

GUIDELINES FOR MANAGING ELEPHANTS

In Kruger Park



THE ELEPHANT SCIENCE ROUNDTABLE REACHED THIS CONSENSUS

1. *There is no compelling evidence for immediate, large-scale reduction of elephant numbers in the KNP*
2. *Nevertheless, in some protected areas including the KNP, elephant density, distribution and population structure may need to be managed locally to meet biodiversity and other objectives*

**What was the basis for these
recommendations?**

FOUNDATION PRINCIPLES

THE PREVIOUS CEILING OF 7000 ELEPHANTS WAS NOT A CARRYING CAPACITY

Merely precautionary,
later fossilised

(Pienaar recognised that true CC could be
1-4 elephants per square mile)

THERE IS NO BENCHMARK FOR ANY IDEAL STATE

- Kruger had few elephants for over a century
- Vegetation will inevitably change substantially as elephant numbers grow
- Big tree density has declined despite past capping of elephant numbers

DISASTER SCENARIOS ELSEWHERE HAVE BEEN EXAGGERATED

Including:-

- Tsavo East
- Chobe
- Hwange

despite

- Regional elephant densities of ~ 2 per km^2
- Local elephant densities of 4-8 per km^2

TSAVO EAST

Aruba Dam



TSAVO EAST



CHOBÉ RIVER FRONT



CHOBE RIVER FRONT



HWANGE IN ZIMBABWE

20-30,000 elephants in 13,000 km²



HWANGE IN ZIMBABABWE



SCIENTIFIC CONSIDERATIONS

WHICH CARRYING CAPACITY IS MOST APPROPRIATE?

- *Economic carrying capacity* for maximum yield?
- *Ecological carrying capacity* for zero population growth?
- *Aesthetic carrying capacity* for desirable states?

Whose aesthetics?

CONFLICTING ETHICS

Environmental ethics →

Biodiversity museum (“*Noah’s Ark*”)

Animal ethics →

Wildlife sanctuary (“*Garden of Eden*”)

Can’t we accommodate both?

THE FLUX OF NATURE PARADIGM

Accept change as integral to ecosystems

BUT

- Which changes are “natural”?
- Which changes are distorted or amplified through human interference?
 - Fencing, waterpoints, lack of predation
- How much change is acceptable?
 - Recognise losses of biodiversity are inevitable

INTERMEDIATE DISTURBANCE CONCEPT

Heterogeneity promotes diversity

**Extent of impacts is more relevant
than local severity**

DENSITY DEPENDENCE WILL SLOW POPULATION GROWTH

- Only 60% change in vital rates is needed to produce zero population growth
 - Lengthen birth interval 3.8y \rightarrow 6 y
 - Delay first parturition 11y \rightarrow 18 y
 - Reduce calf survival (0-5y) 0.91 \rightarrow 0.55

ESTABLISH A SPATIAL TEMPLET

- Rather than fiddle with the parts,
fine-tune the system

Restrict surface water distribution!

WILL RESTRICTING SURFACE WATER BE SUFFICIENT?

- Doubtful for Kruger
 - Too many rivers?

Local interventions may still be needed

TARGET THE PROBLEM

- Loss of big trees is due largely to bulls
- Tree damage occurs mainly during the late dry season
- Sensitive tree species occur in uplands

→ *Suppress bull presence in uplands during late dry season*

Why cull females and young?

WHAT MIGHT WE LOSE?

- *Large mammals* seem secure
 - Provided habitat changes are heterogeneous
- *Large birds* are vulnerable
 - But big trees should persist somewhere
- Certain *plant species* might be at risk
 - Keystones or decorations?

How many elephant lives is a rare plant worth?

SOCIO-POLITICAL CONCERNS ARE OF OVER-RIDING CONCERN

- Ecological risks are remote
 - But beware of swings due to lags
- Greater Limpopo Transfrontier Park will provide a buffer to Kruger
- Neighbours will bear the brunt of the problem
 - Private nature reserves
 - Rural communities
 - Crop farmers
 - Mozambicans

THE ETHICAL STANDPOINT

“If culling is to be used, it must only be used as a last resort once reasonable people judge that all possible other options have been explored and exhausted”

(Prof Hennie Lotter, UJ)

Environmental ethics and the precautionary principle?

BASIC PRINCIPLES

- Doing nothing is copping out
 - But inappropriate fiddling can make things worse
- Which is more precautionary:
 - Act now to safeguard against irreversible consequences?
 - Leaving elephants alone until damaging consequences arise?
- Multiple actions needed rather than merely culling
 - Spatially differentiated
- Elephant impacts parallel human impacts on biodiversity and ecosystem services
 - Public education through witnessing the consequences
- Regional perspective on biodiversity conservation and ecological processes is needed
 - Parks alone are inadequate

CONCLUSIONS

- There is no easy solution
- We need more information
 - on factors governing elephant movements
 - vegetation responses to their impacts
- Spatially differentiated management is needed to demonstrate outcomes
 - Some places as tree sanctuaries
 - Other places as elephant sanctuaries
- Reliable models are needed to anticipate when thresholds are being approached
- Lags in elephant – woodland interaction must be anticipated
- Kruger may not be large enough if waterpoints are not sufficiently restricted

