



The Australian Rangeland Society

RANGE MANAGEMENT NEWSLETTER
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Range Management Newsletter

Official newsletter of the Australian Rangeland Society

Editor - Dr T. Fatchen, Roseworthy Agricultural

College, Roseworthy, S.A. 5371

No. 78/3 September 1978.

EDITORIAL

The name of the game is communication. Your Society exists firstly "to develop communication between all those involved with rangelands". While the Journal provides a place for more formal information, the Newsletter gives you a vehicle not only for exchange of news but also for debate and the floating of ideas. What's more, you get it four times a year.

I write this because I am a little bemused by the lack of incoming contributions for this issue - hence its lean and hungry look. This is not for want of issues to write about: Bill Bolton Smith's contributions in the last RMN alone should have been sufficient to prompt a rash of comment, yet there are far more equally important and controversial subjects needing an airing. Without discussion, we will be no better off than before, with the grazier sitting in his box, the scientist in his, the administrator in his and so on. (More about this in the notes on the 1979 conference.) So please, put pen to paper, send in your ideas or experiences, even throw a brickbat or two, and use your Newsletter not just as a quarterly notice-board but also as a forum for opinion and discussion.

Many thanks to Bill Burrows for his work as past editor: I hope I can maintain his standards. No changes are proposed in the direction and makeup of the Newsletter, as the "formula" has been proven successful. But for it to remain so, I need your support. RMN is the basic glue which holds our very dispersed society together, but the glue needs constant application. Contributions, please.

TIM FATCHEN

Editor

Deadline:

Copy for the next issue of the Newsletter is required by 30th November, 1978.

MAY 1979 CONFERENCE AND A.G.M. - SOUTH AUSTRALIA

Do not be deterred by the due date given in the June Newsletter for notification of intention to attend - some members probably did not receive their RMN before it! If you intend coming but haven't sent the tear-off slip in, please do so. Details in the June issue.

A little more about the proposed organization. The organizing committee discussed various ways of running the conference, particularly in the light of comments following the Broken Hill conference. Two-tiered sessions (one for scientists, one for graziers) were considered but were decided against for fear of ending up with two sub-societies. The committee feels that the interaction between grazer and scientist and administrator as occurred at Broken Hill can only rebound for the good of the rangelands in the end, even if some hackles are raised and some toes trodden on in the meantime; and accordingly wishes to further this interaction by keeping the groups together.

These good intentions will, alas, come to naught if graziers do not submit papers for the conference. The committee has notices of intent from a growing number of scientists, but no graziers. Clearly the conference will only fill part of its purpose if the scientists alone contribute to the "word".

All papers submitted will be pre-published in the working volume, which will be mailed to all registered people before the conference. A selection committee will review contributions and select speakers. (see June RMN). Because of the printing lag and the posting out of volumes before the conference, papers should be submitted in full by 15th December 1978. They do not need to be typed, only legible.

From the current steady flow of intentions, a good roll-up is predicted, and it appears that both tours will be on. More details in the next RMN.

Remember:

- (1) If you intend to go to the conference, whether firmly or tentatively, but haven't yet notified the committee, post in the tear off slip in the June RMN.
- (2) If you wish to submit a paper, please notify, but in any case, send the paper in full by 15th December 1978. (N.B. If you can't make it to the conference, you can still make your voice heard by submitting a paper.)

Notices of intent and papers to:

Dr R.C. Stefanson
Roseworthy Agricultural College,
ROSEWORTHY, S.A. 5371.

RANGELAND JOURNAL

All members should have the second issue of the Journal in their hands by now. The Editorial Committee would be very interested to receive any comments or criticisms about this issue, particularly from the grazer members.

In response to comments made at the Broken Hill meeting in 1977, application abstracts have been included in an attempt to indicate how the results described in research papers could be applied in practice. We would welcome comments from members on the usefulness of these application abstracts either in the form of a contribution to the newsletter or as a letter to the Chairman of the Editorial Committee. Our aim is to produce a journal relevant to the membership of the Society. However, we are limited by the manuscripts we receive and by our knowledge of the reactions of the membership to our efforts.

We are at present seeking summaries of Ph.D. and Master's theses relevant to rangeland science for the next issue of the Journal. If any members have had theses recently accepted, or if they know of any, please let us know. The Rangeland Journal will only accept summaries which have not been published elsewhere.

Send comments and summaries:

R.D.B. Whalley,
Chairman, Editorial Committee,
Department of Botany,
University of New England,
ARMIDALE, 2351.

