

**Management of Himalayan Tahr  
in New Zealand**

**High Country Farmer Perspectives  
and Implications**

**Kenneth F.D. Hughey  
and  
Karen M. Wason**

**Research Report No. 276  
August 2005**

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Surprisingly, one of the most difficult jobs of this research project was trying to identify properties within the feral range of tahr which contained the species and which therefore should be subject to this survey. We thank Garry Ottmann and Donald Aubrey in particular for their assistance with this part of the planning. We also thank Donald Aubrey and Rodney Patterson for supporting the survey. Brad Case and Geoff Kerr helped us with GIS mapping of likely properties and Geoff commented on drafts of the questionnaire and on a draft of the manuscript - our thanks for this work. We also thank Dave Forsyth and Caroline Saunders for commenting on the final draft of the report. Finally, and most importantly, we thank all the respondents for the time they put into the survey.



## Executive Summary

Himalayan tahr (*Hemitragus jemlahicus*) were introduced and established in New Zealand in 1904. Tahr are managed by the Department of Conservation (DoC) under the Himalayan Tahr Control Plan (DoC 1993). They are present on lands in the central South Island high country and mountains: these lands are primarily conservation lands managed by DoC or Pastoral Leases occupied by high country farmers. The purpose of this report is: (1) to outline farmer perspectives about Himalayan tahr and the management of tahr on high country stations; and (2) to contribute to the ongoing debate about the future management of the species.

Forty three high country farmers were surveyed in 2004. Thirty eight written responses were received (88.4% response rate) with the remaining five properties giving some comments to phone-based oral questioning (thus providing 100% coverage for some issues). The high response rate provides a very high level of confidence in the results reported.

Almost all respondents consider tahr a resource to some extent and that they have become more so over the last ten years. Many respondents saw other plant and animal pests as more of a threat than tahr, with rabbits, hares, broom and gorse regarded as particular threats, primarily due to them being harder to control. Reported income for farmers generated by activities associated with tahr ranged from under \$1,000 to over \$50,000 per year, per property.

Slightly more than half of the respondents reported more than 50 tahr on their properties with the same proportion of respondents stating numbers had 'remained static', while a third stated numbers had increased. We roughly estimated the reported annual total harvest of tahr on survey-respondent properties to be around 1,600 but extreme caution should be accorded this estimate as it does not take account of farmer over- or under-estimates.

Almost all respondents favoured sustainable management of tahr in the long run. While tahr management is currently undertaken under the auspices of DoC's control plan it is clear from the survey that run holders see the possibility of this arrangement being changed. Property owners regarded themselves as the prime management agency although many expressed a willingness to join other organisations for management. No mechanism for these partnership approaches was explored however, and none exists within the current management approach.

Given the resource value of tahr to farmers the survey findings indicate that notions of Integrated Pest Management (IPM) or multi-species pest management on these lands are misplaced. Instead, run holders and DoC should consider using Integrated Animal Management (IAM) as their main philosophy, and property management should be based around a total stock unit-based grazing regime with the condition of the land monitored to sustain that regime.

This survey has further highlighted the growing tension between those seeing tahr as a resource (farmers and hunters) and those who view them as a pest (DoC and some environmental NGOs). The survey points to a desire for a new management regime for Himalayan tahr on pastoral run lands. This regime could consider recognition that tahr are a significant resource (albeit with pest potential) and promotion of a cooperative management approach between run holders, DoC and hunting interests that seeks to meet the combined interests of all these parties.

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# Chapter 1

## Introduction

Himalayan tahr<sup>1</sup> (*Hemitragus jemlahicus*) were introduced and established in New Zealand in 1904. During those 100 years tahr have variously been viewed as a hunting and trophy resource, as a pest to nature conservation, and/or as a means of diversifying farming. The philosophy behind these changing views has been summarised in Hickling et al. (2003) and the current management practices for tahr are evaluated in Ottmann and Hughey (in press). While tahr are present in the wild only in the central South Island of New Zealand, they occupy lands with a variety of tenures, although mostly split between conservation lands managed by the Department of Conservation (DoC) and Pastoral Leases (PL) owned by high country run holders. Irrespective of the land tenure, however, Himalayan tahr management in New Zealand is governed by the Wild Animal Control Act (1977), legislation that is managed by DoC.

Himalayan tahr are managed under the auspices of the Himalayan Thar Control Plan (DoC 1993). That plan was due for review in 2000 but was rolled over for a further five years while the Department developed generic conservation policies including those covering pest species. This provides an opportunity for stakeholder input into the review process.

The purpose of this report is:

- To outline farmer perspectives about Himalayan tahr and the management of tahr on high country stations; and
- To contribute to the ongoing debate about the future management of the species in New Zealand.

