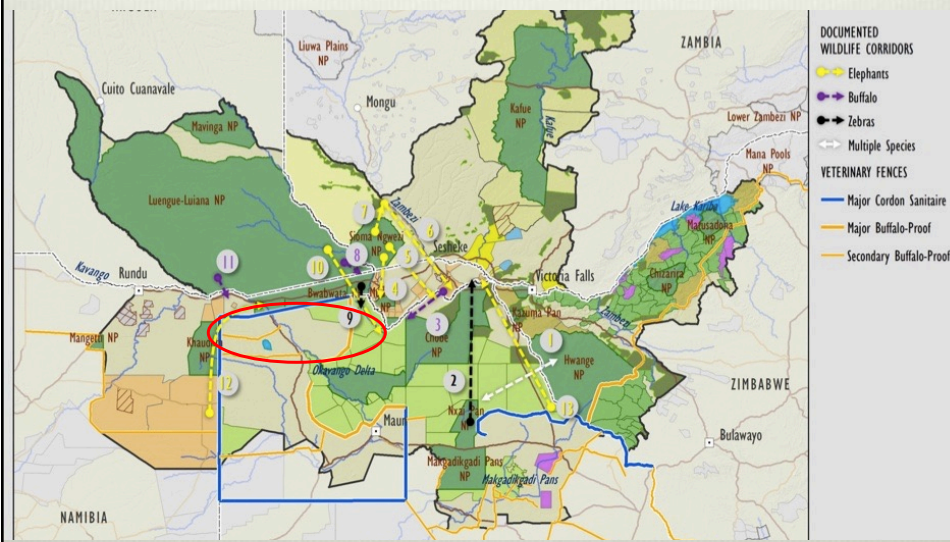# Enabling Elephant Movements Lessens Conflict: Thinking through Macro and Micro Corridors
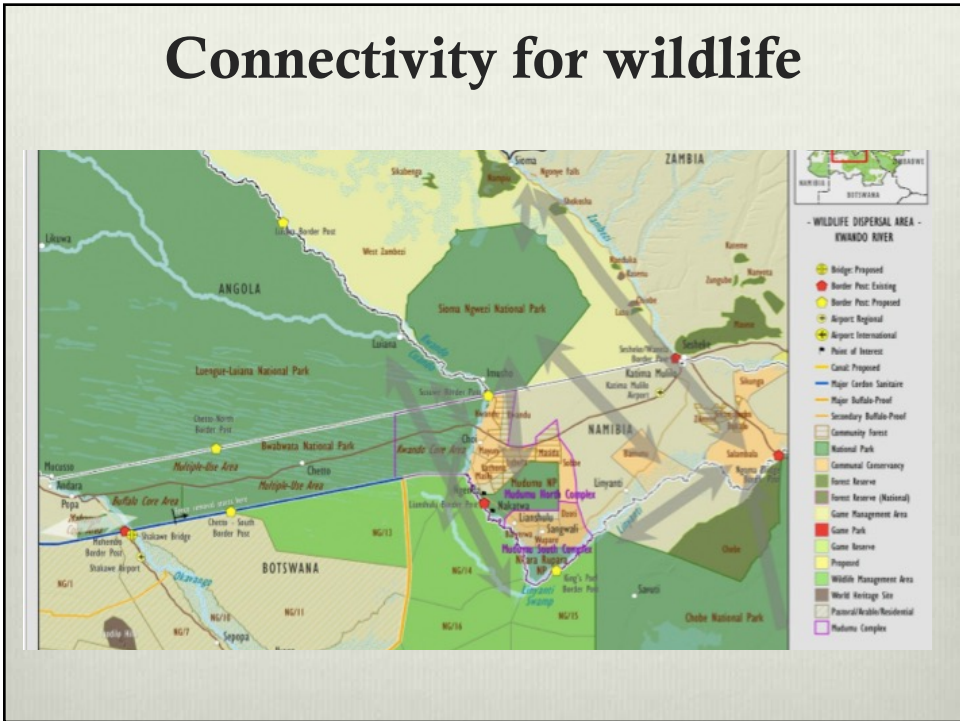
Livestock, Wildlife & Livelihoods in the Kavango & Zambezi regions: ways forward in the KAZA context
Meeting, Katima Mulilo

