

Best Practice Avifaunal Monitoring/Impact Assessment:

The way forward in South Africa

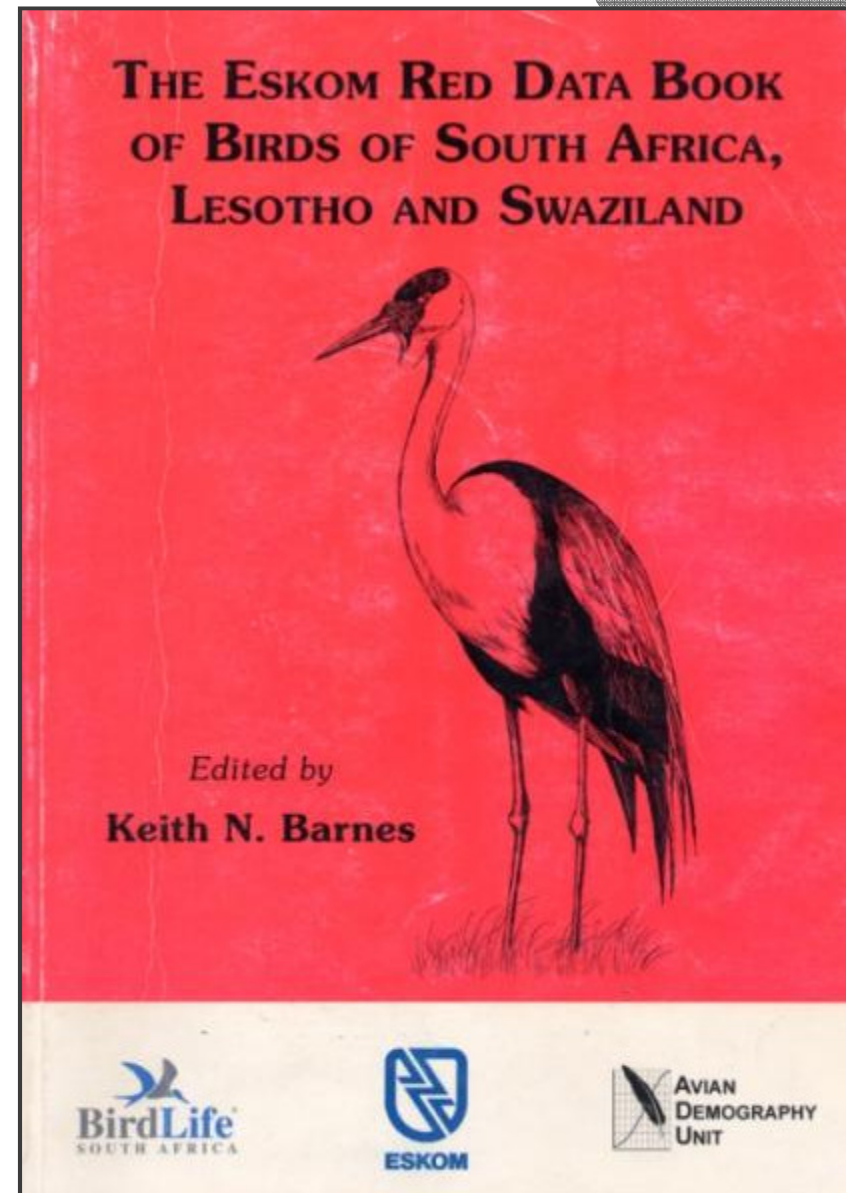
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Red Data species

(125/844)
= 15%





1. Mortality = Collision with wind turbines
2. Displacement through loss of habitat and disturbance

- Prevention is better than cure
- Experience in other countries showed that **the correct placement of wind farms** will minimise bird casualties
- International best practice
- Various examples – Altamont Pass, USA and Tariffa, Spain

BLSA and EWT developed two tools to:
Guide EIA practitioners, avifaunal specialists, developers (industry), government and financiers in decision-making



1. *Avian Wind Sensitivity Map*

Retief et al.

2. *BirdLife South Africa / Endangered Wildlife Trust: best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in southern Africa*

Jenkins et al.

Avian Wind Sensitivity Map

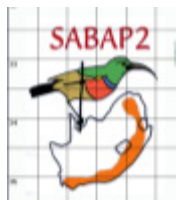
Retief et al.

