



The Australian Rangeland Society

RANGE MANAGEMENT NEWSLETTER

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CONTENTS

Range Management Newsletter 01/1

From the Editor - Noelene Duckett	1
Notice of Annual General Meeting - Merri Tohill	1
Call for Council Nominations - Merri Tohill	2
Continuing the Communication from Council - Merri Tohill	2
Policy on Reproducing Articles in the Range Management Newsletter	2
News from the Western Australian Branch - Sandra Van Vreeswyk and Ken Leighton	3
Carrying Capacity, Property Sales, Land Condition and Valuation - Bob Ilich	3
A Year in Utah's Rangelands - A Lesson in Multiple Use - Leigh Hunt	9
Board Members Selected for Rangelands Australia - Don Blesing	11
Rangelands Management Education Priorities - Don Blesing	12
Northern Grassy Landscapes Conference Proceedings Now Available - Peter Jacklyn	13
Project Update - Sandra Van Vreeswyk and Ken Leighton	14
Letters to the Editor - Geoff Rodda and Bill Bolton-Smith	15
Introducing the New ARS Council Member - Robyn Cowley	16
Membership Rates for 2001	16
Call to Rural Poets	16
Ode to the Quadrat - Andrea Johnson	17
Homes Wanted	17
Information Snippets	18
New Members	19
What has FASTS been up to? - Toss Gascoigne and Sue Sarjeantson	19
Membership Application Form	23

FROM THE EDITOR

Noelene Duckett, 5 Amery Street, Ashburton VIC 3147

Welcome to the first newsletter of 2001.

This is an exciting time for the Australian Rangeland Society with Council recently developing a draft business plan which suggests a number of changes to the Society. Merri Tothill has written a series of articles relating to these issues including details of the AGM to be held in May. Council are calling for nominations across Australia, and particularly from the Northern Territory, so if you are keen to be part of the team remember to get your nomination in by the closing date (20 April).

The major article in this issue examines the issue of carrying capacity and its relationship to land condition and valuation. Bob Ilich has written an interesting article which indicates how carrying capacity figures can vary depending on the method of calculation, and how this in turn may alter the lease's proposed worth. To standardise the way leases are valued, Bob has suggested new ways to assemble station stock and production data.

Leigh Hunt has also contributed an article describing some of the highlights of his recent sabbatical at Utah State University. Leigh describes some of the challenges facing land administrators and managers as they strive to meet the demands of sustainable multiple land use. He explains one of the processes for cooperative planning used in the US called 'Seeking Common Ground'. This process is used to produce ecologically sound agreements on a range of land use issues that satisfy most interest groups. Leigh goes on to say "Making multiple use a reality is more than simply having a good idea.....Putting sustainable multiple use in place will require a lot of effort which incorporates many factors - including economics, training, cooperation between land users, agreed land use plans and supporting policy."

Following on from this, Don Blesing has written two articles outlining recent developments with Rangelands Australia. This is an exciting initiative, aimed at facilitating the delivery of high quality rangeland management education and training across Australia. Rangelands Australia will begin operations in April 2001 from the Gatton campus of the University of Queensland and will be overseen by a board of skilled rangeland and communication experts. I am sure all readers with an interest in the rangelands will be looking forward to receiving further information about the services provided by Rangelands Australia as the year proceeds.

A number of shorter articles of interest to readers are included in this issue. These include news of the next Biennial Conference, a project update from the Western Australian rangeland survey team and two letters to the editor. Additionally an article indicating the role of FASTS (Federation of Australian Scientific and Technological Societies) in raising issues and publicising the benefits of increasing the national investment in science and technology has been included.

On another subject, the subject of including semi-promotional articles in *RMN* has been raised recently. Some readers felt that the URS article published in the November 2000 issue was inappropriate as it promoted a consulting business. I do not believe that this was the aim of the authors - as I understand it, the article originated because of the lack of knowledge of URS when the authors were at the ARS Symposium in Broken Hill last year. As a consequence of this feedback, however, I (with the support of the Publications Committee) have decided not to accept any more articles which appear to directly promote consulting businesses. A feature outlining consulting companies that are active in the rangelands is being considered for a future issue of the newsletter. Articles describing particular rangeland projects carried out by consulting companies are always encouraged.

As always I need your help to fill the next issue of the newsletter, which is due out in July. I welcome contributions on any topic of interest to members especially from new contributors and those we haven't heard from for a while. The deadline for *RMN* 01/2 is mid June.

NOTICE OF ANNUAL GENERAL MEETING

Merri Tothill, President, PO Box 357 Port Augusta 5700.

The 2001 Annual General Meeting of the Australian Rangeland Society will be held in Adelaide on 25th May, 11.30am at 284 Portrush Road, Kensington, South Australia.

The Agenda will include:

- minutes of the 2000 AGM;
- reports from council, treasurer, subscription secretary, and the publications committee;
- election of officers and appointment of the Publications Committee;
- motions on notice, and
- general business.

In accordance with the Articles of Association of the Society, Council will be moving a resolution at the AGM to change a number of Articles. These changes will involve the updating and correcting of the current Articles and will also enable the Council to be more accountable and transparent to members. For information regarding the specific changes to the Articles please contact the Honorary Secretary, as listed on the inside front cover of the *Range Management Newsletter*. Alterations to the Articles of Association will be posted to members with the Business Plan in early April.

Any financial member wishing to place a motion on notice before the AGM should ensure that the signed motion is lodged with the Hon Secretary by posting to John Maconochie, Pastoral Board, GPO Box 1047 Adelaide SA by 18 May 2001.

VERY IMPORTANT NOTICE CALL FOR COUNCIL NOMINATIONS

Merri Tohill, President, PO Box 357 Port Augusta 5700.

We are seeking 7 Council members, including President and 6 other members. Nominations are invited from members to fill the following offices for two years - rotated as per the Articles of Association with the next region being the Northern Territory. Members from the NT are encouraged to nominate for the positions. In the event that there are inadequate nominations from the NT, nominations are also called from members all over Australia.

President
Vice President (2)
Honorary Secretary
Honorary Treasurer
Subscription Secretary

If you wish to become a Council member, please fax or post a nomination form which includes the following information:-

- ♦ Full Name
- ♦ Position (you wish to apply for)
- ♦ Brief summary of rangeland experience
- ♦ Signatures of two other financial ARS members
- ♦ Your signature

Either fax to: John Maconochie
Secretary
Australian Rangeland Society
Fax: 08 8204 8859

Or post to : John Maconochie
Pastoral Board (DEH)
GPO Box 1047
Adelaide SA 5001

By no later than **20th April 2001.**

We apologise for the "tight" timetable but this is required so that we can comply with the "articles" and in the event that we are inundated with nominations and are required to distribute ballot papers.

CONTINUING THE COMMUNICATION FROM COUNCIL

Merri Tohill, President, PO Box 357 Port Augusta 5700.

First thing for members to note is that I am now in the position of President due to the resignation of Andrew Nicolson in January 2001. This is an interim measure to

enable the Council to function, pending the AGM in May. (see the previous article).

Since our last newsletter Council has been busy working with the Business Planning team, including some direct communication with members of the past 3 Councils regarding comments on the draft Business Plan.

In general the responses have been supportive of the current momentum and the need to implement recommendations which will increase our relevance and hence membership. Council considered the comments at our last meeting on 12th March.

The following is a summary of our understanding of the respondents' major concerns:-

- ♦ Clearer communication required on proposed changes to membership format and roles
- ♦ Agreement that Council should manage its affairs effectively, on time and include regular reporting to members ie more accountable
- ♦ Investigation into our membership of FASTS
- ♦ Changes to Articles of Association will occur with due notice to all members, however, changes to roles and objectives can occur more often to reflect current membership and its needs
- ♦ Need to have more membership activities ie regional forums etc.
- ♦ Urgent identification on ways to improve budget situation in conjunction with Publications Committee
- ♦ Decline in membership and relevance requires implementation of promotional activities including website development
- ♦ Consideration of developing a professional package (long term).

These concerns are being addressed and I will be sending a letter to **all** current members by early April which will **clearly** explain our vision for the new ARS, and report on our progress in addressing these issues. You will also receive a copy of the Business Plan and a copy of the proposed changes to the Articles of Association of the Society.

POLICY ON REPRODUCING ARTICLES FROM RMN

The Publications Committee have recently been discussing the policy on reproducing articles from the *Range Management Newsletter*. It has been agreed that authors can do so without permission although they must acknowledge the newsletter in any reproduced article. Non-authors wishing to use articles must seek permission from the editor and also acknowledge the newsletter.

NEWS FROM THE WESTERN AUSTRALIAN BRANCH

Sandra Van Vreeswyk, President, Agriculture Western Australia, Locked Bag 4, Bentley Delivery Centre WA 6983

Ken Leighton, Secretary, Department of Land Administration, Midland Square, Midland WA 6056

Things have been buzzing over in the West. We have a commitment to hold at least two functions each year. We achieved this last year when our guest speaker, Roger Jaensch, spoke on the Goldfields Murchison Strategy after the AGM in May, and with our Christmas function which featured Alec Holm presenting his reminiscences and career highlights.

