The Australian Rangeland Society

RANGE MANAGEMENT NEWSLETTER
An official publication of The Australian Rangeland Society
ISSN 0812-4930

Citation
The material in Rangeland Management Newsletter has not been subject to peer review and may not be acceptable to some editors.

If cited it should be in the form:
Bastin, G. and Allan, G. (2012). After the smoke has cleared: 2011 fire in Central Australia. In: Range Management Newsletter (Ed. N Duckett). 12/2:3-6. (Australian Rangeland Society: Australia).

ISSN 0812-4930

The Australian Rangeland Society

Range management Newsletter

No. 95/1 March 1995

Registered by: Australia Post - Print Post No. 545270/00001

No. 95/1 March 1995

EDITOR (RMN)
Gary Bastin
CSIRO, PO Box 2111, Alice Springs NT 0871
Phone (089) 500137 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
Bill Low
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 95/1***

FROM THE EDITOR

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

The first newsletter for 1995 has another good variety of articles from contributors around Australia. Without my explicitly intending or directing that it happen, the underlying theme in this issue is centred around conservation and sustainable management in the rangelands. This surely reflects the growing community emphasis on this important concept in the rangelands.

Jacquie Shannon describes how conservation groups with an interest in the rangelands have combined through the Arid Lands Coalition to have an influential input into the National Rangeland Management Strategy. She particularly calls for closer contact with our Society and, while this is an issue for Council to decide on whether, and how, it might occur, I am sure Council would welcome the views of members. There are interesting parallels between the Arid Lands Coalition's requirements for land use and the sentiments expressed in the statements from the recent Arid Lands Administrators' Conference (Ross O'Shea's article). Both call for firstly determining what is the most appropriate land use for any region and then ensuring that such land use is truly sustainable. In another article, Hugh Pringle explores the dilemma of knowing what are sustainable grazing practices and stocking rates for much of the pastoral country and then effectively demonstrating why these management practices should be implemented. Using the Western Australian shrublands as his example, he "suggests that while conservative pastoralism may not always be the most productive management strategy, there remain numerous reasons why it should now, more than ever before, be formally endorsed as the appropriate pastoral management approach".

One of the consequences of seeking to change land use, or even land management practices, is the potential for conflict. Don Burnside sends us his (and colleagues') ideas from the Utah snow on managing conflict in land use decision making. The Americans are apparently turning away from their traditional approach of litigation to resolve conflict (where, in many cases, only the legal profession wins) to a more enlightened way of mediation. Don offers some interesting thoughts on the requirements and processes involved in this "new world of 'ecosystem management' and collaborative processes".

In this issue's lead article, Kate Roberts reports on a survey of graziers to determine their attitudes to utilising a pest species (wallabies) for financial return. By drawing parallels with the kangaroo industry, Kate demonstrates that there may be some money to be made from harvesting shot wallabies rather than leaving them in the paddock to rot. The graziers that Kate questioned were unwilling, or unable, to utilise this potential resource. Being remote from those areas in Australia where pest species can potentially be commercially harvested, I am unaware of all the issues involved in managing and utilising pest species and therefore must be cautious in what I say. However it seems to me that as a community, we need more integrated strategies to managing pest species than simply destroying animals when they are a problem and then reverting to "an out of sight, out of mind" attitude when population densities decrease or seasonal conditions improve. Property management is a fulltime job and it is unreasonable to expect that graziers should have the responsibility for converting pest species into a saleable product. However, if other sections of the community can demonstrate a willingness and commitment to utilising this resource in a long-term economically viable manner (as the kangaroo industry has done in some regions of Australia), then they should be encouraged and helped to do so. We are still waiting to hear from the Society's Kangaroo Policy Group and this may be an area where they can have some influence - i.e. by showing how a viable harvesting industry can be established and supported on a regional basis.

I welcome your views on these or any of the other articles in the Newsletter. And while you are in writing mode, please send me news on what you, or your colleagues, are doing in the rangelands. My deadline for the next issue is the end of May.

A WALLABY INDUSTRY FOR THE MARANOA?

Kate Roberts, MS 224, Murphys Creek Road, Toowoomba Mail Centre QLD 4352

Introduction

Bernoulli (1700 - 1782) *"Men of prudence do not invariably obey the principle of mathematical expectation."*
(in Savage, 1967).

It seemed logical to me that men of prudence (and landholders are people of prudence) would use a resource like wallabies if only someone could develop a market for them. But during a recent study it became clear that there was a lot more to developing a wallaby industry than having a product and a market.

A survey I conducted in September 1993 for the Wallaby Task Group to discover the extent of the wallaby problem in the Maranoa area revealed what we all knew: that there are many properties experiencing significant difficulties with wallabies. I, as a social surveyor, also used the questionnaire to gauge if there was any spontaneous interest in using wallabies for commercial gain.

The aim in convening the Wallaby Task Group, which is a sub-committee of the Maranoa Landcare Group, was to find a solution to the wallaby problem. One of the proposed solutions was to develop a wallaby industry so that wallabies could be used, instead of being shot and just left to rot. Such harvesting might result in more effective management of the

wallaby population by allowing numbers to be maintained at more acceptable levels.

The area surveyed in western Queensland was a rectangular grid from Roma in the south to Injune in the north east. The predominant land use is cattle grazing and property sizes range between about 800 and 8,000 hectares.

Background

The impetus for forming the Wallaby Task Group came in October 1991 during the worst of the early drought period. A grazier pleaded with conservationists through the *Toowoomba Chronicle* newspaper for help in dealing with wildlife, particularly wallabies and emus on her, and other, properties.

The Task Group consists of landholders from the Roma-Injune area, researchers from the University of Queensland's Gatton College (of whom I was one), a kangaroo shooter, and representatives from the three major government agencies, the Departments of Lands, Primary Industries and Environment and Heritage.

Method

I designed a questionnaire to gain confidential information about:

- the extent of the wallaby problem,
- the types of wallabies causing the problem, and
- what landholders felt were the best solutions to the problem.

I chose the survey questionnaire approach rather than gathering information through public meetings because a survey removes the issue of group consensus and discomfort at meetings, and allows 'free discussion' (Davis, 1992). The landholders can say their piece without fear of being criticised. They also present their views without being influenced by their peer group. Davis (1992) suggests that there is no such thing as free discussion in a group because of the effect that other members have on setting the agenda and allowing discussion.

For this reason, I did not interfere with the agenda by suggesting that there should be a wallaby industry. I merely asked "*What is the best solution for you and your property to the wallaby problem?*".

Results

Of the 400 questionnaires distributed, 150 were returned and 116 landholders stated that they had a problem with wallabies. Returned questionnaires were predominantly from the 30-50 year age group.

Some of the most interesting results came in response to the following questions.

- What would be the best solution for you and your property?
- If you did not have the wallabies on your property, would you:
    1. increase the number of stock
    2. increase the area under cultivation
    3. not do anything differently
    4. other?
- Which types of wallabies cause problems on your property.

What would be the best solution for you and your property?

The most popular solution amongst landholders was to shoot or poison the wallabies (74/116). Another 18 wanted to transfer the problem to their neighbours by clearing habitat, nine advocated fencing them out and nine had either given up trying to find a solution or just did not know what to do. Only six respondents could see any commercial value in wallabies.

What would you do differently if you did not have wallabies?

Most landholders (68/116) answered that they would not do anything differently. Fewer wallabies meant that they could better manage their properties, particularly through periods of drought.

Which types of wallabies cause problems on your property?

The most prevalent wallaby species was the protected species, the black-striped or scrub wallaby (*Macropus dorsalis*). Ninety-nine percent of properties had a problem with this species.

Other results of the survey:

Wallaby contribution to soil erosion problems

The Task Group initially thought that wallabies caused a significant amount of soil erosion. However no-one in the survey listed it as a sole problem, although 68 landholders listed soil erosion as an added problem. What seemed to be more important to the landholders was that the wallabies ate available grass and trampled crops.

A question asking for "final comments"

Of the 65 landholders who chose to make a final comment, only three suggested that people other than themselves should find a solution to the problem. These other people included the officers of the Departments of Primary Industries and Environment and Heritage, politicians and environmental activists.

Discussion

The desire to significantly cull or eradicate wallabies is difficult to fulfil when it concerns a protected species. Ninety-nine percent of the properties in this survey have a problem with black-striped/scrub wallabies, a protected

species. These animals can only be shot under special licence from the Department of Environment and Heritage. Further, they cannot be harvested for commercial gain unless there is a management plan approved by the Department of Environment and Heritage and the Australian Nature Conservation Agency.

There may be some respite for the 56 properties that also have the harvestable species, the whiptail or pretty-face wallaby (*Macropus parryi*), but harvesting may not necessarily reduce the numbers (Norbury *et al.*, 1993). Besides, harvesting is not a high priority for these landholders.

Therefore, there is no short term solution for most landholders. Their only option is to apply for a licence to deal with pest fauna and shoot the wallabies leaving them to rot.

What is the industry worth?

Alchin (1994) has calculated that a red kangaroo is ultimately worth as much as a steer (per kg) to a landholder. This assumes that the kangaroo meat is used for human consumption and so fetches 45 cents/kg at the chiller box. This, at 40 kangaroos per night and 22 kg per animal, would yield about $280 per night after costs of travelling and shooting have been accounted for. Sattler (1994) suggests that landholders be given a flat fee of $10 per animal for grey kangaroos harvested on the property and that the remainder go to the shooter. He is working on the informed assumption that kangaroo meat is worth much more than 45 cents/kg. On this assumption, a wallaby yielding a half to one third of the saleable meat from a kangaroo could fetch half to one third of that fee.

Switala (1994) argues that the kangaroo industry could only produce a maximum of 56,900 tonnes of meat. This is less than 2% of Australia's total red meat production and thus the kangaroo industry should not be a threat to the beef industry - a concern raised by members of that industry.

Cliff Dee (*pers. comm.*), who is a major user of kangaroo meat, states there is no market for wallabies because the animals are too small and the pelts are often damaged.

A wildlife utilisation industry may be important for the survival of the arid lands.

General land degradation can usually be attributed to the introduction of exotic animals and satisfying their needs (Vietmeyer, 1991). This author makes the point that it is better for the land to use the animals that are native to it than to modify the landscape to suit an exotic animal. Vietmeyer (1991) cites the domestication of the paca (*Agouti paca*) and the capybara (*Hydrochoerus hydrochaeris*), both large rodents in South America, as successful examples of the use of native animals for general domestic consumption.

Johnston (1993) cites Professor Gordon Grigg as having observed that more seeds pass through the gut of a kangaroo than a sheep. This may indicate that kangaroo grazing may be less harmful than sheep grazing at the same grazing pressure.

