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The Australian Rangeland Society

RANGELANDS MANAGEMENT AND CONSERVATION: MANAGING OUR COMMON GROUND.

G. D. Harris

Arid Lands Environment Centre, P.O. Box 2796, Alice Springs, N.T. 0871

ABSTRACT

Some conservation goals for the rangelands can be met by managing pastoral land in a more sustainable manner. Other conservation goals will only be met by managing some areas entirely for conservation.

One key to reducing land degradation in the rangelands lies in more careful management of the total grazing pressure (including feral animals). Significant factors in achieving this will be: a vastly improved flow of information resulting in adoption of more sustainable practices; hard decisions by government, including restructure of pastoral industry and legislation; intelligent national cooperation and a commitment to the long-term future of the rangelands from all involved with the industry.

INTRODUCTION

In December 1991 yet another mammal, the Mala or Rufous Hare-Wallaby (*Lagorchestes hirsutus*), joined the long list of mammals which are extinct in the wild on mainland Australia. Many ground-dwelling mammals of the arid zone are extinct and the status of other species such as birds, invertebrates, reptiles etc is poorly known. Land degradation continues in the arid zone and as conservationists we need to seriously and urgently address the causes.

This paper examines a few key aspects of rangelands management which the Arid Lands Environment Centre believes are crucial to moving towards ecologically sustainable pastoralism and achieving some conservation objectives.

The primary question of whether or not pastoralism can be an ecologically sustainable land use is unanswered and further research is required. This question is not the topic of this paper.

GRAZING IMPACTS AND STOCKING RATES

The history of pastoral legislation in Australia is a sad story of enforcing and encouraging overstocking. Until recently the N.T. had minimum stocking rates enshrined in its pastoral legislation. Stocking rate and carrying capacity limits for individual properties have been used by legislators for a long time. Although such rates and limits have become more realistic over time, land degradation is continuing (Anonymous 1978, Stanley 1983).

One reason is that total grazing pressure is increased, often enormously, by a range of introduced herbivores such as rabbits, goats or horses. If governments continue to use property-based stocking rates as a basis for regulation, then these rates need to be much more conservative and must encompass all grazing pressure, not just controlled stock.

The problem of overgrazing by livestock is not as simple as running too many stock on a property. Stock do not conveniently spread themselves evenly around a paddock or water point. Stock preferences, which are influenced by range condition, range type and distance from water, determine grazing pressure on a particular land type or area of land. (Low et al. 1980, Lang 1969).

The study of Low et al. (1980) on a central Australian paddock showed a mean grazing density of 3.5 cows/km², but the density varied from 25 cows/km² to 0 cows/km². The pattern shows that stock grazing will concentrate on the most productive grazing land or "sweet spots". Where overgrazing causes land degradation this will also tend to focus on the

more productive areas. Loss in pastoral productivity is not the only cost when this occurs.

Ecological research (Morton 1990) shows that the more productive "sweet spots" of the landscape are also the most important habitat refuges for many native mammals in dry times. Degradation in these areas has already endangered species and reduced biodiversity.

To achieve a sustainable pastoral industry and to have any hope of achieving some conservation goals (such as maintenance of biological diversity), total grazing pressure must be carefully controlled, especially on these more productive areas.

CONVENTIONAL INDUSTRY WISDOM OR MYTHS

Degradation is continuing in the rangelands. Until governments and industry broadly accept this fact, the incredible inertia which inhibits more rapid movement towards ecological sustainability will remain.

A common feature of pastoral properties in central Australia is an often extensive bare area surrounding a water point (a sacrifice zone, or piosphere in Lange 1969). This is frequently regarded as an unavoidable and therefore acceptable land management practice. There will always be a grazing gradient around watering points, however some pastoralists (e.g. Purvis 1986) have demonstrated through careful grazing management that extensively scalded areas are largely avoidable. (Refer to Stafford-Smith 1990 for further discussion.)

Despite the constructive advances made by governments in reducing or removing drought subsidies, some sections of the industry continue to view an extended dry period as a disaster called drought. The implication is that these dry periods are somehow unnatural or unusual and therefore unmanageable. Drought is a fact of climate which must be planned for especially as it is the 'crunch' time for stock, the land, the vegetation and the native wildlife.

