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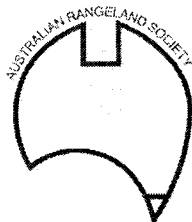
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The Australian Rangeland Society

ECONOMIC VIABILITY ENHANCES ENVIRONMENTAL SUSTAINABILITY

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Project Overview

The Rangelands Management Action Plan (RMAP) is centered on the rangeland areas of the Lower Murray-Darling region of South Western New South Wales. The action plan was developed by the community for the community and outlines a set of strategies to improve the management of the area’s natural resources. Although the document is focussed on natural resource management, we see that the adoption of these principles outlined in the document will also address viability of landholders within the region. Hence our **mission statement**:

“To improve landholder viability while maintaining or enhancing natural resources, biodiversity and cultural heritage.”

RMAP was developed through input from agencies, local traditional aboriginals, conservation representatives and landholders, also extensive consultation with the broader community. The end result is a very **honest** and accurate position statement of the condition of the region’s natural resources, economy and the social issues confronting those that live and work in the rangelands of the Lower Murray-Darling region.

Resource Consulting Service Group (with large stakeholder input) prepared a “Socio-economic profile of the Lower Murray Darling Rangelands Community” (a comprehensive socio-economic study of the region). The report provides a benchmark for the region to measure it’s current position and future performance. Key features of profitable properties were also identified.

Priority Issues:

Undoubtedly the highest priority issues were:

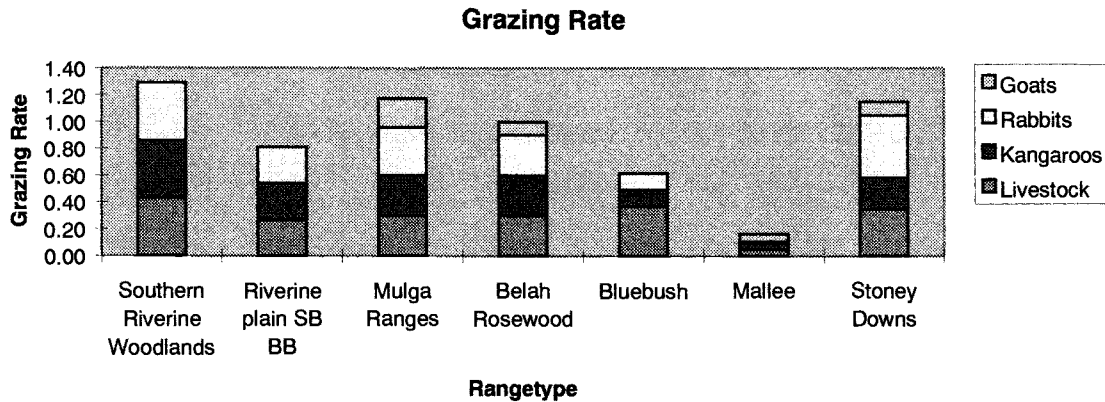
- Enterprise viability
- Structural Adjustment

Viability influences the rate of best practice adoption and economic pressure directly contributes to the degradation of natural resources.

A number of issues affecting rangeland enterprise viability include:

- management of grazing pressure by livestock,
- livestock management,
- management of grazing pressure and predation caused by native and feral animals,
- weed control,
- preservation of native vegetation,
- application of conservation farming techniques,
- Effective product marketing.

Pastoralism is the major source of income for the region. Carrying capacity could increase by 14-23% if effective pest control was maintained. Combined with the potential to improve other areas of management practice (eg stock management, pasture management, financial management), the outlook is still positive for many landholders.



Source: Source: Anderson, Val, and Moore (1999)

Commercial livestock ONLY accounts for around one third of the total grazing pressure (prior to release of calicivirus).

In general terms rabbits, kangaroos and livestock apply similar levels of grazing pressure for each range type.

A single family partnership is the most predominant form of farm business (RCS, 1998). The table below provides an estimation of the gross value of production. As there are no official statistics for the region, this table is based on information supplied by survey respondents. As such the numbers must be considered indicative.

Estimated Gross Value of Production

Industry	Gross Units	Gross Product (\$M)
Pastoral (DSE's)	947 800	19.0
Horticulture (ha)	32 000	43.0
Cropping (ha)	170 750	11.6
Other	-	3.0
Total	-	76.6

Source: RCS (1998), Excludes Tandou,

The management of issues listed below depends on the ability of landholders to effectively address the aspects of property management which affect enterprise viability as listed on page one:

- Drought survival
- Maintenance of Biodiversity
- Minimisation of erosion and ground water recharge
- Preservation of cultural heritage

Prioritising RMAP Resource Management Issues

Issue	Reasoning
1) Grazing management and total grazing pressure.	Grazing management is related to issues such as profitability, drought management, biodiversity and weed control. Effective management of non-commercial species is equally as important as the management of commercial species due to their very high contribution to total grazing pressure. Overgrazing historically lead to significant decline in the condition of most rangetypes, however this trend is being reversed in some instances.
2) Pest control.	Impacts on affordability, drought management and biodiversity. Significant advancement can be achieved in the short term. There is also the opportunity to control rabbits, the most serious pest species prior to the release of Calici virus, in the long term.
3) Weed control.	Closely follows pest control in priority. However, this issue must be addressed over the long term.

