



## *The Australian Rangeland Society*

RANGE MANAGEMENT NEWSLETTER  
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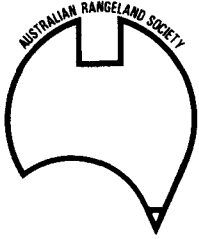
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# Range management Newsletter

No. 82/1  
February 1982

EDITORIAL

If you think that this issue of RMN is a bit more solemn than previously, then you are right. Our Editor, Barney Foran, has retired from the fray and Elle Presidente, Margaret Friedel, is putting this issue together so that you can get your 1982 subscription notices before the year is half over. Thank you Barney from the Council and the membership for your work as RMN Editor - we've had some bumper issues and plenty of good reading. Barney will soon be away on long service leave, visiting the rangelands of South Africa, Kenya, Ethiopia, Europe, Canada.... Europe? Well, he can't work right through his long service leave, can he?

And now, welcome to our next Editor, Don Burnside, who has succumbed to the thumb screws after a magnificent fight. Don is an agricultural adviser in the eastern goldfield pastoral area, based at Kalgoorlie. He will be responsible for the newsletter after this issue. His address is:

Department of Agriculture,  
P.O. Box 417,  
Kalgoorlie, W.A. 6430.  
Phone (090) 211 666.

Finally, a BIG reminder that 1982 subscriptions are due right now. Please turn to the back page for the form to accompany your payment, and make sure that our Subscriptions Secretary has your renewal by the 31st March.

## LETTERS TO THE EDITOR

From: Peter Wright, "Berrihill", Grafton Rd., Armidale, N.S.W. 2350.

As a first participant in a Rangelands Society Conference, I would like to express my gratitude for the privilege of being present, and having the opportunity of giving a paper to the Alice Springs Conference. The organisation and conduct of the Conference, not to say the diligent attention to the personal needs and comfort of delegates, was excellent, and for this thanks and congratulations are due to the many people involved in organising it.

As a producer/land user however, I was disappointed that there were so few of my category present. I assume the purpose of these conferences to be not only to provide an opportunity for the exposition of research findings, and the exchange of views, but to act as a message stick for land users, and, perhaps just as importantly, to act as a boomerang for the return of land user views on the subjects dealt with. There were numerous occasions during the conference when I felt that it would have been of advantage to have the land user's point of view on the practical application of the subjects dealt with. His view may not necessarily be right, but may be it would have ensured a more thorough exploration of the subject.

I wonder then, if for future conferences, thought might be given to encouraging greater producer representation by enlisting their active involvement in the conference? In my experience, producers are reluctant to attend such gatherings merely for interest, but they are willing to do so if they think they are to be part of it, and their contribution can be of value to all.

I wondered too, if it would have been of advantage for the conference to have endeavoured to distil some general conclusions, at least in principle, and to have transmitted these to appropriate authorities? There may be some dangers in this, but it does seem a pity that the only reports of the Conference to reach New South Wales, at least, are those of press comment on certain specific areas which came under discussion.

In conclusion, may I express the hope that the Society ensures that its unique and valuable individuality and independence is retained. I see this as one of its most important virtues.

*Ed. comment: Your suggestion that greater producer/land user representation be encouraged is endorsed 100%. How do we do it? Do any of our readers have ideas? Write to our new Editor, Don Burnside, and we will air the discussion in the next RMN.*

From: Rob Patrick, Soil Conservationist, Soil Conservation Authority,  
P.O. Box 324, Benalla, Victoria 3672. Phone (057) 62 2466.

As a Soil Conservationist with the Soil Conservation Authority, part of my duties involves the supervision of grazing in the Victorian Alps. In June 1979 the Land Conservation Council made final recommendations on the Alpine Study Area. These recommendations were subsequently accepted by the Victorian Government. One of the recommendations involved the creation of the Bogong National Park which is due for declaration during October 1981. This 79 000 ha park is to be used to:-

- (i) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments,
- (ii) conserve and protect natural ecosystems,
- (iii) supply water and protect catchments and streams.

