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

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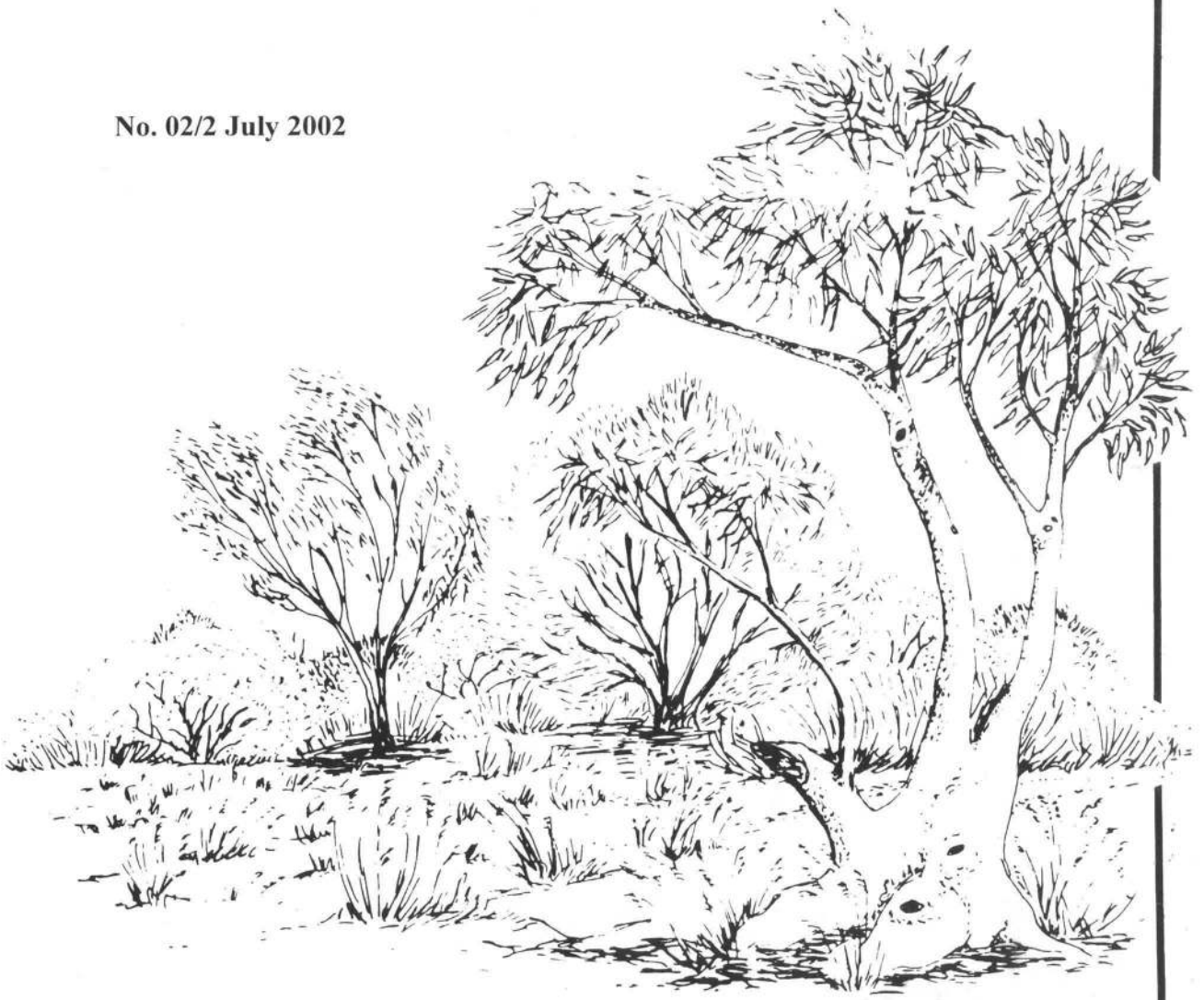
Range management Newsletter

No. 02/2 July 2002



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

No. 02/1 July 2002

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Range Management Newsletter 02/2

FROM THE EDITOR

Noelene Duckett, 7 Belcarra Place, The Woodlands, Texas, USA, 77382. Email: nduckett@ozemail.com.au

Welcome to another issue of the Range Management Newsletter.

In this issue we have a number of articles of interest to our readers. The major article details a grazing gradient study carried out by staff at the Wageningen University and the Tropical Savannas Management CRC. This study examines the legitimacy of using distance from water as a simple surrogate for a gradient in grazing pressure by investigating the influence of three other factors on vegetation and soil cover changes. The researchers looked at changes in soil texture, soil depth and local-topographic position along a previously studied piosphere located on Kidman Springs in northern Australia. The results suggested that, in this instance, distance from a cattle watering point did reflect a gradient in livestock use and hence grazing intensity. The authors cautioned that while this relationship was significant at this site, similar analyses should be used for each piosphere studied.

The newsletter also includes a description of a new rangeland educational resource. Bob Baldock fills us in on the development of an interactive CD-ROM which aims to provide secondary school students, and the wider public, with a more balanced view on the rangelands and current management practises. While the CD focuses on the Great Artesian Basin (GAB) region of South Australia, it is certain to have nation-wide appeal.

In other articles, Sally Sullivan provides an outline of a recently completed report of rehabilitation in the semi-arid tropics of the Northern Territory from 1946-1996, and Margaret Friedel and Gary Bastin report on their collaborative project which is examining land degradation in Rajasthan, India.

There are a number of general ARS articles including a communication report from the National Council, the reports from the May AGM and a Kalgoorlie conference update. Please note that the registration brochure for the conference is now available. You can check the ARS website (www.austrangesoc.com.au) for all available information including the latest program and the registration form.

As usual you will also find the Information Snippets section which includes details of publications, websites and conferences which may be of interest.

Finally, note that a list of current ARS members is likely to be included in the November issue of the newsletter. Make sure that your subscription is current so that your name appears on the list.

As always, I will be looking forward to receiving contributions for the November newsletter. The deadline for the next issue will be late September.

DO FACTORS OTHER THAN DISTANCE FROM WATER HELP EXPLAIN CHANGES IN PLANT AND SOILCOVER ALONG A GRAZING GRADIENT IN NORTHERN AUSTRALIA?

Sakina M. van Wieringen and Pieter Ketner, Tropical Nature Conservation and Vertebrate Ecology Group, Wageningen University, Bornsesteeg 69, 6708 PD, Wageningen, Netherlands
John A. Ludwig, Robert W. Eager and Adam C. Liedloff, Tropical Savannas Management Cooperative Research Centre, c/- CSIRO Sustainable Ecosystems, PMB 44, Winnellie, Northern Territory 0822 Australia

Introduction

In arid and semiarid rangelands with artificial water sources, sheep and cattle must return to water every one to three days, and grazing and trampling around these watering points causes a reduction in palatable plant cover and an increase in bare soil – a piosphere effect (Lange 1969). Given this effect, distance from water has been used as a simple surrogate for a gradient in grazing pressure in a number of studies – a grazing gradient (e.g., Pickup and Chewings 1988, James *et al.* 1999). In a recent *Range Management Newsletter* article, Amanda Brook and Mike Fleming (2001) described the benefits of using grazing gradients for monitoring rangelands.

The grazing gradient approach assumes that changes in vegetation and soil cover away from watering points are only due to livestock impacts (Bastin *et al.* 1993). However, changes in cover away from water may be due to other factors such as micro-topographic position (Barker and Lange 1969) and differences in soil texture and depth caused by geomorphic processes (Pickup 1985). In many grazing gradient studies differences in these factors are either avoided by careful site selection or are assumed to be unimportant and go unmeasured so that their contribution to explaining changes in vegetation and soil cover away from watering points remains unknown.

In this study we asked if three factors other than from distance from water helped to explain changes in vegetation and soil cover along a previously studied piosphere located on Kidman Springs in northern Australia (Ludwig *et al.* 1999). These three factors were soil texture, soil depth and local-topographic position (i.e., local areas of runoff/runon). As documented below, we found that distance was the only statistically significant factor explaining changes in cover along this piosphere.

Study area

The piosphere is on Victoria River Research Station at Kidman Springs, which is located about 400 km south of Darwin (Figure 1a). The cattle watering point or trough is located on the east side of Conkerberry Paddock (Figure 1b) towards the base of a gentle, uniform slope that

eventually flows into Kidman Creek. The piosphere occurs on soils belonging to Calcareous Red Earths (Northcote *et al.* 1975), which are typically found on gently undulating to flat plains in the region (Forester and Laity 1972). These soils have a loamy texture and often have fine carbonate nodules through the sub-soil. These soils are well drained and depths usually range from 5 to 75 cm. The vegetation is low, open eucalypt savanna, characterised by desert bloodwood (*Eucalyptus terminalis*) and silver box (*E. pruinosa*) (Wilson *et al.* 1990). Perennial grasses include black spear grass (*Heteropogon contortus)* and golden beard grass (*Chrysopogon fallax*). Annual grasses such as false couch (*Brachyachne convergens*) cover areas of bare soil during the set season (Ludwig *et al.* 1999).

