



Strategies to move human-elephant- conflict to human- elephant-coexistence

Henley, M.D., Bunney, K., Kirkman, S., Engelen, C.C., Cook, R.M., Blondeau, J., Thompson, K. & Almeida, J.

SSNM 2025



Science & Survival

STUCTURE

Why Elephants as a case study?

Where do they go and why is this important?

Types HEC: mild → extreme

How to mitigating HEC

Fostering coexistence

Why elephants as a case study?

Elephants have large space & sustenance requirements

Actions affect other species

Compete with us for resources



Why elephants as a case study?

Evoked ethical consideration & moral concern

Complex social lives

Sentient

Empathetic to conspecifics

Aware of death

Transgenerational cultures of care

Communicate with intention and complexity

Advance cognitive abilities

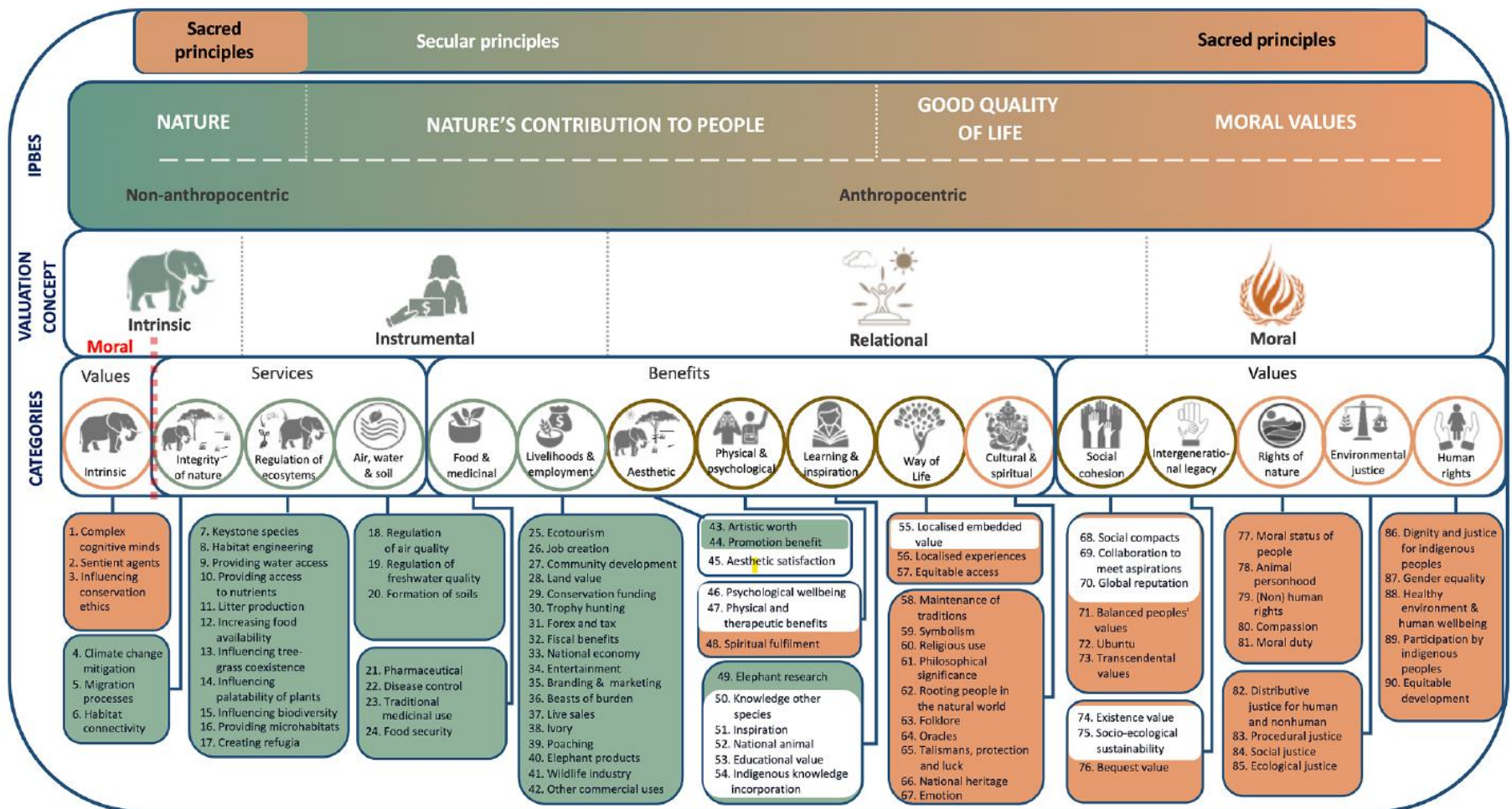
Collective problem solvers

Self-aware

Why elephants as a case study?

Elephants offer multiple overlapping services & 90 benefits in ecological, socio-cultural, economic, and spiritual dimensions.

Van de water, A.; Henley, M.D.; Bates, L., & Slotow, R. 2022. The value of elephants: a pluralistic approach. *Ecosystem Services* 58 (22): 1014088



Why elephants as a case study?

Presents us with a wicked problem (Kolko 2012)

- Incomplete knowledge
- Numerous stakeholders and associated opinions
- Substantial economic burdens
- Interconnected nature of ecological-, economic- and social challenges

Requires a **transdisciplinary approach** due to the multi-dimensional value of elephants to different stakeholders