In addition, grazing of cattle will remain a legitimate use for part of the park. However, eight runholders will be wholly or partly affected in that 1,130 cattle are to be displaced from the northern end of the park in 1991. Termination of grazing in this latter area is being carried out in order that the desires of other land users can be accommodated. Understandably, the cattlemen affected are keen to have at least part of their herds relocated elsewhere on the Bogong High Plains.

Herein lies the problem. The SCA have the job to survey all available grazing areas as to their potential carrying capacity and recommend a future grazing strategy. It is difficult to see how the total number of cattle presently utilizing this area can be increased. However, it is our task to objectively assess the situation. We have at our disposal technical support information, such as vegetation mapping, and considerable experience in the use of the area over the past twenty-five years. As well, a University postgraduate student is currently undertaking studies into the "Diet and behaviour of free-ranging cattle on the Bogong High Plains". This project may yield information as to preferred transit routes; preferred diet; preferred watering points; seasonal variations in plant communities subject to grazing and so on.

It would appear as though the problem should be easily solved. However, as many past decisions have been made on experience alone, I feel there is a need to undertake this task using an objective methodology - a land capability approach if you like. Despite the fact that experiences of your members in range management are mostly confined to arid or semi-arid situations I am sure you may have valuable suggestions to make on methodologies.

*Ed. comment: Can anyone assist? Please write direct to Rob Patrick.*

## ANNUAL GENERAL MEETING

The A.G.M. will be held on Friday 29th May at 1.30 pm at:

Conference Room,  
CSIRO Central Australian Laboratory,  
Alice Springs, N.T.

The Council will continue to be based in the Northern Territory unless nominations for positions are received. Past practice suggests a two-year term is likely! The present Council is happy to remain in control for a second year but then it will be Western Australia's turn. Consequently, we need a W.A. Vice-President, who will learn the ropes while Council is still based in the N.T. (assuming it is), and who will become President when the Council moves to W.A. As our constitution presently stands, nominations must be in by 15th April. If you need a nomination form, write to:

Mr. Ken Shaw,  
Secretary, A.R.S.,  
C/- Dept. of Primary Production,  
P.O. Box 2134,  
Alice Springs, N.T. 5750.

A major agenda item will be the alteration of the constitution. At a special meeting of members during the A.R.S. Conference in Alice Springs last September, proposed amendments were considered and approved, although the meeting did not have the power to make the formal alterations. Amendments related to categories of membership, extending Council's term of office from one to two years, the Journal's correct title, and dates for notification etc. of Society business. Modifications suggested at the meeting in September have been incorporated in the proposed amendments.

## SECOND INTERNATIONAL RANGELANDS CONGRESS

As you will already be aware (RMN 81/4), a committee chaired by Ray Perry (Chief of CSIRO Division of Land Resources Management, Perth) has been formed to organise the Second International Rangeland Congress.

The Congress will be held at Adelaide University May 13-18, 1984. A program has been established and tentative arrangements made for pre and post conference tours. Information about the Congress is contained in a circular available from the 2nd IRC Secretary, CSIRO, Deniliquin N.S.W. 2710. If you have not received a copy of the circular in this issue of RMN, and would like to be placed on the mailing list for Congress circulars, please write to the Secretary.

## DO WE NEED TO MEET LIKE THIS SO OFTEN?

From: Bill Low, Vice President.

Debate arose during a recent ARS council meeting about the need for a Biennial Conference in 1983. Do we have too many meetings scheduled for the next four years? In May 1982 the Australian Conservation Foundation will host an Arid Lands Conference in Broken Hill aimed at examining and commenting on sections of the draft National Conservation Strategy for arid lands. In 1983, the 4th A.R.S. Biennial Conference is scheduled. In May 1984 the International Rangelands Congress will be held in Adelaide. In 1985 the 5th A.R.S. Conference is anticipated. Does this full programme seem like an overkill?

The case for retaining the biennial conference in 1983 and 1985 rests on maintaining contact between members and maintaining awareness of each other's activities. Even though the A.C.F. and I.R.C. Continuing Committee have scheduled meetings which most A.R.S.ers will attend, there still exists a need for rangelanders to get together by themselves to renew contacts and stimulate parochial endeavours.