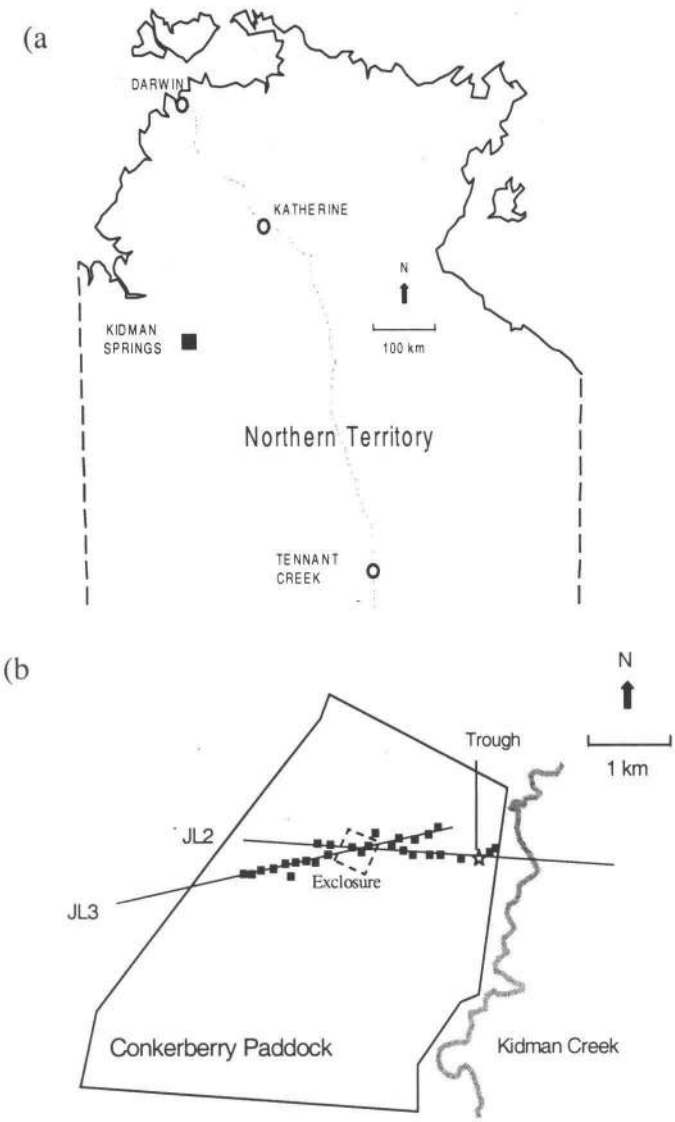

Figure 1. Location of (a) Kidman Springs in the Northern Territory and (b) the cattle watering trough, exclosure and plots along transects JL2 and JL3 in Conkerberry Paddock.

Methods

We selected 28 plots (20 m by 50 m) from along two transects of aerial videography images (JL2 and JL3, Figure 1b). These plots were at different distances from the watering trough (100 m up to 3 km), and had a wide range of variation in vegetation cover and extent of bare soil. About 1.4 km to the west of the trough there is a 500 m x 500 m exclosure established in July 1973 (Foran *et al.* 1985), in which transects JL2 and JL3 intersect. Three plots were positioned inside this exclosure. Being closed to grazing, these plots were assigned a distance of 5 km from the trough. This is a distance limit beyond which cattle rarely venture in hot-dry conditions because they must return to water daily (Hodder and Low 1978, Pickup and Chewings 1988). In a previous study (Ludwig *et al.* 1999), where we examined sigmoidal changes in diversity away from water, we used a distance of 10 km.

For each 20 m by 50 m plot we used a surveyor's level to collect elevation readings for the plot centre, and for points upslope and downslope of this plot centre. These elevations were used to capture the position of the plot in the local topography, that is, whether the plot was sloped and located in a local runoff or runon area, or was in a neutral or transport (runoff = runon) position (Pickup 1985). For each plot, a local topographic position (LTP) value was calculated based on the equation: LTP = expected centre elevation minus observed centre elevation. This LTP value will be positive for a runon or concave local area (Figure 2a) because the observed plot centre is lower than that expected from its overall slope. The LTP value is negative for a runoff or convex local area (Figure 2c), and is zero for a transport plot (Figure 2b).

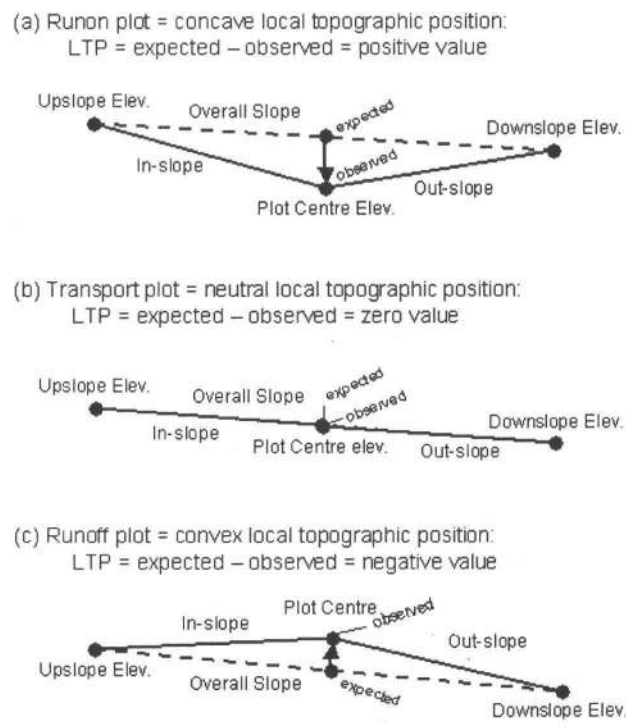

Figure 2. Diagrams for computing local topographic position (LTP) for (a) runon, (b) transport, and (c) runoff plots based on surveyed elevations and slopes.

At five places within each plot we collected soil samples for the 0-10 cm and 10-25 cm depths. For each depth, soil samples from each plot were bulked and sand, silt and clay contents were determined by the hydrometer method (Klute 1986). For this study, we used sand content of the 0-10cm layer to indicate soil texture. Soil depths were measured at the same five places by pounding a steel rod into the soil with a hammer until we hit a hard layer (e.g., bedrock). These five depths were averaged for the plot.

For each plot, the total cover (%) of perennial plants (forbs + grasses) and the extent of bare soil (%), were estimated using our high-resolution videography images with these cover categories classified by procedures described by Pickup *et al.* (2000). Although these procedures also classify the cover of over-storey vegetation (trees and shrubs) and their shadows, and the cover of annual plants, we focussed this study on the perennial ground vegetation and on the extent of bare soil, two measures known to be useful indicators of landscape function (Tongway and Ludwig 1997, Rietkerk *et al.* 2000). These two indicators were regressed onto four factors: distance from the trough, soil texture, soil depth and local topographic position (runoff/runon) using simple (one-factor) linear regression (Freund and Wilson 1998). We also used multiple regression (many-factor, forward-stepwise, Alpha-to-enter = 0.05) to evaluate the relative importance of these factors taken together in explaining variations in the cover of perennial vegetation and bare soil. Distance from the trough was square-root transformed to improve the statistical distribution of distance data in regressions.

Results

In single-factor regressions, the cover of perennials had a significant linear relationship with distance from the trough (Table 1a). In the stepwise multiple regression only distance from the trough significantly entered the model, accounting for 12.5% of the variation in perennial cover. Inclusion of all four factors explained 27.0% of this variation. Plots further away from the trough had a higher perennial cover than plots close to the trough (Figure 3a), as expected for a piosphere. Soil texture, soil depth and the runoff/runon position of the plot in the local topography did not significantly explain variations in perennial plant ground-cover for this piosphere, although together these three factors explained 14.5% of the 27.0% total variation (Table 1a).

The extent of bare soil had its strongest linear, single-factor regression with distance from the trough (Table 1b). In the stepwise regression only distance from the trough entered this multi-factor model, accounting for 15.6% of the variation in the extent of bare soil. With the inclusion of all four factors, 36.0% of this variation was explained. Plots further away from the trough have a much lower extent of bare soil than plots closer to the trough (Figure 3b). Again, sand content, soil depth and local runoff/runon position of the plot did not significantly explain variation in the extent of bare soil for this grazing gradient, although these three factors together explained 20.4% of the 36.0% total variation (Table 1b).

Table 1. Single- and multi-factor linear regressions for the cover of (a) perennial forbs and grasses, and (b) bare soil against √distance (km) from the water trough, sand content (%), soil depth (cm), and local topographic position (LTP) (i.e., runoff/runon). Significance levels: ** P<0.01, * P<0.05, ^{NS} not significant at P=0.05, ^{E} significantly entered a stepwise, forward-selection, multiple regression at Alpha = 0.05, and ^{NE} not-entered. Error degrees of freedom = 26.

