



Southern Rangelands Pastoral Advisory Group:

A Review of the Economic and Ecological Sustainability of Pastoralism in the Southern Rangelands of Western Australia

Prepared by an industry group comprising:

- Hon. Wendy Duncan MLC, Member for Mining and Pastoral Region (Chair)
- Mr Ian Longson, Director General, Department of Agriculture and Food WA (part of term)
- Mr Roger O'Dwyer, Executive Director, Industry and Rural Services, Department of Agriculture and Food WA (part of term)
- Mr Damian Collopy, Acting Executive Director, Biosecurity, Department of Agriculture and Food WA
- Dr. Chris Chilcott, Regional Manager Rangelands, Department of Agriculture and Food WA
- Mr Nevin Wittber, General Manager, Pastoral Land, Department of Regional Development and Lands
- Mr Chris Richardson, Chair Biosecurity Council of WA and Agriculture Protection Board of WA
- Dr Alec Holm, Consultant, Alexander Holm and Associates
- Mr Mark Forrester, Pastoralist, Kanandah Station, Kalgoorlie
- Mr Tom Jackson, Pastoralist, Austin Downs Station, Cue
- executive support and authorship from Mr David Warburton, Department of Agriculture and Food WA

13 October 2009

FOREWORD

It has been an honour to Chair the Southern Rangelands Pastoral Advisory Group even though the matter under consideration is quite challenging. In our interaction with pastoralists during the Review, we received the very strong message that they are feeling forgotten, neglected and undervalued. I hope this Review of the southern rangelands pastoral industry will help to reverse those sentiments.

Early in our deliberations we debated the question of “viability” and decided that it is a very subjective term. What is viable in the mind of one individual may not be so in the mind of another. Many of the people who live in our rangelands relish the isolation and self-sufficiency of their lifestyle and do not want for the trappings of modern life.

While there is no doubt that substantial parts of the rangelands are not as productive as they have been in the past and are in need of recovery and restoration, it is the view of SRPAG that there is still a place for the pastoral industry in the southern rangelands.

Pastoralism is not inconsistent with restoration of the resource. However, the need to apply innovative management practices and diversified business models is apparent, as is the removal of barriers to their adoption.

Improvements in land tenure to allow flexibility and diversity in rangeland enterprises and an active involvement by government in the resolution of Native Title issues will enable better and more productive use of the rangelands.

Much of the southern rangelands is particularly suited to enterprises based on small stock. However, the critical issue, and the catalyst for this Review, is the control of wild dogs. While the Group does not believe a continuous barrier fence is the solution, it did conclude that it is the responsibility of all land users in the rangelands to contribute to the management of biosecurity threats such as wild dogs.

The Group concluded that the value of the pastoral industry to the State of Western Australia is greater than the dollar value of its contribution to export income or domestic product. Most pastoralists, along with their Aboriginal neighbours, have an intimate knowledge and love of the rangelands. They willingly live in places that most Australians would turn their back on. With good management tools and skills, rangeland enterprises can be developed that are sustainable and have the potential to remain long after the mineral wealth is depleted.

I thank the members of the Southern Rangelands Pastoral Advisory Group for their diligent work, their willingness to hear each other out, and their desire to reach for the new paradigm.

I also thank the Hon Terry Redman MLA, Minister for Agriculture and Food, for the opportunity to undertake this review and I commend it for his consideration.

Hon Wendy Duncan MLC

Member for Mining and Pastoral

13 October, 2009

TABLE OF CONTENTS

FOREWORD	i
INTRODUCTION	1
STATEMENT OF PURPOSE	2
Terms of Reference	2
Committee Membership	3
SRPAG REVIEW PROCESS	4
FINDINGS OF SRPAG REVIEW	5
Vision for the Rangelands.....	5
Condition of the Rangeland Resource	5
Land Administration	6
Financial Sustainability	6
Wild Dogs and other Biosecurity Threats.....	8
Climate Change	9
Management Capacity and Responsibility	9
LIST OF RECOMMENDATIONS	10
REFERENCES	16
APPENDIX 1: OVERVIEW OF SOUTHERN RANGELANDS PASTORAL INDUSTRY....	18
Resource and Climate	18
Climate Change	20
Livestock Production.....	21
Reasons for Change.....	23
Current Profitability	23
Outlook	24
LIST OF FIGURES IN APPENDIX 1	
Figure 1: Recent Rangeland Condition Trend – WARMS.....	19
Figure 2: Seasonal Climate Variation.....	20
Figure 3: Southern Rangelands Wool Production and Sheep Numbers 1985 - 2008.....	21
Figure 4: Change in Livestock Type 1985 - 2008.....	22
Figure 5: Long Term Real Price for Wool.....	23

INTRODUCTION

Pastoralism, including that in the southern rangelands, has made a significant contribution to the people, economy and heritage of Western Australia. These contributions include:

- provision of capital for economic growth,
- meat and fibre production,
- provision of employment,
- connection with and love of country,
- mainstay of remote communities,
- weed and feral animal management,
- emergency services, including fire control
- visitor support, and
- outback heritage.

Declining terms of trade, reduced carrying capacity, loss of human resources and now climate change has reduced the capacity of the industry in the southern rangelands to continue that contribution.

In the course of this review the committee recognised:

- a desire to preserve unique physical and human attributes of the southern rangelands, and to provide opportunities for the communities that live within them,
- chronic adverse financial circumstances surrounding the traditional livestock industries within the southern rangelands, contrasted with lucrative resource and tourism industries,
- consistent reports of decimation of pastoral enterprises through predation by wild dogs, and
- a recognition that non-pastoral land use and habitation are legitimate and desirable uses of the southern rangelands.

Earlier reviews have highlighted the challenging circumstances of the southern rangelands pastoral industry. While many recommendations have been made there has been limited positive impact.

The overall goal of this review is to identify the policy requirements for a socially and economically viable community involved in a diverse range of industries, based on environmentally sustainable use of the southern rangelands.

The recommendations of this review highlight four underlying principles to enable innovation to flourish and for society to derive on-going benefit from these iconic lands:

- freeing up Government processes and removing impediments to innovative land use,
- preserving and enhancing social capital throughout the region,
- encouragement and support for self-help and innovation, and
- total commitment to preservation and restoration of natural resources.

While the terms of reference for this review were confined to the southern rangelands, several of the recommendations have direct, positive implications for all pastoral leases in Western Australia.