There are a number of possibilities for a meeting in 1983. The Charleville group has offered to put on a workshop-type meeting in 1983. With the A.R.S. executive shift to W.A. in 1983, it would be their turn to host or organise a biennial conference. Another possibility is that each State host its own regional mini-conference in 1983. So it seems there is no shortage of opportunity for a meeting.

What about the financial aspect? Are most people saving their grants and allocations for a trip to Adelaide in 1984, or does the Nation have so much money that we can afford to go anywhere anytime, including Charleville or W.A. in 1983?

Equally importantly, what about interest and quality of input? Is everyone saving their best paper for Adelaide in 1984, with the result that the 1983 conference would be a second rate performance?

Council is split in its opinion and because we feel it is such an important issue, we want input from members around Australia to resolve the issue. Decision needs to be made by the time of the A.G.M. in May, so please fill in the form attached to your renewal application in this Newsletter and return immediately.

## NEWS AND VIEWS

### 1. National Conservation Strategy for Australia.

Dr. G.R. Wilson has written to the Council regarding the National Conservation Strategy, asking for our assistance. The Strategy program is being supported by the Department of Home Affairs and Environment.

Here is part of Dr. Wilson's letter:

"The development of a National Conservation Strategy is one of the major recommendations of the World Conservation Strategy which was launched in Australia and other countries around the world, in March 1980. The World Conservation Strategy, a co-operative effort of three world organisations - the International Union for Conservation of Nature and Natural Resources (IUCN), the United Nations Environment Program (UNEP) and the World Wildlife Fund (WWF) - provides both reasons and practical guidance for conservation actions necessary to ensure Earth's continuing capacity to sustain development while supporting life in all its variety.

"The aim of the National Conservation Strategy, the principle of which has been endorsed by the Commonwealth, State and Northern Territory Governments, is to help Australia achieve a sustainable level of development through the conservation of our living resources.

"As the first stage in the development of the Strategy a wide group of experts and authorities - or lead writers - prepared a series of draft papers for a Sourcebook on subjects, such as agriculture, forestry, industry, legislation, economic measures, and so on. These were then considered by a National Seminar held in Canberra in December 1981. Seminar participants included a broad cross-section of the Australian community - departments and agencies, governments, conservationists, industry and commerce, academia and other scientists and trade unions were amongst the groups invited to be represented.

"The Seminar also drew together a draft Synthesis or summary document. The draft Synthesis identifies priorities and deficiencies and develops guidelines to integrate conservation and development activities.

"During 1982 the revised draft Sourcebook and the draft Synthesis will be made available for public comment as a document "Towards a National Conservation Strategy".

"The final stage of the development of the Strategy will be a National Conference to be held towards the end of 1982. At it a draft Strategy, now taking account of comment received during the public review process, will be finalised, plans of action formulated and priority measures identified to enable Strategy objectives to be implemented. In early 1983 the National Conservation Strategy for Australia will be considered by the Commonwealth, State and Northern Territory governments with a view to its endorsement. It is hoped that the Strategy will also be endorsed by corporations, organisations and individuals."

Council is taking action at a formal level and a number of members are assisting as private individuals or in their professional capacities. As mentioned in the last RMN (81/4), Owen Williams (CSIRO Division of Land Use Research) has agreed to act as Chairman of a sub-committee, to prepare submissions to enquiries on rangeland matters. He has already agreed to act on our behalf, in preparing a submission regarding the Strategy, which will be presented to the A.G.M. in May.

Several members participated in the December Seminar (see above) and others will be speaking at the Australian Conservation Foundation's Conference "Focus on Australia's Arid Lands" in May (see below).

2. "Focus on Australia's Arid Lands".

A Conference of the above title is being organised by the Australian Conservation Foundation, to be held in Broken Hill on 21-25 May 1982. There will be sessions on: status of the arid zone ecosystem, current land use and cultural environment, factors affecting the use of the land and its resources, and future land-use trends and possibilities. These will be followed by workshops on alternative futures and strategies, and a plenary session on the National Conservation Strategy and the arid zone.