Purpose of the Map:

To provide an indication of the geographic areas in South Africa where the possible establishment of wind farms might have a negative impact on birds

How is the sensitivity rating of an area calculated?

- Status of the land
- Status based on the species that occur at a specific locality



End of the migration route!!!!!!

Not a substitute for a dedicated avifaunal study!!

Status of the Land

The following were taken into consideration

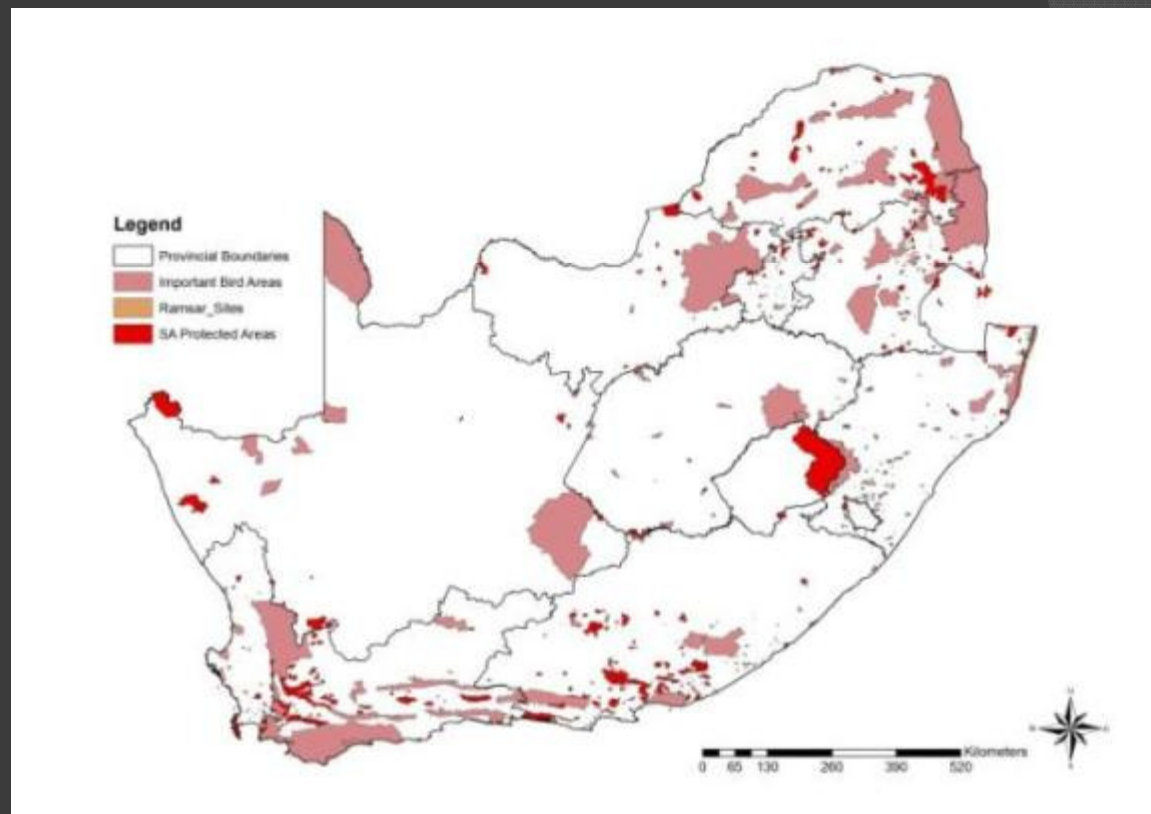
Formal protected area

- National Parks
- Nature Reserves

Ramsar sites

Important Bird Areas

Buffer Wetlands



Status of the Species

Species List

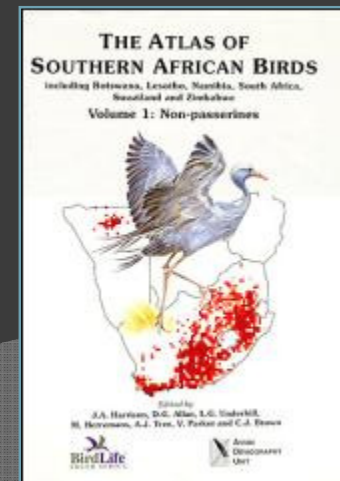
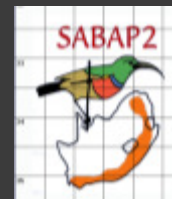
Conservation Score