STATEMENT OF PURPOSE

The Southern Rangelands Pastoral Advisory Group (SRPAG) was appointed by the Minister for Agriculture, Food and Forestry (Hon. Terry Redman MLA) and was chaired by the Hon. Wendy Duncan MLC, member for the Mining and Pastoral Region.

The purpose of this review is to provide strategic advice to the Minister on the issues impacting on the pastoral industry and to make recommendations on the future of land use in the area.

Terms of Reference

The terms of reference of the Southern Rangelands Pastoral Advisory Group are as follows:

- Investigate the current state of viability of the pastoral industry, including a review of previous studies.
- Investigate the condition of pastoral land in the region.
- Gather information on current land use in the region.
- Identify and investigate any issues that are impacting on the viability of pastoral industries in the region including the impacts of feral animals and issues arising from tenure arrangements.
- Using all available reports and previous investigations review the technical and economic feasibility of a state biosecurity barrier as a means of minimising the impact of feral animals and animal disease in the region.
- Consider the potential impact of climate change on the region.
- Report to the Minister for Agriculture and Food on conclusions from investigations.
- Make recommendations on the future direction of the pastoral industry in the region and options for future land use, including diversification and land stewardship.
- Make recommendations on the future management of feral animals and pests in the region.

Committee Membership

Hon. Wendy Duncan MLC – Ministerial
appointment to the chair
Member for Mining and Pastoral
Parliament House
Perth 6000

9222 7226 0438782034
wendy.duncan@mp.wa.gov.au

Ian Longson, Director General
Department of Agriculture and Food WA
3 Baron Hay Court
South Perth 6151

9368 3683 0404 819 505
ian.longson@agric.wa.gov.au

Roger O'Dwyer, Executive Director, Industry
and Rural Services
Department of Agriculture and Food WA
3 Baron Hay Court
South Perth 6151

9368 3405 0427 429 013
roger.odwyer@agric.wa.gov.au

Chris Richardson, Chair, Biosecurity Council
of Western Australia and Agriculture
Protection Board of Western Australia
PO Box 288
Claremont WA 6910

9284 2444 0428 175 591
corredene@bigpond.com

Damian Collopy, Acting Executive Director,
Biosecurity
Department of Agriculture and Food WA
Verscheur Place
Bunbury 6230

9780 6218 0427 443 258
damian.collopy@agric.wa.gov.au

Alec Holm, Consultant
Alexander Holm and Associates
13 Douglas Street
Fremantle 6160

9335 9939 0423 131 691
aholm@bigpond.net.au

Tom Jackson, Pastoralist
Austin Downs Station
PO Box 106
Cue 6640

9963 1377
austin_partnership@bigpond.com

Mark Forrester, Pastoralist
Kanandah Station
PMB
Kalgoorlie

9022 6422 0427 906 064
kanandahstn@bigpond.com

Chris Chilcott, Regional Manager, Rangelands
Department of Agriculture and Food WA
3 Baron Hay Court
South Perth 6151

9368 3107 0428 955 412
chris.chilcott@agric.wa.gov.au

Nevin Wittber, General Manager
Pastoral Land
Department of Regional Development
and Lands
PO Box 1575
Midland 6936

9347 5120 0407 773 584
nevin.wittber@lands.rdl.wa.gov.au

SRPAG REVIEW PROCESS

Given that there have been several reviews of the pastoral industry of the southern rangelands it was not considered appropriate to undertake another comprehensive review process incorporating extensive public consultation. Rather the SRPAG assignment was to revisit the preceding reviews and associated recommendations plus the subsequent government and industry responses. The committee was then to assess the currency and relevance of these reports and recommendations in order to derive optimal policies for the current situation.

The reviews considered by SRPAG included, but were not limited to, the following:

- 1972: The Effect of Drought on the Pastoral Industry in the Goldfields Region
- 1979: The Present and Future Pastoral Industry of Western Australia
- 1993: Report of the Pastoral Wool Industry Task Force
- 2003: Reports of the Working Groups of the Gascoyne Muster

It was noted that the impetus for many of the reports undertaken on the pastoral industry in the past has been prolonged adverse seasonal conditions or adverse terms of trade.

The SRPAG recognised the relevance of previous reviews to the current situation in the southern rangelands and added to this knowledge by considering the most recent information available.

The group established a number of channels to take submissions from industry, stakeholders and the public including the establishment of a website. Many submissions were also received from pastoralists and industry groups.

Members of the Group attended industry and community events in the region (eg Nullarbor Muster, Carnarvon Cattle Forum, Cue Parliament, Goldfields ZCA, APB Annual Conference, ICPA Conference and PGA Pastoral Conference).

FINDINGS OF SRPAG REVIEW

After consideration of the previous reviews of the southern rangelands pastoral industry, additional research, submissions and meetings with stakeholders, the SRPAG committee reached general agreement as to the current issues facing the industry:

Vision for the Rangelands

- A key issue identified by the Group is that rangelands residents, pastoralists in particular, express a sense of 'abandonment' by government; that their presence, endeavours and skills are not valued by the wider community.
- Furthermore policy and planning related to rangeland issues is considered to lack cohesion and is reactive. This arises from a lack of a cohesive, aspirational vision to underpin policy and planning.
- SPRAG identified a need for government to clearly state its recognition of the value of those who live, work and invest in the rangelands and its commitment to support the continued sustainable use of the resource.

Condition of the Rangeland Resource

- Over the period of pastoralism in the southern rangelands there has been a variable but general loss of palatable perennial shrubs and an increase in erosion on vulnerable, usually productive, landscapes: a result of inexperience, mismanagement and poor administration, especially damaging during extended dry periods (McKeon et al 2004).
- More recently several factors including managerial experience, better understanding of landscape processes, comprehensive range resource inventory, range monitoring and drought management strategies, to name a few, have led to more informed management. Recent data from the extensive Western Australian Rangeland Monitoring System (WARMS), collected since the 1990s, shows a general increase in plant numbers and cover throughout the southern rangelands. Nevertheless, results are patchy, with disappointing examples of overuse and ongoing resource degradation (EPA 2007).

