The Australian Rangeland Society

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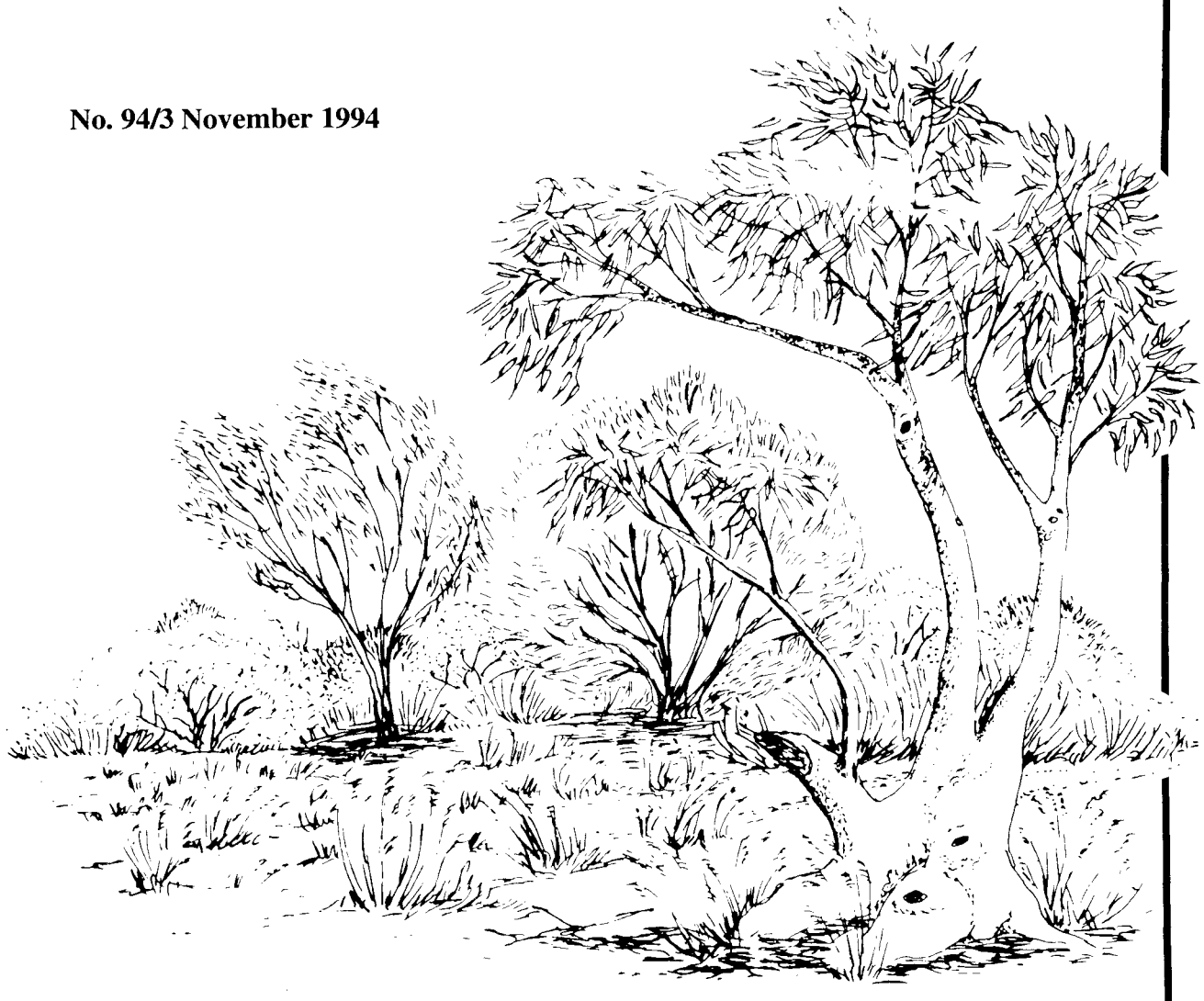
No. 94/3 November 1994



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EDITOR (RMN)
Gary Bastin
CSIRO, PO Box 2111, Alice Springs NT 0871
Phone (089) 500124 Fax (089) 529587
Email: Gary.Bastin@dwe.csiro.au

EDITOR (Rangeland Journal)
Dr Allan Wilson
"Cal Col"
Deniliquin, NSW 2710
Phone and Fax (058) 823338

PRESIDENT
Alec Holm
PO Box 718
Victoria Park WA 6100
Phone (09) 3683705 B.H. Fax (09) 3683751

VICE PRESIDENTS
Robert Symonds
Boologooroo Station
via Carnarvon WA 6701
Phone (099) 425907

Ron Hacker
NSW Agriculture
PO Box 865
Dubbo NSW 2830
Phone (068) 811270 B.H. Fax (068) 811295

IMMEDIATE PAST PRESIDENT
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PO Box 3310, Alice Springs NT 0871
Phone and Fax (089) 555222

SECRETARY
Sandra Van Vreeswyk
PO Box 718
Victoria Park WA 6100
Phone (09) 3683917 B.H. Fax (09) 3683946

TREASURER
David Pearson
PO Box 718
Victoria Park WA 6100
Phone (09) 4055112 B.H. Fax (09) 3061641

SUBSCRIPTION SECRETARY
Anne Stammers
PO Box 718
Victoria Park WA 6100

CONTENTS *Range Management Newsletter 94/3*

FROM THE EDITOR

Gary Bastin, CSIRO, PO Box 2111, Alice Springs NT 0871

It has been quite a few months since the last Newsletter and in that time, I have received many contributions for this issue. To me, this issue is characterised by reflections (on the Katherine conference) and visions (for the future of our rangelands and our Society).

I have included the transcript of Bill Burrows' closing remarks at the Katherine conference because, amongst his commentary, Bill offers some particularly pertinent remarks on where the Australian Rangeland Society has come from and where it may be heading. Don Burnside and Bob Symonds echo these sentiments in a sense as they also ponder the role that this Society should take in framing the future of our rangelands. Continuing in this vein, Federal Council is pushing on with its goal of having the Society develop a "vision" and strategic goals for the rangelands. Alec Holm provides an update in his "President's Notes" and I join with him in urging all members of the Society to contribute to this process.

From the perspective of the pastoral industry, Wim Burggraaf and Peter Day offer separate, but complementary, statements on how they see the rangelands being managed in the future. Wim was a keynote speaker at the Katherine conference and I have reprinted his complete address here partly for the benefit of those members unable to attend the conference, but more particularly, because I consider what he had to say as being a significant statement in the future management of our rangelands.

At the last meeting of the Publications Committee, I outlined where I saw the *Range Management Newsletter* fitting in the spectrum of rangeland publications. While one of its undoubted roles is as a medium for the reporting of demonstration trials and small-scale research projects such as that described by Rob Scriven *et al.* in the next article, I see limited opportunity for the Newsletter as a rangeland extension magazine. Most state agencies have publications for this purpose (e.g. the WA *Pastoral Memos*) and it is not appropriate that this Newsletter compete with those publications. Instead, I would like to see the *RMN* put a more personal face on the rangelands by exposing "human interest" stories across the wide range of interests and activities in the rangelands. I have attempted to do this with some of the articles I have contributed to (e.g. "The Olive Pink Flora Reserve" in *RMN* 94/1 and "Frontier Kings Canyon" - *RMN* 92/3). I welcome any contributions relevant to rangeland activities and particularly those with personal impact. I also welcome comment on what role you think the Newsletter should provide.

Enjoy the Newsletter. There should be some remark somewhere that prompts you to want to put pen to paper and send off a reply. Failing that, please seriously consider contributing to the development of ARS policy - either via your State Branch or by contacting one of the Policy Group members. Please also take a moment to complete the questionnaire included with this Newsletter.

My deadline for the next issue (*RMN* 95/1) is mid February so please send your contributions in.

THE ROLE OF OLDMAN SALTBUSH PLANTATIONS IN THE WESTERN RIVERINA RANGELANDS

Bill Schumann, Livestock Officer, NSW Agriculture, PO Box 393, Hay NSW 2711
Rob Scriven, District Soil Conservationist, CaLM, PO Box 182, Hay NSW 2711
Bob McFarland, "Oxley" Station, via Hay NSW 2711

Introduction

Oldman saltbush (*Atriplex nummularia*) has received much publicity in recent years through its potential to reclaim degraded lands, particularly saline lands (Condon *et al.* 1994). The attraction is linked to claims of lowered watertables and improved animal production from previously unproductive sites.

Although oldman saltbush is generally regarded as not being readily eaten by stock, it is recognised as having a distinct role at times of feed shortage. Crude protein levels of around 20% are reported extensively in the literature (Meadly 1947, Weston *et al.* 1970, Leigh 1972), but a major advantage is that such levels are maintained all year round. The real protein value, however, may be appreciably lower than the relatively high levels of digestible crude protein suggest (Weston *et al.* 1970).

In addition, oldman saltbush has been recommended as an introduced species for non-degraded sites. The recommendations have been to establish it in plantations at densities of 2,600 plants/ha. These plantations are claimed to raise whole-farm productivity. This is usually achieved through the filling of some specific short-term role in the production system.

There is a need to evaluate the role of oldman saltbush plantations in various farming systems. This evaluation should be in the context of how oldman saltbush plantations can contribute to the stated aims of a production system (Wilson 1994). What then is the possible role of oldman saltbush plantations in the context of sheep grazing enterprises in the western Riverina?

The management and production objectives for oldman saltbush plantations in the western Riverina could include:

- increasing wool production over the summer/autumn period
- a drought reserve
- reclaiming areas of scald or poor productivity
- reduced grazing pressure on other paddocks during critical periods (e.g. after the autumn break)
- reducing off-shears losses (i.e. as a shelter belt)
- reducing vegetable matter in the wool clip
- reducing mortality or body weight loss of weaners due to grass seed problems.

To evaluate these objectives it is necessary to establish the level of animal production possible from an oldman saltbush plantation in this environment. To this end, an oldman saltbush plantation at "Oxley" Station was used to quantify some of the production benefits.

Background

"Oxley" Station is located 90 km north-west of Hay in the Riverina of New South Wales. It is in close proximity to the Lachlan River. Prominent chenopod shrubs on "Oxley" Station include bladder saltbush (*Atriplex vesicaria*), oldman saltbush, black bluebush (*Maireana pyramidata*), dillon bush (*Nitraria billardierei*) and thorny saltbush (*Rhagodia spinescens*). Average annual rainfall is 325 mm.

The owner's reason for establishing the oldman saltbush plantation was to improve a degraded site. Oldman saltbush seedlings were transplanted into a 16 hectare site in "Rung-Box" paddock in May 1990. Rung-Box paddock is an area of red-brown duplex soils that had suffered historically high levels of wind erosion. Shrubs were planted in rows 3 m apart to give a density of 2,600 plants per hectare.

The grazing management used for the plantation has been short-term high-intensity grazing with the objective of completely defoliating the bushes. This helps in maintaining a high leaf to stem ratio. The saltbush had been grazed to near complete defoliation for short periods during 1991 and 1992.

Methods

A mob of 736 Merino weaner wethers (May/June 1992 drop) was drafted at random into two groups. Body weights of both mobs were recorded prior to introduction and at the end of the grazing period. Weights were for three hours or greater off feed.

The main mob of wethers (683) was introduced to the oldman saltbush plantation in Rung-Box paddock on 7/5/1993 and taken out on 26/6/93, a period of 42 days. On a weight basis, the weaners were calculated to be 0.88 DSE. This represented a stocking rate of 37 DSE/ha over the grazing interval. The grazing period was estimated by the owner to be 6 to 8 weeks at this stocking rate.

To compare the performance of the sheep on the Rung-Box site, a second group of 50 wethers was grazed with ewe weaners in a nearby paddock, "Front-Home". The effective stocking rate in Front-Home paddock was 0.35 DSE/ha/annum. The Front-Home site is a self-mulching heavy clay dominated by a healthy bladder saltbush stand at a density of approximately 10,000 plants per hectare (see Photo 1). Two consecutive wet summers had increased the prominence of the undesirable poverty bushes (*Sclerolaena* spp.) in the pasture layer in Front-Home at the time of the trial. Nonetheless, the paddock had been consistently scored as being in 'good' condition since 1990 when a rangeland monitoring program began.

Photo 1: The control Front-Home paddock, dominated by bladder saltbush as depicted on 13/7/93.

Between May 1993 and January 1994, the percentage frequency and biomass of pasture species were estimated using the comparative yield and dry weight rank techniques (Friedel *et al.* 1988). Biomass of oldman saltbush was measured using the Adelaide technique (Andrew *et al.* 1979).

Results

Sheep body weights

Wether weaners grazed at 37 DSE/ha on the oldman saltbush plantation lost an average 5.43 kg body weight. The control group, grazed on bladder saltbush, gained 1.28 kg over the same seven week period.

Oldman saltbush plantation response in Rung-Box paddock

Oldman saltbush was completely defoliated as depicted in Photos 2a & b.