BROKEN HILL BRANCH OF THE AUSTRALIAN RANGELAND SOCIETY

The Broken Hill branch of the Australian Rangeland Society held its first Annual General Meeting on July 7th 1978. The meeting was attended by approximately 70 people, there being 40 men, women and children representing the grazing industry and 30 representatives of various government departments, the University of New South Wales and the Department of Technical Education.

Guest speakers in the morning were Professor J. Mabbutt, who spoke on desertification, and Associate-Professor J. Kennedy who discussed the future of sheep research in the arid zone.

Professor Mabbutt related desertification to the West Darling country, citing historical records, decline in carrying capacity, differences in range condition on comparable landscapes, and lack of regeneration of shrub and tree communities as evidence that some degree of desertification has taken place. He went on to discuss methods of management which would help to combat the process of desertification.

Professor Kennedy suggested that there were several areas of future research which may possibly help increase efficiency and decrease costs of the grazing industry. His suggestions included larger flock sizes, rotational grazing, pasture supplementation and the increased export of live sheep.

In the afternoon the meeting discussed various topics of general business and elected office-bearers for the following year. Those elected were

President - Mr W. Bolton Smith, "Willangee".
Vice-President - Mr P. McClure, "Pimpara Lake",
Secretary/Treasurer- Mr R. Stanley, Soil Conservation Service, and
committeemen Mr J. Hughes "Kars" and Mr S. Gray, Fowlers Gap.

Mr A.S. Barlow, Supervisor of the Wild Dog Destruction Board, wound up the meeting with an extremely interesting and detailed description of the aims, history, administration and functioning of the Board. He quoted examples of sheep losses caused by wild dogs, and related many of the problems faced in maintaining the dog fence. The talk was well supported by an excellent home movie produced and narrated by W. Bolton Smith.

The next branch function will be a field day covering all current knowledge of the use of saltbush pastures. (Details elsewhere in the Newsletter.)

Further details of the talks may be obtained by contacting the secretary. Limited copies of Professor Mabbutt's talk are available and a transcript of Mr Barlow's talk is being prepared.

FIELD DAY - SCRUB CONTROL

UPPER DARLING SUB-BRANCH

The sub-branch is sponsoring an open day at the C.S.I.R.O. experimental area "Oakvale", Coolabah, on Wednesday 4th October 1978. "Oakvale" is representative of the scrub infested Cobar/Byrock penneplain and a team led by Dr Graham Harrington ("Hairy Panic") of the Riverina Laboratory has been investigating the biology of the area with a view towards providing land use recommendations.

Little unequivocal advice can yet be given to landusers, but the field day will provide an excellent opportunity for graziers, extension people and researchers to inspect and discuss progress in scrub control.

Further information from:

Doug Campbell
District Agronomist,
Dept. of Agriculture,
BOURKE, N.S.W. 2840

FIELD DAY - SALTBUSH

BROKEN HILL SUB-BRANCH

Graziers: If you - have any saltbush on your property
- want to find out what C.S.I.R.O. researchers know about saltbush country.
- more importantly, tell C.S.I.R.O. researchers what you know about saltbush country

come to the Saltbush field day sponsored by the Broken Hill sub-branch.

When: Thursday 12th October 1978

Where: "Graetz River Downs" - C.S.I.R.O. grazing trial on Mundi Mundi Station (est. Dr Dean Graetz).

Why: So that graziers and research workers can exchange ideas, facts and feelings about saltbush country management.

Programme: Will look at the importance of saltbush to the grazing industry; saltbush on the Mundi Mundi plain; diet and performance of sheep and cattle on saltbush country; general aspects of properties in the West Darling.

Will be practical; include displays and demonstrations using sheep and cattle from the Graetz River Downs trial; and allow plenty of time for discussion and argument.

Will introduce the Pastoralist Game with a special saltbush version (!) provided Malcolm Fraser comes good with money for a new C.S.I.R.O. computer.

Transport: Meet at Silverton, 9. am and travel in convoy.

Tucker: Bring your own lunch. Morning and afternoon tea will be provided. A "happy hour" with BBQ will be on for stayers at the end of the day (a small charge will be made).

The elements: If the field day has to be postponed due to rain an announcement will be made on "Morning Diary" on 2NB at approximately 7.30 am CST.