Land Administration

- Over the period of pastoralism the expectations of government and the general public of the rangelands have transitioned through encouraging settlement, to promoting economic development, to ecological sustainability.
- While these changing expectations have been reflected in the respective land administration legislation, currently the *Land Administration Act 1997*, there has been a clear failure to either reverse the decline in the condition of the resource or achieve the objective of sustainable land use.
- The complex, expensive and time consuming processes required for establishing alternative enterprises, even under the current permit system, are a substantial disincentive to diversification.
- Maintaining restrictive approaches to land use is no longer appropriate in the southern rangelands. Development of diversified enterprises and land use is considered to be the most realistic means of sustaining pastoralists and remote communities into the future. Such change requires a fundamental shift in the land tenure system to one that allows multiple uses based on well researched business options and good practice environmental management, underpinned with appropriate legislation.
- SRPAG recognises that the most significant impediment to broad scale changes of tenure and diversification options is requirements of the *Native Title Act 1993*. Government is urged to lead progression of these issues in support of a planned and coordinated approach to land use and tenure arrangements.
- The recommendations of previous reviews have not been implemented in their entirety or with conviction by previous governments. Previous attempts by government to encourage lease amalgamation have been largely unsuccessful.
- The decline of extension services to the pastoral industry has reduced the capacity of pastoral businesses to develop strategies to cope with current pressures and adopt the necessary change and innovation required to sustain either the natural resource or business profitability and consequently the social vibrancy of communities in the rangelands.
- There is a conflict between DAFWA's industry development role and its regulatory role that needs to be resolved.

Financial Sustainability

- Pastoral production from the southern rangelands has declined sharply over the last decade. Small stock (sheep and managed goats) have declined to insignificant numbers in all but the southern Murchison and west Gascoyne. Meat sheep and goats are increasing as a proportion of total small stock. Cattle are going through a build up phase across much of the region.
- The terms of trade for the Merino wool industry have been declining since the 1950's. Pastoral businesses have been unable to sufficiently adapt by improving productivity (of land or livestock), reducing costs (through technology or management) or increasing scale. Emerging threats such as mulesing restrictions

and wild dog predation make it less likely that Merino wool production will regain broad scale profitability in the near future.

- Meat sheep and managed goats have the potential to be profitable on the basis of their production characteristics (high reproductive and growth rates) and adaptability to the environment. However, sustainability of any small stock enterprise is heavily conditional upon the maintenance of a predator free environment.
- Many pastoral producers are in the process of converting to cattle production. This appears to be motivated more by a desire to avoid predation than conviction that cattle offer a viable alternative to small stock. The profitability of cattle enterprises in the southern rangelands is challenged by the nature of the feed resource, particularly the deficiency of perennial grasses, and the lack of appropriate infrastructure.
- Most producers in the southern rangelands have experienced considerable erosion of their financial position as a result of successive failed seasons, deteriorating terms of trade, increasing infrastructure maintenance costs and losses of livestock. The outcome of this is that many do not have the financial capacity to either re-establish control of wild dogs, or to re-invest in their enterprise to exploit opportunities.
- However, SRPAG received strong representations from pastoralists who not only believe in the future of the pastoral industry, but are working together to promote and develop profitable and innovative businesses. The submission from the Gascoyne Catchments Project stated:

“It is important to our Committee that your advisory group acknowledges that there are many producers in the southern rangelands and specifically, in our case the Gascoyne, that hold a very positive outlook for the future. We clearly acknowledge that there is plenty of work to be done to secure a profitable and sustainable future, but this is true of agricultural industries across Australia.”

- Many previous reviews have highlighted the need for lease amalgamation to attain profitable enterprise scale. SRPAG concur that a significant number of leases in the southern rangelands do not possess the scale or productivity to support a stand alone livestock production enterprise however may have potential for alternative or diversified activities.
- Focussing on the livestock productivity aspect alone fails to recognise other attributes of a lease or the enterprising nature of lessees. These characteristics indicate profitability under a more diversified land use model is possible. Already, a significant number of southern rangelands pastoralists currently derive a substantial portion of their income from non-pastoral activities.

Wild Dogs and other Biosecurity Threats

- Wild dog numbers have risen markedly over the last decade as a result of diminished control efforts.
- There is abundant scientific and experiential evidence that the presence of wild dogs is completely incompatible with a self replacing small stock (sheep or goats) flock (see Howard and Burnside 2009). Reproductive rates fall markedly, adult stock are predated and subsequently total flock numbers decline. Costs are attributed directly through production losses and the cost of control, and indirectly through reduced productivity arising from harassment of stock. Pastoral lessees also experience emotional anguish at injured and suffering stock.
- In general large stock (cattle) are considered more resistant to wild dog predation, although production losses are reported. Losses of calves and weaner cattle in the rangelands vary from 0 to 30%. Producers also report that the value of sale cattle is reduced when evidence of attack is visible; missing ears, torn hides, damaged noses, tails and scarring.
- However there is also evidence that indiscriminate dog control can be detrimental to cattle production as disturbance of dog social structure can lead to loss of normal hunting efficiency and subsequent increased attacks on livestock (see Howard and Burnside 2009).
- Wild dogs can perform an important role in regulating kangaroo numbers in the rangelands.
- The southern rangelands small stock pastoral industry has been severely impacted by wild dog predation, particularly over the last decade. Predation by wild dogs also greatly limits the animal based alternatives available for lessees who elect to move away from Merino sheep.
- The increasing shift to pastoral cattle production, the increasing occurrence of lease ownership by non-pastoral entities and reduced control effort are factors in the increase in wild dog predation. The magnitude of the problem is beyond the capacity of the industry alone to arrest.
- The URS cost benefit analysis of the proposed pastoral biosecurity fence concluded that public funding of a dog barrier fence around the southern rangelands cannot be justified. It concluded that greater investment in integrated wild dog control (of which private dog barrier fencing may be a component) could be equally effective and significantly less costly.
- SRPAG believes it is of value to maintain capacity for a small stock industry in the rangelands.
- SRPAG consider it a fundamental principle that the adequate control of feral animals, including wild dogs, by **all** land managers is necessary to prevent adverse impacts on neighbouring enterprises by incursions of unmanaged feral animals. DEC's Good Neighbour Policy recognises this fundamental principle as does the WA Rangelands Wild Dog Management Policy.

- Government is a very significant land manager in the rangelands. Future adequate management of the impacts of biosecurity risks, including feral animals and weeds, depends on both industry and government meeting their biosecurity obligations.

Climate Change

- The southern rangelands is experiencing a change in rainfall patterns with a decline in the effectiveness of winter growing season rainfall and an increase in the intensity and frequency of summer rainfall events.
- Climate change has important implications for livestock production and resource management. Pastoral production must adopt more sophisticated and disciplined climate risk management practices in order to maintain enterprise profitability and avoid resource degradation.