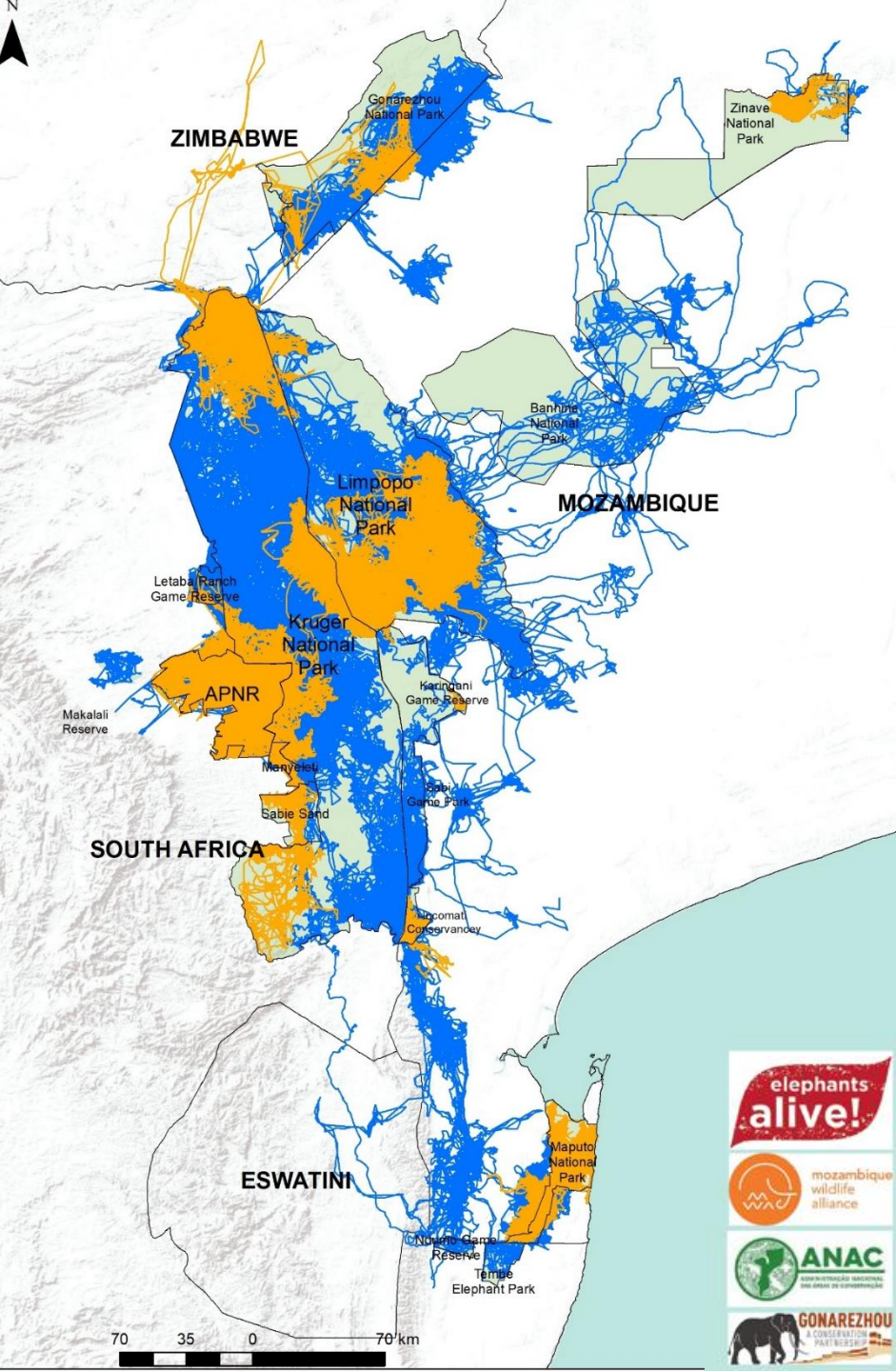




We work where the elephants go

Both inside and outside of protected areas across national boundaries

Where do the elephants go?