Table 1 indicates that following almost complete defoliation in mid-July 1993, dry matter levels had reached close to pre-grazing levels by the following February. Approximately 204 mm of rain fell at "Oxley" in the period July 1993 to January 1994, with significant rainfall events in all months except January.

Table 1: Mean shrub weight (gms) of oldman saltbush during the trial.

	Pre-Grazing	End of Grazing	Post Grazing
Sampling Date	14/5/93	13/7/93	27/1/94
Shrub weight (gms) mean +/- SD	479.0 +/- 26.9	81.8 +/- 23.5	386.0 +/- 143.9
Coeff. of Determin. for estimating shrub biomass (R^2)	0.77	0.99	0.86

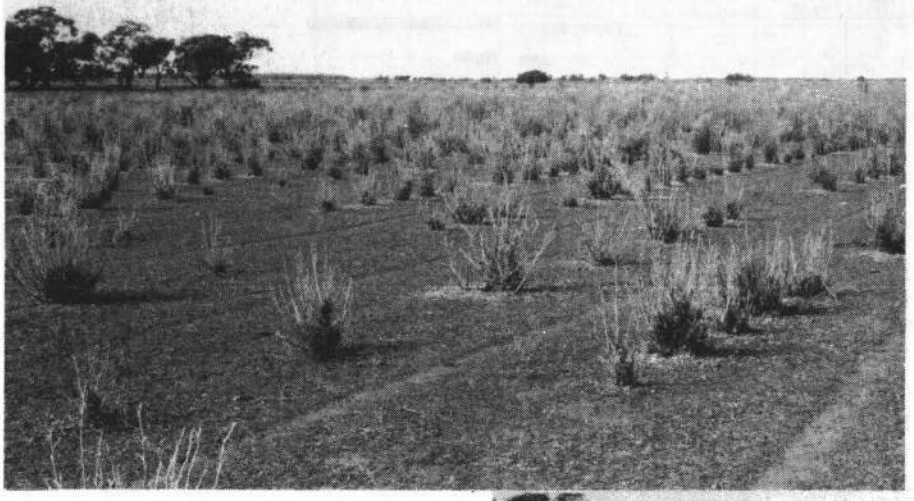

Photo 2a: Oldman saltbush plantation following grazing (13/7/93).

Photo 2b: Oldman saltbush plantation in Rung-Box paddock six months after defoliation (27/1/94).

Pasture response in Rung-Box paddock

Pasture dry matter was reduced from an initial estimated 1000-2000 kg/ha to levels of 500-1000 kg/ha at the conclusion of grazing. Both of these values represent overestimates of the actual pasture available for sheep consumption as there were significant quantities of seed (particularly New Zealand spinach - *Tetragonia tetragonioides*) and oldman saltbush litter at the end of grazing. While some changes in frequency of pasture species occurred, essentially the pasture base remained dominated by annuals.

Pasture response in Front-Home paddock

The amount of pasture in Front-Home paddock, measured as total dry matter at the monitoring site, remained static for the duration of the trial. Estimated yield exceeded 2000 kg/ha, excluding shrubs. Changes in plant composition are depicted in Figures 1 and 2 for both sites.

Discussion

This grazing trial demonstrated that short duration grazing of an oldman saltbush plantation at a stocking rate of 37 DSE/ha for 42 days was not sustainable. This is equivalent to a stocking rate of 4.2 DSE/ha/annum.

The wethers used in this trial came off lush river frontage country and were in very good condition, averaging 40 kg liveweight at 11 months of age. These sheep were transferred from the river country because of increasing fleece contamination by Bathurst burr. Sheep no doubt lost weight in the transition from green pasture to saltbush as it would have taken time for them to acquire a taste for the saltbush.

Another contributing factor to weight loss was the length of time spent grazing the oldman saltbush. Marked deterioration in animal condition was observed in the final two weeks of the grazing period. This is hardly surprising given the very low availability of leaf matter at the end of the grazing period. Due to logistical problems, the weaners were kept in the oldman saltbush block longer than actually planned. Warren and Casson (1994) suggested that "The rapid transition from liveweight maintenance to sudden weight loss (is) important in the management of saltbush plantations and suggests that sheep should be monitored carefully and removed when most leaf material is consumed." Our observations support this conclusion.

What is a sustainable stocking rate for the same grazing interval? The visual observation of major weight loss occurring in the final two weeks of the seven week grazing period suggests that a stocking rate of about 3.5 DSE/ha/annum may be possible.

In calculating the real carrying capacity of oldman saltbush the contribution of the pasture layer must be considered. The very poor quality of pasture during this grazing period should

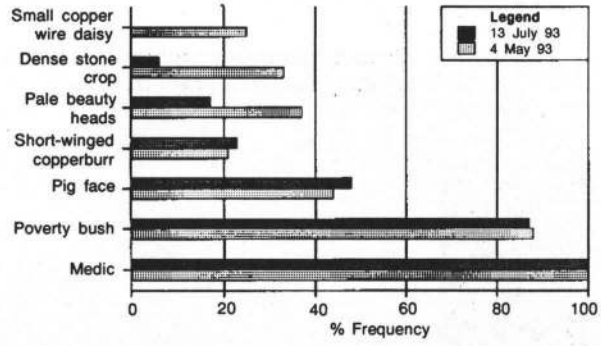

Figure 1: Composition (% frequency) of dominant species in the control Front-Home paddock.

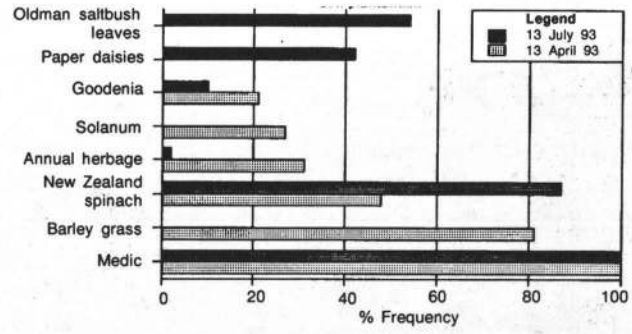

Figure 2: Composition (% frequency) of dominant species in the oldman saltbush plantation of Rung-Box paddock.

have provided a true estimate of the value of oldman saltbush alone.

We have examined one objective for the management and production of oldman saltbush, i.e. improving the grazing value of poor country. To determine if this objective has been met we require a comparison with the original productivity of the site. The carrying capacity of the original site was estimated at 0.27 DSE/ha/year, half that of the Rural Land Protection Board rating. The increase attributed to the oldman saltbush plantation is 3.23 DSE/ha/year. To this extent, oldman saltbush has achieved the objective of improving the productivity of a poor site.

Further Work

This trial has considered one of the possible roles for oldman saltbush.

However, what is the potential of oldman saltbush plantations in achieving the other production objectives listed in this paper? In determining these other objectives the following issues need to be considered.

1. What grazing strategy can be used to achieve the conflicting objectives of defoliating bushes for high leaf to stem ratios without compromising animal production? Grazier experience suggests that grazing by cattle may be a possibility.

2. What is the effect on the quantity and quality of wool production of the short-duration high-intensity grazing systems currently being used? It should be noted that as with any grazing system, sudden feed changes could have adverse effects.

3. What is the stand life of oldman saltbush plantations under this management? South African work suggests that a productive life of 50 years may be possible.

4. Can different planting densities be used for different strategies?

5. There is a need to more accurately quantify the relationship between shrub biomass and carrying capacity, or perhaps grazing days.

6. The Adelaide technique may not be the most suitable for estimating oldman saltbush shrub biomass. Despite the same experienced operators estimating biomass, regression correlations were disappointing.

Any future work should also take into account what is already generally accepted about grazing of oldman saltbush. This includes;

- Where young or pregnant/lactating animals are grazed on oldman saltbush, low quality roughage is also necessary to achieve satisfactory animal performance (Warren and Casson 1992).

- Animals have a higher water intake requirement when grazing oldman saltbush (Warren and Casson 1994).

- A complementary response exists when animals are fed low quality roughage with the saltbush (i.e. intakes of roughage are increased due to higher protein content of saltbush and intakes of saltbush increase probably due to dilution of the salt content, Warren and Casson 1991).

- Where saltbush is the only feed source, it is more suited to the maintenance of mature, dry sheep (Morcombe *et al.* 1991).

Acknowledgments

The authors wish to thank Ms. Therese Hulme (NSW Agriculture, Dubbo) for her assistance in the field, David Eldridge (CaLM, Sydney) with regard to statistical analysis and John Dyson (CaLM, Wagga) for comments on a draft of this manuscript.

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LETTER TO THE EDITOR

Arid Zone Newsletters

Doug Campbell, Department of Conservation & Land Management, PO Box 1840, Dubbo NSW 2830

I have a nearly complete set of the now defunct *Arid Zone Newsletter*. It was compiled and distributed by CSIRO and was largely a record of research work in train by the various Commonwealth and State agencies and universities in Australia. There were also overseas contributions.

I will provide all, or some, of my copies to any institution or individual able to use them. Issues available are 1956-59 inclusive, 1960/61 (combined edition), 1962-68 inclusive, 1971-73 inclusive, 1975, 1978 (two copies) and 1979.

Anybody interested in acquiring this set should either write to me at the above address or phone (068) 83 3000 or fax (068) 83 3099.

RANGELANDS INTO THE 90'S

Wim Burggraaf, Managing Director, Heytesbury Pastoral Group, P.O. Box 7225, Perth WA 6001

(Ed. Wim was a keynote speaker at the recent ARS conference in Katherine. I believe that his views expressed here provide a relevant model for improved rangeland management. Wim's talk is reprinted here with his permission.)

In December 1992 Prime Minister Paul Keating released his Environmental Policy statement entitled "Australia's Environment: A Natural Asset". I believe this statement will change the face of rangeland management in this country forever. We all will be required to lift our sights and change up a cog or three.

If you think big brother has been watching you - you're right, but be aware big daddy is also now watching and he will equip himself with powerful binoculars. The PM's statement and others since, are a clear indication that Canberra wishes to well and truly stick its finger into our rangelands pie. In the past, rangelands management has been left to State and Territory Governments, local authorities, community groups, but mostly to individual land occupiers, the majority of whom are pastoralists. No more! The feds have well and truly moved into our sleepy little town. Listen to these:

National Strategy for Rangeland Management;
National Strategy for Ecologically Sustainable Development;
Commonwealth, State and Territories: Decade of Land Care Plan;
National Strategy for the Conservation of Australia's Biological Diversity;
National Drought Policy;
Australian Collaborative Land Evaluation Program;
National Strategy for the Conservation of Australian Species and Ecological Communities Threatened with Extinction;
National Water Quality Management Strategy:
National Reserves System;
National Weed Strategy.

It appears to me that our Federal Government is taking over the driving seat.

I appreciate that many of the people seated in this room may be a part of these strategy groups and not all of you are Commonwealth employees - so perhaps the engine room hasn't changed so much but the driver has! And that's a good thing!

The Australian rangeland is an incredibly complex entity and in many ways, fragile. The rangeland IS a **national** asset managed by today's generation of Australians for the benefit of future generations. I believe it is wise to develop national frameworks and policies so that we can all work together towards setting common goals and implementing broadly accepted strategies.

Hence for us pastoralists and those generally supporting pastoral pursuits, the time is **NOW** to jump on the band wagon. I am convinced that there is a strong desire within the "boffin" community to help the pastoral industry to come to terms with the new phases of rangeland management. We should not put our head in the sand and hope that this whole "greenie thing" will go away. It won't!

We should not invoke the wrath of the "mean greens", inviting them to attack. They will!

What we should be doing is making sure that we are part of the consultative process to ensure that our knowledge, experience, passion and (finally) stake in the rangelands is taken into account in setting national goals and strategies. In my experience, the people given the tasks of developing these national policies are genuinely interested in the pastoralists point of view. But they will not be swayed by hot air and empty emotion.

Lets be realistic! For 150 years pastoralism has been the major land use of the rangelands. Those people who have been associated with, and managed, this land for generations must surely have a major contribution towards developing future policies. We live here, we should set the agenda. Now when I say we - I don't mean me! I am only taking on the poetic mantle of spokesman. My family and I are "city slickers" but I speak on behalf of the hundreds of Australian families who genuinely enjoy the space and solitude that rangeland living offers. These are the people who have lived with the rangeland through thick and thin. It has been their bed for night on end, it has been their holiday resort, it has been their livelihood, it has been their friend and their enemy, it has given them wealth, it has taken their lives. It has been their lifeblood. Surely their knowledge, experience and opinions must be taken into account and melded with the knowledge, experience and opinions of others whose relationship with the rangelands has been more an academic or scientific pursuit, rather than a whole-of-life experience.

Pastoralists do have a contribution to make, we must become pro-active! However, to be part of the process we need also to be accountable to the wider community. We need to be Ecologically Viable!. What does this mean?

