



Birds & Wind Energy

Case studies from South Africa

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CMS Energy Task Force
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**Supports the responsible development of
renewable energy**
(wind & solar)

AVOID (regional)
Discourage proposals in
sensitive areas

- Spatial planning
(e.g. Avian wind sensitivity map)
- Participate in Strategic Environmental
Assessment
- Project screening

MITIGATE (site)
Promote rigorous
impact assessment

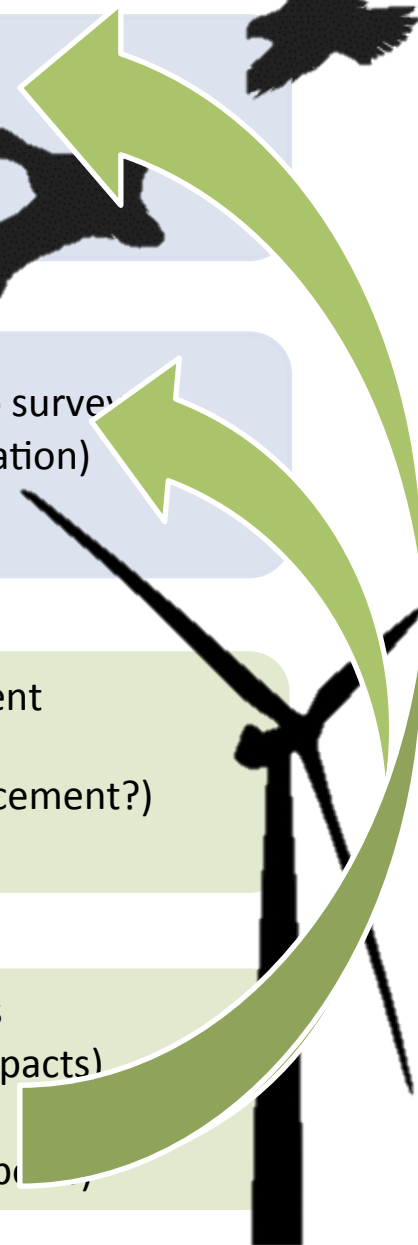
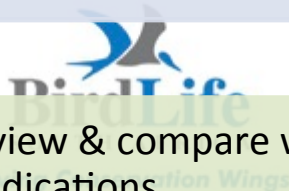
- Best Practice Guidelines (basic how to do survey)
- Species guidelines (species specific mitigation)
- Comment on EIAs/ Case work

MONITOR
(& adaptive management)
Promote monitoring of
impacts

- Review & compare with impact assessment
predications
- Encourage adaptive management (enforcement?)
- Contextualise impacts

LEARN & IMPROVE
Information sharing &
knowledge
development

- Central repository for monitoring reports
- Collate and report results (cumulative impacts)
- Identify research priorities
- Communication (forums, newsletters, reports)



Apply appropriate **EIA** procedures.

Undertake appropriate survey & **monitoring** both before and after deployment.

Apply appropriate **cumulative impact studies**.

The unfolding tale of Wind Farm X

(that could have been better?)

EIA before adoption of *BirdLife South Africa/EWT's Best Practice Guidelines for impact assessment and monitoring* (2010)

Avifaunal impact study :

- desktop, interviews & one short site visit (screening)
 - *“expected lack of large concentrations of red listed species”*
 - *“It is envisaged that the impact of collision mortality on red listed avifauna is likely to be **low**”*

Environmental approval:

- Bird monitoring must be done,
- Pre-construction monitoring must inform final layout.

Black Harrier

EIA (actually scoping)	<ul style="list-style-type: none">• Species absent or very sparsely distributed
Pre-construction monitoring	<ul style="list-style-type: none">• Few flights, mostly below rotor sweep area.• Harriers not known to be vulnerable to collisions• Low collision risk (hardly mentioned)
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Rob Simmons

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Then....	<ul style="list-style-type: none">• Harrier roost (first in SA) found 5 km from site<ul style="list-style-type: none">– Data collection for another project– Not disclosed due to confidentiality
Post-construction monitoring	<ul style="list-style-type: none">• <i>Year 1: 2 fatalities</i>• <i>Year 2: none</i>• Species specialist appointed:<ul style="list-style-type: none">- 2 nests found on site• <i>Year 3: 2 fatalities</i> so far...
Significant?	<ul style="list-style-type: none">• >0.022 harriers/turbine/yr (60 turbines)• Similar patterns at other sites?• Endangered & Endemic• Approx. 1 000 adults.



Lessons learned

- International experience useful, but only to a point.
(expect the unexpected)
- “How to” guidelines useful cannot replace species & field expertise.
(checkbox vs. deep understanding)
- Transparency & information exchange
 - What if we knew about the roost earlier?
 - What if we didn’t learn about these impacts?
(Mitigation? Future decisions? Cumulative impacts?)