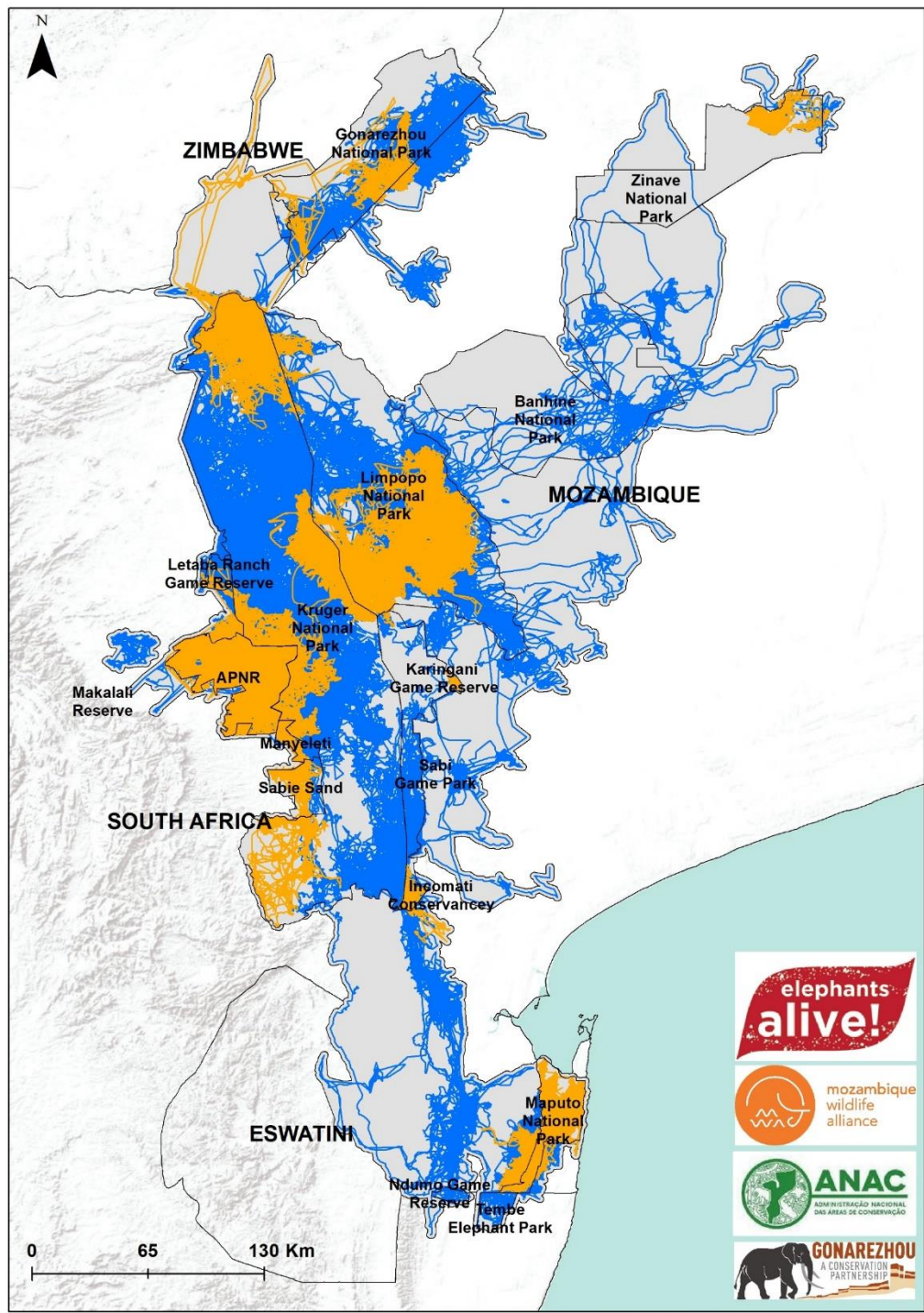


- Across **4** countries
- Linking **2** TFCAs
(Limpopo- and Lubombo TFCAs)
- Linking **7** National Parks
(Kruger-, Gonarezhou-, Limpopo-, Banhine-, Zinave-, Maputo-, Tembe Elephant- and Hlane Royal NP)
- Linking **17** smaller PAs
(Makuya Nature Reserve, Mthimkhulu Letaba Tribal Ranch, Great Letaba Ranch, Timbavati-, Klaserie-, Balule-, Thornybush Private Nature Reserves, Mayeleti Game Reserve, Sabi Sands Game Reserve, Karingani Game Reserve, Sabi Game Park, Icomati Conservancy, Ndumo Game Reserve, Big Bend Conservancy, Mkhaya Game Reserve, Mlawula Nature Reserve, Panata Ranch)



Where do the elephants go?

- Covering area 107 742km² ~ size of Switzerland
- ~50 000 elephants (12% of continental population)
- PAs 53 617km² in size (50%)
- **30/30 vision**
- By 2030 need 30% of the land under effective management
 - ➔ biodiversity targets
- Elephants ➔ landscape planners
- Vital corridors





HUMAN-ELEPHANT-CONFLICT OUTSIDE PAs: mild → extreme

THE ISSUE: How has HEC influenced elephants' lives?

100 years: humans increased from
1.6 bil to 7.7 bil (**387% increase**)

Elephants decreased from
> 10 mil to > 415 000 (**~96% decline**)

70% density decrease over 5 decades
(Edwards et al. 2024)

Globally (IUCN red listing 2021)