		Single-factor Linear Regressions				Multi-factor
Cover Type	Factor	Constant	Slope	F-ratio	r^2	Partials / total r^2
(a) Perennials	√distance	27.6	13.7	6.70	0.205 *	0.125 ^{E}
	sand	55.7	-0.16	0.20	0.008 ^{NS}	0.076 ^{NE}
	depth	52.3	-0.19	0.39	0.015 ^{NS}	0.040 ^{NE}
	LTP	46.8	22.8	1.09	0.040 ^{NS}	0.029 ^{NE}
						total: 0.270
(b) Bare soil	√distance	36.7	-16.2	8.22	0.240**	0.156 ^{E}
	sand	31.7	-0.29	0.56	0.021 ^{NS}	0.060 ^{NE}
	depth	-5.49	0.62	4.21	0.139 ^{NS}	0.104 ^{NE}
	LTP	14.2	-20.7	0.75	0.028 ^{NS}	0.040 ^{NE}
						total: 0.360

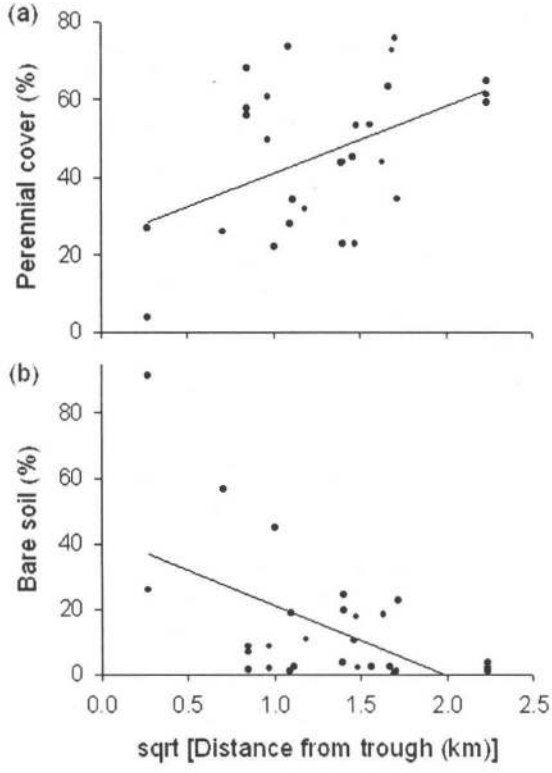

Figure 3. (a) Perennial vegetation cover and (b) extent of bare soil regressed against distance from the cattle watering trough (square root transformed).

Discussion

This study demonstrated that distance from a cattle watering trough was the most significant factor, although not the only factor, explaining variations in the cover of perennials and the extent of bare soil for a previously studied piosphere on Kidman Springs (Ludwig *et al.* 1999). As expected, plots close to the trough had a lower cover of perennials and a higher extent of bare soil than plots further away. Thus, for this piosphere, it is reasonable to assume that distance from a cattle watering trough does reflect a gradient in livestock use, and that this distance can be used as a simple surrogate for a gradient in grazing intensity, as assumed in the previous study on this piosphere.

Ideally, the assumption that distance serves as a good surrogate for a grazing gradient should be examined for each piosphere studied, and the influence of other factors on vegetation and soil cover should be statistically tested. It is appreciated that this is not always practical, but care must be exercised when selecting piospheres for grazing gradient studies to minimise the potential influence of other factors for explaining observed changes (Barker and Lange 1969, Bastin *et al.* 1993, Rietkerk *et al.* 2000).

Care must also be taken when interpreting results from linear regression analyses used in grazing gradient studies because of possible strong interactions between factors or non-linear trends in the data. For example, in this study the plot with the highest local topographic position value, LTP = -0.61 (a runoff plot with a convex shape and steep slopes) happened, by chance, to be close to the trough (about 0.1 km away), whereas many of the more distant plots were weakly runon or neutral. This interaction between distance and LTP was evident from Pearson's correlation coefficient (r = +0.44). There was also a correlation between soil depth and texture between plots. Deeper soils tended to have lower sand contents (r = -0.62), that is, on Kidman Springs, deeper soils are often deposits of loamy clays, not sands. The relationship between the extent of bare soil and distance from the trough also appears to be non-linear (see Figure 3b). Our data were inadequate to formally test for lack of fit of a linear model. These factor correlations and non-linear trends can influence (weaken) the results of linear regression analyses (Freund and Wilson 1998).

Acknowledgements

We thank the Tropical Savannas Cooperative Research Centre for supporting this study, and we also thank Don Cherry, Manager, Victoria River Research Station, Kidman Springs, for his help and hospitality. The work of Pieter Ketner was financially supported by the Netherlands Organisation for Scientific Research (NWO-grant R 84-507).

References

Barker, S. and Lange, R.T. (1969). Effects of moderate sheep stocking on plant populations of a black oak-bluebush association. *Australian Journal of Botany* **17:** 527-37.

Bastin, G.N., Pickup, G., Chewings, V.H., and Pearce, G. (1993). Land degradation assessment in central Australia using a grazing gradient method. *Rangeland Journal* **15:** 190-216.

Brook, A. and Fleming, M. (2001). Benefits of a grazing gradient approach for rangeland monitoring in northern South Australia. *Range Management Newsletter* **01/3:** 1-6.

Foran, B.D., Bastin, G. and Hill, B. (1985). The pasture dynamics and management of two rangeland communities in the Victoria River District of the Northern Territory. *Australian Rangeland Journal* **7:** 107-13.

Forester, B.A. and Laity, J.R. (1972). Report on the land units of Victoria River Research Station – Kidman Springs. Land Conservation Section, NT Department of Lands, Planning and Environment, Darwin, Australia.

Freund, R.J. and Wilson, W. J. (1998). Regression analysis: statistical modeling of a response variable. Academic Press, New York, USA.

Hodder, R.M. and Low, W.A. (1978). Grazing distribution of free-ranging cattle at three sites in the Alice Springs district, central Australia. *Australian Rangeland Journal* **1**: 95-105.

James, C.D., Landsberg, J. and Morton, S.R. (1999). Provision of watering points in the Australian arid zone: a

review of effects on biota. *Journal of Arid Environments* **41:** 87-121.

Klute, A. (Ed.) (1986). Methods of Soil Analysis. Part 1 Physical and Mineralogical Methods, second edition. American Society of Agronomy, Inc. & Soil Science Society of America, Inc., Madison, USA

Lange, R.T. (1969). The piosphere, sheep track and dung patterns. *Journal of Range Management* **22:** 396-400.

Ludwig, J.A., Eager, R.W., Williams, R.J. and Lowe, L.M. (1999). Declines in vegetation patches, plant diversity, and grasshopper diversity near cattle watering-points in the Victoria River District, northern Australia. *Rangeland Journal* **21**: 135-49.

Northcote, K.H., Hubble, G.D., Isbell, R.F., Thompson, C.H. and Bettenay, E. (1975). A description of Australian soils. CSIRO Publishing, Melbourne, Australia.

Pickup, G. (1985). The erosion cell – a geomorphic approach to landscape classification in range assessment. *Australian Rangeland Journal* **7**:114-21.

Pickup, G. and Chewings, V.H. (1988). Estimating the distribution of grazing and patterns of cattle movement in a large arid zone paddock; an approach using animal distribution models and Landsat imagery. *International Journal of Remote Sensing* **9**: 1469-99.

Pickup, G., Bastin, G.N. and Chewings, V.H. (2000). Measuring rangeland vegetation with high resolution airborne videography in the blue-near infrared spectral region. *International Journal of Remote Sensing* **21**: 339-51.

Rietkerk, M., Ketner, P., Burger, J., Hoorens, B. and Olff, H. (2000). Multiscale soil and vegetation patchiness along a gradient of herbivore impact in a semi-arid grazing system in West Africa. *Plant Ecology* **148**: 207-24.

Tongway, D.J. and Ludwig, J.A. (1997). The nature of landscape dysfunction in rangelands. Chapter 5. *In:* Landscape ecology, function and management: principles from Australia's rangelands (Eds J. Ludwig, D. Tongway, D. Freudenberger, J. Noble, and K Hodgkinson) pp. 49-61. CSIRO Publishing, Melbourne, Australia.

Wilson, B.A., Brocklehurst, P.S., Clark, M.J. and Dickinson, K.J.M. (1990). Vegetation survey of the Northern Territory, Australia. Technical Report Number 49, Conservation Commission of the Northern Territory, Darwin, Australia.

A NEW STRATEGY FOR PRESENTING RANGELAND MANAGEMENT TO THE PUBLIC

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About 70% of Australians live within 100 km of the coast, mostly in cities. And yet, except for the image of the sunburnt lifesaver, the stereotype of Australia is arguably of the arid outback, people struggling to survive in a harsh environment, and the tough Aussie stockman. Don't believe me? Try looking at TV car commercials.