Martial Eagle

EIA	<ul style="list-style-type: none">• Expected occurrence low
Pre-construction monitoring	<ul style="list-style-type: none">• Active martial eagle nest in kloof.• High risk areas identified.
Mitigation	<ul style="list-style-type: none">• Buffer nest by 1 km• Avoid high risk areas (ridge)



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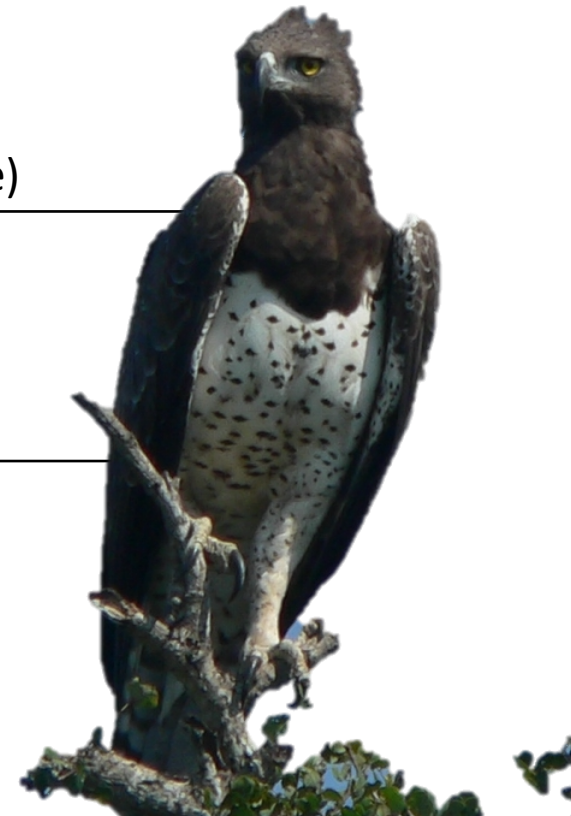
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Post-construction monitoring	<ul style="list-style-type: none">• Year 1 Breed successfully• Year 2: Bred successfully,then 1 fatality (end year)• Year 3: 1 fatality so far (same turbine)
Significant?	<ul style="list-style-type: none">• Endangered (regionally)• Approx. 800 (mature)• Similar patterns at other sites?• Cumulative impacts?



- Inadequate buffer
- Layout



Lessons learned

- Pre-construction monitoring led to better mitigation than EIA (scoping),
- BUT would mitigation have been better if subject to public scrutiny?
- Data gathering vs. interpretation
 - Mitigation measures (e.g. buffers) should be backed by science (need consensus among specialists).
- Value of long term monitoring.
- Important to contextualise impacts (cumulative impacts on population)



Looking ahead

Wind farm:

- To continue monitoring & research on site,
- To consider options for mitigation.
(e.g. manage habitat vs. shutdown-on-demand).

BirdLife South Africa:

- Track & report on fatalities & trends on national scale.
(significance of impacts- project vs. **cumulative** scale)



The Bird & Bat EIA Tool

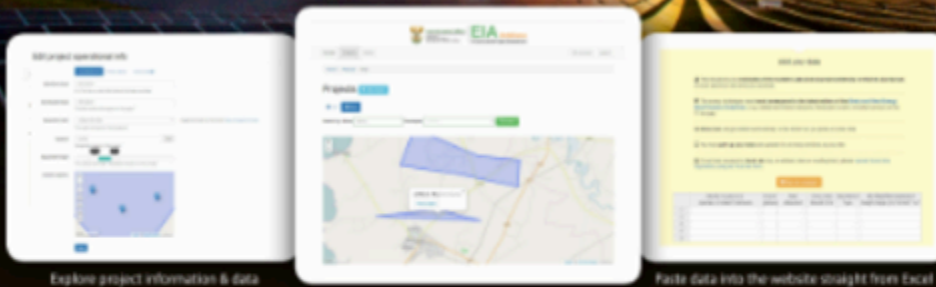
- Renewable energy important in SA (economy + energy)
- Risk (collisions, scorching, habitat loss) to birds & bats
- Developers must perform EIAs and do monitoring (pre + post)

These data will be stored in the new Bird & Bat Tool website: <http://eia.sanbi.org>

The website consists of:



Examples of the interface:



User access is controlled

Users viewing the website can be granted different permissions. Only registered users can view data on the site.