Payment to landholders in NSW and SA for kangaroos shot

In New South Wales, permits are issued to shooters and the landholder chooses whether to charge the shooter a bounty for kangaroos shot. The State is divided into zones with each having its quota of animals that can be harvested. There could be several properties in the one zone. In South Australia, the processors are issued with permits and each property has a determined number of harvestable animals. As in NSW, it is up to the landholder to charge a bounty if they would like a return from the animal. South Australia has permitted the use of kangaroo meat for human consumption for 10 years. The meat is available at butchers and is sold alongside beef, lamb or pork (C. Tuckwell and R. Border, *pers. comm.*).

Some solutions

If landholders are not ready to use wallabies for commercial gain, then other groups with an interest in the resource might be encouraged to move towards the forefront of the industry. Such groups could include Aborigines or the kangaroo shooters. There are already at least three tourism ventures and nine food outlets owned by Aborigines (Byrnes, 1992) and these ventures could be expanded.

Wilson *et al.* (1992) studied the use of wild animals, specifically kangaroos and wallabies, by Aborigines and indicated that enterprises are more likely to be successful if the Aboriginal community is located close to the resource. They name many towns with a significant Aboriginal population including Roma, Cunnamulla and Charleville which are close to the area of this present study.

Additionally the kangaroo shooters themselves could act as intermediaries between grower and processor. Brian Hooper, a professional kangaroo shooter from Roma, in a paper tabled at the first meeting of the Wallaby Task Group, outlined several problems associated with the killing of wallabies and kangaroos. Even so, he is enthusiastic about a kangaroo and wallaby industry.

Commercialisation of wildlife off-shore

Namibia was the first country to give landholders effective ownership of the wildlife on their properties, followed by Zimbabwe and South Africa (Cumming, 1991). Initial attempts by ranchers to utilise the wildlife and compete with domestic livestock in meat production failed and, increasingly, the ranchers turned to a multiple-use approach using tourism as another means of making money from wildlife. Ron Thomson (1992, p. 21) in his colourful and at times controversial work, *The Wildlife Game*, believes very strongly in the commercial utilisation of wildlife. He criticises the passive use of wildlife through tourism as being a limited capital earner for landholders. He supports an active use of

wildlife through the sale of animal products (meat, fur, skins and ivory) or live animals suitable for domestication as pets.

Conclusion

The Wallaby Task Group was formed to develop solutions to the problem of high wallaby numbers. The options, from an agricultural perspective, are to eradicate them or cull or harvest the animals for the commercial gain of affected landholders. Responses to my survey indicate that landholders are not interested in harvesting. Very few have seriously considered culling for commercial gain. Therefore, it seems clear that a wallaby industry is not going to develop from the energy of the landholder group.

It may be that Aborigines and kangaroo shooters are in a better attitudinal position to develop the kangaroo and wallaby industry in Queensland.

Studies in Australia and elsewhere indicate that the landscape is less likely to be degraded if it is grazed by native, rather than exotic, fauna. Wildlife industries are established in other countries offering possible models for the commercial use of pest native species in Australia.

References

Alchin, B.M. (1994). The role of kangaroo harvesting in pastoral property management. Unpubl. paper presented to the conference on Conservation Through The Sustainable Use Of Wildlife, University of Queensland.

Byrnes, J. (1992). Aboriginal experiences of enterprise development. *In* Wildlife Use and Management (ed. P. O'Brien). Bureau of Rural Resources and Aboriginal Employment Development Program, AGPS, Canberra.

Cumming, D. (1991). Developments in game ranching and wildlife utilization in East and Southern Africa. *In* Wildlife Production: Conservation and Sustainable Development (eds. L.A Renecker and R.J. Hudson). AFES misc. pub. 91-6, University of Alaska Fairbanks, Fairbanks, Alaska. pp. 3-7.

Davis, J. (1992). Some compelling intuitions about group consensus decisions, theoretical and empirical research and interpersonal aggregation phenomena: selected examples 1950-1980. *Organisational Behaviour and Decision Process*, **52**, No. 1, 22.

Johnston, T. (1993). Farm kangaroos, shoot your sheep. *Farm Journal*, October 1993, pp. 32-33.

Norbury, G.L., Norbury, D.C. and Hacker, R.B. (1993). Impact of red kangaroos on the pasture layer in the Western Australian arid zone. *The Rangeland Journal*, **15**, 12-23.

Sattler, P. (1994). The greater conservation gain - form a "new" kangaroo industry for the mulga lands: ecological sustainable development. Unpubl. paper presented to the conference on Conservation Through The Sustainable Use Of Wildlife, University of Queensland.

Savage, L.J. (1967). Historical and critical comments on utility. *In* Decision Making (eds. Ward Edwards and Amos Tversky). Penguin, Harmondworth.

Switala, J. (1994). Based on the current quota, what is the potential supply and value of kangaroo meat onto the market? Unpubl. paper presented to the conference on Conservation Through The Sustainable Use Of Wildlife, University of Queensland.

Thomson, R. (1992). *The Wildlife Game*. The Nyala Wildlife Publications Trust, South Africa.

Vietmeyer, N. (1991). Opportunities for commercial utilization of exotic species. *In* Wildlife Production: Conservation and Sustainable Development (eds. L.A Renecker and R.J. Hudson). AFES misc. pub. 91-6, University of Alaska Fairbanks, Fairbanks, Alaska. pp. 96-108.

Wilson, G., McNee, A. and Platts, P. (1992). *Wild Animal Resources: their use by Aboriginal communities*. AGPS, Canberra.

9TH BIENNIAL RANGELANDS CONFERENCE
Port Augusta: 24-27 September 1996

Merri Tothill, Department of Primary Industries, PO Box 357, Port Augusta SA 5700

The South Australian Branch is pleased to be the host for the Society's next Biennial Conference. Please note the dates and enter them into your diary.

The Organizing Committee, chaired by Mr. Jim Cawthorne, Primary Industries, Port Augusta, has decided that the conference should extend over four days, beginning on Tuesday evening 24th September and finishing on Friday evening, 27th September 1996.

If you would like more information, please contact:

Conference Secretary
Mrs. Sarah Nicolson
Middleback Station
via Whyalla SA 5600
Telephone/Fax (086) 450 199

RANGELANDS RECOVERY
The Arid Lands Coalition

Jacquie Shannon, National Co-ordinator,
Arid Lands Coalition, PO Box 119, Yulara NT 0872

The Arid Lands Coalition (ALC) is a rapidly growing body of organisations throughout Australia who have an interest in the long term ecologically sustainable management of Australia's arid lands.

The Coalition first met in Alice Springs in mid 1993. Organisations represented at the inaugural meeting included:

- Conservation Councils from Queensland, South Australia and Western Australia;
- the NSW Nature Conservation Council;
- Environment Centres from Darwin and Alice Springs;
- Friends of the Earth from Melbourne and Adelaide; and the World Wide Fund for Nature.

Since that time the number of interested and active organisations has grown to include the Australian National Parks Association, the Australian Conservation Foundation, the Wilderness Society, the National Trust, Cairns and Far North Environment Centre and the National Threatened Species Network.

The goals of the ALC, as they have been presented in their submission to the Rangelands Working Group of ANZECC and ARMCANZ, are that:

* a representative reserve system be established throughout Australia's rangelands supported by off-reserve conservation management;
* where any land use is either ecologically unsustainable or economically unviable, alternative ecologically sustainable land uses must be developed, resourced and implemented;
* where any land use (i.e. pastoralism, tourism etc.) can be ecologically sustainable, all activities are to be within the principles of Ecologically Sustainable Development (ESD); and
* appropriate resourcing and support be provided to facilitate the realisation of the aspirations of Aboriginal traditional owners, especially for ecologically sustainable land management.

While the environment movement throughout Australia is well represented in the Coalition, the membership is by no means limited and membership by other interest groups such as the Australian Rangeland Society would be seriously considered by the ALC.

I am undertaking a 12 month consultancy as National Co-ordinator for the ALC and am currently involved in a number of activities:

* Foremost, I co-ordinate the input of the ALC into the development of the National Rangelands Strategy by the Rangelands Working Group.
* I meet and speak with pastoralists, their representative organisations, ATSIC and other Aboriginal organisations, government representatives and politicians at both a state and federal level.
* I am also actively involved in networking throughout our constituency, providing information on, and actively promoting, sustainable arid lands management.

All of these activities have required the development of policies for the ALC and this in turn has necessitated the co-ordination of extensive research. Such research has included an assessment of the effectiveness of different state administrative processes including nature conservation, native vegetation management, water management etc. as well as federal government responsibilities. This is, of course, a massive task given the diversity of arid rangelands throughout Australia in terms of climate, economic and ecological factors and the lack of readily available data.

The ALC is enthusiastic to work with current and potential land managers to ensure that Australia's outback population is well resourced, highly skilled and committed to ecologically sustainable land management practices which both ensure the protection of Australia's unique biological diversity and accommodate viable, diverse economic activities.

Initiatives which the ALC are currently exploring include:

* Regionally located workshops with land managers on preferred ecologically sustainable lifestyles and how to get there.
* A national conference on the ecologically sustainable management of Australia's arid lands.
* The development and extensive distribution of easily understood material regarding the ecologically sustainable management of Australia's arid lands.

Our position on the Working Group alongside representatives from the National Farmers Federation (NFF), Aboriginal and Torres Strait Islander Commission (ATSIC), and relevant state and federal government agencies has required that we prepare and present a position paper regarding the development of the National Strategy; involved us in a three-day workshop in December last year to progress the development of the proposed draft; and actively ensured our participation in ongoing discussions with the other 'stakeholder' groups, i.e. ATSIC and NFF. It is our understanding that the Draft National Rangelands Strategy will be available for public consideration by mid 1995.

Information exchanges between ourselves and the Australian Rangeland Society can only be of benefit to both organisations. We would welcome being recipients of both the *Rangelands Journal* and this Newsletter and similarly suggest that the Australian Rangeland Society subscribe to the newsletters of our key organisations seeking any further information regarding arid lands' issues.

All enquiries and requests for information are welcome. Please contact either myself, Jacquie Shannon on (089) 562 482 phone and fax, PO Box 119, Yulara, NT, 0872; or Robin Chappel on (09) 221 5931 phone and fax, PO Box 6018, East Perth, WA, 6892.

FROM THE UTAH SNOW ...

