

POWER AFRICA



The Power Africa Initiative – Opportunities and Challenges

André Botha

IUCN SSC Vulture Specialist Group

6.10.2015





- **600 million people in Africa currently do not have access to electricity**
- **IEA – USD300bn required to achieve universal access by 2030**

Power Africa Initiative



- **Announced on June 30th, 2013**
- **Build on Africa's enormous power potential, including new discoveries of vast reserves of oil and gas, and the potential to develop clean geothermal, hydro, wind and solar energy**
- **Help countries develop newly-discovered resources responsibly, build out power generation and transmission, and expand the reach of mini-grid and off-grid solutions**
- **Only with greater private sector investment can the promise of Power Africa be realized**
- **Initial set of six partner countries - will add more than 10,000 megawatts of cleaner, more efficient electricity generation capacity to 20 million households**

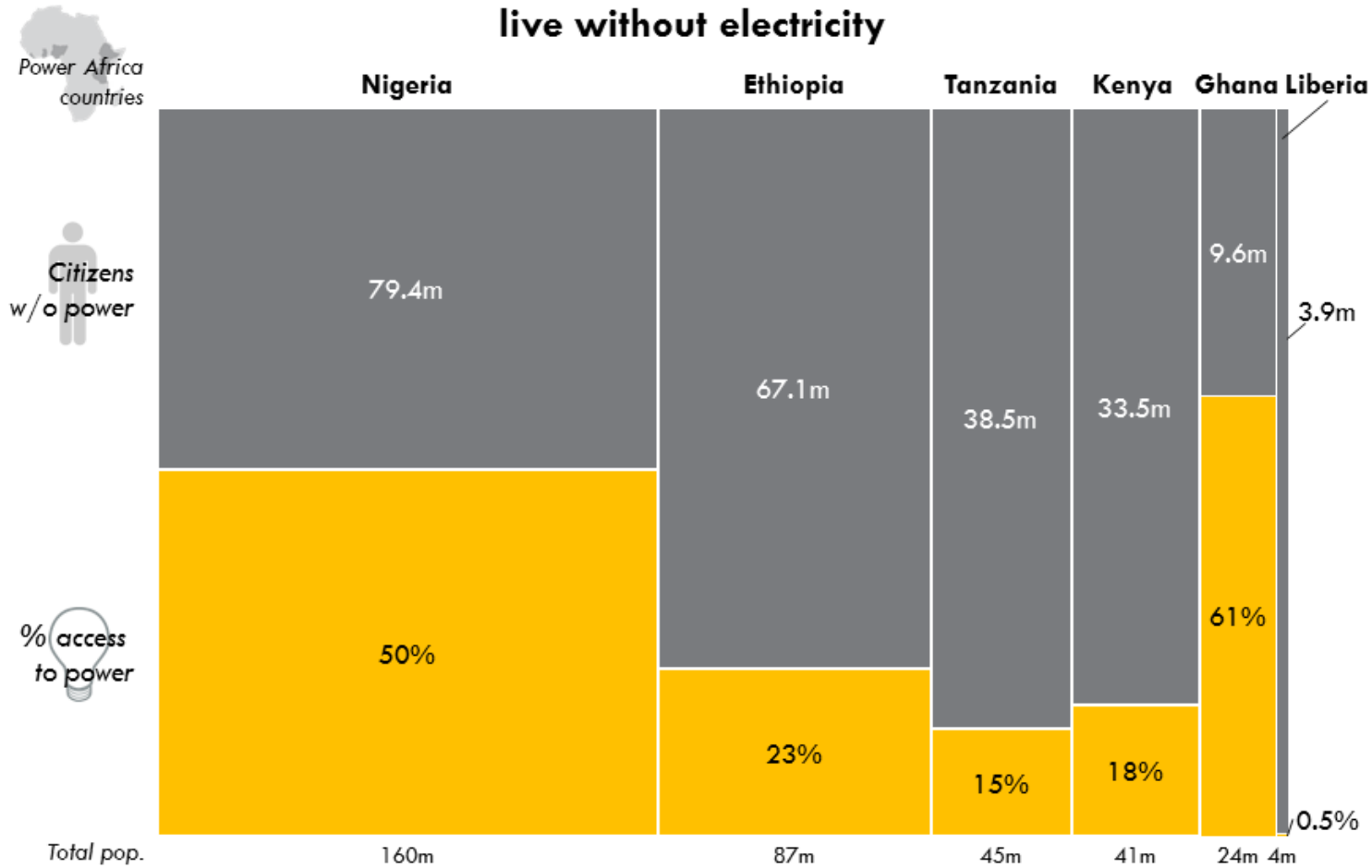
Phase 1 target countries



Current power coverage in Phase 1 countries



Over 230 million people in the 6 Power Africa countries live without electricity



Source: WB WDI, US EIA

Rooted in Partnership



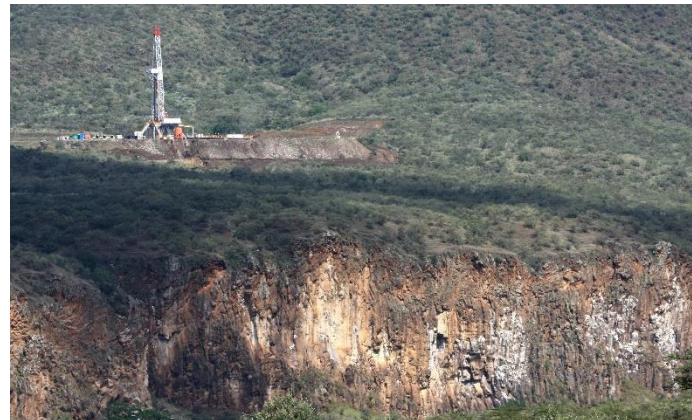
- **U.S. Agency for International Development (USAID)** – USD285million
- **Overseas Private Investment Corporation (OPIC)** - USD1,5billion
- **U.S. Export-Import Bank (Ex-Im)** – USD5billion
- **Millennium Challenge Corporation (MCC)** – up to USD1billion
- **U.S. Trade and Development Agency (USTDA) and OPIC** – up to USD20million
- **U.S. African Development Foundation (USADF)** – USD2million

Private Sector Investments – USD9b



- General Electric
- Heirs Holdings
- Symbion Power
- Aldwych International
- Harith General Partners
- Husk Power Systems
- African Finance Corporation

Environmental considerations?



Environmental considerations?