Anonymous



Can only view statistics

Registered



Can view data & projects

Trusted



Can view sensitive data

Contributor



Can add data & create projects


<http://eia.sanbi.org>
currently in beta testing



environmental affairs
Department
Republic of South Africa

SANBI
South African National Biodiversity Institute

EIA database
Environmental Impact Assessment

- 
- Cumulative impacts
 - Meta-analysis
 - Research

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(e.g. manage habitat vs. shutdown-on-demand).

BirdLife South Africa:

- Track & report on fatalities & trends on national scale.
(significance of impacts- project vs. **cumulative** scale)
- Advise & disseminate lessons learned
- Encourage review of approved projects?
- Promote collaboration & research beyond site .



UNEP/CMS/Resolution 11.27

Apply appropriate **Strategic Environment
Assessment** procedures

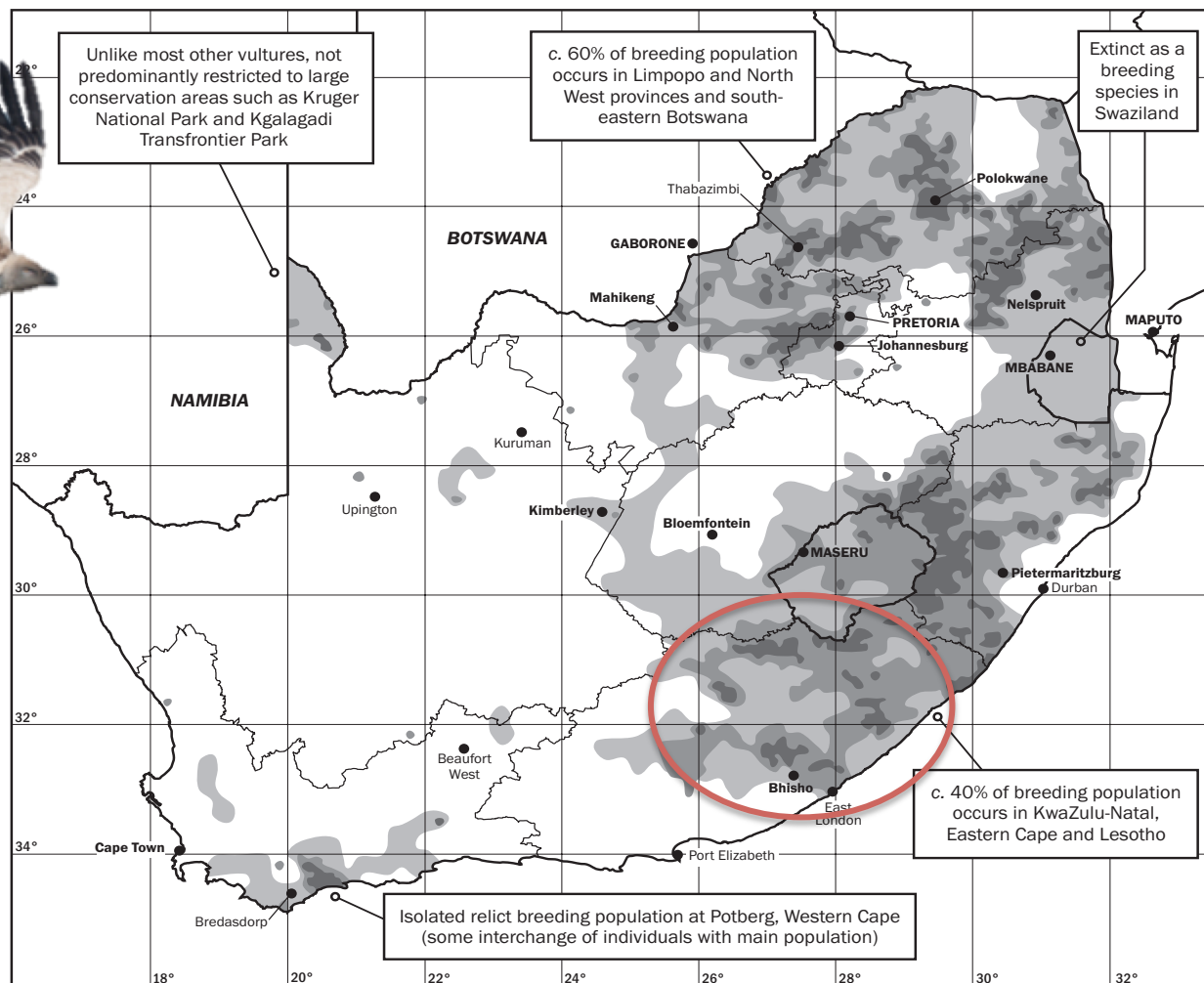
Planning for Cape Vultures & wind energy

(sensitivity mapping, SEA, broad-scale avoidance)