Management Capacity and Responsibility

- The most valuable resource in the pastoral industry is the people. Not only are they prepared to live in and support remote communities, but they have a passion and commitment to the industry and regions. They hold a vital core of knowledge and the majority are conscious of their responsibility to manage the resource sustainably.
- Managing a complex biological system requires a high level of skills in assessment and decision making. The rangelands are a publicly owned resource and a public investment in managerial capacity building has the potential to provide multiplied benefits to the state.
- The withdrawal of DAFWA extension staff from most of the southern rangelands has resulted in a decline in the informal but effective system of capacity building which helped bring about improvements in resource condition after the 1970's.
- The Ecosystem Management Understanding (EMU) Project and subsequently the Ecologically Sustainable Rangeland Management (ESRM) initiative have demonstrated that capacity building can be achieved at a local level. The continuation of the ESRM project is in question following changes to Caring for our Country.
- Industry groups can create change with the necessary support. The Gascoyne Catchments Committee states that it is *“now seriously starting to discuss ways of dealing with supply chain issues, gaps in research and development, communications and how continuing the important Landcare work will improve water infiltration and vegetation diversity and coverage.”*
- Current investment in identifying successful management innovations, especially in animal management systems and in supporting and promoting innovations in technology, is limited.

LIST OF RECOMMENDATIONS

Recommendation One: *That government formulate and communicate a clear statement outlining its vision for the future of Western Australia's rangelands and the people who reside in these remote and unique environments.*

The social and cultural “capital” in the Australian rangelands is unique, but is being withered away under the pressure of the declining profitability of traditional activities. The SRPAG believes that governments need to recognise the value of this social and cultural capital and invest in its maintenance, as a value in its own right. *“These qualities include the age of the land, wilderness, the expansive vistas, the night sky, the Aboriginal notion of country”* (Fargher *et al* 2003) and we would also include the accumulated knowledge of those who use the rangelands.

Recommendation Two: *Facilitate opportunities for innovation and diversification within rangelands through improved legislation and administration*

This recommendation establishes a new paradigm in terms of the nature of the relationship between government and rangeland residents, particularly pastoralists.

Firstly, the importance of providing an assurance of continuing land tenure is acknowledged.

Amendments to legislation will give greater autonomy for pastoralists to adopt innovative and responsive management practices while still remaining obligated to demonstrate responsible land stewardship.

The expectations and aspirations of pastoralists, non-pastoral land dependant enterprises, and the public will be reflected in a new form of tenure.

Actions arising from Recommendation Two:

2.1 *Provide pastoralists with a greater sense of security of title and confidence to invest by guaranteeing renewal of existing titles as they expire beyond 2015, subject to the meeting of environmental and administrative requirements.*

2.2 *Amend the Land Administration Act 1997 with respect to pastoral leases, to:*

- *remove constraints on pastoral use that limit applying the full and appropriate intent of "primary production activity" as defined by the Native Title Act 1993.*
- *refocus Pastoral Lands Board policies to achieve positive environmental outcomes from pastoral management rather than prescribing specific pastoral management activities (for example, the requirement that agistment and destocking can only be undertaken with a permit).*
- *allow for pre-approval to transfer diversification permits as part of the permission to sell process.*

2.3 *Develop a support system to assist in alternative enterprise analysis and in negotiating the regulatory process for their establishment.*

2.4 *Recognising current native title requirements, review land tenure in the rangelands to match current land use requirements, unlock future land use potential and remove barriers to future investment. This may lead to the development of an elective 'Rangelands Lease' not limited by the nature of land use but based upon the attainment of land management and condition outcomes.*

Recommendation Three: Assist determination of native title at a regional scale

Recommendation three proposes a practical and equitable process to overcome the impediment comprised of the current litigious Native Title resolution processes.

Actions arising from Recommendation Three

- 3.1 Government must take a leadership role in facilitating land tenure outcomes currently restricted by Native Title.*
- 3.2 Develop Regional Framework Agreements between State and representative bodies to ensure whole-of-region outcomes.*
- 3.3 Improve coordination of ILUA negotiations with representative bodies to ensure whole of region outcomes.*
- 3.4 Government recognise that Native Title is a major impediment to desired changes and use all resources at its disposal to expedite resolution of any negotiations.*

Recommendation Four: *Regain control of wild dogs and other biosecurity issues*

Recommendation four recognises that all rangeland residents and users benefit from biosecurity and therefore have a biosecurity obligation.

The magnitude of the biosecurity problem requires that collective and coordinated investment is necessary for effective control. The importance of an integrated approach is highlighted, as is the lack of development of new technologies in feral animal control.

The implementation of biosecurity measures, particularly wild dog control, must engage all land managers. This is important firstly as the nature of the issues requires land managers' intimate knowledge of the landscapes, and secondly because land managers must adopt greater ownership of the problem.

Actions arising from Recommendation Four:

4.1 While a new Pastoral Biosecurity Fence is not considered a cost effective method of wild dog control, encourage and support the development of dog exclusion cells at a variety of scales, by exploring:

- opportunities provided by new or existing corridors for upgrading fence barriers (e.g. Oakajee rail line)*
- accelerated depreciation options for private barrier fencing*
- low interest loans for private barrier fencing*
- co-investment on DEC managed and UCL/Pastoral lease boundaries*

4.2 Provide support for organised community and industry groups to implement integrated pest management approaches including:

- executive support for the regional Recognised Biosecurity Groups (RBGs)*
- full implementation of the WA Rangelands Wild Dog Management Policy*
- encourage and support local groups to implement their strategies*
- employment of increased numbers of doggers*
- the limited use of bounties where part of an integrated pest management plan*

4.3 Immediately increase direct investment in the control of wild dogs, camels and other declared pests by providing adequate resourcing to government agencies with land management obligations to manage declared pests on that land in line with 'good neighbour' principles such as those adopted by the Department of Environment and Conservation.

4.4 Provide funding and operational support to investigate contemporary and innovative wild dog control methods and technologies. (eg Maremma guard dogs and fencing options).

4.5 Investigate applying a 'fee for service charge' on all rangelands landholders and users to fund the management of biosecurity risks in the rangelands.

Recommendation Five: *Encourage and support opportunities for industry and market development*

Recommendation five recognises the potential latent in the expertise and knowledge that currently exists among the pastoral industry and community leaders.

