South Africa, Johannesburg.
- **Evans, S.W.** 2003. Bald Ibis *Geronticus calvus***.** In. Harrison, J. & Young, D (ed.). Report on Results of the Co-ordinated Avifaunal Road Counts. Avian Demography Unit. Cape Town.
- **Evans, S.W.** & Barnes, K.N. 2000. Blue Swallow. In South African Red Data Book - Birds (ed) K.N. Barnes. BirdLife South Africa, Johannesburg.

SUBMITTED FOR REVIEW

- **Evans, S.W.** In review. The impact of habitat loss and fragmentation on the Agulhas Long-billed Lark Lark *Certhilauda brevirostris*, a South African endemic. *Ostrich*

- Williams, S.T., Williams, K.S., Constant, N, Swanepoel, L.H., Taylor, P.J., Belmain, S.R., **Evans, S.W.** In review. Low intensity environmental education can enhance perceptions of culturally taboo wildlife. *Ecosphere*

IN PREPARATION:

- **Evans, S.W.** In prep. The effects of landuse practices on bird diversity in an agro-ecosystem in the northern Limpopo Province of South Africa. *Journal of Landuse Science*

CONSERVATION / ACTION PLANS:

- Dzerefos, C., Köhne, S & McNamara, M and **Evans, S.W.** (eds.). 2005. Wolkberg to Woodbush Conservation Plan. Final Workshop Report. Endangered Wildlife Trust Blue Swallow Working Group and Haenertsburg Environmental Monitoring and Action Group, Johannesburg, South Africa.
- **Evans, S.W.,** Cohen, L., Sande, E., Monadjem, A., Hoffmann, D., Mattison, H., Newbery, P., Ndanganga, K. and Friedmann, Y. (editors). 2002. *Blue Swallow (Hirundo atrocaerulea) International Action Plan.* Final Workshop Report. Conservation Breeding Specialist Group South Africa. Endangered Wildlife Trust, South Africa.
- **Evans, S.W.**, Biggs, D., van Zyl, C., Cohen, L., McNamara, M., McCartney, S., Krynauw, S., Burden, D., Mattison, H. and Friedmann, Y. (editors). 2003. *Blue Swallow (Hirundo atrocaerulea) Population and Habitat Viability Assessment.* Final Workshop Report. Conservation Breeding Specialist Group (IUCN/SSC) Southern Africa. Endangered Wildlife Trust. South Africa.
- Drummond, M., Allan, D., Grundling, P-L., Mcoseleli, J., Anderson, N., Ximba. V., Taylor, B., Camacho, G., De Smidt, A, and **Evans, S.W.** (eds.). 2003. *South African White-winged Flufftail (Sarothrura ayresi) Action Plan.* BirdLife South Africa, Johannesburg, South Africa.
- Gaynor, H., Gaynor, D., Nel, D., Schra, C., Ramke, G., Chiweshe, N., Van Der Westhuizen, E., Monadjem, A., Venter, G., Kershaw, P., Colahan, B., Pienaar, K., Bowden, C., Jordan, M. & De Smidt, A, and **Evans, S.W.** (eds.). 2003. *Southern Bald Ibis (Geronticus calvu) Action Plan.* BirdLife South Africa, Johannesburg, South Africa.
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A., and **Evans, S.W.** (eds.). 2003. *Ethiopian White-winged Flufftail (Sarothrura ayresi) Action Plan.* BirdLife South Africa, Johannesburg, South Africa.

- Siaka, A.; Lebbie, A; **Evans, S.W**.; Hoffmann, D. & Sande, E. 2002. Species Action Plan Stakeholder Workshop White-necked Picathartes *Picathartes gymnocephalus*. BirdLife International & Conservation Society of Sierra Leone. Sierra Leone.
- Warburton, L., Mpindi, S., Howells, B., Pienaar, K., Patterson, C., Mattison, H., Whittington-Jones, C., Hughes, S., Fossey, A., O'Grady, J., Koekemoer, J., Downs, C., Perrin, M. and **Evans, S.W.** (eds.). 2002. *Cape Parrot (Poicephalus robustus) Action Plan. Final Workshop Report.* BirdLife South Africa, Johannesburg, South Africa.

CONTRIBUTIONS TO ENVIRONMENTAL IMPACT ASSESSMENTS AND REHABILITATION PLANS

- **Evans, S.W.** 2012. Summer Assessment of the Avifauna of Petra Mines Koffiefontein, Western Free State, South Africa - Interim Project Report -. Submitted to the Environmental Practitioner at Petra Mines Koffiefontein on the 23 January 2012.
- **Evans, S.W**. 2004. Report discussing potential impacts and mitigation on birds and their habitats from the proposed development of a bulk outfall sewer to service the Bram Fischerville area. Compiled for Nemai Consulting.
- **Evans, S.W.**, 1997. Ecotourism development of and the significance of the Stanley Bush Kop Blue Swallow population for the conservation of the species in South Africa. *Endangered Wildlife Trust / Blue Swallow Working Group*. (Compiled on request from the Mpumalanga Parks Board, Mr K. de Wet: Head Specialist Services, Mpumalanga Parks Board, in response to an application for prospecting and mining leases).
- **Evans, S.W.** 1996. The Impact of Alluvial and Underground Mining on the Blue Swallow Natural Heritage Site - Significance of the Blue Swallow Natural Heritage Site for the conservation of the Blue Swallow and North Eastern Mountain Sourveld. *Endangered Wildlife Trust / Blue Swallow Working Group.* (Compiled in response to an application for prospecting and mining leases in the Blue Swallow Natural Heritage Site).

SOCIETY MEMBERSHIP:

- I am a member of the South African Council of Natural Scientific Professions as a Professional Natural Scientist (*Pr. Sci. Nat.*), Ecological Sciences, no. 115201.

Appendix 3: SACNASP Certificate

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Steven William Evans

Registration Number: 115201

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following fields(s) of practice (Schedule 1 of the Act)

Ecological Science (Professional Natural Scientist)

Effective **25 May 2016** Expires **31 March 2022**

Chairperson

Chief Executive Officer

To verify this certificate scan this code