Operationalising the adaptive planning and management process beyond Kruger

Angela Gaylard & Sam Ferreria
Scientific Services Division, SANParks,
Knysna & Skukuza

Roll-out of SAM to other SANParks

- Coincided with/precipitated by requirement to write DEAT management plans
- SANParks Biodiversity Custodianship Framework (framework for developing Protected Area management plans)
- mandates use of SAM with Vision, Mission, objectives hierarchy, TPCs, monitoring
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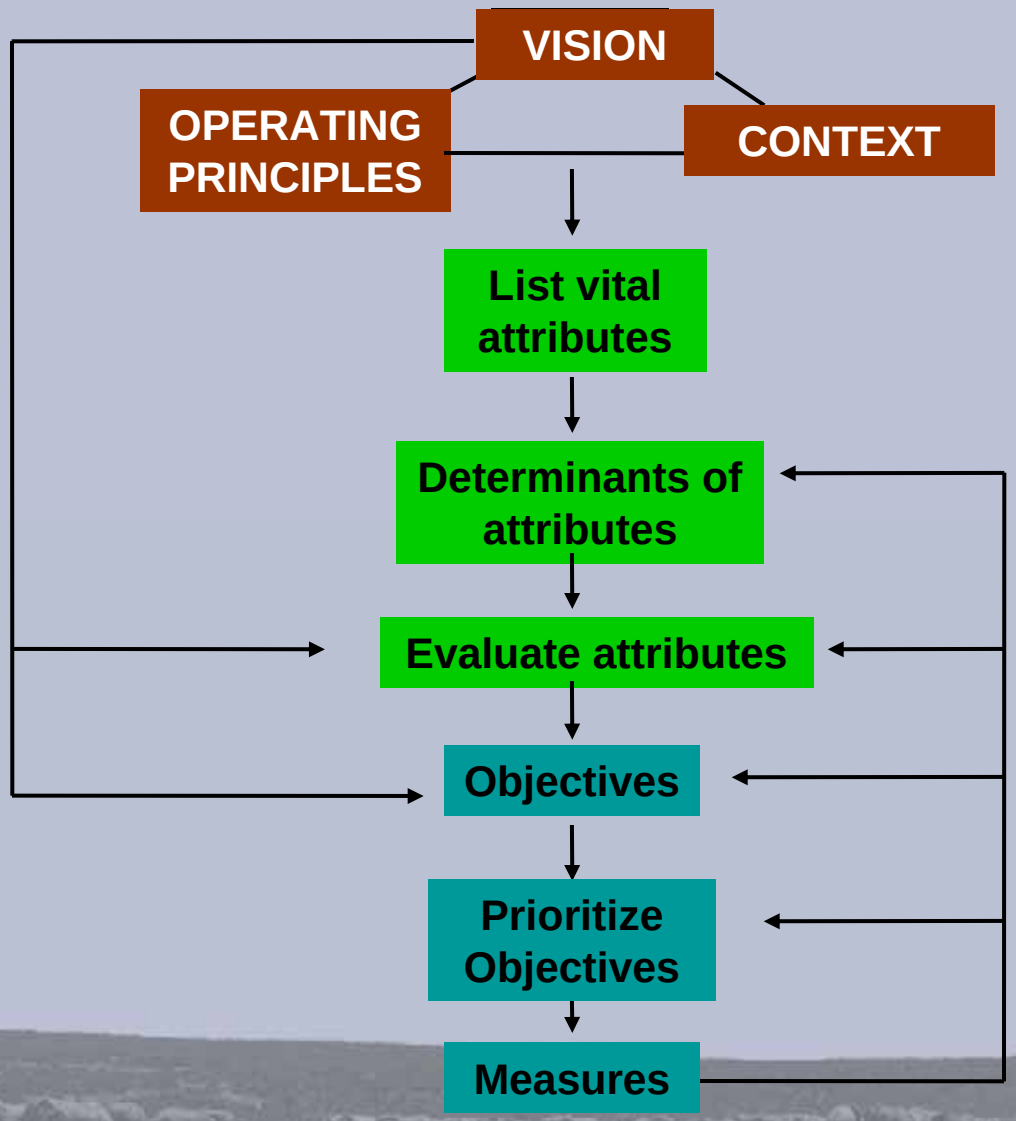
Adaptive Planning Process