Well as farmers whether that be on 1,000 acres in South West WA or 1 million acres in the NT, we have all come to know (and hate) the term Economic Viability. This is a measure of our accountability to our financiers (the owners of the money we use in our business) - banks, stock firms, Government agencies. In operating your business can you repay your debts or if you really want to be flash Harry with the banker can you show him a credit balance, rattle his term deposit till.

Let us not be mistaken - the pastoral industry is going to go under the spotlight. If our businesses (which all combined make up the pastoral industry) are not profitable (i.e. making a positive contribution to the Australian economy) then why should we be allowed to stay on our leases and put the rangeland at risk. Or are we prepared to become like the Poms, the Dutchies and the Froggies - being subsidised so that we don't have to leave the bush to become part of the social problems of the city slums. Of course that won't happen in Australia. But if we don't continue to improve our management skills, maintaining a reasonable financial return to our country's economy, we will be forced out. If not by the banks then ultimately by the wider community.

I am sure we are all aware of rangeland areas that were previously run as cattle stations but have now become tourist ventures or whatever. As cattle stations, these properties did not constitute an economically viable use of the rangeland. No doubt we will see more of such changes in land use in the future and I suppose most of us would accept that now.

That's economic viability - being accountable to the owners of the money we use in our businesses.

But what about this Ecological Viability?

This is a measure of our accountability to the masses of Australia (the owners of the land we use in our business). In operating your business, can you make good any debits you incur on your rangeland: or even better, can you build up some credits in the condition of your rangeland.

In technical jargon, I can't do better than quote from a Rangelands Issue paper produced by the National Rangelands Management Working Group:

> *"Ecologically sustainable development (i.e. ecological viability) aims to meet the needs of Australians today, while conserving our ecosystem and the ecological processes on which life depends, for the benefit of future generations. It means developing ways of using those national resources which form the basis of our economy in a way which maintains and, where possible, improves their range, variety and quality. At the same time, we need to utilise those resources available to develop industries and generate employment. It will be a challenge to achieve these objectives against a dynamic rangeland ecosystem linked to climatic variability."*

So what does that mean in practical terms? What does it mean to us on VRD, Walhallow or Keeroongooloo? What does it mean to you on your property?

Simply stated, I believe we need to:

1. Learn to appreciate and understand that we are not the only stakeholders on the leasehold properties we own.

2. In managing our businesses, we need to focus on the condition of all our resources - not just the livestock (I acknowledge the relationship between grass and grazers is a dynamic one but I also acknowledge that we have at times attempted to maintain the condition of our cattle at the expense of the rangeland).

3. We must at least maintain all of our rangeland in its current condition, improve those areas that warrant it, arrest any active degradation and perhaps rehabilitate strategic areas.

4. Become actively involved in monitoring the quality of our rangeland such that we can objectively measure our performance against Ecological Viability benchmarks.

Next question is **how** do we do these things? I don't know about you but I am happy to admit that we need quite a lot of assistance in these matters. I believe formal monitoring is crucial. Watching grass grow is not easy. I mean, I don't have any problem recognising that the lawn on my Perth suburban quarter-acre block is getting a bit soft under foot - or if I don't, my wife certainly doesn't miss the chance to tell me to get off my butt and crank up the lawnmower. But that's a lot different to recognising the changing balance of increaser and decreaser species in our pastures or even coming to terms with the level of encroachment of woody weeds onto our black soil plains.

It's a bit like observing your children growing up - you see them every day and don't really notice the change because it happens in such small increments **UNTIL** they suddenly become pubescent teenagers and all of a sudden it's too late - you've got a big management problem on your hands.

There are some tools available to help us in this monitoring process. Most of the State and Territory departments have a formal monitoring site program. We have certainly tried to advance these on our properties. I would encourage all pastoralists to become involved in monitoring and to take ownership of the process on their property. At the same time we need to be recording our annual stocking rates on a paddock by paddock basis, attempting to verify the relationship between stock and range.

I am encouraged by the potential of remote sensing - satellite imagery. We still have a long way to go but I believe the work of Shane Cridland in the WADA for example is making some real progress towards providing user-friendly monitoring information. I would certainly support the proposed development of a Cooperative Research Centre which will help to draw together and focus much of the current space research towards providing management tools for our industry.

Whatever happens, to me the message is quite clear. If we don't notice the changes that are occurring in our rangelands, someone else will! If we don't do something about those changes, someone else will.

In the future our development plans may also be subject to ecological viability scrutiny. It already happens in the mining industry of course where environmental impact studies are an integral component of any proposed mining venture. It is happening in our farming areas in south west WA where the "powers that be" have already made the edict that certain areas will be subject to total clearing bans. To a lesser extent, the clearing of brigalow in Queensland is subject to permit regulations.

All of the things I have been talking about will happen in the next five years because the wider community of Australia, admittedly pushed by some powerful lobby groups, is demanding that we give an account of our ecological stewardship of the crown land we manage. We, as a company, are moving towards complying with these strategies and where possible, in our small way, trying to be part of the strategy formulation process, because:

a. we believe conservation is good business (i.e. economic viability is ultimately dependent on ecological viability); and
b. we believe the wider community has the right to make these enquiries (which would become demands if we resisted).

The rangeland has taken 10,000 years to create or 10,000 million years to evolve depending on your faith - either way, it's a long time and we do all have a responsibility one way or another to protect it for the benefit of future generations and also for future hitherto unknown "highest best" uses. So, as I said earlier, big daddy in Canberra is watching. But maybe it goes even wider than that!

You've heard lately that the world is a village, we operate in a global economy and all that jargon. Someone has suggested that if we (pastoralists) do not maintain a responsible attitude towards our environment, the world could use that as a reason to close their markets to our beef. Remind you of 1970, BTEC program, threatened markets if we don't clean up our diseases. Anything could happen! Perhaps some Aussie should whisper in the ear of an influential Yank - remind him of the mess the gringos are making of the environment in South America. This might even replace Foot and Mouth Disease as the issue to protect our US beef markets from those southerners. But then would that not be the pot calling the kettle black!

I certainly accept that pastoralism in its various forms has had a negative impact on Australian rangelands in some areas. I believe we do have a lot to learn and I look forward to the inevitable future developments in rangelands technology.

However, there are some issues surrounding ecological viability that do concern me. Recently I attended a rangelands workshop and for the first time came face to face with the idea of biodiversity and the maintenance of it. Now that's a bit scary.

As I understand, biodiversity means every biological organism that exists in an ecosystem. I can cope with those things we can see - trees, grass, weeds, kangaroos, donkeys - I'm OK with these because I understand that they affect long term production and therefore profit. But when it comes to protecting the integrity of tiny insects, worms or microscopic fungus on the roots of the plants - that is an onerous responsibility. To be held accountable for the gribblies under the ground is just too much.

We, and I mean that in the broadest context possible, have to decide first of all, do we wish to preserve every species known to man. If so, how? Is that a reasonable and achievable objective? If so, we have an enormous amount of work to do. Personally, I believe it is unrealistic to impose anywhere near such restrictions on a commercial enterprise. These preservation issues would need to be dealt with in

strategically selected representative areas which would be set apart purely for conservation purposes. The cost of managing these areas should be borne by the whole community. Clearly, this is already happening with government departments setting aside land as conservation areas or national parks. Heytesbury Pastoral Group has been part of this process via the sale of Diamantina Lakes to the Queensland Government. But here again, we believe there is room for cooperation. We respect the Queensland Government's decision to set aside representative areas for conservation. But at the same time we have not given up hope of establishing some form of joint management agreement. We are exploring ways of satisfying conservation objectives while maintaining some cattle grazing presence - we are hopeful that this model of National Park management can be developed for mutual benefit.

In grappling with the issues of how pastoralism and conservation can sleep in the one bed, we do need to be careful in the way we proceed. I see a danger in us immediately going down the pathway of trying to develop a "Best Management Practice" or the like. I mean developing a manual of procedures: do this, don't do that. This would be like chasing the pot of gold at the end of the rainbow - an elusive dream! There's no way we could cover all the bases.

Best practice will be a complex array of paddock-specific factors difficult to define and even more difficult to police. What we need is a change in philosophy, of mindset, with the pastoral industry. We need to instil an inherent desire to conserve the environment as part of good management.

For example, a manufacturer can embark on a program of TQM (Total Quality Management) - a "buzz phrase" in industry. He can develop all the new quality control procedures he likes but unless he convinces his employees to want to produce a better product, it won't happen or it won't last.

TQM is not a process, it is first of all a philosophy.

In that light, I am very encouraged to see that the issues of extension, education and integration are being addressed in this conference.

I have touched on many different issues which I believe we as pastoralists need to take seriously. The road forward is still somewhat obscure, however, it is clear to me that our industry needs to be an integral part of mapping out that future. Our industry representatives should be adopting a conciliatory and consultative approach and concentrating their efforts to become more involved on some of these National Strategy groups and education programs.

On the flip side, we need to convince the "greenies" that not all pastoralists are ecological rapists. Mistakes of the past were largely due to ignorance rather than insolence.

So my message to pastoralists is.-

Let us want to be more involved in conservation because its good business. If not, we run the risk of being legislated or regulated out of business.

And my message to the other side is:

Be aware that there is some experience and knowledge in the bush and please be patient with us because some of us are downright scared - and our normal response to fear is fight.

SUMMATIVE ADDRESS
8th ARS Biennial Conference

Dr Bill Burrows, Tropical Beef Centre, QDPI, PO Box 5545, Rockhampton QLD

(Ed. This slightly edited version of Bill's closing summary of the recent Katherine conference is reproduced here as a report for Society members who did not make it to Katherine. Those of us who were there will no doubt appreciate a written version of Bill's rousing remarks about the conference, our Society and where it is heading.)

I get enormous pleasure in coming to these Australian Rangeland Society conferences. It comes from the fact that each conference reinforces the knowledge that a vibrant, youthful and enthusiastic group maintains an interest and belief in our rangelands - the very essence of Australia. Look around this room - the age class distribution is the very antithesis of that in each organisation and community group you represent! While ever people like yourselves continue to flock in great numbers to the remotest outposts of Australian rangelands - as you have for at least the last four meetings - one can only be optimistic about our rangelands and indeed Australia's future.

It is a singular honour to summarize this conference. As a founding member and past office bearer of the Society, I am especially proud to witness the growing knowledge base and confidence which conferences such as this so elegantly display. And the current government-supported steps to develop a national strategy for our rangelands says it all - the bush camps, the flies, the bull dust, the dry gully hang-ups, the isolation, the droughts and the floods have all been worthwhile - our efforts have been rewarded with the recognition that the rangelands have always so richly deserved. As a group your time has come!

When my generation started working in the rangelands we were seen by our urban colleagues to be doing the expected colonial thing. A bit of time in the bush - a paid vacation before getting a real job on the coast or in the capital city bureaucracy. But today's rangeland professionals and its property owners and managers have the prospect of their work being seen as a vocation. That is, something to be respected and honoured by an Australian people finally coming to terms with the reality and responsibility that they have to themselves, and future generations - the management of all Australia's land and its total resources.

Well - what about this conference itself? Hasn't the organisation been great and all arrangements smooth and executed with ease, aplomb and good humour? And after Tom Stockwell's initial sermon, didn't we get a ripper of an opening paper from Wim Burggraaf? For its breadth and eloquence in addressing contemporary issues, it was as good an opening paper as this conference junkie has heard in 30 years on the circuit!

Now obviously I cannot mention and recall on your behalf all of the information and ideas you have been presented with at this meeting. Bear in mind that those I might cover represent reactions from my own personal biases and experiences. In this light it is probably a compliment, rather than a passing slight, if anyone's particular efforts are not mentioned.

I was very pleased that Daryl King was able to expose this meeting to the current joint governmental proposal to develop a National Strategy for Rangeland Management and Action Plan. I earnestly hope that the end result truly represents the views and experience of people who actually live and work in Australian rangelands - and not the whim of a politically correct Canberra bureaucracy.

During our meeting Bob Wynne, Guy Fitzhardinge and Dave Robson shared with us insightful and heartfelt thoughts on the severe problems facing the current rust belt of Australia's rangelands - the woody weed infested sheep country of north western NSW and south west Queensland. And theirs was a particular message which the proposed National Rangeland Strategy should take on board. While we must consider issues such as biodiversity, ecotourism, enterprise diversification, the impact of Mabo and so on - it is the core issue of the problems and opportunities faced by pastoralism which is the key to the sustainable management of that great landmass which our rangelands represent.

At this conference, as at the Cobar meeting, we have been especially fortunate in having a very fine series of poster paper presentations. I would like to personally congratulate each and every presenter on their very professional efforts. Future conference organisers could certainly consider making a suitable prize available to reward those who participate in poster sessions. My only criticism of the current meeting is that it was a shame that time was not available for the enthusiast to hear the personal delivery and supporting statements of all poster presenters.