26th September 2022
Presented by
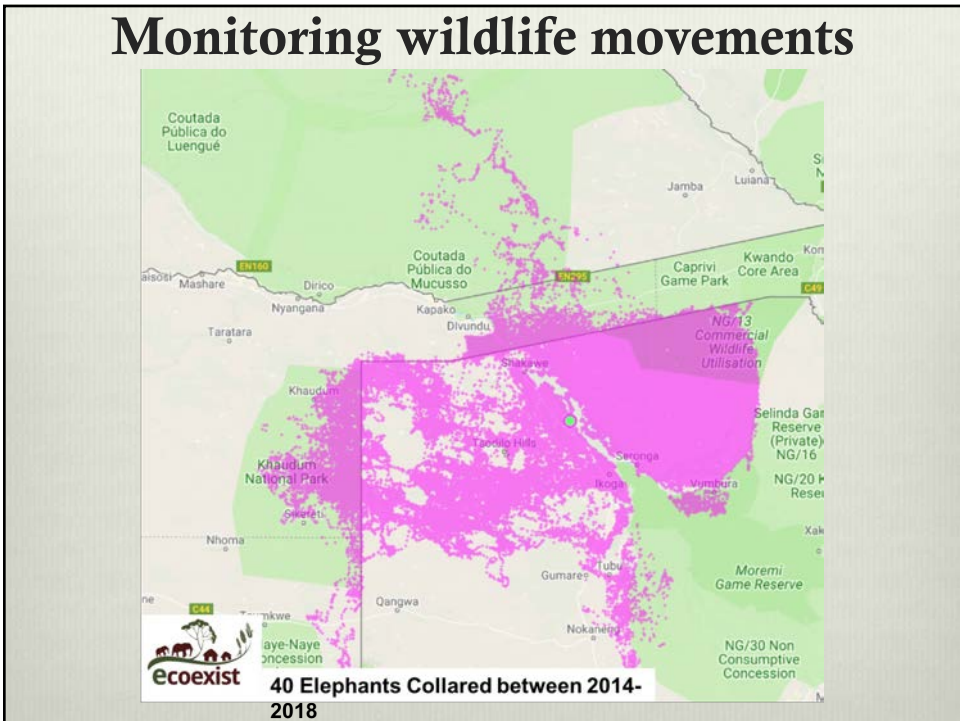**Dr. Anna Songhurst**
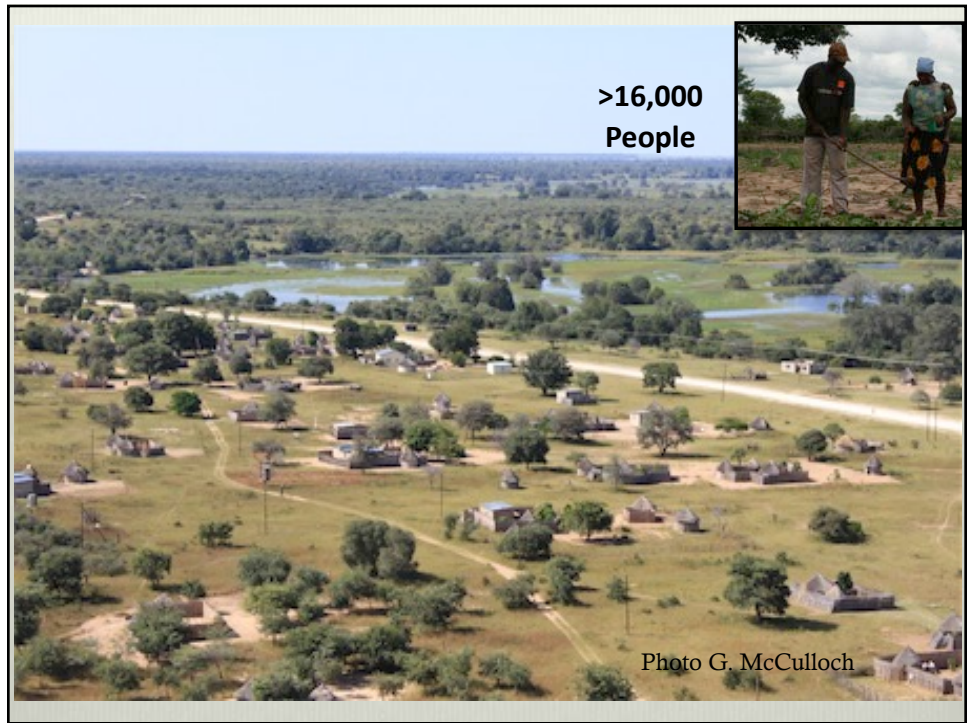