For further information write to:

Dr. Geoff Mosley,  
Australian Conservation Foundation,  
672b Glenferrie Road,  
Hawthorn, Victoria 3122.

3. Other correspondence

The Council has received material from various sources, including:

a) United Nations Environment Programme, regarding the Session of Special Character, to mark the tenth anniversary of the Stockholm Conference on the Human Environment. The event will be held in Nairobi in May.

b) Australian Conservation Foundation, regarding southwest Tasmania.

c) Tasmanian Wilderness Society, regarding southwest Tasmania.

If members would like more information, they can write to:

Mr. Ken Shaw,  
Secretary, Australian Rangeland Society,  
Dept. of Primary Production,  
P.O. Box 2134,  
ALICE SPRINGS, N.T. 5750



## AVOIDING CRISIS MANAGEMENT

By: D.G. Burnside & D.G. Wilcox,  
Dept. Agriculture,  
Jarrah Road,  
South Perth, W.A. 6151.

### "SANDGROPPERS HAVE THEIR SAY"

(From a financial planning school for pastoralists at Kalgoorlie)

The physical constraints to management are rainfall, pastures and animal husbandry. "Crisis management" in the physical sense occurs when these constraints overwhelm the management decisions. Running stock on native shrubby pastures in Western Australia requires peculiar skills and a detailed knowledge of the environment. The pastoralist is faced with a complex array of trees, grasses and shrubs, some useful, some useless, some durable, some transient and some desirable and some undesirable. How a pastoralist copes with these constraints will determine to a greater degree the success of the station business.

#### Rainfall

Rainfall in the Winter Rainfall Pastoral area has an unreliable and ill defined pattern. Table 1 shows the rainfall data for selected stations in the Goldfields area.

The difference between the terms mean and mode is important. The mean or average rainfall is self-explanatory and is the usual way of expressing rainfall. The mode however, is the most commonly recorded yearly rainfall - and so as is usual in a pastoral environment, the modal value is less than the mean value. The conclusion from those data is that the most common year in the pastoral areas is a dry one.

Drought occurrence in the pastoral areas has been researched from available rainfall records and to summarise:

In a 40 year period, it can be expected that there will be:

- 1 - four to five year drought
- 2 - three year droughts
- 8 - one year droughts

In all 19 out of the 40 years will be years of serious rainfall deficiency.

The economic loss due to drought can be determined from past records. The drops in production associated with drought can be listed as follows, according to the number of years of drought.

#### Five year drought:

Estimated loss of wool income

- 2nd year            10 percent
- 3rd year            20 percent

TABLE 1

RAINFALL STATISTICS FOR SELECTED LOCALITIES IN  
THE GOLDFIELDS AND NULLARBOR REGIONS

Station	No. of Years	Mean (points)	Mode (points)	Standard deviation (points)	Range to nearest Inch
Balladonia	52	1028	833	363	4 - 19
Coolgardie	52	1018	900	346	4 - 19
Edjudina	51	751	444	386	2 - 17
Fraser Range	52	1163	866	386	6 - 25
Glenorn	51	778	500	452	2 - 22
Kookynie	52	836	600	403	3 - 19
Laverton	51	794	593	378	2 - 18
Leonora	52	821	500	437	2 - 20
Menzies	52	899	633	402	3 - 22
Mundrabilla	52	895	700	282	5 - 17
Rawlinna	52	715	461	363	3 - 20
Sandstone	52	886	776	403	3 - 21
Wiluna	52	899	655	497	2 - 27
Zanthus	52	801	459	432	2 - 21

4th year	40 percent	
5th year	70 percent	
6th year	50 percent	)
7th year	20 percent	) build up period

Three year drought:

2nd year	10 percent	
3rd year	20 percent	
4th year	10 percent	- build up period

Some allowance must be made for losses incurred in the one year drought situation as effective growth may not occur for over 12 months. An amount of 10 percent loss each year can be given these.