Cape Vulture

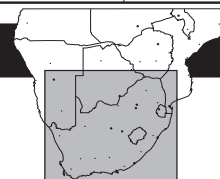
- **Endangered**
(50% decline over three generations)
- No wind farm fatalities (**yet**), but vulture fatalities in Europe

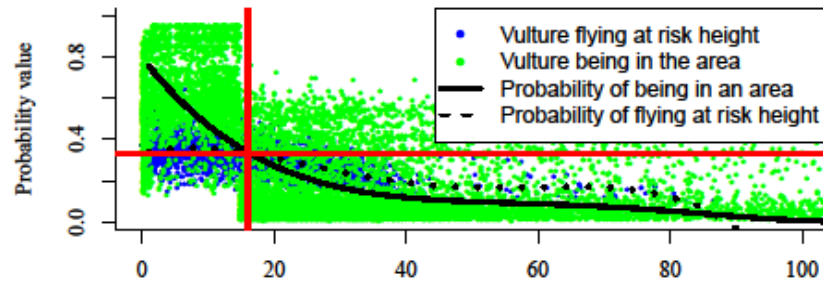




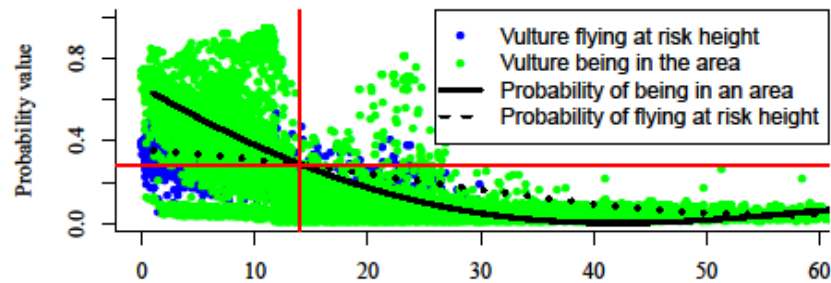
CAPE VULTURE *Gyps coprotheres*

- High density distribution, based on SABAP2 data (2007-2014); reporting rate >14%.
- Low density distribution, based on SABAP2 data (2007-2014); reporting rate <14%.
- Smoothed distribution based on SABAP1 data (mainly 1987-1993).