African savanna elephant: endangered

76% of elephants are spread across one or
more political boundary (Lindsay et al 2017)

57,4% of elephants current range is
outside of PAs (Wall et al. 2021)



**Human-elephant-conflict is here to stay so
we need to work towards a conflict-free
relationship**



HOW?



NDLOPFU GOGS



elephants
alive!

ENVIRONMENTAL EDUCATION



WILD SHOTS OUTREACH



KRUGER TO CANYONS

Zoya na Naru
N'WANDLOPFU, MUFANA
NA RENZOZO RA LE AFRIKA

NTSHEKETO HI CAROLINE MONTAGUE • VUITSILA HI RICHIE RYALL

Zoya and Naru literacy book

3 What makes a great leader?

Are you a reflective problem solver?
Why?
Why?
Why?
Name one way to solve the problem (what you have done) and how it has changed your life for the better.

pattern
shape
judged
recovery
orange
orange
recovery
recovery
prevention
sustainable
recovery

Think about a time when you may have shown leadership skills or good leadership in action. Write your story below.

Zoya and Naru
AN AFRICAN STORY OF A BOY AND HIS ELEPHANT
WRITTEN BY CAROLINE MONTAGUE
ILLUSTRATED BY RICHIE RYALL

Vusa
THE ELEPHANT GUARDIAN

Teacher's lesson plan

3 What makes a great leader?

IF HE DAILY AND VUSA IS HELPING HIS GRANDPARENTS WHICH HE ENJOYS. HE WANTS TO BE AN ELEPHANT. DURING THE WEEK, SO THAT HE CAN DO WELL AND BECOME A WILDLIFE RESEARCHER.