Forest products and carbon are interrelated issues. The scale of the rangelands constitutes a tremendous opportunity for sustainable harvest of forest products and sequestration of carbon. Management of rangeland for increased prevalence of timber products (eg sandalwood) or sequestration of carbon is strongly linked to improved ecological productivity and biodiversity. Existing legislation precludes reward to land managers for adopting practices that would promote timber production and carbon sequestration.

Actions arising from Recommendation Five:

- 5.1 Support industry groups planning innovative business development and sustainable land management practices (for example capitalising on niche market opportunities such as 'clean and green' or 'saltbush lamb'). The state government should consider financial support to continue and extend projects such as the ESRM initiative.*
- 5.2 Facilitate the development and introduction of new technology (virtual fencing, remote sensing) and training and education in their application, to enable improved animal control and grazing management.*
- 5.3 Remove the Forest Products Commission monopoly on the harvesting and marketing of timber products (particularly sandalwood) to provide the opportunity for pastoral lessees, within existing environmental and regulatory constraints, to benefit from the opportunity to establish, harvest and market timber products.*
- 5.4 Work with the Commonwealth Government to ensure that benefits arising from rangelands management for increased carbon sequestration by pastoral lessees returns to those land managers.*

Recommendation Six: Promote *the recovery and ensure preservation of the rangeland resource*

Recommendation six proposes a new paradigm of environmental responsibility and restoration. It provides a remedy to the recurring issue of prescriptive regulation focussing on the means of resource utilisation rather than the outcomes of use. It also removes the discrimination of regulation in terms of the nature of the rangeland user, ie pastoralist, miner, tourist.

SRPAG received strong representations that resources could be far more productively allocated to broad scale environmental restoration. This underlies the proposal for the Rangelands Environmental Fund and is consistent with the respective environmental obligations of miners and pastoralists. It reflects the contemporary societal aspiration that wealth generated in the rangelands be allocated to regional issues for the benefit of residents of the rangelands.

Actions arising from Recommendation Six:

6.1 *Replace existing regulations controlling protection and management of rangelands with a single unifying statute built around a 'Duty of Care' based upon environmental outcomes rather than specific enterprise requirements.*

6.2 *Develop the concept of a Rangelands Environmental Fund incorporating:*

- *financial offsets in regard to statutory environmental obligations incurred during major localised disruption (typically mining activities)*
- *investment in broad landscape rehabilitation of natural resources, including pest management, to achieve greater net environmental benefit as outlined in 6.3*

6.3 *Implement environmental stewardship contracts for on-ground management and protection of wetlands, threatened ecosystems, flora and fauna, cultural and heritage sites and other recognised landscape elements or threats to biosecurity.*

6.4 *Prepare for and respond to the impact of climate change in the southern rangelands with particular emphasis on:*

- *risk management*
- *adaptive land and livestock management*
- *investigation of and, where found appropriate, support for the introduction of alternative pasture species with the capacity to improve landscape function under climate change projections*

6.5 *Review monitoring and reporting programs across Agencies, together with other routinely collected data within the rangelands to improve:*

- *efficiency of collection and management of data*
- *availability and delivery of information in a form to assist pastoralists with management and decision making.*

REFERENCES

Anon, 2003. *Gascoyne Muster II: Alternative Models of Land tenure*, Report to the Minister for Planning and Infrastructure from the Alternative Models of Land Tenure Pastoral Industry Working Group, Department for Planning and Infrastructure, Perth.

Anon, 2003. *Gascoyne Muster II: Pastoralism for Sustainability*, Report to the Minister for Planning and Infrastructure from the Pastoralism for Sustainability Pastoral Industry Working Group, Department for Planning and Infrastructure, Perth.

EPA, 2007. *State of the Environment Report*, Environmental Protection Authority, retrieved 29 September 2009 from <http://www.soe.wa.gov.au/>

- Fargher, J.D., Howard, B.M., Burnside, D.G. and Andrew, M.H., 2003. The economy of the Australian rangelands – myth or mystery, *Rangelands Journal*, v 25(2), pp 140-156.
- Holm, A.McR., O'Connor, R., Foster, I., Stevens, M. and Beeston, G., 1995. *Regional Relativities of Sustainable Pastoral Sheep Production in Western Australia – A Submission to the Pastoral Wool Industry Task Force and Wool Strategy Task Force*.
- Howard, B. and Burnside, D., 2009. *Final Report: Benefit Cost Analysis of Biosecurity Fence Options to Protect Southern Rangelands from Wild Dog Impacts*, URS Corporation, Perth
- Industry Commission, 1998. *A Full Repairing Lease: Inquiry into Ecologically Sustainable Land Management*, Commonwealth of Australia, Canberra.
- Jennings, B.G., 1972. *The Effect of Drought on the Pastoral Industry of the Goldfields Region*, Department of Agriculture, Perth.
- Jennings, B.G., 1979. *The Present and Future Pastoral Industry of Western Australia*.
- McKeon, G., Hall, W., Henry, B., Stone, G. and Watson, I., 2004. Pasture Degradation and Recovery in Australia's Rangelands: Learning from History, Queensland Department of Natural Resources, Mines and Energy.
- McKeon, G.M., Stone, G.S., Syktus, J.I., Carter, J.O., Flood, N.R., Ahrens, D.G., Bruget, D.N., Chilcott, C.R., Cobon, D.H., Cowley, R.A., Crimp, S.J., Fraser, G.W., Howden, S.M., Johnston, P.W., Ryan, J.G., Stokes, C.J. and Day, K.A., 2009. Climate Change Impacts on Northern Australian Rangeland Livestock Carrying Capacity: A Review of Issues, *Rangeland Journal*, v 31, pp 1-29.
- O'Connor, R., 2004. *Gascoyne-Murchison Strategy 2003-2004 Annual Report and Final Report*, Department of Agriculture WA.
- Productivity Commission, 2002. *Pastoral Leases and Non-Pastoral Land Use*, Commonwealth of Australia, Canberra
- Stanton, J. & Coss, L., 2000. *Analysis of Western Australian Wool Quality on a Shire Basis*, Technical Bulletin 91, Department of Agriculture and Food.
- Stevens, M., 1993. *Final Report of the Pastoral Wool Industry Task Force*, Department of Agriculture WA.

APPENDIX 1:

OVERVIEW OF SOUTHERN RANGELANDS PASTORAL INDUSTRY

Resource and Climate

For the purposes of this review, the southern rangelands refers to the southern pastoral zone being the geographical region outside the south west agricultural area but not including the arid interior. The area includes the Gascoyne, Murchison, Goldfields and Nullarbor regions.