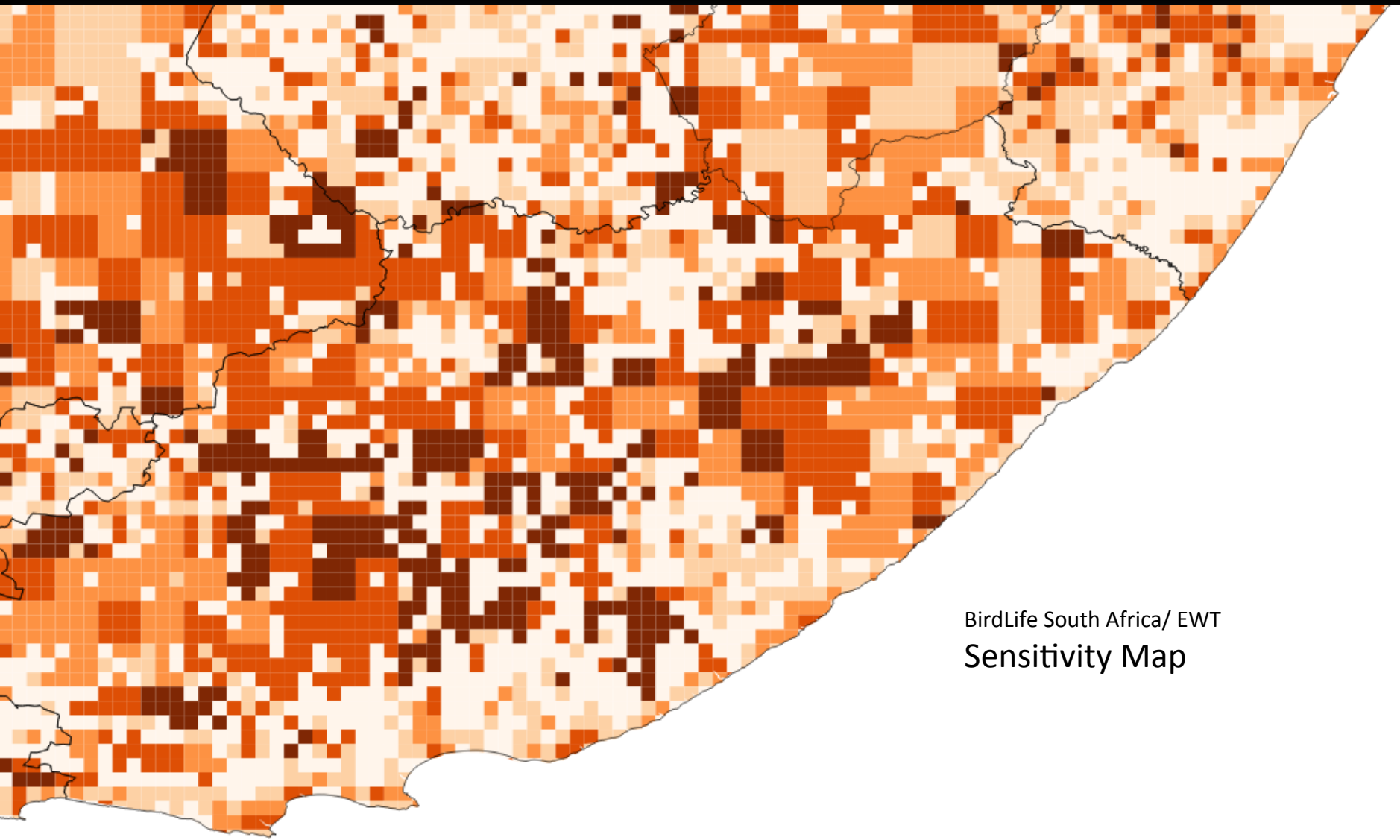


(a) Distance from colony (km)

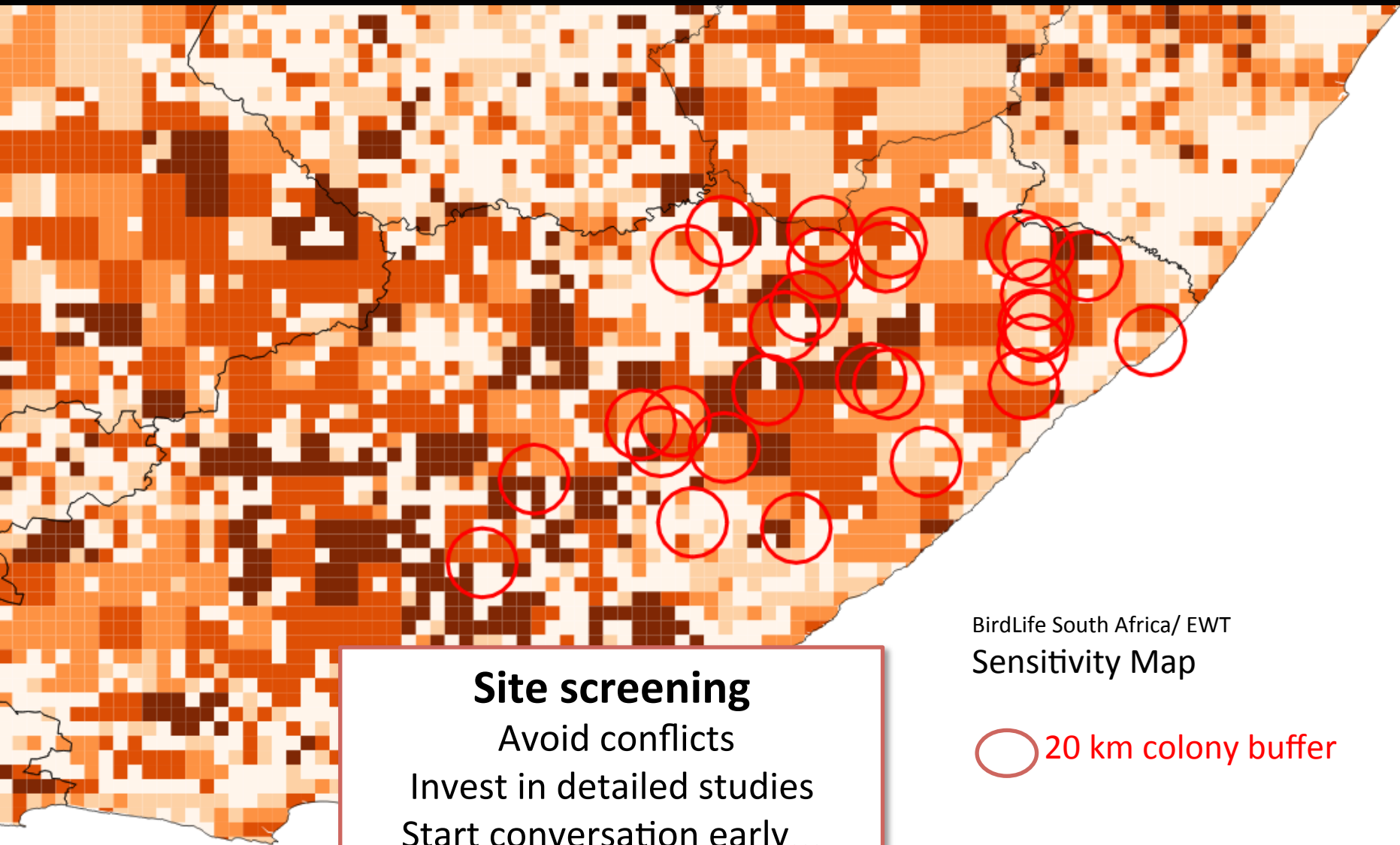


(b) Distance from roost (km)

