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LAND DEGRADATION AND DROUGHT RELIEF MEASURES IN THE MULGA LANDS OF WESTERN  
QUEENSLAND

by

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Abstract

Land degradation in the mulga lands of far south-west Queensland is discussed in relation to the extended drought periods which occur in this area. The use of drought relief measures to provide incentives for more conservative utilisation of these lands during drought periods is outlined. Property sizes are examined, and costs of a property build-up program estimated.

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History shows that following the introduction by man of domestic livestock, the productivity and carrying capacity of many arid areas (< 500 mm rainfall) of the world (such as North Africa, the Middle East, the south-west states of America, South Africa and Western New South Wales) have been drastically reduced by the invasion of unpalatable plants or soil erosion.

Increased knowledge of the land resources and ecosystem processes in the mulga lands of Western Queensland has focused attention on the land degradation effects which persist following drought periods. The cost-price squeeze in the pastoral industry, combined with high interest rates, has also accentuated the adverse effects of loss of income during drought periods. In practical terms, this means that smaller producers with marginal profitability are forced to operate their properties at maximum stocking rates at all times to service debt repayments and provide some surplus for living and family expenses.

Figure 1 shows the periods of drought declaration for various shires in the far south-west of Queensland over the last 17 years. The data do not include individual droughted property declarations, which would add further to the overall area and time of drought incidence. Silcock (this Conf.) has indicated that the present drought relief scheme caters for 'normal' dry seasons as well as severe drought periods.

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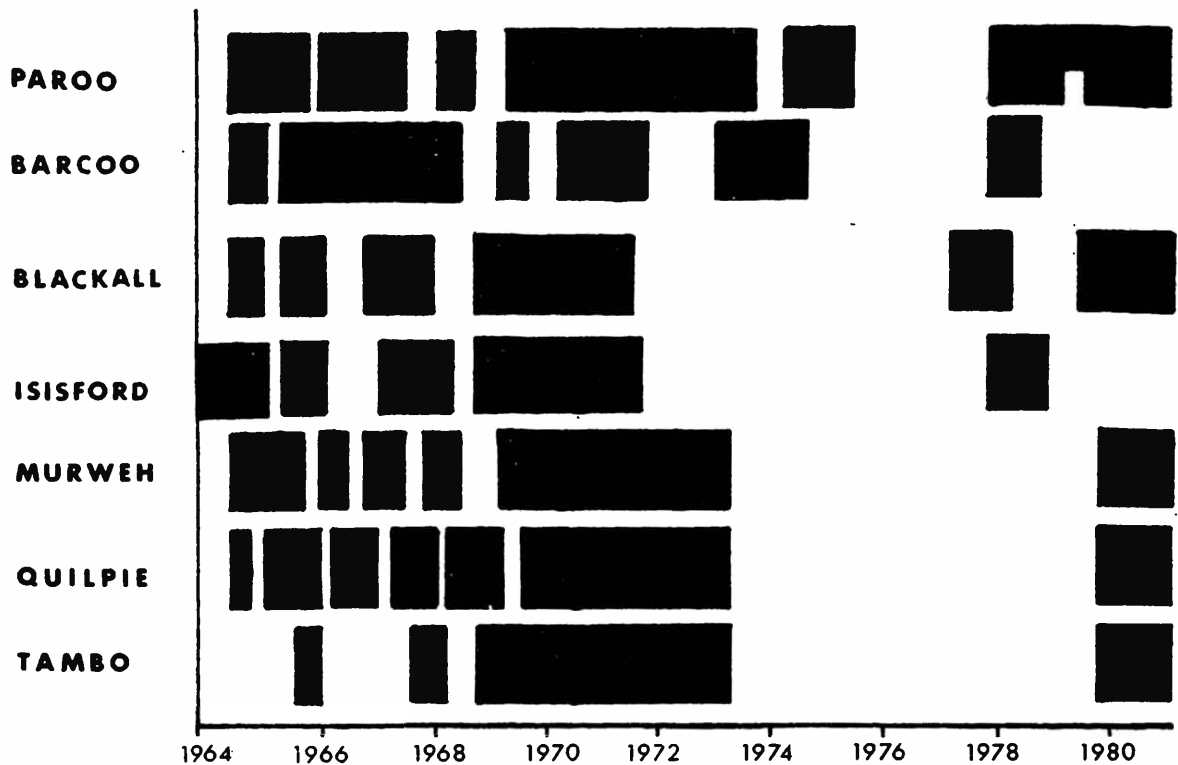


FIGURE 1. Periods of drought declaration for some south-western Queensland shires.