The total loss therefore over the 40 year period for wool income is then 9 percent per annum on the basis of sheep losses. Sheep sales will be probably reduced by 20-30 percent due to poor lambings in the drought years. This will reduce income by 6 percent per annum for sales over the 40 year period. This gives a total loss of 15 percent per annum due to production loss in the drought years.

The probabilities of receiving useful rainfall at any time of the year can be determined from rainfall, temperature and evaporation records. In the pastoral areas south of the Pilbara, these analyses have shown that winter rainfall is the most useful for producing pasture growth. Figure 1 shows the rainfall data for Yarlalweelor Station in the East Gascoyne. This pattern would approximate the situation north of Leonora but is probably different to the expected pattern in the Kalgoorlie and Nullabor areas. The general principles still apply.

Note that Yarlalweelor receives, on average, more summer rain than winter rain and that in common with nearly all of the winter rainfall pastoral areas, there is little rain received after July. However, the curve depicting rainfall usefulness shows that the months of May and June are the most reliable months for a growth period. This sort of information suggests that lambing should be timed for those winter months and that decisions on stock numbers should be made at the end of summer, but more importantly, at the end of winter period. Decisions on future stocking rates are made at this time on the basis of existing feed supplies, not on the basis of what rain may be received in the future. In this way the crisis of a feed shortage is avoided as even without rain, feed supply has been assured, by management of existing supplies.