The relevance of this research is heightened by current tensions within the farming community, and between the farming community and DoC about ongoing opportunities for land tenure review<sup>2</sup>. The report includes a brief background on previous relevant research, a summary of the research methods used, detailed results, discussion and policy implications (which then includes findings from related tahr research), and a final set of conclusions.

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<sup>1</sup> Note that in New Zealand government legislation and associated policy and planning documents the species is accorded the Himalayan thar spelling. Elsewhere in New Zealand the correct spelling of Himalayan tahr is used. We used both forms as appropriate to the context of this report.

<sup>2</sup> A voluntary process entered into by Pastoral Lessees and agents of the Crown, including DoC, leading to freeholding of mainly production-only parts of properties with the remainder mostly remaining with the Crown under conservation management. For many high country properties this process would remove a substantial proportion of the habitat, opportunities and responsibilities of Himalayan tahr.



## Chapter 2 Background

'Stakeholders' other than farmers have been surveyed about tahr. Davys et al. (1999) reported on a survey of recreational tahr hunters in Canterbury. Key implications of that survey were that recreational hunters could play more of a role in reducing densities if (i) new huts were strategically located, and (ii) managers provided better information about areas of high tahr density (Davys et al. 1999: 1). Fraser (1995) surveyed the New Zealand population about public attitudes to introduced wildlife and their management and included tahr in his study. He reported that most people viewed tahr as either a resource or as a pest and resource, and that 47% of respondents would manage the species as both a commercial and recreational resource (Fraser 1995). Farmer surveys have not been so comprehensive. Prior to publishing the 1993 control plan DoC commissioned a survey of high country farmers who were thought to have tahr on their property (see Hughey 1997). The aims of that survey were to "...ascertain the present extent of the tahr range, the degree to which tahr are actively hunted by the various interest groups over the range and your approach to the management of your property as far as tahr are concerned" (Griffiths, 1992). Twenty four farmers responded to that survey (although precisely how many surveys were sent out is unknown). Key findings were that:

- 22/24 respondents had tahr on their property;
- in terms of hunting access seven gave free access, 15 had restricted access and one provided no access;
- five farmers had recreational permits associated with tahr hunting;
- four had involvement with safari hunting.

Of respondents who provided additional comments one noted that safari guiding was an economic opportunity, three were opposed to eradication, four saw tahr as an asset to the nation, while one would not be upset by their extinction.

The most notable recent work on tahr management is that of Bergartt (2004). She used a research method known as social construction theory to examine many perspectives of the management debate. Most notably Bergartt noted opportunities for improved research into tahr and for a more open role in management by DoC.

Finally, and before proceeding with our research, it is important to summarise the key components of the Himalayan Thar Control Plan (1993). The Plan operationalised the Thar Policy (Marshall 1991) by subdividing the tahr range into two exclusion zones and seven management units. The first exclusion zone is at the northern and the second is at the southern end of the tahr range. Exclusion zones are designed to prevent further spread of tahr and control would be primarily government-funded. Management units have an average tahr density varying from 0-2.5 tahr per square kilometre. There is an implied maximum population of tahr of 9,000 to 10,000.



Until recently, tahr densities were monitored by counts undertaken on a rotational basis for sample sites within each management unit. The counts were not a census as such but provided an index of change within the tahr population. Recreational hunting and guided hunting have priority in most management units, with commercial recovery and government-funded control

coming into play if target densities are exceeded. For those units with low target densities, such as National Parks, all methods are available.

The effects of tahr on the vegetative cover of their habitat are monitored via a series of marked plots located in five study catchments. They are not enclosures designed to measure presence or absence of plant species but to measure changes in these species over time. These plots have been remeasured twice since the inception of the Plan and the results of the first series of measurements are discussed below.

The Thar Control Plan also sets out criteria for the farming of tahr and for holding them in captivity.

Ottmann and Hughey (in prep.) have evaluated the control plan and its implementation. They drew the following conclusions. The existing Thar Policy and Thar Plan have been brave attempts at introducing wise management into ungulate control in New Zealand. Unfortunately, aspects of these 'experiments' have only been of limited success, e.g., in terms of involving hunters in management and providing flexibility over control operation targets. If management is to improve, and be consistent with principles of adaptive management, Ottmann and Hughey (in prep.) considered the Department and others have to accommodate broader conservation management perspectives. To this end, a shift from a principle of control to a principle of management would send important signals to all parties, although, like some of the vegetation in the tahr range, this is likely to be unpalatable to some of the strong environmental groups.

Complementary research has been undertaken into ungulate management in the South Island high country. In particular the work of Forsyth (2000) concerning the coexistence of chamois (*Rupicapra rupicapra*) and tahr and Forsyth et al. (2000) into multi-species management of overlapping pest species warrants consideration. This work led to recommendations for a multi-species approach to management of introduced pests and is addressed within section 5.2 of this report.