Another myth is that "the country always comes back". It is difficult to recreate the unique micro-environment of nutrients, soil structure and organic matter which formerly supported a range of plants. In some cases it may be impossible (Noble *et al.* 1984). Time, money and a good deal of local expertise is required to achieve limited regeneration of degraded areas. Even this may restore some production but without recovering the most productive species.

While misconceptions such as these flourish, the land will continue to suffer.

UNDERSTOCKING VS OVERSTOCKING

A growing number of studies (e.g. Foran and Stafford-Smith 1990, Morrissey and O'Connor 1988, Purvis 1986) show that low-density or conservative stocking strategies can be more profitable, particularly in the long term, and particularly if the reality of extended dry periods is taken into account.

Traditional micro-economic theory espouses the goal of an optimal profit-maximising output for the enterprise and thus an optimum stocking rate (e.g. Wilson & Macleod 1991). Implicit in this theory is the assumption that production either side of this optimum is equally costly to the producer. When applied to an ecological system, this traditional micro-economic theory fails to account for the greater cost of slight overproduction which can degrade the resource base, relative to the cost of slight underproduction. Inadequately represented in micro-economic theory are the long-term perspective, the risk of degrading the resource, who bears the cost of any rehabilitation work and the net cost/benefit to society.

The losses involved in stocking below the "optimum" are short term in that they do not degrade future productivity of the resource. Lower stocking rates are also likely to be beneficial to non-pastoral values. Therefore, due to the severity of the risk of land degradation of some landscapes, it should be of net benefit to the community and the land manager to stock at a lower rate than the profit-maximising stocking rate.

The risk of overstocking is compounded by the difficulty of distinguishing long-term trends from short-term or local variability. A coordinated and informed programme of monitoring and assessment is needed to properly assess the impact of grazing on range condition.

In the absence of adequate, functioning range monitoring systems and in the presence of continuing land degradation, total grazing pressure from stock and other introduced herbivores needs to be reduced.

STRUCTURAL PROBLEMS

The industry needs restructuring to ensure that properties are potentially viable and to increase the potential for more ecologically sustainable landuse. Under current conditions, grazing by livestock continues on some areas which are non-viable. Non-viability can be the result of inherent land capability or range degradation (Holmes 1986, Gasteen 1983) or inadequate property size (Young 1985). This restructuring would best be achieved through a co-ordinated national approach.

To satisfy some conservation objectives, a balanced representative reserves system will also be necessary (e.g. Gasteen 1983) and should be a major goal of any such restructure. The recent initiatives of the Queensland Government in this direction are to be applauded.

FERAL ANIMALS AND INTRODUCED WEEDS

The current land managers cannot be generally blamed for the introduction and spread of feral animals and introduced weeds in the rangelands. The issue to be addressed is how to reduce them to acceptable levels and who should foot the bill. Clearly both society and land managers would benefit from the control of feral animals and introduced weeds. Therefore both parties should bear some of the cost.

Some land managers are going to great lengths to eradicate or control some introduced species on their properties with minimal external assistance. The initiative shown by these people should be applauded. Some land managers are only active with funding, and this activity is a positive step. Other land managers are not very active at all. Society must define more clearly what level of stewardship is expected from its land managers.

Control of introduced species is often of limited effect unless done on a regional or indeed biome basis. It is therefore imperative that land managers enlist the support of local colleagues to control introduced species, and again nationally-integrated action would be desirable.

SOCIAL VS TECHNICAL BARRIERS

It has now been nearly a hundred years since Dixon (1892) and Wait (1896) (both in Lange *et al.* 1984) flagged problems with land degradation and highlighted management techniques to help deal with them.

Rangelands scientists who write the papers that rangelands scientists read have defined most of the problems and technical solutions (e.g. Pickard 1991). There is an enormous body of scientific knowledge which has been built up over many years, but it is not currently being applied. This is a real and fundamental problem. It will not be addressed by merely producing more good science. The social barriers to the application of knowledge need to be addressed.