Don Burnside, Dept. Agriculture, Baron Hay Court, South Perth WA 6151

A combination of some outstanding leave and support from the Quinney Visiting Scholar Program enabled me to spend nearly three months with the folk in the College of Natural Resources at Utah State University. I worked mainly with Allen Rasmussen and Dave Torell, both skilled operators in the area of conflict management in land use decision-making.

Located in the Rocky Mountains, the Utah environment is a splendid mixture of arid shrublands, spectacular canyons, mountain forests, swift-flowing mountain streams and, as the locals say, "the greatest snow on earth". All this beauty and diversity, a wide range of old and new uses, plus a rapidly growing population largely of urban origin are combining to build some splendid conflicts about the value and use of the rangelands. Not fundamentally different to life in the Australian rangelands, but significantly more so I think.

The traditional, scientifically "rational" approaches to management, largely grounded in bio-physical knowledge and grazing uses, are battling with a wave of change in expectations and values emanating from non-traditional sources. Similarly, the ranchers and other so-called "consumptive users" (e.g. miners, hunters) are struggling with the changes, although the shift to the right in the recent Congressional elections has filled them with the hope of having friends in high places. This is a hope, however, that I feel may be mis-placed given other, more weighty issues facing the nation's legislators.

The solution offered by Government is "Ecosystem Management" (called "Integrated" or "Whole Catchment Management" in Australia). In the USA, this philosophy of managing the whole system - bio-physical, economic, social and cultural, is being embraced by land management agencies with gusto. Yet mixed views of what ecosystem management looks like, inter-agency conflicts, the need for new skills and community suspicion may make it difficult to implement. Again, in my view, a similar situation prevails in Australia. And ... what are we really aiming for? Is the increasing uncertainty in rangeland management compatible with traditional expectations of optimum solutions to problems? Perhaps all we can do in these processes is seek some improvement to, or accommodation of, our situation. We may also need a "state and transition" model to guide our thinking in the socio-economic arena - it might make quite a difference to our actions!

Perhaps even the notion of sustainability is limiting our thinking and could do with some critical re-examination. For instance, what would our research and extension programs look like if we adopted the view that rangeland ecosystems (embracing bio-physical, economic and social characteristics) are, in the conventional sense, non-sustainable? For example, rather than considering what we must do to retain all future options, if we can't realistically retain them all, how do we decide between those available to us? In the USA, is the migration of non-traditional users to the rangelands changing the physical and human landscape? Incidentally, the term used to describe this most recent migration to the rangelands is "Californication"! How should the range science profession respond to this change - by seeing it as a threat or as an opportunity? Certainly the changes will require use of the knowledge, skills and wisdom held by rangeland managers at all levels.

Overall three observations stand out. We must at all costs avoid the use of civil litigation to "settle" environmental disputes. A rising tide of legal actions over the use of the USA federal public lands is having a debilitating effect on agencies, industry, community groups and individuals. For instance, I heard of good scientists having their professional credibility wrecked by encounters in the courtroom. Nevertheless, strongly committed groups (e.g. ranchers, conservationists) spend heaps of money taking cases about land use to court. They are persuaded in this approach by lawyers. This is not surprising - I heard that while the USA has 5 per cent of the world's population, it has 70 per cent of the world's lawyers (Dan Quayle *pers. comm.*) - presumably they need the business! What is surprising is despite low success rates in this "litigative management process", enthusiasm for the approach persists. The main losers are, of course, common sense and good decision making.

But it is not all gloom - a better way is developing, using mediation processes to pick a path through the mire. Puzzled by the failure to have their good science and plans adopted on their face value, agency folk are realising the value of collaborative processes, working with the community to manage conflicts. Similarly some community groups, frustrated by the failure of either the rational planning model (e.g. we do the plan, generate optimum solutions and you implement them!) or litigation are getting into these processes. There are some great examples around where seemingly intractable "wicked" problems have proved amenable to mediation in managing the conflict. Note the word used is "manage" not "solve", recognising that some conflicts won't go away, and that a little bit of conflict can be a good thing!

Now this is all good, but it did lead to us doing some thinking about how traditional Government agencies will operate in the new world of "ecosystem management" and collaborative processes. Role clarity is required - agencies can be managers of processes, deliverers of plans, police-persons or sources of expert information. They may have to be all four - and if so the people they are dealing with need to be certain which hat is being worn and when! Alas, more easily said than done. What is also desperately required is (i) more "people skills" and (ii) an acknowledgment of the importance of these skills in natural resource management. Knowing about the soils and grass is no longer enough! The world is becoming more complex - indeed "messy" might be a better word. As resource scientists, managers and practitioners, we can either adapt to that, or become the dinosaurs in Utah that so fascinated our four year old palaeontologist!

The trip was a great experience - mainly due to the superb hospitality and convivial atmosphere at Utah State. In particular, thanks to Allen Rasmussen, Dave Torell, Mark Brunson, Doug Johnson, Joanna Endter-Wada and John Malechek for their help and fellowship.

CONSERVATIVE PASTORALISM - A PERSONAL VIEWPOINT

Maintaining the Composition and Structure of Native Vegetation in Western Australia's Arid Station Country

Hugh Pringle, Department of Agriculture, Baron-Hay Court, South Perth WA 6151

Introduction

The idea of maintaining relatively low stocking rates in order to maintain palatable perennial plants hinges on the assumption that this will produce gains in production per head and per hectare that will out-perform more opportunistic stocking strategies (Morrisey and O'Connor, 1988). However, recently this assumption has been questioned (Holm, 1994) and the ecological basis of range condition assessment based on minimising alteration of 'natural' ecosystems has been criticised (Wilson and MacLeod, 1991).

This article suggests that while conservative pastoralism may not always be the most productive management strategy, there remain numerous reasons why it should now, more than ever before, be formally endorsed as the appropriate pastoral management approach in the arid shrubland rangelands of Western Australia. The issue has relevance if one accepts that the wider community is undergoing attitudinal change and pastoral production is only one value perceived to exist in the outback (Morton *et al.*, 1994).

Pastoral Production

At least in the southern shrublands region, the climate is characterised by:

- low and generally unpredictable rainfall;
- moderately reliable winter seasons;
- unreliable summer seasons;
- prolonged 'dry' periods.

These factors vary spatially. For instance, the southern and Gascoyne coastal districts have higher and more reliable winter seasons where nine out of ten years have 'effective' rainfall. By comparison, inland areas have higher temperatures and higher evaporation rates, and are on the margins of both summer cyclonic rainfall and winter depression rainfall distribution. As a result they have generally poorer and less reliable seasons (about two thirds of winters have 'effective' rainfall in Wiluna).

Travelling from Wiluna in the interior west towards Carnarvon or, more dramatically, south towards Kalgoorlie, rainfall reliability and length of growth season become more favourable for pastoralism. The impact of temperature should not be underestimated; Kalgoorlie and Wiluna have an equal chance of experiencing a successful summer season despite Kalgoorlie having a much lower rainfall (according to a soil moisture prediction model). Kalgoorlie also has a substantially better probability of a good season in winter.

In the inland arid shrublands, the rainfall attributes listed earlier have a profound impact on pastoral production (Wilcox, 1963).

The preliminary findings of a grazing trial at Boolathanna station near Carnarvon on the Gascoyne coast indicate that from conservative to (what might be termed) moderately heavy stocking rates, pastoral production over a ten year period was not higher on areas of chenopod shrubland compared to similar areas with few remaining shrubs and considerably greater ephemeral ('ground feed') production (Holm, 1994). This concurs with the ideas of Wilson and MacLeod (1991) that ecologists are exaggerating the extent of range degradation.

During the grazing trial, sheep had to be hand fed or removed from the poor range condition treatment areas on four occasions in ten years. On a pastoral lease this, presumably, would equate to four episodes of major stock losses or forced selling. When the costs of the losses (or sale of poor sheep) and acquisition of new stock are considered, the economics may prove unsustainable even if wool production was not.

The findings in the final report on the Boolathanna grazing trial (Holm, 1994) need to be considered in their context. Firstly, the economic consequences of substantial stock losses or sales were not considered. Secondly, the soils in the study area generally were found to be reasonably stable. In more fragile areas, soil degradation is likely to suppress ground feed production and increase stock reliance on remnant perennial shrubs in degraded pastures, possibly perpetuating degradation processes. Care should be taken in extending these findings to other landscapes or beyond the climatic zone studied.

On an anecdotal basis, some of the longest established and most respected pastoralists in the north eastern Goldfields have put their management philosophies on paper (North Eastern Goldfields and Kalgoorlie Land Conservation District Committees, 1993). They, and Curry and Hacker (1990), recognise the importance of maintaining chenopod shrublands in a productive state so as to sustain the 'strength' or 'drought durability' of pastoral stations. The pastoralists have needed those shrublands many times in their history on the land and they manage them conservatively (Pringle, 1994).

West of the salt lake drainage areas in the interior, many of the chenopod shrublands occur on land systems associated with creeks and rivers and have fragile duplex soils subject to high-energy, episodic sheet flows. The historical degradation of these western areas highlights the need for conservative management of these important, but fragile, ecosystems. Many areas are no longer suitable for pastoral production and represent collapsed ecosystems, damage which is irreversible in human time.

Nature conservation and biodiversity

Before Ecologically Sustainable Development was popularised, nature conservation was generally seen to be the preserve of nature conservation agencies - a small number of people trying to manage a huge amount of land set aside in reserves. However large the amount of reserved land, it has never been significant when compared with grazed areas in most pastoral regions of Western Australia (CALM, 1992).

The importance of off-reserve nature conservation management has been stressed widely (CALM, 1992; Pringle, 1993). This is for three main reasons:

(i) The current nature reserve system in the rangelands is inadequate.

(ii) Nature conservation values change in space over time as disturbances affect reserved land and biodiversity changes in off-reserve areas in response to a multitude of factors. Thus, a habitat type previously adequately represented under reservation may be severely perturbed and there may be a need for additional reservation. Alternatively a habitat type may become more threatened due to off-reserve management. Conservative pastoralism will limit the extent and likelihood of this scenario in most cases, and in so doing will reduce the reservation requirements for the most productive and potentially most threatened habitats in the southern shrublands of Western Australia.

(iii) More fertile areas in any region are generally not well represented in lands reserved for nature conservation and are the areas most modified by pastoral land use (Pringle, 1993).

Future land use options

Our national and state conservation strategies quite clearly state that we must leave options open for future generations. The idea that substantially modifying environments will reduce future options has little empirical evidence or logic except where the change is to severe degradation, erosion and ecosystem collapse. If in future we find that pastures in good condition do not offer a substantially greater range of options, we can always increase stocking rates at that time. One cannot always ecologically retrace one's management steps (Westoby *et al.*, 1989), so caution is recommended before doing anything that might jeopardise future generations' options.

