DYNAMICS OF SPINIFEX COMMUNITIES - GROUP 2

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What are the serious gaps in our knowledge of the dynamics of spinifex communities from the point of view of management for nature conservation?

1. What are the major determinants of temporal change in spinifex communities?

We set aside the uncontrollable causes of temporal change - rainfall and drought - because there is nothing that managers can do about them directly. We then agreed that the potentially manageable determinants were as follows: fire; grazing by domestic herbivores; grazing by feral herbivores; predation by introduced mammmals; weeds; and human impacts (Aboriginal land use, tourism, and mining and exploration).

2. What is the relative impact of these determinants on different regions of the spinifex grasslands?

Here we had to set aside the problem of islands, as we found it impossible to generalise; islands would have to be assessed individually. Other regions were categorised according to substrate and rainfall, as follows, and then the significance of each impact was rated on a scale of 1 (least important) to 8 (most important). Examples of the regions included in the four categories are the Pilbara (rocky, high productivity), the Tanami (sandy, high productivity), the Great Sandy (sandy, low productivity), and the Gibson (rocky, low productivity). Finally, the sum for each impact across the entire range of spinifex gave us an idea of their relative importances.

	Substrate				
	Rock		Sand		
Rate of production of plant biomass	Low	High	Low	High	Total
Fire	7	8	7	8	30
Domestic grazers	3	1	2	3.5	9.5
Feral grazers	6	7	6	7	26
Introduced predators	8	5	8	6	27
Weeds	3	6	3	2	14
Aboriginal land use	3	4	5	5	17
Tourism	3	3	1	1	8
Mining	3	2	4	3.5	12.5

Clearly, the three big issues are fire, introduced predators, and introduced grazers, across all spinifex types.

3. What should be the major research tasks to address these management problems at the regional scale?

1. Fire: impact of fire beginning in spinifex and spreading into adjacent habitats;
impact of fire regimes on special habitats within spinifex grasslands;
identification of important habitats for particular plants and animals within the spinifex.

2. Introduced predators: can acceptable limits to the abundance of these animals be achieved?

3. Feral grazers: relative impact on widespread spinifex formations as distinct from the important habitats mentioned above;
interaction with introduced predators;
can acceptable limits to the abundance of these animals be achieved?