From Pfeifer 2016 - Tracking data from 9 birds, 4 locations in Eastern Cape



BirdLife South Africa/ EWT
Sensitivity Map



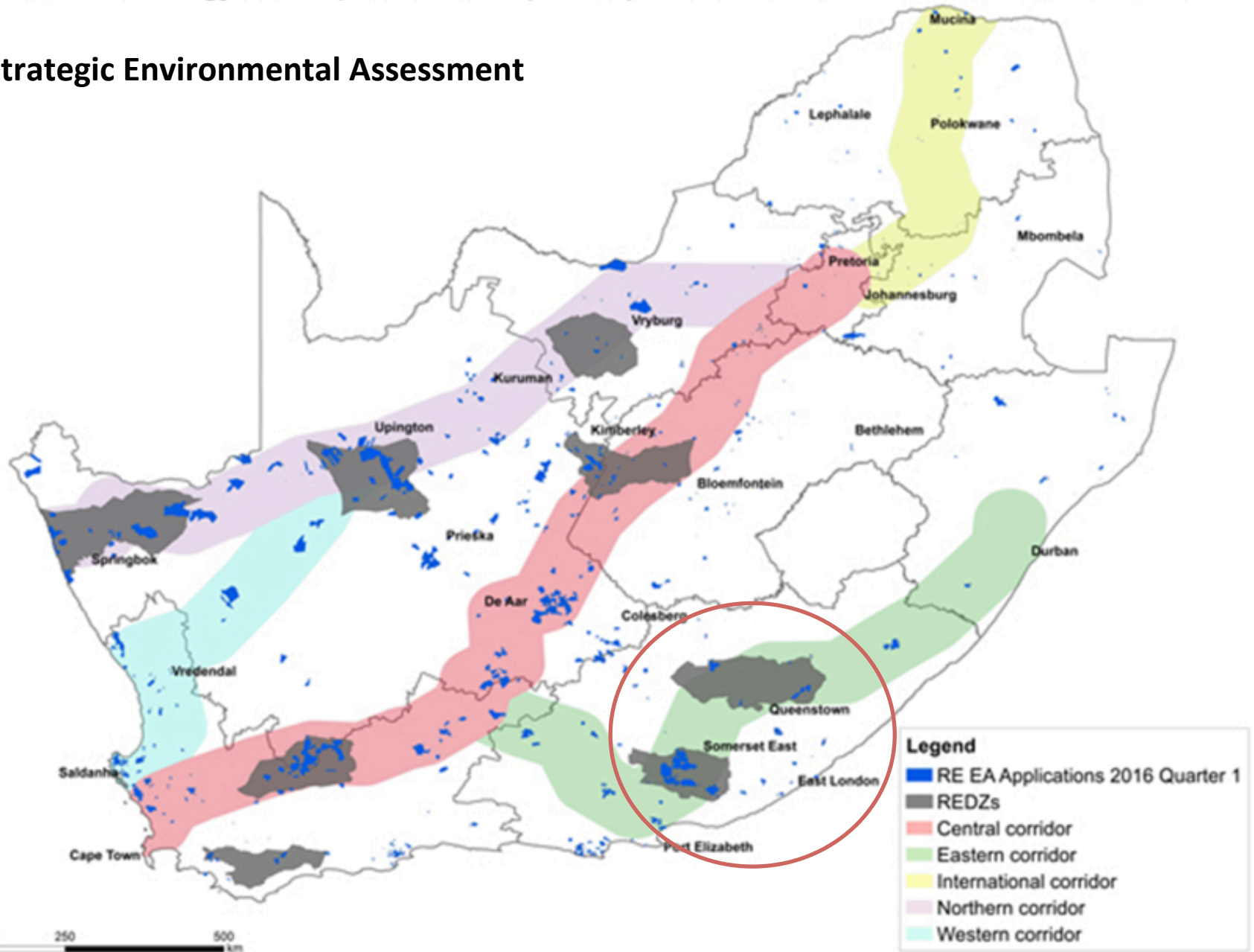
BirdLife South Africa/ EWT
Sensitivity Map

