



# 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 surveys)
- 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 Arica/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

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<b>EIA (actually scoping)</b>	<ul style="list-style-type: none"><li>• Species absent or very sparsely distributed</li></ul>
<b>Pre-construction monitoring</b>	<ul style="list-style-type: none"><li>• Few flights, mostly below rotor sweep area.</li><li>• Harriers not known to be vulnerable to collisions</li><li>• Low collision risk (hardly mentioned)</li></ul>
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<b>Post-construction monitoring</b>	<ul style="list-style-type: none"><li>• <i>Year 1: 2 fatalities</i></li><li>• <i>Year 2: none</i></li><li>• Species specialist appointed:<ul style="list-style-type: none"><li>- <b>2 nests found on site</b></li></ul></li><li>• <i>Year 3: 2 fatalities</i> so far...</li></ul>
<b>Significant?</b>	<ul style="list-style-type: none"><li>• &gt;0.022 harriers/turbine/yr (60 turbines)</li><li>• Similar patterns at other sites?</li><li>• <b>Endangered &amp; Endemic</b></li><li>• Approx. 1 000 adults.</li></ul>

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# 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

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## EIA

- Expected occurrence low

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## Pre-construction monitoring

- Active martial eagle nest in kloof.
- High risk areas identified.

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## Mitigation

- Buffer nest by 1 km
  - Avoid high risk areas (ridge)
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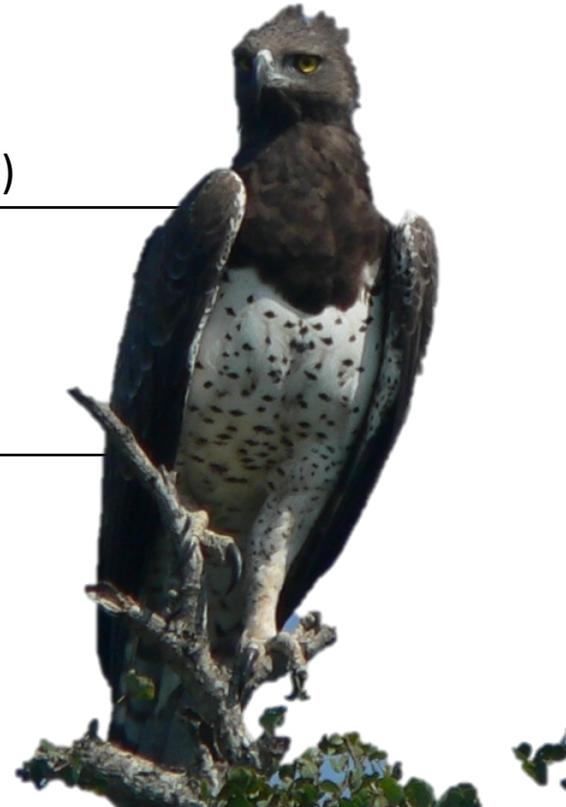


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<b>Post-construction monitoring</b>	<ul style="list-style-type: none"><li>• Year 1 Breed successfully</li><li>• Year 2: Bred successfully, ...then 1 <b>fatality</b> (end year)</li><li>• Year 3: 1 <b>fatality</b> so far (same turbine)</li></ul>
<b>Significant?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

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- Inadequate buffer
- Layout



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Image © 2016 CNES / Astrium

Google e

R102

# 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

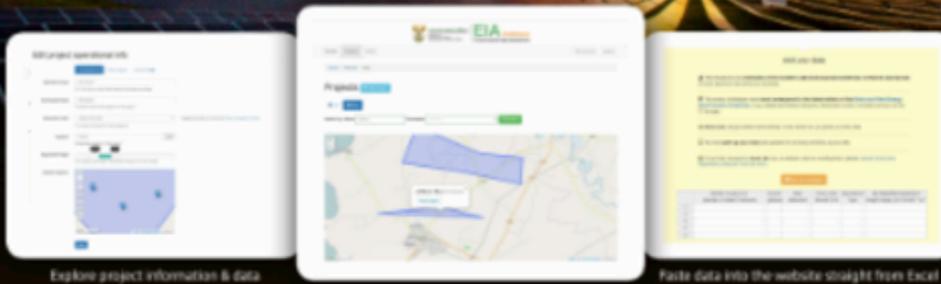
- Renewable energy important in SA (economy + energy)
- Risk (collisions, scorching, habitat loss) to birds & bats
- Developers must perform EIAs and do monitoring (pre + post)