Conclusion

The arguments of Wilson and MacLeod (1991) are strong and logical, considering that 'range condition' is inherently valuative, a human construct and is concerned with sustainable pastoral production. In contrast, it is suggested that ecological assessments of range condition are appropriate in unpredictable arid rangelands, and that production-based assessment criteria jeopardise ecological sustainability and perhaps future generations' options. It is not recommended to go down this road in Western Australia's arid shrublands.

Instead, we should seek objectives that are commensurate with regional objectives for land management in line with ecologically sustainable development. Conservative pastoral management should be recognised as a critical component in achieving these objectives.

References

Curry, P.J. and Hacker, R.B. (1990). Can pastoral grazing management satisfy endorsed conservation objectives in arid Western Australia? *Journal of Environmental Management*, **30**, 295-320.

Department of Conservation and Land Management (1992). A draft nature conservation strategy for Western Australia. Perth, WA.

Holm, A. McR. (1994). Boolathanna Grazing Study, Carnarvon Western Australia, 1983-1993. Final Report. Department of Agriculture, Perth, WA.

Morrissey, J.G. and O'Connor, R.E.Y. (1988). Twenty eight years of station management - fair use and a fair go. *Proceedings of the 5th Biennial Conference*, Australian Rangeland Society, Longreach, Queensland.

Morton, S.R., Stafford Smith, D.M., Friedel, M.H., Griffin, G.F. and Pickup, G. (1994). The stewardship of arid Australia: ecology and landscape management. *Journal of Environmental Management*, **41**.

North Eastern Goldfields and Kalgoorlie Land Conservation District Committees (1993). Mulga, merinos and managers. A handbook of recommended pastoral management practices.

Pringle, H.J.R. (1993). Nature conservation and pastoralism in the north eastern Goldfields: a case study. *Proceedings of the Green and Gold International Landcare Conference*, Kalgoorlie, Western Australia.

Pringle, H.J.R. (1994). Pastoral resources and their management in the north-eastern Goldfields, Western Australia. Department of Agriculture, Western Australia Miscellaneous Publication. No. 22/94.

Westoby, M., Walker, B. and Noy-Meir, I. (1989). Opportunistic management for rangelands not at equilibrium. *Journal of Range Management*, **42**, 266-274.

Wilcox, D.G. (1963). The pastoral industry of the Wiluna-Meekatharra area. *In* General Report on Lands of the Wiluna-Meekatharra Area, Western Australia, 1958. Land Research Series No. 7, CSIRO, Australia.

Wilson, A.D. and MacLeod, N.D. (1991). Overgrazing: present or absent? *Journal of Range Management*, **44**, 475-482.

FOR SALE

Extra copies of the latest *Rangeland Journal* (Vol. 16(2), 1994) are available for $25.00 plus $2.00 handling and postage. This Special Issue titled "Contemporary explorations: values, goals, needs and expectations of rangeland users" has a diversity of topics dealing with social issues in the rangelands.

Copies can be obtained from:
Mr K.M.W. Howes
Department of Agriculture
Baron-Hay Court
South Perth WA 6151

APPLICATION ABSTRACTS
THE RANGELAND JOURNAL
Vol 16 No 2 1994

Special Issue - *Contemporary explorations: values, goals, needs and expectations of rangeland users*

Manifest Destiny, Mirage and Mabo: Contemporary Images of the Rangelands

R.L. Heathcote

Attitudes to the Australian rangelands have changed markedly over the last 20 years in response to a variety of changes in societal attitudes to the environment in general and changes in national and international scientific knowledge on the nature of the rangeland ecosystem. This paper provides a brief review of those changing attitudes, seen in the context of the sociologist Cohen's four environmental orientations: instrumental, territorial, sentimental and symbolic. Evidence of each is provided and it is argued that future management of the rangelands will need to take account of the variety of views of the nature and role of the rangelands which those orientations encompass.

Aborigines and Pastoralism in North-Western Australia: Historical and Contemporary Perspectives on Multiple Use of the Rangelands

Lesley Head

I examine aspects of land-use in the north-west Northern Territory by Aboriginal hunter-gatherers and white pastoralists since the early twentieth century. A case study of Legune Station and Marralam Outstation highlights issues of general relevance to those areas of rangelands where pastoralism and hunting/gathering coexist and compete. The historical record indicates that, contrary to widely held views, many aspects of Aboriginal relations to land were maintained throughout the pastoral period. In effect, multiple use has been a reality since contact, and in the wake of the Mabo debate will continue to be an issue for the next century. I argue that policy and bureaucratic frameworks, both past and present, fail to deal with this cross-cultural reality. There are both ethical imperatives and land management advantages in recognising Aborigines as stakeholders in decisions about the future of the rangelands.

Using the Aboriginal Rangelands: 'Insider' Realities and 'Outsider' Perceptions

Elspeth Young and Helen Ross

Aboriginal ownership of Australia's rangelands is already significant and is likely to increase with recognition of Native Title. Aboriginal management of the rangelands, including their use for cultural and subsistence purposes as well as for pastoralism and conservation (parks) presents alternatives to conventional practices. Traditional ecological knowledge is applied in all forms of Aboriginal land use. Multiple use of the land, combining two or more forms of use within a single area, is predominant. Such strategies are particularly important in more marginal parts of the rangelands where, because of environmental unpredictability, single purpose use may threaten the successful survival of landholders. A case-study of contemporary land use practised by the Ngarrinyin people in one such marginal area, the interior section of the Kimberley's remote Gibb River road, illustrates these points. As it shows, Aboriginal groups have varied their land management responses according to the extent of their ownership and control over their traditional country. The multiple uses which they practise enhance both their chances of providing a livelihood and the sustainability of the land as a whole. Non-Aboriginal neighbours have also increasingly moved towards multiple use strategies. These realities challenge the common perception from the 'outsider' government authorities that such regions should focus on single purpose use, with pastoralism the prime emphasis. The paper argues that this challenge must be met: by revision of land tenure to accommodate multiple use, by improving Aboriginal and non-Aboriginal communication and information exchange on rangeland management, by providing appropriate land management programs and by engaging in long term, holistic planning for all residents of such regions. Such approaches would enhance opportunities for closing the gap between the realities of rangeland use and beliefs in appropriate forms of use.

'Not Passing Through': Aboriginal Stakeholders in the Rangelands

Nancy Williams and Ross Johnston

Comparison of Aboriginal interests in rangelands in western New South Wales with those in northwestern Northern

Territory and the Kimberley of Western Australia reveals little difference in their history, aspirations for land acquisition, or plans for multiple use management. Throughout Australia, Aboriginal people who are traditional owners of rangelands continue to live on or near the land they regard as traditionally theirs. This is true of the more closely settled rangelands as well as remote regions. In all the rangeland areas Aboriginal people now wish (and following the Mabo decision may more realistically expect to gain) some form of freehold title to at least some of their land. Aboriginal people whose traditional lands are located in western New South Wales have access to very little of their land but have maintained their connection to it. They have aspirations of obtaining access to and control over portions of it, with plans to manage it under a multiple use regime that would include small-scale sustainable pastoralism and agriculture, while living in dispersed family groups on the land. Aboriginal people's desire to retain access to their traditional land for non-economic reasons (spiritual, social, historical) is paramount. Should the Commonwealth Land Fund legislation be enacted, cultural imperatives as well as economic viability will need to be taken into account in the purchase of land. Planning for future management should incorporate traditional ecological knowledge and should involve Aboriginal traditional owners and their organisations, such as land councils and resource agencies, in local and regional planning.

Diversity in Yearly Calendars on Pastoral Properties in Western NSW: A Constructivist Perspective

Stephany Kersten and Raymond Ison

The diversity in yearly calendars on sheep properties in western NSW is explored using three criteria of analysis which best explain these calendars: by seasonal perspective, by main operational activity and for individual reasons. From a seasonal perspective, the 18 described systems could be grouped into seven different calendars. The complexity of a grazing system cannot be analysed from a seasonal perspective alone and the main operational activity and reasons given by individual graziers are a means of identifying differences between yearly calendars. A 'decision making' diagram is established combining main operating activity, reasons for planning certain activities and the month(s) in which they are undertaken.

The research reported is based on a model which acknowledges the existence of multiple valid realities related to human diversity and local knowledge. The results suggest more insight into the motivations, interpretations and understandings of individual graziers can be gained by using methods like open invitations and semi-structured interviews to work towards co-researching activities.

Valuing human diversity in interpreting, understanding and ranking preference in property management is a step towards managing the semi-arid rangelands of western New South Wales in an ecologically and socially sustainable way.

Ground-Based Monitoring: A Process of Learning by Doing

Don Burnside and Shankariah Chamala

An enormous amount of intellectual and physical effort has gone into developing ground-based range monitoring methods and getting sites established. Most of this effort has gone into ensuring the validity of ground-based monitoring as a means of measuring change in the country and grazing impact. The developing view is that ground-based monitoring methods, on their own, will not be able to produce objective measures of range trend. A mixture of methods will be needed to detect range trend with acceptable certainty.

Although the people working in the monitoring area all recognise that land holders are primary users of the ground-based systems, rather less effort has considered how this methodology will be used by landholders to support their decisions. Given the limited validity of the technology as a stand-alone 'range trend detector', ground-based range monitoring will need to establish a role in the human activity system in the rangelands. This requires participative work in developing a viable role for landholders' use of the technology as an individual and group activity.

Perhaps we need to view landholders' use of ground-based monitoring with different eyes. Rather than considering it as a tool in the 'soils and plants' system, we should think of it as operating in the 'people learning and deciding' system. Making that shift in thinking gives relevance to a wide range of theory and practice in the organisational development, adult learning, action-research and decision making disciplines. Developing the interaction between landholders, advisers and ground-based monitoring will benefit from concepts developed within these disciplines. Thus we advocate two roles for landholders' use of ground-based monitoring within a process of 'learning by doing'. Firstly, we see monitoring as a learning process, with that learning contributing to the knowledge held by decision makers. Secondly, that knowledge base, associated with the feedback from the physical environment, can assist people in making wiser tactical decisions. The fundamental outcome of this process of 'here and now' learning won't be precise measures of range trend, but a better body of knowledge held by the people responsible for making rangeland management happen.

Perceptions of Beef Cattle Producers and Scientists Relating to Sustainable Land Use Issues and Their Implications for Technology Transfer

N.D. MacLeod and J.A. Taylor

Selected results are presented for two sub-groups drawn from a postal survey of perceptions of sustainable grazing management issues in the beef cattle-grazed rangelands of Queensland. The subgroups include beef cattle producers and research scientists, both of which are key stakeholders for effective technology transfer from research and

development (R&D) projects that address sustainable grazing land management problems.