The open forum to encourage the younger rangeland worker, and chaired by Margaret Friedel, certainly reinforced my confidence in the future of the Society as I am sure it did yours. Wasn't it great to see that mixture of earnestness, good hard data and nervous energy displayed by all the participants? They and their mentors deserve the thanks of all of us, for by their display the professionalism of Societies such as ours is surely in good hands.

One of my major disappointments in coming to Katherine is that like all good 'eastern staters' and Mexicans, I only seem to get here in the dry season. I'm sure our Field Tour sites would have inspired me more if I could see them in the middle, or the end, of the wet. All of us must never forget that since Wal Whalley gave us an outdoors night-time barbecue at the August 1986 Armidale Conference, no prospective weather conditions should ever deter the planning of future meeting organisers!

In the final sessions of this conference we were inundated with a plethora of good ideas and exhortations. If each of us takes home but one or two - the rangelands will surely be better off.

Larry White hit a particular chord with me when he hammered two messages - "there are no miracle cures to rangeland problems", and "beware of Snake Oil Salesmen". I guess we would all benefit by attending Larry's course and I congratulate the organisers and the Meat Research Corporation on obtaining an overseas speaker, as also occurred at the Cobar meeting. I hope we can continue to attract distinguished overseas range people to our future meetings!

I was particularly encouraged that Rob Richards was able to show us that, if we are to win the battle for our rangelands, we must start through education in our schools. More power to all those involved, and may this idea spread like a bushfire through all Australian states.

But Richard Clark has pointed out that adult learning is equally important - especially for those who control our immediate future. To this end I was given the most salient lesson last year from Tracker Tilmouth, Assistant Director of the Central Land Council. When the Aboriginal people wanted to sway opinion during the Mabo debate, Tracker told me their major focus was to expose their arguments not so much in the bush - but to do everything necessary to get on TV's Ray Martin Show! So the lesson is simple - if we want to influence the political debate on our rangelands, we must educate the voting majority - the urban TV watchers!

The first and last papers in our final pre-lunch session highlighted the emerging debate amongst our Society membership - whether to continue to introduce exotic germplasm into our rangelands, or to say enough is enough. As with the Gouldian Finch, I believe debate can only be healthy. And it was interesting that both Margaret Friedel (biodiversity) and Peter Simpson (native versus introduced pasture species for the NSW tablelands) acknowledged that ultimately we must compromise. To get the best out of our systems the intelligent thing may be to use the best genotype suited for the particular need or purpose.

What concerns me about the increasing fashion of the arguments put forward by Dick Braithwaite is that it assumes the sins of the fathers are automatically the sins of the children - that our knowledge and experience does not continue to grow. The best example of this is the paranoia about rubber vine and cane toads in the NT. Would this be so if we had not learnt from past mistakes? For all those who think that our science is neanderthal, I suggest they read the recent article on assessing proposed plant introductions by Dane Panetta and published in *Plant Protection Quarterly* in 1993. It both acknowledges past mistakes yet shows how we can learn from them. It certainly does not advocate throwing the baby out with the bathwater as Dick would have us do.

For all of this, one of the great strengths of the rotating format of the Australian Rangeland Society meetings is that in time it exposes attendees to the complexities of this country's rangelands and the multiplicity of the competing influences that this generates. So it is both appropriate and timely that conservation and the importance of ensuring the integrity of our heritage are not lost issues - and Katherine has been an ideal place to sharpen this debate.

In the final conference session, this one-eyed scientific reductionist rejoiced in being reminded that there is an enormous quantity of good objective data still being collected in Australian rangelands. I hope that this process never stops. And isn't it marvellous to see that our researchers, having pulled systems apart (scientifically speaking), can now put them together in such an elegant and informative manner as Greg McKeon and his colleagues now do so easily.

I know that the views of Don Burnside are widespread amongst bureaucracies in this country at present, and my only retort is that it is the responsibility of people in the Australian Rangeland Society to educate people about things they know nothing about. As John Vercoe, the director of my centre oft repeats - "you do not know what you do not know". And frankly I am not embarrassed about my technology - but I do admit that I have only poorly addressed the responsibility to properly inform my masters, my producer clients and my fellow citizens of my knowledge base. So if politicians and bureaucrats have a jaundiced view of the rangelands and the rangeland profession, is it really their fault, or is it our own?

I will not comment on the workshop groups and their deliberations, since you have just participated in them. But I thought this was a good idea that might be continued at the next conference. It was certainly a way to ensure all attendees contributed to this meeting.

Now one of the few advantages of old age is that you inadvertently accumulate considerable experience - if never wisdom. It has been my particular experience to travel through much of Australia's rangelands over the past 30 years. My one continuing impression is that the vast majority of this huge area remains best adapted to pastoralism - the raising of domestic stock for food or fibre.

There have been several cycles of boom and bust in my time, not all of which were attributable to climate. So whenever I want a good definition of an optimist, or a pessimist, I always think of those brave souls who respectively proclaim the 1000 year Reich or Armageddon for our beef and sheep industries as they inevitably cycle between peaks and troughs.

The message here is not that commodity prices rise and fall and seasons come and go, and always will - but to simply point out that it is the land under pastoral use (our rangelands) that is the one continuing certainty. This is the one underlying asset and predominant use that overshadows all others. And while we are becoming familiar with a potential myriad of other uses (and they all deserve study) - this should never be to the detriment of the prime role of pastoralism, and its impact on our basic resources.

It has been said that we have done much R & D into the rangelands in the last 40 years, yet little of it has been adopted. Well in my view, we have barely served our apprenticeship! And as a result of that apprenticeship, we are now finally starting to realise just how little we do know. How enormous and challenging is the task in front of us. How we must persist in our endeavours.

And where we cannot be in the rangelands forever, how we must be objective and document what we have done and observed, as has been done at this conference. For we can all contribute to what our inheritors will hopefully bestow on all of us one day - posthumous fame! The fame of a generation which at last began to come to terms with Australia's landscape and heritage. A generation that had the sense to use these assets in a responsible way. A generation that decided to no longer abuse them. A generation that stopped looking for the 'quick fix', the nirvana around the corner. A generation that finally accepted the limitations of its environment, but at the same time expressed well-founded confidence that its knowledge, training and experience would continue to grow and provide solutions.

A generation when the Australian Rangeland Society came of age!!

VIEW FROM THE ROAD
Reflections on the Katherine Conference

Bob Symonds, Boologooroo Station, via Carnarvon WA 6701
Don Burnside, Dept. Agriculture, Baron Hay Court, South Perth WA 6100

During the two days we drove together from Katherine to Karratha where we parted company, Bob (RKS) and I (DGB) had a lengthy and free flowing reflection on what we felt had been a very beneficial experience at the Katherine Conference. We thought it might be of some use if we were to expose our geographically extended discussion for other members. We covered (and argued over) lots of issues, these are just some of them.

1. The Australian Rangeland Society is clearly shifting from a body dealing only in the science of soils, plants and animals to one which 'ranges across the issues' in rangelands. Therefore it cannot help but become 'political' in the same way that the Australian Conservation Foundation shifted from being a narrowly based conservation group to a large movement which speaks on a wide range of issues. The conservation movement became political and built all of the right sorts of alliances. There is a model there for the Australian Rangeland Society in that it can build solid relationships and alliances with other lobby groups that have money, credentials and contacts in high places. Clearly there will be an issue in developing credibility and there will be the need to forge strong links with other better established and more 'street-wise' lobby groups.

2. The National Rangeland Strategy provides an unique opportunity for the Australian Rangeland Society to develop as an influential policy making group in the rangelands.

To this end we would urge the ARS Council to seek an opportunity to provide the National Rangeland Strategy Working Group with a personal briefing during the time of the strategy development. This may see the ARS develop as the lead non-government agency involved in strategy development.

It is unfortunate, in our view, that the Federal Minister for the Environment chose to provide funds for the consultative process to sectional groups (the National Farmers Federation, Arid Lands Coalition and Aboriginal and Torres Strait Islander Commission) to develop their own agendas. This perpetuates the Australian tradition of forming policies according to who is the best (and noisiest) advocate. It would have been far better if the consultative process had remained 'generic' - indeed it could have been channelled through the Australian Rangeland Society, being the one group that in the Society's slogan "Speaks for the Rangelands".

3. We were concerned, as others were, that the Conference lacked land users in the form of pastoralists, Aboriginal groups and miners. Similarly, where were the people who influence rangeland decisions (bankers, agribusiness, accountants etc.)? Why weren't they there? The Conference was good, it dealt with issues of importance to those sorts of people, but they did not come. Perhaps there are issues of credibility, attractiveness and trust involved. There are lots of things that people can attend and Conference working groups really need to ask themselves "What will people get from attending a Conference?" One of us (RKS) felt that having influential outsiders speak at the Conference was a significant drawcard. He also felt that billing the conference as a specific education experience could attract people.

4. We discussed the role of mining interests, who now hold land in some form in many areas, in rangeland management. Mining is a strong industry, grazing is not economically strong. Instead of spending thousands of dollars per hectare in rehabilitating small areas of mined land, perhaps there is an opportunity for mining to cross-subsidise other rangeland activities. This could be done by providing those 'rehabilitation resources' into rangeland restructuring and rehabilitation in social, economic and biophysical terms at a regional scale.

5. We enjoyed Scott Davenport's challenging view of the role of taxation in land management. Scott clearly indicated that many of the current taxation measures that were designed to help, in fact could hinder good rangeland management. We think the issue needs to be explored further to determine whether the taxation system can be made to work to the rangelands' advantage.

6. As usual, we had some discussion about rangeland monitoring (over about 300 km). From a user's perspective (RKS), land users need to be convinced of the value of monitoring as a strategic and tactical tool. How can that value be developed in a way that is relevant to the use?

7. Biodiversity cropped up all over the place in the Conference. However it seemed that the issue of how biodiversity is to be managed, who will manage it, who will pay and how much will they pay, is being dodged. As usual we are starting at the biology and trying to work from there to the social and political management of some issues. We both felt that before the debate about biodiversity goes any further, some of the questions above need to be addressed. Otherwise we run the risk of having an idea of what we want to do without having any idea about how that will be achieved.

8. We both were a bit worried about whether the Government bureaucracies are up to the mark (DGB more worried than RKS at this stage). We were told, quite persuasively, that some big issues in land use and management can be handled in new ways by the corporate operations such as Heytesbury and Kidmans. Yet we had the feeling that Government bureaucracies still may be trying to address today's and tomorrow's problems with yesterday's methods. We detected some complacency in that thinking. Certainly we liked David Robson's challenging approach when he said that the old solutions had failed and that the new ones would be much more radical. We were reminded that we cannot use the same thinking that created the problems to solve them.

9. Away from the conference, we detoured via the Ord River Regeneration Reserve, which covers a lot of the Ord River catchment. Heroic things were done in the '60s and '70s by Kevin Fitzgerald, Alan Payne and others in rehabilitating the terribly degraded and eroded slopes that were threatening to fill the dam (Lake Argyle) with silt. As we went 'oo-er' at the gullies and one of us (RKS) identified salvageable material in the ruins of the old Ord River homestead, we reflected on what a strange 100 year history it has been. From discoveries in 1880, through boom, bust, degradation and then rehabilitation to a new land use, has been a very short but eventful history. One of us (RKS) was emphatic that the area must be secured in a way that it can never again be used for grazing. The other (DGB) suggested that we must start writing up some of these histories before they get shrouded in time.

That is all. We had a great drive to and from Katherine. Informally reflecting on the conference expanded our learning from what we had heard and seen. It was a useful exercise.

DEVELOPING A STRATEGY FOR RANGELAND RESEARCH IN THE SOUTHERN PASTORAL REGION OF WESTERN AUSTRALIA

George Yan and Don Burnside, Dept. of Agriculture, Baron Hay Court, South Perth WA 6100
Paul Novelly, Dept. of Agriculture, PO Box 19, Kununurra WA 6743

Background

In response to the current economic downturn in the pastoral industry, changing expectations of the general community towards rangeland management and recent restructuring of the Department of Agriculture's (DAWA) Rangeland Management Branch, a workshop was initiated by the Rangeland Research Group of DAWA and held in Perth on March 9, 1994. The workshop was attended by 19 participants. The aims of the workshop were:

- to describe the operating environment,
- to review the past research activities of the department and their impact on the pastoral industry,
- to build a conceptual model of an effective rangeland management system, and
- to identify lines of research to overcome biological and economic constraints in the system.

The workshop began with talks by Terry Hill (Manager, Southern Pastoral Region) and Bob Nickels (Leader, Southern Pastoral Program) who outlined the pastoral production system, the departmental structure and its program in the Southern Pastoral Region. These talks were followed by brief presentations from Graeme Robertson (Deputy Director General of DAWA) and Mark Stevens (Adviser, Property Planning, DAWA) on the current economic environment of the pastoral industry and the change in attitude of society towards rangeland management.

