Landholders designing with nature: an approach to off-reserve conservation in the Gascoyne-Murchison Strategy area, Western Australia

Hugh Pringle[1] and Ken Tinley[2]
Ecosystem Management Unit ("EMU") of the Regional Environmental Management Programme, Gascoyne-Murchison Strategy.
[1] Centre for Management of Arid Environments, Department of Agriculture, Kalgoorlie
[2] WA Wildlife Research Centre, Department of Conservation and Land Management, Woodvale

1: What is "the EMU process"?

The "EMU process" is a major activity within the Gascoyne-Murchison Strategy's Regional Environmental Management Programme. It aims to help pastoralists understand more intimately the critical ecological processes occurring across their stations and to respond in a way that uses, rather than opposes those processes. The underlying principle of the EMU process is "working with natural processes, not against them".

The process has been developed in shearing sheds, kitchens and on vehicle bonnets in the field. Pastoralists are legitimate (rather than token) partners in the process. These partnerships underpin the success of the process: we are struggling to meet demand, despite not having formally advertised our services. Demand is being driven by word of mouth.

The EMU process is based on capturing local expert information on clear overlays on top of land system maps of stations. We then use simple questions to help pastoralists recognise the driving ecological processes and areas requiring concentrated management effort, be that to seize opportunities or to address problems (or both). The first mapping exercise produces a base line against which ongoing monitoring results are assessed. The process is entirely voluntary and all outcomes (e.g. overlay maps) belong to the participants.

Indigenous heritage values are included in the process, and play a major role when dealing with Aboriginal stations. Some non-Aboriginal pastoralists have also requested that local Aboriginal representatives' values be included in developing informal cultural management strategies for their stations. The process readily accommodates multiple land use objectives.

We have also developed monitoring techniques for initiating close dialogue with managed landscapes. Locating monitoring effort is strongly influenced by the overlay mapping procedure such that it is located at critical "finger on the pulse" locations and with specific issues and objectives in mind. Features monitored include a mix of retrospective "impact" attributes (e.g. soil erosion) and early warning (hazard or opportunity) variables (e.g. utilisation rates and recruitment).

The long-term objective of the EMU process is to empower individual managers and local pastoralist communities to take ownership of environmental management, recognise and address the critical issues together, and develop firm foundations for a sustainable future.

2: The "EMU" vision of ecologically sustainable rangelands

Managing biodiversity

Formal nature conservation is accommodated through a CAR reserve system and a network of smaller priority areas under formal conservation agreements. Some of these smaller areas excised from pastoral leases and have legally binding conditions, particularly if public funds are involved. However, many small areas remain within pastoral leases and are managed sensitively. They remain important parts of stations (Pringle 1995). Three important types of "station reserves" exist:

1. *Ecojunctions*: Areas where many types of land come together. These areas are disproportionately highly representative of local biodiversity. They contain many ecotones supporting biodiversity adapted to "edges" and reveal linkages between landscapes. Sensitively managed ecojunctions can thus make a major contribution to

conservation of local biodiversity, serve as "landscape laboratories" and may provide benchmark context for similar landscapes more widely spread across stations. Ideally they are protected from grazing by livestock and feral animals. Ecojunctions typically occupy little area of any station.

2. *Grazing refuges*: These are areas remote from natural and artificial sources of water. Refuges are used as benchmarks to understand monitored changes in similar, but more widespread and conventionally grazed landscapes. They are also likely to contain local biodiversity ill adapted to grazing management (James 2000).
3. *Specific biodiversity values*: These are local "jewels in the biodiversity crown" that require particular management not usually provided by conventional grazing management. Examples include particularly fragile landscapes susceptible to erosion (e.g. coastal dunes and breakaways), important wetlands and other drought refuges, or populations or rare species and their local habitats (Morton et al. 1995). These areas are identified from databases and importantly, by local experts; pastoralists.

Managing the pastoral matrix

The more conventionally grazed matrix is regularly monitored, particularly at critical control points and sensitive (rather than representative) areas of stations. Pastoralists have their fingers on the pulse of the land, manage variability in time (e.g. climate) and space (e.g. mixes of country types) with increasing effectiveness. This "learning pastoralism" (or ESPM) features:

1. Management priorities identified by mapping and assessing salient features on clear overlays
2. Strategic management focused on driving processes at critical control points across stations, sub-catchments and catchments
3. Regular monitoring on the ground and from the air and mapping of results on clear overlays
4. (At least) annual reviews in a never ending and systematic learning process
5. Regular meetings with neighbours to discuss landscape management and co-ordinate and review catchment management issues.

ESPM will not only benefit biodiversity; it will also strengthen pastoral landscapes, businesses and communities by:

1. Increasing rainfall efficiency as canalised drainage systems are gradually rehabilitated, thereby restoring soil moisture regimes and, as perennial plant cover is improved/maintained
2. Increasing production through more efficient use of landscape toposequences (strategic use/rest)
3. Improving flock/herd structure using Total Grazing Management systems (strategic use of infrastructure)
4. Decreasing cost of production through more strategic, rationalised infrastructure
5. Improving prices through environmentally certified production and strategic eco-branding
6. Socialising station management as management issues are discussed and mapped together
7. Increasing self-reliance among station enterprises as pastoralists realise their management potential and consciously wean themselves of Government advice
8. Environmental reporting conducted by pastoralists, with inspectors spending more time helping pastoralist groups than undertaking regulatory activities
9. Increasing local cohesion as Government dependence gives way to local inter-dependence and innovation, realising landholder potential.