Some important similarities and differences are highlighted between the sub-groups which are believed potentially to impact on the design and operation of R&D projects, the principal aim of which is to improve sustainable management practices. These relate to land use objectives and perceived sustainability of current grazing practices, and to the feasibility of rectifying present land degradation problems.

Similarities are evident in the high proportions of both groups which do not believe that present practices are sustainable and with the same perceptions about the principal causes of grazing-induced land degradation and the feasibility of rectifying present land degradation problems. Major differences relate to the perceived management objectives of beef producers, the scale at which land degradation problems occur, and the key sources of information or knowledge on which sustainable grazing systems might be developed.

An Alternative Understanding of the Relationship Between the Ecosystem and the Social System - Implications for Land Management in Semi-Arid Australia

Guy Fitzhardinge

The growing concerns of the wider community for biodiversity, ecological maintenance and sustainable long term productivity of Australia's rangelands has focussed attention on land management practices in the semi-arid and arid areas. Where conventional farming paradigms concentrated on farming practices and methods, the paradigms of sustainability rest heavily on changes to farming philosophy for their success. The basic challenges have been well understood for years, and almost all the research has gone into the process of understanding the resource. There is little understanding of the relationship between the ecosystem and either society in general, or the local community. The basic relationship, that between society and the ecosystem, is being overlooked. The social system determines human objectives and the ecosystem presents a range of possibilities through which these objectives are to be realised. Using the work of Ingold, it is argued that technology, ideology and structure are the **products** of the relationship between society and the ecosystem. The interaction between the ecosystem and the social system then presents a set of possible outcomes that culture attempts to solve. There is a need to shift attention from technology and ideology to examining and understanding the relationship between the social system and the ecosystem if the desired changes, such as the maintenance of biodiversity or sustainability, are to be more than superficial.

Why Study Rangeland Values? Some Practices that Scientists have much to Answer For

Arthur D. Shulman and Robyn Penman

This essay challenges social scientists who focus on values to make a practical contribution to rangeland matters. The essay is organised around three questions: Why study values? Can values be neutrally studied? and How can social scientists contribute to the possibilities of better rangeland practices? We suggest that the available language resources used and the environmental realities constructed within our research practices are limiting and not conducive to real, practical solutions. And, in conducting this foray, we wish to demonstrate how addressing these limitations with our audiences can potentially contribute to practical progress on rangeland matters.

The Prime Minister's Pre-Election Promise of World Heritage Listing for the Lake Eyre Basin: Flight or Flight of Fancy?

Julian Reid

In March 1993 the Australian Prime Minister promised World Heritage listing of diverse wetlands in the South Australian Lake Eyre region. Recent developmental pressures within the region and in the catchment interstate led the environment movement to intensify the pro-listing campaign. Current theory on ecological functioning of arid Australia and unregulated rivers, and a rapid expansion of knowledge about the region's heritage, support the technical legitimacy of heritage significance and highlight the value of integrated regional planning and management structures as have been developed in the Murray-Darling Basin.

The Lake Eyre Basin covers one sixth of Australia and World Heritage proposals for even a small area have alarmed commercial interests and state governments, due to the implications of federal intervention and changes in existing management that could follow. This alliance has mounted an aggressive and effective media campaign and lobbied federally to stall any progress with the Commonwealth's continuing commitment to World Heritage assessment. As with other recent conflicts concerning specific areas of land, resources and established commercial interests, this dispute has become highly divisive leading to a stalemate. The two campaigns and the roles of government and media are analysed to show that the pastoral industry, some mining interests and the states will tend to remain opposed to World Heritage proposals over moderate to large areas in the rangelands. Broad (rhetorical) initiatives such as national strategies, policies and conceptual management models are less threatening and can be broadly embraced (and ignored). Lessons from the mining industry and socio-economic case studies are instructive.

Land Administration in the Rangelands: What For, Who For and How?

D.G. Wilcox and D.G. Burnside

The path of change in land administration practices from that which had the exploitation of pastoral resources by domestic stock as its principal objective to a position where administration is required to take a more holistic view of the management of rangelands for a wide range of uses is discussed in this paper. Although historically administration has been generally slow to react to changing operating environments, a varying degree of legislative and behavioural changes have occurred in response to a wide range of influences. These influences include: objective information on rangeland resources; complementary legislation affecting the use of these resources; new Government programs directed at improving land management; a developing awareness of the value of rangeland for purposes other than grazing domestic animals; and the economic difficulties facing the grazing industries. With major changes and uncertainties surrounding rangeland use, we suggest that administrators themselves must define their objectives clearly in terms of the needs of all land users, within a framework of sustainable land use. This work can best be done within new networks and partnerships involving the relevant agencies and groups. By defining acceptable criteria and decision rules within these structures, administrators can focus more on the quality of the process in land administration and measuring their performance, rather than regulating for their defined desirable outcome. Finally, we recognise that the evaluation of administrative performance is an area that requires urgent attention.

Australian Rangelands in Contemporary Literature

R.G. Kimber

The subject of this paper being contemporary Australian rangelands literature, I have restricted the study to literature of the decade to 1994, with focus on 1992-1994. I acknowledge recent informative studies, but have developed an individual perspective. In addition to considering recent novels and factual books I have given attention to newspaper and magazine accounts, as these give the most immediate observations of the rangelands, and attitudes towards them and their inhabitants. Key trends that emerge are perceptions of the rangelands as pristine - probably the one continuum since the commencement of written records about Australia; the entirely contrasting view of pastoralists as destroyers of rangelands; and recognition of Aboriginal spirituality as significant in caring for the land. The trends are not, however, entirely in the one direction, as I indicate by presenting both the positive and negative views presented by a select number of writers.

Good Relationships: Ethical and Ecological Perspectives on Rangeland Management

David 0. Freudenberger and C. Dean Freudenberger

As we ponder the prospects of our rangelands, we face the fundamental ethical and ecological question: what is good rangeland management? We propose that good management is based on caring relationships. Caring about any person or anything is our only tangible way of expressing gratitude for life and our moment of opportunity to participate in it. The motivation of gratitude is the essence of ethical actions. Good management results from expressions of gratitude through informed, diverse and responsive relationships with the land. Our relationships must be informed by sound ecological understanding; uninformed acts of gratitude have degraded the rangelands. Good relationships can involve extraction, preservation, conservation and enhancement of natural resources. No single relationship with the land is wholly appropriate. Good management is based on relationships that are responsive to the dynamics of rangeland ecosystems. The ethic and science of ecological sustainability must be incorporated into the moral concept of justice, otherwise justice is short lived. Without justice, communities and the land on which they depend suffer and decline.

"*A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. Is wrong when it tends otherwise.*" - Aldo Leopold

---

CALL FOR NOMINATIONS

Sandra Van Vreeswyk, Honorary Secretary, PO Box 718, Victoria Park WA 6100

Council will transfer from Western Australia to New South Wales at the end of the Annual General Meeting on 29 May 1995. Council calls for nominations for the election of the following officers for the next two years:

- President
- two Vice Presidents
- Honorary Secretary
- Honorary Treasurer
- Subscription Secretary

It is intended that all officers, except one of the Vice Presidents, will come from New South Wales or the Australian Capital Territory. The second Vice President must be from the next host state, which Council has decided shall be Queensland. Nominations can come from any member of the Society, wherever they are based.

Nominations must be received by the Honorary Secretary not later than April 10 1995. The nominations must be signed by two members of the Society and countersigned by the person nominated. If there is more than one nomination received for any office then there will be an election. The Honorary Secretary will send out postal ballot papers to all members not later than April 20 1995 and these must be returned by May 15 1995.

REPORT OF THE ARS TRAVELLING FELLOWSHIP 1994

Grant Hatch, Department of Grassland Science, University of Natal, PO Box X01, Scottsville 3201, South Africa

I was fortunate to be awarded the ARS Travelling Fellowship for 1994 to attend the 8th Australian Rangeland Conference in Katherine and present a paper on my work on financial and environmental risk for extensive beef production systems in the semi-arid savanna of Natal, South Africa.

My visit began in Alice Springs with a talk at the CSIRO Centre for Arid Zone Research to members of the ARS. This talk described a project I have started which looks at range dynamics and productivity on communal rangelands in Natal. Interestingly, it seems that many of the problems faced by rural communities in Natal, such as rainfall and production variability, and access to markets and information, are shared with Aboriginal communities in Australia.

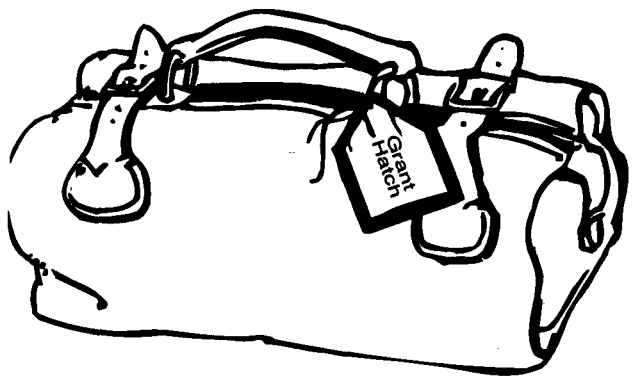
From Alice Springs, it was on to Katherine and the Conference and on the way I was given an introduction to the vegetation and open expanses of the Northern Territory. While the vegetation at times appeared completely different to that in areas of southern Africa with similar climate in terms of species composition, there were remarkable similarities at the landscape level. The spinifex grasslands on fine red sands appear very similar to the *Stipagrostis* grasslands of the north-west Cape/southern Namibia region of southern Africa, but with very much lower potential stocking rates. The central arid woodlands further north seemed to resemble the bushvelds of the Northern Transvaal, but without the strong browse component which supports multi-species systems. Still further north into the tropical and sub-tropical woodlands, the eucalypt tree layer and *Themeda triandra/Heteropogon contortus* understorey resemble, certainly in structure, the *Brachystegia* woodlands of central Zimbabwe. Interestingly, the *Themeda triandra* and *Heteropogon contortus* I was accustomed to were replaced by taller, stemmier varieties which resembled the *Hyparrhenia hirta* or thatch grass of the Natal midlands and *Hyparrthelia disoluta* of the semi-arid savanna or Lowveld.