The review of past research activities of DAWA and their impact on the pastoral industry was conducted through group discussion. Participants were asked to list research conducted by departmental staff and to assess its impact on rangeland management. The attributes of high and low impact research were then identified. John Morrissey (Manager, Kimberley Region) then outlined the outcomes of a workshop conducted in February 1993 on rangeland research. This was followed by group discussions on conceptual models of a rangeland management system and areas in need of further research to better manage the rangeland system.

This report covers the major topics of the day. We have intentionally only presented those views representing the consensus of workshop participants.

The Operating Environment in which DAWA is Situated

The broad environment in which DAWA operates has changed significantly in recent years. Many pastoral leases are not economically viable and some stations have not recorded a return on capital for the last 15 years. The 1993 report of the Pastoral Wool Industry Task Force reported the difficulties facing that industry. According to this report, many areas of the wool pastoral region would be unable to generate any return on capital at a wool price of 700 cents (per kg) after meeting running and infrastructure replacement costs. Only areas with a relatively high carrying capacity will be economically viable. In comparison, areas with low carrying capacity cannot sustain pastoral production due to the added cost of infrastructure and operational costs. A restructuring of the pastoral industry is inevitable. Our traditional view on the use of our rangeland resource is therefore in need of change. Horticulture, nature conservation and tourism are just some of the options that are now becoming available.

Past Rangeland Research and Its Impacts on the Pastoral Industry

Rangeland research in WA has covered a wide range of topics. Early research was classified as "plant watching". In the '70s and '80s, much of the effort was spent on monitoring vegetation and soil changes in relation to pastoralism. Less attention has been paid to management of the rangeland system and nature conservation. Much less research has been done on the social and economic aspects of the rangeland system. A list of rangeland research activities by DAWA staff over the last 50 years, and their impacts on the pastoral industry, is available on request.

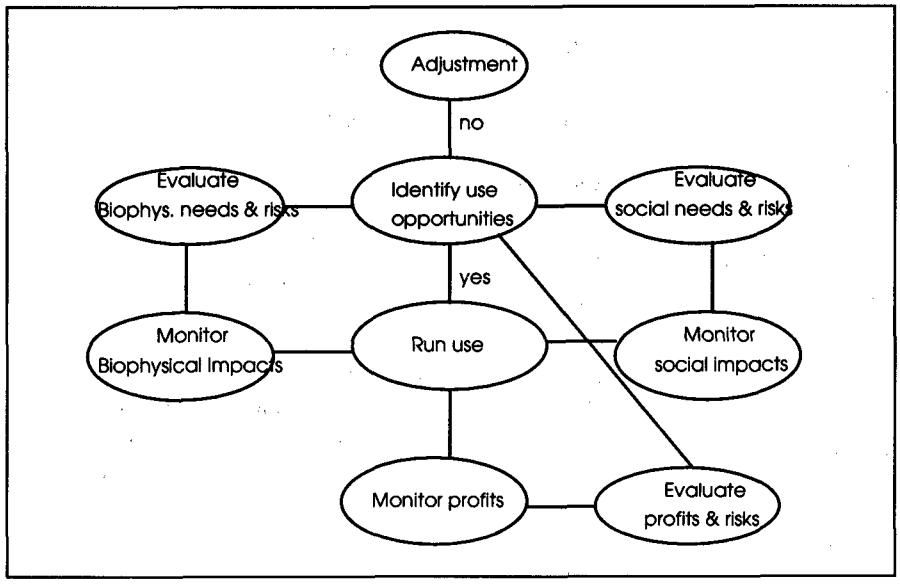
Conceptual Model of an Effective Rangeland Management System

We have developed a conceptual framework to evaluate rangeland options and impacts which we have called the *Southern Shrubland (Rangeland) Pursuit Module.* A schematic view of this model is presented on the next page.

The minimal activities associated with each of the processes in this model follow:

Identify use opportunities
* list current alternatives
* apply social and biophysical standards to select acceptable uses

Run use
* capital expenditure
* management skills



A schematic outline of the Southern Shrubland (Rangeland) Pursuit Module.

Monitor social impacts
* gather and integrate quantitative and qualitative information from all social aspects
* community participation
* expressed value, belief and attitudes
* committee review

Evaluate social needs and risks
* social infrastructure
* demographic data
* cultural needs
* skills
* knowledge
* conflicts

Monitor biophysical impacts
* biophysical monitoring system
* quality of resources (production capacity, biodiversity, response to change, soil erosion, etc.)

Evaluate biophysical needs and risks
* biophysical information on natural resources
* conservation values
* climate (limitations)
* mining potential

Monitor profit
* cash flow
* asset change

Evaluate profit
* output > input
* define acceptable risk level

Adjustment
* withdraw rejected uses
* add new possibilities for evaluation
* modify use to address causes of previous failures

Participants were then asked to identify the areas in which they could contribute. Most participants indicated they could contribute to the biophysical aspects of the system with fewer being confident about social and economic aspects. Clearly, if the system is to function properly, more emphasis has to be placed on the social and economic aspects of the system. As DAWA has traditionally engaged in research of a biophysical nature, it may therefore lack the expertise to take on the social and economic aspects of the system. It should, however, advise the appropriate authorities of the need for such activities to be carried out. Alternatively, the Department should strengthen its ties with institutions that have a capability in the social and economic disciplines.

Most participants felt that while we can contribute to the assessment and evaluation of the biophysical environment of the system, the adequacies of our assessments are questionable due mainly to:

- the lack of clearly defined criteria (ecological and social)
- our traditional narrow-mindedness (i.e. focus on pastoral production)

Further Research Possibilities

Decision making model

Resource management is all about decision making. Rangeland research should therefore focus on the development of decision support systems. In particular, research should be aimed at building a decision process for integrating biophysical, economic and social impacts and determining ecological and social acceptability. The decision support system(s) must be understandable by agency staff and resource managers. DAWA rangeland research has over the years accumulated a considerable sum of data and attention should be paid to the analysis and interpretation of these data, and their application to decision support systems.

Research beyond pastoralism

Rangeland management is no longer just the running of pastoral enterprises. In addition to traditional pastoralism, conservation, management of biodiversity, tourism, mining and horticulture are becoming important parts of rangeland activity. Rangeland research should therefore go beyond plant-stock interactions and focus also on other rangeland uses and their impact on rangeland resources.

Multidisciplinary research

Previous DAWA research has focused mainly on the biophysical aspect of the rangeland. The other two components of the system (social and economic) have largely been ignored (see above). The need for a multidisciplinary approach, encompassing all three aspects of the system is clear. While the rangeland research group of DAWA is not set up to carry out work of a social and economic nature, we should nevertheless ensure that the biophysical knowledge gained is put in an economic and social context.

SUSTAINABLE RANGELANDS
A Vision for the Future

Peter Day, South Australian Farmers Federation, Adelaide SA

(Ed. Peter was the guest speaker at the SA Branch AGM held in Adelaide during May, 1994. Dennis Barber, SA Branch President, provided this transcript of Peter's talk.)

What will Australia's rangelands look like in 50 years time? Perhaps more importantly, what should they look like and what needs to happen to achieve that vision?

This paper presents a few ideas to stimulate discussion. It presents a "Vision" - as one option for the future and describes the processes required to make such a vision come to fruition.

A Vision

The future of South Australia's rangelands will be based on a healthy environment which is economically productive and well populated.

Environmental health will be readily obvious from the vegetation cover and wildlife the area supports. Feral animals will be controlled and some areas will be managed specifically for conservation.

However, the area's natural resources will be capitalised.

The pastoral industry will be applying modern techniques to maintain the vegetation resource which generates production, and to prepare livestock and produce to meet the specific requirements of markets into which products are sold directly, both in Australia and overseas.

Our fledgling tourist industry will, at last, find its feet. Based on the natural beauty of the rangeland landscapes, the rich environment and Australia's unique Aboriginal heritage, there will be a range of tourist opportunities developed in various regions.

The mining industry will continue to develop the area's mineral resources and associated infrastructure that, in turn, will further assist the development of pastoral and tourist enterprises.

Because of the broader economic opportunities of the area the rangelands will have maintained, if not increased, their total population.

The communities will have European, Aboriginal and perhaps even Asian backgrounds, reflecting our new trading partners. Each of those communities will retain elements of its own culture, but will also recognise and accept that of each other, as their joint environment shapes a rangelands community.

Achieving the Vision

There are a number of steps to achieve that vision.

1. ***Recognition***

   Most importantly, it must be recognised that the area's communities, land and industries, do have a sustainable future.

   There will need to be recognition that the area's natural assets are the foundation of its industries and communities. People who invest their livelihood in those lands must be recognised as having the major say on the future management of the rangelands.

2. ***Community Driven Planning***

   Local communities will develop a range of plans to help guide their future. While all these plans will be developed primarily by the local community, they will also draw on outside expertise and voluntary assistance with the aid of executive and secretarial support.

   Strategic Overview
   Firstly, there will be an overview which builds on the area's strengths and capitalises on its opportunities. It will deal with economic, social and environmental health.

   It will be supported by three more detailed plans:

   Economic Strategy
   There will be an emphasis on the development of infrastructure and communication networks, supported by both Government and private investment, including funds from Aboriginal sources.

   There will actually be a developed system of public access routes in place.

   There will be an emphasis on marketing. Whether it be for cattle, wool, kangaroos or tourist experiences, rangeland communities will be expert in determining and matching the needs of various market places.

   There will also be tailored taxation and employment packages to help businesses establish and grow.

   Social Strategy
   Rangeland communities will be international leaders in delivering health and education services to remote communities, both Aboriginal and non-Aboriginal.

   Special programs will be developed to educate and train the children and youth of the region for the modern industries of the area.

   Employment programs will help the youth to get started in local business.

Environment Strategy
The environment strategy will have two key elements, sustainable resources and nature conservation.

A sustainable resources plan will expand upon Soil Board district plans, promoting understanding, monitoring and appropriate management of vegetation, water, soil and animal resources.

The nature conservation plan will be developed by the community for public and private lands, including those in Aboriginal ownership, and will lead to features such as the establishment of feral "no go" zones, the re-introduction of native burning regimes and research, monitoring and management for threatened species.

Programs will be funded to manage the site impact of tourist and mining industries, and National Parks will have adequate facilities for visitors.

3. ***Sustainable Resources Services***

A number of services will be available to the pastoral industry.

Programs that encourage the monitoring and interpretation of land condition will be available to pastoralists and will target the collection of specific information to aid property management decisions.

Research and advice will be available with information linking stock management, environmental condition, livestock health, appropriate markets and net returns, just as equivalent information is available in agricultural areas where science has helped primary producers to improve their productivity and land care.

There will also be education and training programs targeting marketing, financial management and property management.

A periodic audit of condition will provide regular checks of land condition and early warning of any specific areas of suspect land use.

Soil Boards will react quickly to the identification of any such sites and the community will deal with them promptly, recognising that the strength of their industry is governed by the weakest link and that they, as a community, are solely responsible for their livelihood.

4. ***Feral Animal Control***

Joint programs between pastoral, Aboriginal and conservation communities will target species such as rabbits, cats and goats with an intelligent mix of biological and physical controls.

5. ***Rangelands R & D Network***

A strong research network will be established linking communities and researchers from throughout the rangelands. It will build on existing research centres and facilities, and include production-based research on feral animals, conservation, improved plant varieties, mining and tourism issues.

It will also explore potential new industries - e.g. aquaculture.

6. ***Secure Non-Contentious Tenure and Clear Access Rights***

As in the rest of Australia there will be secure land tenure.

There will be a continuous, general purpose lease with two main provisions. Firstly, rent (established through a "transparent" process) will be paid at an accepted market level. Secondly, the land (no matter what its use) must be maintained in good condition.

There will be clear access rights for visitors, governed by a regulated code of practice, to safeguard the visitors and the interests of land owners.

The Government will assume liability for these statutory rights of access.

Conclusion

In some senses the vision that I have outlined is very close to where we are now, but in other senses, it is light years away.

It is based on the community - giving the rangeland community ownership of their future and calling on them to recognise and accept each other. It is also based on planning.

The major theme is integration. Integration of economic, social and environmental issues; integration of pastoral, mining and tourism industries and integration of pastoral, Aboriginal and conservation interests and communities.

The challenge facing rangeland communities is to develop their own vision for the future and to determine how to achieve it.

KATHERINE CONFERENCE CENSUS

Neil MacDonald, Dept. Primary Industry & Fisheries, PO Box 1346, Katherine NT 0851

In the wake of the Katherine conference, a few statistics that may be of interest to Society members. A total of 324 people attended the conference.

We made a profit of about $8,000 on a turnover of approximately $80,000. Cash sponsorship amounted to $6,100 comprising:

- Meat Research Corporation ($5,000 for Larry White's travel)
- Cyanamid ($300 for the Mt Sanford part of the post conference tour - which about 100 people participated in)
- Geoimage ($500)
- Commonwealth Development Bank ($300)

In addition, Asprint contributed significantly to the printing of the Working Papers by donating covers and binders. The Organising Committee, and I am sure, the Australian Rangeland Society, is most grateful of the contributions made by these sponsors.