## Chapter 3

### Methods

Consistent with the 1992 survey method we used a postal survey of high country farmers thought to have tahr on their properties (within the feral range, see DoC 1993) as the basis for the research.

The survey was mailed out on 26 October 2004 with a separate covering letter and a supporting letter from the South Island High Country Committee of Federated Farmers. This was followed up with a reminder letter and an additional copy of the survey on 15 November 2004. Follow up phone calls, mostly in the evening, were also made as necessary.

The survey (see Appendix 1) covered the following key components:

- the degree of threat to, or opportunity for, farming activities from the presence of tahr; the comparative nature and extent of other potential threats; and the extent to which tahr have become more of a resource or more of a problem on properties over the last 10 years;
- the 'value' of tahr, e.g., commercial, recreational, conservation; the income per year earned from tahr on individual properties;
- trends in tahr numbers on properties in the last 10 years; numbers of tahr on properties; and a question related to tahr harvest on a property basis;
- the degree of interest in and planning for farming tahr;
- the types of tahr hunting allowed on properties and involvement with professionally guided hunters, recreational hunters, commercial tahr meat/live animal recovery operations, Department of Conservation animal control operators, etc.; and a question about access to recreational hunters;
- the effectiveness of tahr control;
- goals for tahr management - in the long term should tahr be exterminated, controlled to very low numbers so as to safeguard native vegetation, or sustainably managed (e.g., with emphasis on reducing nanny numbers while maintaining relatively high numbers of bulls, so as to safeguard native vegetation and maintain a viable hunting population)?
- the responsibility for the control and management of tahr, i.e., Department of Conservation, an expanded Fish and Game New Zealand, an existing recreational hunting organisation, property owners, or some combination of these options.

Several questions were also asked regarding tourism on high country stations. These were included for a separate research project and the results are reported elsewhere.

Four weeks after the first survey was sent, a follow-up telephone call was made to non-respondents. This call sought responses to the following questions:

- We haven't yet received your tahr survey, will you be completing it?
- If not, is there any particular reason for not responding?

We then asked if the respondent was prepared to answer a limited number of questions over the phone, and if they were we then asked:

- Are there tahr on your property?
- Do you consider tahr a resource or a threat?
- Since the Thar Plan was introduced by DoC in 1993, can you tell us what the trend in tahr numbers has been on your property and roughly how many tahr you think are there?
- Do you provide access to recreational hunters?
- What do you think should happen to tahr in the long term?

A second round of follow-up telephone calls was made to non-respondents in mid December which secured the return of more surveys and additional telephone responses.

Survey results were coded in SPSS and subjected to frequency and cross tab analysis, and in a small number of instances, regression analysis and Chi squared testing.

## Chapter 4 Results

The findings from this survey are largely unequivocal, i.e., farmers mostly see tahr as a resource and responses to almost all questions reflected this finding. As a result, efforts to detect differences between farmers, at a statistical level of analysis, were all negative. The survey results can therefore be interpreted with a very high level of confidence and reliability.

### 4.1 Response rate

In all, 55 surveys were posted to high country farmers upon whose properties we thought there were probably Himalayan tahr. Twelve property owners advised that their properties had no tahr and so these properties were removed from the survey sample leaving a sample of 43. Of the 43 valid properties, 38 (88.4%) surveys were ultimately received by return post and five (11.6%) limited responses were recorded by telephone during the follow up phase (i.e., a 100% response rate in total). The latter responses, where they relate to a particular question, are identified specifically in this section; otherwise results refer to the postal survey results.

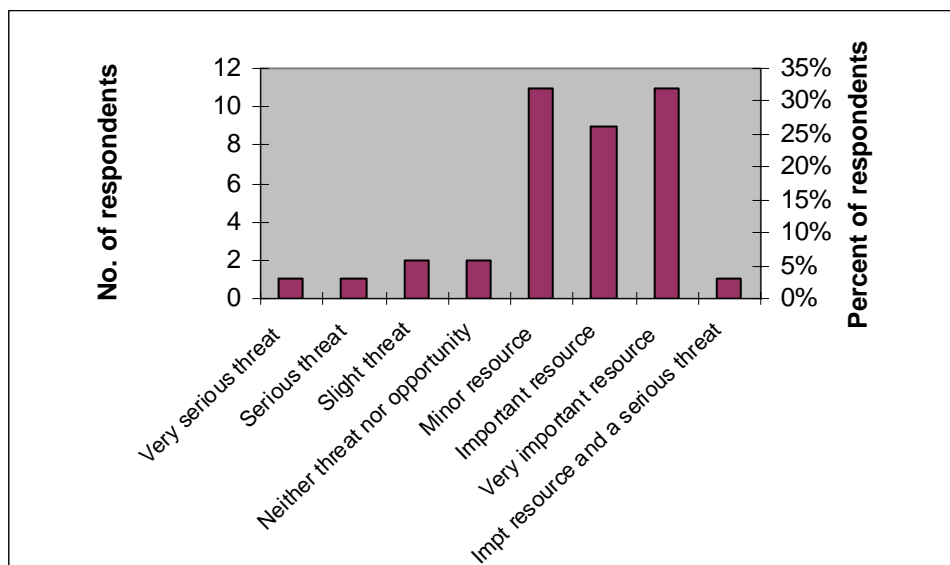
### 4.2 Length of time on current property