KAZA
Kwando and Khaudom-Okavango WDAs

Connectivity for wildlife

Monitoring wildlife movements

40 Elephants Collared between 2014-2018

Okavango Delta Panhandle, Botswana

>16,000 People

Photo G. McCulloch

8000 sq kilometers

Dry woodland resources

>18,000

Delta resources

Village
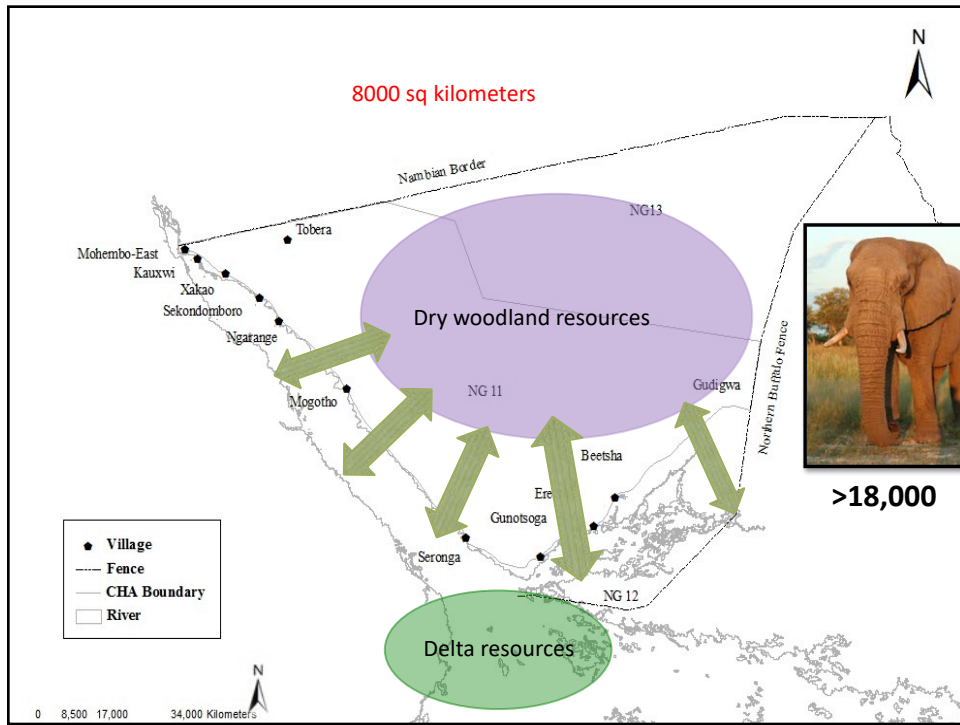Fence
CHA Boundary
River

Photo G. McCulloch
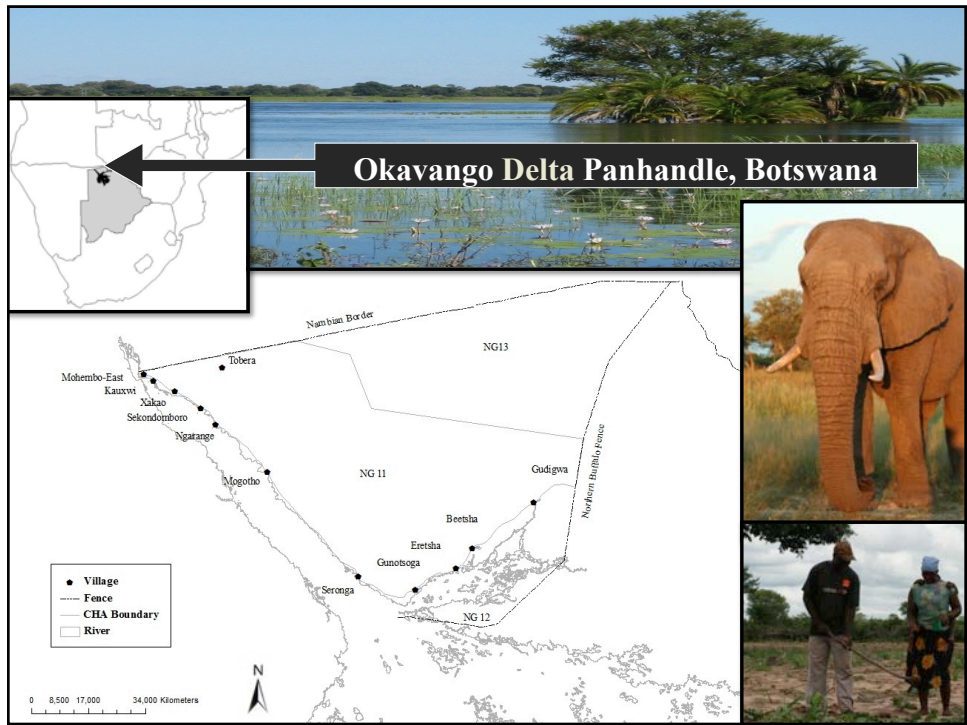
Photo A. Stronza

