Monitoring fence permeability of KNP

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Special thanks to the State Veterinary Service

Why we need a simple cost effective fence monitoring system for KNP ?

Principal aim: *fence monitoring system must remain after us and for a long time*

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The Barrier Tape Symbol System (BTSS)

- Requires **barrier tape**, **marker pen** and an **envelope**
- A willing **fence worker**
- **Symbols** for main 'threats' to the fence are written on the tape and attached to the fence for later collection
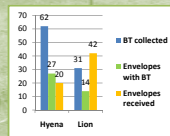- If a **carnivore**, then hair is placed in an **envelope**

Our training regime...

Anomalies and problems – *human and otherwise*

Human error that includes:

- Lack of participation/incentives

- Holiday periods

- The 'Amos Anomaly' – over-representation

- Translation problems e.g. arrows

- Collecting the data from the workers

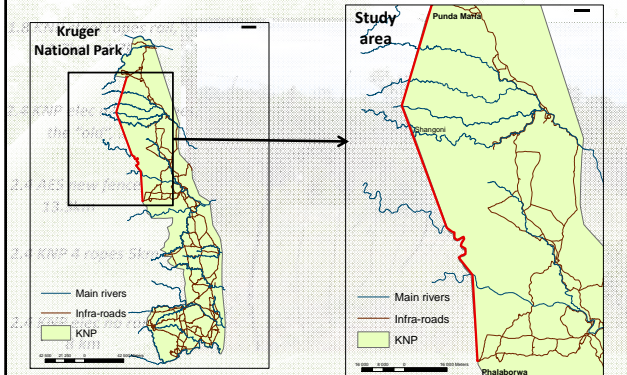- Theft of the tapes

- A degree of co-ordination required

But the good outweighs the bad...

- **Cheap** – estimated cost **R10/km per annum**

- **Gives** skills to fence workers

- **Low tech**, except for addition of cyber-trackers

- Longitudinal potential

- Gives **more precise** data than other methods

Getting data/Current data

- Study area from **Phalaborwa to Punda Maria, 5** types of fence

Data processing

- **Collection of the barrier tape**, each is associated to a waypoint

- All BT are stored in a **data base**

- Sorting of the data, removing suspect data

- Statistical processing, **Excel**
- GIS processing, **ArcGis**
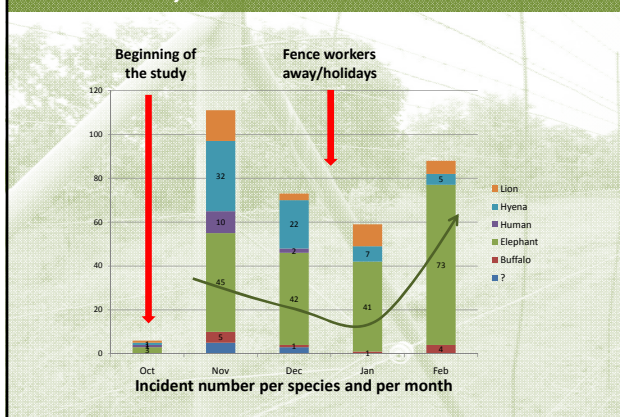
Preliminary results...

Since the 13/10/2008   **337 BT collected**   **70 envelopes**
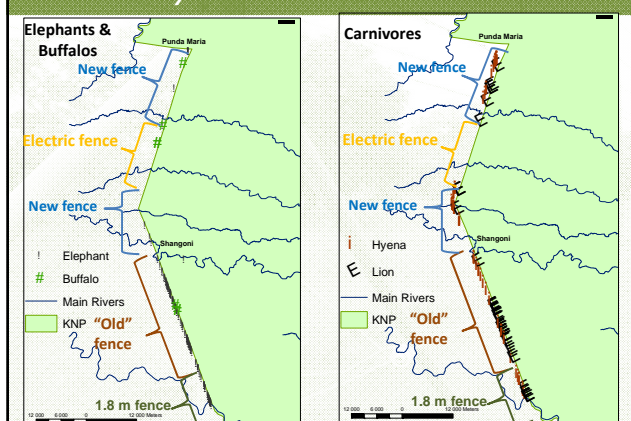
Incident : single animal movement across the fence

	?	Buffalo	Elephant	Human	Hyena	Lion	Total incidents per month
Oct-08	0	0	3	1	1	1	6
Nov-08	5	5	45	10	32	14	111
Dec-08	3	1	42	2	22	3	73
Jan-09	0	1	41	0	7	10	59
Feb-09	0	4	73	0	5	6	88
Total incidents per species	8	11	204	13	67	34	337
% incidents per species	2	3	61	4	20	10	100

Proportion of Incidents per species and per month

Preliminary results...

Incident number per species and per month
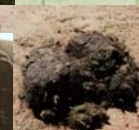
Preliminary results...

The distribution of fence incidents and verification of the BTSS

- **Animal distribution methods :**
  - Dung count → Transects per type of fence
  - Live animals count
  - Photo identification of elephant and DNA analysis

- **Determination of drivers :**
  - Free standing water cartography
  - Vegetation transects → Marula
  - Cattle density

How to improve and hand-over this method ?

- Define a **precise written/ protocol** and leave one in each picket camp

- **Cyber Tracker** ⟶ 1 per fence picket camps

- **Camera traps** placed in a high permeability area

- To define a **data collection strategy** for the state veterinary service

Conclusion

Barrier tape symbol system :

- *pinpoint areas of permeability*

- *prepare mitigatory strategies*

- *Lend precision for disease modelling purposes*

Thanks for your attention !