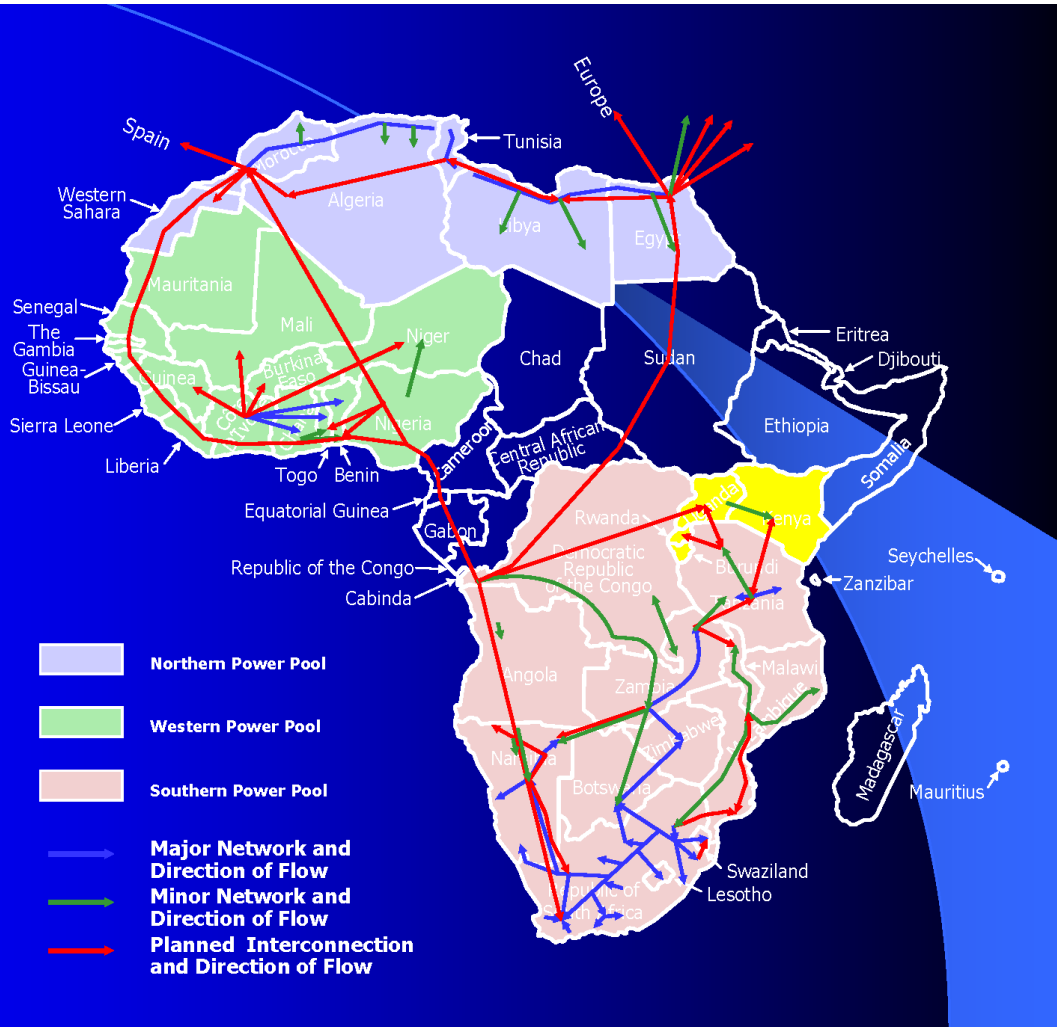
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- **Several efforts from TPF, VSG, BirdLife to engage with Power Africa partners since 2014**
 - **Correspondence**
 - **No formal meeting**
- **Energy Task Force – CMS Raptors MoU, IUCN, BirdLife, TPF and EWT**
- **Aim to meet in November 2015 – not confirmed**
- **African Energy Summit – 2016**

Other initiatives

Africa in the dark: 600 million people in Sub-Saharan Africa have no electricity





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STRATEGIC PARTNERSHIP



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BIRDS OF PREY
PROGRAMME

conservation in action

A case study of collaboration on energy issues in South Africa

06th October 2015

André Botha

Endangered Wildlife Trust

Where it all began...



Unique partnership between conservationists & industry

Spirit of mutual trust and cooperation since 1996 – 18 years

Integration of engineering & ornithological skills to develop & implement solutions

Background

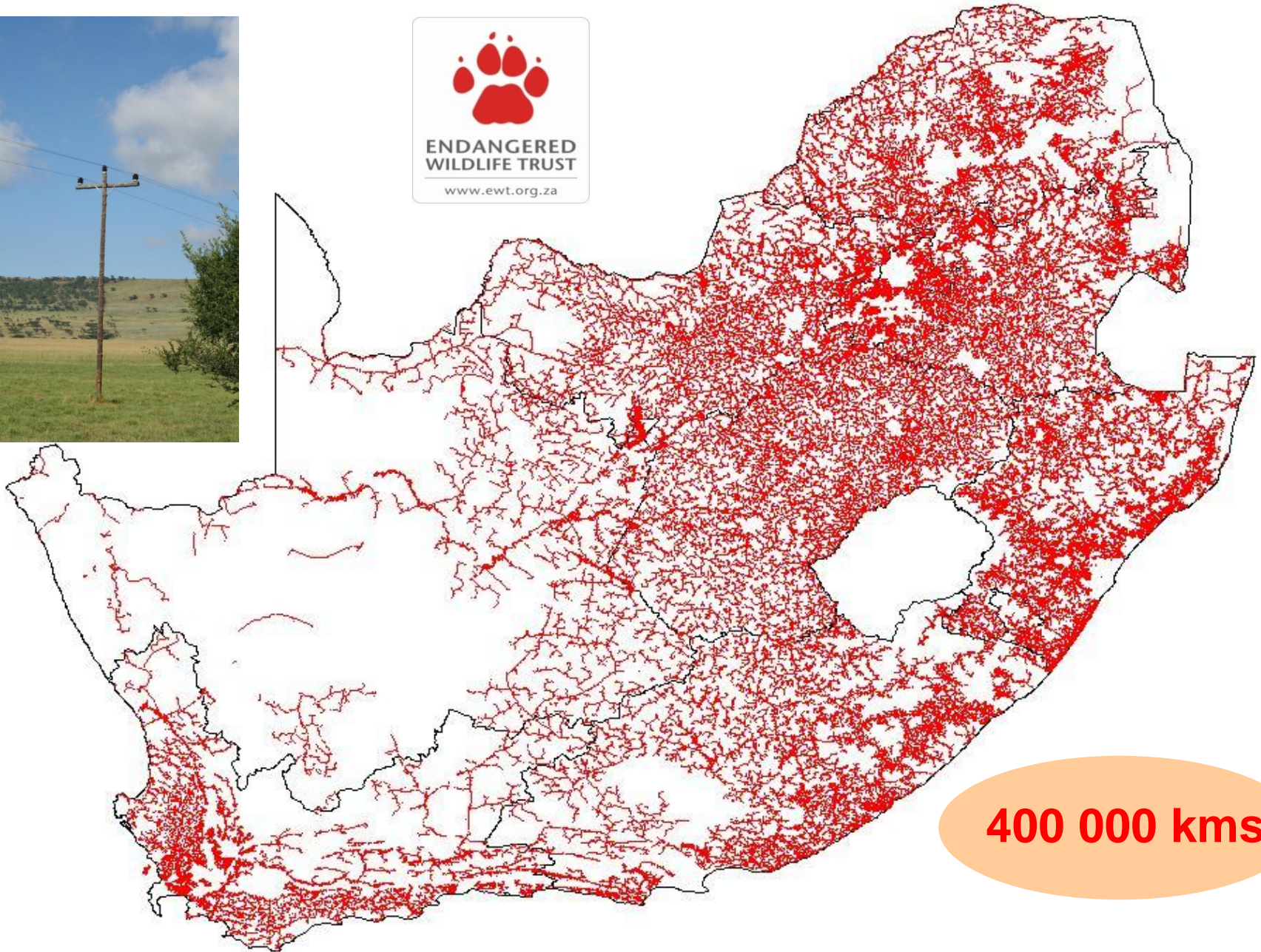
- **1972 - Markus in *Nature* - mortality of Cape Vultures on power lines in South Africa**
- **1973 - formation of the Vulture Study Group**
- **1977 - approach to South Africa's electricity utility which resulted in collaborative work between Eskom and the Vulture Study Group to address the Issue of vulture electrocutions on electricity structures.**
- **1996 – formal Eskom/EWT partnership**
- **1996- 2015 - expanded to include a wider field of interactions between wildlife and energy and to include other Eskom business units and renewable energy.**
- **2016 – 20-year anniversary**