Of the 38 respondents, 37 answered the question on the length of time they have been on their current property. The majority of run holders, i.e., 26/37 have been on their properties for the full duration of the Tahr Control Plan or longer (i.e., since before 1993). There is thus a high level of experience with Himalayan tahr management amongst the respondents.

### 4.3 Pest or resource questions

Farmers were asked whether they regarded Himalayan tahr on their property as a threat to, or opportunity for, their farming activities. Seven options were presented for selection anchored by regarding tahr as a 'very serious threat' to regarding them as a 'very important resource' (Figure 1).

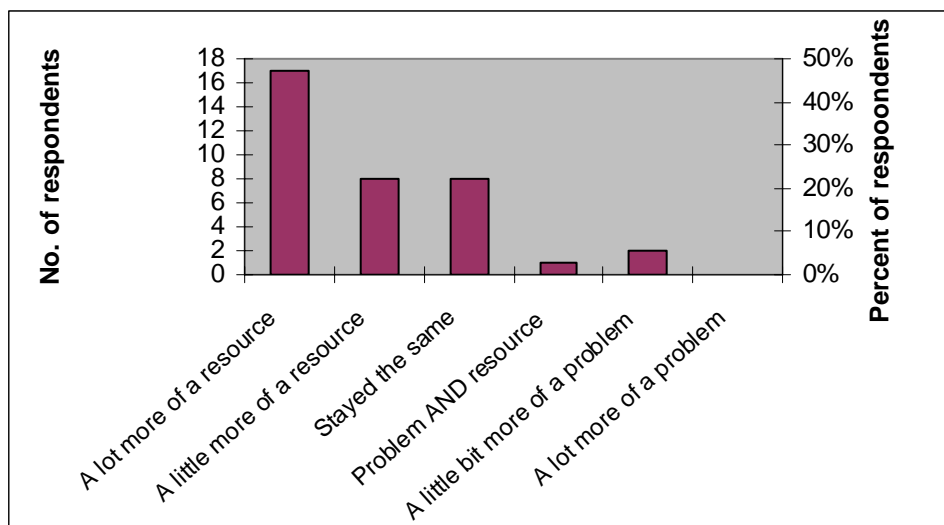
**Figure 1**  
**The extent to which farmers consider tahr a threat or opportunity**



Most respondents (84%) considered tahr more of a resource than a threat, with only five respondents placing them in any of the threat categories. In addition, all five farmers who responded to questions by phone, considered tahr were a resource. One postal respondent considered tahr to be both an important resource and a serious threat and this response has been added as a separate category in Figure 1.

We also asked farmers whether tahr were perceived to have become more of a resource or more of a problem. Farmers could select one of five options anchored by ‘a lot more of a resource’ and ‘a lot more of a problem’ (Figure 2).

**Figure 2**  
**Farmer perceptions of tahr as a resource or problem**



As shown in Figure 2, the majority of respondents (66%) consider tahr to have increased as a resource.

We then asked farmers if they considered other species (animal or plant) were a greater threat to the viability of the (farming) business than tahr. Thirty two (84.2%) responded to this question and of these 30 (93.8%) responded positively (i.e., that there were other species that were a greater threat). Sixteen respondents provided an explanation regarding why they thought the species they listed were more of a problem than tahr. Responses were categorised as follows:

- Harder or more expensive to control (11 respondents);
- Higher concentration of the pest (2);
- Destruction caused in grazing areas (2); and
- The need for immediate attention (1).

The alternative threats are shown in Table 1. The main species of concern were rabbits and hares, and gorse and broom.

