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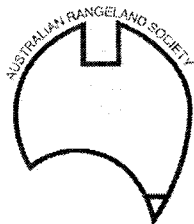
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BURNING CAN REDUCE FEATHERTOP (*ARISTIDA LATIFOLIA*) INVASION IN THE MITCHELL GRASSLANDS

D.G. Phelps and K.N. Bates

Department of Primary Industries, PO Box 519, Longreach Qld 4730

ABSTRACT

Feathertop is a major pest of the Mitchell grasslands. Spring burning was trialled as a potential method of control. Feathertop seed production, tiller number, survival and basal diameter were significantly reduced through burning, suggesting that fire has a potential role in controlling feathertop. Mitchell grass was not adversely affected by burning. Further research is required to clarify the most suitable post-burn grazing management.

INTRODUCTION

Feathertop (*Aristida latifolia* Domin.) is a three-awned wiregrass which grows in a wide range of soils throughout northern Australia. It reduces income to wool growers through discounts applied to wool prices and reduces the feed value of pastures due to its unpalatable nature (Filet 1990).

Results of wildfires in the Mitchell grasslands and burning in coastal black spear grass communities suggested that controlled burning may provide successful control of feathertop (Scanlan 1981, Orr and Paton 1993). An experiment was initiated in 1993 to test the efficacy of burning to control feathertop.

METHODS

A site of relatively uniform and high feathertop infestation on 'Leander', Longreach, was enclosed in September 1993. A number of 30 × 30 m plots were established with unburnt control and single spring burn (in October 1993) treatments randomly allocated within these plots. Basal diameter and survival of 25 permanently located feathertop and 10 permanently located Mitchell grass (*Astrelba* spp.) tussocks per replicate were monitored in October 1993 and May 1994. Tiller number was monitored on these plants following summer rain in 1994. Seed production of feathertop was estimated from weekly collections of seed from 20 funnels (of 10 cm diameter and 10 cm above ground height) placed in a randomised grid pattern per replicate. Collections were reduced to monthly once seed production declined to a negligible level.

RESULTS

Feathertop seed production was significantly reduced ($P < 0.05$) in the first year after burning, with 6160 seeds/m² in the control compared with 2990 seeds/m² following burning (averaged across spring burn treatments for 1993 and 1994). Feathertop survival, basal diameter and tiller number were significantly lower ($P < 0.05$) in the first year following the 1993 burn. Mitchell grass survival and basal diameter were unaffected, whilst there was a non-significant increase in tiller number per tussock (Table 1).

Table 1. Survival (%), change in basal diameter (cm) and tiller production (tillers/plant) between October 1993 and May 1994 for feathertop and Mitchell grass after burning in October 1993 (Spring Burn) or not burning (Control). * indicates significant difference at 5% LSD (n=4).

Species	Survival (%)		Change in basal diameter (cm)		Tiller production (no./tussock)	
	Control	Spring Burn	Control	Spring Burn	Control	Spring Burn
Feathertop	100	81.3*	-0.5	-2.5*	15.2	3.2*
Mitchell grass	100	100	-0.5	-0.6	0.2	1.8

DISCUSSION

The results of spring burning are favourable. The increase in Mitchell grass tillering is consistent with the findings of Scanlan (1981) and suggests that Mitchell grass is well adapted to fire-induced defoliation. An increase in tillering, and a subsequent increase in seed production, may be beneficial in maintaining Mitchell grass soil seed banks. In contrast, feathertop appears poorly adapted to fire-induced defoliation, as suggested by Filet (1990). Defoliation through grazing may also be important in the control of feathertop, but the role of grazing following burning is unclear. Purcell and Lee (1970) found that stocking heavily after burning did not control feathertop. Lighter grazing or spelling may be necessary, as is the case with *Aristida* control in black spear grass pastures (Orr and Paton 1993). The role of grazing following burning in Mitchell grasslands requires clarification.

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