The decision making environment

Understanding the "V - STEEP" system to be managed

Where we want to go

Diagram courtesy of Kevin Rogers

A Hierarchy of Objectives

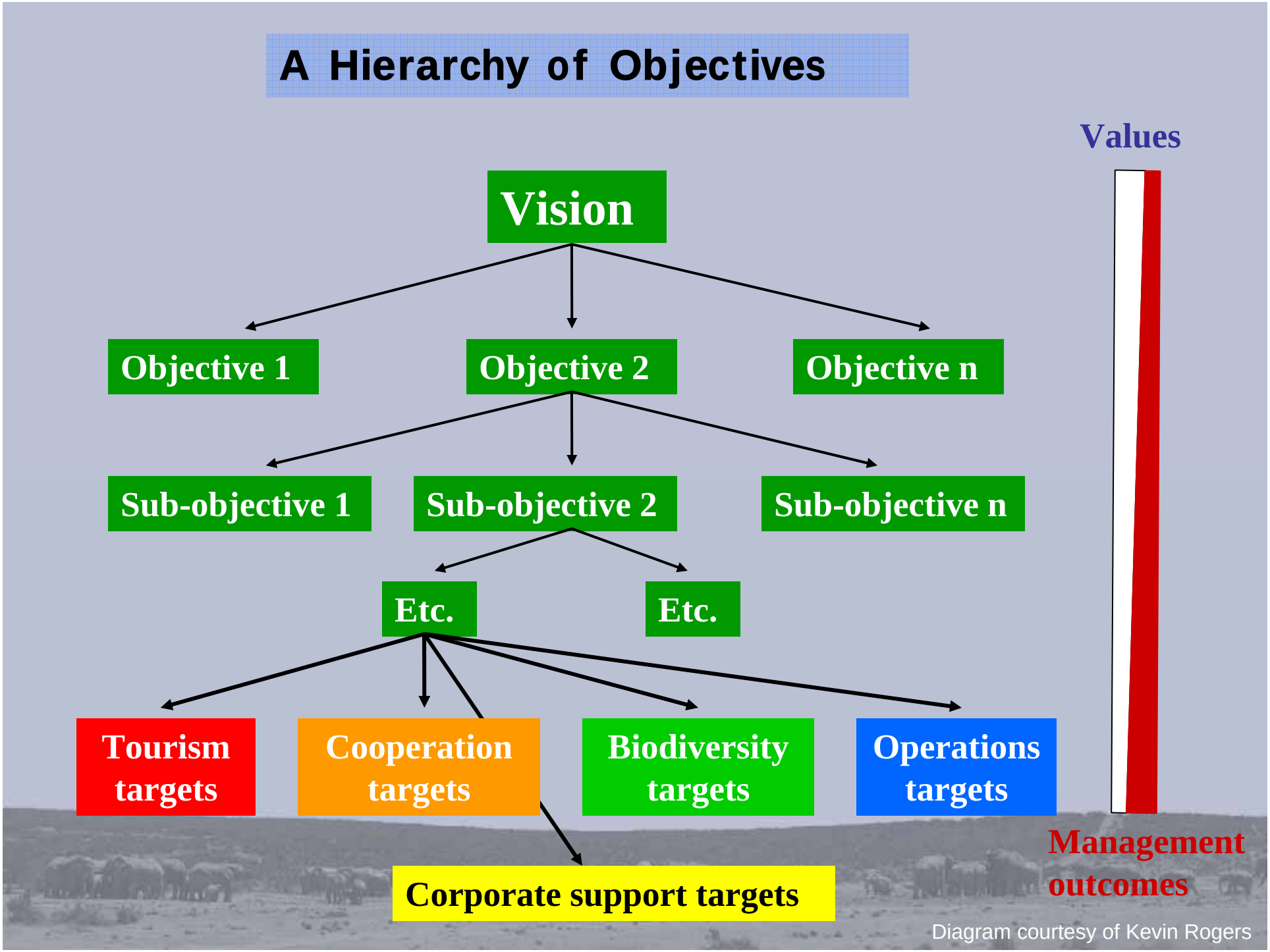
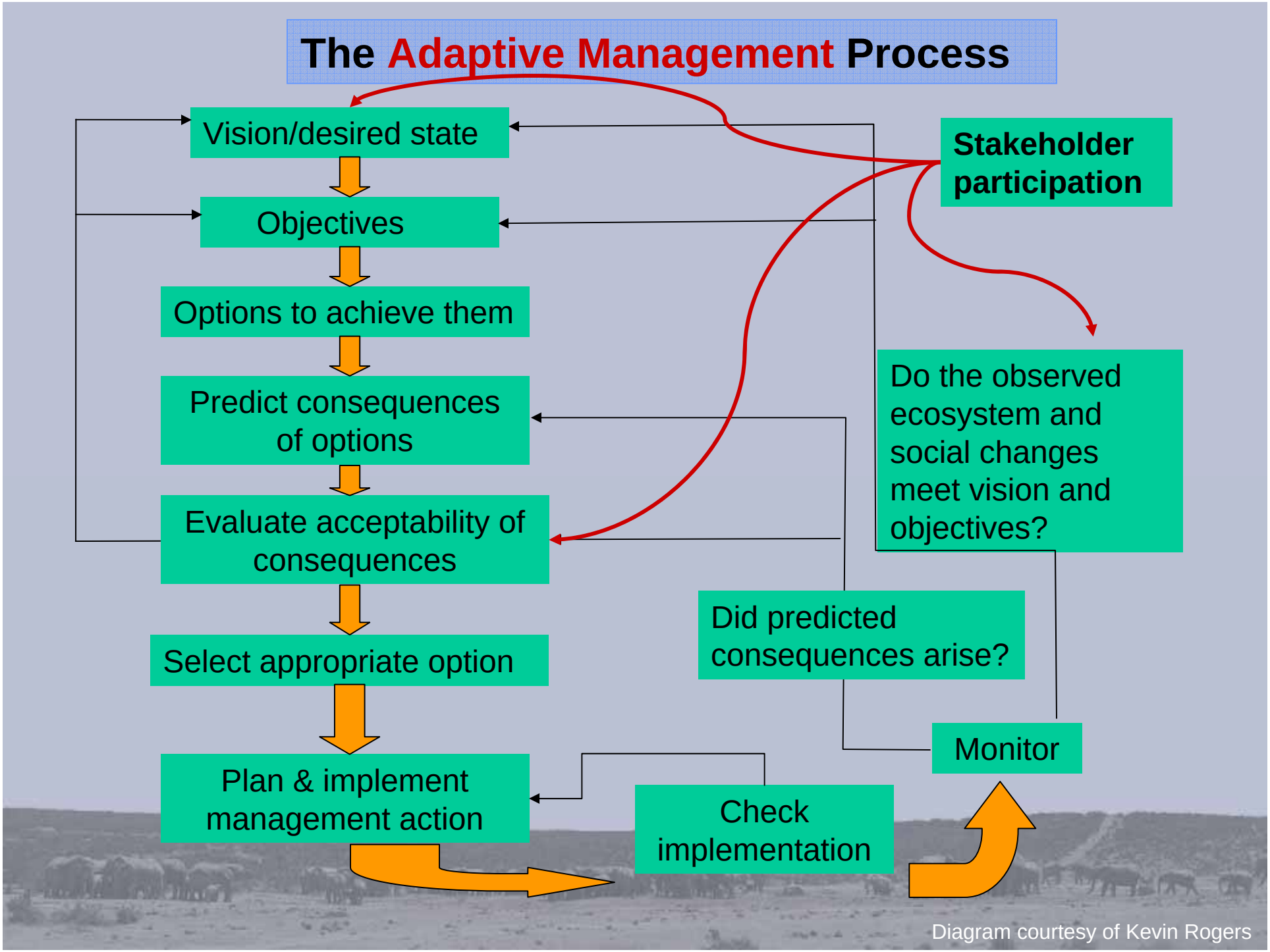


