

## Concept Plan SP 2019-069

# Structured Decision Making to support threat management for biodiversity conservation in the Kimberley

Ecoinformatics

### Project Core Team

Supervising Scientist	Megan Barnes
Data Custodian	Megan Barnes
Site Custodian	

### Project status as of Jan. 15, 2020, 10:19 a.m.

New project, pending concept plan approval

### Document endorsements and approvals as of Jan. 15, 2020, 10:19 a.m.

Project Team	required
Program Leader	required
Directorate	required

# Structured Decision Making to support threat management for biodiversity conservation in the Kimberley

## Biodiversity and Conservation Science Program

Ecoinformatics

### Departmental Service

Service 6: Conserving Habitats, Species and Communities

### Aims

While feral herbivore control has been identified as a cost-effective threat management strategy for conserving many threatened and endemic species in the Kimberley, particularly its small mammal fauna, the current program is not spatially explicit, and is designed to eliminate the maximum number of herbivores within budget. Funding is now decreasing subsequent to the closure of the Kimberley Science Strategy. Efficiency could be increased by optimising delivery of this high cost process to maximise biodiversity benefits through two key improvements: (1) characterisation of utility thresholds (i.e. the thresholds at which efficiency and impact decrease below a useful level) to inform “how much shooting is enough”, and (2) impact focused spatial action planning based on information. I will work with the Kimberley region to apply Structured Decision Making collaboratively with relevant Kimberley regional and district fauna managers, BCS scientists, and stakeholders. We will (i) explicitly characterise existing management decisions within a decision science framework, (ii) evaluate trade-offs among impacts to multiple biodiversity assets resulting from existing and proposed management strategies using scenario analysis to inform strategy selection, (iii) develop decision triggers, and (iv) use value of information techniques to examine sensitivity to uncertainties and identify information that would change selected strategies and this evaluate the utility of research or monitoring to resolve that uncertainty.

To do this we will (i) Conduct collaborative workshops including rapid prototyping to identify, document and incorporate the full suite of objectives, constraints and barriers, incorporate diverse values, and collaboratively design feasible alternative management strategies, (ii) identify optimal strategies for multiple taxa using a spatially explicit Multi-Criteria Decision Analysis, and (iv) conduct trade-off analysis to identify synergies and trade-offs of strategies across multiple taxa using existing monitoring data.

### Expected outcome

Improved cost-effectiveness, information gain, biodiversity benefits, and accountability in the Kimberley landscape management portfolio. Clear thresholds for decision making, improved cost-effectiveness of herbivore management, increased conservation benefits of herbivore management. This research is planned to result in one-two publications focused on optimal cost-effective threat mitigation and tradeoffs.

### Strategic context

This project will inform priority threat management implementation by integrating risk, prospects for success and cost-effectiveness, as outlined in Corporate Guideline No. 35 (section 5.5.1), while directly meeting Biodiversity and Conservation Science program goals of conducting excellent “outcome driven” science that directly supports Regional needs and management outcomes (Science Strategic Plan 2017-21). Structured Decision Making and the planned outcomes (e.g. control charts, trade-off analysis, optimal management strategies) also support clearer processes to justify decision making, as specified in the Auditor General's 2017 Report (*Rich and Rare: Conservation of Threatened Species Follow-up Audit*).

### Expected collaborations

Vanessa Adams (University of Tasmania)

Ben Corey, Regional Nature Conservation Leader, Kimberley

**Proposed period of the project**

Dec. 6, 2019 – Dec. 6, 2021

**Staff time allocation**

Role	Year 1	Year 2	Year 3
Scientist	0.4	0.4	
Technical	0.1	0.1	
Volunteer			
Collaborator	0.1	0.1	

**Indicative operating budget**

Source	Year 1	Year 2	Year 3
Consolidated Funds (DBCA)	2000	2000	
External Funding			