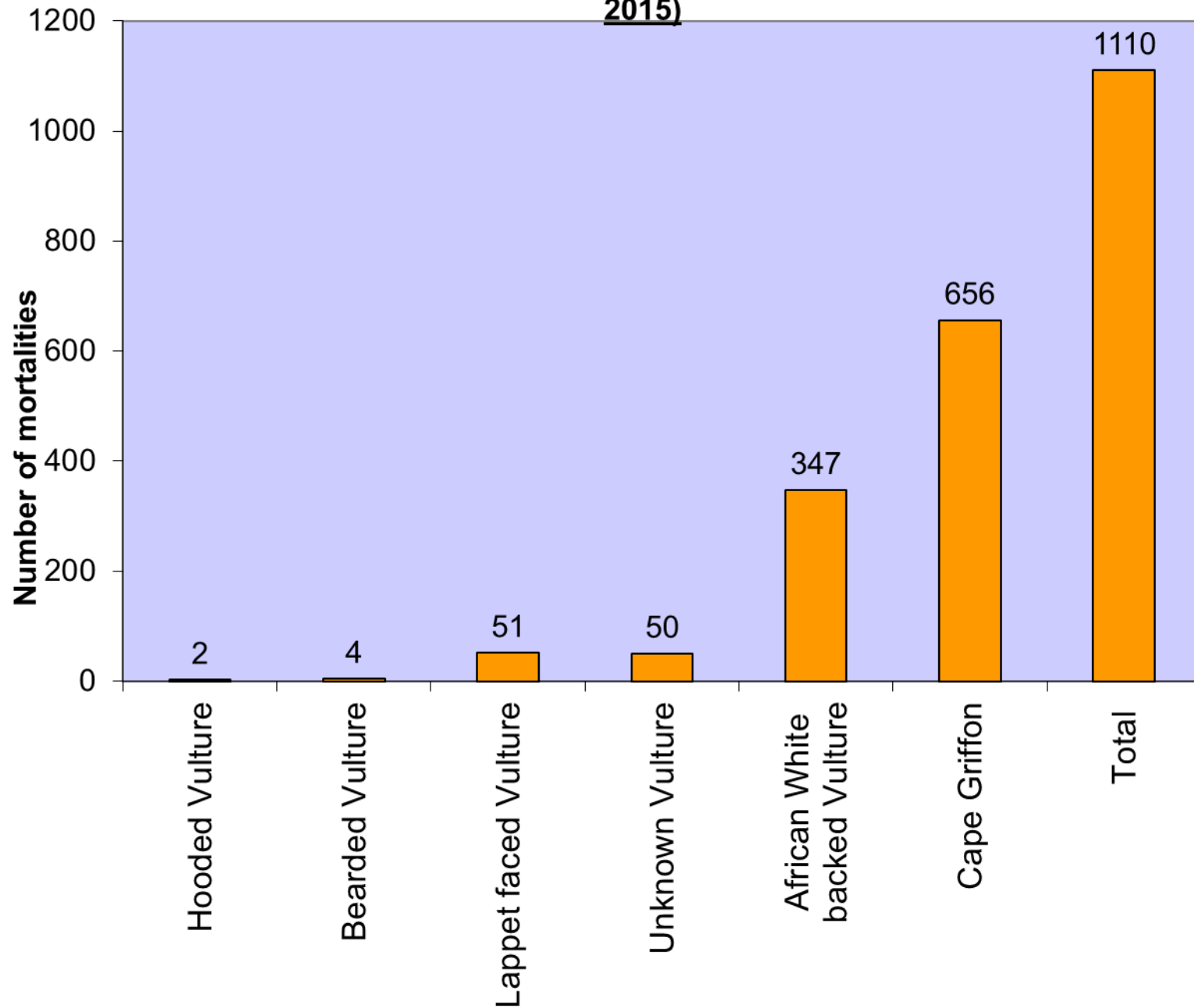
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SPECIES

Distribution Network



400 000 kms

Red List Species Reported Power-line Mortalities (1996- 31st August 2015)

