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## EFFECTIVE CONTROL: THE NEED FOR LESS SEVERE PENALTIES

M. D. Young

*CSIRO Division of Land Resources Management, Deniliquin, N.S.W.*

### *Abstract*

At present the only penalty that land administrators may use in managing a lease is forfeiture. There is a need for administrators to be able to use less severe penalties. A system of fines is suggested.

### Introduction

Five States in Australia contain arid Crown Land which is available for lease, subject to the condition that the carrying capacity of the lease is maintained. In all States, the penalty for not complying with this condition is forfeiture. This very severe penalty has never been imposed. However, there have been several instances where it has been suggested to a lessee that his lease would be forfeited, unless he reduced his stock numbers. In some of these cases the lessees have responded by reducing their stock numbers.

Threat of forfeiture is a powerful tool in land management. However, it is difficult to carry such a threat to its conclusion. If an administrator did forfeit a lease, he may precipitate a political crisis. Appeals would be made to the various members of parliament and it is likely that the decision would be reversed. If it were not reversed the pastoral houses, which finance much of the pastoral zone's production, may restrict further credit to pastoral lessees. They would not, and could not, be expected to finance any lease which may be forfeited. When a lease is forfeited a lessee's creditors may lose the capital they have invested in the lease.

To avoid this situation there is a need for a less severe penalty system associated with a pastoral lease's conditions. A system which shows promise is the use of fines. Fines are already used in some sections of the relevant Land Acts to prevent people from holding too great an area of land, making incorrect declarations, not paying rents, etc.

### The Pastoralist's Perception of the Problem

Generally a pastoralist is encouraged to obtain the maximum amount of liberty he wants within the bounds set by the land administrator. Society encourages him to strive to maximize his welfare. At any one point in time

