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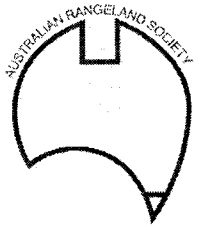

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USE OF THE FINLAYSON TROUGH AS AN AID TO KANGAROO HARVESTING

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ABSTRACT

Short-term concentration of kangaroos around Finlayson troughs is variable depending on environmental conditions and may be influenced by kangaroos' preferences for individual waters. Such devices may increase the efficiency of kangaroo harvesting but their effective application will be opportunistic rather than routine.

INTRODUCTION

Previously reported studies of Finlayson troughs, or similar devices for excluding kangaroos from stock watering points, have shown that concentrations of kangaroos can sometimes be observed for several days in the vicinity of protected waters (Norbury 1992, Hacker *et al.* 1995). These concentrations may allow more efficient harvesting, thus reducing costs for the kangaroo industry or for pastoralists wishing to reduce total grazing pressure. In this paper we summarise our observations on the use of this technology for both commercial and non-commercial harvesting.

MATERIALS AND METHODS

Our studies were conducted on Pine Creek, Boorungie and Musheroo stations in the Western Division of NSW. On Pine Creek, near Broken Hill, a commercial kangaroo shooter operated for one night only, in March 1995, in the vicinity of a Finlayson trough which had been active for five days. At Boorungie, near Wilcannia, waters within a treatment area extending over several paddocks were exclosed to kangaroos while those in a control area remained unprotected. A commercial kangaroo shooter operated on fixed routes through the two areas in February 1996, alternating between the treatment and control sites over three nights. Shooting commenced three nights after closure of waters in the treatment area. The study at Musheroo, near Emmdale, involved non-commercial culling by the research team under scientific permit at two electrified and two control waters over four nights in March 1996.

RESULTS

At Pine Creek a significant concentration of kangaroos resulted from the installation of the electrified wire (Hacker *et al.* 1995). Minimum temperatures at this time averaged 20.3°C and maxima averaged 33°C. Ground feed was dry and very sparse (about 10 kg DM/ha). The professional kangaroo shooter reported a commercially worthwhile improvement in harvest efficiency. Harvesting time was reduced by about one hour (to 4 hours 37 minutes) and the distance travelled by about 75 per cent. About 50 per cent of the night's harvest was taken within 100 m of the protected water.

Maximum temperatures at Boorungie were similar to those at Pine Creek but minima were lower, averaging 14.7°C. There was some green feed (≈50 kg DM/ha). The results are summarised in Table 1.

Table 1. Commercial harvest of kangaroos, Boorungie Station, February 1996. Efficiency was calculated as: number shot/(total time - dressing time).

Site	Total shot	Efficiency (no./hr)	No. shot close to water (<200 m)	Min temp °C	Max temp °C
Treatment	48	13.71	10	14	29
Treatment	71	14.69	3	15	35
Control	40	12.06	12	15	36

Organisational difficulties prevented the shooter from completing two replicates in both sites. Although efficiency was slightly higher in the treatment area there is little indication that water exclosure was beneficial as a harvest aid under the conditions prevailing during this study.

Minimum temperatures during the non-commercial cull at Musheroo remained consistently at 20°C while maxima ranged from 34-40°C. Ground feed was very sparse with only a trace of green feed available in gilgais. Results are summarised in Table 2.

Table 2. Non-commercial culling of kangaroos at water points, Musheroo, March 1996.

Water	Total number of kangaroos		
	Shot	Seen at water	Seen between waters
Treatment 1	6	18	12
Treatment 2	20	62	251
Control 1	10	42	5
Control 2	8	36	54

Closure of waters did not result in a marked increase in the number of kangaroos taken although the total number shot on treated waters was approximately 45 per cent higher than for the controls. Results may have been affected by our choice of waters. Few kangaroos were seen near the saline Treatment 1, while the presence of a non-saline water about two kilometres from 'treatment 2' could also have affected the result. We have observed in this and other studies that kangaroos seem to prefer some waters and avoid others, although the reasons for this are not clear.

DISCUSSION

Previously reported observations indicate that concentrations of kangaroos can occur around activated Finlayson troughs during hot weather but not when conditions are mild (Hacker *et al.* 1995). The magnitude of the response also seems to depend partly on kangaroos' preferences for individual waters. Our observations indicate that this variability in response will also determine the effectiveness of the device as an aid to kangaroo harvesting. Limited industry experience with the device to date has also been variable. Newell (1994) reported an 89 per cent increase in gross income from skin shooting on electrified compared with open waters. However, other commercial experience in western NSW has not demonstrated immediate benefits from the use of these troughs (S. Thomas and A. Farnsworth, pers. comm.), suggesting that attention to timing, weather conditions and possibly choice of location are important for successful application.

We conclude that the Finlayson trough can substantially improve the efficiency of kangaroo harvesting under ideal (hot, dry) conditions but that successful application will be opportunistic rather than routine.

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