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



- Cumulative impacts
- Meta-analysis
- Research

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



# Looking ahead

## Wind farm:

- To continue monitoring & research on site,
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## 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

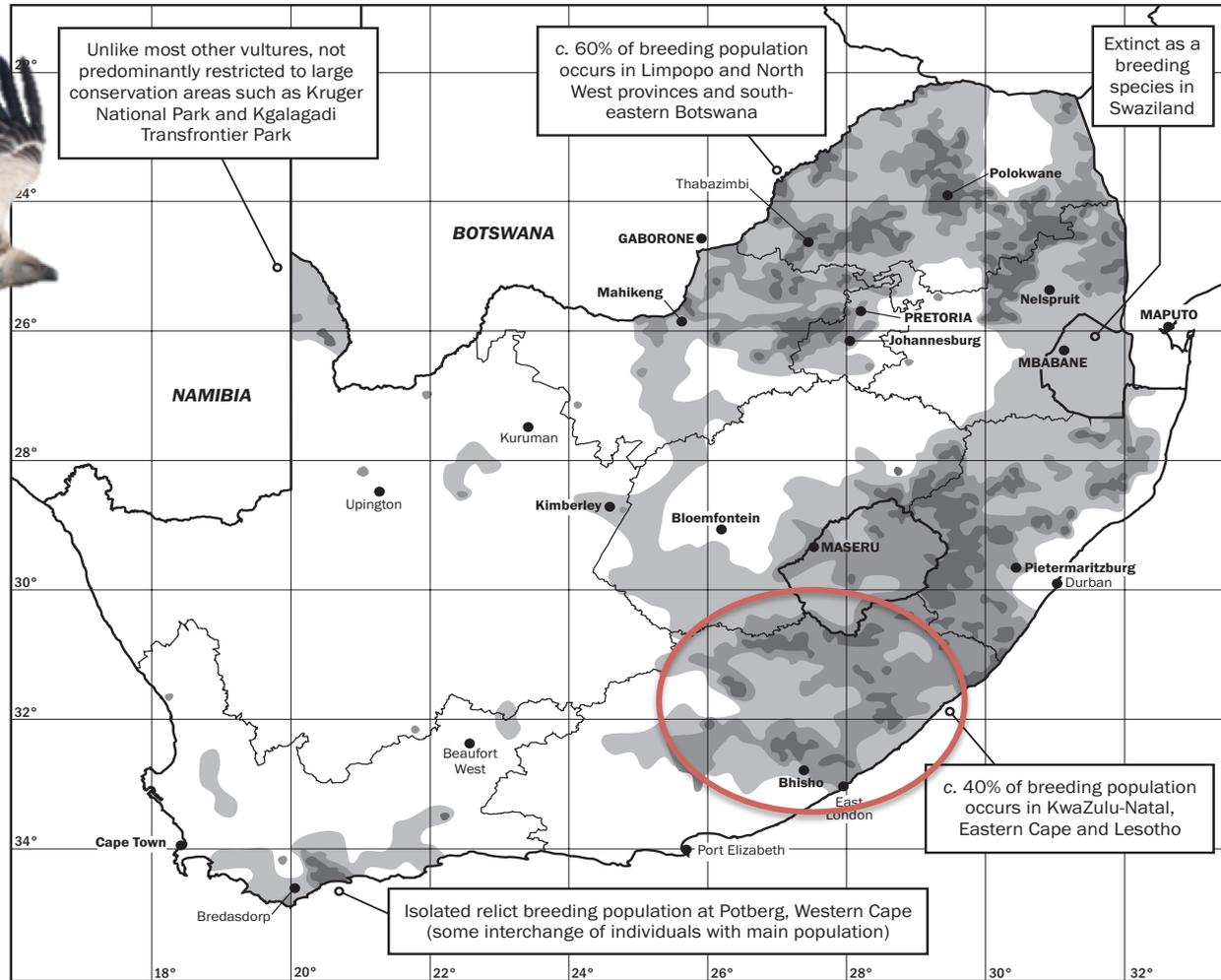
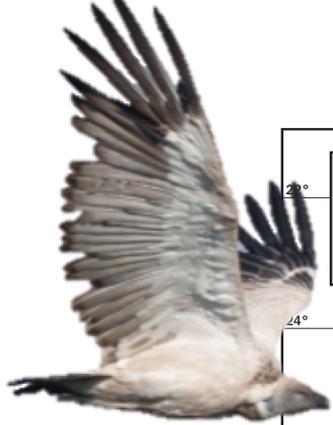
# Planning for Cape Vultures & wind energy