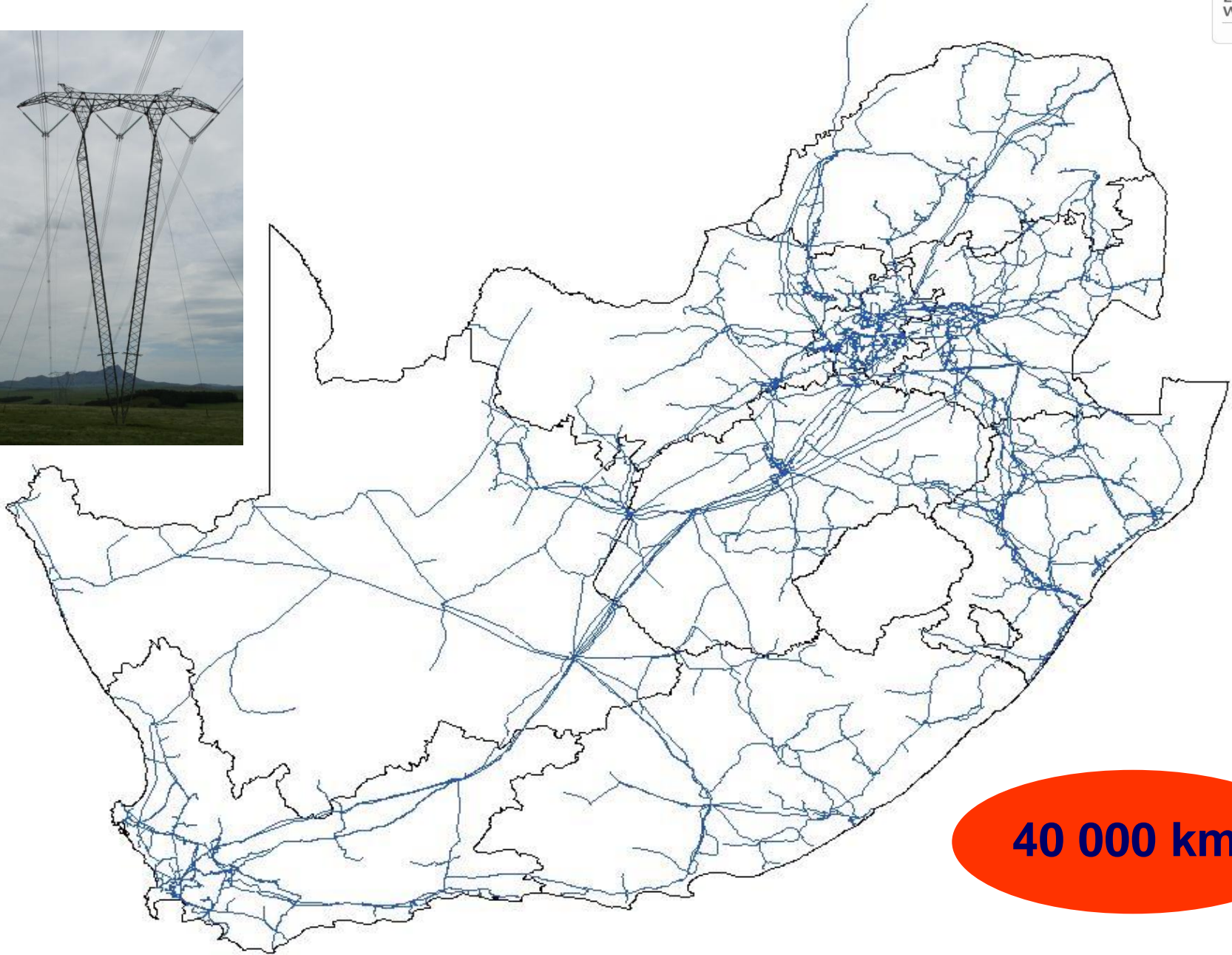


Transmission Network



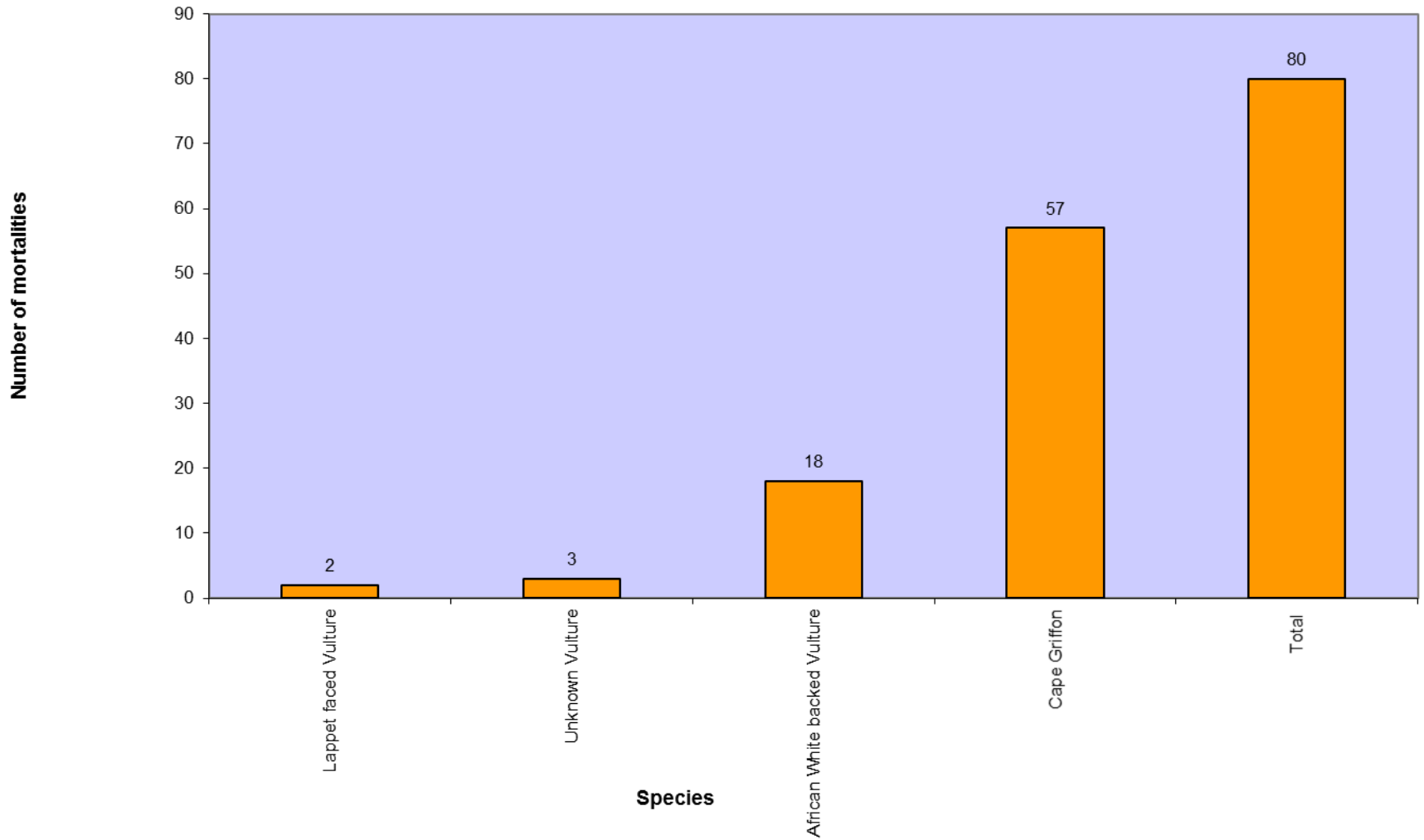
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40 000 kms

TX Red List Reported Species Mortality (1996-31st August 2015)



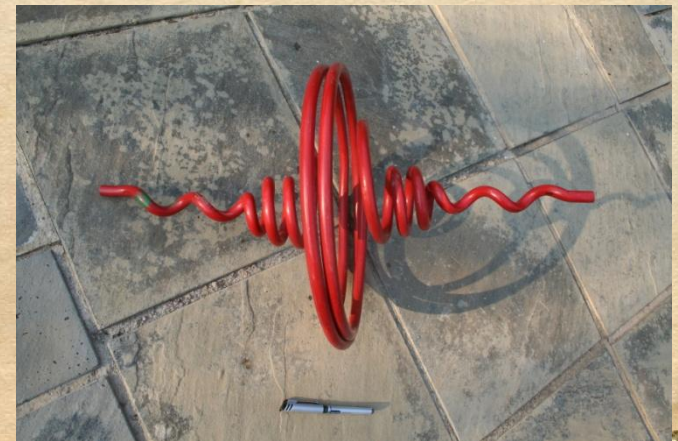
How are birds killed?

- Collisions with overhead wires
- Electrocution on pylons/poles

Other less direct impacts include habitat destruction, disturbance (particularly while breeding), and nesting

What is a bird collision?

- Bird in mid flight does not see the cables until too late and collides with them. Usually killed through impact.
- Large slow flying birds probably most impacted

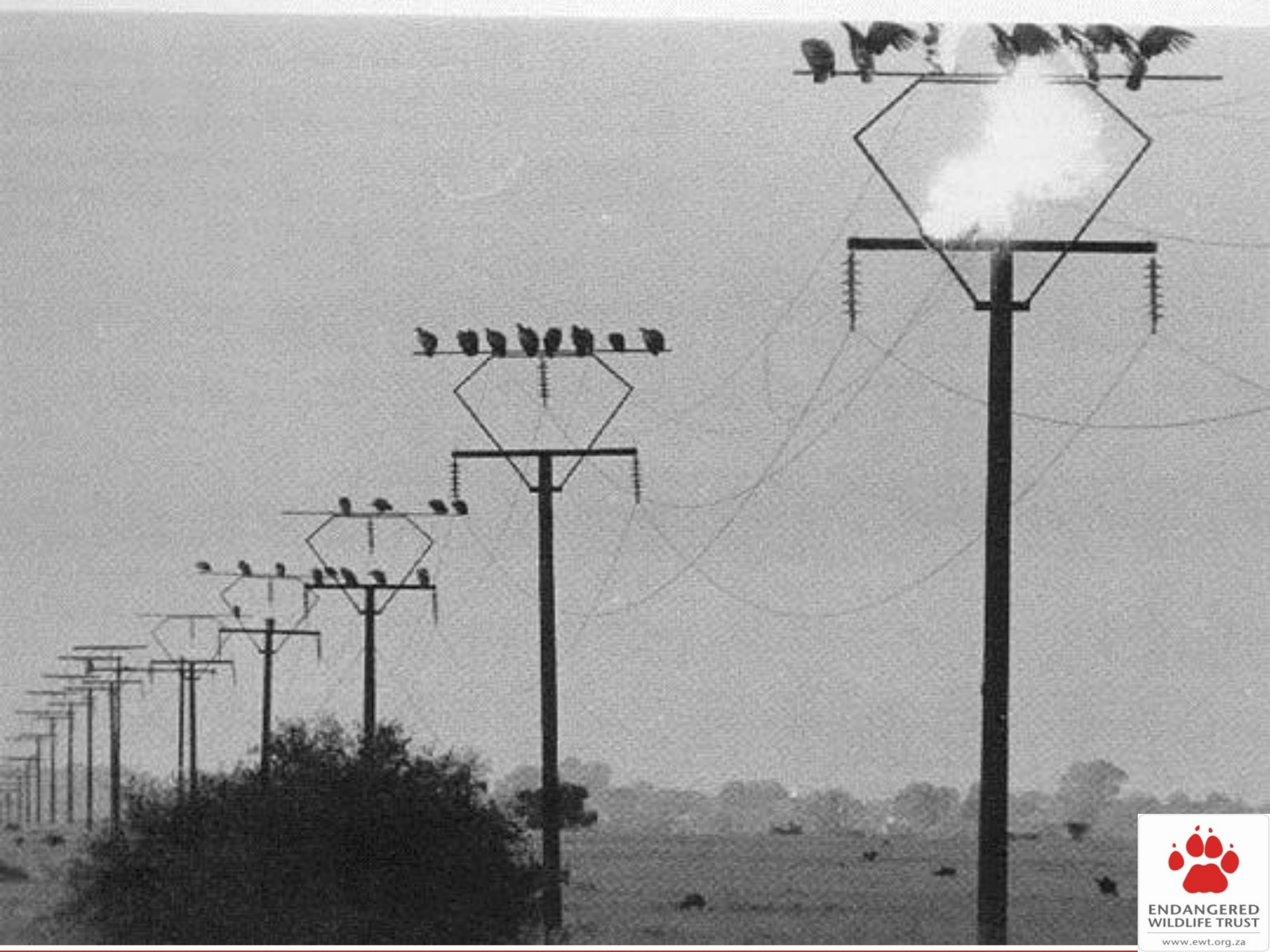




What is a bird electrocution?