Most robust key driver of crop raiding

❖ When comparing all social & ecological contributing factors on ~1400 fields: **Distance to elephant pathway was by far the most robust key driver of crop raiding** ($p<0.01$).

❖ Fields further from elephant paths are less likely to be raided, **Fields <1.2km from a pathway are twice as likely (50%) to be raided.**
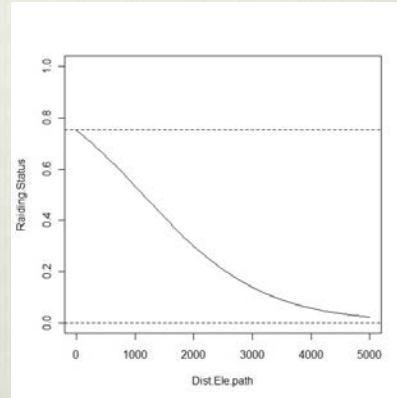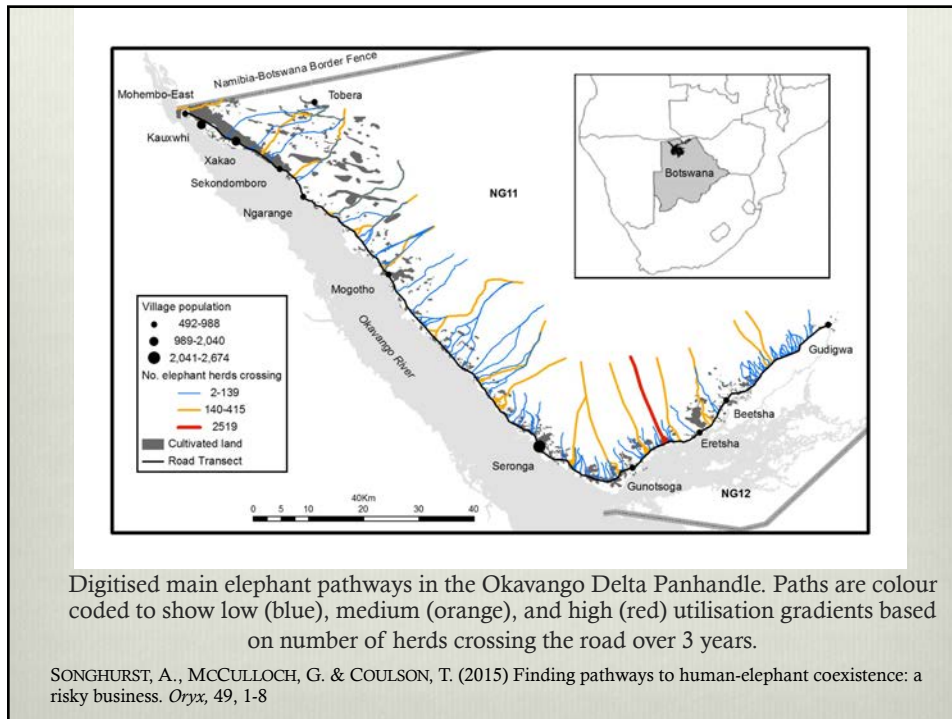