HIS GRANDMOTHER THEN GOES TO HIS GRANDFATHER AND ASKS HIM TO HELP HIS GRANDFATHER TO BE AN ELEPHANT. HIS GRANDFATHER THEN GOES TO HIS GRANDMOTHER AND ASKS HER TO HELP HIS GRANDMOTHER TO BE AN ELEPHANT. HIS GRANDMOTHER THEN GOES TO HIS GRANDFATHER AND ASKS HIM TO HELP HIS GRANDFATHER TO BE AN ELEPHANT.

HOW DO I LEAD?
DO YOU KNOW HOW TO LEAD?
HOW DO I LEAD?
DO YOU KNOW HOW TO LEAD?
HOW DO I LEAD?
DO YOU KNOW HOW TO LEAD?

Vusa the Elephant Guardian Com

Learner's activity booklet

1 Engage with the community (collective problem solve by connecting landscapes & people)



1 Engage with the community

Discuss & Consult: (Questionnaire surveys)

Since 1998: 26 years



2 Awareness – understanding elephant movements

91%

Reactive Rapid Response Unit

79%



TRANSPORT



TOOLBOXES WITH SCARE TACTICS

3 Immediate safety (Elephant Shepherds)

CHILLI RAG FENCES



FLASHING LIGHTS











WATCH TOWERS



METAL STRIP FENCES



INGREDIENTS
These quantities make 20l of repellent, which protects one acre of crops as a fence or half an acre if sprayed