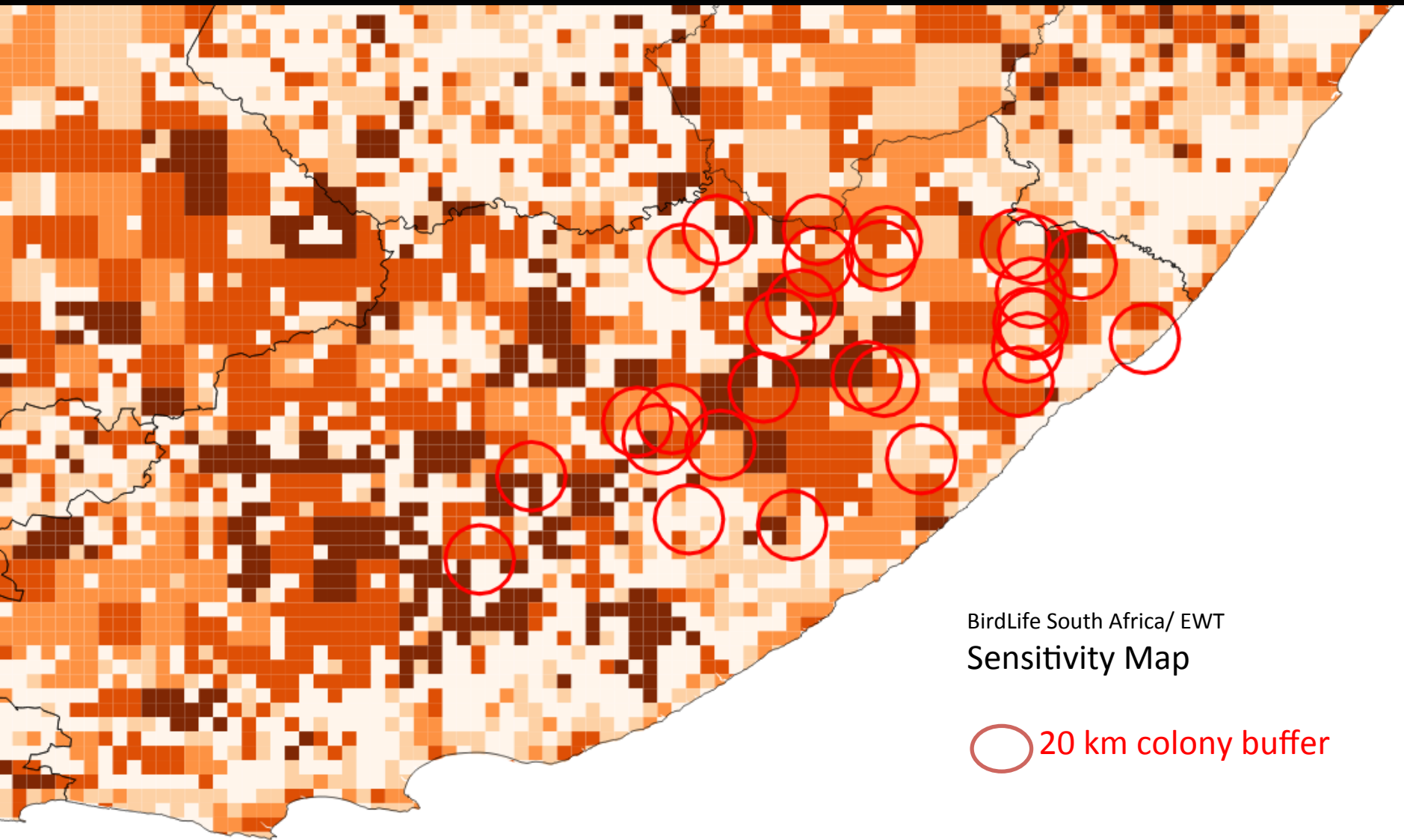
 20 km colony buffer

Site screening
Avoid conflicts
Invest in detailed studies
Start conversation early...

Renewable Energy Development Zones (REDZs) and Powerline Corridors for South Africa