The Rangeland Educational Project

Rangeland communities in the Great Artesian Basin (GAB) region of South Australia, in cooperation with the Arid Areas Catchment Water Management Board and the Department of Water, Land and Biodiversity Conservation, wanted to dispel this superficiality about the Outback, provide a more balanced viewpoint, and, especially, introduce people to recent management practices in the GAB region. Their interest gave birth to the Rangeland Educational Project, funded by a Natural Heritage Trust grant.

The Centre for Environmental and Recreational Management at the University of South Australia was approached as they have experience in public communication and environmental matters as well as contacts in education and schools.

A search of published materials about the region and rangeland practices discovered a bounty of useful information. But several fundamental problems had to be solved. How could this information best be delivered to the public, and in what form would it be palatable, digestible, satisfying and a balanced diet? And what needs should it meet?

In consultation with rangeland people in the far north of the State, two fairly divergent courses of action were taken.

Information for primary school students

Firstly, a package of materials for primary school students in the rangelands was developed to complement School of the Air programs. This package encouraged the rangelands students to investigate and report on local information about the nature of the arid zone, pastoral management and new developments. Although the package was aimed primarily for students in the rangelands, its structure allowed teachers to modify the tasks, making information about the rangelands accessible to classroom based students as well. It balanced out to some extent the bias towards near-coastal agricultural systems that exists in schools. Yvonne Zeegers, a specialist in science education at the Magill campus,

coordinated this section, and it has already been successfully published in handbook form for distribution to station families.

Information for secondary school students

The second part of the project had a more tortuous development, and it is this section that I want to expand in this article.

Initially, in consultation with representatives of the Senior Secondary Board of SA who oversee school curriculums in the state, a project tailored to senior Geography or Natural Resources Management subjects was considered to be the most relevant and viable way of promulgating the information about rangeland management. A year 11 geography class at Prince Alfred College taught by Dr Adrian Johnson was chosen and materials trialed on the spot in the classroom as they were written. This included a field trip to Muloorina Station and Lake Eyre South to provide more realism and to check the attitudes, capacities and understandings of students of this age.

This material was duly bound into a handbook and reviewed after a year. One outcome of the review was a desire to make this part of the project more adaptable to a variety of school levels and subjects, including Australian Studies, and also to be suitable for the public in general. However, the problem of how to be useful and attractive to such a span of interests and outcomes remained.

The solution was to reframe the materials into what can be called a *search pathway*, providing different entry points to suit different ages and interests and, for students, different capacities and outcomes. An electronic format, a CD-ROM, seemed the only vehicle. This allows the reader to interact with the material - to choose where they start and follow a line of interest and branch to side issues - so that their voyage through the information is relatively unhindered and individual but gently piloted along a search pathway. A CD costs a fraction of the cost of a conventional book, so is more affordable, and it's more feasible to update than a book. All schools have equipment that reads them, and the next generation of computers will almost certainly have players built into them.

We titled the CD "Great Artesian Basin - a South Australian Perspective" to give it broad appeal. However, the whole CD is permeated with background needed to understand pastoral practices. Additionally, there is also a separate chapter devoted entirely to rangeland management.

The Great Artesian Basin - a South Australian Perspective CD-ROM

Structure of the CD

In cooperation with Information Technology boffins David Brittan and Jeffrey Dunn, a web page format was chosen for the CD that could be viewed by different types and models of computer. This forced us to be economical with words. We tried to keep each new section to a single screen to avoid the annoyance of scrolling. Each page is really a 'doorway' into other corridors of information - you click on underlined headings to connect with additional information on the CD. You can also click on related 'hotlinks' direct links to the worldwide web and outside of the CD (if you are connected to the Internet).

The whole program is therefore a "search and find" activity, not a conventional text or reference book where you start at the front and hope to get an answer by the time you reach the end.

Navigating on the CD

Let's follow a hypothetical search:

- On opening the *Contents* file you find a *Bioregions* link (an underlined heading) that interests you. You click on this and read the single summary page that opens up. Interested in the image of the Cooper Creek you see there, you then decide to find out more about a *Channel country* link found on the side panel.

- When you open this next summary page you are puzzled by an underlined word you don't recognise and, remembering the comment on the *Introduction* link you saw way back on the *Contents* page you click on it and a glossary opens explaining the word. Back on the *Channel country* page, you want to locate a locality mentioned in the summary, so you click on a *Map* link (found on every page) and open a couple of small (thumbnail) maps. A click on either will open it to full size for detailed viewing. You return to the *Channel country* page and use the hotlink to the Environment Australia web site on the worldwide web that is suggested, getting an opinion outside of the CD.

- Interested now in possible environmental problems, you locate the *Issues* link, open it and find a problem, or pertinent issue related to bioregions. This stimulates you to take up a pastoral management problem associated with the region. So, back to the *Contents* page, click on the *Rangeland Management* link and open up a new range of choices, but now in the management area.

If you seriously want to follow an issue and need help in preparing a formal project, a *Research tools* link is provided on the *Contents* page that leads you through a method of undertaking research and how to write reports. You can download and print any of the many images found on any page to brighten up your report.

This still leaves enormous sets of alternative information pathways (7 more 'chapters' with up to 8 links a piece) to explore for the future. Additionally there are *Fact file* links leading you to hard data that would otherwise clutter up the summary pages. Anecdotes, in *Quotes* links, are also included to make issues a bit more personable or entertaining.

Where did the information come from?

The wealth of background material needed for the project has been enthusiastically provided by local identities such as Lois Litchfield and Sharon Oldfield, and the important chapter on management was written by Carolyn Ireland who was associated for some time with the Pastoral Board. The Department for Environment and Heritage, Arid Areas Catchment Water Management Board and Primary Industries and Resources SA provided many images, information and advice. The necessary funding came from an NHT grant from the Commonwealth.

Availability of the CD

The CD is due to be launched at a Geography Teachers Association conference in June. We have several teachers who have agreed to review advance copies of it and to provide feedback for a workshop at the conference. It is expected that copies should be available to the public after this.

With the search strategy found on the CD, we hope that readers - both students and the general public - will enjoy navigating through their chosen pathways and gain better insights into the rangelands of the GAB region, their nature, the human activities within them, and the changing management practices.

For those wanting to find out more about the Primary school part of the project you can contact:

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12TH BIENNIAL CONFERENCE 2-5 SEPTEMBER 2002 KALGOORLIE WA

The Registration Brochure for the conference is now available; and the website has been updated to include all available information, the latest program and the registration form. The ARS website address is www.austrangesoc.com.au.

For the first time ever, a special discounted registration fee has been included for individual members of the Society. There is also, once again, a discounted registration fee for students and land managers in the hope of attracting greater numbers of both these groups to the conference.

For those delegates who anticipate attending the conference, it would be advisable to book both travel and accommodation as soon as possible due to limited availability.

Significant sponsorship has been achieved for the conference from the following organisations:
AFFA
Environment Australia
Department Land & Water Conservation NSW
WMC Resources Ltd
Department of Agriculture WA
Goldfields Esperance Development Corporation (GEDC)
Kalgoorlie-Boulder Chamber of Commerce and Industry

Land and Water Australia is providing a "Young Researcher" prize for papers submitted by candidates between the ages of 18-35, which is an exciting innovation and greatly appreciated by the Committee.

Please contact the conference organizer if you would like any additional information, or copies of the conference brochure:

Sarah Nicolson
Ph (work) (08) 8366 1041
Mobile: 0419 815 864
Email: nicolson@w130.aone.net.au or
sarah_nicolson@urscorp.com

ARS MEMBERS LIST

As indicated earlier, the Publications Committee have decided to publish a list of current ARS members. It is intended that this list will be included as part of the November 2002 *Range Management Newsletter.*

To meet publication deadlines, anyone wishing to be included in the list should ensure that they have renewed their subscription or have joined the Society by early September.

REPORT FROM COUNCIL

Lachlan Pegler, Communications Officer ARS, PO Box 224, Charleville Qld 4470

The Council of the Society met on the 21st of May for our Annual General Meeting, followed by an ordinary meeting. The meeting was an opportunity for the Council to reflect on the progress of the Society in relation to the strategic plan, and develop new initiatives for the future. The AGM reports are attached in this issue of the newsletter. The enthusiasm and commitment of the publications committee and the membership services committee continued to impress the Council.

There were no new positions or elections of members, as the President, Secretary and Treasurer were elected for two years last year, and all other officers were elected for four years.

At these teleconferenced meetings a range of issues were discussed, including:

- The major point of discussion was the ongoing concern of the Society with the financial position and downward trends in Society membership. Don Blesing addressed this concern with a proposal for the Society to employ a consultant to give the Council some clearer options for future action. The consultant would be expected to analyse in detail, the current status and situation of ARS and then develop an action plan, and associated range of options for future operations (eg quick death, increased fees, increased member services, aggressive growth by employing a part-time person and marketing key services). The Council endorsed this proposal. The council will present these options at the ARS meeting in Kalgoorlie for discussion and endorsement.