(sensitivity mapping, SEA, broad-scale avoidance)

# Cape Vulture

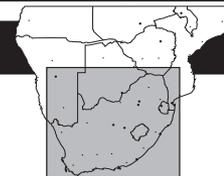
- **Endangered**  
(50% decline over three generations)
- No wind farm fatalities (**yet**), but vulture fatalities in Europe

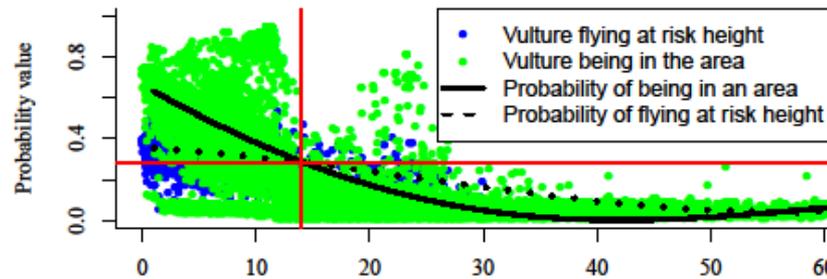
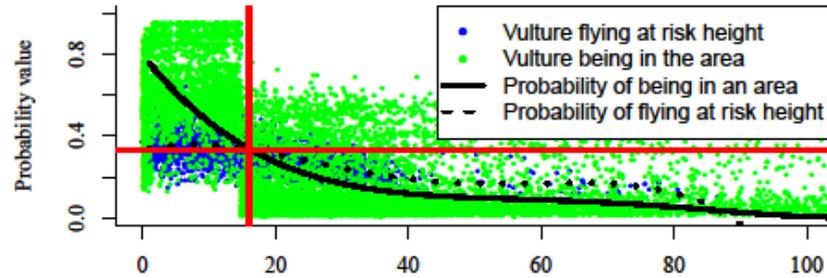