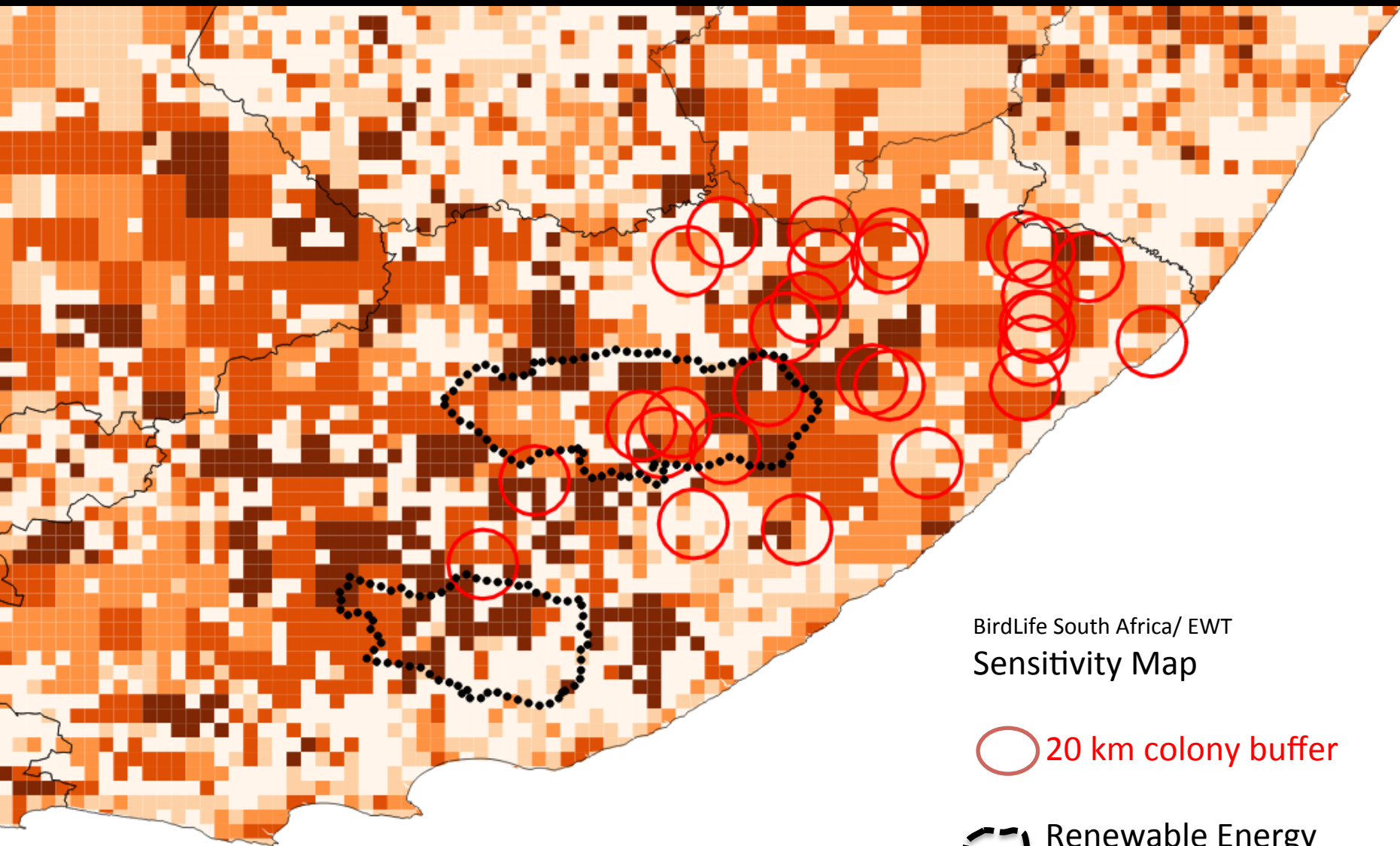
Strategic Environmental Assessment






BirdLife South Africa/ EWT
Sensitivity Map

○ 20 km colony buffer



BirdLife South Africa/ EWT
Sensitivity Map

 20 km colony buffer

 Renewable Energy
Development Zone

Lessons learned

- Sensitivity mapping
 - If data not available, can supplement with written guidance,
 - When designing - be clear on **purpose**
(source of info. vs. prioritization)
 - & **scale**
(some species broad scale avoidance, others only fine-scale possible)
 - Maps are not enough - relationships, conversations & trust can be key.
- Strategic assessment
 - Difficult to balance competing needs & sensitivities
 - **Data (collection) is essential***
**it is recommended in CMS guidelines*
 - Purpose (source of info. vs. spatial driver)



Looking ahead

- Easy to gather data at **project-scale**,
- **Strategic/broad scale initiatives** more important, but more challenging.
 - **Unlock areas, protect others from cumulative impacts**
 - **SEA**: no/limited data - precautionary principle
 - **Impact assessment**: case by case - cumulative impacts not addressed (esp. if decisions not reviewed)
- Promote collaboration between projects
 - Fund research on affected species
 - Conservation action





Thank you!

Birds and Renewable Energy Specialist Group:

Alvaro Camiña, Andrew Jenkins, Andrew Pearson, Chris van Rooyen, Craig Whittington-Jones, David Allan, Hanneline Smit-Robinson, Kevin Shaw, Lourens Leeuwner, Michael Brooks, Phoebe Barnard, Peter Ryan.

Endangered Wildlife Trust

Investec Corporate and Intuitional Banking.