

# Recreational hunters' views on fallow deer management in the Blue Mountains, Otago

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## ABSTRACT

A postal survey of 972 recreational hunters who used the Blue Mountains Recreational Hunting Area (RHA) in the year to March 31, 1985 produced 443 usable replies. Most hunters (63%) were between 25 and 39 years old, and most (63%) had less than 15 years' hunting experience. Presence of fallow deer and nearness to home were the major attractions of the RHA. The exclusive hunting block system limited hunting pressure, as 70% of hunters would have hunted more often if favoured blocks were available. However, 98% preferred this system. Blocks with an average success rate of one deer per four hunting days satisfied the minimum requirements of 98% of hunters. Although hunters were generally satisfied with deer numbers in the better blocks 73% wanted deer numbers increased, preferably by limiting hunting opportunity rather than by making hunting more difficult or by changing their usual practices.

Most New Zealand deer populations have been dramatically reduced by intensive commercial hunting (Challies 1985). Recreational hunters have seen many of their traditional hunting opportunities disappear, but they have successfully lobbied for the establishment of Recreational Hunting Areas (RHAs). To date, 10 such areas have been formally gazetted, and in these areas commercial hunting is prohibited by law (unless deer populations get out of control) and management is to enhance hunting rather than to protect soil, water or vegetation values (Miers 1985).

RHA managers wanting to improve hunting quality have little information about what New Zealand hunters think of various management objectives and techniques, although two major surveys of recreational hunters touch briefly on this subject (Simmons and Devlin 1981, Groome *et al.* 1983). In this paper we present results from a recent postal survey of hunters using the Blue Mountains RHA in Otago. We asked them why they used the RHA, what success rate they required, and how they felt about deer numbers, vegetation condition, and a variety of potential management methods.

## The Blue Mountains RHA

The Blue Mountains RHA was gazetted in 1980, and fallow deer (*Dama dama*) and pigs (*Sus scrofa*) are hunted there year-round. It contains 10,700 ha of exotic (mainly *Pinus* spp.) plantation, 8000 ha of indigenous (mainly silver beech, *Nothofagus menziesii*) forest, and 2500 ha of subalpine shrub and tussock land.

Fallow deer were liberated in the area in 1869, and reached high densities soon after. Improved access and increasing interest in outdoor recreation have seen a steady decrease in deer numbers since the 1950s (Baker 1973, and unpublished survey data). The decline continued after gazettal in 1980, and hunters pushed for management change — one of the reasons why this survey was undertaken.

The area is divided into 34 hunting blocks, with 22 available only for weekend hunting (Fig. 1). Parties of up to four hunters are given exclusive hunting rights to one block for a maximum of seven days.

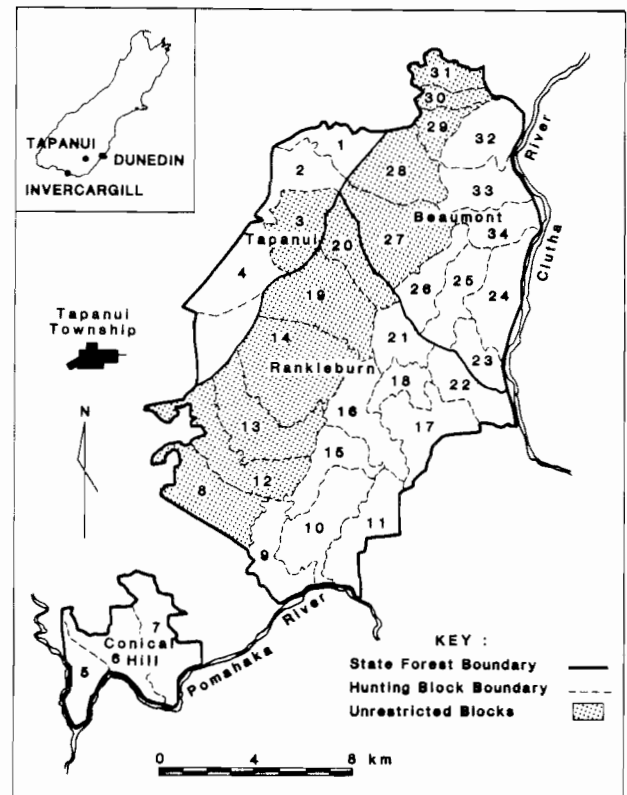


FIGURE 1 The Blue Mountains Recreational Hunting Area showing the hunting block boundaries. The shaded blocks contain mostly indigenous forest, and in 1984/85 were available for hunting throughout the year. The remainder were available only for weekend hunting and contain mainly exotic forest.

Each hunter is asked to fill in a hunting return for each trip. In the 1984/85 year (to March 31, 1985), 3692 permits were issued to about 1200 hunters, and 3327 (90%) were returned, reporting 394 deer and 136 pig kills. There were no hunting restrictions on the number, age, sex, or size of either animal.