Rainfall is typically low (< 250mm) and highly variable, tending to be more winter dominant on the Nullarbor and southern Goldfields. Winter is the usual growing season.

Vegetation of the district is characterised by a variable, long lived shrub community underneath an overstorey of Mulga (*Acacia aneura*) or gum trees (*Eucalyptus spp*). Ephemeral grasses and forbs constitute the major component of stock feed but their availability varies widely according to seasons.

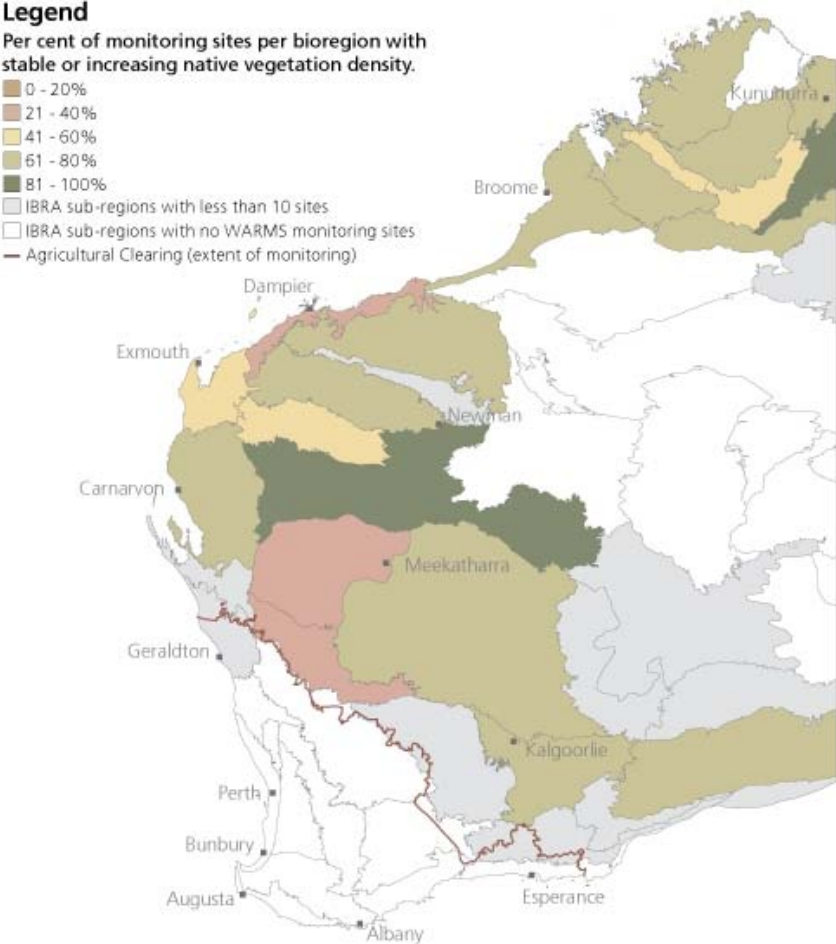
Productivity of the perennial component of the vegetation communities in the southern rangelands is low in comparison to the productivity of pastures in the northern pastoral grasslands. As a result of this low productivity and the unreliable seasons, the perennial vegetation is susceptible to degradation through overgrazing.

Rangeland surveys reveal that the condition of perennial vegetation in these districts varies considerably. Historic overgrazing has caused effectively permanent degradation of some areas of higher productivity rangeland, particularly in the Gascoyne and Murchison regions which have experienced longer settlement.

More recently several factors including managerial experience, better understanding of landscape processes, comprehensive range resource inventory, range monitoring and drought management strategies, to name a few, have led to more informed management.

Figure 1 outlines trend data from the extensive Western Australian Rangeland Monitoring System (WARMS), collected since the 1990s. This period coincided with an extended series of favourable seasons. The data indicates a general increase in plant numbers and cover throughout the southern rangelands. However, results are patchy, with disappointing examples of overuse and ongoing resource degradation (EPA 2007).

Figure 1: Recent Rangeland Condition Trend – WARMS



EPA 2007

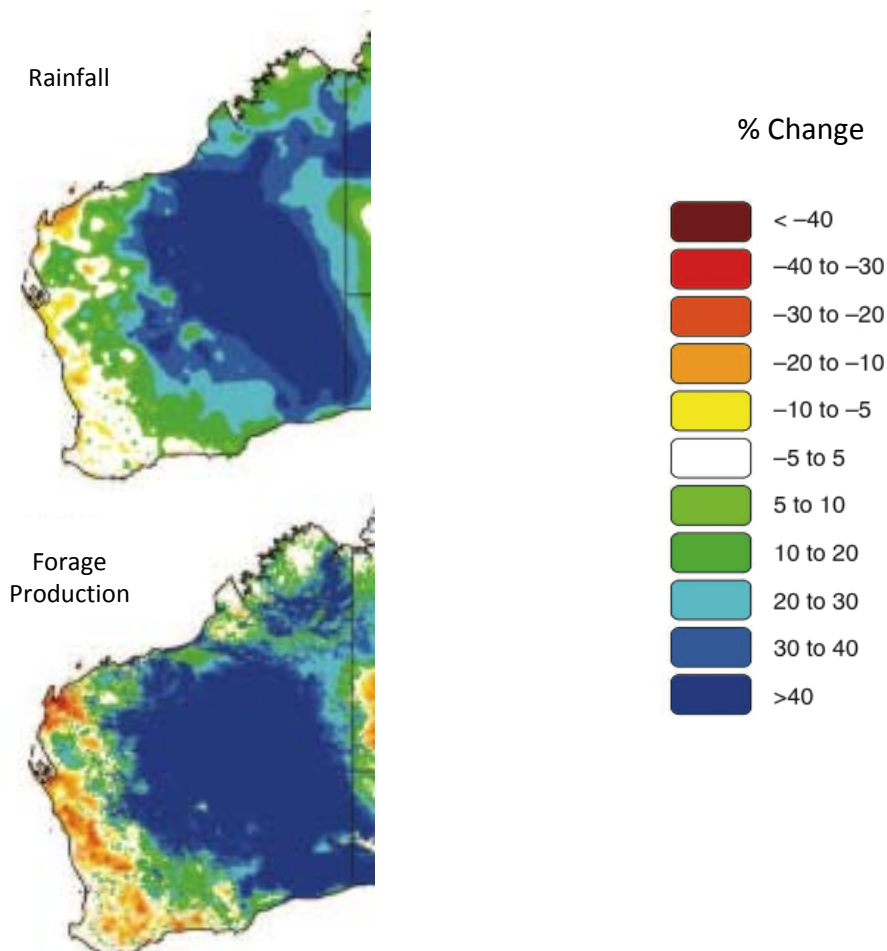
A separate issue is the increasing occurrence of introduced Buffel Grass (*Cenchrus ciliaris*) in the Gascoyne region, particularly on the higher productivity land systems. Buffel grass establishment has positive implications for pastoral enterprises as it increases the amount of pasture available and can serve to stabilise soils at risk of erosion. However it has negative implications for biodiversity particularly in terms of flora species richness and seed eating fauna.

