

Socio-economic costs of predation and disease at the wildlife/livestock in Northern Villages of KNP boarder

Work in progress

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Structure of presentation

- Introduction
- Objectives of the study
- The study area
- The research approach
- Results
- Implications for livestock production

Introduction

- Rural livestock farmers at the wildlife/livestock interface are faced with several challenges
- For communities adjacent to KNP in SA the challenges predation on livestock by wildlife and risks associated with wildlife/livestock transmitted diseases

Introduction

- Restricted cattle movements in buffer zone- limited market opportunities
- No policy or framework for compensating loss to predation of livestock

Objective

- To investigate the extent of predation and incidence of livestock diseases at the wildlife/livestock interface and to estimate related costs to households

The study area



- Northern side of KNP, next to the Punda Maria gate
- Mhinga TA, 11 villages
- All within the redline area, 2 share a boarder with KNP fence
- All within a 15km radius of the KNP

Research approach

- Survey of 270 cattle households
- Stratified random sampling techniques
- Inspection of veterinary office records, and farmer dip registers
- FGDs with cattle farmers and KII with farmer organisation, AHT, traditional authorities

Results 1



- Livelihood activities - subsistence cropping, livestock farming, small local businesses, formal employment (Gvt & KNP), remittances
- 80% households receive state grants
- 37% Unemployment
- Household size : 6.6 (± 3)

Results 2



- 11% of the households owned cattle
- 9.51(±8.7) cattle/household
- 42% of the households < 5 cattle
- Average cattle price \$350.2 (±91.6)

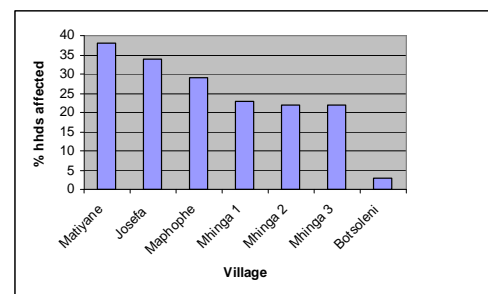
Results

- Cattle are kept for various purposes;
 - Culture
 - Security /savings
 - Draught power
 - Commercial sales
 - Milk, Meat, Dung
 - Funerals and traditional ceremonies
- Play an important role in livelihoods

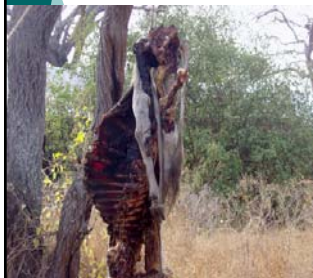
Predation

- 18% of households had experienced predation between Jan 2005-July 2008
- About 108 cattle killed in 3.5 year period
- Almost no cases of predation on small stock- Focus on cattle
- 5% of non-cattle households had stopped keeping cattle because of predation
- Significant differences in extent of predation in the 7 villages with a 15km radius of KNP ($F=2.5$, $df= 6$, $p\leq 0.05$)

Predation incidences across village in 15km stretch from KNP fence



Predation 2



- Presence of herd boy and herding arrangements does not impact on predation extent
- Lions, hyenas and cheetahs kill the most cattle
- Cattle killed in both veld (55%) and kraal (45%)

Disease

- 530 cattle died to disease and 'unknown causes'
- Significant differences in mean cattle lost to disease across villages ($F= 2.28, df=6, p \leq 0.05$) BUT not related to distance from KNP
- Both wildlife transmitted diseases such as FMD, anthrax and heart-water and non-wildlife specific diseases cited by farmers
- Farmers indicate diseases known to have a low mortality rate as important ones

Farmer ranking of important diseases

	Rank 1 Wt- 1	Rank 2 Wt- 0.5	Rank 3 Wt-0.33	Total times ranked	Weighted rankin g
Foot and mouth*	59	7	1	67	63
Non-specified tick borne diseases	24	7	1	32	28
Heart water*	25	4	1	30	27
Lumpy skin	17	7	5	29	22
Brucellosis*	1	1	0	2	2
Others	11	9	1	21	16

* Only those marked are disease associated with the wildlife/livestock

Estimated financial loss to disease and predation in \$ (1\$=R10)

	Mean Cattle lost /hhld	Total loss/hh ld 2005-2008	Total loss in area 2005 -2008 to 487 household s	Total lost per annum to Mhinga area
Predation	0.21	73.5	35, 794.5	10, 227
Disease	1.1	385	18, 7495	53, 570
TOTAL	1.35	464.27	223289.5	63, 797

The annual average loss to disease and predation is not less than \$132/year- this is equivalent to about half the annual per capita income in the area

Average annual per capita incomes are about R2500 in the area

Farmer Suggestions

- KNP proximity negatively affects cattle production (92%)
- KNP has not done enough to maintain the fence (90%)- more can be done
- Communities should be allowed to kill the wildlife on their land – or be allowed to identify professional hunters to kill the predators
- Need to explore non-monetary compensation mechanisms

Concluding remarks

- Financial losses & related impact on livelihoods to households much higher- estimations do not consider the non-monetary value of cattle & reduced livestock productivity due to diseases
- Dip records underestimate predation extent, no comprehensive system for predation record keeping
- Dip records also show high levels of cattle death due to unknown reasons- **what proportion of these is attributed to wildlife related diseases?**

Implications for future of livestock production

- Profitability of livestock production at the interface reduced by predation and diseases
- Spatial land use analysis and planning might provide solutions towards sustainable livestock production in the buffer zone

Thank you!
