

## **Session 4 Current works and Critical Gaps**

---

### Outcomes from this session

- List of research in different jurisdictions (by jurisdictions we have state and topic here).
- Common agreement of a list of gaps and their level of priority.

### Working groups

Groups are separated into states. I have directed the feedback into topics to provide some focus for the discussion. Note there is an *other* topic – for activities that do not fit into these topics - please be explicit about how the research relates to mammal decline issues especially if indirectly related.

Please include research being conducted by others not present if possible.

### Current research

Includes recent, current and proposed activities.

### **Topics**

[Distribution & monitoring – includes patterns of decline historic or recent](#)

[Taxonomy / Ecology](#)

[Fire regimes](#)

[Cats](#)

[Pastoralism](#)

[Disease](#)

[Cane toads](#)

[Other](#)

### **Prioritisation**

Please use the last 5-10 minutes to develop a consensus within your group what issues are the highest priority knowledge gaps that need to be overcome – this is to be filled in on the last page.

## DISTRIBUTION & MONITORING – includes patterns of decline historic or recent

### Research

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key question being addressed	How research addresses mammal decline – if unclear in key question or value adds
JCU	Euan Chris Andrew	CY Einasleigh	savannas	Large macropods	Distribution limits to Antilopine K	Other macropods, fire regime and land management habitat info
CSIRO ANWC	Fred and Ken	QLD	All / potential fossil	Small mammals		Formal historical distribution sub-fossils – may inform reasons for decline
CSIRO	many			Small terrestrial vertebrates		Taxonomy for all small terrestrial vertebrates
CSIRO	Alex et al	North QLD	Savannas	All vertebrates (ex fish)	Distribution patterns	Collection of distributional data systematic data
AWC						Permanent monitoring plots

### Gaps (*prioritise within topic*)

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>
Lack of long term data – permanent monitoring plots to re-sample	All	Systematic spread	high
Indigenous knowledge	All		high
Bats – status of all species	Bats		Low

### Issues inhibiting better management

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>


## TAXONOMY / ECOLOGY

### Research

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key question being addressed	How research addresses mammal decline – if unclear in key question or value adds
CSIRO see above					Taxonomy	
CSIRO	Fred	Mt Zero	Savanna	Rodents	Autecology	Indicates some relationships with fire – baseline fauna list for area
JCU	Chris to give a list of student projects					

### Gaps *(prioritise within topic)*

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>
Bats – taxonomy	Bats		low
Taxonomic issues			High
General ecology	Medium sized mammals,		mid
Life history	All mammals		mid

### Issues inhibiting better management

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>


## FIRE REGIMES

### Research

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key question being addressed	How research addresses mammal decline – if unclear in key question or value adds
CSIRO	Alex	CY, EU, MII, Gulf Plains	Savannas	All	Effect of fire frequency on small mammals.	
AWC	John	All sanctuaries	Savanna	all	As above	
JCU	Chris et al to send a list of projects					

### Management initiatives

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key issue being addressed	How management addresses mammal decline – if unclear in key question or value adds
AWC		Sanctuaries	Savannas		Fire plans and monitoring response	
CSIRO/CYP SF		CYP (and some others)	savannas		Data will feed into fire management – for land holders	

### Gaps (*prioritise within topic*)

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>
Some species specific knowledge available but knowledge on community	Integrating for all	Qld	mid

responses required	species		
Timing early/late intensity frequency etc how regimes effect biodiversity		Qld	1) high
Fire and predation interactions	Predators	Across the north	High

**Issues inhibiting better management**

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i> above
Ideal fire regimes			
Fire purpose – burning for infrastructure protection – context – goals of fire – and not really monitored for biodiversity			

## CATS

### Research

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key question being addressed	How research addresses mammal decline – if unclear in key question or value adds
JCU	Chris	Qld			Dingo cat interactions – cat ecology	About to start
EPA	Greg Mifsud	Mitchell grass downs		Cats	Cat diet	
		Julia Creek			Cat diet	

### Management initiatives

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key issue being addressed	How management addresses mammal decline – if unclear in key question or value adds
AWC		Mt Zero		Bettongs	Small enclosure	Reintroductions

### Gaps (*prioritise within topic*)

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>
Threshold level of how many cats the system can sustain			high
Demonstration that cats are having a significant impact?		Savannas	high

Role of dingoes – being explored but currently gap			high

**Issues inhibiting better management**

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>
No effective control methods			

## PASTORALISM

### Research

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key question being addressed	How research addresses mammal decline – if unclear in key question or value adds
AWC		Picanny, Brooklyn, most sanctuaries			Removing cattle and monitoring effects including baseline data	
CSIRO	Alex	NQ	Savannas	All (ex fish)	Land condition ground cover tree density etc	Mammals as a response variable

### Management initiatives

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key issue being addressed	How management addresses mammal decline – if unclear in key question or value adds
AWC see above						

### Gaps (*prioritise within topic*)

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>
Not adequately controlled experimental data on grazing			High

Impacts of other herbivores besides cattle			mid

**Issues inhibiting better management**

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>
Attitudes of graziers			

## DISEASE

---

### Research

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key question being addressed	How research addresses mammal decline – if unclear in key question or value adds

### Management initiatives

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key issue being addressed	How management addresses mammal decline – if unclear in key question or value adds

### Gaps *(prioritise within topic)*

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>



## CANE TOADS

---

### Research

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key question being addressed	How research addresses mammal decline – if unclear in key question or value adds

### Management initiatives

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key issue being addressed	How management addresses mammal decline – if unclear in key question or value adds

### Gaps *(prioritise within topic)*

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>



**OTHER**

---

**Research**

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key question being addressed	How research addresses mammal decline – if unclear in key question or value adds

**Management initiatives**

Organisation	Individual/s	Geographic location	Habitat/s	Species/group	Key issue being addressed	How management addresses mammal decline – if unclear in key question or value adds

**Gaps** (*prioritise within topic*)

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>


**Issues inhibiting better management**

Key question or issue	Species/group	Geographic location	Priority - <i>high, mid, low</i>

## **PRIORITISATION - SUMMARY**

---

*To be completed in the last 10 minutes of the group sessions*

Please identify the highest priorities for filling knowledge gaps highlighted by the group.

1. Longitudinal monitoring and having a baseline (having a history)
2. Factorial experiments to tease out impacts of possible drivers of declines (this may include reintroductions etc.)
3. Taxonomy and how that feeds back into understanding patterns and ecology...
4. No management guidelines for arresting the decline and restoring declining populations.
5. How do we set up sampling regimes that allow analysis at the large scale and can deal with complexity and synergies (good examples/opportunities with AWC and ability to look at effect sizes rather than focussing on replication).
6. How do we encourage broader involvement rather than projects being institutionally or politically based.