Climate Change

Evidence is emerging that climate change will impact significantly on pastoral enterprises in the southern rangelands. The primary impact will occur in the form of altered rainfall, both in terms of magnitude and seasonality, and the subsequent impact on forage production.

Figure 2 illustrates the observed change in both rainfall and forage production over the period 1991 – 2007 compared to the period 1961 – 1990. Recent rainfall in the southern rangelands has varied significantly from the long term average. Rain appears to have increased by as much as 40% in the extreme east but has trended downwards to average in the west. Forage production has mostly mirrored the rainfall trend.

Figure 2: Seasonal Climate Variation



(after McKeon et al 2009)

While Figure 2 portrays an increase in total rainfall since 1991, it does not reflect its seasonality. Pastoralists in the southern rangelands acknowledge that recent annual rain has been elevated, particularly during the 1990's. However they also contend that this has occurred in the form of ineffective, high intensity summer rainfall events while winter (growing season) rainfall has diminished.

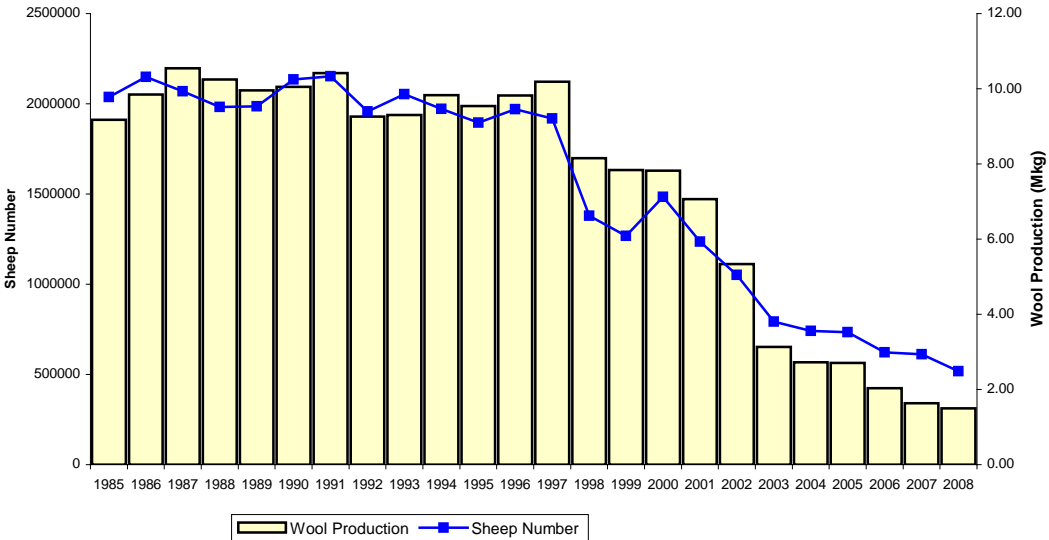
While most climate change models predict increased rainfall, rain is forecast to become more variable and severe weather events, including prolonged drought, more common. In addition to rainfall, forage production response will be influenced by other known variables

including increased temperature, raised atmospheric CO₂ and the limited capacity of the native pastures to respond to altered rainfall seasonality.

Livestock Production

The southern rangelands once supported a prosperous wool producing industry. As shown in Figure 3, in 1985 the region supported greater than 2,000,000 sheep, producing almost 10,000 tonnes of wool. By 2008 sheep numbers have fallen by 75% to 500,000 sheep, and wool produced has fallen by more than 80% to 1,500 tonnes.

Figure 3: Southern Rangelands Wool Production and Sheep Numbers 1985 - 2008



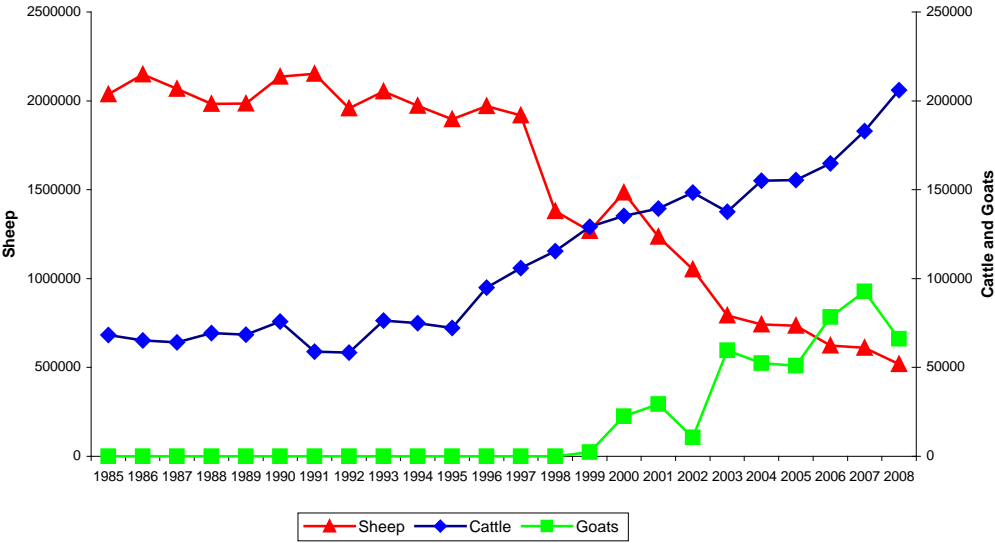
Source: Annual Returns of Livestock and Improvements & Stanton and Coss 2000

The breed of sheep (small stock) has changed significantly during this time also with increasing numbers of meat sheep and semi-managed goat herds being run.