## The Survey

In December 1985, questionnaires were mailed to the 972 hunters who gave adequate addresses and had hunted in the RHA on at least one day in the 1984/85 year. Of the 470 questionnaires returned, 443 could be used in the survey. We believe that most regular users of the RHA responded, and that non-respondents were mainly infrequent hunters with relatively little interest in the sport.

## Age, Experience, and Motivations of Hunters

Most hunters (63%) had less than 15 years' hunting experience, and nearly a quarter (22%) had started hunting after the RHA was gazetted. As found in other such surveys in New Zealand (Simmons and Devlin 1981, Groome *et al.* 1983), most Blue Mountains hunters were in the 20-to-39-year-old age group. The number of young hunters less than 20 years old was lowest in 1985 (Table 1), suggesting a declin-

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ing interest in the sport, but the differences were small and there appeared to be enough recruits to maintain the current demand for hunting.

Most hunters (75%) did not favour any particular deer species, and only 20% preferred fallow. However, the opportunity to hunt fallow deer was a main attraction of the RHA (44%), with nearness to home also important (36%). Only 6% gave higher deer numbers as a reason for hunting there. A similar percentage were assessing the area's potential. The remaining 8% emphasized the presence of pigs, easy access, or easy terrain, the last two being important to older hunters (60+ years).

Nearly all those who replied (94%) intended to continue hunting in the RHA. The most common reasons for not intending to return were that the hunter had moved away (2.7%), or that there were too few deer (2.5%).

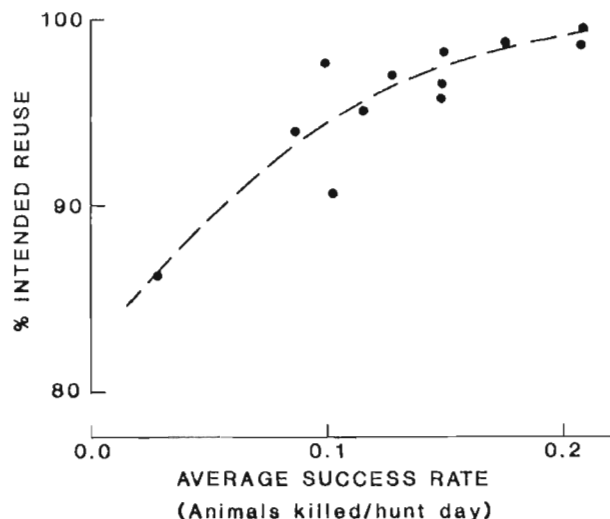
The exclusive block system reduced potential hunting pressure as 70% of hunters would have hunted more often if the block of their choice had been available. However, 98% preferred the exclusive block system to the more frequent hunting opportunities available under a non-exclusive system. This contrasts with the North Island, where 42% of hunters preferred a non-exclusive open system (Groome *et al.* 1983), and supports Groome *et al.*'s conclusion that hunters tend to prefer the system they know.

Hunters were able to identify which blocks were most likely to produce a kill, and tended to avoid poorer blocks (Table 2). The few hunters using the poor blocks were mainly skilled hunters with local knowledge, so that success rates (= kills per hunt day averaged across all 1984/85 hunters) were unexpectedly high in some of these blocks. If we look only at the heavily used indigenous forest blocks open for hunting every day, intended reuse was clearly related to success rate (Fig. 2). This shows hunters are generally success oriented, and so any increase in success rate is likely to result in more hunters wanting to use the RHA more often.

The best blocks had an average success rate of one kill per four hunt days, and seemed to satisfy the minimum requirements of 98% of users, even the 16% who required a kill within two days to maintain interest. For nearly a third of the hunters, success (= the killing of an animal) was of little importance, as they were prepared to continue hunting for 30 or more days without killing a deer. Some of these obviously hunted more for the exercise and outdoor experience than for the satisfaction of killing deer.

### Hunters' Views of Deer Density and Forest Condition

Not unexpectedly, few hunters (17%) were completely satisfied with



**FIGURE 2** The relationship between hunter's intention to continue hunting a given block and the average success rate of all hunters using that block in 1984/85.

Age Class	Percent of sample per age class		
	Canterbury <sup>1</sup> 1980	Central North Island <sup>2</sup> 1982	Blue Mountains 1985
15-19	7.7	5.0	3.9
20-24	28.3	17.7	14.8
25-29	22.1	20.7	28.2
30-39	28.6	32.0	34.4
40-49	7.4	17.0	13.2
50-59	4.2	6.2	3.0
60+	1.7	1.4	2.5
Sample size	362	955	439

<sup>1</sup> Simmons and Devlin, 1981

<sup>2</sup> Groome *et al.* 1983

**TABLE 1** Age structure of three samples of New Zealand hunters, showing significantly fewer hunters less than 20 years old, in the most recent sample ( $\chi^2 = 62$ ,  $P < 0.005$ ).