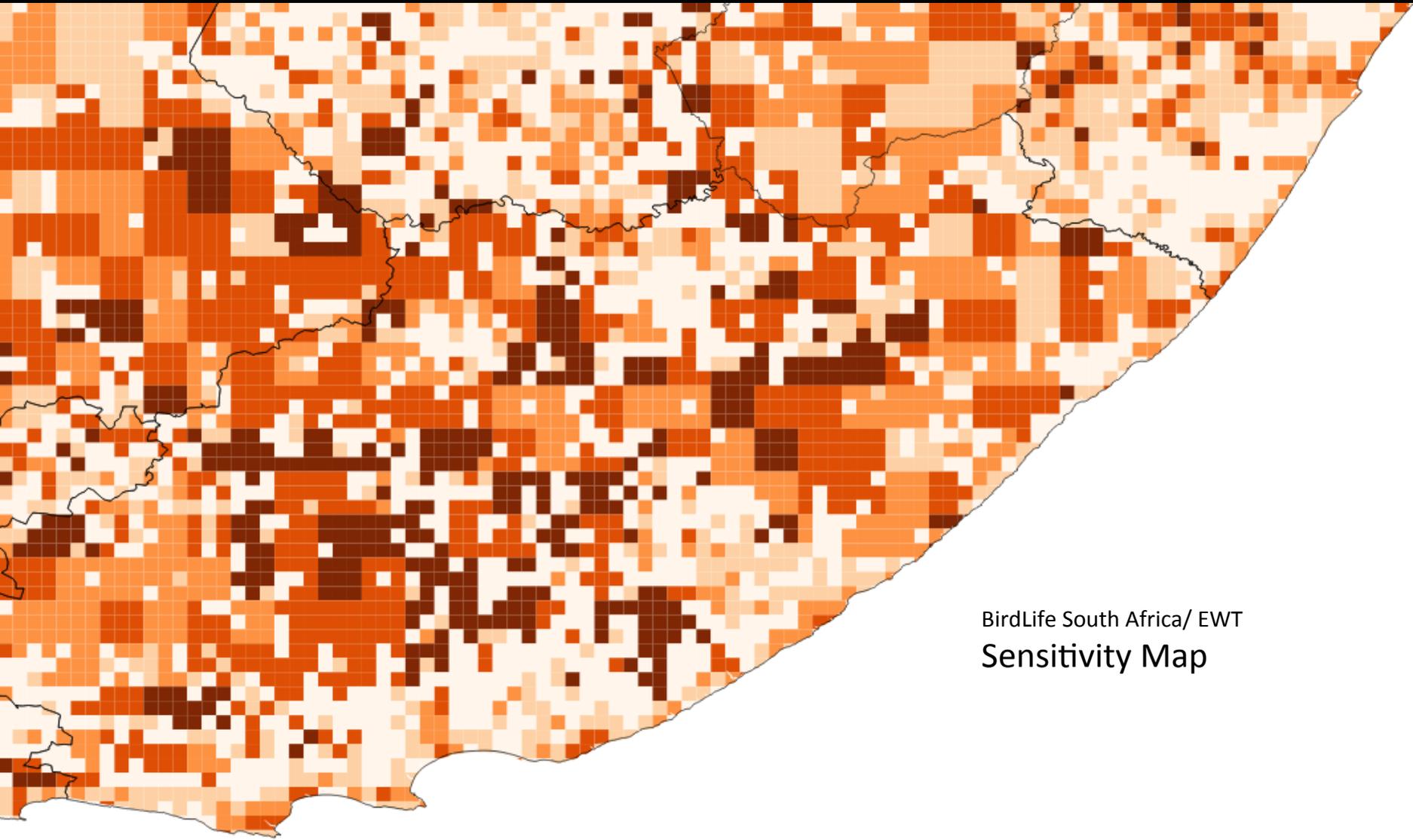
## CAPE VULTURE *Gyps coprotheres*

- 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).