Probability of a field being raided by elephant at various distances to a main elephant pathway

SONGHURST, A. & COULSON, T. (2014) Exploring the effects of spatial autocorrelation when identifying key drivers of wildlife crop-raiding. *Ecology and Evolution*, 4, 582–593

Monitoring & Mapping Pathways

❖ Bi-monthly ground surveys

❖ All elephant footprints were recorded and number of elephant groups counted

❖ Digitised and mapped well-worn elephant paths

❖ Paths verified through ground truthing and **indigenous knowledge**

Digitised main elephant pathways in the Okavango Delta Panhandle. Paths are colour coded to show low (blue), medium (orange), and high (red) utilisation gradients based on number of herds crossing the road over 3 years.

SONGHURST, A., MCCULLOCH, G. & COULSON, T. (2015) Finding pathways to human-elephant coexistence: a risky business. *Oryx,* 49, 1-8

Spatial use of elephants in relation to people

❖ Less elephant groups were observed close to human habitat modifications such as cultivated land, settlements and fences

❖ Elephant paths near sparsely populated human settlements were more likely to be utilised by elephants

❖ When the area of agriculture near a path increased the number of elephant herds utilising a path decreased but the number of elephants in a herd increased

Risk Avoidance

By mapping localized elephant pathways and monitoring fine-scale movement behaviour of an elephant population, rather than individual elephants, by means of detailed ground surveys we were able to record varying behavioural strategies adopted by the elephant population that contributed to risk avoidance, including

❖ avoiding pathways near human settlements, particularly those close to larger settlements,

❖ avoiding pathways close to large cultivated areas of land, and

❖ adopting a safety-in-numbers strategy when moving through large areas of cultivated land close to human settlements.

Elephants in the eastern Panhandle of the Okavango Delta appear, therefore, to adapt their behaviour in response to associated levels of risk connected with humans, which influences their preferred choice of movement pathways.

Incorporating Data into Land Use Planning tools

❖ Data from elephant crop-raiding monitoring and elephant pathway locations and use were incorporated into the Land Use Conflict Identification Strategy (LUCIS) model

❖ Collaborative initiative between Tawana Land Board, USAID SAREP &RWP and Ecoexist Trust