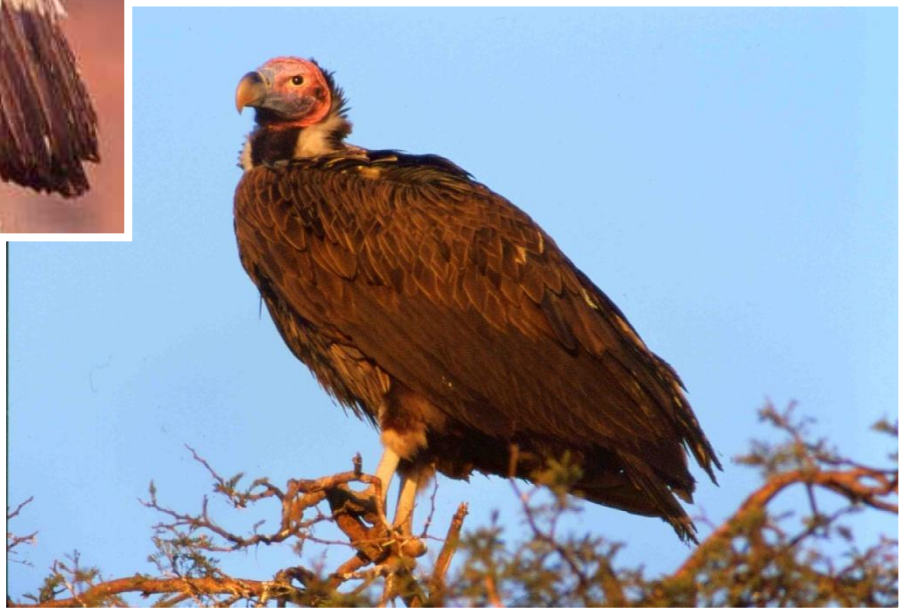
- Bird/animal is killed when it creates a short circuit between two live or one live and one earthed component on a pole or pylon
- Large birds more likely to bridge the relevant gaps
- Perching species are vulnerable





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Central Incident Register

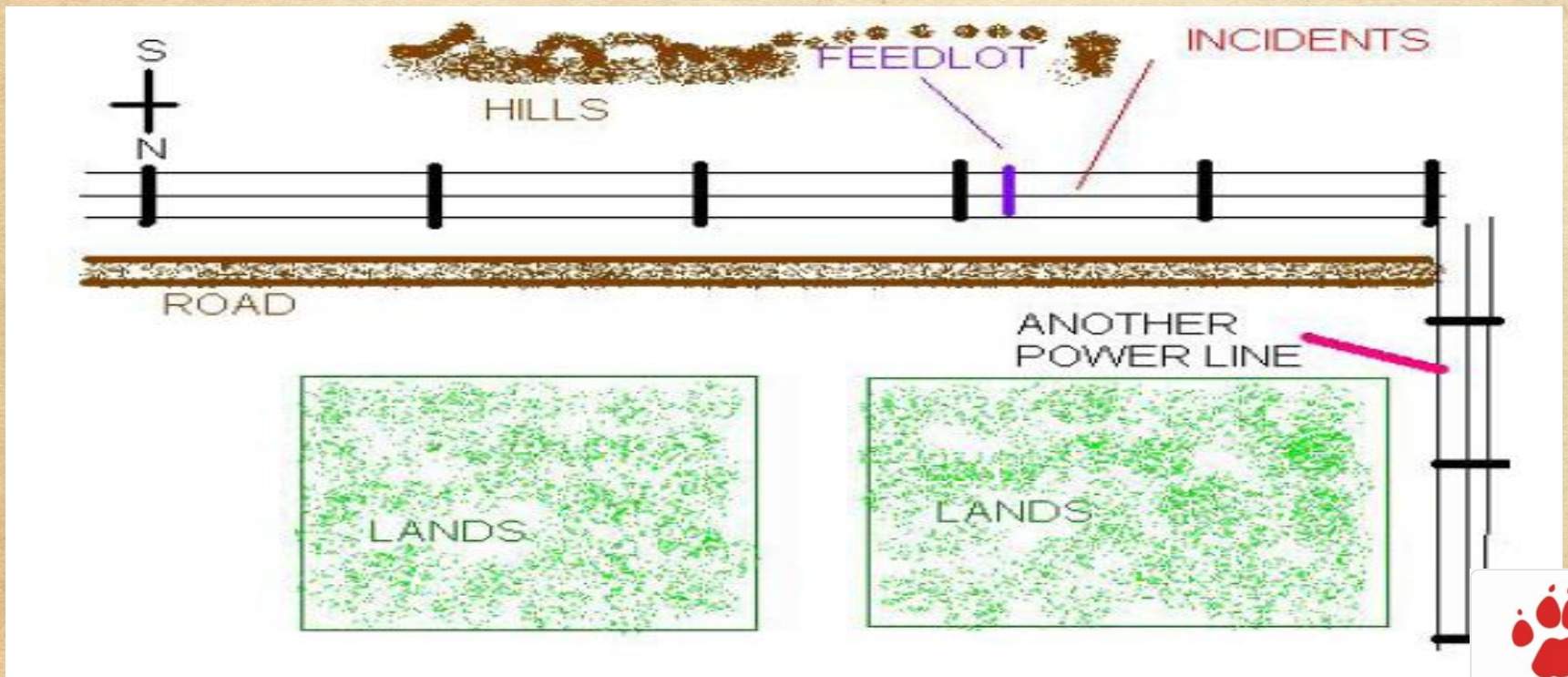


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Recommendations

- **“...RECOMMEND THAT ALL THE POWER LINES ON THE FARM BE MARKED WITH FLAPPERS, AS THERE ARE MORE POWER LINES SURROUNDING THE FARM.”**



Bird nesting

- Generally a positive impact for birds
- Power lines provide safe, secure nesting substrate for birds
- Often enable birds to nest in areas of country where they couldn't otherwise
- Eskom Transmission Bird Nest Management Guidelines...





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Electrical faults

- Bird streamer – once off event
- Bird pollution – build up
- Managed by using perch deterrents – Bird Guards



Statistics 2010-2014:

- Increasing amount of incidents recorded annually.
- Average of 47.9 km of line marked with flappers / diverters annually.
- 1995 number of poles made safe for birds
- 11 Transformers insulated
- Total spent on making lines safe in + -
R 70 000 000.00



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conservation in action




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- Research: Rhino & Lion Park

2/05/10

3:42 PM

EWT 011 486 1102



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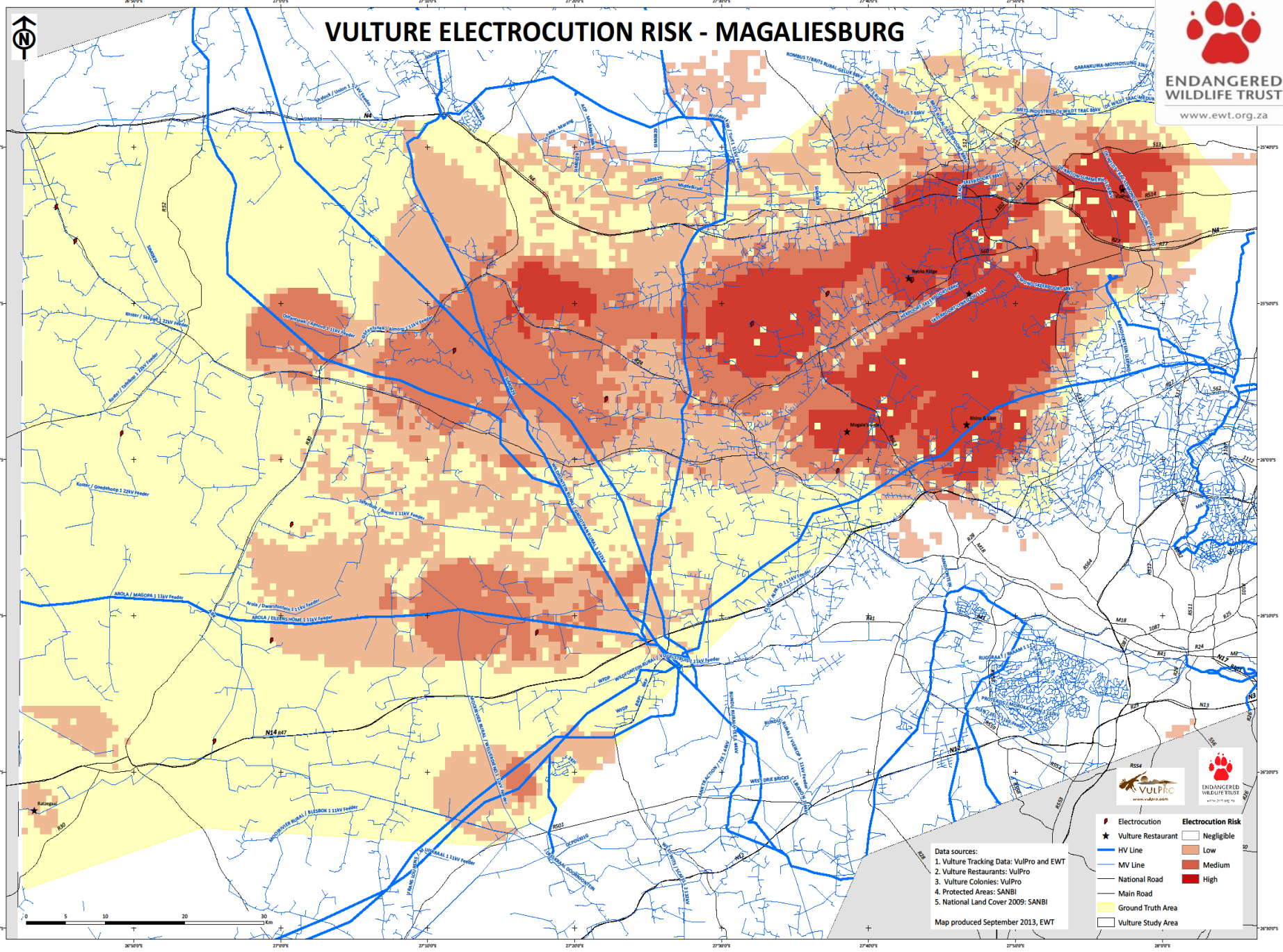