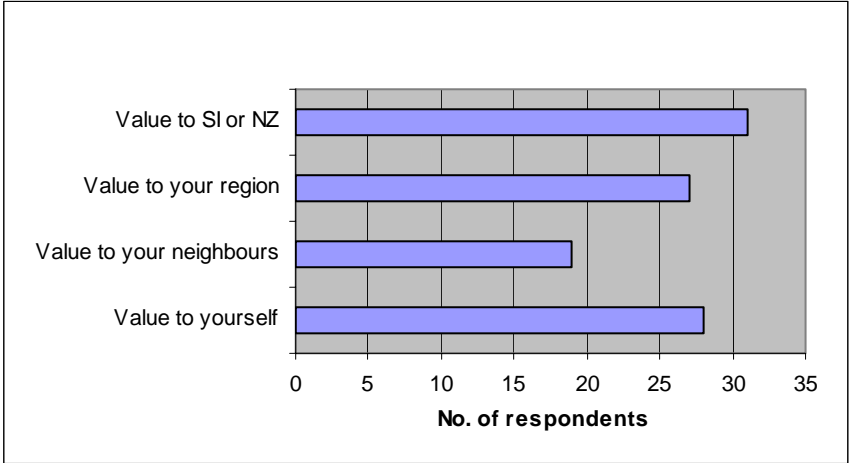
**Table 1**  
**Species considered more of a threat than tahr to business viability**

Species (or grouping)	No. of times listed by respondents
Rabbits or hares	14
Gorse or broom	13
Wilding trees	7
Hieracium	6
Possum	4
Briar	4
Feral pig	3
Matagouri	3
Geese	2
Ferrets	2
Fern	2
All weeds	2

**4.4 The value of tahr**

All farmers responded to the question asking whether they placed a ‘value’ on Himalayan tahr. Thirty five (92.1%) responded that they did place a value on tahr and three (7.9%) did not. Furthermore we asked farmers who they considered tahr to have ‘value’ to, giving four options; self, neighbours, region or South Island or New Zealand. Respondents were able to select ‘Yes’ or ‘No’ to each option (Figure 3).

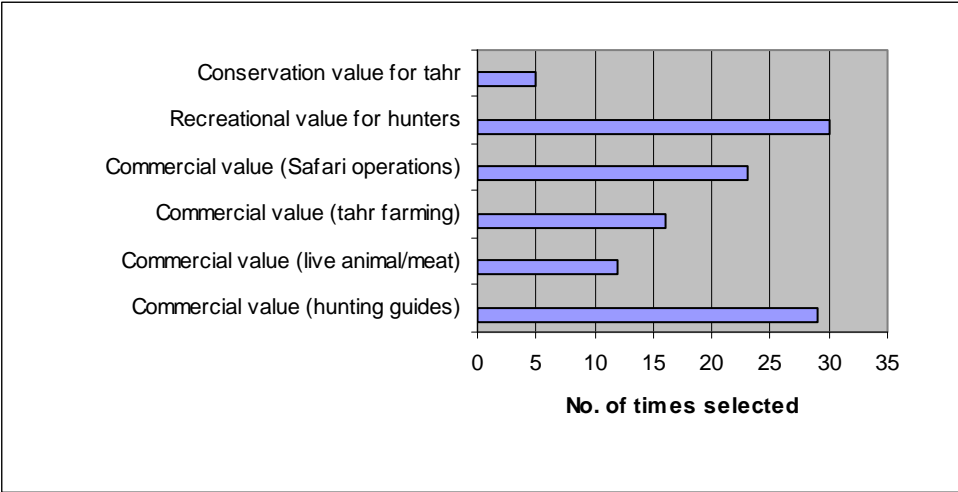
**Figure 3**  
**The range of values held by farmers towards tahr**



As demonstrated in Figure 3, most respondents considered tahr to have value to themselves as well as to their region and New Zealand. Of note, some respondents who did not see tahr as being of value to themselves did see tahr as being of value to their region or New Zealand.

Next we sought to identify the type of value that was placed on tahr: commercial; recreational; or conservation (Figure 4). Commercial value was divided into four parts: hunting guides; live animal or meat recovery; tahr farming; safari operations. Thirty five farmers (92.1%) responded to this question with the remaining three having not responded on the basis of not according a value to tahr in the previous question. Respondents could select more than one option.

**Figure 4**  
**Types of value placed on tahr**



As

represented in Figure 4, tahr are valued for their benefits to recreational hunters, hunting guides and, to a lesser extent, safari operations.

We asked farmers how much income per year was earned from tahr on their property. Twenty six farmers (68.4%) responded to the question and 'income ranges' were developed on the bases of the responses received (Table 2).