- Global Threatened Status
- Regional Threatened Status
- Endemic and Near-Endemic

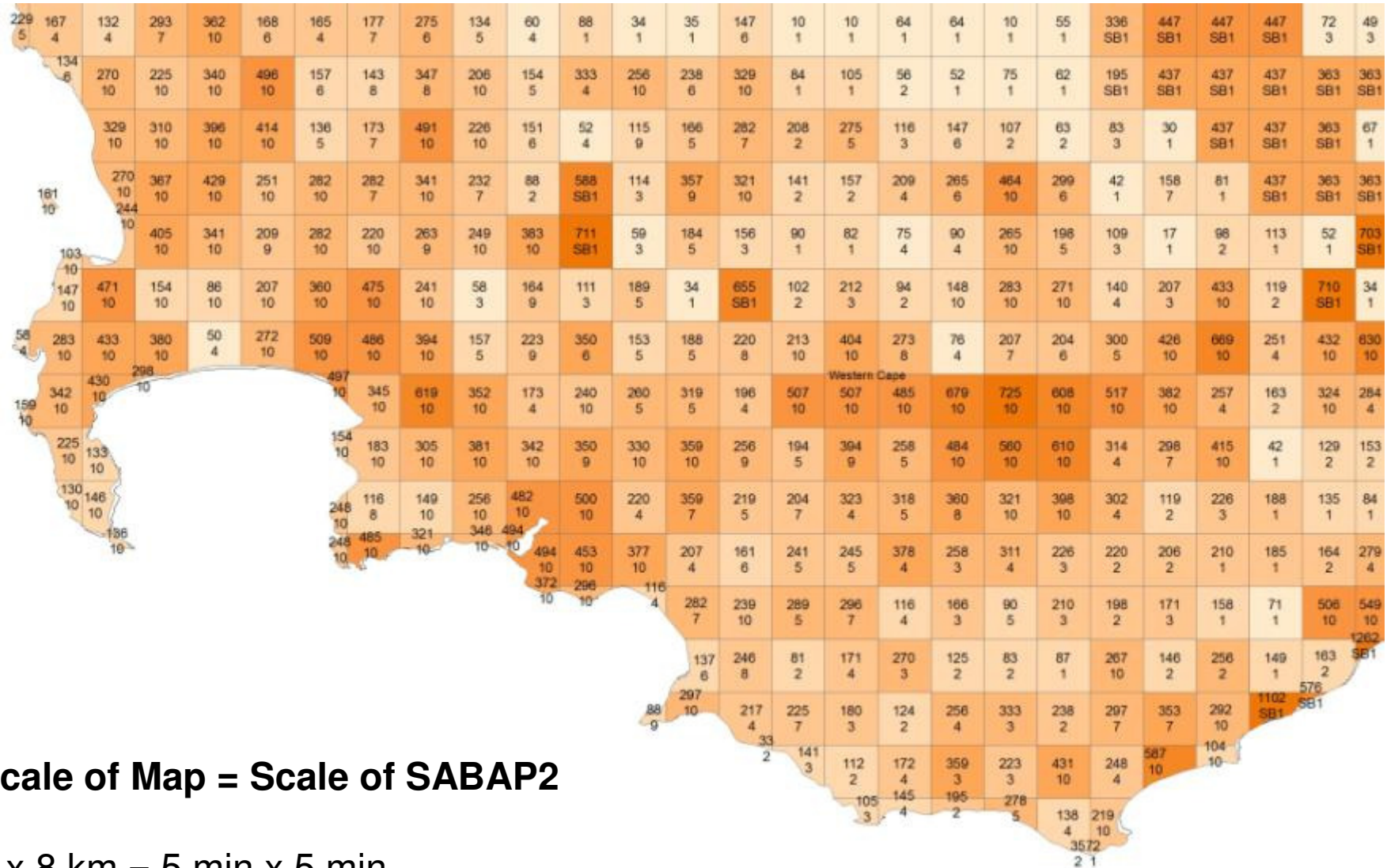
Risk score

- Soaring
- Predatory
- Ranging Behaviour
- Flocking Behaviour
- Night Flying
- Aerial Display
- Habitat Preference
- Sensitivity to Disturbance
- Overlap with Wind Farms