Enquiries: Roger Stanley
c/- Soil Conservation Service,
Argent House,
BROKEN HILL N.S.W. 2880
(tel. 3003)

South Australian note: you will not be turned away at the border gate:

14TH INTERNATIONAL GRASSLAND CONFERENCE

The 14th International Grassland Congress is planned for mid-June 1981 at the University of Kentucky, Lexington, U.S.A. Currently, preparatory arrangements are being made by the American Forage and Grassland Council, 121 Dantzler Court, Lexington, Kentucky, 40503; (Dr W.K. Griffith). Contributions are invited.

The I.G.C. Continuing Committee is also interested in receiving suggestions concerning the venue of the 15th Congress, 1984. Suggestions to and further information from the Australian and N.Z. representative:

Dr L.R. Humphreys,
Department of Agriculture,
University of Queensland,
ST. LUCIA, QLD. 4067

THE AUSTRALIAN RANGELAND SOCIETY

FINANCIAL STATEMENTS FOR THE YEAR ENDED 31st DECEMBER 1977
Audited by Favaloro, May and Associates.

Income and expenditure statement

INCOME			
Subscriptions	4772.88		
Journal Subscriptions	347.36		
Proceeds Broken Hill Conference	91.99		
US/Aust.	4.00		
N/L Subscriptions	<u>16.00</u>	5232.23	
LESS EXPENDITURE			
Audit Fees	35.00		
Bank Charges	23.44		
Postage	293.56		
Printing and Stationery	499.42		
Aust. Rangeland Society - Publication account	<u>1750.00</u>	2601.42	
Surplus for year transferred to Accumulated Funds			<u>2630.81</u>

Balance sheet

Accumulated Funds		
Balance as at 1st January 1977	2217.40	
Add surplus for year ended 31st December 1977	<u>2630.81</u>	
Balance as at 31st December 1977		<u>4848.21</u>
These funds are represented by:		
CURRENT ASSETS		
Cash on hand, Bank of N.S.W., Deniliquin	3332.35	
Society for Range Management - Shipping fees	165.86	
150 copies of 2nd US/Aust. Proc.	<u>750.00</u>	
	915.86	
Stock on hand - 2nd US/Aust. Proc.	<u>600.00</u>	
	<u>1515.86</u>	
		<u>4848.21</u>

Publication account income and expenditure

INCOME		
Transfer from A.R.S. a/c	1750.00	
Newsletter subscriptions	4.00	
Interest	8.45	
2nd US/Aust. Proceedings	1802.00	
Journals	194.23	
3rd US/Aust. Proceedings	<u>8.00</u>	
		<u>3766.68</u>
EXPENDITURE		
2nd US/Aust.	1924.06	
Newsletters	260.41	
Cheque book	4.00	
Duty Stamps	12.00	
Balance as at 31st December, 1977	<u>1566.21</u>	
		<u>3766.68</u>

(Although this paints a rather rosy picture of Society finances, there are still a number of unpaid subscriptions for this year. Your assistance in forwarding any back dues to the Treasurer would be appreciated - Ed.)

KANGAROOS IN WESTERN NEW SOUTH WALES

From: Geoff Rodda, Nagaella Station, Broken Hill N.S.W. 2880

I read with interest all Bill Bolton Smith writes in the June Newsletter and agree with his conclusions.

The "Controlled Management Scheme" of the NSW National Parks and Wildlife Service and the tie up of Royalty Fees and Permits for properties seems rather ludicrous when there are literally millions of Red and Grey Kangaroos in the Western Division alone. In fact I can see a big "Risk" factor looming with this act up in the long term. The present system of Royalties at 30 cents per head and other shooting costs on a small return (13 cents per Kg) makes sure that only the biggest and best roos are taken - surely a way of upsetting the population - and in sheep terms almost the equivalent of a grazier shooting his best rams and leaving long tailed lambs and stags to do the breeding with a certain disastrous effect in future generations.

What had been a potentially good export earner in the late 1960's and early 1970's (and undoubtedly would still have been if not for Government interference) has been relegated to an Industry battling to survive. Ironically the Government - admittedly of another political persuasion - is now attempting to have the United States lift the Kangaroo from the "endangered species" list.

As Bill says, with a No Stock situation the feed very soon becomes rank and the roos will then leave the Parks (as they have also done in the recent drought) and graze on the shorter sweeter feed on adjoining properties - to the detriment of the stock and the owners of those properties. In hindsight I wonder if the National Parks and Wildlife Service has ever considered lightly stocking their Parks, a situation which surely would:

1. Make the place at least self-sufficient and less of a drain on the Public purse.
2. Pad and improve water catchment areas around dams - which without stocking would surely deteriorate and would probably have to be burnt especially in good years to ensure "run off".
3. Create employment in isolated Rural areas.
4. Tend to use existing facilities such as woolsheds yards and fences that are now costing the taxpayer money to maintain or being pulled down.