**Table 2**  
**Reported income received from tahr**

'Income ranges'	Number of responses	Valid percent
\$0.00	12	46.2%
<\$1,000	2	7.7%
\$1,001-\$5,000	3	11.5%
\$5,001-\$10,000	2	7.7%
\$10,001-\$20,000	2	7.7%
\$20,001-\$30,000	1	3.8%
\$30,001-\$40,000	1	3.8%
\$40,001-\$50,000	1	3.8%
>\$50,000	1	3.8%
Confidential	1	3.8%
Total responses	26	100%

Twelve respondents reportedly did not earn anything from tahr. The positive responses received ranged from under \$1,000 to over \$50,000 and one respondent answered

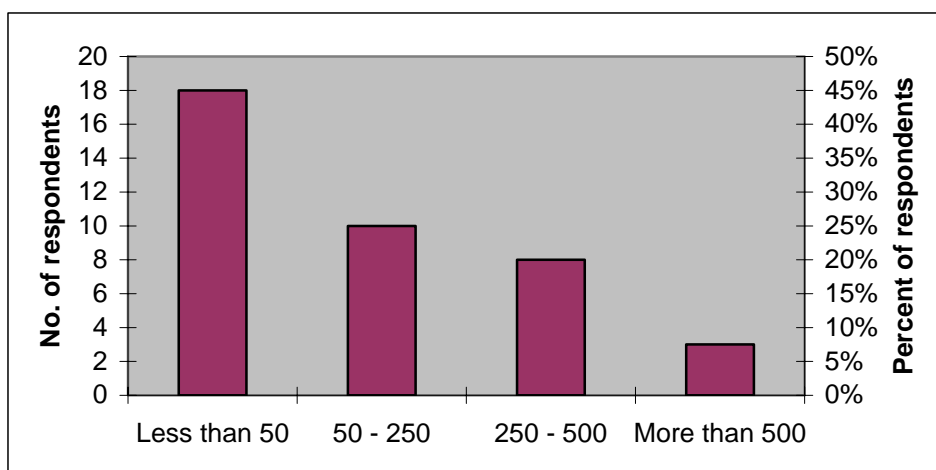
‘confidential’ with no further information given. It was assumed in these results that this latter respondent did have an income from tahr. This was a commercially sensitive question to ask and we recognise that responses are likely to be indicative only of the range and number of property owners gaining some income from tahr.

Seven of the nine respondents who reportedly earned *up to* \$30,000 income per year, reported that tahr numbers on their property were less than 250. The four respondents who reportedly earned *more than* \$30,000 or chose their income to remain confidential, reported tahr numbers on their land to be over 250.

#### 4.5 Tahr population trends

A series of questions dealt with estimated tahr numbers, trends in tahr numbers and tahr harvests. We acknowledge that reported numbers of tahr and tahr harvested are highly unlikely to be accurate and we emphasise caution when considering the numbers presented here, i.e., from a ‘pure’ population ecology perspective formalised ground-based or helicopter-based monitoring is required. Of particular note is that bull tahr are highly mobile and there is movement between properties of these animals.

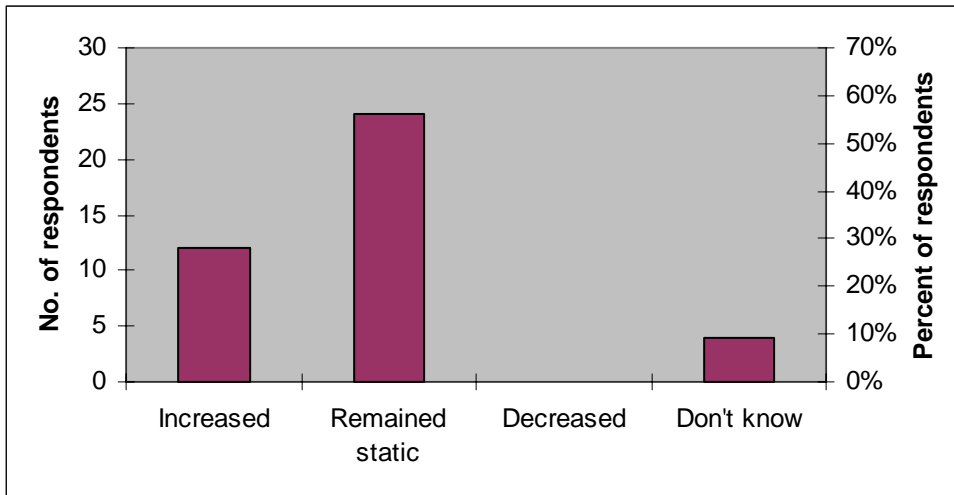
**Figure 5**  
**Estimated numbers of tahr on high country properties**



Of the 39 respondents (survey and telephone) who were prepared to estimate the number of tahr on their property (Figure 5), 21 (54%) reported they had more than 50 animals. Three other respondents stated that they had some but did not know how many, while one other respondent had a large number but was not prepared to give an estimate (and referred us to the Department of Conservation for further enquiries, which we did not pursue).