For those of you who weren't at the Broken Hill conference, the big news from our branch is that we will be hosting the Society's biennial conference in 2002. The conference will be held in Kalgoorlie, from 3 to 6 September. This date was carefully selected to coincide with the beginning of the Kalgoorlie race round, to give you all a good excuse for staying on and making the most of your travels west.

The Organising Committee has been set up. We are very pleased to announce that Dr Ed Barrett-Lennard, the Director of the Centre for the Management of Arid Environments in Kalgoorlie, is the Organising Chair. Most of the committee hasn't yet had to move into full speed, but the Program sub-committee has held three meetings to date. A theme has been selected which embraces 2002 as being the Year of the Outback:

The Outback - shifting camp

You will hear more about the conference in the next issue, with details of sessions, key speakers, and timelines for abstracts and papers. In the meantime, we are very excited about having the conference over here and will do our best to make it an important event for the Society.

CARRYING CAPACITY, PROPERTY SALES, LAND CONDITION AND VALUATION

Bob Ilich, PO Box 7, Como WA 6952

Pastoral properties are generally appraised and sold based on some number of livestock units (carrying capacity) multiplied by a dollar value per unit. But what is this mystical "carrying capacity"? How is it estimated and how realistic is that estimate amongst those who have cause to either make, or use, it? Is "carrying capacity" a common currency that serves the best interests of the land and commercial reality for those endeavouring to make a living from the land?

There are many that at various times have an interest in the carrying capacity of parcels of pastoral land. Those with the most obvious and immediate interest are the owners and/or managers for it is they who must know, for sustainable rangeland management, how many livestock each type of country can safely carry with relative certainty. Does that estimate change if those involved were potentially sellers or purchasers of the same land? How well do real estate agents represent actual carrying capacity to vendors and potential purchasers? Do valuers working for the Valuer General and range management advisers in private practice and government, both state and federal, see country in the same light as those who live on it and work it? These are no doubt rhetorical questions, as most would agree that each involved has their own view on what is the appropriate carrying capacity of each country type.

Is it possible to arrive at a common currency so that, as a starting point at least, the term carrying capacity has the same meaning to all who have cause to use it, even if those involved differ over the actual number? Through first-hand experience and some research, I have gathered information to show that carrying capacity, and hence property value, has a number of different meanings in the sheep-grazed rangelands of Western Australia. Many of these definitions no doubt extend to pastoral wool growing regions in other States with a subset also relevant to cattle-grazed areas.

What "Carrying Capacity" may mean

Sheep "carrying capacity" in the pastoral area of Western Australia may mean:

- Sheep numbers carried at the time a property is offered for sale and also at the final point of sale.
- The historical average number shorn – that is, "off shears" at the annual shearing (includes grown sheep, sale sheep and lambs shorn).
- Historical average "over summer" sheep number (includes grown sheep and lambs shorn). Sale sheep are usually sold "off shears" immediately following shearing in October-November to

reduce the number carried through the drier summer months.

- Historical average number of grown sheep carried through the summer (i.e. excluding lambs) as stated in Pastoral Lands Board Annual Returns as at the 30th June.
- A historical Estimated Carrying Capacity (ECC), now revised and changed to Rental Carrying Capacity (RCC), used by the Pastoral Lands Board to determine lease rental. This number is specified in "small stock units" (ssu). The Federal Court has ruled that this figure should no longer be used as it has nothing to do with the actual carrying capacity of pastoral stations. The Federal Court has also found that the words "Normal Carrying Capacity" refers to the "Average Over Summer including Lambs Carrying Capacity" and not the "Average Shearing Off Shears Figures" as was thought and used by some parts of the industry.
- Recommended Carrying Capacity and Original Carrying Capacity estimated by Agriculture WA. Both figures are specified in dry sheep equivalents (dse). These figures are estimated during surveys that report on the range condition of each type of country on a pastoral lease.
 - The recommended carrying capacity is an estimate of the number of sheep that can be carried, assuming the property is fully developed, through a "normal" summer without degrading the rangeland.
 - The original carrying capacity is the estimated number that could be carried safely through the summer if the lease, fully developed, was in its original or pristine condition.

The rangeland condition report and estimated carrying capacities for a lease are made available to potential purchasers when a lease is offered for sale.

In reality, actual sheep numbers vary throughout the year depending on the time of lambing, shearing and when surplus sheep are sold. Figure one shows how numbers could fluctuate for a station that lambs in June-July, shears October-November and sells surplus sheep "off shears". The average number shorn is 15,000 with an average of 10,000 grown sheep carried through summer, increasing to 12,500 including lambs.

A station could also have a rangelands condition survey Recommended Carrying Capacity of 8,580 dse over summer, and an Original Carrying Capacity of 11,350 dse over summer. The historical Estimated Carrying Capacity (ECC), now revised to Rental Carrying Capacity (RCC) could well have been 16,552 small stock units.

All carrying capacities are applicable to the one station and all are correct in their own right. Confused?

Purchasers (or seller) Beware!

The above summary illustrates that there are **two** different types of carrying capacity. One is the actual or historical number carried while the other is based on an Agriculture WA Rangeland Condition Survey. The latter is shown in dse "over summer fully developed".

Within both, there is considerable variation in what carrying capacity may actually mean to different parties – and how this may translate to a valuation of a lease. I illustrate this in Table 1.

From first-hand experience in the pastoral sheep industry, I make the following observations:

- Real estate agents tend to sell sheep stations based on historical average shearing figures (i.e. "off shears"), and for cattle "off muster", for a normal season combined with the current \$ value per sheep (or cattle) area. But what does the "off shears" number mean in relation to the number that can be safely carried through summer when shearing may occur at different times of the year?
- The Valuer Generals' Department states that sheep stations are valued "off shears" on a walk in-walk out basis from a \$ per sheep area value based on previous property sales. Again, does this adequately account for the variation in sheep numbers that may occur between shearing and that carried through summer?
- Note: either method is suitable provided it is used consistently. One must also understand that the \$ per sheep grazing area automatically increases when using the lower "over summer" carrying capacity figure.
- The Pastoral Lands Board issues historical information on sheep stations specifying either the number of grown sheep carried, or grown sheep plus lambs, as at 30th June each year.
- Agriculture Western Australia does not usually recognise historical records where a rangelands survey exists. Instead it uses the results of their survey to determine a Recommended Carrying Capacity (in dse) over summer.

Table 1. Example of "correct" and "incorrect" methods to value a pastoral sheep station.

Summary information

Station Name: _____ Area: _____ Location: _____

ECC (Estimated Carrying Capacity): now called RCC (Rental Carrying Capacity): 16552

Shearing Date: OCT - NOV Date Property Sold: _____

Summary of Historical Records: _____

"Correct" valuation method

	Station shearing books	Pastoral Land Board	Selling Agent	Valuer's \$/sheep grazing area	Therefore, Your \$ Valuation
Actual numbers shorn (1 yr) - grown - sale - lambs	14,000			\$80.36	1,125,000
Average shearing incl sale sheep & lambs	15,000			\$75.00	1,125,000
<u>Less</u> Average sheep sales & deaths					
<u>Equals</u> Average Over-summer CC (incl lambs)		12,500		\$90.00	1,125,000
Average grown sheep (excl lambs)		10,000		\$112.50	1,125,000

Agriculture WA, *Condition of Rangelands Survey*: Recommended carrying capacity (dse) over summer

RCC dse over summer			8,580 dse	\$131.11	1,125,000
Original CC dse over summer			11,350 dse	\$99.11	1,125,000

"Incorrect" valuation method

	Station shearing book	Pastoral Land Board	Selling Agent	Valuer's \$/sheep grazing area	Therefore, Your \$ Valuation
Actual numbers shorn (1 yr) - grown - sale - lambs	14,000			\$75.00	1,050,000
Average shearing incl sale sheep & lambs	15,000			\$75.00	1,125,000
<u>Less</u> Ave sales & deaths					
<u>Equals</u> Average Over-summer CC (incl lambs)		12,500		\$75.00	937,500
Average grown sheep (excl lambs)		10,000		\$75.00	750,000

Agriculture WA, *Condition of Rangelands Survey*: Recommended carrying capacity (dse) over summer

RCC dse over summer			8,580 dse	\$75.00	643,500
Original CC dse over summer			11,350 dse	\$75.00	851,250