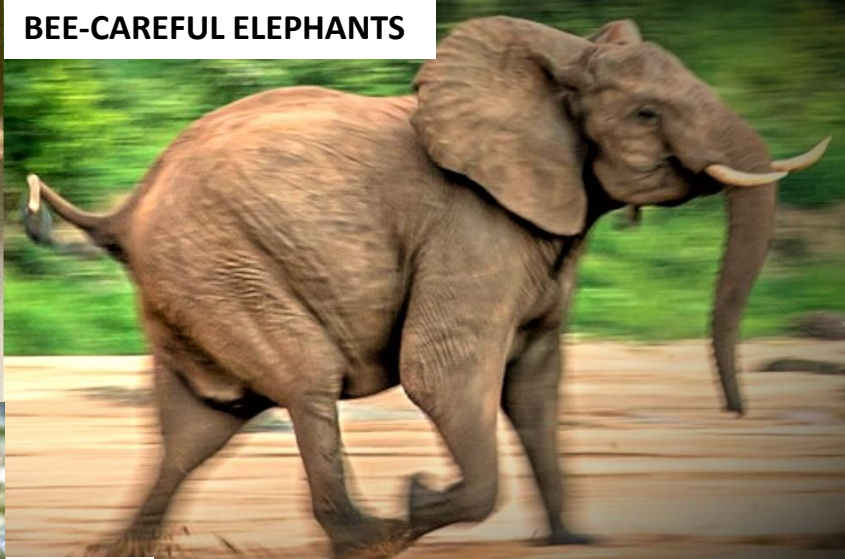
							
					Eggs 5	Fresh cow or elephant dung 1kg	Cooking oil 0.5 litres

SMELLY ELEPHANT REPELLENT

4 Protect people's assets (non-income generating soft barriers)



POLLINATION



BEE-CAREFUL ELEPHANTS



**elephants
alive!**

CROP PROTECTION



HONEY



SOAP



WAX WRAP



LIPBALM



BEE BRACELETS



EMPLOYMENT

**5 Protect people's assets
(income generating soft barriers)**

CHILLI: SAUCES & MITIGATION



**elephants
alive!**

ESSENTIAL OIL & HYDROSOL

MEDICINAL PLANTS



EMPLOYMENT

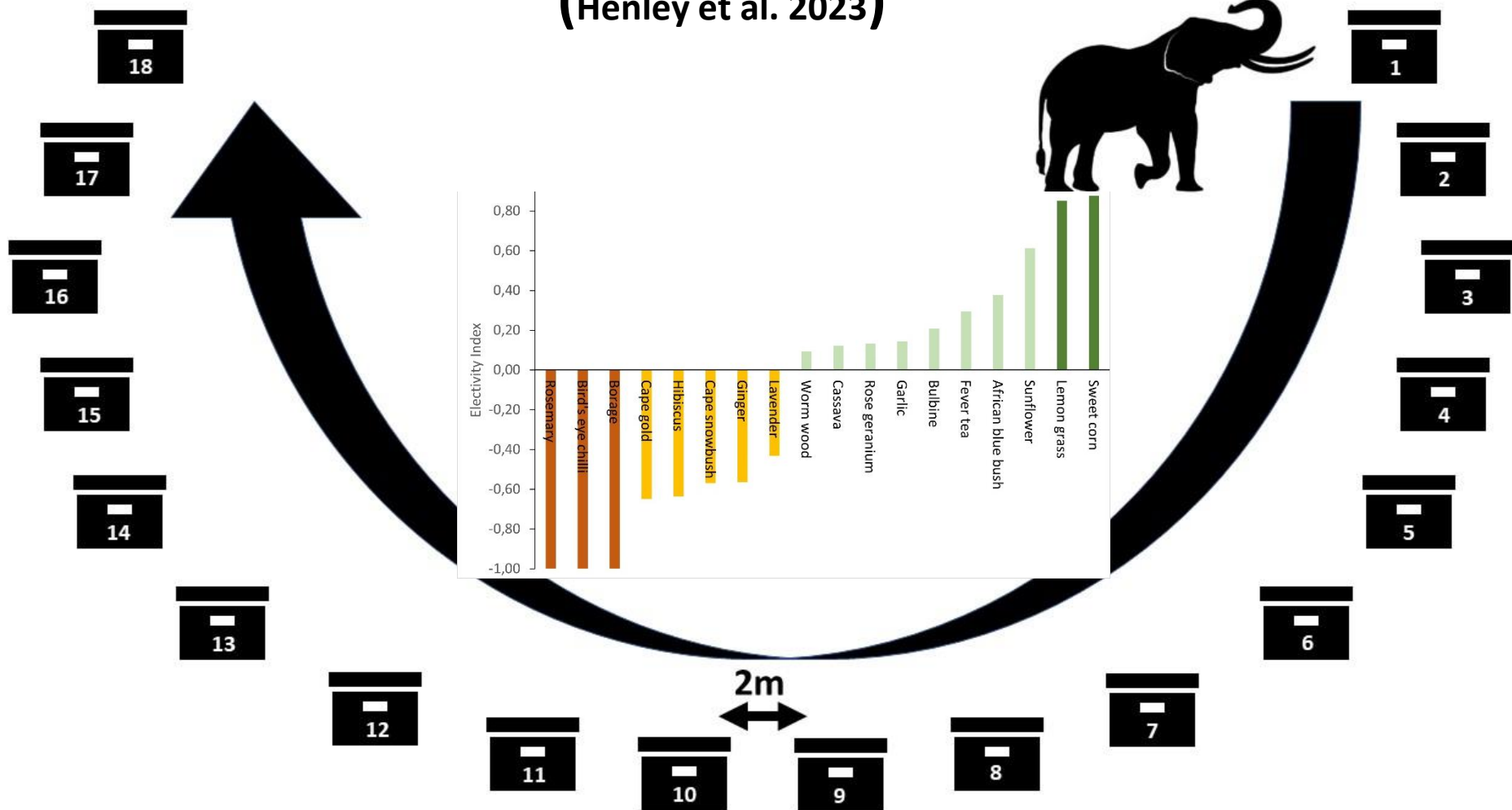
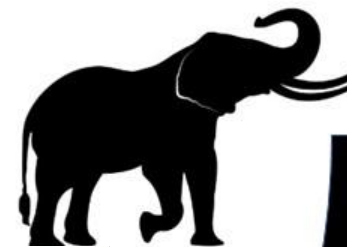