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










VULTURE ELECTROCUTION RISK - MAGALIESBURG



Data sources:
 1. Vulture Tracking Data: VulPro and EWT
 2. Vulture Restaurants: VulPro
 3. Vulture Colonies: VulPro
 4. Protected Areas: SANBI
 5. National Land Cover 2009: SANBI

Map produced September 2013, EWT

	Electrocution		Negligible
	Vulture Restaurant		Low
	HV Line		Medium
	MV Line		High
	National Road		
	Main Road		
	Ground Truth Area		
	Vulture Study Area		



The Endangered Wildlife Trust herewith acknowledges the contribution towards vulture conservation.

This is to certify that

Phil Khumalo

North West Operating Unit – Eskom Distribution

adopted a vulture in the Eskom / Endangered Wildlife Trust's "Adopt a Vulture campaign"
and is now the custodian for:

Vulture number 5 / Species: African White Backed Vulture / Sex: Male

The aim of the campaign is to raise awareness around the electrocution and collision of vultures on
powerlines across all the different Eskom Distribution Operating Units.

Constant Hoogstad
Project Manager
Eskom / EWT Strategic partnership

Rudi Kruger
Eskom Corporate Specialist
Environmental Management & Sustainability

Thanks to you, we can continue to conserve your vultures for future generations to marvel over!

Before



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After



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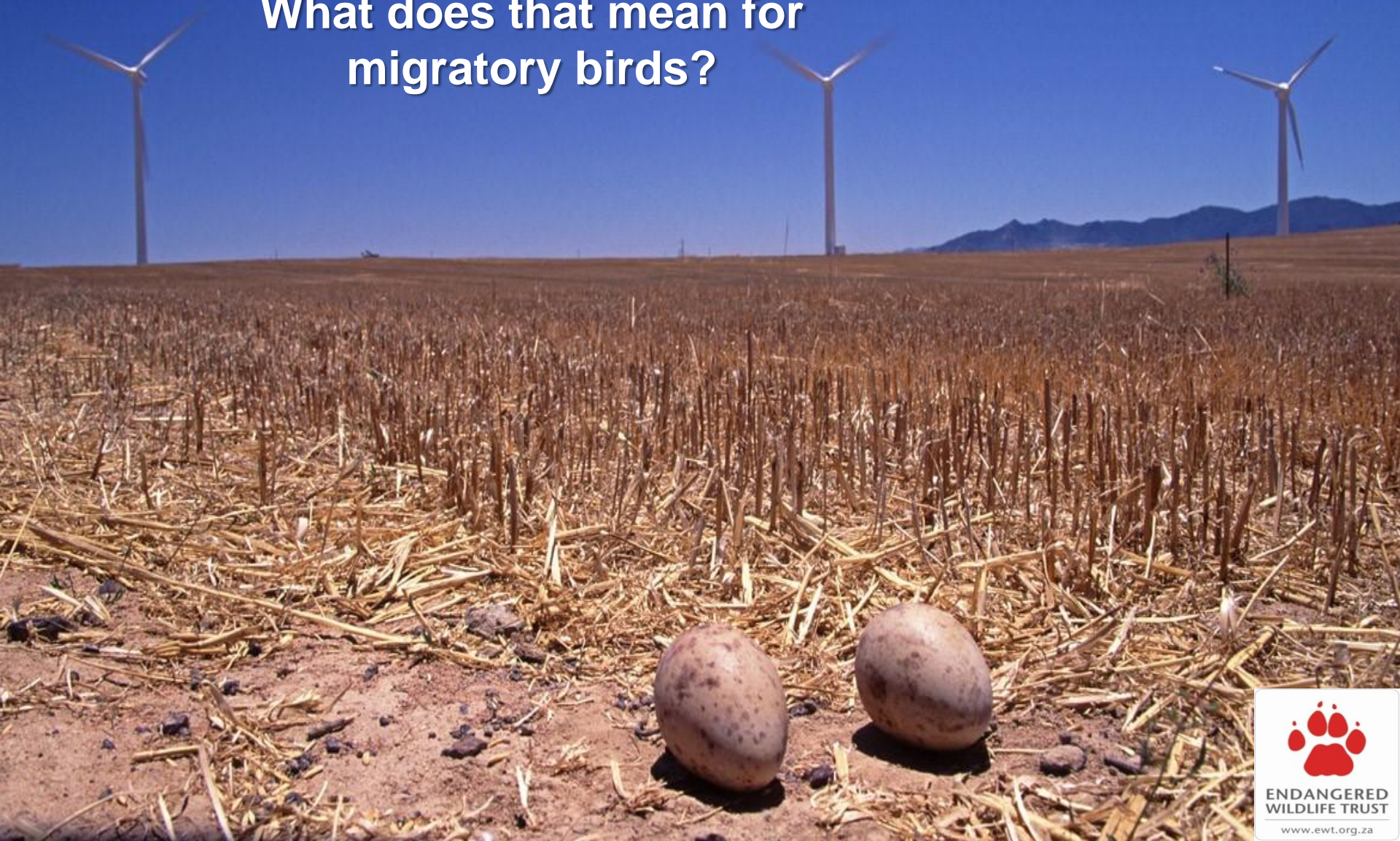
Strategic Partnership



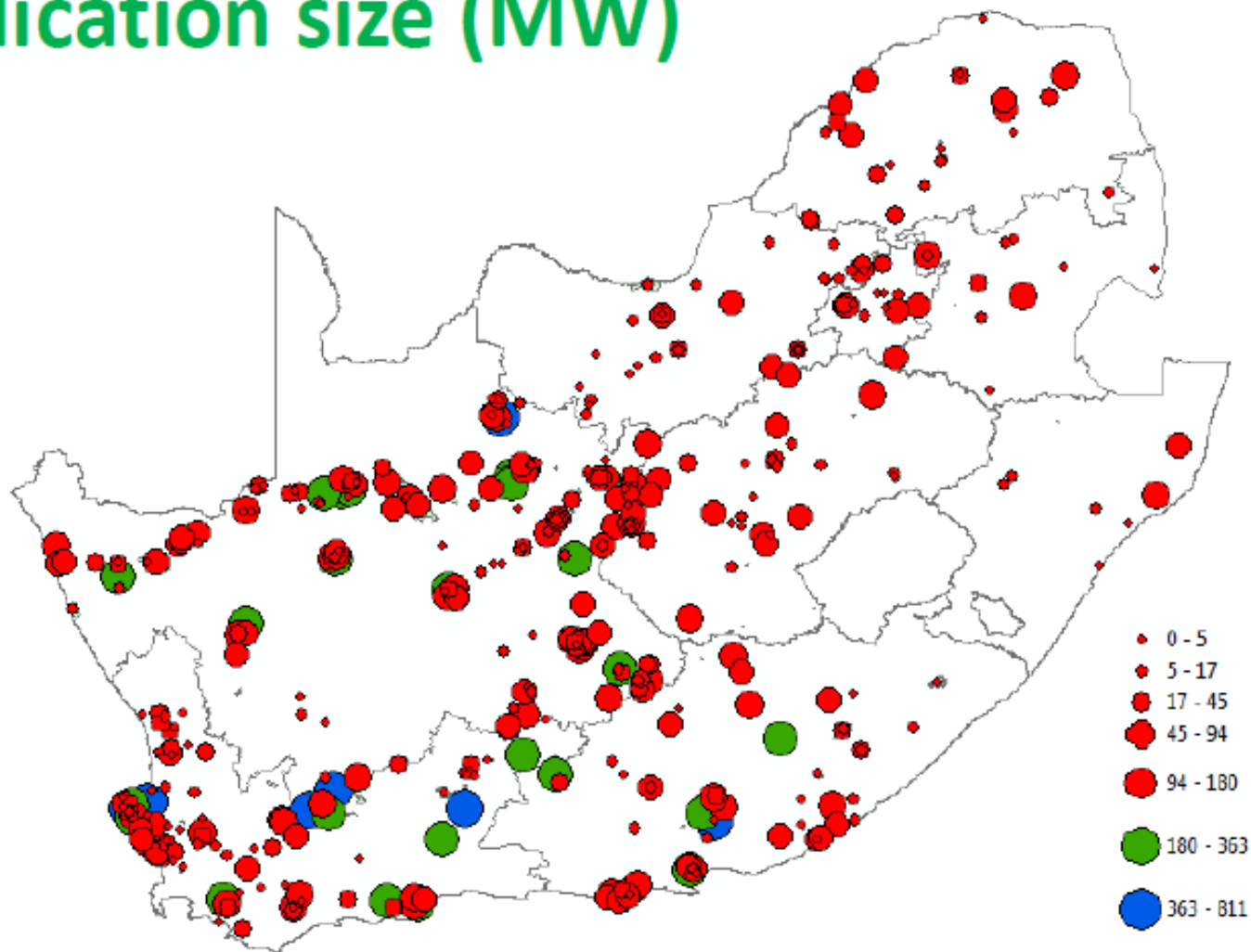
**Wildlife & Power Line Interaction
Training Manual**