THE EDITING PROCESS
How Do Papers Make It - Or Not Make It Into *The Rangeland Journal*?

R.D.B. (Wal) Whalley, Botany Department, University of New England, Armidale NSW 2351

(*Ed. Wal is one of the Associate Editors for* The Rangeland Journal. *He has written this article to describe the "behind the scenes" activity that is required to maintain the high standard of the Journal.*)

The Australian Rangeland Society has some 500 members and yet only 27 papers were published in *The Rangeland Journal* in 1993 and not all of these were authored by members of the Society. This means one paper for every 18 members. Where were the rest of you? Surely more of you have ideas, experiences or research results which are appropriate to the Journal and which other members of the Society would be interested to read about?

Perhaps some of you wonder about the mechanics of getting a paper published. What anguish and traumas do authors have to go through before the glorious day when a copy of *The Rangeland Journal* arrives and there is your name in print seemingly in coloured lights? Let us start at the beginning and describe the structure of the Committee which is responsible for making *The Rangeland Journal* a fact of life.

The Publications Committee is chaired by Margaret Friedel and sets the general editorial policy of the Journal. This Committee operates mostly by correspondence (letters, telephone, fax etc.) and has a face to face meeting at each Biennial Conference. The Editor of the Journal is Allan Wilson who is responsible for implementing the editorial policy determined by the Publications Committee. Allan is assisted by several Associate Editors. Another important person is Malcolm Howes, the Production Manager, who is responsible for the actual printing of the Journal and its distribution to members and to libraries.

The intention of the Journal is to reflect the scientific activities of members of the Rangeland Society as well as other scientists interested in rangelands both here and overseas. It serves as a vehicle for scientific communication about rangelands and the Society sees it as providing a service to members and to rangeland science both here and overseas. The term "scientific" is interpreted broadly in this context.

Having sweated over your masterpiece and ensured that it conforms to the format published in the "Guide to Authors" on the inside cover of the Journal, you then forward three copies to Allan Wilson. Allan reads it and decides whether the format and content is suitable for the Journal in general terms. He then assigns it a number and either handles it himself or sends it to one of the Associate Editors for refereeing. The choice of Associate Editor depends on the origin of the paper, the content and the workload of each Associate Editor. Allan tries to have each paper handled by an Associate Editor in a different organisation from that of the author(s). He also has regard for the different areas of expertise of the Associate Editors and tries to spread the load more or less evenly among us.

On receipt of a paper, the Associate Editor reads it and decides on refereeing procedures. In most cases, two separate people referee each paper although, on occasion, an Associate Editor may decide to act as a referee. I have done this once or twice with papers which I found particularly interesting. The reason for the refereeing procedures is to ensure that papers published by the Journal are original and scientifically and logically sound. Therefore, the referees we choose must be experts in the field and be experienced in scientific publication. Each Associate Editor has a "stable" of referees and there are some people who are asked by several Associate Editors to referee papers. I usually try not to send a referee more than one paper per year in order to spread the load around. The referees for each paper remain confidential unless they choose to identify themselves. The referees are asked to comment on specific aspects of the paper and to make firm recommendations. The choices are:

(a) Accept as is. This recommendation gives both the author and Associate Editor the most joy.

(b) Accept with minor modifications. This recommendation also makes life easy for all concerned.

(c) Accept with major modifications. This recommendation is often difficult as it means that the author has to do a fair amount of work and the Associate Editor then has to make a decision about whether the criticisms have been met; not always an easy task.

Often, major modifications are followed by further review. I always undertake to send the revised manuscript back to the same referees (if possible) so that the poor author doesn't have to cope with an entirely new set of criticisms that the previous referees hadn't thought of.

(d) Reject outright. We all try to avoid this recommendation and would rather encourage authors to bring their manuscripts up to an acceptable standard.

Usually there is not much disagreement between the recommendations from the two referees. Where there is a wide divergence of views, the Associate Editor can decide to accept one referees recommendation and reject the other or steer some middle course. Another option is to send the manuscript to a third referee. The Associate Editor makes a decision based on all available information about which of the above four alternatives to accept and advises the author accordingly. Sometimes manuscripts go backwards and forwards several times between the Associate Editor and author before being finally accepted (or rejected). On acceptance (or rejection), the Associate Editor sends the final version of the manuscript to Allan Wilson, together with copies of all the correspondence and referees' reports.

Allan checks accepted manuscripts again and sends them to Malcolm Howes for inclusion in the next issue of the Journal. Malcolm will then correspond directly with the author concerning any further minor points of presentation and will request a disk copy of the paper.

Sometimes authors are discouraged when asked to make major modifications to a paper. We all recognise that modifying manuscripts is tedious, boring work but it may be necessary to maintain the high standards of the Journal. Authors also get frustrated with the seemingly interminable delays between submitting a manuscript and getting some feedback. It usually takes three months for refereeing (sometimes longer), three months for the author to revise the manuscript (sometimes much longer - e.g. two years) and two months to publish. Hence the minimum time from receipt of manuscript to publication is usually five to seven months.

All of us associated with the production of the Journal - members of the Publications Committee, Editor, Production Manager, Associate Editors and referees - are busy people and do the job in our "spare" time because we believe it to be worth while. Sometimes manuscripts and referees' reports arrive at times when they must take second priority and we do apologise to authors. For their part, authors can make our job much easier by carefully attending to details so that manuscripts really do conform to the format set down in the guide to authors published in the Journal. You should always get one of your colleagues who is experienced in publication to critically examine your paper before you submit it to Allan. Above all, we need manuscripts to publish a Journal!

APPLICATION ABSTRACTS
THE RANGELAND JOURNAL
Vol 16 No 1 1994

Temporal Changes Of Vegetation And Soil Carbon, Nitrogen And pH On Seasonally Dry High Country, South Island, New Zealand

P.D. McIntosh, R.B. Allen, and R.G. Patterson

This paper describes a soil and vegetation study designed to measure the effect of 13 years of topdressing and grazing on previously unfertilised hilly and steep land of the South Island high country.

Vegetation cover, and the values of organic carbon, nitrogen and pH in topsoils at 38 sites sampled on a high country farm in 1978 and 1979, before any topdressing or oversowing had commenced, were compared to values in topsoils at the same sites in 1992, after soils had been progressively fertilised with a total of 1100 kg/ha of 28% sulphur-superphosphate and oversown with legumes.

Between 1978/79 and 1992 the cover of native species and the area of bare ground declined, but cover of introduced pasture species tolerant of grazing increased. Mouse-ear hawkweed (*Hieracium pilosella*) was recorded at only 4% of sites in 1978/9 but was present at half the sites in 1992. Over this time organic carbon in topsoils rose from a mean value of 3.3% to 5.5%.

The pH of topsoils declined at 36 out of the 38 sites. The average pH decline was 0.41 units (from 5.81 in 1978/79 to 5.40 in 1992), and the largest pH decline was 0.7 pH units. Results from an additional seven sites outside the main survey area suggest that the pH decline may occur on upper midslope and near-ridge sites (about 10% of the land area) rather than on lower midslopes and toeslopes. If topdressing and the associated pH decline continues, then by the year 2005 pH will be close to 5.0 in topsoils, and lime will be needed on the affected landscape facets if legume-based pasture production is to be maintained. Approximately 1 tonne of lime per hectare every four years is estimated to be required to offset the pH decline.

The present (1993) cost of applying lime is about $5.50 per stock unit per year. On present returns from livestock and wool, liming would be uneconomic. The study raises questions about the sustainability of pastoral development with fertiliser and legumes on similar soils, but the regional extent of pH decline requires further investigation before general conclusions can be drawn.

How Spatial And Temporal Scale Affect The Perception Of Change In Rangelands

M.H. Friedel

Typically, there is more than one pasture type in a large rangeland paddock and within each pasture type there are a series of scales at which vegetation and soils vary, right down to the structure of individual plants or lumps of soil, and beyond. Vegetation and soil vary over many time scales too, weeks through to decades probably being of most interest to rangeland managers. At each scale, there are specific characteristics that can be assessed to determine whether the rangeland is changing and to indicate what the best management action might be. Sometimes we measure the wrong thing: for instance, the species composition of a particular pasture type is often used as an indicator of the status of a whole paddock containing several pasture types. This is potentially misleading unless the grazing preferences of livestock for the different pasture types in it are understood. To detect and interpret change in rangelands, it is necessary to appreciate what different scales of information about an area or a period of time are telling us.

Factors Affecting The Distribution And Abundance Of *Microlaena stipoides* (Labill.) R.Br. On The Northern Tablelands Of New South Wales

D.B. Magcale-Macandog and R.D.B. Whalley

Microlaena stipoides is a native, yearlong green perennial grass common in native and natural pastures on the Northern Tablelands of NSW and a potentially valuable component of fertilised pastures. It is frost-tolerant and has high herbage production growing throughout the year in that environment, thus providing forage during the critical winter-early spring period when feed is scarce.

The distribution of *M. stipoides* on the Northern Tablelands of NSW was examined in a survey of 101 paddocks on 33 properties. The aim was to examine the ecological and management factors affecting the distribution and abundance of *M. stipoides* in the region to enable improved pasture management strategies to be formulated.

Abundant *M. stipoides* was observed in the eastern and southern parts of the Tablelands where altitude and rainfall are higher than in the remainder. A combination of acidic soil pH (4.5-5.5), higher altitude (>750 m), and long period since last cultivated tend to favour greater abundance of *M. stipoides*. Higher tree density and minimum soil disturbance were also associated with abundant *M. stipoides*. It is abundant on a wide range of soil types and its abundance was not affected by phosphate fertilisation. It occurs in association with the nitrogen-fixing legume *Trifolium repens* and appears to respond well to the added nitrogen nutrition.

M. stipoides was found to be more abundant in acidic soils than soils with higher pH (up to 6.5). This is a favourable adaptive attribute in view of the increasing soil acidity problems in improved pastures in some districts. It grows well in association with other exotic pasture species such as *Lolium perenne*, *Phalaris aquatica* and *Dactylis glomerata*. However, if these grasses are established using a prepared seedbed, then any *M. stipoides* will be lost from the pasture and could take perhaps years to re-invade and become abundant again.

Managing Sheep For Optimum Productivity In *Astrebla* Pastures In North-West Queensland

D.H. Cobon, P.T. Connelly, J.V. Bailey and P.A. Newman

A yearly management program for sheep in north-west Queensland has increased lambing percentage by > 20% compared with the district average. Greasy wool production of ewes over four years (1988-91) averaged 4.3 kg and wethers over two years (1990-91) averaged 5.7 kg. Managing sheep using this program increased wool production of the flock compared with the district average. The economic advantages of running breeding ewes or wethers was influenced by wool and sheep markets. During low wool prices ($2.82/kg net selling costs, 1990; $2.44/kg net selling costs, 1991) it was estimated that a 65% lamb weaning rate was needed for returns from the ewe and wether flock to be equal. Gross margins ($/DSE) for the ewe flock were 21.80, 17.07, 8.53 and 5.42 in years 1988, 1989, 1990, 1991 respectively and 5.82 and 5.01 for wethers in 1990 and 1991 respectively. Gross margin ($/DSE) of combined ewe and wether enterprises on properties representing the district averaged 16.50, 14.20, 8.00 and 5.00 in years 1988, 1989, 1990 and 1991 respectively. The management program implemented at Toorak generated higher gross margins than the district average particularly during the years of higher wool prices.

Recolonisation By Rabbits (*Oryctolagus cuniculus*) After Warren Ripping Or Warren Fumigation

I. Parer and G. Milkovits

The failure of rabbit control programs is often attributed to recolonisation from adjoining properties; however, because of the reproductive capacity of the rabbit, it is usually not possible to distinguish the effects of recolonisation from the effects of reproduction of the surviving resident rabbits. In this study rabbit extermination was attempted at six sites so that any subsequent infestation could be attributed only to recolonisation. To compare the effectiveness of warren ripping and warren fumigation in delaying recolonisation three sites were treated by repeated ripping and three by repeated fumigation. At all sites the warren treatments were supplemented by shooting and dogging.

Two years after the treatments the percentage of treated warrens which were reopened was less on the ripped sites (21%) than on fumigated sites (40%); however the density of rabbits as a percentage of the initial density did not differ between ripped (50%) and fumigated (56%) sites. The reasons why ripping was not more effective than fumigation in preventing the resurgence in rabbit numbers is not known. In the first year after treatment the rabbits mainly reopened treated warrens; in the second year they mainly dug new warrens. The density of rabbits adjacent to the sites was the main factor determining the rate of recolonisation and group control schemes are recommended to minimise recolonisation after control.