There are also issues relating to Best Management Practices (BMP's) for example:

- Landholder participation in extension programs.
- Effective farm business planning.
- General business and property management skills.

Potential to Increase Production and Improve the Efficiency of Operation

This action plan outlines best practice as it relates to the rangelands. There are many areas where management can improve significantly and thereby increase productivity and profitability. However, best practice also implies sustainable production, and therefore some changes in management may decrease profitability in the short term in order to achieve environmental gains.

1996/97 Performance Indicators

Gross Margin	Top 20% of RMAP Producers	RMAP Average
Beef (\$/LSU)	103	45
Sheep (\$/DSE)	18	10
Wheat (\$/ha)	39	24

Source: RCS (1998)

Short comings in Government programs and institutional arrangements:

- Availability of planning instruments to protect native flora and fauna.
- Availability of effective services to enhance adoption of BMP's
- Lack of effective noxious weed control strategies
- Need to monitor the effectiveness of any management changes.

The preparation of the action plan for the LMD rangelands area is beneficial in that it provides a single reference document that outlines the key issues affecting the region and recommended strategies to address these issues and has the support of the community and government agencies. RMAP is essentially a "window in time" as it was completed over a four year period (a very short time frame in the life of the region!) and for that reason is a dynamic document that will be continually reviewed.

The adoption of the plan's proposals will ensure an integrated, strategic approach to the future management of the rangelands.

Quantifying a Sustainable Carrying Capacity

Pastoralism is the main source of income under the operating systems in the rangelands. Despite the opportunities for alternative enterprises pastoralism will probably continue as the foundation of the rangelands community.

RMAP outlines various scenarios that will have an impact on grazing pressure. These include:

- **Improved pasture management:** improved productivity per head will improve landholder returns. Improved grazing practices will lead to a more responsive grazing management regime, allowing for fodder recovery periods. Combined, these may not necessarily facilitate higher commercial stocking rates if the current stocking rate is identified as too high.
- **Improved pest control:** provides significant opportunity for higher commercial stocking rates.
- **Improved weed control:** provides some opportunity for higher commercial stocking rates.*
- **Stable or improving range condition:** only three of the seven rangetypes are showing improving range condition. Unfortunately, range condition has declined substantially when compared to pre-European settlement. For those areas that are improving, is the rate of improvement acceptable? Overall, these responses provide mixed opportunity for higher commercial stocking rates.

* It is interesting to note that some of the original European explorers estimated that there were approximately 1-2 kangaroos/km². This equates to a grazing rate of 0.01-0.02 DSE/ha. Comparing this historic pre-European grazing rate to current grazing rates highlights the manifold increase, in the order of one hundred times greater.

The following model attempts to quantify the potential increase in stocking rates from a regional perspective. It is based on the following assumptions:

- **Weed control:** The impact of weeds on carrying capacity is varied. For example, some weeds form dense stands that compete with pasture or physically exclude stock. Conversely, a sparse cover of woody weeds may increase carrying capacity by providing improved growing conditions (shelter) for pasture. Many weeds are also palatable to sheep, and may not necessarily decrease carrying capacity. Therefore, it is assumed that the effects of weeds on carrying capacity is negligible from a regional perspective.
- **Pest control:** In the first scenario it is assumed that rabbit and goat numbers are maintained at low numbers, with an impact equivalent to 0.05 DSE. The second scenario assumes suppression of rabbits, goats and kangaroo numbers. The assumed kangaroo grazing impact is based on 5 kangaroos/km², or 0.04 DSE.
- **Trend in rangetype condition:** If the range trend is improving, then 50% of any gains due to effective pest control is attributed to increased commercial stocking rates. The remaining 50% contributes to further environmental improvement. If the range trend is variable or declining, then any gain due to effective pest control is allocated to improving the environment.