Location	Block Numbers	Forest Type	No. of Hunters		Kill Index <sup>2</sup>
			Using Block <sup>1</sup>	Not Reusing Block	
Conical Hill	5,6,7	Exotic	30	4 (13.3%)	0.5%
Rankleburn	9,10,11	Exotic	60	19 (31.0%)	0.7%
Tapanui	1,2,4	Exotic/Indig.	79	7 (10.1%)	1.0%
Beaumont	23,25,26,32	Exotic/Indig.	85	13 (15.0%)	1.8%
Rankleburn	15,16,17,18,21,22	Exotic/Indig.	89	7 (8.1%)	2.9%
Beaumont	24,33,34	Indig./Exotic	114	5 (4.6%)	3.3%
Tapanui	3	Indig.	112	7 (6.3%)	2.9%
Beaumont	27,28,29,30,31	Indig.	166	12 (7.2%)	4.1%
Rankleburn	8,12,13,14,19,20	Indig.	168	3 (1.6%)	5.6%

<sup>1</sup> The number of hunters who had used a given block at least once in the last 10 years, averaged for all the blocks in the group.

<sup>2</sup> The percentage of the 1984/85 kill of pigs and deer per block, averaged for all blocks in the group.

**TABLE 2** The relationship between the number of hunters using a block, their likelihood of reusing it, and the kill obtained. Data are pooled for contiguous blocks with similar vegetation and availabilities, the first six groups of blocks being available at weekends only.

deer numbers in the better blocks. Half considered numbers were "okay but could be better" and nearly a third (29%) felt numbers were too low. It is likely that most hunters would have thought deer numbers in the poorest blocks were too low.

Most hunters (84%) thought indigenous forest health was an important management consideration in the RHA. However, only 25% of the 160 comments about this question showed some concern about the indigenous forest for its own sake. The remainder wanted native forest maintained as a source of food and cover for deer, or as a good place to hunt, or suggested that deer were having little or no impact on the forest. They viewed the forest as deer habitat, rather than as an entity deserving preservation in its own right. This was probably a consequence of many hunters (76%) believing that most plant species in the indigenous forest were regenerating adequately, whereas, in fact, most species were not maintaining their relative abundance (G. Stewart, unpubl. data). A similar misconception of forest health on Stewart Island is evident when hunter (Burton and Howden 1982) and scientific (Veblen and Stewart 1980) opinions are compared. In light of this, hunters' view on forest condition should be discarded where deer habitat is managed primarily for its vegetation values.

### Hunters' Views on Management Objectives and Techniques

Hunters were generally (77%) in favour of management of the deer population, with most wanting numbers increased (73%) or maintained (27%) at 1984/85 levels. Only one hunter wanted numbers decreased.

We suggested five possible management options to hunters (see

# HUNTERS' VIEWS OF THE SUGGESTED MANAGEMENT OPTIONS

		Replies	%
A	If the present downward trend in deer numbers is to be <i>stopped</i> or reversed how would <i>you</i> like to see this done?		
	<i>Option 1</i> — Reduce the number of permits issued each year by 20-30%	Like Dislike	217 54 182 46
	<i>Option 2</i> — Total closure of all blocks for 1-2 years?	Like Dislike	157 40 238 60
	<i>Option 3</i> — Charge a substantial fee for each permit so hunting becomes more expensive?	Like Dislike	20 5 372 95
	<i>Option 4</i> — Making hunting more difficult by closing roads so hunters have to walk further to blocks?	Like Dislike	94 24 297 76
	<i>Option 5</i> — Allow only antlered stags to be shot at any time of year?	Like Dislike	199 50 201 50
	<i>Option 6</i> — Write in any alternative option(s) you would like to see	Responses =	107
	Give the number of the option you <i>most</i> prefer.	Permit reduction Total closure Substantial fees Difficult access Stag only Other	113 34 84 25 2 1 32 9 77 23 27 8
B	Supposing Option 1 above was introduced (i.e., reduction in the number of permits issued each year) what methods would you like or dislike?		
	<i>Option 1</i> — Make the blocks bigger but fewer of them?	Like Dislike	174 44 218 56
	<i>Option 2</i> — Allow weekend only hunting?	Like Dislike	145 37 242 63
	<i>Option 3</i> — Close all blocks for 2-3 months each year?	Like Dislike	346 83 71 17
	<i>Option 4</i> — Allow only 2 people per party?	Like Dislike	167 43 222 57
	<i>Option 5</i> — Allow only 5-6 trips per annum per person?	Like Dislike	175 45 211 55
	<i>Option 6</i> — Allow only 1-2 deer per person per annum?	Like Dislike	114 29 274 71
	<i>Option 7</i> — Allow only 1 day per permit?	Like Dislike	92 24 298 76
	Give the number of the option you <i>most</i> prefer.	Fewer blocks Weekend only Closed season Smaller parties Trip limits Kill limits 1-day permits	55 16 29 8 180 53 16 5 28 8 25 7 9 3