Renewable Energy in South Africa

What does that mean for
migratory birds?



Application size (MW)



To guide EIA practitioners, avifaunal specialists, developers (industry), government and financiers.

Project screening and risk assessment

- Avian Sensitivity Map

Impact Assessment

- Best Practice Guidelines for Monitoring and Impact Mitigation
- Terms of Reference for Avian Impact Assessment

Decision Making

- Recommended Conditions of Approval

Adaptive Management & Knowledge Development

- Best Practice Guidelines for Monitoring and Impact Mitigation



How does wind power impact birds?

- We know from experience in other countries in the world that there will be a negative impact on birds:
 - Destruction and alteration of habitat
 - Disturbance
 - Direct mortality - collision with turbines
- We do know that the impact of wind farms in the rest of the world differs from site to site. At some wind farms no fatalities and in others lots of fatalities

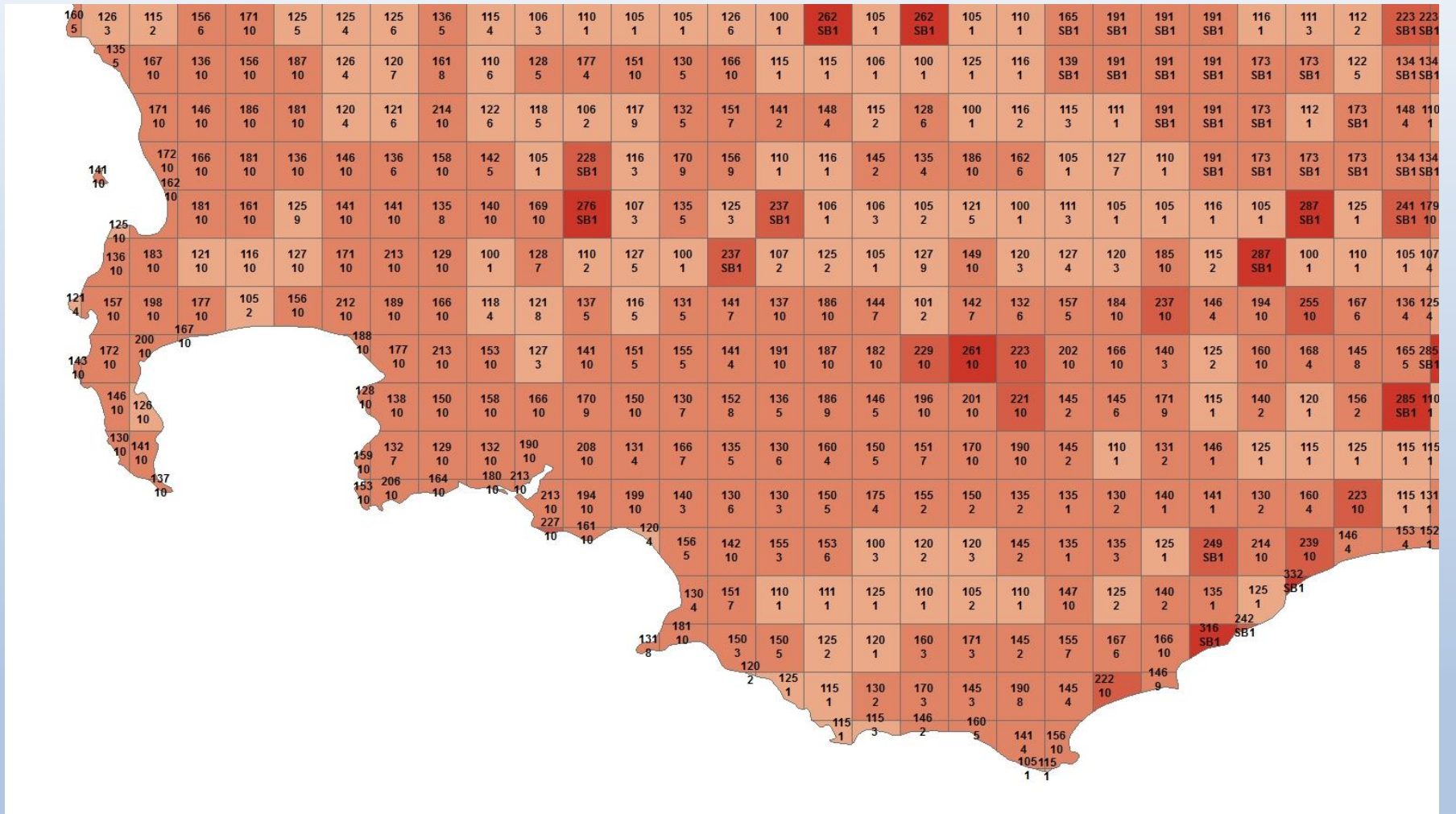


Lessons Learnt in Other Countries

- A direct comparison or prediction of what the effect of the wind farm industry will be on birds within South Africa is not possible
- Big difference between South Africa and other countries in the world in terms of:
 - **Species diversity**
 - 841 Species in South Africa
 - 125 Endangered species
 - **Bird Behaviour**
(for example bird migration)



Wind Energy Sensitivity Map



What the map is not!