- Progress on the upcoming ARS Kalgoorlie 2002 conference was reported; with a range of expected costs and attractions presented. The conference brochures have been printed and will be circulated. For up-to-date information on the conference go to: www.austrangesoc.com.au.

The conference committee have been able to attract a range of sponsors, although it is not too late for new sponsors to supply additional support.

- The International Rangelands Congress will be contacted to determine interest in mutual links to the web sites for their and our conferences. The IRC website can be found at: http://www.ru.ac.za/rgi/irc2003/IRC2003.htm

- The publications committee have decided to present a special issue of the journal presenting significant papers relating to the Kalgoorlie conference theme: "Drivers for Change". Leigh Hunt will act as guest editor for this issue of the journal.

- The communications plan of the society was adopted.

- Following the call for Expressions of Interest for hosting the next conference, the council were pleased to accept an expression of interest, from Alice Springs, NT. This will be presented at the Kalgoorlie Conference, for endorsement by members.

- An issue has arisen from the Publications Committee regarding charging non-ARS member authors for the presentation of papers in the journal. Council and the Publications Committee will discuss this issue, and the final decision will be presented in the next newsletter.

- The Publications Committee will be printing an up-to-date list of current members. This will be revised on an annual basis.

- Travel Grants will be deferred again this year due to our current financial situation.

ENTRIES ROLL IN FOR NEW LOGO

In the last newsletter the Council called for submissions for a new design for the logo and/or slogan for the society. There will be a session at the September Kalgoorlie Conference to vote for the new logo and slogan. The prize for the winner of each category is **one year's** membership of the ARS.

Sarah Nicolson has accepted two proposals for the new logo, but we are sure there is more talent out there in the Society. All she requires is a rough draft of a logo and it will be professionally drafted.

The old slogan, for those who have forgotten is *Speaking for the rangelands,* and the logo is currently:

Please fax or email your creations to Sarah Nicholson (fax: 08 8357 3389 or email nicolson@w130.aone.net.au).

NORTHERN TERRITORY PASTORAL LAND REHABILITATION REPORT COMPLETED

Sally Sullivan, Cave Creek Station, PO Box 4009, Mataranka NT 0852

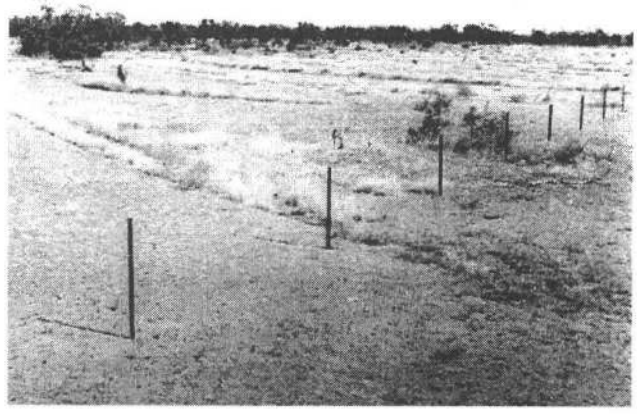
In 1988, a project commenced with the objective: "To develop techniques suitable for land rehabilitation in the Victoria River District (VRD) of the Northern Territory". In 1989, I was appointed as a Soil Conservation Officer with the then Conservation Commission of the NT, to undertake this National Soil Conservation Programme funded project. The position was stationed at Kidman Springs, a (then) Dept of Primary Industries and Fisheries Research station, just north of the historic Victoria River Downs.

The project mainly took the form of establishing demonstration or trial areas using various combinations of implements and pasture species on a variety of soil types across the VRD. The use of waterponding to reclaim scalded land was also investigated, based on techniques developed in western NSW.

After over 12 months of establishing demonstration areas, a colleague introduced me to a box of old files, photographs and paperwork in the Katherine Office. On examination of these papers which belonged to the first Soil Conservation of the NT, Pieter Walter (Figure 1), it became apparent that some of this work had been done before, in the 1960's. Furthermore, the observations and conclusions of Mr Walter proved to be similar to those being formed in 1990 (see Figure 2).

Figure 1: Pieter Walter became the first Soil Conservation Officer in the NT in 1962. He is photographed here in 1972, visiting a demonstration established on VRD in 1962.

(a)



(b)

Figure 2: (a) In May 1965, a Victoria River District demonstration showed sown pastures established along furrows with bare ground in between. (b) A demonstration established nearby in 1990 shows similar results.

On completion of the initial project and the detailed reports on the trials' locations, methods and results, a second project was embarked on in a bid to ensure the wheel was not re-invented...again. The resulting document, "Pastoral Land Rehabilitation in the Semi-arid Tropics of the Northern Territory 1946-1996", is an exhaustive record of rehabilitation activities on pastoral land in the semi-arid tropics of the Northern Territory.

The authors, Maria Kraatz and I, created a time line of land rehabilitation and in a sense, a history of soil conservation in the NT, from 1946 onwards.

The bulk of the publication is the station-by-station documentation of rehabilitation activities in the region. Information for this chapter was sourced from government files, archival material, personal communication and reports and is heavily supported by photographs.

The final chapter "Towards successful rehabilitation", is based on analysis of the station-by-station activities and from observations of other rehabilitation activities across the Kimberley and Alice Springs regions. This chapter offers practical assistance in deciding whether or not to attempt rehabilitation. If the decision is to proceed, this chapter offers "best bet" methods of rehabilitation for

various soil types, and types and severity of degradation. Choices of species and seeding rates, fertiliser and rates of application and types of machinery are discussed in terms of environmental acceptability, cost effectiveness and maximising the chances of successful rehabilitation. This chapter was circulated to many practitioners of land rehabilitation and pasture improvement in the semi-arid tropics of the NT prior to finalisation.

The document demonstrates that success in land rehabilitation is far from guaranteed and that "prevention is the best cure"!

After 8 years and nearly 5 children, I was motivated to complete the document by a desire to complete unfinished business and the need to ensure future rehabilitation work and research was based on a sound knowledge of past activities.

The Victoria River District Conservation Association assisted with editing costs and the Dept of Infrastructure, Planning and Environment met the publishing costs. The document could not have been completed without the mammoth contribution of time and effort on the part of Maria in editing and preparing the document for publication.

Quite apart from the technical aspects of rehabilitation in the semi-arid tropics of the NT, Maria and I hope to have also produced a document of interest from historical and local knowledge perspectives.

The full title of the report is:

Sullivan, S. and Kraatz, M. 2001. *Pastoral Land Rehabilitation in the Semi-Arid Tropics of the Northern Territory 1946-1996.* Lands, Planning and Environment Technical Report No. 26/2001D. Northern Territory Government, Darwin.

The document is available from:

Natural Resources Division
Dept of Infrastructure, Planning and Environment
3rd Floor, Goyder Centre, Palmerston NT 0830
Ph. (08) 8999 4455

It is also available free on the internet at :
www.lpe.nt.gov.au/advis/land/pastoralrehab/.

INDO-AUSTRALIAN COLLABORATION TO ASSESS DESERTIFICATION

Margaret Friedel and Gary Bastin, CSIRO Sustainable Ecosystems, PO Box 2111, Alice Springs NT 0871
Suresh Kumar, CAZRI, Jodhpur, India

Funding provided by the Australian Centre for International Agricultural Research (ACIAR) is assisting Indian and Australian scientists to better understand land degradation in the Thar Desert region of Rajasthan. The project, "Integrative technologies for assessing the extent and cause of degradation in arid community rangelands", involves scientists at the Central Arid Zone Research Institute, Jodhpur and Centre for Arid Zone Research, Alice Springs. It commenced in 2000 and is due to finish in mid 2004. We (Margaret and Gary) recently met with our Indian colleagues and ACIAR's Land & Water Project Manager (Dr Ian Willett) at CAZRI for the project's mid-term review.

Project Components

Remote sensing application

The project has several components. The first is adapting remote sensing technologies developed in central Australia to Indian conditions, to obtain suitable indices of vegetation cover and then to account for the spatial pattern of cover centred on villages and waterholes. Our Indian colleagues have used a spectrometer to collect the spectral reflectance of various soil and vegetation features in the study area. These data indicate that the vegetation index developed in central Australia should be suitable for monitoring vegetation cover from satellite imagery in the Thar Desert.

Images acquired by the Indian satellite (IRS 1C) at the start and end of the 1998 and 2001 wet seasons have been purchased and radiometrically standardised to allow multitemporal analysis. Raw images appear brighter on their western edge and the effects of differential cross-track illumination have had to be removed prior to rectifying to a map base and calibrating to account for other (e.g. atmospheric) differences affecting image brightness values.

Satellite images prior to, and at the end of, this wet season will be used to validate the cover index by relating index values to soil and vegetation measurements made on the ground close to the time of image acquisition.