The extent of these periods of drought declaration, when viewed in the light of the significant woody weed populations recorded in the Western Mulga lands by Burrows and Beale (1969), and subsequent increases in these populations (Charleville Pastoral Laboratory, unpublished data), indicates that the long term productivity of the mulga lands may have been substantially overestimated. The Commonwealth and State Government Collaborative Soil Conservation Study (1978) (S.C.S.) indicated that 52% of the Queensland arid zone was suffering damage ranging from vegetation degradation to severe erosion and/or dryland salinity.

The mulga lands and frontage country in far south-west Queensland have been defined by land systems surveys (Dawson and Boyland, 1974), to be susceptible to land degradation. Major emphasis is placed on preventing the initial establishment of woody weeds or erosion surfaces in these lands because of the cost of conventional land rehabilitation measures.

The maintenance of adequate ground cover in the form of mulga trees, litter and pasture during drought periods is essential to prevent the start of the degradation cycle in mulga lands. This ground cover can only be maintained by relatively low levels of utilisation (or stocking rates) by both domestic and native animals during and immediately before the dry

period.

Given the high frequency of dry periods in the area, a grazing system is needed in which the number of stock appropriate to a dry season is normally carried, and any build-up in stock numbers which occurs during runs of good seasons is rapidly reduced to the basic dry season number as soon as dry seasons recommence. Rainfall data for Charleville shows 62% of years have below average rainfall (487 mm), indicating the need to cater for low rainfall years in land and stock management (Silcock, this Conf.).

Under the present system relatively high stock numbers are often maintained over dry seasons and through severe drought periods by felling mulga. The adverse consequences of such a stocking policy in destabilising the sensitive mulga lands, particularly during the recovery phase following drought, have been referred to by Pressland (this Conf.), and Brown (this Conf.), whose data shows that even at conservative utilisation levels, c. 80% or more of the grass population at a site in the Eastern Mulga resource region died during a two year drought, and was replaced by seedling recruitment following the drought.

The concept of using the more conservative 'dry' season stocking rate as a basis would necessitate an adjustment in the area required to maintain a family unit and provide some return to capital and management. The remainder of this paper looks at existing drought relief measures, and compares the cost of these measures with that of a property build-up program.

### Drought Relief

Existing drought relief schemes, which apply to individual droughted properties and properties in drought declared shires, provide freight rebates of 50-75% for stock, fodder and water movements, as well as carry-on and restocking loans at concessional interest rates. Income tax arrangements which allow the use of Income Equalisation Deposits (of questionable value) and the spreading or carrying forward of income from forced stock sales during periods of drought declaration are provided by the Commonwealth. Expenditure on relief measures is significant and loans and freight rebates are understood to amount to at least \$90M in Queensland (Robinson, this Conf.) in the period from the 1965 drought to the present time.

There has been some criticism of existing drought relief measures on the grounds that they do not benefit the better managers who take action to reduce stock numbers before the drought reaches a stage where a declaration is made (Mawson 1979). Existing measures are generally based on the condition of the stock in question, which may not properly reflect

the condition of the pasture, particularly where topfeed is available. The S.C.S. has stated that 'Soil conservation objectives need to be inserted in relief measures as soon as they start. They (these objectives) should also help to determine when relief measures start. This particularly applies to destocking policies during droughts and in the early recovery phase'.

Positive and constructive drought relief measures are desirable from a resource management point of view. Such measures should contribute to amelioration of drought and land degradation problems in the long term by encouraging sound management practices and the restructuring of living areas where necessary. Mawson (1979) has said that though managers must accept responsibility for their management and consequent personal loss or gain, it is in the interest of the community at large that incentive be provided to encourage conservative management in order to maintain productivity.

The continuing flow of funds into short-term, 'relief' or 'welfare' measures every time a season falls short of expectations must be looked at closely in the light of increasing pressure on Government to justify fully all avenues of expenditure. Money spent on these measures also has some potentially adverse effects. It may allow small, marginally economic units to survive, when without aid, natural market forces would have caused these units to come on the market. This, theoretically, would have made them available for other landholders to increase their property size. On the other hand tariff protection of the manufacturing sector was estimated to have cost the sheep and cattle industries \$616M per annum as long ago as 1975/76 (A.W.G.C. 1977). In view of this, and because of the considerable disadvantages in respect to 'normal' community services suffered by country dwellers, there may be a strong case for providing welfare type assistance to owner-operator type enterprises.

The adjustment of living areas to facilitate lower utilisation levels in the mulga lands, together with the provision of incentives for the early reduction of stock numbers following failure of the growing season, are the principal modifications necessary to incorporate land conservation objectives in current drought relief measures. Changes of this nature should eventually reduce expenditure on emergency drought aid, such as carry-on loans and restocking loans. More conservative stocking rates will reduce both the stock numbers which have to be moved and the corresponding freight rebates.

Proposals that stock movements made in anticipation of drought should attract freight rebates if a drought declaration is subsequently made,

should remove an existing anomaly. At present graziers who reduce stock numbers early are not eligible for freight rebates, while those who move animals only when their condition has begun to decline qualify for rebates.