I found the Conference in Katherine very interesting, particularly after I had presented my paper and could relax somewhat. The familiar problems of the consequences of attempting to manipulate environments to suit cattle and sheep production were well represented. The challenge of dealing with environmental variability amid declining property revenues was also common. I was surprised at how little work was aimed at solutions based on indigenous wildlife or alternate forms of land-use. These are increasingly becoming the focus for both commercial and subsistence systems in southern Africa. The magnitude of the problems of farming in an environment not adapted to grazing by domestic herbivores appeared more acute in Australia than those faced by southern Africa, which has adapted to relatively high numbers of wild herbivores. The implications of changes in land ownership following the Mabo judgement, which would lead to increased access to land for Aboriginal people and challenge existing pastoral leases, was very interesting, particularly as South Africa addresses the consequences of inequitable land distribution through legislation such as the Land Restoration Act. The decision-support and software development work was impressive, particularly as a tool to deal with the consequences of environmental variability, and is certainly an area where South Africa lags behind considerably. It was also interesting to see the problems created by southern African trees and grasses unleashed in a different environment, particularly as much effort is spent in southern Africa attempting to eradicate or control the spread of invasives introduced from Australia.

I then travelled 3,800 km across almost half of Australia to Brisbane which certainly gave a broad overview of the vegetation. Striking was the uniformity over large areas such as in the Mitchell grasslands, in contrast to the sharp topographic and vegetation variability in southern Africa, and yet vegetation boundaries appeared quite abrupt as soil changes occurred. The expansive, flat landscape often resembled areas of the western Orange Free State and central Transvaal.

After visiting Narayen Research Station, I presented a talk to members of the CSIRO Division of Tropical Crops and Pastures in Brisbane on patch selective grazing in the midlands of Natal. It was interesting to see patterns in patch selection evident in the humid grasslands of Natal occurring in different environments such as Narayen Research Station. Underlying determinants of patch initiation and subsequent soil and grass species change appear remarkably similar in very different environments.

I would like to thank the following people for their generous hospitality during my visit. Margaret Friedel and her family, who hosted me in Alice Springs. Ron McLean, and the staff of Narayen Research Station who outlined the GLASS experiment and research at Narayen, and his family who hosted me in Brisbane. Rosemary Buxton and Janine Kinloch who arranged an interesting drive up from Alice Springs to Katherine and introduced me to the Australian outback and swags. Mark Sallaway and Dave Waters, who offered me a lift from Katherine via Darwin and almost to Brisbane, and answered endless questions about the ecology of central Queensland. Finally, the Australian Rangeland Society for the opportunity to visit Australia, attend the Rangeland Conference and gain exposure to an interesting country and people. I look forward to returning to Australia this year.



COMMUNIQUES FROM THE 1994 BIENNIAL ARID LAND ADMINISTRATORS' CONFERENCE

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

*(Ed. The last newsletter (*RMN *94/3) provided a brief report on this conference and indicated that a number of communiques had been produced. These communiques are reproduced here.)*

Networks of Conversation

Delegates to the 1994 Biennial Arid Lands Administrators' Conference recognise that community attitudes can change through networks of conversation (e.g. R. Ison - *Rangelands Journal*, 1993). These networks include both formal and informal groups such as Landcare, Total Catchment Management Committees, farmers groups, National Parks and Wildlife Associations, Soil Conservation Boards, advisory committees, field days, Rural Lands Protection Boards, etc. Information transfer is not a linear process, but rather an interactive process that requires facilitation.

There is a need to establish common values between stakeholders to establish a common vision for the rangelands.

There is a need to develop greater knowledge and understanding to improve land and business management practices.

Delegates recommend:

1. The Commonwealth and States further develop processes and incentives to facilitate networks of conversation between stakeholders involved in the rangelands. These networks should be owned and driven by the local community in the spirit of cooperation and consensus.

2. The Commonwealth and States should commit long-term resources to community participatory groups. These resources include trained independent rural facilitators (with adequate operating budgets), funds for regional workshops, access to cross-portfolio technical expertise, etc.

3. The Commonwealth and States recognise that current programs (e.g. Regional Development Programs) are making a significant contribution to networks.

World Heritage

In recognition of the unique value(s) of an area or site, delegates to the 1994 Biennial Arid Lands Administrators' Conference endorse the concepts of World Heritage listing where appropriate.

However, noting the deficiencies and time delays which are evident in the Wilandra Lakes Region World Heritage Property, we urge both State and Commonwealth governments to recognise the following principles in any outstanding or future listing processes:

- The listing process should include, from the commencement, full and frank consultation and information exchange between all parties and stakeholders as agreed by the COAG Intergovernmental Agreement on the Environment.

- The early establishment of Ministerial responsibility and accountability at Commonwealth, State, Territory and, if appropriate, Local Government levels.

- Acceptance that World Heritage listing over private land tenures can have a significant adverse impact on land values and external financial investment decisions as a result of real or perceived management implications.

- Acceptance that World Heritage listing over private land tenures can create severe social upheaval as a result of uncertainties in future management planning.

- Provision must be made to financially assist individuals adversely affected by World Heritage listing.

- Successful outcomes to consultation and negotiation with stakeholders must be reached within agreed time frames.

- Given the existing extremely negative perceptions arising from past, current and proposed World Heritage listing, it is essential that these principles be accepted and promulgated without delay. Failure to do so may severely jeopardise any future World Heritage listing proposals.

Monitoring and Assessment

In recognition of the need for sustainable management and rational administration of rangelands to incorporate effective feedback from rangeland monitoring systems into decision making at all levels, delegates to the 1994 Biennial Arid Lands Administrators' Conference urge:

1. The Standing Committee on Agriculture and Resource Management to ensure that the National Rangeland Monitoring Program is immediately reactivated and adequately resourced with a view to production of a national report on condition of the rangelands, stratified by appropriate biogeographic regions, by 1998.

2. That pastoralists be encouraged to utilise rangeland monitoring systems which will aid short term management decision making, and that State agencies develop the format for these systems (in conjunction with pastoralists) and the monitoring aids (e.g. plant identification handbooks, standards for assessing forage availability and species utilisation) which will be required for their implementation. The systems developed should emphasise

the recognition of critical times or thresholds for management decision making and should complement and extend producers' traditional decision making processes.

3. That the economic and ecological benefits of tactical management be extended to industry by adequately funded, long term demonstrations.

4. That property management packages be developed which will allow producers to incorporate technical and monitoring information into decision making processes while simultaneously considering risk, economic return and impact on rangeland resources.

5. That in recognition of historical land degradation, the case exists for provision of financial or other incentives for sustainable management within the rangeland management system, and that such incentives should be linked to resource outcomes demonstrated by appropriate monitoring systems.

6. That agencies recognise the progress already made in the development of remote sensing technologies appropriate to both short and long term monitoring of rangelands and give serious consideration to removing the limitations, particularly in terms of resources, which still limit the operational application of the technology.

Rangeland Research

Delegates to the 1994 Biennial Arid Lands Administrators' Conference recognise that a diversity of research needs currently exist in Australia's rangelands. This diversity has been created by the increasing community interest in rangelands, the opportunities for multiple use of the rangelands, the requirements for ecologically sustainable development and the socio-economic issues confronting rangeland communities. Delegates note that the definition of research issues and the conduct of research will often require a systems perspective and a capacity to integrate over spatial scales. However, delegates also recognise that significant deficiencies still exist in the scientific basis for sustainable pastoral management and stress the requirement for continuing support of basic research in this area in addition to support for emerging areas of research need.

Future of the Rangelands

Delegates to the 1994 Biennial Arid Lands Administrators' Conference recognise the importance of the National Strategy for Rangeland Management working group articulating a vision for the future of the rangelands based, to the extent possible, on the shared values of all stakeholders who will manage, use or seek to influence the management and use of Australia's rangelands.

Delegates acknowledge that continuing human intervention has had significant impact on the rangelands and decisions have to be made now regarding the nature of human activity in these regions into the future.

A shared vision will provide a common reference point for the development of dynamic action plans.

The articulation of the values of the 'stakeholders' will provide the opportunity to:

- identify common ground
- prioritise issues by identifying those which must be resolved before the shared vision can be approached
- interpret the values within the current social, economic, scientific and technological context
- make decisions to ensure joint, cooperative action directed towards achieving the vision.

Tenure and Rentals

Tenure

Delegates to the 1994 Biennial Arid Lands Administrators' Conference recognise that land tenures need to be adapted to emerging directions in the use of the rangelands, with the most significant trend being a differentiation between those lands where pastoralism is sustainable and is the preferred use, and those lands where pastoralism's claim as the primary use is in question.

1. On lands where pastoralism is ecologically and economically sustainable, and is the preferred use, the appropriate tenure is a lease with emphasis on the following:

   a) tenure security, either by perpetual lease or by long-term lease with provision for roll-over, well in advance of termination;

   b) provision for review of tenure conditions at regular intervals, generally 10 to 15 years and with specification of the general matters involved in the review process, e.g. provisions relating to sustainable use, rangeland monitoring, clearing;

   c) capacity to award additional property rights where additional uses can be incorporated with the pastoral enterprise, with the additional rights being purchased or rented;

   d) clearer specification of the rights of third parties, particularly relating to public access; and

   e) powers of resumption of small land parcels for more intensive uses.

In addition, lessees should be encouraged to engage actively in property management planning. As a minimum requirement, lessees should report on the condition of their lease at regular intervals, e.g. on a three year cycle, according to agreed criteria.

2. On lands where pastoralism's claim as the primary use is in question, various land tenure options need to be explored. These include multiple purpose leases, limited term leases and licences, and new forms of public tenure, capable of accommodating a diversity of private uses in a more flexible way.

Rentals

1. Delegates endorse the general trend towards market-related rentals, preferably based upon Unimproved Capital Value (UCV) but with rents being set as a proportion of market values. Rental levels should be related to the wider policy directions which underpin the lease tenure system.

2. It was also agreed that public attention on rentals has been disproportionate to the sums involved and has generally proved counter-productive, diverting attention from more important issues relating to reform of the land tenure system.

REMOTE SENSING AND GIS IN THE NORTHERN TERRITORY

Vanessa Chewings, CSIRO Division of Wildlife and Ecology, PO Box 2111, Alice Springs NT 0871

A workshop on remote sensing and geographic information systems (GIS) in the rangelands was held in Alice Springs on February 15. Twenty one people, mostly users, participated in the workshop. The aim of the day was to foster communication and understanding amongst the various users of remote sensing and GIS in the region.

Alice Springs has a relatively small scientific community. However, with the growth of remote sensing and GIS applications in recent years, it was apparent that users were frequently unaware of work by other groups. In retrospect, the small number of users meant that the day was easily organised - a simple phone around to gauge the level of interest, a faxed draft program and then the ability to readily visit all sites in the one day resulted in informative presentations and informal discussions on the work programs being conducted at each site.