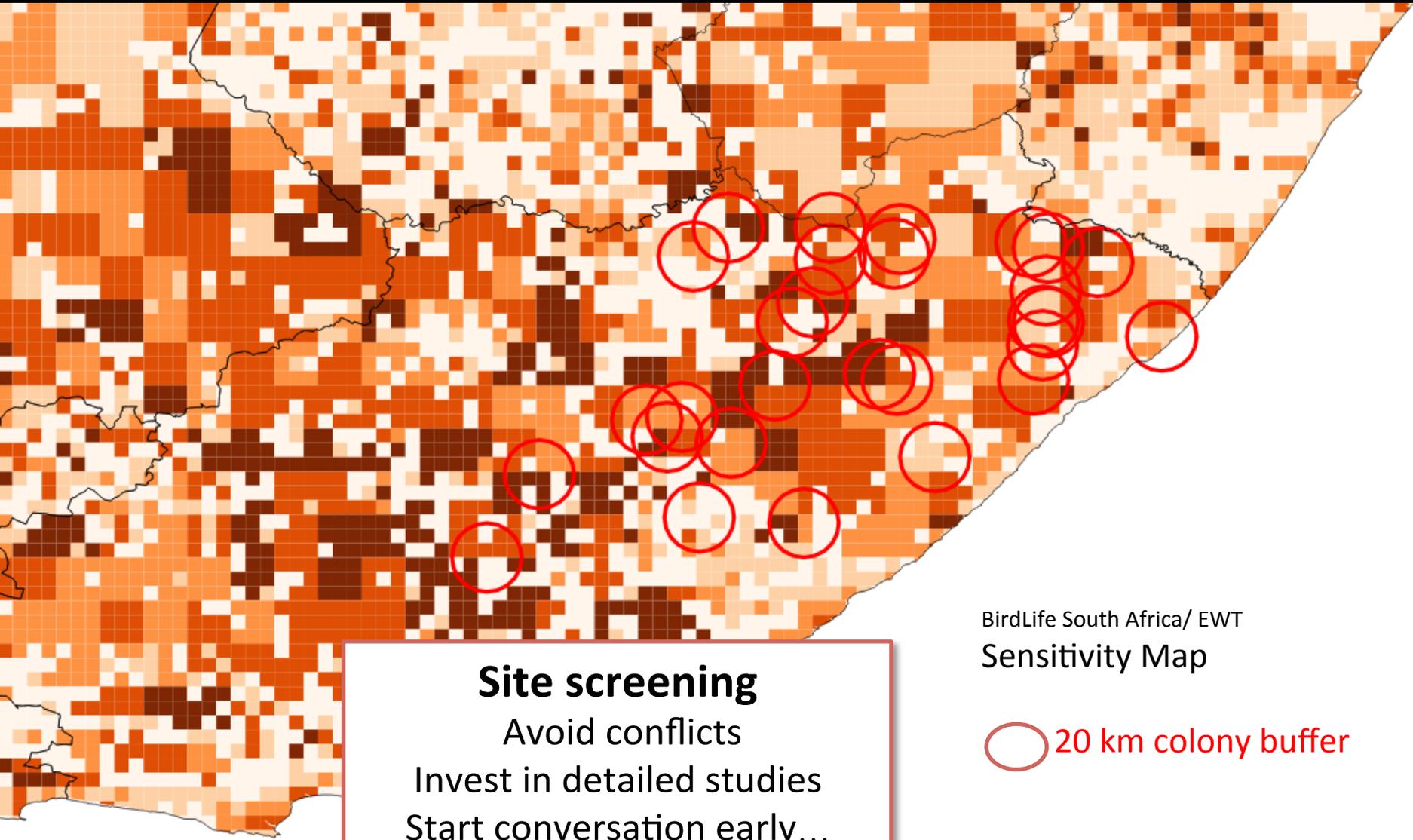




From Pfeifer 2016 - Tracking data from 9 birds, 4 locations in Eastern Cape



BirdLife South Africa/ EWT  
Sensitivity Map



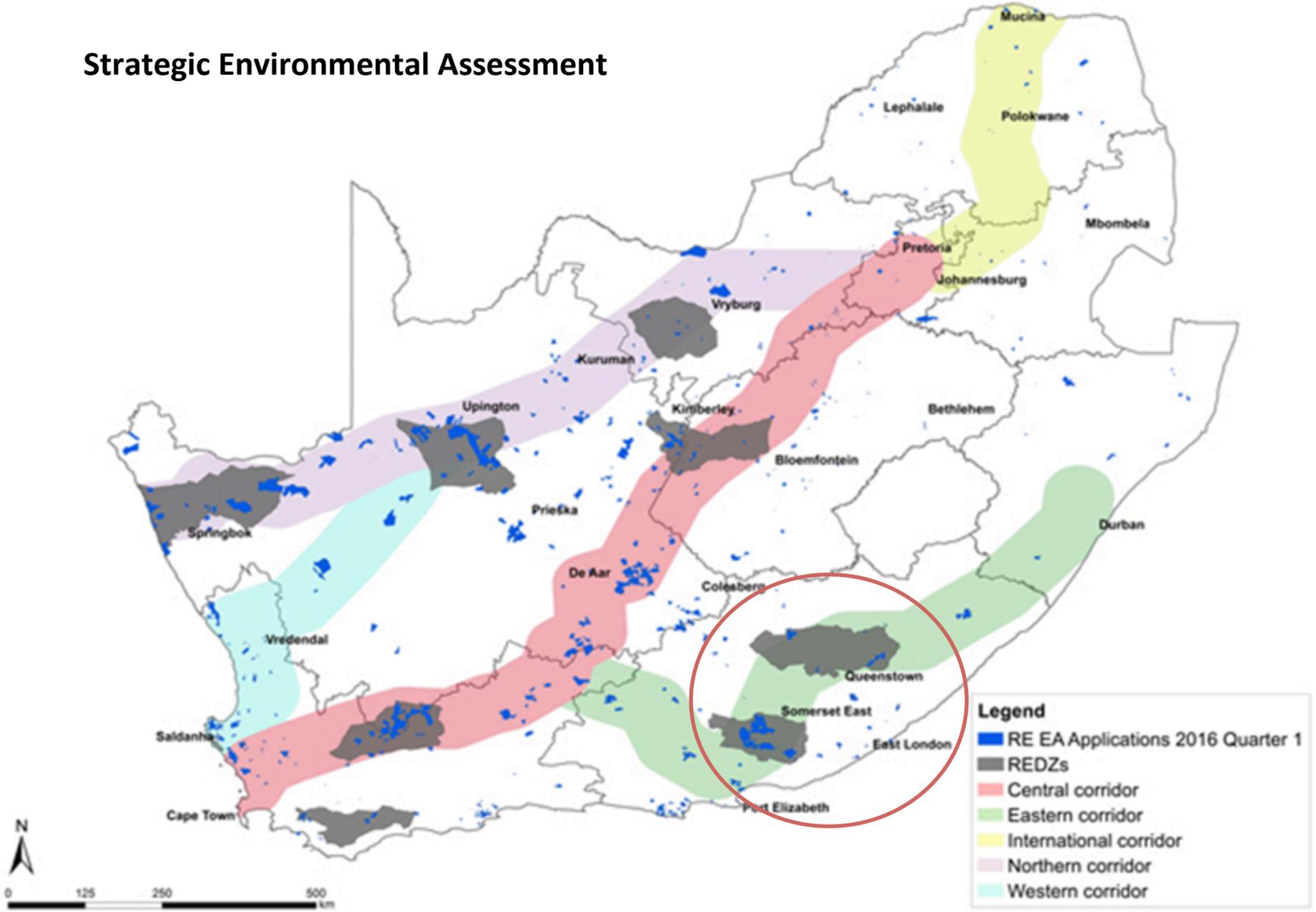
**Site screening**  
Avoid conflicts  
Invest in detailed studies  
Start conversation early...