The adjustment of living areas has been slowly occurring through the Rural Reconstruction Board and through private trading. Historically the concept of property build-up leading to increased viability and better management of the land is unsubstantiated. However in recent years the work of Holmes (1980) in the Murweh Shire, which is composed mainly of mulga lands, revealed that graziers surveyed regarded property enlargement as the adjustment which best satisfied the goal of future income (by offsetting anticipated future cost increases and income declines). Holmes also found that other important motives for buying more land were to buy better country for sheep breeding or cattle fattening, and to enable stock to be spread out during drought periods. He concluded that property enlargement offers considerable scope for more efficient labour use.

Childs (1974) found that in the Western Mulga resource area, properties with larger areas had a significantly higher degree of financial success than smaller properties. He concluded that in this area a certain minimum property size may be necessary to allow flexibility for management to respond to variations in climate, pasture conditions and product prices.

Financial data collected by Mills, (1981) in the Paroo Resource Region showed that larger properties had lower debt levels, higher per property and per family unit incomes, and ran marginally lower stocking rates. Ninety percent of properties had plans for further expansion.

The enlargement of living areas or property size by the acquisition of additional land, or trading up to a larger property, is a desirable move for increasing graziers' returns. It also provides them with the flexibility and the opportunity to manage sensitive lands in a conservative manner where this is necessary to maintain the productivity of these lands.

In 1971 the Land Administration Commission's guidelines for mulga country west of Charleville nominated a minimum of 8750 sheep. Survey data of Mills (1981) from this area indicates that properties with <10 000 sheep had considerably lower returns than properties with >10 000 sheep.

If we assume 9000 sheep as the very minimum desirable size, then of the 451 aggregates listed in Table 1, 298 are below this size. Deletion of aggregates with less than 3000 sheep on the grounds that they are 'hobby farms' or non-commercial units supported by off-farm income, leaves 263 properties below the recommended size.

Table 1. Carrying capacity assessments for properties in the far south-west of Queensland, which contains c. 90% of the 500 mm rainfall mulga lands in the state.

Stock Numbers*	No. of properties or aggregates
<3000	35
3000-5000	62
5000-7000	123
7000-9000	78
9000-12 000	73
12 000-15 000	36
15 000+	44

\* Department of Lands assessed carrying capacity (sheep).

These 263 undersized properties run 1 607 000 sheep. At an average property size of 9000 sheep this would be reduced to 178 properties. So 85 properties, in theory carrying the average of the range 3000 to 9000, (i.e. 6000 sheep), need to be reallocated amongst the remaining 178 properties. Thus 510 000 sheep areas need reallocating. Valuing sheep areas at \$40 overall for the mulga lands, country worth \$20 400 000 will have to be bought by the remaining properties. Taking a value of \$21M being required for the build-up, one possible course of events is as follows.

One third of the build-up occurs unaided over the next 10 years. This reduces finance required to \$14M. Of this amount assume the Government has to fund one half (\$7M), with the remaining \$7M being forthcoming from banks and buyers themselves. A typical buyer's package would be made up as follows, 50% Government money, 25% private trading bank or Commonwealth Development Bank, 25% own funds.

An input of \$7M over a period of 10 years is only 2.7% of the estimated expenditure on drought measures of \$258M\* over the next 20 year period,

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\* Based on the same expenditure of c. \$90M (loans and freight rebates) as for the period 1961-1981, projected forward at 10% yearly inflation rate.

1981-2001. Repayment of early loans could provide capital for later loans, so an amount of less than \$7M is likely to suffice.

Real cost of the scheme if the money was raised at 13½% interest and re-lent at the same rate of 5% as present carry-on loans, would be \$595 000 (difference between 13.5% and 5%) each year, even if the whole \$7M was lent out at once. This represents 5% of the expenditure (to April 1981) of c. \$11M on loans and freight rebates made to the far south Queensland area during the 1979-81 drought.

Mawson (1979) and Holmes (1980) have referred to difficulties in property build-up, mainly related to finding suitable additional areas. It is evident that the increasing acquisition and use of aeroplanes may allow blocks which had previously been considered unsuitable because of distance or labour requirements, to become a practical proposition. While acknowledging some administrative and spatial difficulties it is proposed that:

- property build-up can be hastened by channelling a proportion of drought relief expenditure in this direction, and this will be instrumental in providing the opportunity for conservation management of the mulga lands to maintain their productivity.
- the cost is not excessive and should be recouped through a reduction in the need for emergency drought assistance in future droughts.
- high land prices at the present time mean sellers are comparatively easy to find. This provides a good opportunity for considerable property build-up to take place, particularly while the memories of the present extended drought period are fresh in graziers' and administrators' minds.

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