Ground-based validation

The second component is ground-based validation, for which Indian team members collect data to interpret the analyses made from satellites, and to explore causes of degradation. This isn't simply a matter of collecting biophysical data, but also involves a sociologist, an economist and a livestock scientist gathering information about how people use their lands, both privately-owned

and common lands, what their households are like, how they manage their economy, what their social and economic constraints are and how they perceive the causes of degradation and possible solutions.

Part of the process is working out the best ways to gain the cooperation of communities, so that they don't feel that they are being plundered for information without any return. The team has come up with a mixture of payment, provision of veterinary medicine, and provision of saplings to replace depleted supplies of timber and forage.

Some of the statistics are pretty startling. It's hard to imagine that, even 10 years ago, 34 million people lived in India's arid zone, in an area less than a third the size of the Northern Territory, and numbers are higher now. Literacy levels are below 40% overall and as low as 8% for women in some of our study villages. Landholdings are fragmented. Fewer large animals like cattle are being kept and numbers of sheep and goats, which are more hardy, are increasing, causing greater damage to grasses and fodder trees and shrubs.

Villagers perceive that degradation has been occurring for 20 to 30 years. Access to tractors has meant that more of the grazing lands are ploughed for crops, and crop land that once was left fallow is now used every year. Use of tractors has also meant that trees that are valuable sources of fodder in the dry season have been removed. As well, trees have been harvested excessively for domestic use. While villagers recognise the problems, they also acknowledge that no-one is taking any action to resolve them.

Development of information exchange

This component is evolving as remote sensing-based products to document degradation are produced. We need to work out the best way to explain the technical outputs of remote sensing to village people, and we need to understand how they relate to the technology and perceive our information. In short, there needs to be a good two-way flow of information.

Infrastructure and capacity building

ACIAR's funds have already provided the Indians with a spectrometer, assorted hardware and image processing software. Before long, they will also have refurbished a lab at CAZRI, dedicated to image processing. During our visits to Jodhpur and our colleagues' visits to us in Alice Springs, we have introduced them to the use of the spectrometer, GPS and digital camera and provided training in image processing and David Tongway's soil condition assessment. This training continues.

Mid Term Review

During our February-March visit, all the project team presented their results to date at a workshop hosted by the Indian Council of Agricultural Research, and attended by stakeholders from agencies and NGOs. As well, the husband of the elected Sarpanch (head of village council) of Sai village, one of our study areas, described increasing degradation and the need for reintroduction of multipurpose trees and shrubs. It was a fascinating cultural exchange, translated for us by Suresh Kumar, and illustrates the cultural and gender sensitivities which have to be taken into account when anyone attempts to offer solutions. Sai village is progressive, with a woman elected to lead the panchayet, but she couldn't speak in gatherings such as ours.

Ian Willett, our ACIAR project manager, undertook the review and joined in a busy field trip to three of our study areas, where we were invited to enter family compounds and drink powerful Indian tea, made from half and half milk and water, boiled over aromatic *Prosopis* twigs and served in tiny cups. We probably shouldn't admit how much fun we get from social activities with our project colleagues and from our adventures with Indian food, but then our guess is that we get the maximum benefit for the project from enjoying our team members as friends as well as scientific colleagues.

Photo 1: Tea break at Balasar, west of Jodhpur, with senior villagers and project scientists Dr DK Saha, Margaret and Dr BK Mathur.

Photo 2: Visiting a family compound at Sai village – the family with Margaret, Ian Willett (ACIAR) and field assistant Bani Lal.

ECOLOGY 2000 CONFERENCE

Jill Landsberg, Regional Councillor, Ecological Society of Australia, School of Tropical Biology, James Cook University, PO Box 681 Cairns Qld 4870.

The Ecology 2002 meeting will be held from 2-6th December 2002, at the Cairns Convention Centre. It is the second-only joint meeting of the Ecological Society of Australia and the New Zealand Ecological Society.

The conference includes an equal mix of open sessions, which can cover any topic of interest to ecologists, and special symposia on the following topics:

1. Frugivory and seed dispersal in Australasia
2. Exotic ant invasions
3. Healthy savanna and grassland landscapes
4. Australasian amphibian declines
5. Weed risk assessment and incursions
6. Forest restoration in theory and practice
7. Problems with linear infrastructure corridors
8. Ecology and Conservation of Tree Kangaroos
9. Ecological applications of GIS
10. Climate change and Ecosystems: Can we adapt?
11. Global plant conservation strategy - What can Australia and New Zealand achieve by 2010?
12. UNESCO Biosphere reserves
13. Human Ecology: Integrating social and natural sciences
14. Ecotourism management and sea birds
15. Ecotourism management and sea mammals
16. Making the connections: applying ecological research to management of threatened species/ecosystems
17. Theory and Practice in the Study of Ecosystem Services
18. Macroecology of the Wet Tropics rainforests

Full details are available on the conference website at: http://www.tesag.jcu.edu.au/ecology2002/.

Further information is also available from:

Jill Landsberg
School of Tropical Biology
James Cook University
PO Box 6811, Cairns Qld 4870, Australia.
Ph: (07) 4042 1443 Fax: (07) 4042 1284
Email: Jill.Landsberg@jcu.edu.au
Websit: http://savanna.ntu.edu.au

MASTERS OF TROPICAL ENVIRONMENTAL MANAGEMENT - PROJECT IDEAS WELCOME

Dr Penny Wurm, Tropical Savannas CRC, Northern Territory University, Darwin NT 0909

The Graduate Diploma and Master of Tropical Environmental Management, established at the Northern Territory University with the support of the Tropical Savannas CRC, is a postgraduate coursework qualification. The TS CRC has also supported the development of elective units at JCU. Master students complete their qualification with a short research project. We are always seeking ideas and opportunities for suitable projects. There are usually a handful of project students studying at any one time, and students may be located anywhere between Broome and Gladstone.

Current projects include collaborations with TS CRC researchers, such as a study of soil carbon stores and invertebrate biodiversity under different grazing regimes. Other projects include a study of seed banks in areas where *Mimosa pigra* has been removed and a study of shoreline changes on the coast near Darwin.

Projects are the equivalent of one semester of full-time study, although most students elect to study part time and complete their projects over a year. Projects can commence in either first or second semester. Although projects generally require resources from the project host, NTU provides technical and other support, and the student provides their time.

We need you, if you have ideas for projects that may be suitable. In the first instance you should contact the MTEM Projects Coordinator Penny Wurm. It will be her job to match suitable projects, students and supervisors. It is good to plan ahead where possible. So even if your project might be a future plan, do feel free to make a preliminary inquiry.

For further information contact:

MTEM Research Projects Coordinator
Dr Penny Wurm
Tropical Savannas CRC
Northern Territory University
Darwin. NT. 0909
Ph: (08) 8946 6355
Email: penny.wurm@ntu.edu.au

TEM Program Course Coordinator
Dr Lindsay Hutley
Faculty of Science, IT & Education
Northern Territory University
Darwin. NT. 0909
Ph: (08) 8946 7103
Email: lindsay.hutley@ntu.edu.au

You can also visit the course website at http://learnline.ntu.edu.au/site/sitemtem.html, where you can find out more about the projects.

INFORMATION SNIPPETS

VIIth International Rangelands Congress

Don't forget that the next International Rangelands Congress is to be held at the International Convention Centre in Durban, South Africa from 28 July – 1 August 2003. Details are available from the conference website - www.ru.ac.za/institutes/rgi/irc2003/IRC2003.htm.

The website now includes submitted abstracts for both invited papers and posters. It also indicates that while the submission of abstracts for volunteered paper posters officially closed on the 15 June, further abstracts can be submitted although they won't necessarily be accepted for publication in the proceedings.

Further information about all aspects of the conference is available on the website or from Sue Bumpsteed (Email: delegates@sbconferences.co.za).

Fire Detection Website Launched in Queensland

Queensland now has its own fire detection website developed by the Department of Natural Resources & Mines (NRM). The site aims to help the state's Rural Fire Service to quickly locate and track active fires throughout the state. It is also being used by landholders, natural resource managers and the Australian Defence Force.

Information is generated by NRM's satellite receiving station at Indooroopilly in Brisbane, which processes images acquired from three United States satellites that pass over Queensland up to 12 times a day. Additional information can be overlaid such as shire boundaries, major roads and towns.

NRM also offers subscribers a free automated email service that alerts them to fires within nominated geographical areas.

The website can be found at:
www.dnr.qld.gov.au/longpdk/SatelliteFireMonitor.

Western Division Newsletter Available Online

Copies of current and previous issues of the *Western Division Newsletter* can be found online at the NSW Agriculture website - www.agric.nsw.gov.au/reader/6302. The newsletter, which comes out every two months, is a joint publication of NSW Agriculture and the NSW Department of Land and Water Conservation.

Recent issues of the newsletter have contained a variety of interesting rangeland articles including producer-based trials, research information from government agencies and information about grants and meetings available to land managers in the Western Division of NSW.

Native Food Website

The Australian Native Food Industry, with the backing of RIRDC, has recently launched a new website at http://www.nativecrops.com.au/industry/.