13 Elephant Corridors
(Pathway plus buffer)
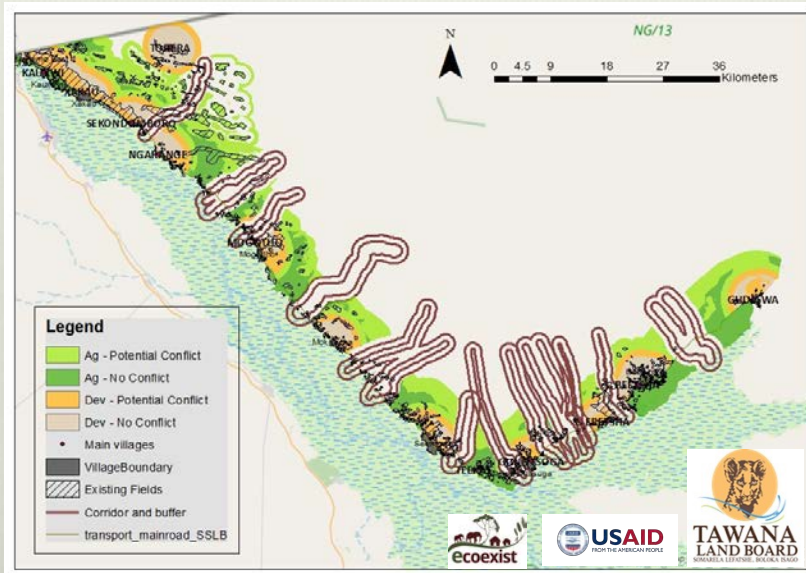
Critical community participation and validation of corridors
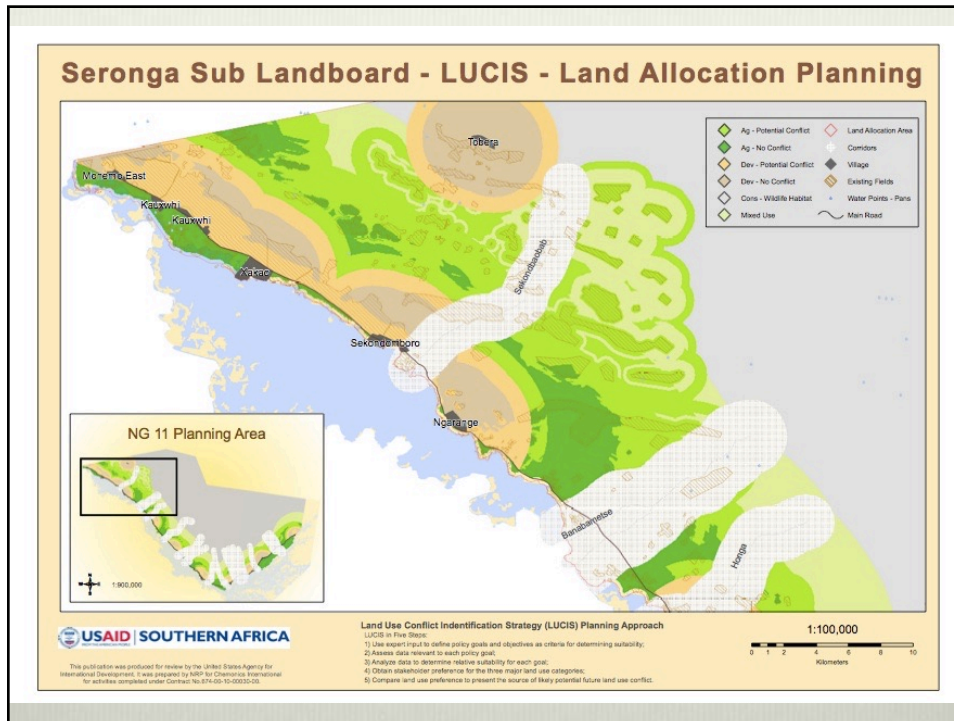
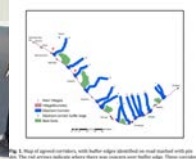## Implementation of Land Use Conflict Identification Strategy (LUCIS)

- Stakeholder field visits and agreement
- Training of Land Board T.Os and Surveyors
- Land Board can allocate future land with minimal land use conflicts