While it might be possible, with care and by being explicit about the limitations, to estimate combined tahr numbers for the respondent properties we have refrained from this here due to the following limitations. One of the biggest 'unknowns' is the extent to which properties share tahr and the extent to which tahr move between properties and the conservation estate. Widespread tahr movement both within and between seasons and catchments is known (e.g., see Forsyth 1999) and makes calculating numbers based on perceptions extremely difficult. We also asked farmers to indicate how tahr numbers on their properties had changed in the last 10 years (Figure 6).

**Figure 6**  
**Perceived trends in tahr numbers in the last 10 years**



Forty farmers (93%) responded to this question (survey and telephone respondents). It was notable that no properties reported a decrease in numbers.

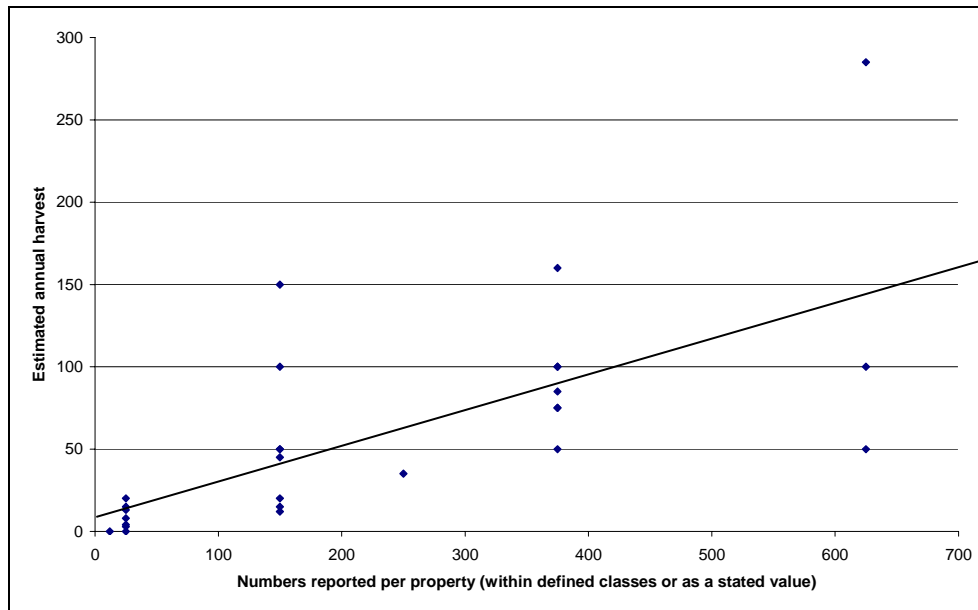
Properties with high numbers of tahr ( $N > 250$ ) were significantly more likely to have reported an increase in numbers over the last 10 years than were those with fewer tahr (Chi square analysis;  $P = 0.003$ ). Some properties with only a few tahr, only reported wandering bulls and thus explaining some of this variation.

Finally for this section, we asked farmers how many tahr were taken (i.e. harvested) from their property in a typical year - a 97.4% response rate was achieved. Most respondents gave actual numbers although some gave them within a small range. We summed the actual numbers and the mid-point of the range for others and this gave a total estimated annual harvest of 1,620 animals. Again however we suggest caution is needed when considering this total as different motivations on the farmers' part may have lead to either an over- or under-estimate of harvest numbers.

The survey results also revealed that the higher the reported tahr numbers, the higher the reported tahr harvest per year. All 13 properties with reported numbers of less than 50 tahr, had a tahr harvest of less than 20. The eleven properties with reported numbers exceeding 250 tahr all registered a tahr harvest exceeding 40.



**Figure 7**  
**Relationship between tahr numbers and harvest for each respondent property**



Simple linear regression of the relationship between tahr numbers and harvest ( $R^2=0.46$ ) and a scatter plot of the relationship (Figure 7) indicates a reasonable level of consistency between estimated harvest and perceived numbers, i.e., a ratio of around 1:5 (i.e.,  $H$  (Harvest) =  $0.22$  (harvest rate)  $N$  (Number) +  $9.9$  (Constant)). There are, however, some major outliers and these have contributed to the ‘impossibility’, as shown in the graph, of having a small harvest when there are no animals on the property. One property reported a large number of tahr and a small harvest; this property reported increasing tahr numbers and is managing tahr as a core of its business. Two properties reported large harvests (i.e., around 100 or 150) but reported having only between 50-250 tahr on their properties – in both cases, irrespective of whether tahr numbers are even at the top end of this range, either the harvest is grossly overestimated or numbers are underestimated. A similar situation was reported for three properties in the 0-50 tahr per property range. These scenarios reflect our concern about the accuracy of the numbers given and therefore we urge caution in drawing any ‘control-driven’ conclusions based on this analysis.