Organisations represented, and projects described, included:

* Conservation Commission of the NT (CCNT).
  Fire mapping throughout the Territory using coarse resolution AVHRR data, and at individual national park level, with high resolution SPOT panchromatic data.
  Incorporation of land unit maps (following air photo interpretation and field checking) into a GIS. This is followed by client-driven production of interpreted maps.
  A ranger-developed working GIS for the Finke Gorge National Park west of Alice Springs.

* NT Department of Primary Industries and Fisheries.
  Selection of ground-based shrub monitoring sites from classified MSS data.
  Regular production of vegetation "greenness" maps for the Northern Territory from AVHRR satellite data.

* NT Dept. of Lands, Housing and Local Government.
  Development of a user-designed vehicle mounted "Touch PC" system for collecting GPS locations of pastoral lease infrastructure. Attribute information describing the infrastructure and vegetation data collected at monitoring sites can also be entered into this system.

* NT Department of Mines and Energy.
  Use of digital satellite data, airborne geophysical data and air photo interpretation for mapping geology.
  Digital map production.
  Publicly accessible databases - e.g. locations and details of exploration licences.

* Central Land Council.
  Environmental data layers and satellite data in a corporate GIS as a service function to other activities of this Aboriginal oriented organisation.

* CSIRO Division of Wildlife and Ecology.
  Development of a multitemporal MSS database of vegetation cover and its interrogation by GIS layers (such as distance from water and landscape type) to determine grazing impact.
  A collaborative project with the CCNT and CSIRO to develop data, software and modelling techniques within a GIS for understanding and managing central Australian mountain ecosystems to maintain or enhance their value for land users.
  Development of an airborne video system for rapidly verifying satellite data.

* Australian Nature Conservation Agency and NT Power and Water Authority.
  As potential users of remote sensing and GIS technology.

The day concluded with overviews from each organisation to a wider audience of interested people, and some general discussion.

The general consensus from the workshop was positive. All participants thought the day was useful and I think that most would agree that they now have a better appreciation of how remote sensing and GIS are being used by the various government agencies to understand and manage the rangelands in central Australia.

INTERDEPARTMENTAL BREAKTHROUGH IN THE WEST

Hugh Pringle, Department of Agriculture, Baron-Hay Court, South Perth WA 6151
Rob Thomas, Department of Conservation and Land Management, PO Box 51, Wanneroo WA 6065

For the first time, the Departments of Agriculture (DAWA) and Conservation and Land Management (CALM) have collaborated to undertake an ecological survey in our rangelands. The project was first raised over a few tinnies around a camp fire during a rangeland survey. The Rangeland Survey Program involves the mapping of land systems and range assessment across all land within areas of about 80,000 to 100,000 km^2. The idea emerged when CALM regional ecologist, Andy Chapman, accepted an invitation to join the earlier Rangeland Survey program of the Sandstone-Yalgoo region while it covered Mt. Elvire station - a station which CALM had recently purchased.

Wanjarri Nature Reserve was chosen for the current collaborative survey as it is the only 'A' Class reserve in the area and had been mapped in a rangeland survey a few years ago. Wanjarri, like Mt. Elvire, was a pastoral lease. The circumstances leading to their 'acquisition' by CALM varied greatly. Mr Tom Moriarty, an avid ornithologist, sold Wanjarri to CALM after a relatively unsuccessful attempt to run a pastoral enterprise and a pub at the same time. In contrast, the previous owners of Mt. Elvire are presently acquiring zebra sun tans after being caught growing plants that, when inhaled, make everything seem pretty damn good!

It was originally envisaged that Andy and Hugh Pringle would select some representative sites on Wanjarri and describe the vegetation and landforms in some detail. Like all good ideas, this one proliferated. The team that eventually undertook the fieldwork included bolusologist (soil specialist), Peter Hennig (DAWA); a cryptogamist, Chang Sha (Western Australian Herbarium); a botanist, Ray Cranfield (WAH); an ecologist, Hugh Pringle (DAWA); two twitchers (bird specialists), Andy Chapman (CALM), Mike Craig (PhD student, UWA) and an environmental officer, Rob Thomas (CALM).

Between frequent sessions of *ad hoc* 'twitching' (searching feverishly in hope of new bird records for the area) and 'spasming' (scouring 'hot spot' areas for rare plants), we eventually completed over two dozen sites at which we collected data of unprecedented ecological detail in Western Australia's rangelands. Our spasms discovered populations of a priority flora species (*Calytrix uncinata*) and our twitching will represent a baseline of the avifauna in a really terrible season.

The report we will produce will provide the basis for a Reserve Management Plan to be developed next year. The exercise was very hard work, but we all came away exhilarated. Exchanges of information such as native animal habitats and increaser/decreaser plants kept us all intrigued in each others' work. Given a massive dollop of good humour in pretty harsh conditions, we realised that while life is not meant to be easy, it is meant to be fun. We are all fired-up to produce a good report.

DEVELOPMENT OF *THE RANGELAND JOURNAL*

Allan Wilson, Journal Editor, "Cal Col", Deniliquin NSW 2710

*(Ed. This article by Allan is a sequel to Wal Whalley's contribution to the last Newsletter (*RMN *93/3) - "The Editing Process: how do papers make it, or not make it, into The Rangeland Journal?")*

The Journal was first published as the *Australian Rangeland Journal* in 1976. This was changed to the present format in 1991, when the name was changed to *The Rangeland Journal.* The new format has been widely accepted and I have received a steady flow of contributed papers in my time as Editor.

At the last in-person meeting of the Publications Committee at Katherine, a set of objectives for the Journal were adopted. These are:

1. To provide a venue for the publication and dissemination of new developments in rangeland science and management.
2. To ensure the scientific integrity of published material through a process of anonymous review of manuscripts.
3. To ensure the widest possible readership of the Journal.
4. To ensure high publication standards.
5. To obtain listing of the Journal in *Current Contents.*
6. To ensure that publication is financially viable for the Australian Rangeland Society.
7. To maintain modern standards and methods of publication.

The Journal has published about twenty research papers annually, in two issues. A few submitted papers have not been accepted where referees have said that the work was not scientifically sound or original and I have rejected some (mainly overseas) because the information within them was not new. Still others have not been returned by authors after requests from Associate Editors for revision. However, a range of sound and interesting papers have been published covering a wide variety of topics including conservation, land use, pastoral management and wildlife. There have also been two special issues, one on Conservation and Wildlife in the Arid Rangelands and one on Values, Goals, Needs and Expectations of Rangeland Users. The next special issue, planned for December 1996, will be on Grazing Management in the Rangelands.

Papers on a wide diversity of topics are accepted (to quote from the Notice to Contributors - "on any aspect of the ecology, use, management or conservation"), provided they have 'scientific merit".

I believe that the Journal serves an important interest of a significant section of the Society's membership. This is both to publish the results of their scientific and learned work where it will be read, and to read the results of current information that is of interest to their work and lives. The Journal is not meant to publish everything - it is directed at original work. It must maintain appropriate standards or

prospective authors will send their papers elsewhere, possibly overseas. The Newsletter is the other publication of the Society, and it publishes news and views.

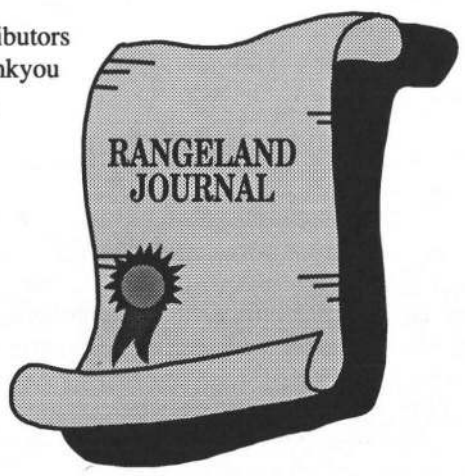
Whilst it has been quite successful, I believe there is need to develop the Journal further. At present we only receive just enough papers to publish twice a year and the overseas readership is limited. We have not yet been successful in obtaining listing in *Current Contents*. Hence a number of potential authors view the journal as below world class and they send some of their contributions elsewhere. However, we are well supported by the members generally and continue to receive papers from a wide variety of sources and on a wide variety of topics. I do not think there is much opportunity to expand within the Australian market. There is simply a limited number of people who can contribute papers.

This leaves us with the opportunity to expand our subscriptions and author list overseas - to export. Rangeland science is an international activity and our Journal is of interest to those in other countries, and their developments are of interest to us. I believe that expanding overseas could be a fruitful strategy, provided we continue to publish papers that will be of interest to the bulk of our Australian readership and that an enlarged subscription list is not a burden on finances. On the first question, I consider that expansion into other countries that have similar land use and development, such as New Zealand, South Africa, Chile, Argentina and Israel would prove beneficial and meet with approval. We have carried the occasional paper from some of these countries in recent years. On the matter of finances, I have asked the Publication Committee and Council to review the overseas and institutional subscription rate to ensure that any increased readership is profitable.

To this end, members of the Publications Committee, Associate Editors and members of Council who will be attending the International Rangelands Congress in Salt Lake City in July have agreed to participate in a promotion of the Journal. The aim is to increase both subscriptions and contributions from the countries listed above. We will be preparing a display of the Journal and will try to personally contact all delegates from the countries nominated above.

I would be grateful for any comments on our course of action and for any other ideas that you may have on Journal development.

To readers, contributors and referees; thankyou for your support.



RECENT RANGELANDS RAMBLINGS

John Ludwig and David Tongway, Division of Wildlife and Ecology, CSIRO, PO Box 84, Lyneham ACT 2602

John Ludwig reports on his recent trip to the US

David Tongway and I participated in a recent international symposium and workshop held in Tucson, Arizona, on "Desertification in developed countries: why can't we control it"? Representatives from 18 countries attended. Of great interest to me was an overview paper on desertification presented by Robert Ryan, US Ambassador and Chair of the UN Scientific Panel of Experts on Desertification. He presented statistics to demonstrate how serious land degradation is globally and how serious a problem it is right now. He also noted that desertification is strongly linked to biodiversity and climate change issues, e.g. reversing desertification will automatically improve biodiversity.

Of the many presentations, a few stood out. Karl Hess from the Foundation for Research on Economics and the Environment gave a very provocative paper on the "Tragedy of the Rangeland Commons". He asked why is it that desertification is still occurring in a country like the USA which has strong laws on land use. He damned the grazing permit system for public lands, arguing that such permit systems are based on animal numbers and production, not on land condition, nor on wildlife and conservation values.

