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Re-imagining Western Australia's degraded southern rangelands through knowledge-based redevelopment planning

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Key words: Rangelands, planning, degradation

Key messages

- Vast areas of the southern rangelands are now considered economically un-viable
- Environmental degradation is serious, widespread and continues
- Western Australia now has a comprehensive rangelands land resource dataset
- A land use planning approach is needed, based on social, economic and environmental criteria, to map areas with common social, economic and environmental characteristics
- Interventions, based on areas with common characteristics, are required to achieve sustainable management including incentives and enforcement of the sustainable provisions in the LAA Act
- Funding, governance and restoration approaches will also be required.
- Time is critical. The southern rangelands need re-imagining now to restore ecosystem function and ongoing sustainable productive capacity.

The Current Situation

This paper focuses on the natural resources of the southern rangelands of Western Australia, from the Pilbara south, where the main activities (based on area) are pastoralism, tourism, Aboriginal cultural activities and living areas, formal conservation reserves, and extractive mining activities, with mining making the greatest economic contribution. Prior to European settlement these ecosystems were utilised by Aboriginal people through sustainable nomadic systems.

This paper takes it's position from the following situation statements:

1. Pastoral leases in Western Australia are administered primarily under the Land Administration Act (LAA) of 1997 and the Soil and Land Conservation Act (SLCA) 1945. The Land Administration Act includes development of policies to prevent land degradation (s95d); to ensure pastoral leases are managed on an ecologically sustainable basis (s95c), and; to develop policies aimed at the rehabilitation of degraded land (s95e).

2. The inter-agency Regional Rangeland Survey Program (RRSP) of resource mapping and assessment has recently achieved a comprehensive land resource dataset of nearly all the states pastoral leases. Considerable use is being made of this information in relation to development projects for siting, infrastructure routing and environmental and engineering assessments and operating, rehabilitation and closure conditions and in expanding the conservation reserve system.
3. Rangeland condition survey data clearly indicate that persistent grazing pressure over an extensive area has resulted in widespread and serious environmental degradation including loss of biodiversity, altered ecosystem structure and function, and increased soil erosion, with ongoing degradation and declining pastoral productivity (Pringle et al 2006).
4. A consistent finding from numerous publicly funded inquiries is that a significant proportion of pastoral enterprises can be considered to be economically unviable both now and into the future.
5. The Environmental Protection Authority (EPA 2004) stated that as its first land use and management principle for rangeland sustainability:

Environmental protection and ecological sustainability to be achieved irrespective of economic conditions at the enterprise and industry scale.

6. West Australia Planning Commission's State Planning Policy 2 - Environment and Natural Resources part 5.4. - Soil and Land Quality states:

Careful consideration is necessary to ensure land is allocated to appropriate uses that minimise land degradation and resource use conflicts. Specific consideration should be given to land capability and suitability, and exploration of different options for use when decisions are made about the future use and development of land.

Given this background of environmental and economic decline and clear guidance from government policy for sustainable management it is time for a new approach to planning and management for the southern rangelands of Western Australia.

Re-imagining through knowledge based redevelopment planning

A re-imagined landscape could achieve ecologically sustainable rangeland systems that incorporate pastoral production, diversified land uses including tourism and horticulture, biodiversity conservation and carbon storage optimisation.

Re-imagining will require:

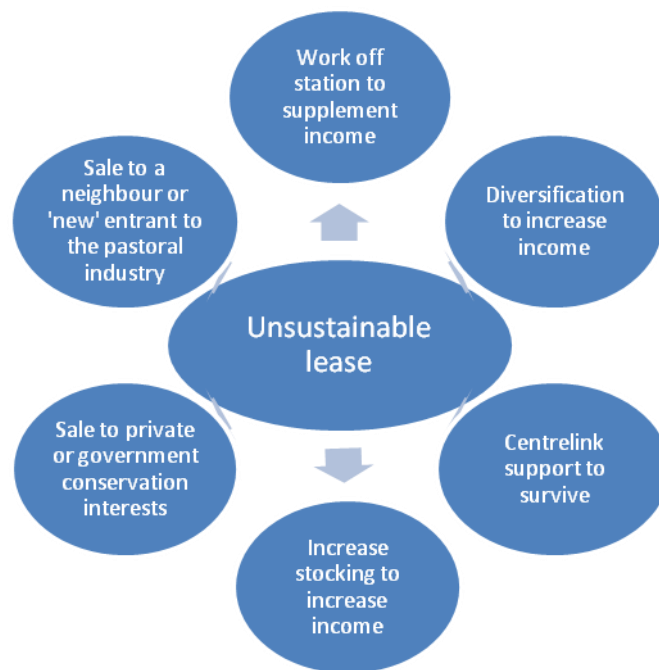
1. Understanding landscapes physical attributes, processes, potential for recovery and where physical interventions may be required.

This information is available through the Regional Rangeland Survey Program and long term WARMS monitoring site data. Practical translation of this information is the basis for the Ecosystem Management Understanding (EMU) and Ecologically Sustainable Rangeland Management (ESRM) extension programs for rangeland recovery.

2. Current and projected pastoral economic viability.

Further work is required to understand economic viability for the pastoral industry, taking into account short term, long term, supply chain, sustainable business models and implications of lease rentals and governance model on overall economic performance.

3. An appreciation of the social responses already being taken by pastoralists in self adjusting to the current environmental and economic situation is illustrated below. A good picture of the spatial patterns of the location of these self adjustments in the landscape is required.