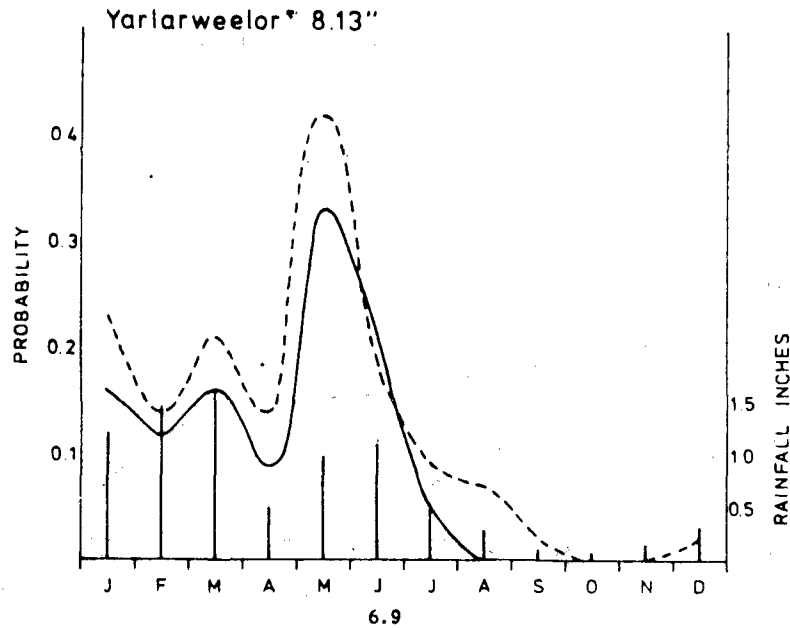
Pastures

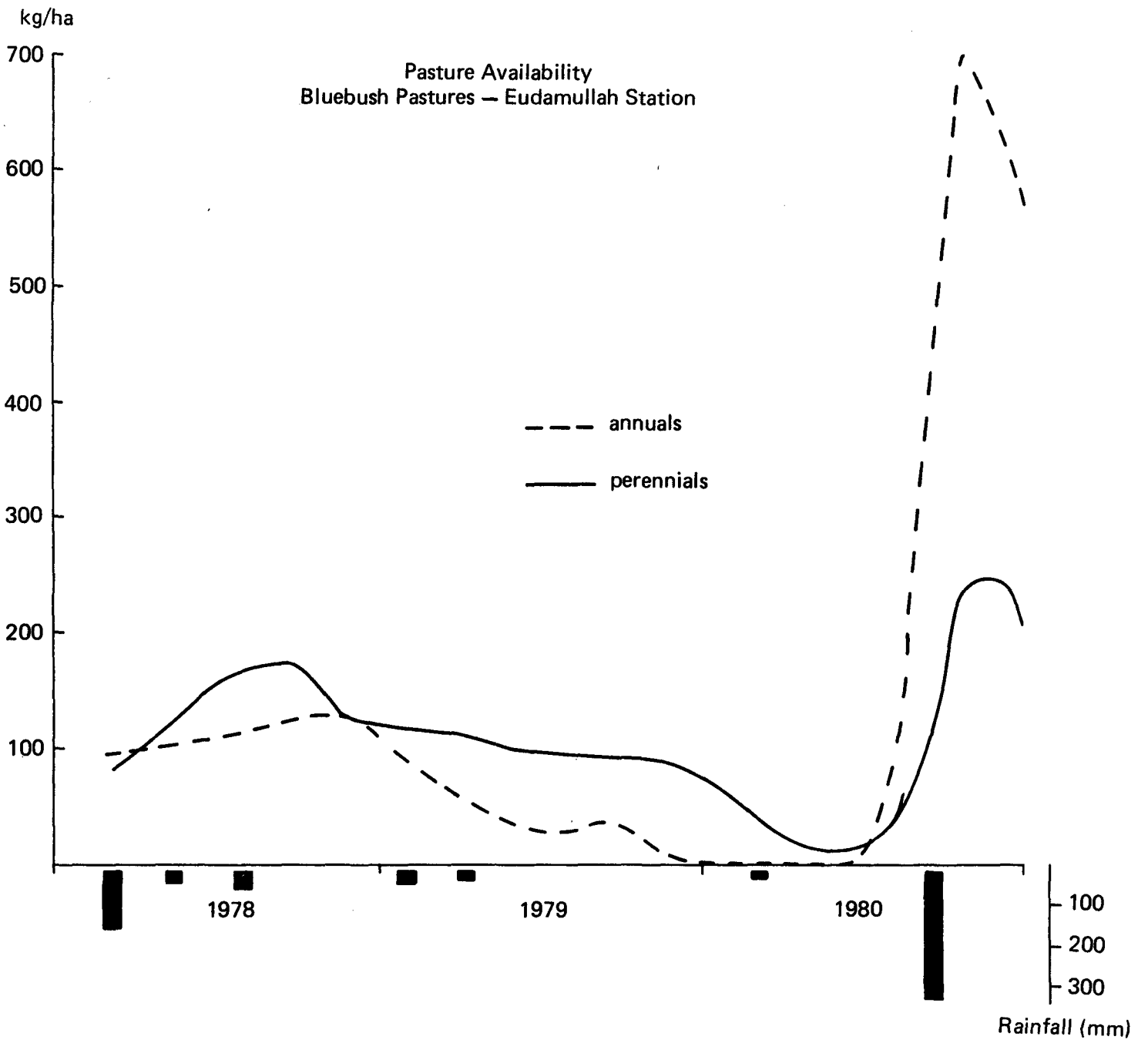
One of the characteristics of pastures in a mixed shrubland is that they are in a dynamic not static situation. Even good quality pastures in good conditions ebb and flow with the seasons. Figure 2 shows forage availability in a fair condition stony bluebush pasture in the Gascoyne. The period of measurement has covered good seasons and a serious drought period. These fluctuations illustrate the dynamism of this system, and highlight the need to manage the feed resource to ensure that the animal requirements are met by that resource. Note that both the perennial and annual components are very responsive to rain but that the perennial pastures are more durable.

FIGURE 1

Probability of positive soil water store (less than - 15 bars) at four stations, plotted for periods of more than 30 days in each month positive store (unbroken line —) and for periods of more than 15 days positive store (broken line ---).

Rainfall is shown as vertical bars in inches for the four stations.





The shrubs can continue to provide forage "well into" a dry period. However, as their forage level declines, animal numbers must be adjusted accordingly. There are two messages from these data:

1. Look after the perennial shrubs, because they will be needed at some stage.
2. Don't expect the shrubs to carry the normal flock numbers in a drought. Animal numbers must be adjusted as forage level declines.