Diagram courtesy of Kevin Rogers


The Adaptive Management Process
Vision/desired state
Objectives
Options to achieve them
Predict consequences of options
Evaluate acceptability of consequences
Select appropriate option
Plan & implement management action
Check implementation
Monitor
Did predicted consequences arise?
Do the observed ecosystem and social changes meet vision and objectives?
Stakeholder participation
Diagram courtesy of Kevin Rogers

Legacy issues:

- Species-focus of conservation
- Equilibrium paradigm thinking/approach
- Reliance on carrying capacity to make management decisions
- Command-and-control – intensive management
- Resource limitations (scientific manpower and geographical isolation of parks):
- loss of scientists' credibility with park managers
- decision-making in isolation/without scientific support
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Operationalising SAM outside of Kruger: how did we go about it?

- Initial “lectures” – complexity, scale, legal obligations
- Revisiting of management plan – existing Vision, Mission, Objectives hierarchy
- Listing of management concerns BY MANAGERS
- Grouping of concerns into TPC “themes”
- Prioritising “themes”
- Sharing ideas of Desired State
- Mechanisms – measurement of appropriate indicators, use of “reversibility” to increase risk/”flux” tolerance
- Quantification by scientists
- Monitoring
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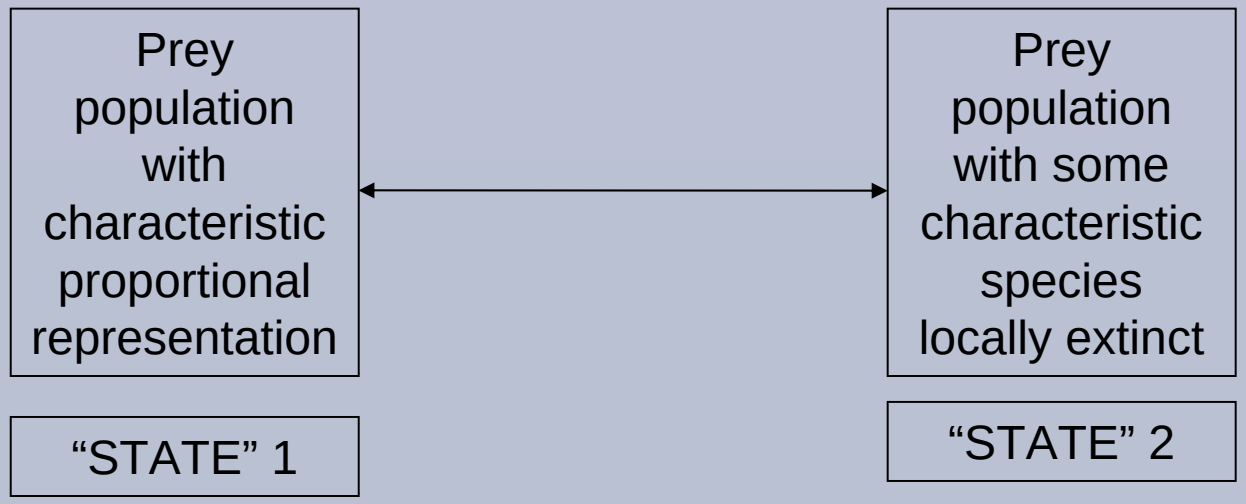
Mechanism table:

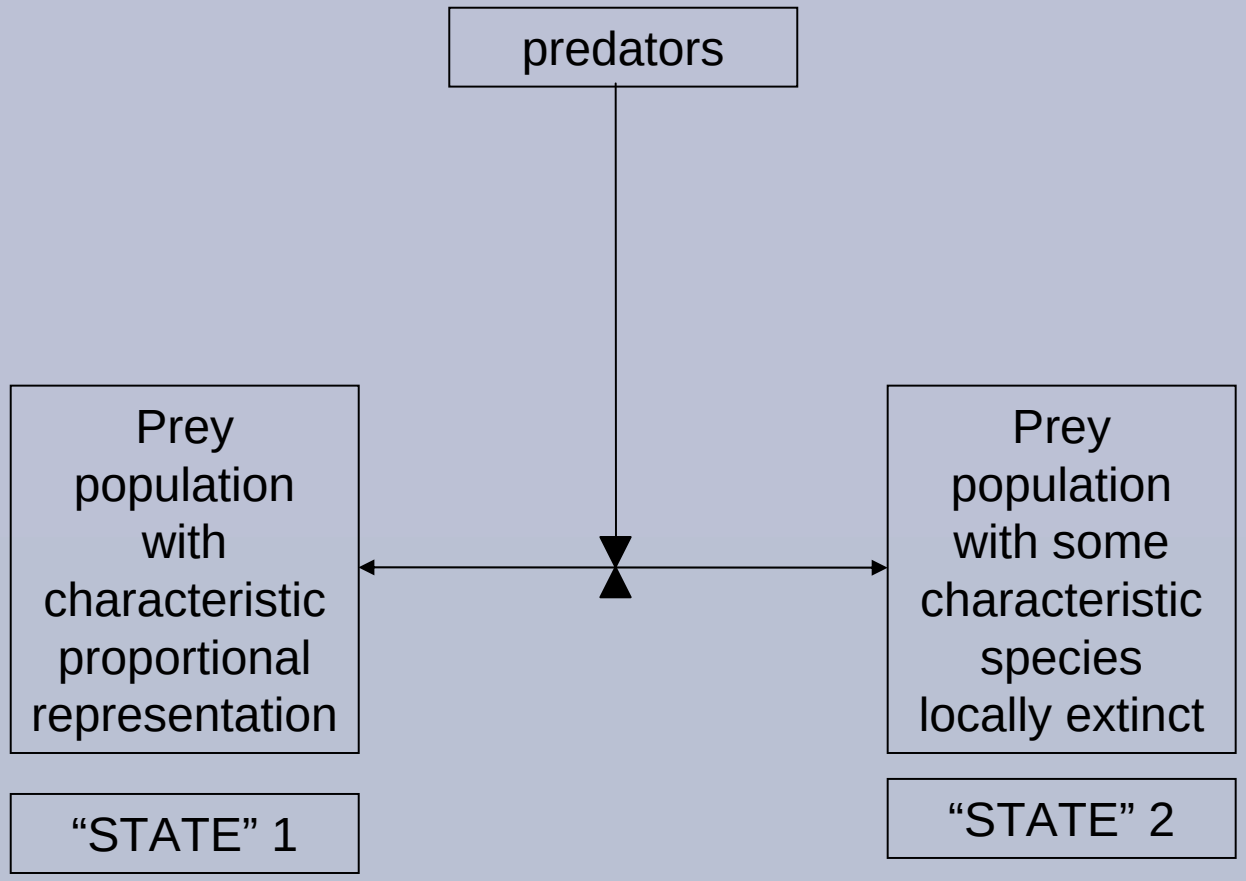
Concern	Scale of concern	Driver /agent of change	Indicator of driver	How can we measure the driver?	Hypothesized mechanism of change (controllers)	Indicator of mechanism	How can we measure the mechanism?	Rate of change	Risk/ reversibility