Self adjustment processes taken by pastoralist with unsustainable leases

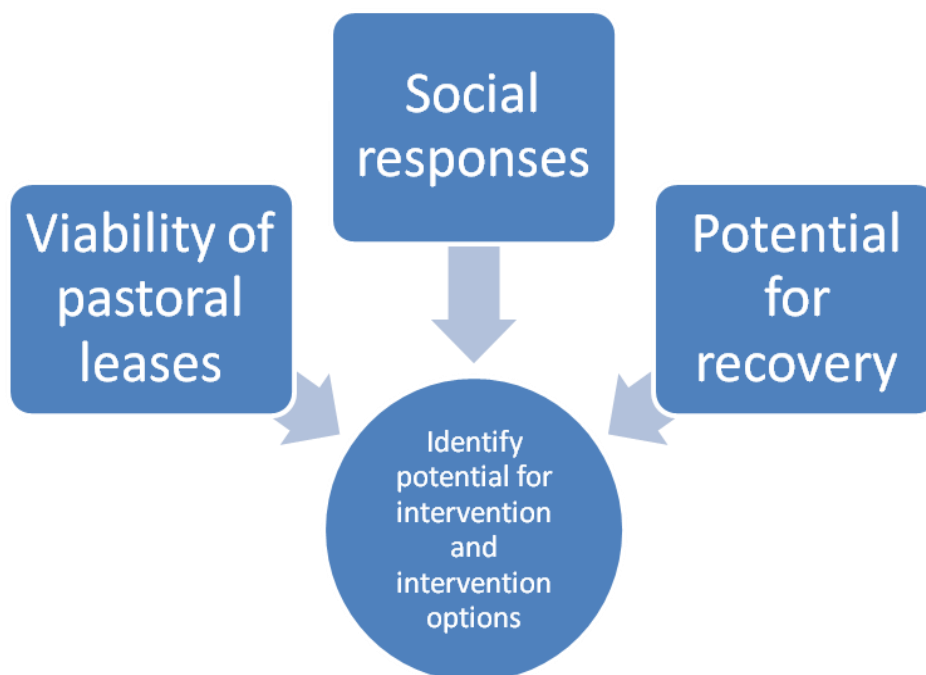
4. Engagement with the key players: lessees, Traditional Owners, managers of the conservation estate, local governments, the Western Australia Planning Commission, the Environmental Protection Authority and the wider community.

Process for re-imagining

Socio-economic systems normally go through cycles of development, stability, decline and transformation. The pastoral industry has gone through the stages of development and

stability and now finds itself in a period of decline, environmentally and economically. Such periods can be opportunities for transformation. Transformation can come from inside the system through our innate ability to adapt. Examples include off station work in the mining industry, diversification and carbon farming maybe a future opportunity. We can also become trapped in a decay situation where poverty is entrenched, and people do not have capacity to transform.

There is an opportunity to look at the economic, social and environmental factors that have lead to the decline state to identify intersections of conditions where judicious external intervention could lead to transformation.



Factors to be considered in planning potential interventions for pastoral sustainability

The first step is to divide the southern pastoral region into zones broadly according to land type and condition and then for each social and economic factor. This may define where:

Environmental

- degradation is worst
- off site impacts are greatest
- recovery potential is greatest (for least cost)

Social

- pastoral viability is poorest and alternate income sources are not available
- adoption is likely to be greatest

Economic

- leases are not attractive to potential purchasers
- most benefit will accrue for the least cost.

Common environmental, social and economic characteristics can then be defined spatially. To illustrate this the following case situations are provided:

1. Areas currently economically and environmentally viable.

No intervention required.

2. Areas that:

- Are economically un-viable
- Are environmentally degrading
- Have high conservation values
- Have good diversification and/or carbon income potential.

Possible interventions:

- (a) Enforce provisions for ecologically sustainable management in the LAA Act S95c and modify pastoral lease conditions and rentals to ones that are conducive to restoring economic viability through diversification. Incentives for environmental management may be required
- (b) Sales of leases to conservation interests.

3. Areas that:

- Are economically un-viable
- Are environmentally degrading
- Have low conservation values
- Have few diversification and/or carbon income opportunities
- Have good off station work opportunities.

Possible interventions:

- (a) Enforce provisions for ecologically sustainable management in the LAA Act S95c and find pastoral lease conditions and rentals that are conducive to maintain the lessees on the land. Incentives for environmental management may be required.
- (b) Purchase of leases by government with management by government.

4. Areas that:

- Are economically un-viable
- Are environmentally degrading
- Have low conservation values
- Have few diversification/carbon capture or off station work opportunities

Possible interventions:

Enforcing provisions for ecologically sustainable management in the LAA Act S95c may not be tenable given the lack of economic viability, therefore options include:

- (a) Purchase of leases by government with management by government
- (b) Payments to existing or new land managers for managing environmental restoration with enforcement provisions for ecologically sustainable management as required in the LAA Act S95c.

Challenges for implementation

The key to landscape recovery is destocking, closing water points for extended periods, strategic on ground works in some areas, favourable seasonal pulses and suitable regeneration conditions. This may be required over decades and on a landscape scale. Enforcement of the environmental conditions of the LAA and SLCA Acts could create a fundamental change in pastoral economics in some areas impacting on current leaseholders and their supply and sales networks currently reliant on the pastoral industry.

The challenges are considerable and will require consideration of:

- Community concerns that will arise if the ecological sustainable management provisions of the LAA Act are enforced
- The social, economic and environmental cost of doing nothing
- The social and economic costs of enforcing the sustainability provisions in the LAA Act
- Determining responsibility for sustainable funding sources to fund interventions
- Potential interventions and leasing/management options
- Potential management and governance models.

Addressing these challenges is additional to this paper which has sought, as a first step, to outline a landuse planning approach to underpin governance systems required for recovery.

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