Studies done on pastures at Meekatharra have also highlighted the transient nature of much of the annual growth in a pastoral area. Some of this information is shown on Figure 3. The lines depict annual feed availability over a period of four years for a poor quality stony mulga pasture and for a good quality saltbush pasture. The stony mulga pasture is a poor feed producer and in addition the huge volume of feed produced in 1973 was quickly removed.

The grazing animals (sheep, goats, kangaroos) have little effect on this sharp decline - the feed just disappears due to a variety of natural causes - decay, wind, water, insect consumption and so on. To avoid a feed crisis, stocking rates are set on the basis of the more normal feed availability, not on the basis of these peaks. The higher level of feed availability on the saltbush pastures is to be expected and highlights the need to reserve these pastures for the animals whose nutrition is most critical - that is pregnant and lactating ewes, and weaners. This entire matter of feed availability in an erratic and unreliable environment suggests by deliberately understocking, the chance of a sudden feed shortage is greatly reduced. Work on saltbush/bluebush pastures in the Broken Hill area of S.A./N.S.W. has demonstrated that by stocking conservatively, animal productivity could be maintained irrespective of how much rain there had been in the last twelve months. With this policy it may be possible to dramatically reduce the impact of the one year droughts referred to earlier.

#### Management Practices in Drought

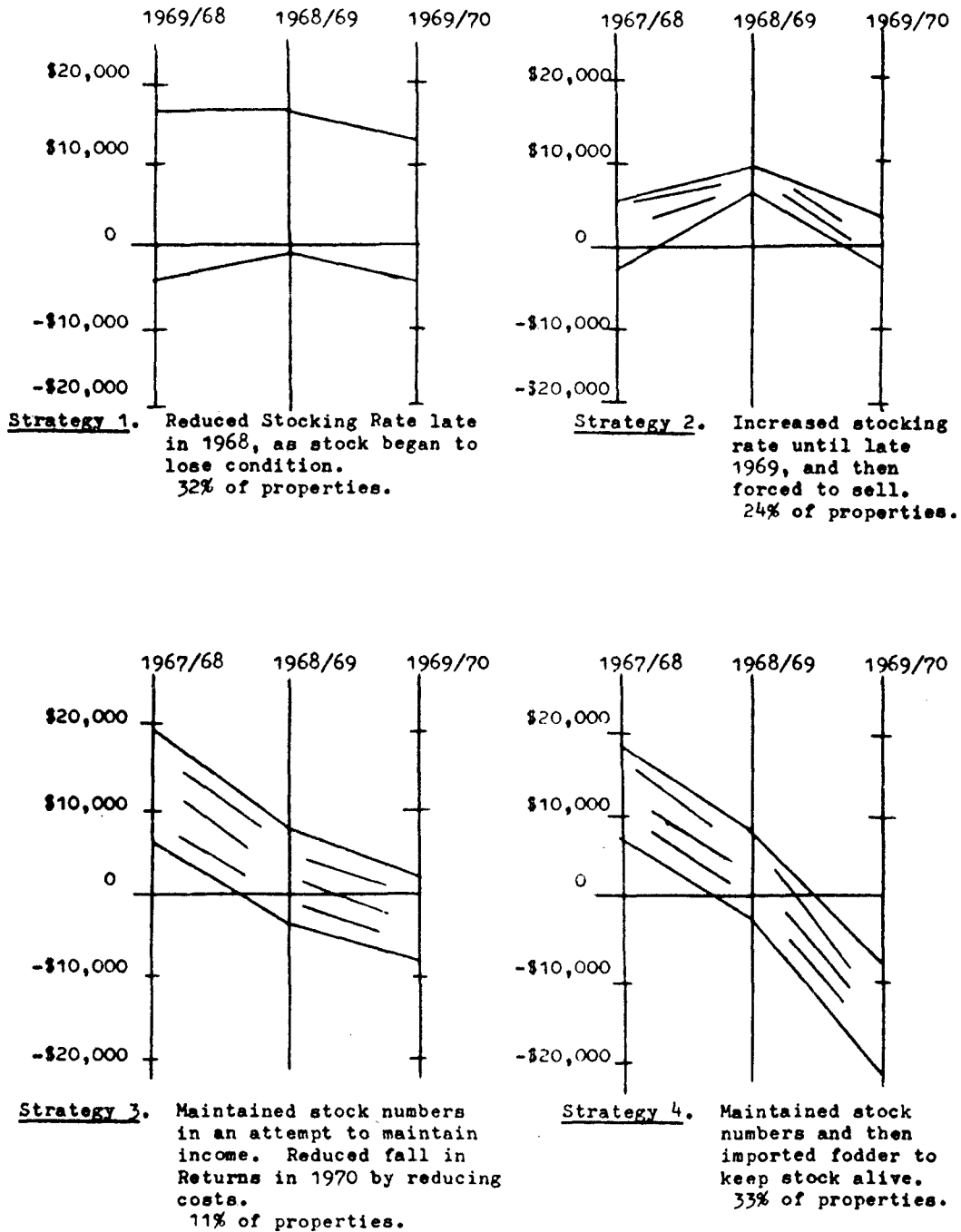
Two studies have been done in Queensland looking at the policies that pastoralists employed during droughts. The studies were done in the mulga lands in the south-west of Queensland. Droughts occurred in 1964-1966 and again in 1968-1970. Droughts occurred in 1964-1966 and again in 1968-1970. The study done on the earlier period concluded that, "It appears from our results that, under the circumstances existing during the 1964-1966 drought, the best policy was to increase the rate of sales early in the drought and then go on increasing it at fairly short intervals until adequate rain had fallen." The study undertaken in the later period reached similar conclusions. That study defined the successful strategy for getting through the drought as firstly relating stocking rate to feed available so as to maintain stock in at least store condition, and secondly never expending more than the likely receipts within each year. Figure 4 shows the financial outcome of that strategy and the alternatives.