Estimating Safe Carrying Capacities Of Extensive Cattle Grazing Properties Within Tropical, Semi-Arid Woodlands Of North-Eastern Australia

J.C. Scanlan, G.M. McKeon, K.A. Day, J.J. Mott and A.W. Hinton

A methodology is presented to estimate the safe carrying capacity of properties in extensive cattle-grazing regions within tropical, semi-arid woodlands of north-eastern Australia. Carrying capacities for 45 properties were calculated from resource information collected from the properties. These calculated carrying capacities were then

compared with graziers' estimates and with Queensland Department of Land's ratings.

The rated carrying capacities were not correlated with either the calculated values or the graziers' estimates, and in general were much lower than both other values. The graziers' estimates and the calculated values were highly correlated.

This methodology could form the basis of a review of rated carrying capacities on an objective basis. Refinements would be necessary to improve the determination of individual cases with particular emphasis on spatial variability of resource use and fine scale variability in soil fertility and tree and shrub density.

Goals And Strategies For Aboriginal Cattle Enterprises

D.M. Stafford Smith, A. McNee, B. Rose, G. Snowdon and C.R. Carter

In recent years Aboriginal people have regained ownership of large areas of rangeland, and in many cases are considering pastoral enterprises in their move towards self-sufficiency. New developments in research and extension must be made accessible to them.

Rangeland researchers have recognised the need to focus much more on integrating scientific results with a better social understanding of managers' goals. Recent research indicates that goals and strategies in the commercial industry are often neither optimal nor singular. This applies particularly to Aboriginal communities; these have an even broader range of land use goals relating to traditional and non-traditional elements, the latter stemming partly from the introduced pastoral industry.

Past assessments of Aboriginal pastoral projects have paid scant attention to identifying Aboriginal management goals and considering how they may interact with the project or conflict with each other. Attitudes to risk and production stability have rarely been determined, and consequently the impact of climatic variability has not been adequately considered. This has lead to the imposition of inappropriate management strategies and an over-optimistic view of potential returns.

Based on goals that Aboriginal communities may have, this paper shows in principle how a pastoral enterprise study could take account of climatic variability in assessing stability and risk. One major set of alternative management strategies has been modelled with RANGEPACK Herd-Econ. This highlights certain features of low stocking approaches which may be lower in risk, more stable in turn-off, and more compatible with other Aboriginal community goals.

Assessment of Aboriginal pastoral projects should place more emphasis on identifying what the goals of the communities and managers really are, how these goals interact, and consequently what form of enterprise is most appropriate. Some important points for the assessment of options are suggested. Some case studies need to be undertaken to document the interaction between community aspirations and a range of enterprise types, and hence to evaluate the potential effectiveness of these approaches to assessment.

Comparison Of Wheel Point And Point Frame Methods For Plant Cover Measurement Of Semi-Arid And Arid Rangeland Vegetation Of New South Wales

H. Arzani and G.W. King

Ground cover is frequently estimated in rangeland monitoring and it is an important intermediate measurement between biomass estimation and satellite imagery. As a preliminary phase in a longer term program, wheel point and point frame methods were used to measure vegetation cover on four land systems in western New South Wales, at Nyngan (410 mm average annual rainfall), at Cobar (364 mm average annual rainfall) and two at Fowlers Gap (200 mm average annual rainfall) north of Broken Hill.

We used 400 wheel point hits along each of the four Soil Conservation Service range monitoring transects at each site. With the point frame, we used 10 points in the frame, measuring 100 points per quadrat and then taking a number of equidistant quadrats along the fixed transects. Because of the variation in the species density, size and growth at each site we had to use a variety of quadrat sizes and frame sizes.

There was no statistically significant difference between these techniques for total foliage cover over all sites, and at two different times (pre-drought 1991, and after breaking rains 1993) and conditions at Cobar. However, there was a significant difference between techniques in severe drought conditions (1992) in this area. There were no consistent differences in techniques for cover estimation of more than 40 plant species including annual grasses and herbs, perennial grasses and saltbushes. Significant differences between techniques were found for *Medicago sp.* and *Thyridolepis mitchelliana* on one occasion. We believe that these differences were due to the problems of finding small plants in tall grass and identifying heavily grazed grasses during drought conditions at Cobar and, in the latter case, this was also associated with a significantly greater estimate of mean cover for all grasses and thus total foliage cover. Although there was generally no statistical difference between techniques, our observations suggest that the point frame tends to give lower estimates of cover than the wheel point in the situations measured. This may be associated with the circumference of the marker pins on the wheel point or perhaps observer error but as this effect appeared to be more noticeable with grasses we suspect that the former is most likely. The wheel point is more convenient, less time consuming and simpler to use than the point frame, and you can increase or decrease the number of readings, the distance between the readings, or the length of the transects with vegetation assessments on the spot, so long as you are

consistent for similar vegetation cover, species and land form. Moreover, we have found that it leaves enough room in the ute for a water bottle, swag and tucker bag.

Pastoral Lease Tenure In Australia: Historical Relic Or Useful Contemporary Tool?

J.H. Holmes and L.R. Knight

Pastoral leasehold has evolved as the vehicle for the flexible award of property rights and duties in Australia's rangelands capable of serving as an effective public policy instrument while meeting the needs of titleholders. These capabilities were most clearly revealed during the interventionist phase of planned closer settlement.

With the loss of policy momentum directed towards further pastoral development and closer settlement, leasehold tenure appeared to be in danger of becoming a bureaucratic anachronism. More recently, however, the sharply escalating revival of public interest in the rangelands is forcing a re-examination of property rights, with renewed interest in lease tenures as policy instruments, within a context of multiple values and uses, many not being readily tied to private land title.

We examine the theoretical arguments as well as the pragmatic case for retaining a distinctive regime of limited property rights in Australia's rangelands, focusing on the following issues: matching property rights with resource contexts; balancing internalities and externalities; timing the award of property rights; specificity and flexibility; coordinated administration; and perceptions and expectations.

We conclude by identifying the core attributes of an effective property-rights regime based on lease title. These attributes are: clear specification of the property rights of the lessee, designed to meet the resource needs of the enterprise; performance standards with increasing emphasis on sustainable use; capacity to award additional rights, where additional resources can be internalised effectively; specification of the rights of other interest-groups; powers of resumption for more intensive uses; powers to revise lease conditions; and payment of an annual rent. We foresee the revival of the leasehold system as a mechanism for defining property rights and duties precisely, and as an instrument for delivering policies on a wide range of issues concerning the management and use of the rangelands.

Telling The Sheep (Dung) From The Goats'

Jill Landsberg, Jacqui Stol and Warren Müller

Although feral goats compete with domestic sheep and contribute to the total grazing impact on rangeland pastures their numbers tend to be severely underestimated, particularly in the wooded habitats they prefer. Dung counts provide a potentially useful indication of animal numbers, but have seldom been used for estimating relative numbers of goats grazing in sheep rangelands, because both sheep and goats produce very similar pellets.

From a locally-collected reference collection, we devised a number of simple criteria for distinguishing between some of the dung produced by sheep and goats in the mulga rangelands of north western New South Wales, but found that there was substantial overlap: some pellets produced by both sheep and goats (but more commonly by goats) look the same. We developed an equation for estimating the origin of such pellets, from a maximum likelihood solution of appropriate probability functions, determined from the reference collection and from the relative proportions of identifiable pellets. This enabled us to estimate the relative abundance of sheep and goats from counts of their pellets.

Animal numbers calculated from derived estimates of the relative abundance of dung were comparable with numbers observed in ground and helicopter surveys. The general approach could be used for any problem involving allocating numbers of similar objects to different sources, provided a reference collection is available from which identification probabilities can be determined.

Photographic Utilisation Standards For Three Perennial Grasses

Val Jo Anderson, Ron B. Hacker and Ken C. Hodgkinson

Stocking rate has traditionally been regarded as the major factor under management control in the Australian rangelands. Impact of grazing on pastures, however, is related more to the level of defoliation achieved than to stocking rate *per se*. Management to achieve levels of utilisation which do not jeopardize the production and survival of perennial species is the most appropriate basis for stocking decisions under highly variable seasonal conditions. Although the appropriate level of utilisation has not been established for most Australian species, average utilisation levels of about 30 percent of mature growth have been shown to be sustainable for some perennial grasses. This paper presents photographic standards for three common perennials, mulga grass, bandicoot grass and woollybutt, which allow rapid assessment of utilisation in the field. Such assessment techniques provide a tool for pastoralists to develop a better basis for stocking decisions even before research has established the appropriate utilisation thresholds for the species.

PRESIDENT'S NOTES

Alec Holm, Federal President, ARS, PO Box 718, Victoria Park WA 6100

ARS Policy Statement

The ARS has contributed to the National Rangeland Strategy Issues Paper. Members have also participated in workshops at the Katherine Conference to develop some of the ideas within the response to the Issues Paper. However the outcome from these processes has not provided us with a clear vision of what the Society represents and we have as yet not been in a position to 'make statements of authoritative nature on rangelands' which was one of the key strategic directions identified for the Society at the 1993 Visions Workshop.

The ARS Council has agreed to continue to pursue the objective of preparing policy position statements and have appointed the following working party to further this objective:

Alec Holm (Working Party Convener), Western Australia
Bill Tatnell and Ron Hacker, New South Wales
Bob Symonds and David Beurle, Western Australia
Margaret Friedel and Gary Bastin, Northern Territory
Piet Filet and Tony Grice, Queensland

Both Bill Tatnell and David Freudenberger have emphasised the importance of presenting a vision for the Society as a preamble to any policy statement and for this to capture the imagination of the wider society. To do this, we must break from our traditional grounds and think broadly about the future of the rangeland. Our policy statements must:

* be 'alive' in that they will evolve as circumstances and society values for rangelands inevitably change;
* encompass the wide diversity of opinion and, if necessary, present this diversity without forcing consensus;
* use language that is devoid of jargon and preferably pitched at about Year 9 level of understanding;
* be directive and action-orientated, but also provide a framework for a longer planning perspective when immediate solutions are not obvious or, where the obvious solution could be short sighted and too hastily decided.

Attitude Surveys

To assist us in developing this statement, Council has commissioned two surveys of the Australian society's attitudes to rangelands through the Morgan Gallup Poll and the Murdoch University of Western Australia. It is these values which have the power to dramatically influence what is done in rangelands. An example of this is the importance French society places on their rural community which is reflected in the high level of subsidies this society is prepared to pay to maintain their rural population. In framing our policy, we should be ever mindful of society values and understanding of the rangelands and it is within this wider context that the policy should be set.

The working party has therefore agreed that the policy will be developed within the following framework:

Vision

"What is the Australian Rangeland Society vision for Australian rangelands?"

Opportunities

"What are the opportunities for achieving this vision for our rangelands?"

Timetable

Branches and society members have been invited to develop the ground work for the policy statement for consideration by the Policy Working Party in February 1995.

If all goes to plan, a working draft will be published for comment in the April 1995 newsletter.

International Rangeland Congress 1999

We have received notice that Australia will be the venue for the 1999 IRC which members voted at Cobar to hold in Townsville rather than Perth (pity!). Council is at present selecting the organising committee who will need to get busy to make an impact at Salt Lake City next year when we are expected to make a presentation to Congress. We are applying to the International Conference Support Scheme for a grant to assist in attracting delegates and their partners to Australia.

Meanwhile, we have allocated $3000 towards promotion of the Society at the congress with the objective of attracting a wider international membership and pool of contributors to the Society and its publications. Marketing advice has been sought from Dr Mark Patton from the Curtin University Business School and Mr Ken Leighton has volunteered to coordinate this aspect of promotion for the Society. We are exploring other promotional possibilities to raise the profile of the Society which I will report on later if these fall into place.

FORTHCOMING CONFERENCE
Desert Technology III

This international conference will take a broad interest in the engineering and scientific aspects of protection against desertification and land degradation. Topics covered will include energy and environment, monitoring and climate, soil management, biological diversity, and water resources development, utilisation and recycling. The conference will extend from October 15 to 20, 1995 and will be held at Lake Motosu, near Mt Fuji in Japan. One page (300 word) abstracts are required by 31 December 1994. Further details, including the conference brochure, can be obtained from:

Prof. Toshinori Kojima, Department of Industrial Chemistry, Faculty of Engineering, Seikei University, 3-3-1, Kichijouji-kitamachi, Musashino, Tokyo 180 Japan
Fax +81-422-37-3871

LETTER TO THE EDITOR

World Heritage Listing of Lake Eyre Basin

Mary Oldfield, Mungerannie Station, P.M.B., Port Augusta SA 5710

Marcus Beresford, in his letter regarding "misunderstandings" over possible World Heritage listing in the Lake Eyre Basin (*RMN* 94/1), is himself creating further misunderstanding.

While Mr Beresford says that the Conservation Council of SA (CCSA) proposes only to list portions of the Lake Eyre Basin within South Australia, there are earlier CCSA proposals which were publicly distributed. These foreshadowed secondary proposals for large portions of the Diamantina and Cooper Rivers in Queensland, the Lake Eyre Basin deserts, the Great Artesian Basin, and cultural heritage (Aboriginal and European) in the Lake Eyre Basin, focussing on the river systems.

