PROCEEDINGS OF THE AUSTRALIAN RANGELAND SOCIETY BIENNIAL CONFERENCE
Official publication of The Australian Rangeland Society

Form of Reference
The reference for this article should be in this general form;

Author family name, initials (year). Title. *In*: Proceedings of the *n*th Australian Rangeland Society Biennial Conference. Pages. (Australian Rangeland Society: Australia).

For example:

Anderson, L., van Klinken, R. D., and Shepherd, D. (2008). Aerially surveying Mesquite *(Prosopis* spp.) in the Pilbara. *In*: 'A Climate of Change in the Rangelands. Proceedings of the 15th Australian Rangeland Society Biennial Conference'. (Ed. D. Orr) 4 pages. (Australian Rangeland Society: Australia).

Disclaimer
The Australian Rangeland Society and Editors cannot be held responsible for errors or any consequences arising from the use of information obtained in this article or in the Proceedings of the Australian Rangeland Society Biennial Conferences. The views and opinions expressed do not necessarily reflect those of the Australian Rangeland Society and Editors, neither does the publication of advertisements constitute any endorsement by the Australian Rangeland Society and Editors of the products advertised.

The Australian Rangeland Society

CASE STUDY, GAWLER RANGES SOUTH AUSTRALIA
BUILDING PARTNERSHIPS TO IMPROVE RANGELAND MANAGEMENT

Deborah Allen

Rural Solutions SA, PO Box 357, Port Augusta, SA 5700

Email: allen.deborah2@saugov.sa.gov.au

The recognition of collaborative, partnership-based approaches to natural resource management (NRM) in South Australian rangelands has grown from the extension of Government policy and regulations to the development of community initiated programs. The Building Partnerships to Improve Rangeland Management project, funded by the Australian Government is a project promoting a grass-roots approach to NRM that also has pastoral profitability outcomes.

Pastoralists' past experience with some Government driven projects meant there was some initial scepticism towards the project. However, with committed extension support and the development of on ground projects, barriers dissolved.

The outcome achieved resulted in the development of a range of projects across the rangelands region in South Australia and included property trials, workshops and a biodiversity study of ephemeral lakes in the southern Gawler Ranges.

INTRODUCTION

The Building Partnerships to Improve Rangeland Management project is a collaborative, partnership-based approach to natural resource management in South Australian rangelands. The project's broad objective is to support pastoral land management groups to work together to implement practice change that improves enterprise management, at the same time optimising NRM outcomes.

In South Australia until recently, District Soil Conservation Boards provided land management support to pastoralists but were often constrained by limited funding. In recent times, Natural Resource Management Boards provide both funding and technical support to pastoral land managers.

The Building Partnerships to Improve Rangeland Management project offered a new opportunity for pastoralists to be innovative and creative in developing projects. Individuals and groups involved in the project were hesitant initially, however participation into the program gradually increased to the point where we now have several large innovative projects being delivered.

The focus of this paper is on one of the many groups involved in this project: the Gawler Ranges Progress Association and the achievements they have made in the delivery of innovative projects.

ENGAGING THE GAWLER RANGES PASTORAL COMMUNITY

The Gawler Ranges Progress Association (GRPA) represents some 20 pastoral families living in the Gawler Ranges district west of Port Augusta, South Australia. The first step taken to engage the Gawler Ranges pastoral community was a fact finding process that allowed pastoralists to express their immediate issues, both productive and natural resource, identify learning and development gaps and then explore innovative solutions to some very old problems.

A key factor contributing to the success of the Building Partnerships to Improve Rangeland Management project in the Gawler Ranges were 'the people'. The Gawler Ranges Progress Association has long been established with solid relationships formed between members, mostly at a social and community level. Working together to achieve outcomes was not a new concept with this group, but the project offered an opportunity to work together to achieve outcomes of a different nature. The engagement and consultation process allowed pastoralists to build a relationship with the project facilitator who then worked with the group to develop ideas into projects.

IDENTIFICATION OF ISSUES

Issues identified as a concern to the sustainability in the Gawler Ranges are not isolated to this region but are shared throughout the South Australian rangelands.

The most pressing concerns included:

- Surface water resource management
- Land degradation
- Fox predation on stock.

Learning gaps were also identified that included:

- Managing livestock nutrition
- Understanding rangeland pasture species and the relationship with production
- Increasing skills in plant identification.

Over the course of 12 months the Gawler Ranges pastoral community accomplished some very exciting and innovative projects that addressed both production and NRM outcomes.

OVERVIEW OF PROJECTS – what was achieved

The Livestock Food Pyramid

The aim of the livestock nutrition workshop was to increase the knowledge and understanding of the rangeland forage resources and how they affect production. The workshop was divided into three distinct parts. The first was to study in detail the digestive systems of both sheep and cattle. In understanding the basics of the digestive cycle and the role of protein, energy and fibre, participants could then associate these elements to stock condition and ultimately stock production.

The second part was to examine the nutritional value of rangeland forage resources. Learning to identify species that are high in protein, energy and fibre is an important management tool to aid improved production outcomes, maintain stock condition and manage supplementary feeding requirements.

The third part was to improve participant's plant identification skills. Participants were provided with the skills required to identify important rangeland forage species. Opportunity was given to test their skills through a range of field exercises.

The outcome of the workshop was positive with many participants stating they had learnt new information and gained knowledge to confidently change old practices.

Counting Every Drop – Evaporation Trial

Sustainable management of water is vital in the Gawler Ranges pastoral region which is largely dependent on surface water. With an average evaporation rate of 2300mm per annum and an average rainfall of 250mm per annum, surface water resources must be well managed to sustain production.