As in the earlier drought, the producers who started selling early (Strategy 1) were the ones who performed best financially. They managed their stock numbers and expenditure aggressively and were flexible in their approach. They had learnt the lessons of good arid land management. Those producers who reacted after one year of drought (Strategy 2) performed less well but were still in a sounder position than those producers who



FIGURE 4

The Returns to Capital and Management achieved by producers in the soft - mulga zone, who employed four different management strategies over the period 1967/68 to 1969/70. (Childs, J. pers. comm.).





tried to maintain normal stock numbers (Strategies 3 and 4). Producers who exercised neither stock or financial control lost considerable sums of money over the drought.

The message is clear. Droughts cannot be prevented. However the crises associated with them can be reduced by planning, and by aggressive flexible animal and financial management when the feed supply begins to decline.

This paper has attempted to weld together some facets of the physical environment facing pastoralists in the shrublands of W.A.; and relate those facets to decision making and financial performance. The pastoral environment is a very difficult one and it is easy to allow management to be guided purely by the whims and fancies of nature. However, by having some knowledge of the historical nature of the seasons and the pastures, and by managing the resources conservatively, the pastoralist can be in command and make decisions before the crisis sets in. The two key phrases are - CONSERVATIVE STOCKING RATES and SELLING STOCK.

## SEND SUBS IN TODAY PLEASE

1982 has arrived already and membership subscriptions, which are payable each calendar year, are now due. This year, we have a permanent Subscriptions Secretary, Vanessa Chewings, who is handling all membership matters such as processing new membership applications, undating membership records and answering any queries regarding financial status.

### Full Membership or Partial Membership?

Members have the option of paying full membership (\$20, O/S \$A25) entitling them to newsletters and journals OR partial membership (\$10, O/S \$A15) which allows for newsletters only.

Prompt payment of 1982 subscriptions will make Vanessa's job much easier as this will eliminate the need to send out individual reminder notices later in the year. Some people have already paid their 1982 subscriptions and members are asked to check their financial status on the address label to determine whether they are financial for 1982 (F82) or 1981 (F81).