The Kuzuko predation example

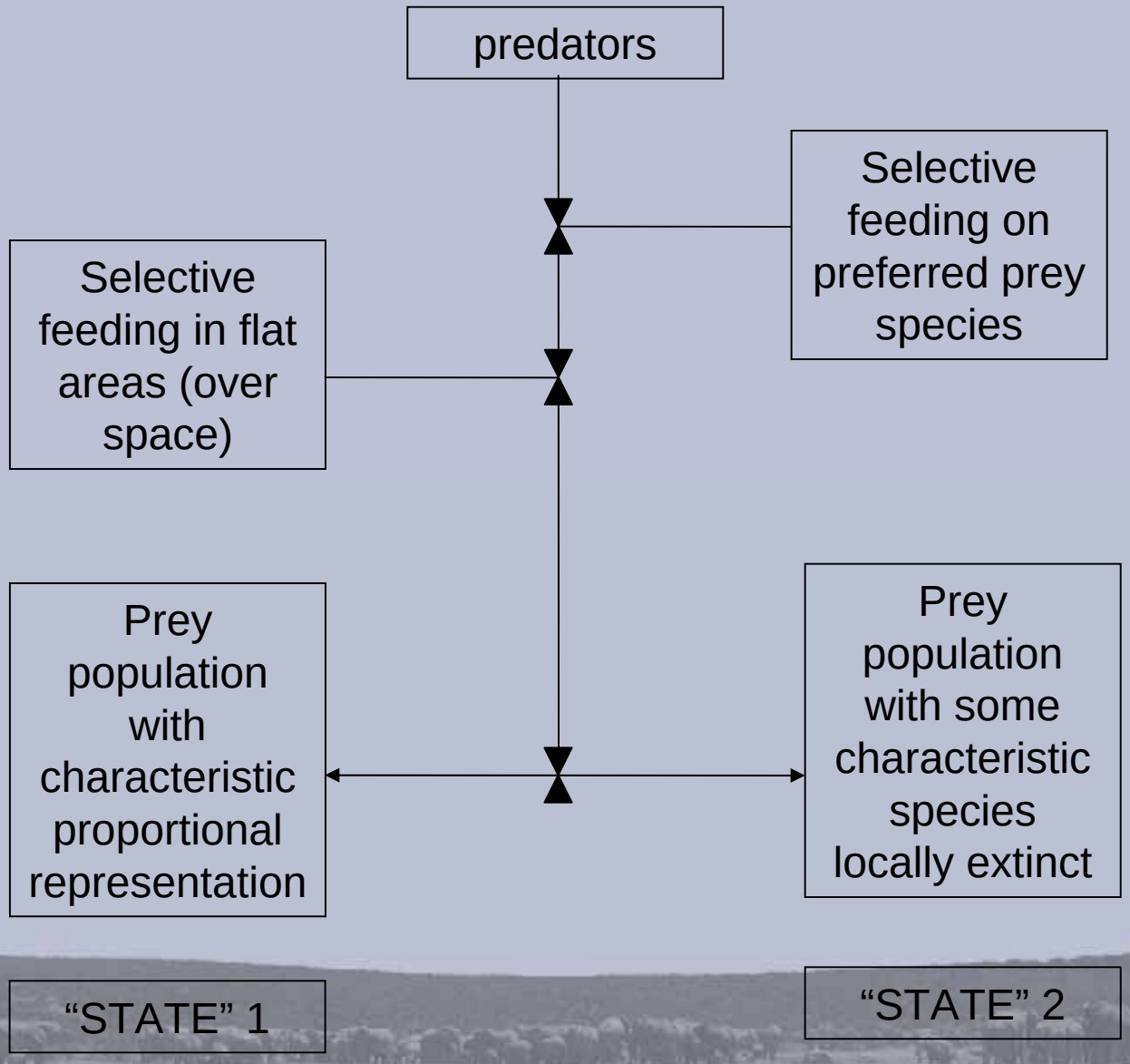
Concern: Selective feeding by predators on the flats at Kuzuko may result in local extinction of certain prey species