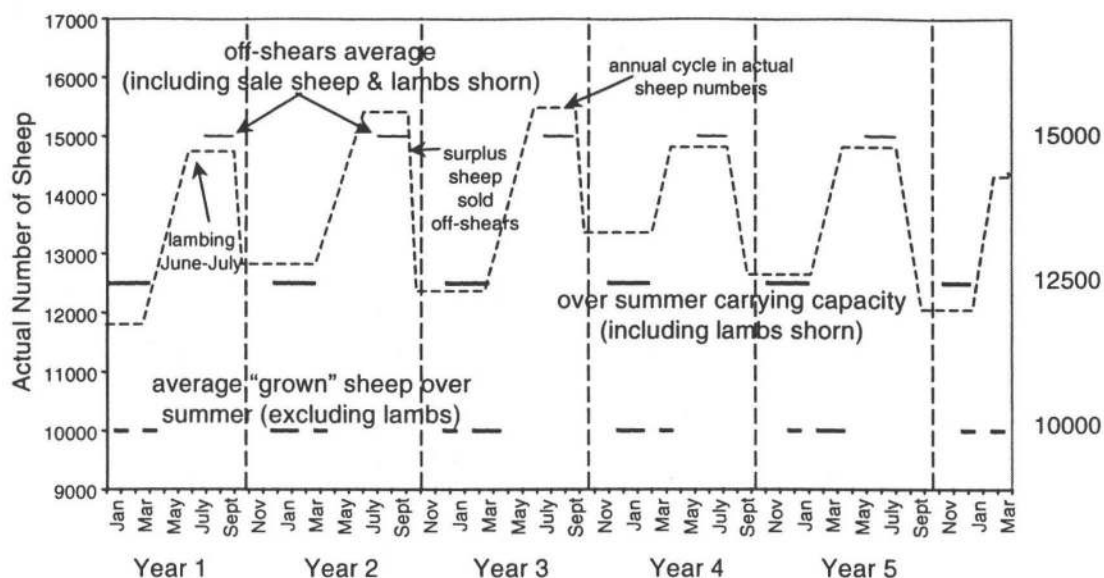


Figure 1. Diagrammatic representation of the actual number of sheep carried on a pastoral lease over several years in relation to the historical average number shorn and the historical average number carried through summer.

I have repeatedly emphasised the difference between the historical average number of sheep shorn and that which can be safely carried through the summer. Supposing a station was offered for sale on the basis only of the actual sheep numbers shown in Table 1 and a value of \$75 per sheep area. The real estate agent would appraise the lease at \$1,125,000 (15,000 sheep off-shears @ \$75) based broadly on previous sales and current market conditions for properties with a similar state of development. Alternatively, a conservation-minded vendor may choose to list his station on the 12,500 sheep that can be safely carried through summer using the \$75 per sheep area (rule of thumb) figure. He would think that the market value of his station would be \$937,500. In actual fact, he has under-estimated the station's value by \$187,500 because when the lower "over summer" figure of 12,500 sheep is used, the effective value per sheep area increases to \$90 to realise the "correct" market price of \$1,125,000.

Therefore, in the case of an auction, the uninformed bidder may miss out, but on the other hand, the problem may then arise when the property is sold at the higher price and the new owner discovers that he/she cannot run the 15,000 sheep year-round. Who has misrepresented whom? What does the new owner do? Cut his/her losses and run the lower, safer number, push the land harder or seek compensation from whomever they consider misrepresented the property at the time of sale?

Carrying Capacity and Sustainable Pastoralism

Sustainable grazing of the rangelands has to be the way of the future for the pastoral industry. This basically means that sheep or cattle numbers are not increased during good seasons allowing rangelands to regenerate to the extent that numbers do not have to be reduced over the drier seasons. Of course, we also have to take account of total grazing pressure – i.e. either remove feral goats or manage them so that they are substituted for sheep, and somehow, find a more effective way of controlling kangaroos.

To accommodate this change, real estate agents and sales of pastoral properties will need to change from only selling sheep stations on the basis of average "off shears" numbers to a mixture of using the "off-shears" figures and recommended carrying capacity figures (in dse) over summer. This would then give a consistent single method for all to use – combined with a station business plan with a percentage profit return that can be obtained from the property operating as a business. In this way, a property owner can be rewarded for the condition of his/her rangelands rather than the number of sheep being carried each year – whether it be the "right" or "wrong" number. I consider that the whole culture of representing properties for sale on the basis of "off shears" and "average shearing" (or in some instances, just one year's shearing) which has operated since the establishment of pastoralism in Australia has contributed to the degeneration of its rangelands.

In an effort to change this situation, I conclude by offering the following charts (Forms 1 and 2), one of which is an expanded version of Table 1 as a basis for compiling better and more transparent information to determine the worth of a property when it is offered for sale. Additionally, it is my view that real estate agents should be encouraged to work with vendors to complete the information thoroughly and honestly using the correct terminology that says exactly what it means so that the information is available to all genuinely interested in purchasing the property. With slight modification, it should be possible to adapt the form for cattle enterprises.

Acknowledgements

I thank Gary Bastin, CSIRO, Alice Springs for helping me write this article. Also Alan Payne, Agriculture WA, Alan Bell, independent valuer, Brian Hernan and my son, Julian, who all contributed valuable information or helped design the self explanatory forms which should be useful for the pastoral industry to use.

Form 1. Proposed chart for assembling station stocking and wool production records, and recommended carrying capacities as basis for valuing a pastoral lease when offered for sale.

Station Name: _____ Area: _____ Location: _____ Shearing Time: _____ Rental Carrying Capacity: _____
 Sheep: Historical records taken from Station Shearing Books [____] or Pastoral Lands Board Annual Reports [_____]

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Overall Totals		Normal Season		
											Totals	Average	Totals	Average	Fully Developed
Rainfall (Jan-Dec)															
Main Shearing No															
Straggler Shearing															
Total Shearing No															
Total Wool (kg)															
Total Wool (bales)															
Ave cut/head															
Ave micron															
Ave yield %															
Sheep Sales															
Bal carried over summer incl lambs															
Less lambs marked under 1 year															
Wethers															
Ewes															
Rams															
Bal grown stock over summer excl lambs															
Purchases															
Balance stock															
Deaths															

Agriculture WA - Condition of Rangeland Survey: Recommended Carrying Capacity (dse over summer)

Pre-sale Rangelands Condition "Report": Recommended Carrying Capacity (dse over summer)	Report Date:	
Rangelands Condition Survey: Recommended Carrying Capacity (dse over summer)	Survey Date:	
Rangelands Condition Survey: Original Carrying Capacity (dse over summer)	Survey Date:	

Form 2. Proposed chart for summarising stock records (from Form 1), and comparing valuations.

Summary information

Station Name: _____ Area: _____ Location: _____

ECC (Estimated Carrying Capacity): now called RCC (Rental Carrying Capacity): _____

Shearing Date: _____ Date Property Sold: _____

Summary of Historical Records: _____

	Station shearing books	Pastoral Lands Board	Selling Agent	Market Appraisal \$/sheep grazing area	Valuer's \$/sheep grazing area	Therefore, Your \$ Valuation	Stocking Rate ha/sheep	Ave wool (kg) Ave cut/head (kg)
Actual numbers shorn (1 yr)								
- grown								
- sale								
- lambs								
Average shearing incl sale sheep & lambs								
<u>Less</u> Average sheep sales & deaths								N/A
<u>Equals</u> Average Over-summer CC (incl lambs)								N/A
dse equivalent								N/A
Average grown sheep (excl lambs)								N/A
dse equivalent								N/A

Agriculture WA, Condition of Rangelands Survey: Recommended carrying capacity (dse) over summer

Pre-sale Rangelands Condition "Report": Recommended Carrying Capacity (dse over summer)	Report Date:	dse	\$	\$	\$		N/A
Rangelands Condition Survey: Recommended Carrying Capacity (dse over summer)	Survey Date:	dse	\$	\$	\$		N/A
Rangelands Condition Survey: Original Carrying Capacity (dse over summer)	Survey Date:	dse	\$	\$	\$		N/A

A YEAR IN UTAH'S RANGELANDS - A LESSON IN MULTIPLE USE

Leigh Hunt, 7/386 Carrington St, Adelaide SA 5000
e-mail: huntla@bigpond.com

Recently I was fortunate to spend a year in the College of Natural Resources at Utah State University. The College consists of four departments: Fisheries and Wildlife, Geography and Earth Resources, Forestry, and the department that hosted my visit, Rangeland Resources. Besides taking the opportunity to enjoy many recreational activities, including skiing, camping, hiking, fishing and sightseeing, my stay was also very interesting and beneficial in a professional sense. This was partly because there are broad similarities in the issues and challenges facing the rangelands in Utah and Australia, despite there being numerous contrasts as far as climate, vegetation, water availability, wildlife and other factors are concerned. The fabulous people at Utah State University were also critical in making my stay a success.

Utah's rangelands

The general feeling one gets about Utah's rangelands is that they are quite varied and relatively productive compared to our rangelands. In truth, describing them as productive is a bit of an exaggeration because Utah has substantial areas of arid land of low productivity. However, as a result of being situated on the western flank of the Rocky Mountains there is considerable topographic relief in particular areas and more productive country can be found at higher elevations. A major influence in these rangelands is the harsh winters, particularly at the higher elevations where a heavy cover of snow remains during winter. While this imposes a constraint on biological resources during winter, the feeling of productivity is enhanced by the abundant plant growth during spring and summer and the many permanent streams and rivers which are fed by snow melt.