In a session on global overviews of desertification, my paper with David on "Desertification in Australia: an eye to grass-roots and landscapes" drew considerable interest, especially my discussion on Australia's grass-roots approach to land degradation management, e.g. the National Drought Alert Program and the National Landcare Program. Failures of the top-down approach in the USA are only now being taken seriously, with a new "Rangeland Reform Policy" being developed as a multi-agency effort within the US, following the lead of Australia.

Our paper has been selected for publication in a special issue of the international journal *Environmental Monitoring and Assessment* pending acceptance after peer-review.

Feral in the USA - David Tongway

I had a very enjoyable stay in the US, visiting five main centres, and meeting heaps of people: a few old friends but mainly a large number of people I knew by reputation only.

My itinerary began in Tucson, Arizona, at the meeting John Ludwig has described in his report above. I presented a poster on my *Rangeland Soil Condition Assessment Manual* (*Ed. see* RMN *94/1, p 19*) as an indicator of system "health" and "early warning signs". Of particular interest was an "Indicators" sub-workshop where I found two schools of endeavour. On the one hand, there were people like me who

wanted to write down and codify useful field indicators; on the other there were systems-type modellers who wanted everyone else to collect data for them to plug into their models. The latter wanted lots of data but didn't always seem to have a clear idea of the eventual product. The former (i.e. field-indicators people) were regarded as too superficial. The notes which subsequently came out of the meeting reflect this dichotomy and perhaps are indicative of why developed nations have not handled desertification very well.

After the conference, I renewed my acquaintance with Lamar Smith at the University of Arizona in Tucson. Lamar and I had done a lot of work on soil indicators ten years ago when he visited us in Australia on sabbatical leave. This time, we did some field reconnaissance with two of his graduate students who want to pursue their studies in the area of landscape ecology.

My next stop was at the University of Colorado, Fort Collins. This was mainly to talk to Dennis Ojima and Bill Parton about the Century model for nutrient cycling. This is one of the few surviving models from the International Biosphere Program of the 1970's, and is well regarded. The model is plot-centred rather than landscape-centred and has particular application to work that I am involved in with Divisional colleagues out of Darwin (the North Australia Tropical Transect). At this time however, the model has no spatial redistribution capability meaning that the processes of runoff and runon (and correspondingly, erosion and deposition) which transfer resources around the landscape and are responsible for "ferile patches" are not adequately handled. Hovever Mike Coughenour, who will be visiting us later this year, has expressed an interest in writing an explicitly spatial front-end to Century to overcome this problem.. This will allow us to do "real-world" simulations of nutrient cycling in our rangelands.

The next port of call was close by at the High Plains Grassland Research Station at Cheyenne, Wyoming. Here, Jerry Schuman is doing some neat work on carbon and nitrogen cycling involving quite a bit of plant root analysis. The grasslands were snow-covered during my visit, making the soil hard to photograph! These grasslands are pretty resilient being grazed for only five months of the year, in summer. Fifty-seven years of this sort of management has produced very little soil degradation, and most of that at a fine scale. I am sending back a methodology to help Jerry and his team analyse what has happened in terms of resource control.

On to Texas A&M University where Steve Archer had just returned from Africa and it was good to have a familiar face to relate to. I had a number of very interesting discussions with both faculty staff and students, including Steve Whisenant, another landscape ecologist. He and I will prepare and present a keynote address at the International Rangelands Congress mid year.

Last stop was with an old friend, Walt Whitford at Las Cruces, New Mexico. This time the topic was provision of field guides for monitoring soil condition. Jim Stone, the Chief Scientist for the Bureau of Land Management EMAP program, came down from Las Vegas, Nevada, and we worked on a prototype manual for the Sonoran-type desert systems. The actual soil observations have been lifted directly from my present manual, and we are providing a more appropriate set of landscape photos and sketches to guide field workers. This field manual for the south western deserts is currently being trialled out of Las Vegas and Las Cruces. First indications are positive - i.e. the manual seems useful. However, cutbacks in financial support may prevent an early adoption. Only time will tell.

This was a very timely trip, as there is a general move towards landscape appreciation in the US, and my seminar seemed to strike a chord (given 5 times in 3 weeks!). On reflection, the discussions arising from my talk indicated that there is a growing interest in spatial patterning and what it can tell us about landscape function and dysfunction. I find it strange that the connection between pattern and process was not made emphatically decades ago.

I saw a number of grassland analogues in the US deserts which have helped me in the development of a manual for the assessment of soils in our tropical grasslands. I have now found a way to quantifiably describe the fertile patches and interpatches of these northern rangelands, and tests of the method in grasslands at Charters Towers have given neat results. This manual is nearly complete and will be field-tested with a number of potential users in Kununurra in May.

In concluding, I thank my newfound colleagues in the US who were very hospitable and made my stay very enjoyable. The trip provided a great opportunity to promote my work and I sold 40 copies of the soil manual. It's now in Chile, Spain, Belgium, South Africa and USA!

NOTICE OF ANNUAL GENERAL MEETING

Sandra Van Vreeswyk, Honorary Secretary, PO Box 718, Victoria Park WA 6100

The Annual General Meeting of the Society will be held on Monday 29 May 1995 at 3.30 PM at the Western Australia Theatrette, Department of Agriculture, Baron-Hay Court, South Perth.

The business will include:
1. reports from Council members,
2. 1994 financial report, and
3. report on the election of office bearers for the next Council.

All members are invited to attend the AGM. Light refreshments will be served afterwards. Please let me know if you are planning to attend (c/- Department of Agriculture, telephone 09 3683917 or fax 09 3683946).

REPORT FROM COUNCIL

Sandra Van Vreeswyk, Honorary Secretary, PO Box 718, Victoria Park WA 6100

International Rangeland Congress 1995

Dr Allan Wilson has won support from the International Wool Secretariat to attend the International Rangeland Congress in Salt Lake City, Utah in late July. Allan will be promoting the Society's journal to both attract papers and increase subscriptions from overseas. He will be manning the Society's promotions booth along with assistance from other members of the Society attending the IRC. *(Ed. See Allan's article about the* Rangeland Journal *and its promotion at the IRC on pages 17 and 18.)*

Travel Grant and Scholarship Applicants

Council assessed the applications for the Society's Travel Grant and Scholarship awards at its February Council meeting. The number of applications this year was higher than in previous years, with a number of the Travel Grant applications being to attend the 1995 International Rangeland Congress. Unfortunately the Society could not fund all the applicants so the applications were ranked according to the perceived benefits to the Society and to Australia's rangelands.

The following applicants were successful:

Dr David Orr was awarded $2000 to attend the IRC in Utah, and associated activities such as a workshop on sustainability issues and a meeting of the American Ecological Society. David has contributed two papers dealing with (i) seedling recruitment and (ii) the interaction of grazing and rainfall on plant development.

Roger Tynan was awarded $2000 to also attend the IRC followed by a study tour of arid rangeland areas in the US. Roger will be presenting a paper at the Congress titled 'Management practice for chenopod shrublands in South Australia - past and present (1834 - 1994)'.

Dr Noelene Duckett was awarded $1800 to participate in a range monitoring workshop to be held in the Eastern Cape Region of South Africa in July 1995. Workshop topics include objectives and technical aspects of range monitoring, data analysis and interpretation. She will also participate in excursions to view field experiments and grazing trials.

The successful applicants will submit a report to Council within six months of completion of their travel and these reports will be printed in a future *Range Management Newsletter.*

NEW MEMBERS

Dr Francis K Fianu
Dept. of Animal Sciences
University of Ghana
Legon

Roger James Wheeldon
Wyndham Station
via Wentworth NSW 2648

J.F. Klein
PO Box 1054
Mareeba QLD 4880

Jane Wallis
64 Yeomans Road
Kurmand NSW 2757

Clyde Agriculture Ltd
Gorrell Avenue
(PO Box 33)
Bourke NSW 2840

Clyde Agriculture Ltd
8 Spring Street
(GPO Box 3920)
Sydney NSW 2000

Syed Yar Mohammad
Halls of Residence
University of Ballarat
PO Box 575
Ballarat VIC 3353

Jamie Hansen
21 Keane Street
Peppermint Grove WA
6011

NEWS FROM CANBERRA

Mark Howden, Bureau of Resource Sciences, PO Box E11, Queen Victoria Terrace, Parkes ACT 2600

(Ed. Mark has agreed to be our "eyes and ears" in Canberra. This is a brief report of significant happenings in the rangelands at the moment. Mark will report in greater detail in future Newsletters.)

The draft Strategy for Rangeland Management is continuing to be developed by the Working Group. This is of considerable importance to the Society and is, no doubt, on the agenda for Council. Meanwhile, the draft Intergovernmental Panel on Climate Change's Second Assessment Report on grasslands and rangelands has now finished the scientific review process and is about to enter the governmental review process. More on this later.

The IRC in Salt Lake City (Utah) is the next big happening on the conference front. Locally, there is a national conference on 'Downstream Effects of Landuse' in Rockhampton on the 26-28 April. The contact for this conference is Heather Hunter: phone (07) 877 9637 or fax (07) 371 6436.

Drought policy, and more specifically, money for drought-related research are still current issues. There is a flurry of action at the moment with bids being made for money targeted at "drought and Landcare", "drought and pest animals" and the LWRRDC drought program. Many of these projects come from rangeland areas. There is also some funding to develop better "Exceptional Circumstances" guidelines and to provide a better policy framework for integrating climate variability issues into sustainable farming approaches.

AUSTRALIAN RANGELAND SOCIETY
MEMBERSHIP APPLICATION FORM

Please complete and return to the Subscription Secretary, Anne Stammers, PO Box 718, Victoria Park WA 6100.

I, [name] .....

of [address] .....

.....

..... Postcode .....

apply for membership of the Australian Rangeland Society and agree to be bound by the regulations of the Society as stated in the Articles of Association and Memorandum.

I enclose $..... for full/part* membership for an individual/institution* for the calendar year 1995.

* delete as appropriate

Signature..... Date.....

Membership Rates:

	Australia	**Overseas**	
		Surface Mail	**Air Mail**
Individual or Family -			
Full (Journal + Newsletter)	$46.00	$56.00	$66.00
Part (Newsletter only)	$23.00	$28.00	$33.00
Institution or Company -			
Full (Journal + Newsletter)	$75.00	$85.00	$95.00
Part (Newsletter only)	$35.00	$40.00	$45.00

Note -
Membership is for the calendar year 1 January to 31 December. All rates are quoted in AUSTRALIAN currency and must be paid in AUSTRALIAN currency.

For Office Use Only:

Membership Number.....

Date Entered in Member Register.....

Date Ratified by Council.....