Common Name	Global Threatened Status	Regional Threatened Status	Conservation Status Score	Endemic	Near-Endemic	Endemic Score	Conservation Score	Size	Wing Loading	Visual Acuity	Soaring	Predatory	Ranging Behaviour	Flocking	Night Flying	Aerial Display	Habitat Preference	Sensitivity to Disturbance	Overlap with Wind Farms	Risk Score	Species Priority Score (Risk Score ²)
1																					
2					15																
3																					
4																					
5				20																	
6				20																	
7					15																
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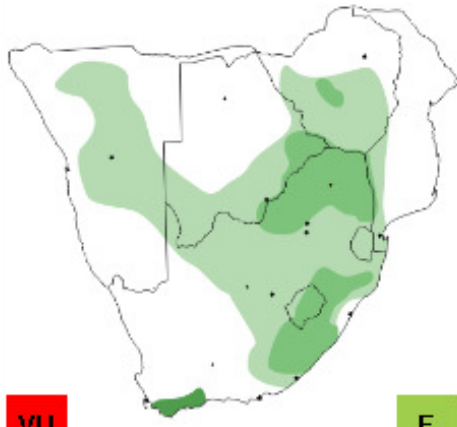
Western Cape



Scale of Map = Scale of SABAP2

7 x 8 km = 5 min x 5 min

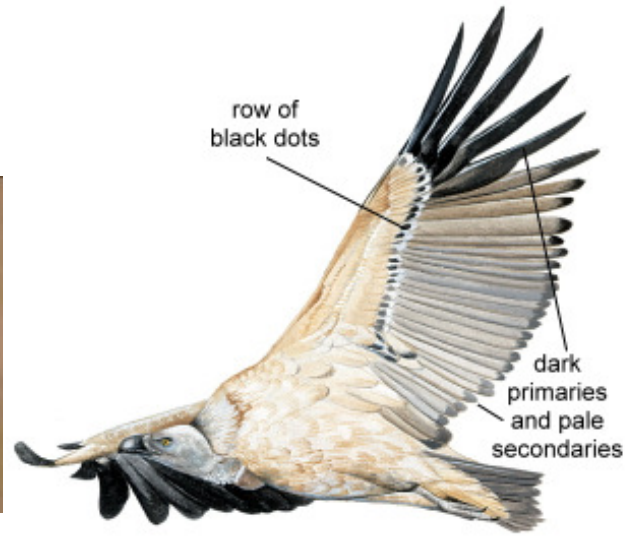
Cape Vulture
Gyps coprotheres



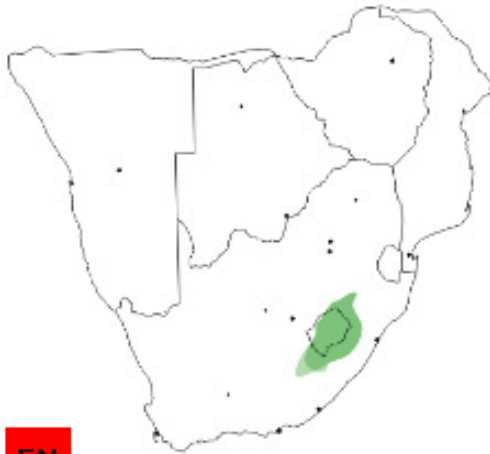
VU

E

J A S O N D J F M A M J



Bearded Vulture
Gypaetus barbatus



EN

J A S O N D J F M A M J

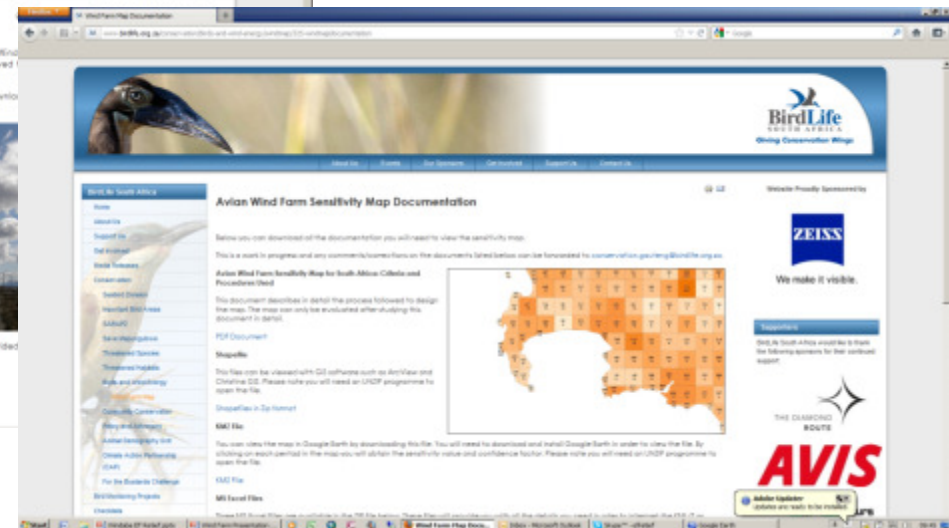


- The map is published on the BirdLife South Africa website www.birdlife.org.za go to conservation, birds and wind energy <http://www.birdlife.org.za/conservation/birds-and-wind-energy/windmap>

- And the EWT website <https://www.ewt.org.za/WHATWEDO/OurProgrammes/WildlifeEnergyProgramme/OurProjects/WindMap.aspx>

- KML File

- **Clear guidance as to the purpose of the map and how the map should be interpreted!**



Best Practice Avifaunal Monitoring/ Impact Assessment

Jenkins et al.



Why are the best practice guidelines important?

- **Respect Biodiversity**
- Management decisions should be based on **good science**
- **International best practice** = globally accepted in all developed countries
 - Equator principles
- **Financing**



Stages/Tiers of Monitoring

1. Reconnaissance and scoping phase
2. Baseline/Pre-construction monitoring
Avifaunal Specialist Report and Impact Assessment
3. Comparative
post-construction monitoring



1. Reconnaissance/Scoping

A brief site visit informs

- ◎ a desk-top assessment of likely avifauna and possible impacts,
 - review of existing literature and data
 - Avian Wind Sensitivity Map,
 - Atlas projects (SABAP1 and SABAP2)
 - CAR and CWAC
- ◎ Priority species
- ◎ No-go areas
- ◎ and the design of a site-specific survey and monitoring project

Aims of Baseline Monitoring

- ① Measure
 - potential collision risk
 - potential displacement
- ① Inform final turbine layout
- ① No-go and buffer areas
- ① To prevent and where prevention is not possible, mitigate impacts by informing the final design, construction and management strategy of the development
- ① **Impact Assessment – EIA**