The changeable topography and the associated variability in soils and local climate result in mosaics of land and vegetation types, so that there can be marked changes over relatively short distances. For example, the vegetation can quickly change from forest to mountain meadows to riparian system to semi-arid shrubland as you move across the landscape. However, it is not all like this and the areas that are most like Australian rangelands are the hot dry shrubland areas of the Colorado Plateau in the south and south-east of the state and the cold desert shrublands of the Great Basin in the west and north-west.

Land uses

The principal use in Utah's rangelands is cattle ranching. Since the majority (~70%) of land in Utah is public land, grazing is mostly conducted under a permit system administered by the government, usually by the United States Forest Service (USFS) or the federal Bureau of Land Management. Ranchers own small private holdings but rely on public land for much of their grazing. The permit system allows them access to public land for

grazing for defined periods during spring, summer and autumn. But because of the diversity and abundance of natural resources in many areas there are numerous other possible land uses apart from grazing. Multiple use is an almost universal feature of these public lands and they are managed by the authorities for multiple values. Thus ranchers share the land with other users. This sharing of land resources and the proximity of different land types with diverse natural values present many management challenges.

Other land uses and natural resource values apart from grazing include forestry, mining, conservation, wildlife habitat, water resources and recreation. Examples of recreation activities are hunting, fishing, camping, hiking, off-road driving and the use of all-terrain vehicles (ATVs), snowmobiling and cross-country skiing. The general public have mostly unrestricted access to public lands for these activities. A result of these patterns of use are some interesting and complex interactions between different land uses.

Some examples

A few brief examples may be useful in illustrating some of the interactions and issues that can arise, as well as approaches to the resolution of problems.

Wildlife management and recreational hunting - a very serious business!

Wildlife management is a major issue in the western US in terms of conservation, recreational hunting of big game and conflicts between game animals and livestock. In fact hunting is becoming big business, with large fees being charged by the government for the taking of elk and deer. However, this is a controversial matter that can generate a lot of passion. Many people take their hunting very seriously, as illustrated by one encounter I had with a hunter.

This occurred when I was assisting with a student field trip in a section of the National Forest in Idaho. This particular hunter drove past on his ATV and was intrigued by the large group of people bending down gazing at plants. He came over to me to find out what was so interesting and I explained we were teaching methods for vegetation analysis. The conversation then moved on to his hunting activities. It turned out that he was from California and drives the 13 hours to Idaho to go hunting. I asked about where and when he looked for elk - just a few innocent questions about what sort of habitat and time of day, to satisfy my curiosity. He replied very earnestly that he was unable to tell me otherwise he would have to kill me to ensure that the secret location of his favourite hunting spot did not get out! Needless to say, I quickly changed the subject!

Because of the popularity of hunting and the large revenues it can generate for the Department of Wildlife Resources (money which is used for a broad range of wildlife management programs), the department is maintaining higher densities of elk than in the past and is

introducing them to new areas of the state. But this is causing much anger amongst ranchers because they see the larger game herds as being in competition with their livestock. (Incidentally, some conservationists also argue that game densities are excessive and are causing damage to the habitat of other native species). This conflict is being addressed in several ways.

One approach is for government agencies to actively manipulate the vegetation to make it more suitable for livestock (which prefer a diet of grass, whereas shrubs are important winter fodder for elk and deer) and to increase overall productivity to reduce competition for feed. This is an expensive process involving intensive harrowing to reduce shrub densities and seeding with grasses, and is not widely supported. Another approach is a facilitated cooperative planning process involving various interest groups. This process, called 'Seeking Common Ground', is facilitated by government agencies. It has the aim of cooperative planning of land use within a region based on understanding the issues from different perspectives and the needs of particular land users. The intention is to produce ecologically sound agreements on a broad range of land use issues, like appropriate wildlife numbers and acceptable uses for particular parcels of land, that satisfy most interest groups.

Another interesting observation relevant to this conflict between big game species and livestock is that they can be complementary. This arises because of their respective impacts on the vegetation and the way this modifies competition between different plant species. Because shrubs such as sagebrush (*Artemisia* spp.) are important winter fodder for elk and deer, persistent grazing by them over a number of years can reduce sagebrush densities and increase the abundance of grass and other herbage species in the pasture - exactly the sort of pasture that is preferred by cattle. Similarly, persistent cattle grazing can push the pasture more towards a shrub-dominated pasture as cattle reduce the density of grasses. Thus, if properly managed, grazing both livestock and game species on the same land can be beneficial to both ranchers and big game herds. Taking advantage of these differences in grazing behaviour between animal species seems to be a better way of achieving a balance than intensive manipulation of the vegetation.

Management of riparian areas

Since I come from rangelands where creeks flow for one or two days a year (if that), I was surprised to learn that cattle ranchers in Utah must be aware of the impact of their management on native fish species. In fact the management of streams and rivers and the impact of land use on these systems is a major issue in most of Utah's rangelands. Historically cattle were allowed unlimited access to streams because of their need for water. But this led to substantial damage to riparian systems. The most obvious effect is erosion but there are also serious impacts on the quality and quantity of water resources, grazing values and on wildlife habitat. This damage arises from trampling of creek banks and surrounding areas, changes in plant species composition along creeks banks (from species like sedges that bind the soil to grasses that don't),

removal of shade species along banks and contamination of the water by faeces and urine.

Many of the streams contain native species of fish such as various endangered cutthroat trout. These can be negatively affected by silting up of the gravel beds where they spawn (which prevents spawning or smothers eggs that have already been laid), increased water velocity in the stream, increased water temperatures because of the loss of shade along the banks and the loss of protection from predators. The protection of these species is a major focus in the management of public lands.

These conflicts between grazing and fish protection can be minimised by improved livestock management. This might include controlling access to riparian areas by fencing, controlling the period of stocking in riparian areas, delaying the start of grazing early in the season to ensure the soil has dried and new plants have established, and not grazing late in the season when the stream is the only area with green feed. Other options are armouring stream crossings with rubble so cattle pads don't cause erosion of banks and stream beds, providing off-stream water points, culling the 'bottom huggers' - those cattle that won't venture away from the valley floor into the uplands - and hiring herders on horseback to push the cattle away from the valley bottoms. The last option apparently can be cost effective because livestock returns can improve since cattle benefit from the better feed that occurs away from the heavily-used stream area. This example illustrates that it is possible for different land uses and values to co-exist since the elimination of grazing is not necessary for improvement in riparian areas.

Fire management (and free air shows)

Fire management is a topic of much controversy in the western US because of the conflict between the need for fire as a tool in vegetation management and the risks to people, property and some land uses. It is now accepted that a lack of fire since European settlement, together with the impact of grazing, has led to 'woody weed' problems where juniper (*Juniperus* spp.) trees now dominate parts of the landscape. This reduces water resource values and grazing values. Aspen ecosystems are also affected by a lack of fire but in a different way. Aspen (*Populus tremuloides*) forests are important in terms of water resources, pasture production, wildlife habitat, biodiversity and timber production but are in serious decline because they depend on fire for regeneration and to reduce competition from fire-sensitive conifers.

Consequently, prescribed fire is now seen by land management authorities as an important management tool. However, this is not favoured by many ranchers or the general public because of the risk of fires getting out of control and the short-term loss of pasture. This is despite the ferocity of wildfires when they do occur because fuel has been able to build up over a long time. This was clearly illustrated by the fires last summer and the fire in Yellowstone National Park in 1988. It is also very expensive to fight wildfires. The USFS has costed wildfire suppression at \$US5000/acre for small fires. I found these high costs hard to comprehend until the day I

had two C130 Hercules and a lead plane fire-bombing over my house all afternoon to put out a wildfire on the adjacent mountain slopes. Despite these intensive efforts the fire still got away from them, but at least I had my own free and quite spectacular airshow! Having these large planes hurtling down hillsides at low altitude discharging bright red fire retardant is quite a sight. Nevertheless, it seems hard to justify these exorbitant costs (in some situations) when the cost of planning, initiating and managing a prescribed fire is in the order of \$US40/acre.

Despite the benefits of prescribed fire in maintaining suitable conditions for a range of land uses there is still a lot of opposition to its use. As a result, many areas are becoming less capable of supporting a diversity of uses and natural resource values. However, there does appear to be growing acceptance of prescribed fire by some of the participants in the Seeking Common Ground program.

Conclusions

I think we are fortunate here in Australia that we are just beginning to take advantage of the possibilities for multiple use in the rangelands. This gives us the opportunity to learn from situations where multiple use is well established, such as the United States. Making multiple use a reality is more than simply having a good idea. It is also more than identifying a new use that is feasible and has a competitive advantage in the market place (assuming it is a use that produces a marketable product or service). Putting sustainable multiple use in place will require a lot of effort which incorporates many factors - including economics, training, cooperation between land users, agreed land use plans and supporting policy. It will also need an understanding of the ecological implications of a land use and the impact on other uses, natural resource values and ecosystem processes. Above all, successful multiple use requires a knowledge of appropriate management practices and careful management of natural resources on an ongoing basis. It seems to me that some recent efforts to make multiple use a reality in Australia's rangelands have perhaps focussed too intently on potential economic returns at the expense of broader management requirements.