PITTING AND CONTOUR RIPPING ARE WORTHWHILE

From: K.D. Afford, Eringa Park Station, Olary, S.A.5440

I am concerned that the comment by Brian Clarke concerning pitting and furrowing as aids to regeneration not be taken too literally:

"Except in special cases these techniques are not worthwhile due to the considerable amount of time and money required, and because the results are well below peak efficiency."

RMN 78/2:p10

I do not believe we can afford to adopt a casual or contemptuous attitude to mechanical attempts at regeneration.

The cost and time factors become more and more a source of concern, but should not be reason to give up trying. Immediate results may be disappointing or non-evident, and work may have to be repeated. Failure may be experienced in areas where there is no immediate seed source; for climatic reasons e.g. rain immediately after ploughing consolidating the soil, or extended drought; or through overstocking.

However, I have seen the regeneration of areas ripped in 1945 which were still bare in 1967 - twenty-two years and the areas still bare! After the rare spate of seasons 1967-73, these were the first areas to regenerate and very clear evidence of the old rip marks is provided by the prolific lines of bushes. A long but worthwhile wait.

In the long term good results can be achieved if the following guidelines are adhered to:

- (1) Pit or contour furrow in winter and early spring when seasonal rainfall is least likely. Spring equinox winds can spread seed, humus and even soil to prepared ground.
- (2) Avoid doing too large an area, and only work out from a seed source.
- (3) Keep pits or rips about a chain apart. This covers larger areas and filling in can be done as regeneration commences.
- (4) Destroy all rabbit warrens in the area. The importance of this cannot be emphasised too strongly.
- (5) Stock lightly.
- (6) Avoid areas naturally traversed by stock, e.g. corners from which prevailing winds blow and hill tops on which sheep camp. There have to be some sacrifice areas and these can only be lessened by fencing and water reticulation.
- (7) Be prepared to redo areas that may be scalded by heavy rain.

Continual endeavour will bring worthwhile results.

(Editor's note: can anyone supply cost/benefit figures for mechanical regeneration?)

STOCKING ADJUSTMENTS IN DROUGHT AT FOWLERS GAP

From: S.J. Gray and R. Taylor, Fowlers Gap Research Station via Broken Hill N.S.W. 2880

This letter details adjustments in sheep numbers in one paddock on Fowlers Gap Arid Zone Research Station during a recent drought.

Fowlers Gap is situated 110 km north of Broken Hill, and comprises 39,000 ha of low, woody and open country representative of the shrub-steppe of southern arid Australia. The station water supply is well developed and includes seven surface tanks (136,000 m³ total capacity), two dams (467,000 m³) and three bores.

In shrublands, with the insidious onset of drought, decisions about de-stocking are made progressively. These decisions are often based on availability of water rather than feed. At Fowlers Gap, this situation is complicated in that more than half of the sheep are involved in experiments, most of which are long term and involve testing management alternatives; hence we were eager to continue them into the full grips of a drought.

During the last five years at Fowlers Gap, rainfall has varied from the maximum recorded in the district (1974 - 628 mm) to one of the lowest (1977 - 63mm), which was only lower in 1940 (44 mm) and 1922 (50mm). Rainfall from March, 1976 until April, 1978, was 151 mm (Table 1), and in this period there was no run-off into surface catchments. The situation was typical of that experienced generally in dry times in that, as surface waters failed, mobs

of sheep were aggregated into paddocks with more reliable surface water or bore water.

TABLE 1: Rainfall at Fowlers Gap (mm) 1976-1978

Year	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
1976	81.0	119.0	0.8	1.0	0	8.6	15.4	0	6.7	33.3	7.8	0.8	275
1977	6.6	4.3	0.4	0	13.0	1.4	1.0	0.3	9.7	4.5	19.3	2.5	63
1978	4.9	0	8.3	0	50.0	58.2	27.6						

The gross sheep numbers (including lambs) at shearing over the dry period were:

April, 1976	-	8,665
April, 1977	-	7,754
April, 1978	-	4,776

The paddock under consideration (Sandstone) is 3,965 ha, and is divided into two land-systems (Mabbutt *et al.*, 1973). The Sandstone tank system, of 1,764 ha is broadly undulating stony country with bands of saltbush (*Atriplex vesicaria*) and copperburrs (*Bassia* spp.). The second land system (2,201 ha) consists of sandstone ridges with *Acacia aneura*, *Casuarina* spp. and salt-bush and copperburrs. Water supply for the paddock consists of two adjoining tanks, with a total capacity of 38,000 m³ in the northern quarter of the paddock and a bore (with saline water - 3,600 ppm salts) in the S.E. corner.