One problem inhibiting adoption of more conservation-oriented land management practices is the resistance of some land managers to change. A crucial pre-requisite for such change is that it meets (or at least does not ignore) the goals and needs of the land manager. In the past, land managers have received conflicting or unrealistic advice from various government officers, researchers, extension workers and other industry advisers such as accountants and financiers. Presumably this has improved recently. Nevertheless, more emphasis needs to be placed on ensuring that current knowledge is extended in a coherent and useable form to land managers, is appropriate to the area and is adopted.

The financial health of the enterprise can profoundly affect short-term decision making and influence the range of land management options available. The level and quality of financial advice accessed by land managers is often poor. Improved financial management is one critical area which needs more attention.

PROMOTING THE POSITIVE

Poor management is not good for the land, the individual enterprise, or the industry. When targeting the industry for criticism, conservationists must be careful to distinguish the good from the bad and the industry from the individual.

Good land managers (e.g. Purvis 1986) are running economically viable properties and are going a long way towards meeting conservation objectives.

In the Kimberley, the voluntary conservation reserve for the Purple-crowned Fairy Wren was the initiative of one pastoralist (Nicholson 1991). This is another example of what can be done when pastoralists actively integrate conservation into their economic enterprise.

Such examples should be championed by the industry, government, conservationists, scientists, extension workers and the like.

LEGISLATION AND GOVERNMENT POLICY

Government legislation has continually over-estimated the long-term productivity and carrying capacity of the rangelands, and thus enforced overstocking. Incentives and market structures have also contributed greatly to historic land degradation and will greatly influence future trends.

Government policy needs to emphasise, not just in rhetoric, that maintenance of future productivity is much more important than ensuring optimum production now. This is another problem which needs a national co-ordinated approach to rangelands policy and regulation.

An example is the way in which rents are determined. Improved property value or even carrying capacity are not suitable methods for rental determination. A rent per unit of grazing pressure would be much more appropriate especially if it is progressive. "Progressive" in this case means similar to the tax scale where the rent per unit of grazing pressure increases as total grazing pressure increases. This is progressive in terms of improving the relative viability of smaller holdings and more importantly does not penalise those who stock more conservatively or who destock areas for land rehabilitation purposes. It also provides an incentive to eradicate grazing feral animals.

Government programs which aim to move industry towards ecological sustainability (e.g. Landcare and Greening Australia) often originate in wetter and more closely settled areas. These programs need to be modified to suit the particular needs of the drier two-thirds of the continent.

CONCLUSION

Some conservation goals for the rangelands can be met by managing pastoral land in a more sustainable manner. Other conservation goals will only be met by managing some areas entirely for conservation.

Land degradation is continuing and the risk of land degradation is particularly high on the more productive country. The cost to the community and future generations of overstocking resulting in land degradation are much greater than the costs of understocking. The people of Australia have a very real and legitimate interest in the rangelands. They may bear the long-term cost of land degradation through permanently reduced productivity or the expense of rehabilitation. More careful management of total grazing pressure (including feral animals) and grazing patterns is required to reduce land degradation. Therefore stocking rates need to be more conservative generally.

Reduced stocking levels, careful grazing management and land rehabilitation can definitely be profitable, particularly in the long term and if the reality of extended dry periods is taken into account. This has been demonstrated by an increasing number of land managers, and in an increasing number of studies. These examples need to be more actively promoted and adopted.

Widely-believed misconceptions which promote some types of land degradation as acceptable pastoral practice need to be urgently countered.

The problem of land degradation is essentially social and political rather than technical. The challenge for all associated with the rangelands is to address those factors which are restricting the adoption rate of more environmentally sensitive management practices. Those factors include: the reluctance to change shown by some land managers; inappropriate or conflicting advice from various government officers and extension workers; poor advice from the financial sector; government programs which are not well-suited to the rangelands; counterproductive government policy and legislation; inadequate information flow from scientists to land managers; and a lack of coordinated approach to feral animal control and other issues.

In the pastoral industry, Government legislation and policy, market factors and institutions influence the framework for land management decisions. There are many examples where these parameters encourage management which promotes land degradation. The best process for improvement would be a national coordinated approach to ensuring rangelands legislation, policy and other factors provide appropriate parameters for decision making which protects the long-term health of the land, and maximises society's benefit.

Meanwhile, a representative system of conservation parks and reserves, managed for conservation and adequately funded, is needed throughout the rangelands.

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