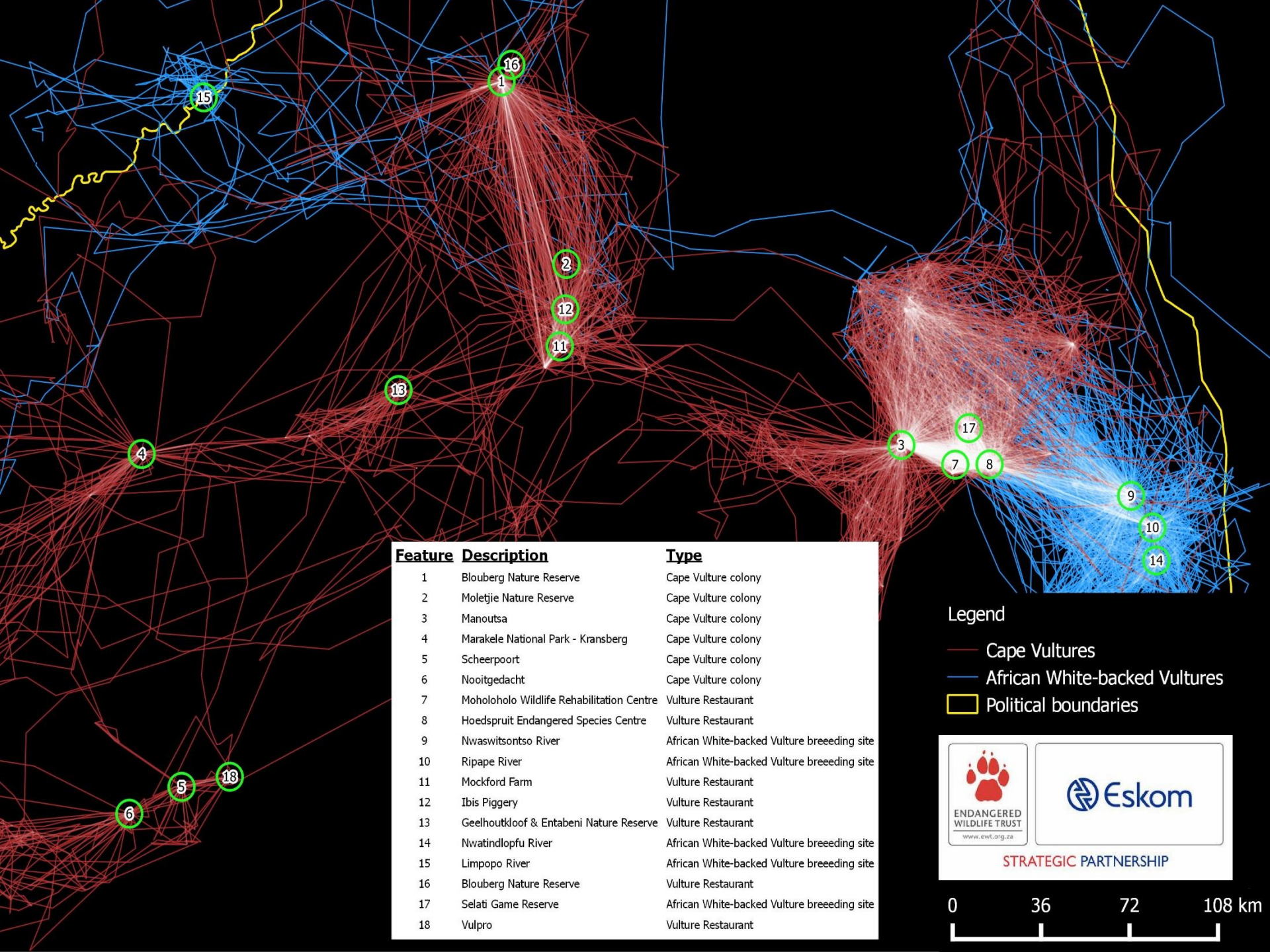
Not a substitute for EIA!!!

- The only purpose of the map is to provide **guidance** to the industry in the early stages of the planning process

Does not indicate “no go” zones

- Only possible areas of sensitivity are indicated

<http://www.birdlife.org.za/conservation/birds-and-wind-energy/windmap>



Feature	Description	Type
1	Blouberg Nature Reserve	Cape Vulture colony
2	Moletjie Nature Reserve	Cape Vulture colony
3	Manoutsa	Cape Vulture colony
4	Marakele National Park - Kransberg	Cape Vulture colony
5	Scheerpoort	Cape Vulture colony
6	Nooitgedacht	Cape Vulture colony
7	Moholoholo Wildlife Rehabilitation Centre	Vulture Restaurant
8	Hoedspruit Endangered Species Centre	Vulture Restaurant
9	Nwaswitsontso River	African White-backed Vulture breeding site
10	Ripape River	African White-backed Vulture breeding site
11	Mockford Farm	Vulture Restaurant
12	Ibis Piggery	Vulture Restaurant
13	Geelhoutkloof & Entabeni Nature Reserve	Vulture Restaurant
14	Nwatindlopfu River	African White-backed Vulture breeding site
15	Limpopo River	African White-backed Vulture breeding site
16	Blouberg Nature Reserve	Vulture Restaurant
17	Selati Game Reserve	African White-backed Vulture breeding site
18	Vulpro	Vulture Restaurant

Legend

- Cape Vultures
- African White-backed Vultures
- Political boundaries



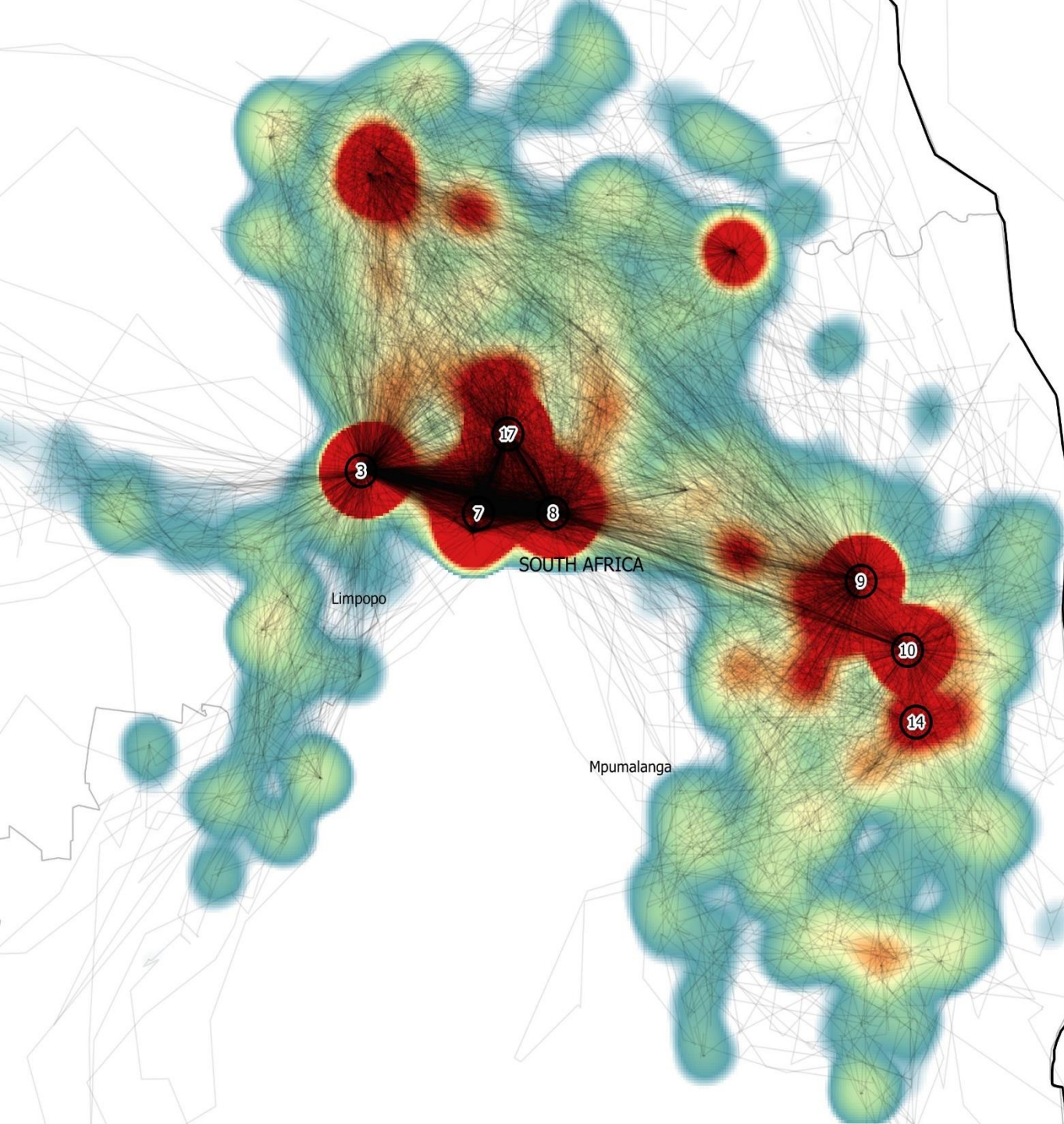
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Legend

- Vulture flight paths
- Political boundaries

Heatmap*

	29.154105
	43.731158
	58.308211
	72.885263
	87.462316
	102.039368
	116.616421
	131.193474
	145.770526
	160.347579
	174.924632
	189.501684
	204.078737
	218.655789
	233.232842
	247.809895
	262.386947
	>276.964000

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THANK – YOU!



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