Modelling Potential Carrying Capacities

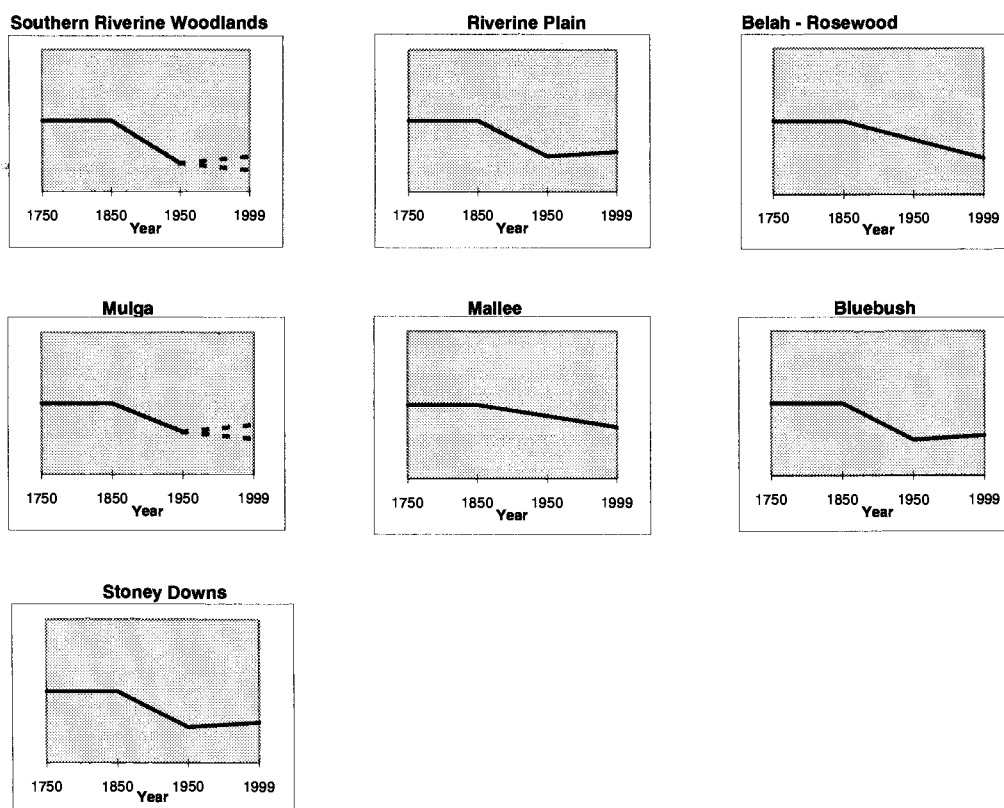
Rangetype	Area (ha)	Recent Trend in Range Condition	Commercial Grazing Pressure (DSE/ha)		
			Current	Potential with rabbit/goat control	Potential with rabbit/goat/kangaroo control
Southern Riverine Woodlands	670 000	Variable	0.43	0.43	0.43
Riverine Plain	340 000	Improving	0.27	0.39	0.50
Mulga	40 000	Variable	0.30	0.30	0.30
Belah Rosewood	1 860 000	Declining	0.30	0.30	0.30
Bluebush	570 000	Improving	0.37	0.41	0.45
Mallee	1 810 000	Declining	0.05	0.05	0.05
Stoney Downs	710 000	Improving	0.35	0.56	0.66
Total DSE			1 500 000	1 713 000	1 844 000

The above table shows that maintaining rabbits and feral goats to minimum would sustainably permit an additional 213,000 DSE in commercial stock, a 14% increase.

Effective control of the kangaroo population as well would allow for an additional 344,000 DSE, a total increase over current commercial stocking rates of 23%.

CHANGES IN RANGELAND VEGETATION:

The graph following shows the trend in rangeland condition over time, interesting to note that as a generalisation the area has been improving since the 1950's. Also of note is the fact that the two main types of vegetation still in decline are those best represented in Parks and reserves.



Property Performance

Total investment is large with the regional average \$1.23 million per property (including land, plant and equipment). Return on assets managed in 1996/97 averaged -0.5 per cent. As a result 54 per cent of businesses suffered negative net economic profit in 1996/97.

Viable properties do exist with 5 per cent demonstrating a positive return on assets managed in 1996/97. These properties in 1996/97:

- Had considerably higher sheep gross margins/DSE (dry sheep equivalent) (\$18/DSE compared to the average of \$10/DSE)
- Achieved a better greasy wool price (\$2.94/kg compared to \$2.81/kg)
- Marked 71 per cent lambs compared to 65 per cent average
- Had slightly lower debt level (\$19/DSE compared to \$23/DSE average). But note the bottom 20 per cent had a debt level of \$5/DSE
- Generated a gross product of \$142,000/labour year compared to an average of \$98,000/labour year
- Had an expense ratio of 61 per cent compared to average 92 per cent

By comparison, poor performers had less data recorded.

- This document does not hold all the keys or the secrets to the future, but it does enable people to help themselves and point to areas where help is available.

REFERENCES

Lower Murray Darling Socio-economic Profile (1998). March.

Lower Murray Darling Rangelands Management Action Plan (1999). December.