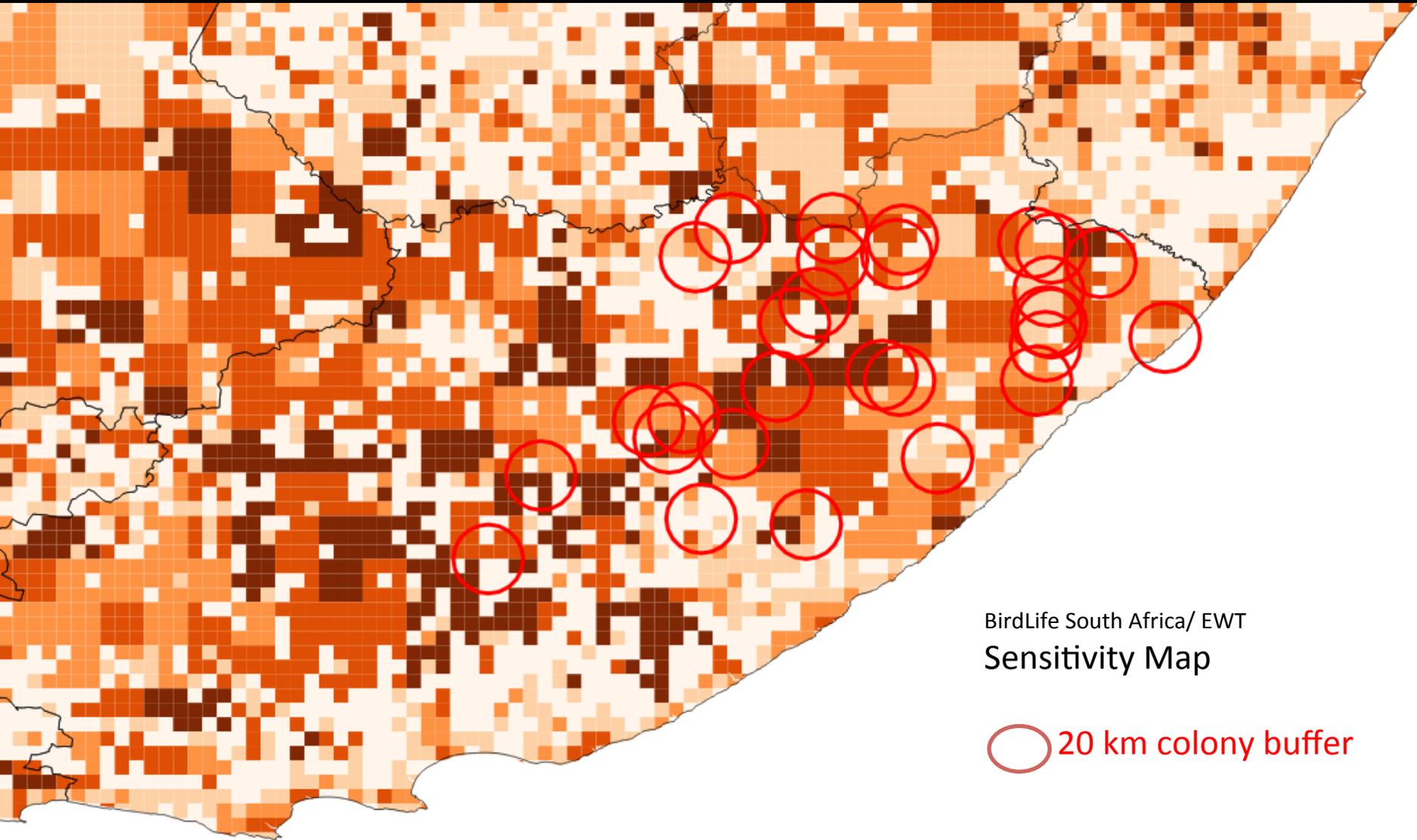
BirdLife South Africa/ EWT  
Sensitivity Map