Acknowledgements

I would like to acknowledge the support I received from the Quinney Foundation, the College of Natural Resources and Dr Ben Norton in the Department of Rangeland Resources at Utah State University in facilitating and supporting my stay in Utah.

BOARD MEMBERS SELECTED FOR RANGELANDS AUSTRALIA

Don Blesing, Chairperson, Rangelands Australia, 'Ramsyn', Caltowie SA 5490

Rangelands Australia was established in early 2001 as a joint venture between Meat and Livestock Australia (MLA) and the University of Queensland (UQ). Parties invited to be part of this venture include Land Enterprise Australia, the Commonwealth government, the Queensland Department of Primary Industries, and other state and territory governments. Various industry bodies and companies, education providers and many organisations and people that care for the rangelands support this initiative.

Role

Our role or 'place in the sun' is to facilitate the delivery of high quality rangeland management education and training across Australia by local and regional providers, and to build capacity to address cross-sectoral issues in the rangelands.

Rangelands Australia has a mandate to establish a national centre of excellence in rangeland management education, training and research. Rangelands Australia will link with and facilitate scores of university, public sector and private providers in delivering rangeland management skills and education.

Board members

A high calibre board has been established comprising an independent Chair familiar with rangeland issues, three independent members with cross-sectoral expertise spanning the rangelands, and up to four people with skills in education and communication appointed by the managing parties. Independent board members selected are Helen Murphy a pastoralist from Alice Springs with business management skills and experience, Guy Fitzhardinge a grazier and ex-pastoralist from NSW and a board member of MLA, and Len Boladeras an ex-pastoralist and mining property manager from Kalgoorlie, currently studying for a Masters degree in Leadership and Management at Curtin University. Don Blesing an independent agribusiness adviser from SA was selected Chairperson for a five-year term.

Neil Inall is a communications expert from NSW with experience in rangeland policy. The managing parties have appointed him to the board as a member with special skills. Professor Roger Swift the Dean of Natural Resources Agriculture and Veterinary Science at Gatton College Campus of UQ and Dr Len Stephens General Manager Livestock Innovation with MLA have each been appointed to the board by their organisation. Dr John Taylor has been appointed by UQ as Professor of Rangeland Management and Director of the Rangelands Management Institute to be based at Gatton Campus, due to take up his position in April 2001.

Vision and priorities

Rangelands Australia has a vision that people of the rangelands will have access to world-class education and training opportunities, and will work with high quality and up-to-date skills. Industry in the rangelands will be sustainable and use highly skilled people. The outcome will be improved rangeland futures, better caring for country and equitable partnerships between people of the rangelands and other Australians.

Rangelands Australia will commence operations in April 2001 from the Gatton campus of UQ. Early priorities include involving potential managing parties, engaging with rangeland stakeholders and developing networks of providers able to focus on the suite of skills and disciplines that together make up rangeland management.

Relationship with the Australian Rangeland Society

The Australian Rangeland Society (ARS) is a body of people who care about the Australian rangelands. It is independent, non-aligned, and inclusive of all stakeholders. ARS has a particular interest in sustainable use of rangelands and the knowledge that underpins this. Its role is to provide a forum for the free interchange of ideas and information among people with an interest in rangelands. ARS conducts Conferences and fora and publishes a newsletter and refereed journal. Plans include establishing a 'professional package' to support people who work in the rangelands.

The ARS has many areas of common interest with Rangelands Australia. Rangelands management graduates and skilled rangeland managers should welcome ongoing support for rangelands professionals, focusing on continuing education, skill building, and quality control and business ethics. In addition the ARS 'The Rangeland Journal' would appear to provide Rangelands Australia with a high quality internationally recognised publication able to provide a high profile for much of the biophysical and socio-economic research that will underpin the education and training content and delivery.

I look forward to closer involvement between ARS and Rangelands Australia. In particular I believe that ARS can play a role in using its credibility to host rangeland education priority-setting workshops at state and regional level. Many ARS members work as private training companies, in universities and in the skill development business. These members in particular have much to gain by helping Rangelands Australia expand its network.

RANGELANDS MANAGEMENT EDUCATION PRIORITIES

Don Blesing, Chairperson, Rangelands Australia, 'Ramsyn', Caltowie SA 5490

Rangeland Australia held a priority-setting workshop at the University of New England in Armidale NSW in February 2001. Fifty invited experts in rangeland issues from across Australia gave strong support to Rangelands Australia and its vision. Participants were people who understand the rangelands, understood education and skilling and the empowerment it brings to people, and understood the competitive edge it gives to industry and the energy and resourcefulness skilled people bring to our nation. Participants came from a range of backgrounds with experience in many sectors. Aboriginal land managers, pastoralists, miners, community people, conservationists, land-carers, policy makers, educators and researchers were there. The newly appointed board members of Rangelands Australia were there to listen. The workshop was diverse in background, with a common goal of caring for the natural resources of our rangelands. Participants listened carefully and then gave knowledge, expert analysis, energy and good judgement to the group.

Champions for better rangeland education

Various people have been champions of change for the Rangelands Australia initiative. John Landy now the Governor of Victoria developed the idea when he was Chair of the Meat Research Corporation (MRC). He was passionate about better skilling and education for people of the rangelands, and spoke often of the imperative for pastoralists to demonstrate that their industry was ecologically sustainable and culturally acceptable.

MRC commissioned a Report from AGTRANS Research (Education and Training to Support Sustainable Management of Australia's Pastoral Industries: AGTRANS 1998). This report identified that educational offerings on rangeland management were either unavailable or inadequate, and recommended a national centre to develop new courses and coordinate existing courses. John Stewart a beef industry consultant from Brisbane travelled the country building support. David Crombie and the current MLA board have continued the impetus and allocated \$1m over a five-year period, subject to various performance indicators. And a steering committee of rangeland experts from across the nation built support at state and territory level.

Drivers of change

There are other drivers of change requiring improved skills in the rangelands. Workshop participants and the four key-note speakers at the Workshop in February 2001 identified some of these drivers, some already with us and others emerging as opportunities in the future;

- pastoral industry participants identified the growth of quality assurance systems and the need for environmental audits of production as important new skill areas. These market changes require a major

change in operator-level attitudes and skills, probably best provided with specific on-property training

- participants identified bush foods and eco-tourism as growth areas requiring education and skilling. Intellectual property rights, native title agreements and access arrangements were identified as key issues
- other participants identified global awareness and concerns about vegetation clearance and loss of biodiversity in Australian rangelands as important issues. These issues need to be studied in rangeland management courses and their supporters included in planning and education
- the mining industry was recognised as a significant land manager requiring property managers with skills in communications, natural resource management, conservation and biodiversity protection
- Dr Jocelyn Davies (Adelaide University) gave a paper on Training and Development related to Indigenous land management in Australia's rangelands. She identified many emerging skill areas, including the implementation of native title agreements across the rangelands as requiring conceptual and attitudinal changes and new multi-disciplinary skills
- Guy Fitzhardinge (MLA director and RA board member) identified a fundamental difference between accredited training as a means to an end, and non-accredited training courses as an end in themselves with discrete and immediate benefits. He advocated empowering and enabling individuals to become effective learners, using more personalised learning systems
- Professor Bob Beeton (UQ) recognised the need for clear pathways for the coordinated provision of courses that accepted and built on recent changes in the education and skill training system. He identified important issues as accreditation of suitable courses, trust between providers, recognition of existing skills and prior and traditional knowledge, and management of intellectual property
- Geoff Creek (Murrumbidgee College of Agriculture) identified a unique opportunity for RA to influence a proposed Conservation and Land Management Training Package. He emphasised the importance of the Australian National Training Authority and its accredited Vocational Education and Training Courses in agriculture and natural resource management.

Outcomes of the workshop

These emerging issues and driving forces will be used by the RA board as a focus for new courses and new combinations of existing disciplines and skills. Outcomes included;

- Workshop participants will be kept informed about access to courses and workshops, and the outcomes of regional meetings and workshops
- Regional workshops will be held during the year to meet education providers and users and hear about regional priorities. Chairperson Don Blesing and Institute Director John Taylor will consult in each region

- Trust was identified as the most important characteristic that Rangelands Australia needs to earn, and then use to build networks of partners in rangeland management training
- A passion for the rangelands and its people was identified among many participants. This passion can be used to support education and training programs that focus on the user
- We recognised the diversity of stakeholders in the rangelands and agreed to be inclusive of all sectors. All these sectors and a wide range of people living in and out of the rangelands were stakeholders in improved education and training. We agreed that Rangelands Australia would ensure that its language, culture and ways of meeting were inclusive of all sectors and people.

NORTHERN GRASSY LANDSCAPES CONFERENCE PROCEEDINGS NOW AVAILABLE

Peter Jacklyn, Communications Coordinator, Tropical Savannas CRC, Northern Territory University, Darwin NT 0909

Proceedings from the Northern Grassy Landscapes Conference are now available. This conference, organised by the Tropical Savannas CRC, brought together land users from across the north of Australia. Its theme was striking a balance between production and conservation in the grassy landscapes of northern Australia (see November 2000 issue of *RMN* for a overview). The proceedings are available on a CD ROM which contains all papers presented at the conference, a majority of the Powerpoint presentations and even a movie about soil management in the Victoria Rivers District.