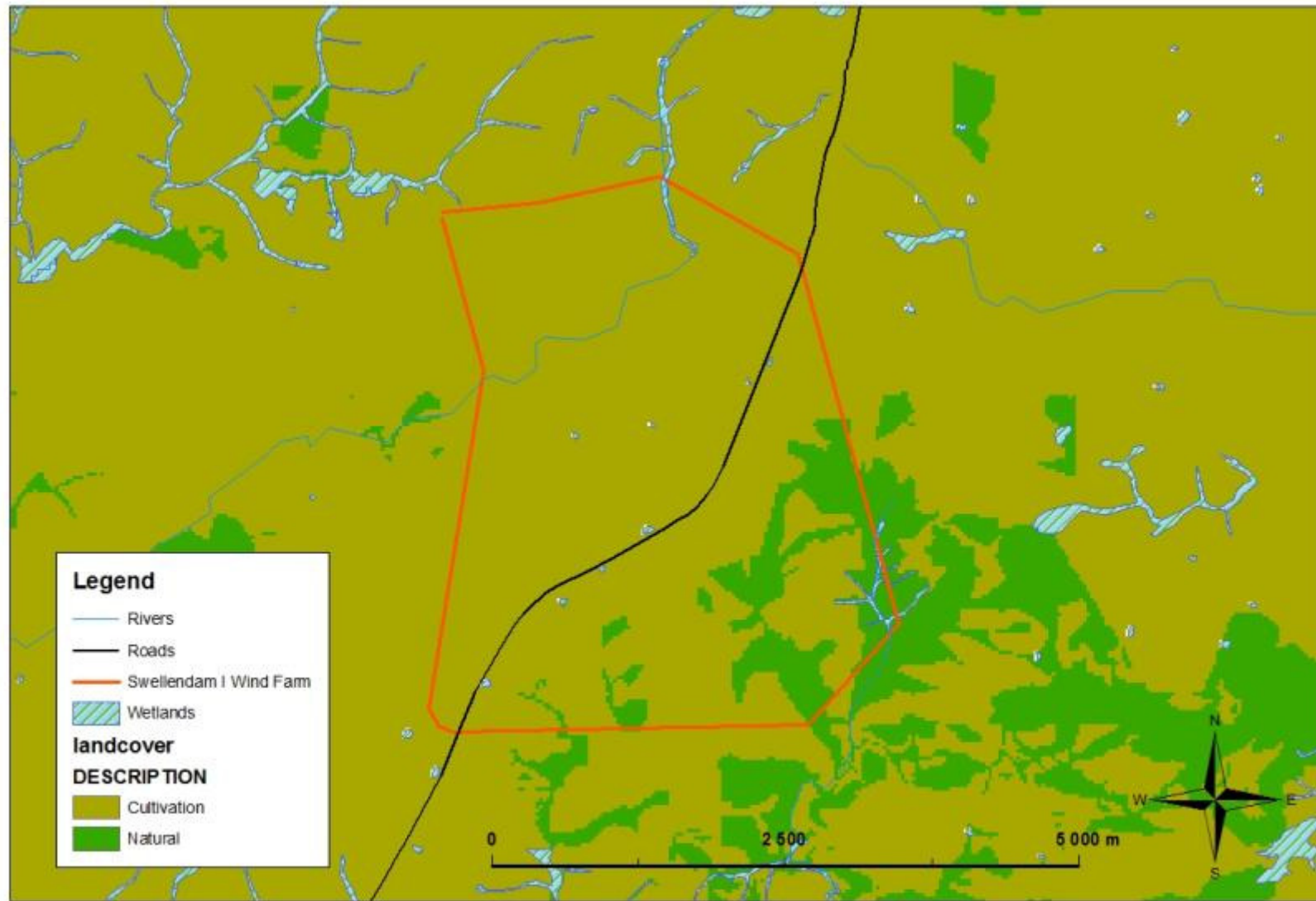


2. Baseline Monitoring

- A minimum of 4 surveys per year to allow for seasonal variation
- Surveys involve 5 -15 days per visit depending on the size of the site
- Abundance estimates (all species);
- Recording flight behaviour (priority species);
- A prediction of which species will be most at risk of collision and displacement;
- Monitoring of focal points – nests/breeding behaviour and important wetlands (risk of displacement)
- Control or reference site