 20 km colony buffer

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

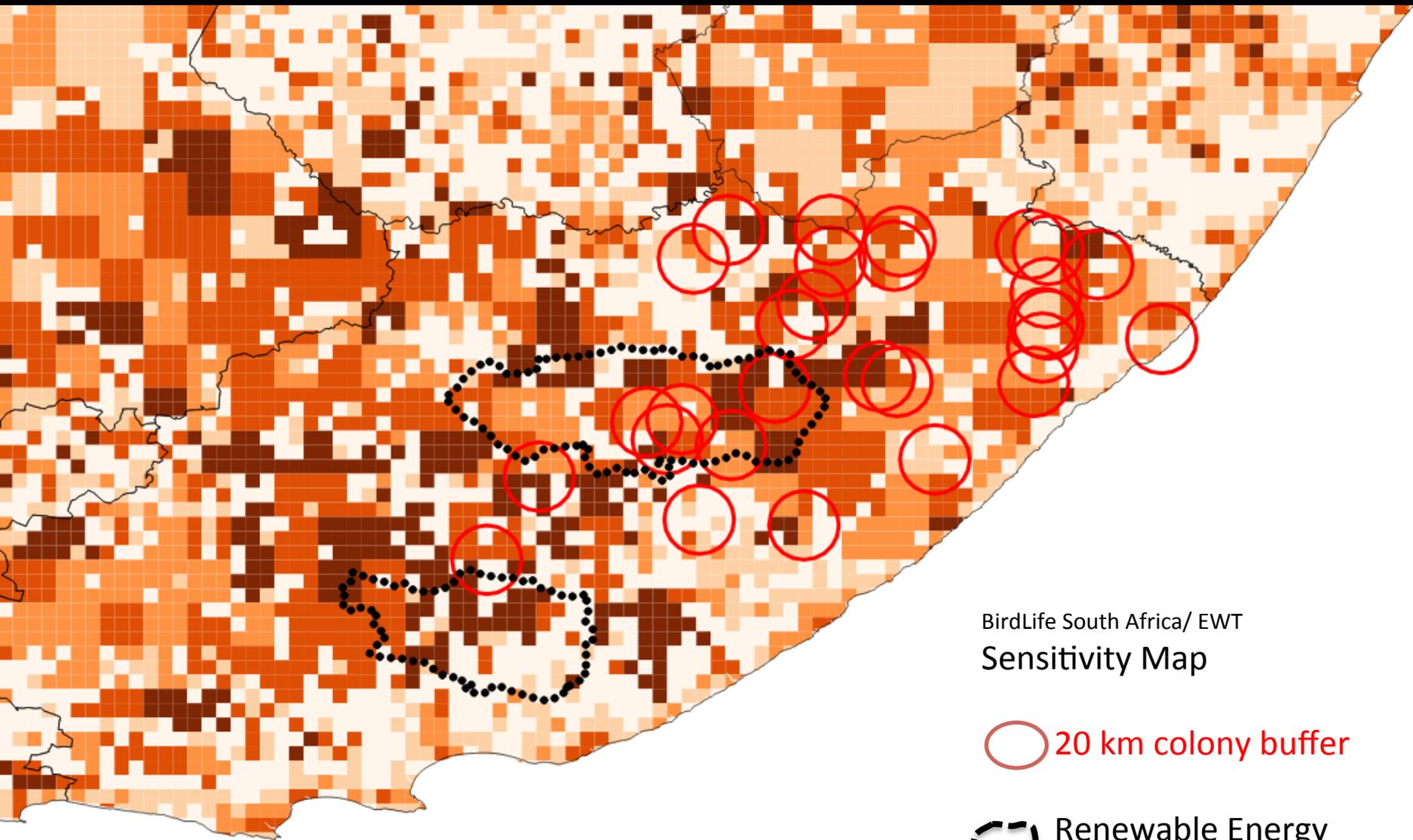
## Strategic Environmental Assessment





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 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.*