As regards the "lost opportunity of establishing possible common ground" at the meeting at Muloorina Station on 16 July 1993, Mr Beresford himself ensured that no such opportunities were likely to arise.

Most people, and certainly the pastoralists present, attended the meeting at Muloorina on the understanding it was an information day. The possibility of debating resolutions was not made public until the last 15 minutes of the day when a series of CCSA resolutions (listed in *RMN* 94/1) were presented. This inevitably resulted in their being considered with some suspicion.

With the focus for the day on information exchange, and no time to consider or discuss intricacies or ramifications of resolutions, it was only reasonable that the Chairman close the day with the resolutions having been presented but not explored.

REPORT ON TROPICAL SAVANNA SYMPOSIUM

Townsville, 17-22 July 1994

John McIvor, CSIRO Division of Tropical Crops & Pastures, 306 Carmody Road, St Lucia QLD 4067

The CSIRO Division of Tropical Crops and Pastures, in conjunction with a number of other organizations, held a symposium - "The Future of Tropical Savannas: Managing Resources and Resolving Conflicts" - at James Cook University. The symposium consisted of a two-day tour around Charters Towers and a three-and-a-half-day conference which included a one-day workshop and poster session. After a general introduction, sections of the conference covered:

* Savanna users and their perspectives
* Accommodating different perspectives
* Looking to the future

with invited speakers presenting a wide range of information. Smaller workshops were held to allow for a greater input from participants and deeper discussion of the issues involved in the future use of savannas. Common themes shared by all workshop groups were:

* a commitment to sustainability in all forms of land use and management;
* a recognition of the legitimacy of very diverse interests, rights and perceptions about land use;
* even with this recognition, conflict in land tenure issues is inevitable;
* a need for baseline data and on-going monitoring to assess impacts of management and land use in all its forms;
* equivocal role of science in land use decisions; and
* doubt as to whether a shared vision for the savannas is possible.

In his summative address Bob Clements highlighted the different points of view which had been put forward by the savanna users, the importance of values and beliefs in the interactions between users, and the role of mediation (rather than confrontation and legislation) in conflict resolution.

The proceedings (edited by Andrew Ash) containing the plenary and poster papers will be published by CSIRO later this year.

1994 BIENNIAL ARID LAND ADMINISTRATORS CONFERENCE

Ross O' Shea, Dept. Conservation and Land Management, 45 Wingewarra St, Dubbo NSW 2830

The above conference was hosted by New South Wales and held at Mungo Lodge from 12-14 September 1994.

Twenty seven people from New South Wales, Queensland, Northern Territory, Western Australia and South Australia participated in a very successful conference which sought to review and discuss current issues and initiatives for the administration of the arid lands of Australia.

The Conference specifically addressed a number of "external" implications to the administration and management of arid lands. These include:

* national strategy for rangeland management,
* desertification convention,
* world heritage,
* Native Title Act,
* regional development / regional adjustment,
* CSIRO funding cutbacks, and
* interests of the conservation movement.

The conference produced a number of communiques. Participants to the conference have now received these communiques and will be forwarding them through appropriate channels in their individual States.

(Ed. Ross has sent me a copy of these communiques which I will include in the next Newsletter.)

REPORT ON MULGALANDS CONFERENCE

Manda Page, Dept. of Management Studies, University of Queensland, Gatton College, Lawes QLD 4343

The Mulgalands Conference was held at the University of Queensland Gatton College on the 5th and 6th of September 1994. The conference was subtitled "Ecological Research and Management in the Mulgalands" and provided an opportunity for researchers and managers who work in the mulgalands to get together and share ideas on where work in the region is, and should be going.

The keynote address was delivered by Mr Paul Sattler of the Queensland Department of Environment and Heritage, who convened the last mulgalands conference in 1984. In all, a total of 33 papers were presented at the conference.

The conference had a predominantly Queensland flavour but drew strong representation from interstate, including delegates from CALM and the Mulga Research Centre in Western Australia, and the CSIRO Division of Wildlife and Ecology in the ACT. Topics for discussion were encouragingly diverse, including native and feral animal management, protected area management, monitoring strategies, and government agency initiatives in the region.

The final session of the conference was devoted to a group discussion regarding the future of the region. The final conclusions of the conference are still in draft form, awaiting comment by the delegates. In these conclusions a vision for the mulgalands, based on a landscape approach to management was proposed, entailing the following elements:

* productive and economic landholdings
* monitoring trend and condition of landscape units
* increased diversity of rural enterprises
* carrying capacities based on total grazing pressure, not just stock numbers
* an integrated conservation strategy
* a representative National Park system
* universal adoption of adaptive management in a partnership between agencies and landholders
* a recognition that the current occupants of the mulgalands cannot pay for restoration to ecologically sustainable condition without support from the wider community

Perhaps the clearest conclusion to be drawn from the final session was that the local community must play a role in the research process if change is to occur and be sustainable.

Papers from the conference are currently being compiled into a proceedings. This should be available in early 1995. For those interested it will cost $25 and can be ordered from:

The Mulgalands Conference
Department of Management Studies
Gatton College
Lawes, QLD 4343

Telephone enquiries should be addressed to Manda Page or Terry Beutel on (074) 601 470.

NEW MEMBERS

Rodney Beard
Department of Agriculture
University of Queensland
St Lucia QLD 4072

Nicholas Gill
Dept of Geography &
Oceanography
University of NSW
ADFA
Campbell ACT 2600

Dr Wayne S Mollah
PO Box 41439
Casuarina NT 0811

David H Cobon
93 Gull Street
Longreach QLD 4730

Deryk Cooksley
PO Box 1054
Mareeba QLD 4880

Sonia Finucane
Dames and Moore
85 The Esplanade
South Perth WA 6151

Library Resource Centre
Kalgoorlie College &
WA School of Mines
PMB 22
Kalgoorlie WA 6430

David James Counsell
PO Box 45
Nyngan NSW 2825

Jason Andrew Ferris
Middleback Field Centre
PO Box 10004
Gouger St Post Office
Adelaide SA 5000

Dr A.J. Millington
PO Box 175
Kununurra WA 6743

Ian Kealley
PO Box 366
Kalgoorlie WA 6430

Judi Earl
Department of Botany
University of New
England
Armidale NSW 2351

Biblioteca Central da Univ
Estadual do Ceara
AV Paranjas 1700
Campus do Itapery
60740-000 Fortaleza-CE
Brazil

Judith Gauntlett
99 Thomas Street
Subiaco WA 6008

Gloria Money
Yundamindra Station
PO Box 65
Leonora WA 6438

Pastoral Branch
Dept. Lands, Housing
& Local Government
GPO Box 1680
Darwin NT 0801

Daniel J Matthews &
Family
38 Mildred Street
Port Augusta West SA
5700

Shane Cridland
Dept. of Agriculture
Baron-Hay Court
South Perth WA 6151

Stephen van Leeuwen
Conservation & Land
Management
PO Box 835
Karratha WA 6714

The Australian Rangeland Society

REPORTS FROM THE ANNUAL GENERAL MEETING

PRESIDENT'S REPORT

Alec Holm, PO Box 718, Victoria Park WA 6100

The management of the Australian Rangeland Society (ARS) transferred from the Northern Territory to Western Australia in May 1993.

The incoming Council recognised the need for clear directions for the Society for the life of the current Council and beyond. Recognising this need, we held a Visions Workshop in September 1993 to which about 20 representatives of the Society from each State and Territory attended. The workshop was very competently handled by Messers John Riches and Terry Laidler from the Department of Agriculture Western Australia.

"Speaking for the rangelands" was accepted as a suitable slogan for the Society and the workshop identified the following strategic directions:

1. make statements of authoritative opinion on rangelands,
2. develop a synergistic relationship with the Landcare movement,
3. assist and interact with the wider community to encourage appreciation of rangeland values and issues,
4. infuse educators with enthusiasm for rangelands and provide support,
5. increase and maintain membership amongst all interest groups,
6. ask what else can be done with the rangelands,
7. compile and publish sound range management principles and practices.

Action plans have been developed for each of these strategic directions. Some of the outcomes include:

* Contribution to the National Rangeland Strategy. Policy will be further developed in workshops at the Society's biennial conference, and used in our response to the National Rangeland Strategy.
* Preparation of a questionnaire for Landcare Australia to assess urban beliefs on rangelands.
* Provide free one-year part membership to targeted individuals in each State.
* Continued publication of the newsletter and journal were considered of prime importance to the Society. High quality informative publications have continued to be produced on schedule.

The elected Subscription Secretary, Ms Helen Alison, resigned in October 1993 and the vacant position was filled by Ms Anne Stammers in November 1993. Two nominations were received for the position of incoming Vice President representing New South Wales and Dr Ron Hacker was elected following a national ballot in December 1993.

Council agreed to the purchase of a portable computer and printer and engaged Mr Michael Brown of Enterec Industries to develop a membership management software package for an all-inclusive price of $7065. This equipment has been purchased and the system is now operational.

It is my recommendation that the Society considers the appointment of a permanent paid Subscription Secretary. I will be raising this with Council.

TREASURER'S REPORT

David Pearson, PO Box 718, Victoria Park WA 6100

It is my pleasure to present the Audit Report and Annual Financial Statements for the year ended 31 December 1993. The Society has maintained its solid financial position, despite recording a loss in what proved to be a year of considerable change.

The Council transferred from the Northern Territory to Western Australia in May 1993. I sincerely thank Bruce Strong for his thorough preparation of the Society's accounts prior to their despatch to Perth, and his willingness to assist when problems arose. His support made my task much easier.

Several key recommendations of the out-going Council to revise the Society's operations were adopted during the year. In particular, the Society purchased a computer and customised software to establish a database of membership records to ease the onerous demands on the Subscription Secretary. Another major extra-ordinary outlay was the staging of the Visions Workshop held in Perth in September 1993 to refine and focus the Society's future direction.

The Society's income during 1993 was moderate in comparison with the previous year since a conference was not held. The income from subscriptions increased 22%, but the low interest rates available on the Society's investments resulted in a 31% decline in income from interest. However, there was still sufficient to fund scholarships and grants to a total of $3,000.

The costs of production of the Journal increased substantially during the year as the Society endeavoured to improve the quality of printing. The Council will need to consider a moderate increase in subscriptions to allow for increased production costs.

An Investment Committee of David Wilcox, Ray Perry and David Pearson was formed during the year to oversee the Society's investments.

Mr. President I move that the Audit Report and Annual Financial Statements for 1993 be accepted.

THE AUSTRALIAN RANGELAND SOCIETY
PROFIT AND LOSS ACCOUNT
FOR THE YEAR ENDED 31 DECEMBER 1993

	1993 $	1992 $
Operating Revenue	32,145	49,815
Operating Profit/(Loss)	(18,252)	25,624
Retained Profits at the beginning of the financial year	140,417	114,793
Total available for appropriation	122,165	140,417
Retained profits at the end of the financial year	$122,165	$140,417

THE AUSTRALIAN RANGELAND SOCIETY
BALANCE SHEET
AS AT 31 DECEMBER 1993

	1993 $	1992 $
CURRENT ASSETS		
Cash	17,713	14,794
Receivables	78	21,326
Investments	110,040	111,519
TOTAL CURRENT ASSETS	127,831	147,639
NON-CURRENT ASSETS		
Property, Plant & Equipment	6,819	-
TOTAL NON-CURRENT ASSETS	6,819	-
TOTAL ASSETS	134,650	147,639
CURRENT LIABILITIES		
Creditors & Borrowings	5,775	2,914
Other	6,710	4,308
TOTAL LIABILITIES	12,485	7,222
NET ASSETS	$122,165	$140,417
MEMBERS' FUNDS		
Retained Profits	$122,165	$140,417

THE AUSTRALIAN RANGELAND SOCIETY
INCOME & EXPENDITURE STATEMENT
FOR THE YEAR ENDED 31 DECEMBER 1993

	1993 $	1992 $
INCOME		
Conference Fees	130	20,990
Subscriptions	24,530	20,053
Reprint Sales	1,485	310
Interest	5,183	7,482
Other Income	831	921
Sale Carnarvon Proc.	-	59
	32,159	49,815
LESS EXPENSES		
Accounting	294	516
Audit Fee	625	800
Bank Charges	279	100
Conference Expenses	3,755	1,000
Depreciation	896	-
Freight & Postage	766	3,519
Honoraria - Production Manager	3,000	3,000
Honoraria - Others	3,000	1,000
Production of Journal	11,606	3,990
Production of Newsletter	7,716	5,475
Fees Paid	90	30
Publication & Printing	8,369	-
Subscriptions	500	253
Travel	6,115	500
Scholarships & Grants	3,000	2,000
Stationery	150	1,294
Petty Cash	250	342
Reimbursements	-	372
	50,411	24,191
SURPLUS/(DEFICIT)	**$(18,252)**	**$25,624**