The proceedings will be sent out to all those who attended the conference free of charge, but there will also be copies available for purchase at \$15 a piece. Send a cheque or money order to Melissa Tang, Tropical Savannas CRC, Building 42, Northern Territory University, NT 0909. For more information about the CD, email Peter Jacklyn at peter.jacklyn@ntu.edu.au.

PROJECT UPDATE

Western Australia's Rangeland Survey Program

*Sandra Van Vreeswyk, Agriculture Western Australia,
Locked Bag 4, Bentley Delivery Centre WA 6983
Ken Leighton, Department of Land Administration,
Midland Square, Midland WA 6056*

To date fourteen regional inventory and condition surveys have been completed in Western Australia's rangelands. Three-quarters of Western Australia's non-desert rangelands have been mapped, as shown on Figure 1. Each regional survey covers an area of about 90,000 square kilometres. Fieldwork for each takes about two years, with an extra two years required for the mapping and report preparation phase.



Figure 1: Boundaries of the regional inventory and condition surveys carried out in the WA rangelands. The Pilbara survey is expected to be completed in December 2001. The western Nullarbor survey is also currently in progress with the Southern Goldfields survey to be commenced around 2003.

The surveys provide comprehensive descriptions and maps of the biophysical resources of the region, together with an evaluation of the condition of the soils and vegetation. The report and accompanying maps are primarily intended as a reference for land managers, land management advisers, land administrators and researchers. The reports contain information that can be used to plan sustainable land management at the sub-catchment, lease or paddock level.

Field sampling is conducted at a land unit scale (ie the smallest mappable component of the landscape, eg river, valley, scarp) and this provides a description of the landscape in terms of its landform/soil/vegetation associations. Resource condition statements are provided for the whole survey area and for each pastoral lease. These are derived from visual traverse assessment ratings and have three components: the extent of any soil erosion, the type of erosion and the condition of the perennial vegetation.

Resource information is stored in a geographic information system (GIS) from which reports and maps are compiled. Products from the survey include detailed reports, land classification maps, and larger scale pastoral lease plans showing station infrastructure, resource condition assessments and land system boundaries. For each pastoral lease a report which includes a summary of the range condition and derived stock carrying capacity is provided. This figure represents an estimation of the long-term sustainable carrying capacity of the lease.

There are two regional survey areas left to complete. The survey team began reconnaissance field work on the western Nullarbor last year. The area provides many new challenges to the team. Traditionally aerial photos are used to interpret land system boundaries and for navigation. This is much more difficult on the Nullarbor as the landscape is so flat, and there are much fewer reference points such as vegetation, creeks and track intersections to use when ground-truthing boundaries. The team is developing the use of satellite imagery and computer software to assist in interpretation and navigation. The team must also come to terms with the huge impact of fire and rabbits. Rabbit numbers have dropped by over 90% and the team is looking forward to seeing signs of recovery of the vegetation. And finally the team must be better prepared for the cold winds, heavy dew and rain that can fall in any month.



Photo 1: Survey crews on the western Nullarbor.

For more information or copies of survey reports and maps contact Sandra Van Vreeswyk at Agriculture Western Australia (phone 08 9368 3917 or Email svanvreeswyk@agric.wa.gov.au) or Ken Leighton at the Department of Land Administration (phone 08 9273 7130 or Email ken_leighton@dola.wa.gov.au).

LETTER TO THE EDITOR

Geoff Rodda, Wenba Station, PO Box 123, Wentworth
NSW 2648

Dear Noelene

I am a long time member of the Society. Prior to becoming a land manager, I worked as a stock agent in Pastoral Branches in South Australia, New South Wales and the Northern Territory from the early 1940's through to the mid 1950's.

Having taken part in another survey several years ago I was interested in Manda Page's summation of the recent ARS survey results (*RMN* April 2000) and commend her and the team for the amount of work they must have put in. To get 297 replies within four weeks of posting says, to me at least, that these people were prepared to take the time and effort to reply and that they still have an innate interest in what the Society is trying to do.

I realise that since the survey results were published a number of measures have been taken to overcome some of the problems that have been raised. One of the things that doesn't seem to have been addressed is that as locals we have absolutely no idea who else in our immediate area is a member of the Society (I realise that new members are listed from time to time). When Broken Hill was an active branch with an active management committee and excellent list of seminars, local members were posted an annual list of members. This was probably twenty years ago and was certainly during the period when incomes were more assured and the outlook was much more positive. Surely addressing this problem shouldn't be too hard!

The noted decline in grazier members does not surprise me. In this area many properties have been taken over by the Willandra World Heritage Area expansion. Properties as a whole or in part have also been acquired by the NSW National Parks and Wildlife Service as either parks in the case Mungo NP or as nature reserves in the case of Mallee Cliffs, Tarawi and Nearie Lake. Other properties have also been split and shared amongst neighbours to enlarge original holdings. Many of the enthusiastic ARS members who joined in 1974 have moved out of the area and no longer maintain an interest, or have fallen by the wayside and been overtaken by ever escalating pressures. These pressures include, among other things, economic pressures, the uncertainty of native title, the compulsory superannuation levy and new legislation. Since the Society was formed, the bush has been inundated with legislative changes. Where we used to have a local Western Lands Pastoral Inspector with perhaps an offsider, we now have an office full of people who are required to act on, in western NSW at least, 19 separate pieces of State legislation with 8 supplementary policies.

I note Manda's comments towards the end of the summary "When comparing the number of positive and negative comments given by various groups, graziers gave the greatest percentage of criticisms." This also doesn't surprise me as they have probably never worked harder or

under more stress in their lives trying to hold their enterprise together. In the survey results graziers accounted for only 27% of the membership. May I suggest that it could be possible that government employees in the rangelands in a multiplicity of occupations could possibly outnumber the number of people 'on the land.'

In May 1979 I sent a paper to the Second Biennial ARS Conference in Adelaide under the title '*Will the grazier still be on deck in 2000 A.D.?*' At the end of the paper I wrote "In summing up I would like to think that the grazier and rangelands will still be around in the year 2000. He will have to work harder and at a greater variety of things to keep float but he'll still be here. He must make more of the land that he uses, look after it better and not forget that they aren't making anymore land. I hope I am here to see it." Well I am still here but like many others only just. Here's hoping for better seasons, better prices and better political decision-making.

Regards

Geoff Rodda

LETTER TO THE EDITOR

Bill Bolton-Smith, 61 Linden Avenue, Hazelwood Park, SA
5066

The Editor

I want to congratulate Christine Campbell, Simon Campbell and Greg Curran (*RMN* November 2000) for arranging, recording and reporting so ably their "Yarn Session" with seven Elders at the Centenary Symposium in Broken Hill.

I also want to encourage them and other to continue this procedure wherever and whenever the opportunity arises to capture these memories while the 'Elders' are still around and able to recall accurately their experiences.

Some may recall that in the late 1980's through the *RMN* I endeavoured to get something like this going in a much more basic manner by writing a series which I called 'Anecdotes from a Past Era'. These were in general quite well received but did not generate the amount of discussion and contributions from others which I had hoped for.

I do earnestly believe that it is important to record the experiences of people who have spent a lifetime in many cases on the one property and have noted the changes which have occurred in that time. Sadly, these memories do not rate in academic circles because the events which are recalled have not been scientifically proven and so therefore are not 'facts'.

Very few scientists have spent so long in one area studying the many different events which have an impact on future

outcomes. The big picture is often lost because the scientist in reaching a conclusion has not, in fact, experienced all the variables which can have an effect on the final outcome.

These variables are all out there in someone's memory but please do not dally too long. These 'Elders' who were interviewed are all past 70 years of age and there are many more similar people out there.

Once again many thanks to Christine, Simon and Greg. To others, please keep this ball moving.

Kind regards

Bill Bolton-Smith (Fellow ARS)

INTRODUCING THE NEW ARS COUNCIL MEMBER

Robyn Cowley, Department of Primary Industries and Fisheries, PO Box 1346, Katherine NT 0851

I am a rangelands junkie – born and bred. In high school I told my parents that I would never return to the bush – well I have proved myself very wrong. Following a Bachelor of Science Degree at The University of Queensland majoring in Botany/Ecology, I did my Honours research project on my parents property near Bollon in south west Queensland, looking at plant distribution in relation to fencelines and a bores drain. But I really caught the rangelands bug when I attended the Katherine ARS conference in 1994. I have wanted to live and work in the rangelands ever since – and now I am, having recently moved north to Katherine to join the team at Katherine DPIF.