Important features of this framework for ecological sustainability include:

1. Physical or psychological barbed-wire fences do not separate management of biodiversity and grazing management. Rather, emphasis varies across stations and regions in a shifting balance that is locally flexible and regionally effective (Morton et al. 1995). Biodiversity

management becomes an opportunity for pastoralists, who are rewarded in the market place with assured access and price premiums.

2. ESPM is based on base-line maps of salient features and intimate dialogue with managed landscapes. The outcomes of those regular discussions are recorded visually. This mapping approach can be employed at a range of scales and accommodate multiple value systems. It allows changes to be assessed in terms of previously recorded salient features and dialogues as part of a learning process.
3. ESPM provides a framework for increased social cohesion at enterprise and community levels. Pastoralists become increasingly self-reliant and inter-dependent at enterprise and community levels, and Government officers become more focused on auditing station Environmental Management Systems and reports, as well as providing technical input on request. Apart from regulatory activities, Government services are provided to meet demand, rather than on the basis of perceived pastoralist needs.

3: Is the "EMU process" a dream, hallucination or emerging reality?

ESPM is an emerging reality in the Gascoyne-Murchison Strategy. Despite budget cuts in the region, Government Departments are currently organising additional resources to meet demand from pastoral communities for "the EMU process". Over twenty stations involving more than three million hectares have already commenced the "EMU process". At least that many stations have formally requested participation in the next year. Pastoralists and Government departments from other regions have also expressed interest in spreading the project beyond the current region.

The Murchison Land Conservation District Committee has engaged the EMU to help them with a catchment management initiative focused on recovering the health of the riverine plains and riparian habitats through co-ordinated and strategic catchment action. This innovative, catchment-level approach is underway.

Two formal off-reserve agreements have been developed and several are under negotiation. They include a major bioregional junction area occupying well over 100 000 ha on two adjoining stations, a nationally listed wetland of less than 5 000 ha and a population of rare and endangered plants on a single breakaway system occupying less than 2 000 ha. Formal agreements being considered include covenants with the National Trust, Section 16A Agreements or legal contracts between pastoralists and the Department of Conservation and Land Management, Indigenous Protected Areas, and caveats on pastoral leases.

Experience shows that it is far easier to identify potential areas and plan their future management than it is to seal formal agreements. Pastoralists seem nervous about the implications of "signing away" land, and Government is anxious that public funds should provide lasting outcomes. A simpler outcome might be to leave agreements informal. This is happening, but sensitive management of biodiversity may be replaced at the whim of the pastoralist or at sale of the lease. Informal arrangements also rely on altruism from pastoralists, who have been suffering from severe financial stress in recent years.

The "EMU process" is changing pastoral management. One station has drastically reduced the number of watering points it maintains, another is developing a rotational grazing system based on spelling fertile bottom-lands (saltbush country) for 18 months of every two year period using trap yards at strategic locations. Several pastoralists have renegotiated their grants to install watering points so as to protect fragile landscapes. Several stations have installed EMU Landscape Monitoring Level 1 sites and our first aerial monitoring has been conducted with the Rangeland Fibre and Produce group near Mt. Magnet. One station is requesting permission to destock for a few years after realising how badly the majority of landscapes need rest. The owner of an eco-branding enterprise has expressed interest in incorporating the "EMU process" into requirements for certification of participating producers.

The "EMU process" is no hallucination!

4: Wider context: systematic regional management

The grassroots focus of the "EMU process" is complemented by a GIS-based information system, which provides wider context for local initiatives. Information in the system includes land system and vegetation maps, distributions of watering points and natural surface water features, rare flora and fauna, wetlands, and so forth. These data can highlight and place some regional priority on local conservation values.

The system is *not* used to produce spatially explicit scenarios that may threaten participants. Rather, the information is presented to participants for consideration. Pastoralists have been quite interested in the information, and keen to incorporate these issues into their station management. This voluntary and unthreatening approach seems to be working.

5: Concluding comment: institutional arrangements

Most participants in the "EMU process" are adapting to a changing world. Yet they confront significant institutional barriers to change. Diversification is fraught with red tape, and Government departments are only just emerging out of institutional apartheid in rangelands. Public funding of off-reserve conservation is negligible. Government maintains a major controlling interest in the sandalwood industry. Couldn't exclusive access to sandalwood and other resources (e.g. tourist resources) be contingent on *quid pro quo* arrangements for formal off-reserve conservation? Disturbingly, the legal requirement to graze vast areas of rangeland in the face of financial, social and environmental forces seems anachronistic and defies contemporary models of sustainable rangeland habitation, which emphasise regional differences in opportunities and risks (Stafford Smith, Morton, & Ash 2000).

It might be argued that progressive elements in the pastoral industry are being brought back to the pack under current institutional arrangements. Hopefully, a recent State Government initiative to review these institutions and provide a new model will address this problem.

Reference list

James, C.D. (2000) Biograze - conserving Australia's rangelands. *Australian Landcare* **6:** 20-21

Morton, S.R., Stafford Smith, D. M., Friedel, M. H., Griffin, G. F., & Pickup, G. (1995) The Stewardship of Arid Australia: Ecology and Landscape Management. *Journal of Environmental Management* **43:** 195-217

Pringle, H.J.R. (1995) Pastoralism, nature conservation and ecological sustainability in Western Australia's southern shrubland rangelands. *International Journal of Sustainable Development and World Ecology* **2:** 26-44

Stafford Smith, M., Morton, S. R., & Ash, A. J. (2000) Towards sustainable pastoralism in Australia's rangelands . *Australian Journal of Environmental Management* **7:** 190-203.