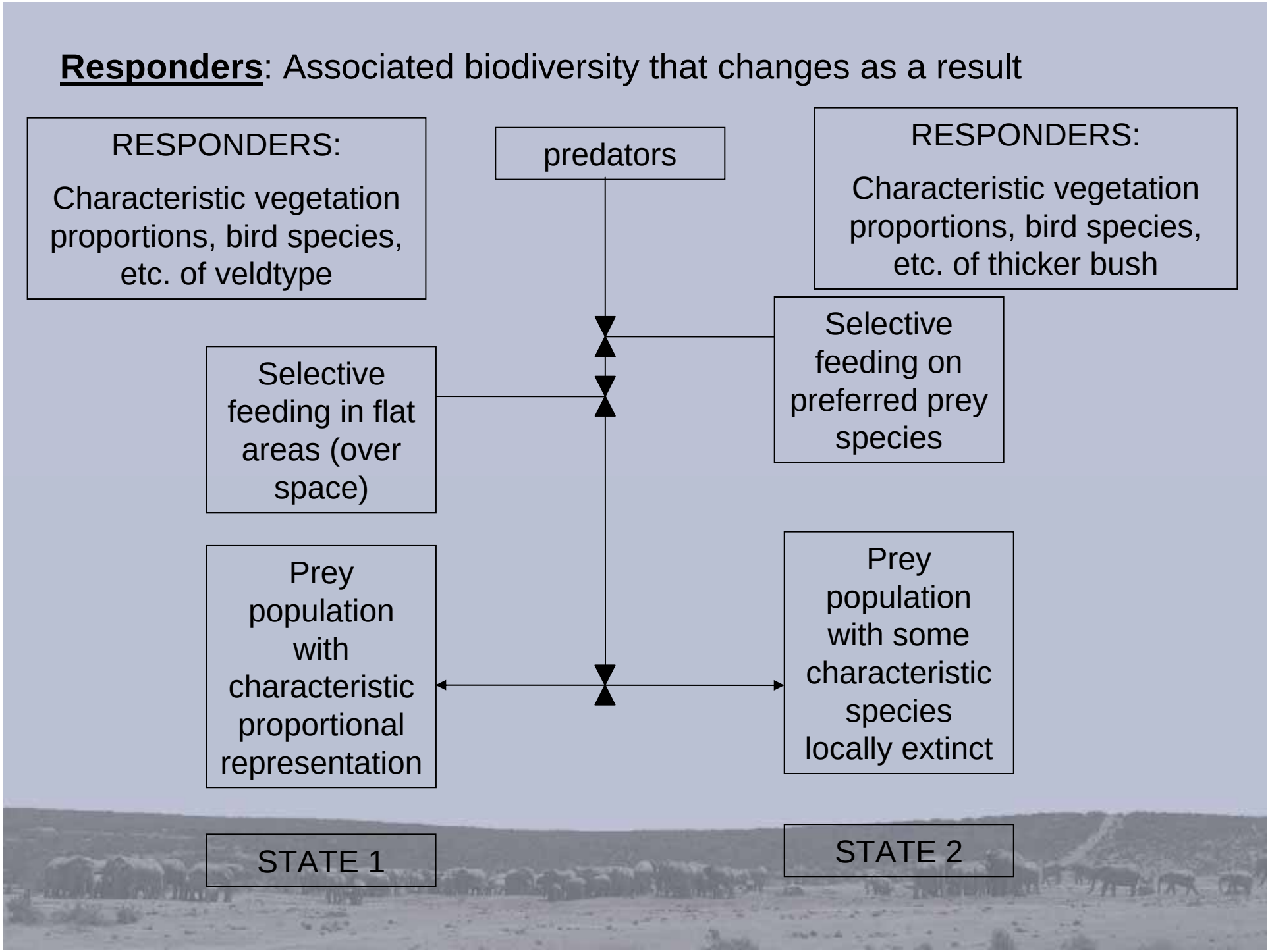
Driver or Agent of Change: Predators (cheetah, lions, leopards, hyaenas)



Controllers: Selective feeding on springbok in flat areas



Responders: Associated biodiversity that changes as a result



Mechanism table:

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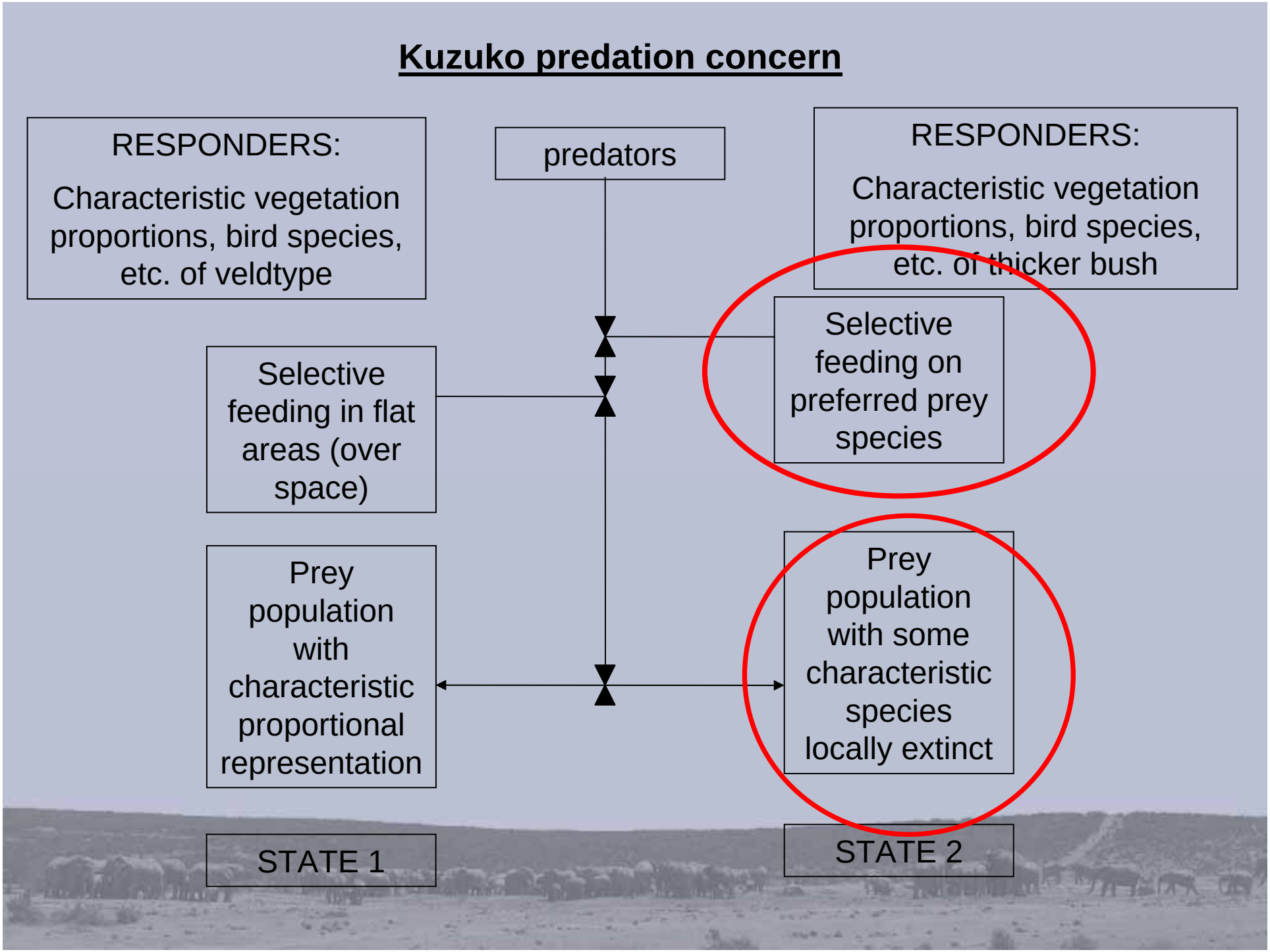
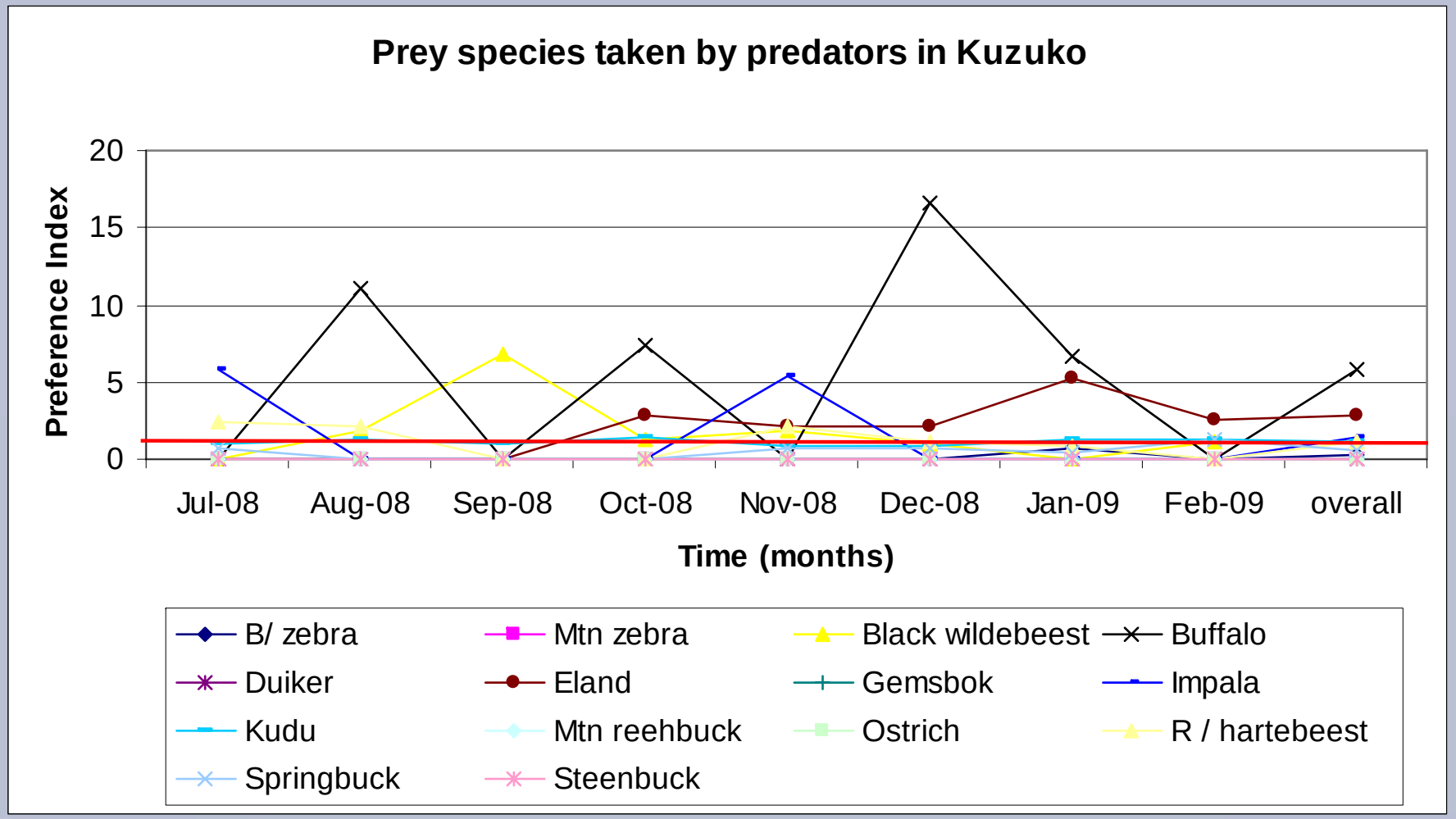
1. Loss of key spp	Kuzuko - low lying areas	predators	Direct: cheetah densities; Indirect: scats	numbers are known	predation: 50% of Kuzuko is moutainous, therefore most predation is on flats: this concentrated and selective feeding on particular prey species (e.g. springbok) removes individuals from the population faster than what they are replaced, and results in local extinction of these species, and thereafter local extinction of other prey species through same mechanism	prey densities and/or distributions; calving rates/mortality; spatial use by predators	aerial surveys (prey densities and distributions); predation rates on particular species (ranger reports); predators' spatial use	fast (because of small area and high number of predators relative to prey base)	can be reversed

Kuzuko predation concern



Existing monitoring: carcass vs aerial survey data



Kuzuko Predation TPC

An increase of >30% in the Preference Index of any species over 3 consecutive years

Challenges and successes:

- The “K”ruger Word (“Big Brother” syndrome):
- Big parks vs small parks – “things don’t work like that here”
- Savanna vs other biomes – different dynamics, fewer ecological processes still operational
- Managers still looking for a “formula” (because TPCs are hypotheses, some think there is not yet an alternative to carrying capacity)
- Resources – one Regional Ecologist for 4-5 parks, 3 science-management meetings per year
- Monitoring – manpower (1 technician for 4-5 parks)

Challenges and successes:

- Process forces managers and scientists to expose mental models to one another – recognises managers' on-the-ground/"gutfeel" knowedge, scientists' empirical/theoretical knowledge
- Result = practical way of dealing with real management issues
- Managers very enthused that SAM approach is finally a way that can help them cope with the complexities of managing these systems
- Provides means of testing "gutfeel" (hypothesis), translated into a TPC, which is then monitored, tested and fed back
- Managers open to complex systems approach (resonates intuitively with most)

ENCOURAGING & EXCITING!!