I have just submitted my doctorate at The University of Queensland (funded by the Wool Mob) looking at the effect of conversion from bores drains (linear waters) to troughs on herbivores, vegetation and soil in a mulga paddock in south west Queensland, near the now infamous Cunnamulla. During my doctorate I worked for the Charleville Department of Natural Resources as a Nature Conservation Planner with the South West Strategy. This gave me a good introduction to the issues concerning range management – addressing all aspects of sustainability – people, economics and natural resources. My interests in the rangelands fall within the overlapping area of production and conservation – sustainable production and on farm conservation. My research passions involve spatial patterns – plant and herbivore distribution, especially at the scale of management – paddocks. While trained as a research scientist, my background on the land keeps my feet on the ground. I look forward to working with and making a contribution to the ARS.

MEMBERSHIP RATES FOR 2001

When you received your 2001 renewal notice you may have noticed a slight increase in membership rates due to CPI increases and the GST. Don't forget, however, that you can save money if you are a student and can also receive FREE membership for 2002 if you introduce five new members to the Society.

The new rates for all membership categories are shown in the table along with the GST which has been included.

Membership Type	Rate	GST included
Individual or Family		
Full (Journal + Newsletter)	73	6.64
Full (Journal + Newsletter) – O/seas Airmail	96	8.73
Part (Newsletter only)	40	3.64
Part (Newsletter only) – O/seas Airmail	51	4.64
Student		
Full (Journal + Newsletter)	56	5.09
Full (Journal + Newsletter) – O/seas Airmail	73	6.63
Part (Newsletter only)	30	2.72
Part (Newsletter only) – O/seas Airmail	39	3.54
Institution or Company		
Full (Journal + Newsletter)	107	9.73
Full (Journal + Newsletter) – O/seas Airmail	130	11.82
Part (Newsletter only)	56	5.09
Part (Newsletter only) – O/seas Airmail	68	6.18
Libraries		
Journal	90	8.18
Journal - Overseas Airmail	107	9.73
Newsletter	62	5.64
Newsletter - Overseas Airmail	73	6.64
Journal + Newsletter	130	11.82
Journal + Newsletter - Overseas Airmail	158	14.36

CALL TO RURAL POETS

The Queensland Department of Primary Industries Women in Rural Industries Unit is seeking poems about rural women for its next edition of *A Vision for Change: Women Working for the Future of Rural Queensland 2001*. Please email your poems with your relevant contact details to Naree Wood at woodn@dpi.qld.gov.au or fax (07) 3239 3685.

ODE TO THE QUADRAT

*Andrea Johnson, Fire Management Project Officer,
Department of Primary Industries and Fisheries, PO Box
1346, Katherine, NT 0851*

When god made Rangeland technicians
He certainly did not have in mind,
The possibility of so many
Dragging metre squares behind.

Though, they certainly make it handy
For estimating yield,
They're the hardest things to carry
When traipsing through the field.

They're the rudest field assistants
Ever to go out bush,
They'll poke and stab and clang and bang
Trip you over on you toosh.

Now for us who work in the tropics
We have pea bush to contend,
So when walking through with our squares
It drives wits to their end.

When packing the Toyota
They're the hardest to fit in,
And if they aren't packed snugly
They'll make an awful god damn din.

And when you find you need them
They're right under all your gear,
So you have to drop all side rails
Just to slide them out the rear.

If someone spots you from the road
They ask in their own way,
"What the hell's that metal thing?"
And I know I'd like to say... "Integral calibration tool"
But from underneath my hat,
I just say in simple monotones
"It's a square that we look at."

The quadrat stands for many things
And patience is not one,
TSDM, cover, comp and green
The work is never done.

So damn these bloody objects
We must use every day,
Their size and obtrusive shape
Means they're always in the way.

You can squash and bend and bang them
Or kick them 'til you bleed,
But no matter how much we hate them
They're something we will always need!

HOMES REQUIRED

Journals and publications

Allan Wilson has a number of older journals and publications that are no longer being used by himself, but might be useful to others.

These include:

- Lands of Fowlers Gap Station, New South Wales. UNSW Res Series No 3, 1973
- Lands of The Fowlers Gap-Calindary Area of New South Wales. UNSW Res Series No 4 1972
- The Physical and Biological Features of Kunoth Paddock in Central Australia CSIRO 1978
- Lands of The Alice Springs Area Northern Territory, CSIRO 1956-57.
- Western Arid Lands Land Use Study, Qld Division of Land Utilization
Parts I (1974) Tech Bull No 12
Part II (1980) Tech Bull No 22
Part 4 (1978) Tech Bull No 23
- An Inventory and Condition Survey of Rangelands in the Carnarvon Basin, Western Australia (Payne, Curry and Spencer 1980)
- Studies of the Australian Arid Zone,
I. The Biology of Atriplex 1970
II. Animal Production 1974
III. Water in Rangelands 1978
IV. Chenopod Shrublands 1979
- A Range Inventory & Condition Survey of part of the Western Australian Nullarbor Plain 1974 (maps only).
- Animal Production in Australia Vol 4 (1962) to Vol 22 (1998)
- Journal of Range Management Vol 46 (1993) to Vol 50 (1997)
- Australian Journal Experimental Agriculture Vol 34 (1994) to Vol 37 (1997) and nos 1,2,4,5 of Vol 38.

If you would like any of these publications please send your requests to Allan either by phone/fax (03 5882 3338), email (adwilson@deni.net.au) or post ("Cal Col", Deniliquin, NSW, 2710). Allan says that institutions might have preference over individuals, but otherwise they are available free to the first request.

Past Issues of the Range Management Newsletter

Eric Anderson is kindly donating his collection of Range Management Newsletters to an interested reader. The collection contains issues dating back to 1976.

If you are interested in providing a new home for the collection, please contact Steven Bray at the Tropical Beef Centre in Rockhampton. He can be contacted by phone (07 4923 8171), fax (07 4923 8222) or email (brays@dpi.qld.gov.au)

INFORMATION SNIPPETS

Land and Water Australia Conference Sponsorship Program

Land and Water Australia (formerly LWRRDC) invites applications for sponsorship of conferences, workshops and seminars. L&WA is allocating approximately \$50,000 for the period 2001 to 2002 distributed across about five to eight major events. It will consider applications for conferences/workshops/seminars, focused on knowledge exchange among diverse stakeholders in natural resource management, which address:

- Primary industries and contemporary issues,
- River landscapes,
- Native vegetation, and
- Productive future landscapes.

They also support conferences/workshops/seminars which seek to describe the relationship between human societies and the world around us: how we perceive and value our landscapes; how we learn about and understand our landscapes; how we interact with and manage our landscapes; and how we organise policies, structures and institutions at a societal level.

Applications are considered twice yearly. Applications for events January to June 2002 close on 30 October 2001. L&WA will accept facsimiles and electronically transmitted applications.

Further details are available on the LWA website at http://www.lwrrdc.gov.au/html/advertisements/advertisements.htm#LWRRDC_Conference_Sponsorship_Program or contact Christine Ellis on phone (02) 6263 6012, fax (02) 6257 3420 or email christine.ellis@lwa.gov.au.

2001 Fire and Land Management Issues Conference

The 2001 Fire & Land Management Conference conference will be held at the Gagudju Crocodile Hotel, Jabiru, Kakadu National Park Northern Territory from 28-31 May 2001.

Registration will be from 11 am-1 pm on the 28 May with the Opening session from 2-5 pm. Conference sessions will include field-based presentations on day-to-day fire and land management issues and conflicts.

Hot issues to be discussed include:

- traditional burning,
- fire ecology,
- fire management,
- wildfire behaviour,
- interface between urban and range lands,
- burning for specific purposes (pastoral, conservation, etc), and
- the latest fire research!!!

Guest speakers will include traditional Aboriginal land owners, Top End pastoralists, park rangers, scientists, fire

specialists and educators. Everyone who is interested in or involved in tropical land management is welcome to attend.

For more information, please contact Helen Spiers - ph (08) 8979 2257, fax (08) 8979 2645 or email hspiers@ntu.edu.au. Details are available at the website <http://www.ntu.edu.au/pvcveti/regional/jconfer.html>.

Fenner Conference on Nature Tourism and the Environment

When: This conference will be held in Canberra from 3-6 September 2001.

Theme: Policy instruments for the management of tourism in National Parks, World Heritage and other land tenures, based on scientific study of outcomes from existing tourism activity and management tools.

This conference is significant for anyone with an interest in policies governing tourism in parks and other public lands, and nature tourism more generally. For more information contact Karen Sullivan on phone (07) 55528677, fax (07) 55528895 or email K.Sullivan@mailbox.gu.edu.au.

Geospatial Information & Agriculture Conference

This conference will be held from 17-19 July 2001, Australian Technology Park, Eveleigh, Sydney.

The conference aims to provide leading edge reports on the improvement of agricultural and associated land management decisions that result from using information delivered by geospatial technologies to assist in, for example:

- precision agriculture
- remote sensing and geographic information systems (GIS)
- finding the best location for new enterprises
- predicting potential threats from new pests & diseases.

For more information please contact the Conference Secretariat on phone (02) 9262 2277, fax (02) 9262 2323 or email gia2001@tourhosts.com.au, or visit the website at <http://www.giaconference.com>.