Several evaporation control technologies exist but are they affordable, accessible and appropriate to the pastoral setting? In setting up the evaporation trial in the Gawler Ranges in conjunction with the station manager we needed to critically assess the available technologies, do a cost benefit analysis of each option and importantly, develop a monitoring methodology that suited the pastoral environment and the pastoral manager.

The cost benefit analysis demonstrated that the AgFloat product at a $/sq.m purchase price was considerably less than other available products, required no technical training and required little ongoing maintenance.

AgFloat is a new innovative evaporation control product locally made in Adelaide that uses recycled truck tyres filled with recycled polystyrene. The product floats on the surface of the dam, covering up

to 70% of the surface thereby reducing evaporation by 70%. The results to date indicate that evaporation rates are less.

Overall success of this product in reducing evaporation will require several more years of monitoring before a full evaluation can be made.

Plugging the Leak – Dam Seepage Trial

Along with high evaporation rates is the inability of dams to hold water due to the absence of clay in the soil profile. The geology of this region consists of deep alluvial fans over-laid with a shallow layer of sediments composed of sandstone, siltstone and shale. Despite relatively large run-off from adjacent hills, dams in this region have little ability to hold water beyond a few months.

The aim of the trial was to explore the available technologies and apply them to the pastoral setting. During the course of this trial we discovered that poor dam design also contributed to ineffective surface water management. This trial enabled better dam design along with the application of a suitable liner for the pastoral setting that resulted in better management of surface water and improved water quality for stock.

Bringing Back the Cover – Revegetation Trial

A serious management problem for today's pastoralists is the loss of production potential due to past land management practices that has resulted in removal of vegetation and subsequent bare paddocks. Questions we needed to address prior to the trial included: Is it viable to direct seed large tracts of land? Where can we source large quantities of seed? What species do we use? Can we do something different?

In working collaboratively with the station manager, the trial will establish the effectiveness of direct seeding with *Atriplex vesicaria* verses self regeneration to increase plant re-establishment on bare paddocks. The design includes the technique of ripping with seed application and ripping with no seed application. As the trial design developed the station manager identified a need to monitor the effect of non-domestic grazing impact on regeneration of the bladder saltbush. A small animal exclusion plot has been established. A photopoint monitoring regime has been implemented across the trial site and will be carried out by the station manager.

Off with the Fox – Fox Control Trial

Poor lambing statistics are often correlated to the presence of foxes in the sheep grazing districts. However, the use of traditional 1080 meat baits is not seen as a viable method to control fox populations. The major reasons for this expressed by sheep graziers included: fox baits can be taken by their domestic dogs, high effort required to maintain a baiting program and inconsistent baiting with high re-invasion into control paddocks. This trial therefore sets out to explore innovative technologies available applicable to the rangelands to help pastoralists decide optimal fox control methods to improve production.

An innovative device being trialled in other parts of the Australia is the M44 ejector. This device is loaded with a 1080 capsule enclosed in a canister that is partially buried in the ground. Once the fox releases the lid the ejector discharges a spray of 1080 directly into the mouth of the fox. The mechanism required to release the lid is specifically designed to suit the foxes hunting habit.

The vigorous monitoring regime developed will record traditional 1080 bait uptakes and ejector releases twice yearly over the next three years and ongoing sand pad monitoring to detect fox activity across two properties.

Biodiversity Value of Ephemeral Swamps

Ephemeral swamps in the southern Gawler Ranges fill only after unusual rain events, for most parts they are essentially dry. A significant rain event in January 2007 turned previously dry swamps into

oases, providing important watering points for stock as well as habitat for birds that began to arrive soon after the rains.

The pastoralists managing these swamps wanted to understand the ecological significance of these swamps and to learn what they could do to protect the waterbird habitat. Firstly, we needed to know what species, how many and how did they use the swamps along the southern Gawler Ranges before management actions could be developed.

The first surveys have revealed that the swamps and surrounding vegetation are important drought refuge areas for native animals. Waterbirds sighted at the swamps include – approximately 10 species of duck, including the rare Freckled Duck, Grebes, Coots, Swans, Herons, Stilts and Waders such as the Red-necked Avocet. The surrounding vegetation provides habitat for bats and many bush birds such as the Swamp Harrier, Australian Hobby, Robins, Wrens, Honeyeaters, Parrots and Chats.

The ecological value of the swamps and the pastoral value of the swamps will in essence, determine the management actions adopted by the pastoralists.

CONCLUSION

The final success of the Gawler Ranges projects is yet to be known due to the limited time to date to monitor and evaluate the results. However, the success of the Building Partnerships to Improve Rangeland Management project is high in terms of engagement. Participants showed enthusiastic interest by:

- Collaboratively working together to identify and prioritise natural resource management and production issues
- Developing ideas into projects
- Ultimately delivering the on ground component.

The achievements within the Gawler Ranges pastoral community can be attributed to their previously established strong community connectedness. Furthermore, the Gawler Ranges pastoral community have shown that improvement to natural resource condition can be achieved without compromising livelihoods.

ACKNOWLEDGEMENTS

Thanks are given to the following people and organisations for support and assistance:

- Australian Government, Natural Heritage Trust Funding
- Western Australian Rangelands NRM Coordinating Group for managing the funding
- Gawler Ranges Progress Association for ideas, energy and enthusiasm in developing and taking on projects
- Ecological Horizons Pty Ltd for their commitment to the conservation of arid land biodiversity
- Peter Langdon for his ornithological knowledge and passion to share this with the community
- Pestat for designing a fox control trial for the pastoral region
- AgFloat for being part of the evaporation control trial
- Fabtech for working with us to develop a dam seepage trial
- Merri Tothill, Rural Solutions SA for her peer support