Discussion between Eretsha Kgosi, Gunotsoga Kgosi, Gunotsoga Land Overseers, Seronga Sub-Land Board and Ecoexist Team over corridor 3 and 4 having same boundaries
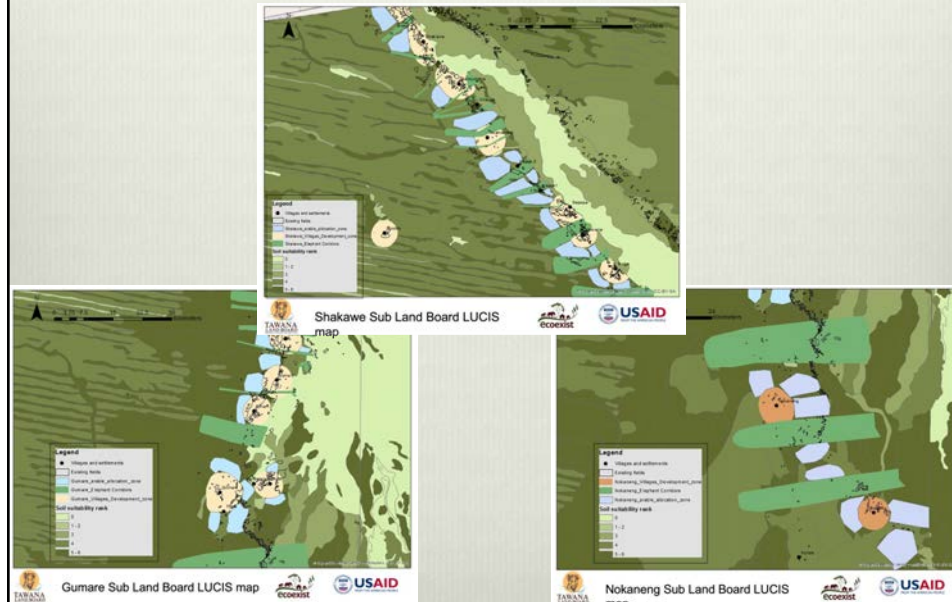
- Key stakeholder engagement and contribution to alleviating Human-Elephant Conflict

Anna Songhurst explaining 9km length of elephant corridors at corridor 6

Scaling up the approach to incorporate wildlife corridors in land use planning tools

Demarcating the Corridors

Short-term mitigation strategies - safety

Holistic Strategy to reduce Human-Elephant Conflict

Fields away from corridors

Sustainable farming practices, e.g. CA

Use appropriate HEC Mitigation

Increase benefits from living with elephants

Linking local scale movements
with regional scale (micro to macro)

❖ These local scale movement corridors are a critical component of the larger regional scale movement corridors

❖ Protecting important movement corridors at a local level for the purpose of addressing a key driver of human-elephant conflict facilitates the function and success of these larger migratory corridors

❖ Community acceptance and multi stakeholder involvement is key for success of local scale movement corridors

KAZA Elephant Sub Working Group
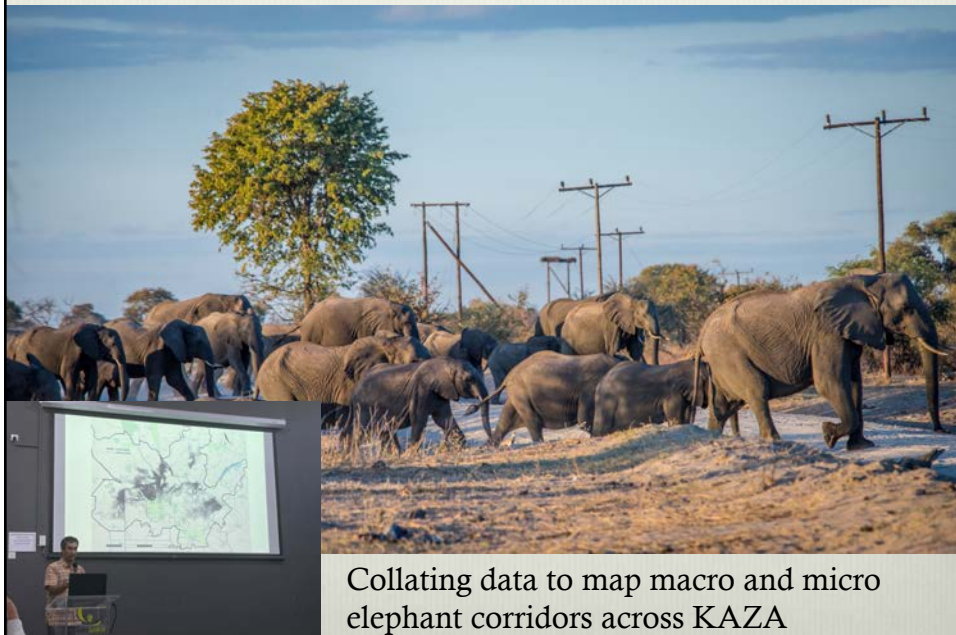
Collating data to map macro and micro elephant corridors across KAZA