The site provides a profile of the industry, covering the main crops and production regions, as well as the associations and cooperatives; processors and marketers; and support services active in the Industry.

Interim Policy allows for Greater Diversification on Rural Leasehold Land in Queensland

The Queensland Minister for Natural Resources and Mines has approved a new Policy and Practice Guideline that will allow greater diversification of land use on rural leasehold land. The guideline has been approved for implementation on an interim basis pending further consultation and review as part of the State Rural Leasehold Strategy development process. An outline of the new guideline can be found at:
www.nrm.qld.gov.au/land/state/policies/336_intro.html.

The website states that one of the objectives of the new policy is "*to facilitate diversification by lessees of Land Act leases issued for pastoral, grazing or agricultural purposes into other activities in a manner which is complementary to, and not interfering with, the main purpose of the lease, while maintaining ecological sustainability.*"

The policy also states that "*When considering applications by lessees to use leases that are issued for pastoral, grazing or agricultural purposes for additional purposes, a proposed activity could be considered to be complementary even if it is not related to grazing and agriculture, but contributes to the viability and ecological sustainability of the enterprise, and allows the activity of grazing and agriculture to flourish where otherwise it would not have. For this to occur, the activity must be of sufficiently small scale to ensure that it does not become the dominant or principal activity.*"

More details are available on the website.

Sustainable Grazing Systems Report Released

Meat and Livestock Australia (MLA) recently released the final report from the six-year, $30 million Sustainable Grazing Systems (SGS) program. This program was initially set up to address the issues of declining productivity and sustainability in the grazing systems of the high rainfall zone of southern Australia. It was an initiative of MLA, in partnership with producers and researchers across Australia, as well as Land and Water Australia, NSW Agriculture, NRE Victoria, Agriculture Western Australia, the University of Melbourne and the Murray Darling Basin Commission.

Over the last six years, the SGS program stimulated massive changes in grazing management practices by producers in the high rainfall zones. As a result of participating in the program a large number of producers suggested they could better understand and manage their land. The final report's Executive Summary indicates the following:

"*Producers claimed that participation in SGS had:*

- *Helped them better manage pastures (83%)*
- *Helped them better manage animals (78%)*
- *Helped them understand and manage soil, water and nutrients (75%)*
- *Helped them understand and manage environmental issues (80%)*
- *Helped them share information with other producers (90%)"*

If you would like to read more, check out the MLA web site at http://www.mla.com.au/content.cfm?sid=721.

Copies of the SGS Final Report are also available free to producers by phoning toll free 1800 155 900.

Climate Variability Investment Prospectus Released

Land and Water Australia recently released the document "Managing Climate Variability – An Investment Prospectus". This document outlines a new R&D Program which builds on the Climate Variability in Agriculture Research and Development Program (CVAP) which ran from 1997–2002, and targets applications in agriculture, fisheries, forestry and natural resources management.

The CVAP was created so Australian land holders, fishers and natural resource managers could better prepare for the droughts, floods, cyclones, bushfires and frosts that sweep the Australian landscapes.

The Investment Prospectus reports on the achievements of CVAP 1997-2002, and explains why a new broader program is required from 2002-2006.

The report states "*The new program will have a much greater focus on identifying and developing applications with potential to contribute to the sustainable use and management of natural resources and improved biodiversity outcomes. CVAP 1997–2002 helped us understand climate extremes are the major drivers of impacts on natural resources sustainability.*

The new program will focus on strengthening approaches to environment management and monitoring systems to assist land managers distinguish between climate effects and signals generated by land use change."

A copy of the Prospectus is available from the Land and Water Australia website at:
http://www.lwa.gov.au/news.asp?news_id=46.

2003 National Landcare Conference

This conference will be held at the Carlton Hotel, Darwin, Northern Territory from 28 April - 1 May. The Conference has the theme of 'Respecting Values - Working and Learning Together'

The National Landcare Conference 2003 will provide an opportunity to showcase the successes of the Landcare movement around Australia. It will highlight the diverse land management cultures from indigenous communities to pastoralists to the tourist industry. The conference will emphasise the need to respect the different values involved in this diversity and the need for different groups to work and learn together.

Detailed Themes include:

- Emerging Natural Resource Management Issues: Opportunities and Solutions
- Building Capacity and Working With Diverse Cultures
- Social And Economic Aspects of Natural Resource Management
- Managing Land Remote From Urban Centres
- International Landcare

Submission for papers, posters and audio-visual displays closes on 19 July 2002.

For further details about the conference is available at www.landcareconference.nt.gov.au. For other inquiries about the conference program contact Peter Jacklyn at peter.jacklyn@ntu.edu.au. For all other inquiries contact the conference organizers:

Desliens Conference and Event Management
Ph: 08 8941 0388
Fax: 08 8981 8382
Email: dcem@desliens.com.au.

Australasian Remote Sensing Conference

The Images to Information Conference will be held from the 2-6 September 2002 in Brisbane. The conference and workshops aim to provide remote sensing solutions for natural resource planners, managers, researchers, industry and agriculturalists.

Further information is available from the conference website (www.geosp.uq.edu.au/11arspc) or by contacting Karen Joyce, Geographical Science and Planning, University of Queensland on (07) 3365 6534.

The Australian Rangeland Society

REPORTS FROM THE 2002 ANNUAL GENERAL MEETING

ABN 43 008 784 414

PRESIDENT'S REPORT

Merri Tothill, President ARS, PO Box 357, Port Augusta SA 5700

Directors as per Business Plan

- Merri Tothill
- John Maconochie
- Sarah Nicolson

Activities

ARS principle activities in the course of the financial year were:

- The publishing and circulation of three newsletters and two journals per year to the members to promote the advancement of the science and art of using Australia's rangeland resources for all purposes commensurate with their continued productivity and stability.
- Finalisation of the Business Plan, acceptance by membership and ongoing revision and refinement by members of the Council.
- Ongoing planning for the 12th Biennial Conference in Kalgoorlie, WA, to be held in September 2002.
- Early call for expressions of interest in hosting the 2004 Conference has resulted in the possible Northern Territory (Alice Springs) bid.
- Development of a Conference web site with some work done on extending this to a whole of ARS site.
- Development of a Council Communication strategy.
- Formation of a membership services Committee and progress on extending and developing member's services.

Council has met 5 times since the 2000 AGM with a quorum present on all occasions.

As part of our ongoing commitment to revitalising the Society we have undertaken some new initiatives and have continued to support existing ones.

These include:

Publications

The society's professional and highly regarded publications, *The Rangeland Journal* and the *Range Management Newsletter*, have continued to be produced during the year under the capable guidance of the Publications Committee and their respective Editors and Associate Editors, with special mention of Noelene Duckett who manages to co-ordinate the newsletter from USA. The Society is still concerned at the costs incurred to produce the publications and looks forward to receiving recommendations from the Publications Committee on ways of making this very valuable contribution more cost effective. There will be a Special edition of the Journal produced early next year which will focus on presentations from the Kalgoorlie Conference. These special editions have been very successful and popular in the past.

Membership of FASTS

The Society is no longer a member of FASTS.

Registered Office

The registered office of the Society has been transferred from Department of Environment and Heritage, South Australia to PO Box 4082, Norwood South 5067, which is the mail box of the current Finance and Audit Officer. This is also an interim measure, however it has been very successful in facilitating the orderly implementation of GST and BAS. This is being reviewed and a more permanent solution found to this recurring problem, including the possible ARS accountant's address.

Website Development

This is under development in conjunction with the 12th Biennial Conference Committee in Kalgoorlie, WA.

Significant Changes

These include changes as proposed in the Business Plan. In summary these are:

(i) The Council to be truly national body, with a skills based membership from around the rangelands of Australia, which includes:

- Merri Tothill (SA) President
- David Lord (NSW) Vice President
- John Maconochie (SA) Finance & Audit Officer
- Sarah Nicolson (SA) Secretary
- Robyn Cowley (NT) Member Services Officer
- Lachlan Pegler (Qld) Communications Officer
- Ian Watson (WA) Membership Officer

(ii) Change in the roles and functions of Council members to become more of an overseeing role, with the formation of associated specialised committees with membership to include at least one Council member but to be taken from across the whole membership. These committees to have the function of researching and implementing Council business. This will spread the workload but will also ensure that Council can keep in touch with its major activities, such as publications, conferences etc.

(iii) Increase membership by providing incentives and benefits and:
- targeting young/student members;
- broadening our membership base and appeal to a wider range of rangeland residents and users;
- conducting relevant regional workshops and activities; and
- setting up a website and email communication facilities i.e. chatroom for rangeland issues.

Directors' Benefits

No director has received or become entitled to receive a benefit during the financial year.