An assessment of the grazing capacity of each paddock on Fowlers Gap was carried out by the Soil Conservation Service of N.S.W. in 1968 (Milthorpe, 1973). This determination of carrying capacity takes into consideration that most country in western N.S.W., if stocked at a reasonable level, will carry sheep for approximately 12 months into a drought without experiencing permanent damage to soils and pasture. On this basis it was assessed that the grazing capacity of Sandstone paddock was 630 dry sheep equivalents (DSE's).

Details of sheep movements during the period from late 1976 to June, 1978 are given in Table 2.

TABLE 2:

Date	Sheep in	Sheep out	Total	Total DSE ¹	%DSE ± Assessed Carrying Capacity
1976	450 ewes 450 lmbs		450 ewes 450 lmbs	900	+ 43%
Dec. 1976		450 lmbs	450 ewes	450	- 28%
Jan. 1977	165 ewes		615 ewes	615	- 2%
Oct. 1977	353 lmbs		567 ewes 353 lmbs	920	+ 46%
Nov. 1977	126 ewes 81 lmbs	170 ewes 140 lmbs	523 ewes 294 lmbs	817	+ 30%
Jan. 1978	483 ewes 81 lmbs		1006 ewes 330 lmbs	1330	+ 112%
Feb. 1978		270 ewes	730 ewes 330 wnrns	977	+ 55%
Mar. 1978	Shearing & weaning		743 ewes	743	+ 139% ²
June 1978			680 ewes	680	+ 8%

¹ An ewe with lamb considered as two DSE, a weaner as 0.7 DSE

² Estimated for assessed capacity of ridge country (311 DSE)

From January to October, 1977, the stocking rate increased with lambing, raising the DSE equivalent to 46% above the assessed carrying capacity. In January, 1978, it became increasingly difficult to reticulate water to other paddocks and mobs from some of these were moved into Sandstone. For six weeks the stocking equivalent was 112% above the assessed capacity. By April, 1978, both tanks had dried up and the sheep were moved to the bore. Four weeks later, the drought broke.

The situation described may be typical of what happened in much of the West Darling region during the drought. At Fowlers Gap, Sandstone paddock was more heavily stocked than any other paddock. This enforced strategy in drought illustrates a number of issues:

- a) at a property level, one may be operating in drought within the calculated "safe average carrying capacity", but, due to the failure of certain watering points, individual paddocks may be overstocked;
- b) the overgrazing which probably occurred in the S.E. of sandstone during the month that the tanks were dry would have been exacerbated by:
 - (i) switching to relatively salty bore water;
 - (ii) high temperatures;
 - (iii) the available diet comprising almost exclusively saltbush and bluebush.

These three factors would have increased the water requirements of the sheep.

- (iv) approximately 300 feral goats (Ian McRae, pers. com.) which were watering daily at the bore. The combined demand of the sheep and goats often depleted the storage (136,000 l.) at the bore when there were periods of low wind run. Large numbers of sheep were then observed to remain close to the bore.

(i) to (iv) above combined with the bore's location in the corner of the paddock, would have decreased the effective grazing range of the sheep.

This experience has been recorded in order to highlight some of the problems which confront the rangeland manager during a period of 25 months without run-off. An obvious solution was to reduce sheep numbers and this was done in November, 1977, and February, 1978 (see Table 2). We have been reminded of how critical the longevity of surface waters is in managing shrublands during a drought.

References:

- Mabbut, J.A., Burrell, J.P., Corbett, J.R. & Sullivan, M.E. (1973). Land systems of Fowlers Gap Station. In "Lands of Fowlers Gap Station". Res.Ser.Fowlers Gap Arid Zone Res.Stn. No.3, pp.25-29.
- Milthorpe, P.L. (1973). Pasture Lands of Fowlers Gap Station. In "Lands of Fowlers Gap Station". Res.Ser.Fowlers Gap Arid Zone Res. Stn. No.3. pp.212-216