The contribution of southern rangelands sheep production is currently less than 3% of the total value of state sheep production.

Figure 4 indicates an ongoing structural shift in the type of livestock run in the southern rangelands. During the period that sheep numbers have been declining, cattle numbers have increased by more than 300%, from 65,000 to more than 200,000. Net overall grazing impact is diminished as the reduced number of sheep has not been offset by the increased number of cattle.

Figure 4: Change in Livestock Type 1985 - 2008



Source: Annual Returns of Livestock and Improvements

The shift to cattle has come about partly in response to those factors adversely impacting small stock enterprises. Producers consider that cattle are more resistant to wild dog predation, require reduced infrastructure and labour inputs, and offer superior financial returns.

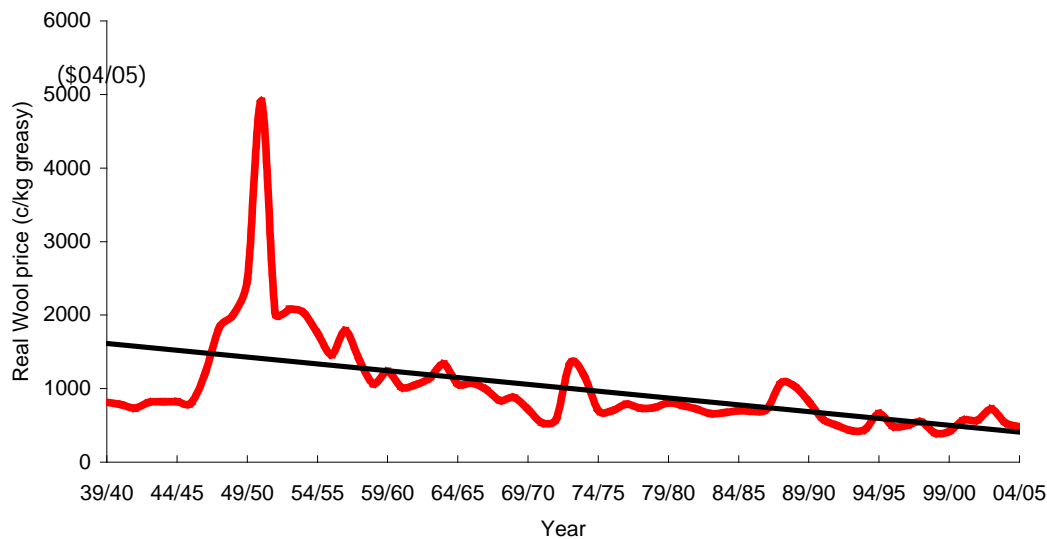
Reasons for Change

There are a number of factors causing the decline in small stock numbers in the southern rangelands.

Current Profitability

Wool production from Merino sheep has and continues to experience deteriorating terms of trade. Figure 5 illustrates the gradual deterioration in the real price received by wool producers since the 1950's. The price 'spike' experienced during the Korean War in the 1950's is evident, as are the higher prices under Wool Reserve Price Scheme around 1990.

Figure 5: Long Term Real Price for Wool



Source: ABARE

Poor returns have diminished the capacity for pastoralists to invest in necessary infrastructure maintenance over a considerable period of time (> 20 years). The condition of small stock infrastructure has currently deteriorated to the point that many pastoral leases in the southern rangelands have inadequate infrastructure to support a Merino sheep enterprise.

Wild Dogs

Wild dog predation of small stock has increased to unsustainable levels, particularly in the Goldfields, and the east and north of the Murchison. Most producers in these areas have abandoned small stock for cattle which are less impacted by wild dogs.

Wild dog numbers have increased as a result of diminished control efforts. This lack of control is directly a result of the diminished returns to sheep production and reduced government investment.

Outlook

Small Stock

The outlook for wool production in the southern rangelands is unfavourable. The current deterioration in the terms of trade is a trend expected to continue. It is unlikely that returns from wool production can sustain the necessary investment in infrastructure or wild dog control necessary for a profitable Merino sheep industry.

There is some evidence that alternative small stock production (meat sheep or goats) is potentially more profitable. These breeds offer superior reproductive and growth rates than Merino sheep, and are more biophysically suitable to shrub based forage. It is significant also that these livestock require less labour and infrastructure inputs than Merino sheep. However they are still extremely susceptible to wild dog predation.

Cattle

There is suggestion that cattle production may offer a more profitable alternative to small stock production particularly as cattle are more resistant to wild dog predation. While there is some conjecture as to whether the southern rangelands vegetation is suited to cattle production, cattle have been identified with superior land management outcomes in comparison to sheep.

Non-Pastoral Income

There have been lucrative opportunities for pastoralists to participate in the resources industry, particularly in the Goldfields and east Murchison. This has had the effect of allowing pastoralists to remain resident on their leases while reducing or removing livestock yet sustaining an acceptable standard of living.

It is expected that the minerals industry in the southern rangelands, particularly gold, will continue to experience relatively buoyant conditions. Subsequently pastoralists will continue to enjoy opportunities to derive significant income from off-station sources. This is considered to offer a net benefit to the pastoral industry particularly when lessees choose to re-invest mining income in pastoral infrastructure.

Pastoralists are also deriving benefit from other non-pastoral activities such as tourism ventures, horticulture and sandalwood harvesting.

Wild Dog Control

The impact and control of wild dogs has been a critical and complex issue for SRPAG. The committee acknowledges that the increasing presence of wild dogs is completely incompatible with a profitable small stock industry in the southern rangelands into the future.

Studies indicate that a five-fold increase in current control efforts would be required to bring wild dog numbers back to a point where they would not threaten a small stock industry (Howard and Burnside 2009).

Pastoral Biosecurity Fence

URS Australia recently completed a cost/benefit analysis of the proposed state funded biosecurity fence as a means of excluding wild dogs from the small stock areas of the southern rangelands. The study evaluated a range of alternatives including the fencing of regional areas or 'cells'.

SRPAG have considered the URS report and concurred that state funded construction of a dog exclusion fence for the southern rangelands cannot be justified by an economic argument of increased production from small stock. The group is also of the view that there are significant, complex issues associated with ongoing control of wild dog populations inside the proposed barrier.

Conclusion

For further information on the SRPAG report or the material, research and previous reviews consulted in its compilation please contact:

David Warburton
Department of Agriculture and Food WA

Ph: 9690 2000
email: david.warburton@agric.wa.gov.au