inset), none of which received majority support. The most preferred option (34%) involved a reduction in annual hunting pressure by decreasing the number of permits issued. A two-three year total closure gained 25% support, and stag-only hunting 23%. Very few hunters liked the idea of paying substantial hunting fees, and most were against road closures. The main alternative options suggested by the hunters were reductions in illegal hunting (4.7%) and restrictions on the use of hunting dogs (3.6%).

Of seven ways suggested to reduce annual hunting pressure (i.e., the first option above, see inset), 52% preferred a short closed season. Only 17% disliked this method. The alternatives (limiting hunters to one or two deer per year; limiting the number of permits per hunter per year; reducing party size; permitting weekend-only hunting; having fewer, larger blocks; restricting permits to a single day)

were disliked by most hunters and none was preferred by more than 16%.

Thus, although generally receptive to the idea of deer management, Blue Mountains hunters were fairly conservative, preferring simple blanket closures to changes in their hunting practices. The low support for stag-only hunting indicated that many hunters valued being able to shoot the first deer they saw regardless of its age or sex (i.e., the status quo), and confirms similar findings by Simmons and Devlin (1981) and Groome *et al.* (1983).

Grouping hunters on the basis of their reply to a particular question revealed some differences between groups. For example, those with few previous kills were less likely to want stag-only hunting than more experienced hunters. Generally, however, the differences between groups were small, and no group of hunters was unanimous in their management preference.

## Conclusions

Hunting satisfaction can be improved by increasing deer numbers (i.e., increasing kill-related satisfaction), by increasing hunting opportunity (i.e., increasing satisfaction not directly related to the kill), or by a combination of both (Hendee 1974). Hendee strongly advocates the multiple satisfaction approach for deer management. However, Decker *et al.* (1980) suggest that, for North American hunters, kill-related benefits are generally far more important in satisfying hunters than benefits such as outdoor experience or comradeship. The willingness of most Blue Mountains hunters to forego hunting opportunity in return for better hunting, and their avoidance of poor blocks, indicates that this is also true in New Zealand. This suggests deer management for hunting satisfaction should concentrate on maximizing the kill.

We found that blocks with an average success rate of one deer per four hunt days satisfied the minimum requirements of most hunters. Such blocks were heavily used in 1984/85, leaving little potential under the exclusive block system to increase their use. There was greater potential to increase both satisfaction and the amount of hunting in the Blue Mountains RHA by increasing deer numbers on all blocks to levels where hunters could average one deer every four days.

In summary, Blue Mountains hunters were reasonably positive about their sport and the management of the RHA, although seeing room for improvement. They appeared to want to maintain the status quo as far as possible. They accepted the need for restrictions to improve the quality of hunting, but were divided about how best to achieve this.

## Acknowledgements

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# INSTITUTE NEWS

## Highlights of Council Meetings February 19 and April 15, 1987

Most of the business carried out at these meetings was of a routine nature. However the following may be of interest to members:

- There was a visit by 40 members of the Society of American Foresters in early April and Mr Bunn accompanied this tour. Mr Berg arranged the itinerary.
- Council has purchased a small gift for Mr John Wilson who acted for many years as the editor of New Zealand Journal of Forestry.
- Local sections are encouraged to have occasional joint meetings with the Hoo Hoo Clubs (or other forestry groups).
- It was decided the Institute should remain a member of the QEII Trust.
- The Institute has had a cash flow problem as a result of the high costs of printing the Forestry Handbook and magazines. It is hoped this will ease as more copies of the Handbook are sold and advertising increases in 'New Zealand Forestry'.

- An Institute sponsored goodwill visit to Chile is being considered.
- Council decided to make a submission to the Review of NZ Universities, and to the Government review of training in the Forestry sector, with particular reference to MOF.
- Council were disappointed that there was a poor response to the Curt Gleason Memorial prize.
- The report of the Education and Training Committee was received. It will be made available to members shortly. The report considers graduate and post-graduate forestry education.
- Changes to the Constitution, particularly those relating to membership issues, received considerable discussion.

Finally Council has been aware of the need to consider the nature of the Institute in the light of recent changes. It has received several reports and wishes continuing debate.



## NZIF 1987

## Forestry

## Handbook

## Errata and Additions

Council would be pleased if members could send in notes on any errors, amendments and suggestions on the Handbook.

This information will be valuable for future editions. Please forward this information to the Secretariat.