**5 Protect people's assets
(income generating soft barriers)**

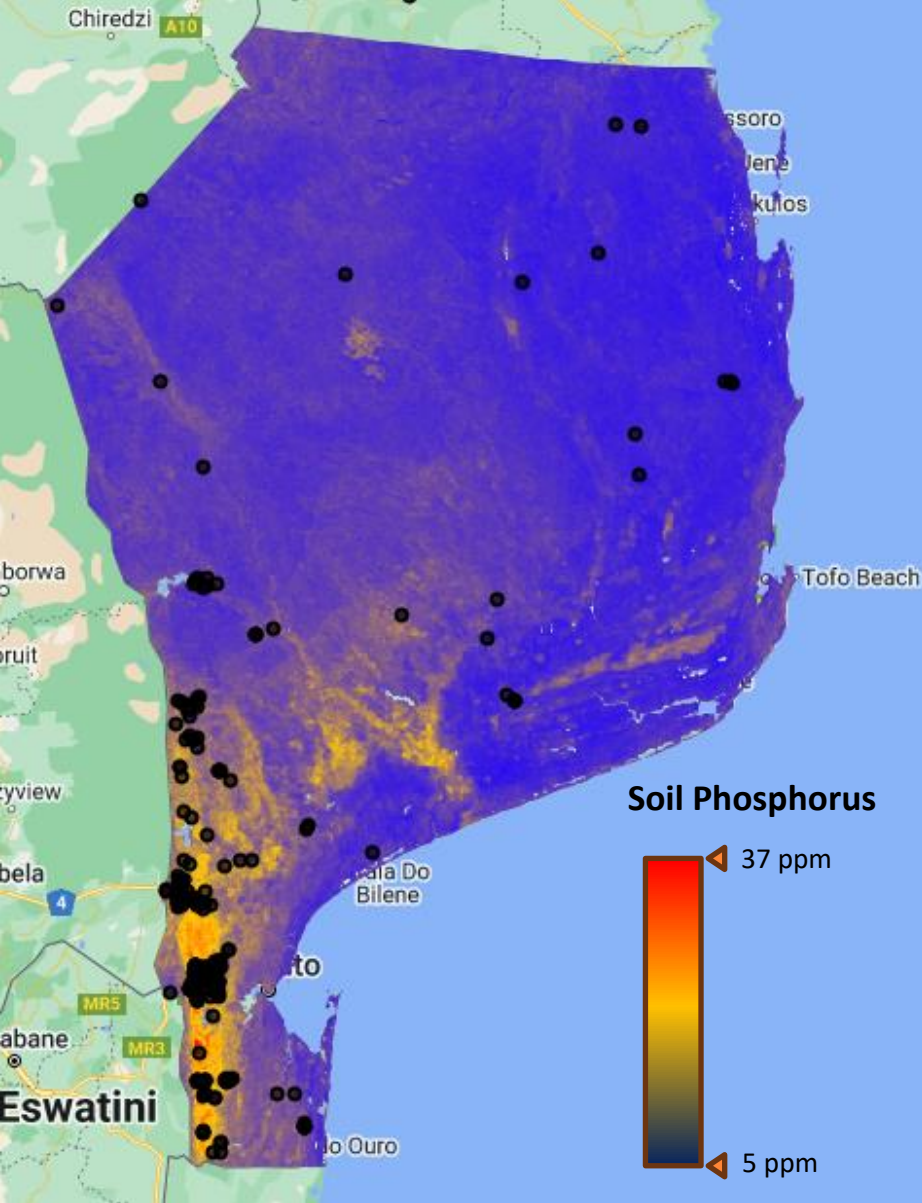
Elephant unpalatable crops for alternative income



(Henley et al. 2023)



**5 Protect people's assets
(income generating soft barriers)**



175 000km² $\xrightarrow{91\%}$ 16 275 km²

Decrease the area over which mitigation needs to take place

Applied research combines science + effective on-the-ground practice = risk maps

by Cassander Engelen (EA & Wageningen Uni)

6 Develop predictive risk maps to increase efficiency of operation and mitigation over a large area



NDLOPFU GOGS



BLACK MAMBAS



WILD SHOTS OUTREACH



**7 Collective problem solving to build tolerance
(partnerships)**



Making ripples with your help!

Beverly Joubert

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LOGISTICAL & KNOWLEDGE SHARING

ANAC
The Black Mambas
Earth Ranger
Managers (APNR & KNP)
Managers (LNP, MSR, Banhine- & Gile NP)
Sensing Clues
Wageningen University



Thank you!