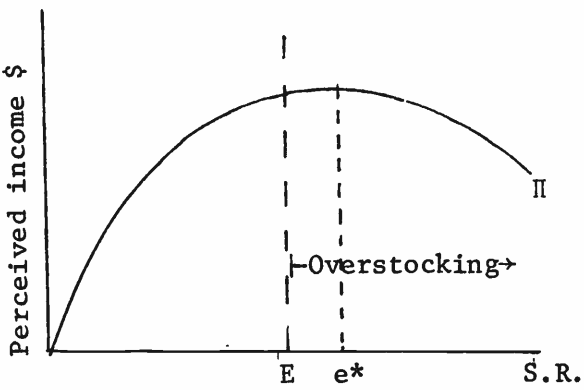


Fig.1 Overstocking likely

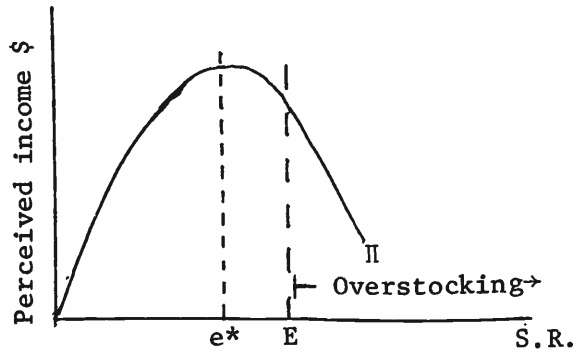


Fig.2 Overstocking unlikely

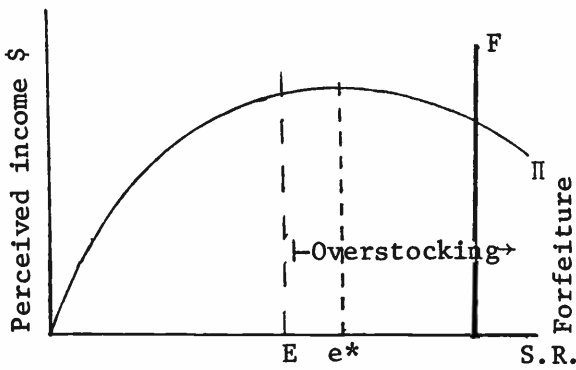


Fig.3 Current cost of being caught

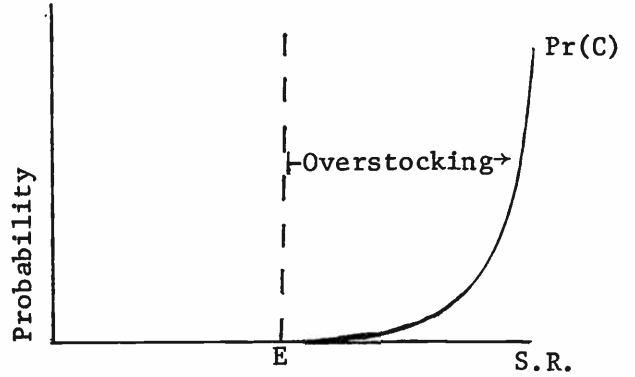


Fig.4 Current probability of being caught

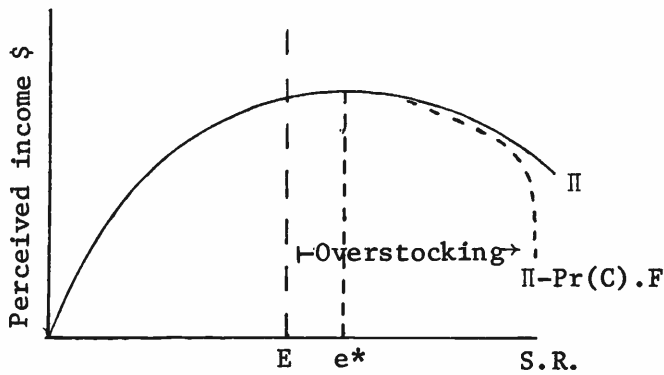


Fig.5 Current situation

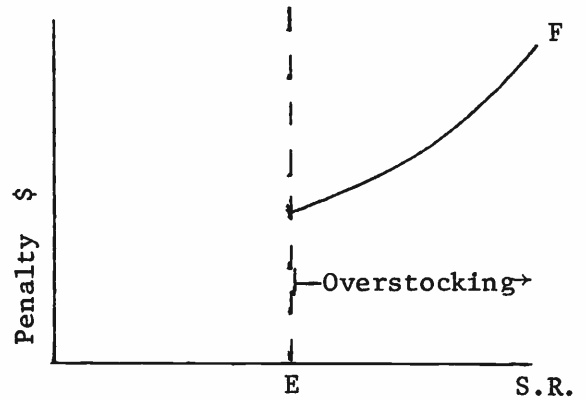


Fig.6 Recommended penalty

- $\Pi$  = Income
- Pr (C) = Probability of being caught
- F = Penalty or fine
- S.R. = Stocking rate

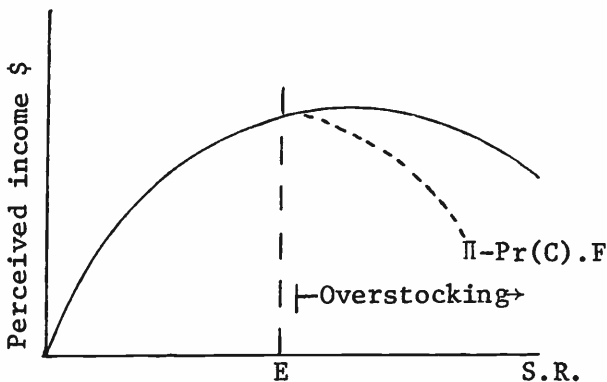


Fig.7 Recommended situation

a pastoralist has a conception of the income he can earn at various stocking rates. Linked closely to this concept of potential income is his perception of the probability of obtaining these levels of production. This situation can be represented by an income curve (see Fig. 1). The perceived optimum stocking rate which maximises income is indicated by  $e^*$ . There is also a maximum rate of extraction commensurate with maintaining the productive potential of the lease, E.

If the optimum rate of extraction,  $e^*$ , is less than E, there is no need for administrators to regulate a pastoralist's stocking rate (see Fig. 2). Unfortunately this does not always appear to be the case. Often managers perceive that the optimum rate of extraction,  $e^*$ , is greater than the safe rate of extraction, E, (see Fig. 1).

The present legislation implies that pastoralists should not stock at an intensity which is greater than E. There is a need to find effective legislation which will prevent pastoralists from extracting too much from the land resource.

It is the perceived cost of being caught which prevents overgrazing. The cost of being caught depends upon the probability of being caught and the penalty which results from being caught. Land administrators could introduce legislation which would make it optimal to stock at rates less than E. This can be done by increasing the probability of being caught or the cost of being caught.

The probability of being caught is determined by the frequency and accuracy of inspections by pastoral inspectors, the reliability of stocking rate returns submitted by pastoralists and perhaps, in the future, by some form of remote sensing. At present the probability of being caught for minor offences is very low (see Fig. 4). Stock cannot be counted and the condition of a station is hard to assess quickly. The frequency of assessment depends upon the State. Stock returns can only be checked roughly from wool returns and livestock sale notices. Until the vegetation of a station reveals that a station is overstocked or the manager tells someone he is overstocked the probability that he will be caught is low. Using the available techniques of range assessment the cost of increasing the probability of being caught is astronomical and it would be more fruitful to increase the cost of being caught.

If the current probability of being caught is combined with the fine which results from being caught, we observe that present regulations are not very effective in achieving their objectives (see Fig. 5). Under current legislation a station manager may perceive that it is optimal for him to exploit his station. To obtain better control it is possible to either modify the legislation to enable the cost and risk of being caught to increase or to increase the probability of being caught. A system of fines which are related to the severity of the offence would achieve this modification (see Fig. 6). Pastoralists would respond to such a situation by reassessing the cost of and probability of being caught.

A system of fines which is related to the severity of the offence has the advantage that it produces revenue, while increasing the probability of being caught places extra demands on the finances available to administrators. The use of a fine system would also increase a pastoralist's perception of the probability of being caught.

Finally, there are difficulties in assessing the carrying capacity of a station as today people perceive a station's carrying capacity to be dependent upon recent climatic events. Carrying capacity is a dynamic variable. It may be advantageous to require lessees to maintain the condition of their stations, that is the long term productive potential of the station rather than the continually changing carrying capacity.