SUBSCRIPTION MANAGERS REPORT

Rob Richards, Department of Land and Water Conservation, Dubbo NSW 2830

The last twelve months has seen the implementation of changes from the business plan including the formation of the Subscription Services Committee and the modification of the members' data base. Despite the hard work of many people, membership as of May 20 is at an all time low (330). This compares with 371 in 2001 and 336 at the end of April in 2000. This figure is approximately 150 less than the average for the 1995 to 2000 period. Given that this is a conference year, this is disappointing. The establishment of an ARS web site is essential to increase awareness of the ARS.

Membership

Membership for May is at an all time low. New members continue to join the Society at a steady rate (approximately 20 per year) but we are losing more members than we are gaining. Membership promotion is the key to sustaining numbers. The introduction of the student rates has been taken advantage of only few students at this stage. The Kalgoorlie conference presents many opportunities to promote the Society and encourage students. Many founding members from the seventies are now resigning as they are retiring from active rangelands work.

Data base

The members data base has been reconstructed with some minor changes still being made. This is a major step in streamlining the operations and management of the data base and accounting procedures. Some of the major changes include:

- Automatically generated receipts and invoices (no more hand written)
- Member history to be retained so that previous years statistics can be analysed to determine where change is occurring
- Full accountability of all revenue. The data base can now record revenue from sales of back issues, conference proceedings, debtors and underpayments.
- Quarterly BAS figures can be generated for accounting purposes
- Password protected member information gives greater security to members. Credit card numbers will not be retained in electronic format.
- The data base can be linked to electronic banking.
- The data base is in a useful relational data base format

General

The Society membership decline is a reflection of the general decline in membership to professional associations. I am fearful for the future of the Society – the next year is critical. We cannot afford a full time executive like the Society for Range Management and hence suffer from essentially voluntary workers doing the best they can with little time.

I will be resigning in September and handing over to Ian Watson. I have enjoyed playing a part in the executive of the ARS for the last seven years. Thank-you to all I have worked with including Gary Bastin, Malcolm Howes, Noelene Duckett and the State Councils from NSW, Queensland and South Australia. Unfortunately in that time I have seen a marked decline in the strength of the Society which saddens me.

ANNUAL REPORT OF THE PUBLICATIONS COMMITTEE

Leigh Hunt, Chair, Publications Committee, 6 Gwendoline Court, Coromandel Valley SA 5051

The Publications Committee continued to conduct its business during the year by e-mail and telephone. We have not had the opportunity to meet in person for some time now but we intend to schedule a meeting of the Committee during the ARS conference in Kalgoorlie in September.

Production of *The Rangeland Journal* and *Range Management Newsletter* has continued smoothly, with no major issues arising. As usual two journal issues and three issues of the newsletter were published during the year. The Editor of the Journal, Dr Wal Whalley, has reported a recent increase in the number of manuscripts submitted for publication, which is pleasing news. It is possible that this is in response to the higher profile of the Journal resulting from its listing in *Current Contents*.

We continue to publish special issues of the Journal. These have been more frequent in recent years (one per year compared with the usual biennial frequency) because of the opportunities that have arisen. In June last year the excellent Centenary Symposium Special Issue, with Jim Noble as guest editor, was published. A special issue which explores matters related to vegetation clearing in rangelands is due out next month, and plans are underway for a special issue presenting more in-depth versions of the papers on 'drivers of change in rangelands' from the Kalgoorlie conference. This is scheduled for publication in June 2003.

The Committee remains interested in electronic publication of the Journal. There has been a strong move towards electronic publication of other high-profile journals and increasing acceptance by users of those journals. However, the cost and practicality still appear to present obstacles for a journal like ours with a relatively small circulation. Nevertheless, one committee member, Ken Hodgkinson, has recently begun investigating various options for electronic publication of the Journal, in the hope that we can move into this exciting arena as soon as possible. This is important because many scientific users are now expecting electronic access to journals, and electronic publication makes the journal much more accessible to international audiences than traditional print issues. The establishment of a web site for the Society is an important development in facilitating the move to electronic publication.

During the year one of our associate editors, David Freudenberger, resigned. David was an Associate Editor for almost 8 years and made a valuable contribution during that time. On behalf of the Committee I would like to thank him for the service he gave to the Journal and Society. I am pleased to announce that Brian Cooke has recently been appointed to replace David, and I welcome him to the team. Brian has considerable expertise in the biology and management of introduced and native wildlife in rangelands as well as a professional interest in issues relating to biodiversity.

There was also a resignation from the Publications Committee. Craig James recently became President of the Ecological Society of Australia (ESA) and felt that he would be unable to continue on the Publications Committee because of increased demands on his time. So thanks are extended to Craig for his input to the Committee and we wish him well as ESA President. We are yet to appoint a replacement for Craig, but this will occur soon.

Most of you will be aware that Noelene Duckett, Editor of the *Range Management Newsletter*, transferred to the US last year. Fortunately she was keen to remain as Editor, but it meant we needed to explore other arrangements for printing and distributing the newsletter. We are grateful to Malcolm Howes, our Journal Production Manager, for offering to take on this task for the Newsletter. This arrangement has worked very well. It has meant a slight increase in production costs (about 10 cents/unit) although this remains about 50 cents/unit below costs from a couple of years ago.

Noelene has continued to produce interesting issues of the Newsletter from her base in the US. She is receiving a reasonable supply of volunteered articles but she reports that finding major articles continues to be the main challenge as editor. She would welcome ideas for articles at any time, and finished articles would be even better! The appointment of a Communications Officer to Council is welcome news and should mean an increase in news from Council appearing in the newsletter.

It is with pleasure that I conclude by thanking the people that have been responsible for, or contributed to, the production of the Society's publications over the last year. This of course includes our editors, production manager, associate editors, referees and authors. I also express my thanks to the Publications Committee and Council for their support and help during the year.

MEMBERSHIP RATES FOR 2002

Council has decided not to increase subscription rates for 2002. The rates are as follows:

Individual or Family

Full (Journal & Newsletter)		
	Australia	$73
	Overseas (Air Mail)	$96
	Student	$56
	Student Overseas	$73
Part (Newsletter only)		
	Australia	$40
	Overseas (Air Mail)	$51
	Student	$39
	Student Overseas	$30

Institution or Company

Full (Journal & Newsletter)		
	Australia	$107
	Overseas (Air Mail)	$130
Part (Newsletter only)		
	Australia	$56
	Overseas (Air Mail)	$68

Serial Publications

2002 Bibliographic Details and Subscription

1. The Rangeland Journal

Title:	The Rangeland Journal
ISSN:	0313 4555
Volume Number:	23
Frequency:	Two (2) issues per year
Language:	English
Months of Publication:	June, November
Subscriptions:	For calendar year only
Cancellations:	Accepted
Claims:	Must be submitted within 6 months
Index:	No index or title page published

Subscription Rate:

Australia/NZ	A$90 per annum
Overseas (Air Mail)	A$107 per annum

2. Range Management Newsletter

Title:	Range Management Newsletter
ISSN:	0812 4930
Volume Number:	2001
Frequency:	Three (3) issues per year
Language:	English
Months of Publication:	March, July, and November
Subscriptions:	For calendar year only
Cancellations:	Accepted
Claims:	Must be submitted within 6 months
Index:	No index or title page published

Subscription Rate:

Australia/NZ	A$62 per annum
Overseas(Air Mail)	A$73 per annum

3. Joint Subscriptions

The Rangeland Journal and Range Management Newsletter

Joint Subscription Rate:

Australia/NZ	A$130 per annum
Overseas(Air Mail)	A$158 per annum

Note that Membership rates are quoted in AUSTRALIAN currency and must be paid in AUSTRALIAN currency. Visa card, BankCard, and MasterCard are accepted. All rates shown are for AIRMAIL.

AUSTRALIAN RANGELAND SOCIETY
MEMBERSHIP APPLICATION FORM

Please complete and return to the Subscription Secretary, Rob Richards, PO Box 235, Condobolin 2877 NSW

I, [name] .....

of [address] .....

.....

Postcode..... Email address .....

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.

- Enclosed is a cheque for $AU..... for full/part* membership for an individual/student/institution* for the calendar year 2002

- Charge my Mastercard VISA Bankcard AU$.....for full/part* membership for an individual/student/institution* for the calendar year 2002

Card No.:_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Expiry Date: .....

Signature:..... Date: ..... Cardholders Name:.....

*delete as appropriate

If you were introduced to the Society by an existing member please include their name here .....

Please list details of your institution & student number if you are applying for student rates .....

Membership Rates:

	Australia	**Overseas Airmail**
Individual or Family -		
Full (Journal + Newsletter)/Student	$73.00/$56.00	$96.00/$73.00
Part (Newsletter only)/Student	$40.00/$30.00	$51.00/$39.00
Institution or Company -		
Full (Journal + Newsletter)	$107.00	$130.00
Part (Newsletter only)	$56.00	$68.00

Please Note –

1. 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.**
2. **Year 2002 membership rates include Airmail for all overseas subscribers.**

For Office Use Only:

Membership Number .....

Date Entered in Member Register .....

Date Ratified by Council .....