Kimberley Fire Project Website

The NHT-funded Kimberley Regional Fire Project now has a website at <http://www.kimberley-fire-project.com>. This project is directed by a community based management committee who represent the diverse range of peoples, organisations and government agencies who live and work in the Kimberley.

At the website you can find some spectacular pictures as well as information on the aims of the project which are:

- working with people of the Kimberley to document and demonstrate good fire management practices for the pastoral industry, aboriginal communities and biodiversity
- communicating effectively to the people of the Kimberley about best practise fire management for the different land uses and different types of country
- work with Aboriginal traditional owners to record traditional knowledge about fire management
- using demonstration sites, document the consequences of the current fire regime on land health including biodiversity and how this relates to "patchiness"
- developing a fire history for the Kimberley region
- assessing the accuracy of the fire affected area (FAA) data mapped from satellite imagery
- assessing biomass fuel accumulation for different vegetation types (3rd year)
- assessing the practical applications of current State legislation and regulations to fire management requirements in the Kimberley.

NEW MEMBERS

Michael Jefferey
DPI
PO Box 282
CHARLEVILLE QLD 4470

Stuart Mitchell
"Cashel Vale"
BOLLON QLD 4488

Water Resources Library
Dep't Natural Resources
GPO Box 2454
BRISBANE QLD 4001

Mitchell Furness
2 Lochel St
TOOWOOMBA QLD 4350

Greg Brennan
Agriculture WA
PO Box 417
KALGOORLIE WA 6430

WHAT HAS FASTS BEEN UP TO?

Toss Gascoigne and Sue Serjeantson, Federation of Australian Scientific and Technological Societies, PO Box 218, Deakin West ACT 2600

(Ed. - ARS members may not be aware that the Society has been a member of the Federation of Australian Scientific and Technological Societies for several years.)

The Prime Minister's recently released Innovation Statement brings \$2.9 billion dollars into the science and research sector. FASTS has played a very active role in creating the political climate in which the Statement was made. We called for a mini-Budget response to science funding in May last year and the Innovation Statement was released in January - out of the normal Budget cycle. We constantly raised issues and publicised the benefits of increasing the national investment in science and technology.

Subscriptions from members have allowed FASTS to:

- coordinate "Science meets Parliament" Day
- discuss science and technology in the media
- raise policy issues at the Prime Minister's Science Council
- run forums at the National Press Club
- respond to inquiries and Parliamentary Committees

Sue Serjeantson President's Report - FASTS Board Meeting, February 23, 2001

Science and technology have come to the forefront of the national agenda for the first time in more than a decade. Recognition of the pivotal role of innovation in the nation's prosperity has come late, but is no less welcome for that.

The Prime-Minister's Innovation Action Plan will boost the nation's investment in research by three billion dollars over the next five years. By the fifth year, the investment will be an extra one billion dollars per year. As the Prime-Minister said, this is an important 'first step' in Backing Australia's Ability.

There is a sea-change in recognition that intellectual capital is at least as important as labour and capital in ensuring the social, economic and environmental well-being of the nation. Admittedly, Australia has come to this realisation a little later than some other countries, but we have not missed the bus. There are fleets of buses leaving, and we want to drive them! This is the message we gave to the Prime-Minister's Science, Engineering and Innovation Council.

The Innovation Action Plan would not have been possible without the work of FASTS' member societies. The unified voice of scientists and technologists, together with those of business, have been critical in ensuring the implementation of the Chief Scientist's recommendations. Of Robin Batterham's 20 recommendations, 18 have been adopted, and the other two implemented in a modified

form. The Batterham report strongly reflected FASTS proposals, as the attached table shows.

We should not under-estimate the impact of 180 scientists from across the country converging on federal parliament last November, delivering the Batterham report. This has helped make investment in science and technology a non-partisan affair, even in (or should I say, especially in) an election year. Your support for the FASTS' Science Meets Parliament Day was critical in getting the message across the line.

The Innovation Action Plan is about more than research dollars. It is about Australia's value system. It is about valuing our scientists and technologists. Status took a heavy knock after the Dawkins' reforms, and in the following years when our universities and research institutions were under-valued. This situation is being reversed. There is a ground-swell of realisation in the community that we must value and reward our intellectual capital. You have helped bring about this sea-change.

When Robin Williams asked the PM on the Science Show what factors had led to his 'conversion' to science and technology, he replied that the presentations to the Prime-Minister's Science, Engineering and Innovation Council had been important. He said that the positive response to the Government's increase in research funds for the National Medical Research Council (NHMRC) had been another important factor. Some FASTS' member societies have sent a positive note to the PM, noting the 'important first step' that has been taken by the Commonwealth Government.

We need the continued support of our member societies for the Innovation Action Plan, to ramp it up and top it up! Michael Lee, Shadow Minister for Education, committed to this last Friday 16 at the Go8 Forum.

The PM will Chair the Implementation Committee for the Innovation Action Plan. This is extremely important, because it means that the Government means business and is not engaged in a 'smoke and mirrors' exercise. FASTS will keep a close watch on this, to maintain a sense of urgency in investment in R&D and to ensure early development of guidelines for the various programs.

Lessons must be learned from implementation of the "doubling" of funds for the NHMRC, announced in May 1999. As the first step in "doubling" the funds, the Commonwealth Government announced enhanced investment of ten million dollars in medical genomics in the 1999 budget. It was not until March 2000 that NHMRC announced its Medical Genomics Program and called for expressions of interest for projects that would help build Australia's biotechnology base, through large-scale DNA sequencing projects. Successful applicants were advised this month!

The pace of technological change is frenetic and international competition will not wait for us to sit in peer review committees for two years in order to distribute ten million dollars! FASTS will be working for rapid implementation of the Innovation Action Plan.

FASTS tries to maintain a careful balance between bleating from the sidelines and being in the mainstream of science policy development. Our membership of the Prime-Minister's Science Engineering and Innovation Council is part of this. Our Executive Director, Toss Gascoigne, ably assisted by Robyn Easton, works hard to ensure we punch above our weight. But nothing could be achieved without the input of volunteers, including Ken Baldwin as Chair of FASTS' Policy Committee, our two Vice-Presidents, Jan Thomas and David Denham, members of the Board, and the Presidents of our member societies.

This year FASTS will be focused on implement the Innovation Action Plan, on how to ramp it up and top it up, and on ensuring this becomes a non-partisan issue that stays on the agenda through any changes in Government over the next five years.

The community, and the Government, has sent a strong message to us that our scientists and technologists are valued. We shall continue, through FASTS, to promote respect for the achievements of our member scientists and technologists.

Comparing FASTS, Batterham and the Innovation Statement

The table below compares FASTS' "Billion Dollar" list with the recommendations in Batterham's "A Chance to Change" report (Nov 2000), and the final figures in the Innovation Statement (January 2001). The recommendations in the Batterham report add up to about 75 per cent of what FASTS recommended. Expenditure in the Innovation Statement is about 58 per cent of what FASTS recommended in its total package. This proportion rises to 76 per cent, when measured against the issues in the FASTS package the Government chose to address (\$2.9 billion of the \$3.8 billion we recommended).

Table 1 Comparison of suggested funding from FASTS' "Billion Dollar" list, recommendations by Batterham and the final figures in the Innovation Statement. All figures in \$millions.

	FASTS (April 2000)	Batterham (November 2000)	Innovation Statement (January 2001)
Double funds to the ARC large grants	500	660	736.4 ^{*4}
Improve laboratories and libraries in universities	500	275	583 ^{*5}
New scheme for major national research facilities	300	400	155
Retraining, HECS relief for science and maths teachers	100	264	130 ^{*6}
Assist libraries with electronic subscriptions to journals	50	5	
Measures to stimulate careers for younger scientists	250	38.6	Yes (in ARC)
Tax credits to stimulate innovative companies	1,250	Uncosted	128
Additional funding for the CRC Program	250	150	227
Priority environmental projects	200		^{*1}
Boost funding to science agencies (CSIRO, AIMS, etc)	350	^{*2}	Indirectly
New commercialisation stimulants	100	175	775 ^{*7}
Increase funding to awareness programs, specially industry	100	^{*3}	
University salary levels for NHMRC and ARC fellowships	50	No	Partly thru' ARC
Overdue university salary increases (scientists' share)	1,000	nil	nil

^{*1} funded through other initiatives eg salinity

^{*2} no direct dollars except access to ARC grants, new funds for CRC, commercialisation

^{*3} affected by (2) above

^{*4} includes doubling ARC project grants, Federation Fellowships, doubling ARC postdocs, improving ARC salaries and establishing centres of excellence in biotechnology and IT

^{*5} includes infrastructure and expanded Research Infrastructure Block Grants

^{*6} re-badged as fostering S&T skills in schools

^{*7} includes expanded R&D Start and COMET, Innovation Access Program, Pre-Seed Fund and New Industries Development program

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 2001

☐ Charge my Mastercard VISA Bankcard AU\$.....for full/part* membership for an individual/student/institution* for the calendar year 2001

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 2001 membership rates include Airmail for all overseas subscribers.

For Office Use Only:

Membership Number

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Date Ratified by Council