Traditional Avifaunal Specialist Studies



EIA with monitoring

Bird flight map
Hazard scores

Medium height
flights

+ 3.0MW Turbines

Soaring spp

0.00 - 1.35

1.36 - 3.18

3.19 - 5.78

5.79 - 11.24

11.25 - 35.43

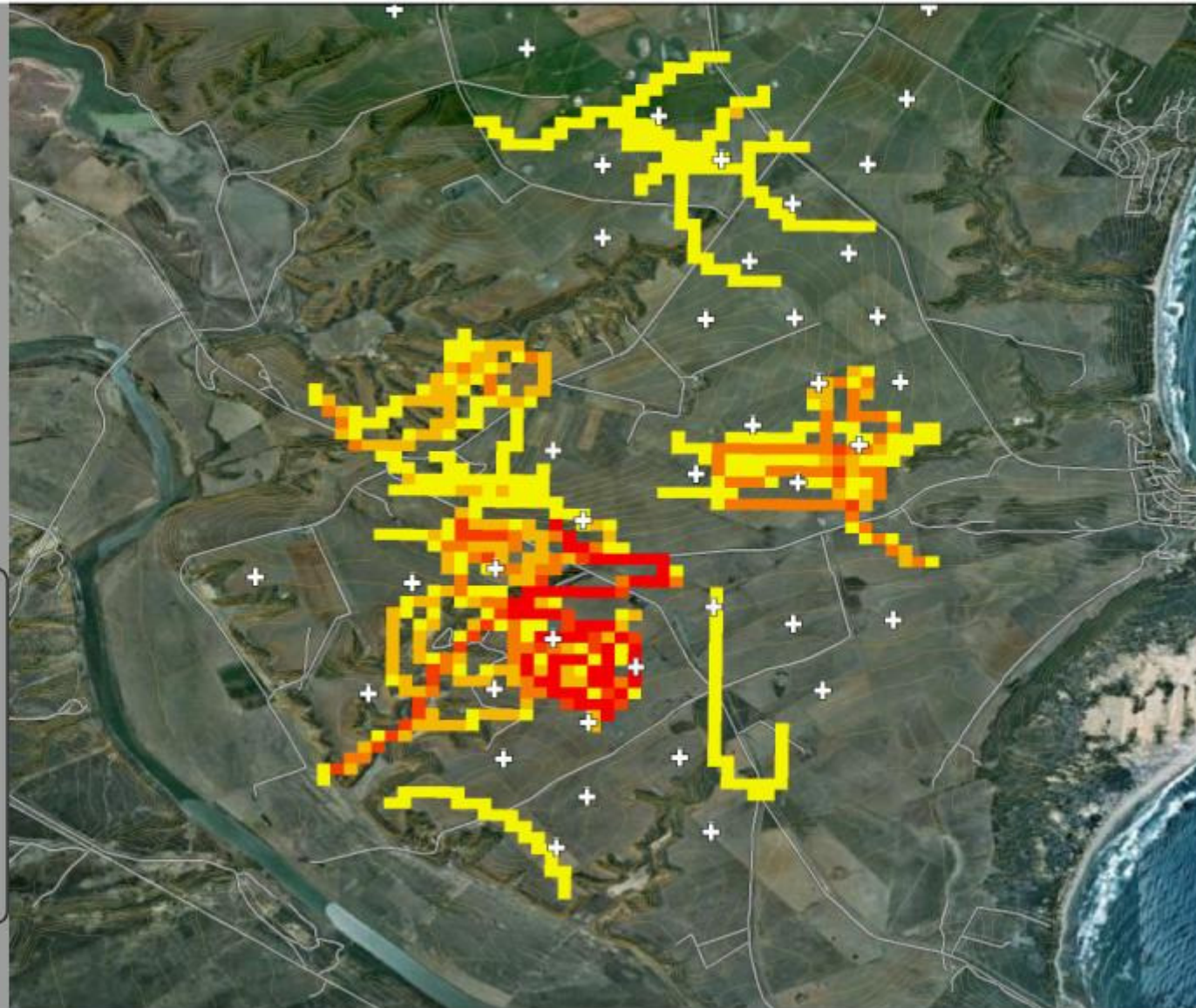
— Roads

— Contours

1:46 122

0.9

Kilometers



Annual review:

- Participation of BLSA, EWT, BAWESG,
- Specialist Consultants,
- SAWEA (Industry),
- Eskom,
- DEA,
- IAIAAsa???



Methods submitted to BLSA for review to ensure **consistency** and **comparability** of results

- **Quarterly** and **Final** reports submitted to BLSA and EWT
- data will be **centrally stored** and analyzed by these organizations,
- to **facilitate** the assessment of results on a **multi-project**, landscape and national scale.



Minimum requirements for final report:

- Terms of reference
- Assumptions and limitations
- Detailed description of methods
- Habitat classes (turbine and control sites)
- Priority species (how selected)
- Results of monitoring
- Analyses
 - Habitat preferences
 - Statistical analyses of all flight data to test for associations between flight behaviour and a range of environmental factors
- Site specific **flight behaviour maps** indicating areas of highest risk
- Site specific **collision risk rating per priority species** (explain methods) from a collision perspective.



Minimum requirements for final report:

- Discussion of results
- Discussions should present a synthesis of spatial data, statistical analysis and the various risk indices
- Management recommendations to mitigate the identified potential risks



Acknowledgements

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