#### 4.6 Tahr ‘farming’

We wanted to determine whether farmers had considered farming tahr. Of the 38 respondents, 22 (57.9%) had considered farming, and 16 (42.1%) had not. Of the 22 who had considered farming tahr, 20 respondents gave some indication of their plans:

- Farming tahr now (2 respondents);
- Safari hunting (5);
- The market for tahr [products] needs to be established first (3);
- The next step was yet to be decided (5);
- A ‘timing issue’ (1); and
- Discontinued plans (4);

Of the 16 respondents who had not considered farming tahr, 10 gave reasons for not doing so:

- Other farming interests (6 respondents);
- Might be possible in the future (1);
- Farming would destroy the value of tahr (1);
- There are enough tahr in the wild (1); and
- Farming conveyed the wrong idea (1).

There was no significant relationship between whether respondents were more likely to have considered farming tahr if there were higher numbers of tahr on their properties (Chi square;  $P=0.21$ ).

#### **4.7 Tahr hunting and control**

We wanted to find out the sort of hunting that farmers allowed on their property. Six options were provided and respondents could select more than one (Table 3).

**Table 3**  
**Types of hunting carried out on high country properties**

<b>Sort of hunting</b>	<b>Number of responses</b>
Professionally guided hunters	25
Recreational hunters, no discrimination	17
Recreational hunters belonging to specific organisation	16
Commercial tahr meat / live animal recovery	9
Department of Conservation	5
No tahr hunting, we do all control ourselves	1

Thirty four respondents (89.5%) answered this question with many respondents selecting more than one option. The various combinations and the number of times they occurred are presented in Table 4. The combinations also take account of additional comments made by respondents.

**Table 4**  
**Combination of hunting types allowed by farmers**

Farmer responses	No. of times occurring
<b>Professionally guided and recreational hunters only</b>	
Professionally guided hunters and recreational hunters (no discrimination)	6
Professionally guided hunters and recreational hunters (specific organisation or known personally)	8
<b>Professionally guided, recreational and commercial hunters</b>	
Professionally guided hunters, recreational hunters (specific organisation or known personally), and commercial tahr meat/live animal operators	2
Professional guided hunters, recreational hunters (no discrimination), commercial tahr meat/live animal operators and none we do all control ourselves	2
Professional guided hunters, recreational hunters (both no discrimination and specific organisation or personally known), and commercial tahr meat/live animal recovery	1
<b>Recreational and commercial hunters only</b>	
Recreational hunters (no discrimination) and commercial tahr meat/live animal recovery operations	1
<b>In combination with DoC</b>	
Professionally guided hunters, recreational hunters (no discrimination), and DoC	3
Professional guided hunters, recreational hunters (both no discrimination and specific organisation or known personally), commercial tahr meat/live animal recovery, and DoC	1
Recreational hunters (specific organisation or known personally), commercial tahr meat/live animal recovery and DoC	1

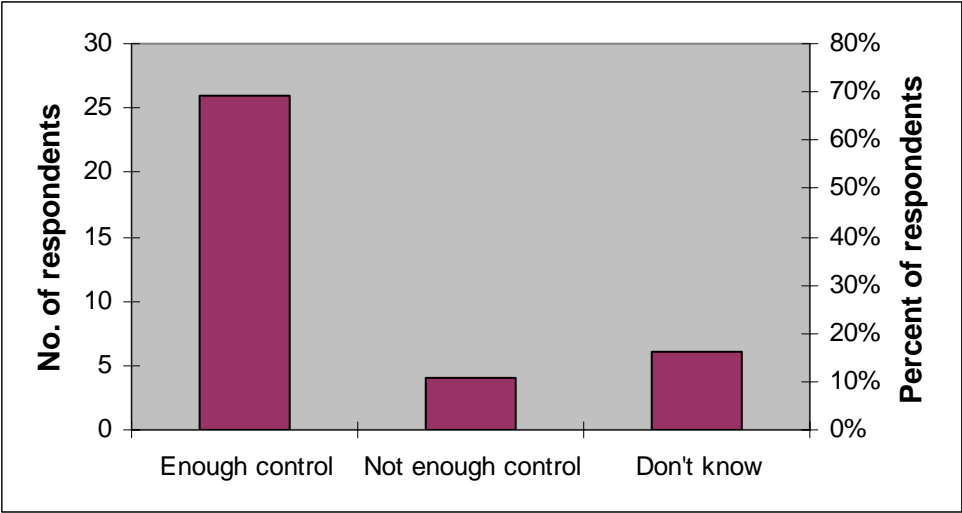
As is evident from Table 4, most respondents reported that they used a combination of control options. Of note, a large number of combinations included professionally guided hunters. Only seven respondents used the following singular options:

- Recreational hunters (specific organisation or known specifically) (3 respondents);
- Recreational hunters (no discrimination) (2); and
- Professionally guided hunters (2).

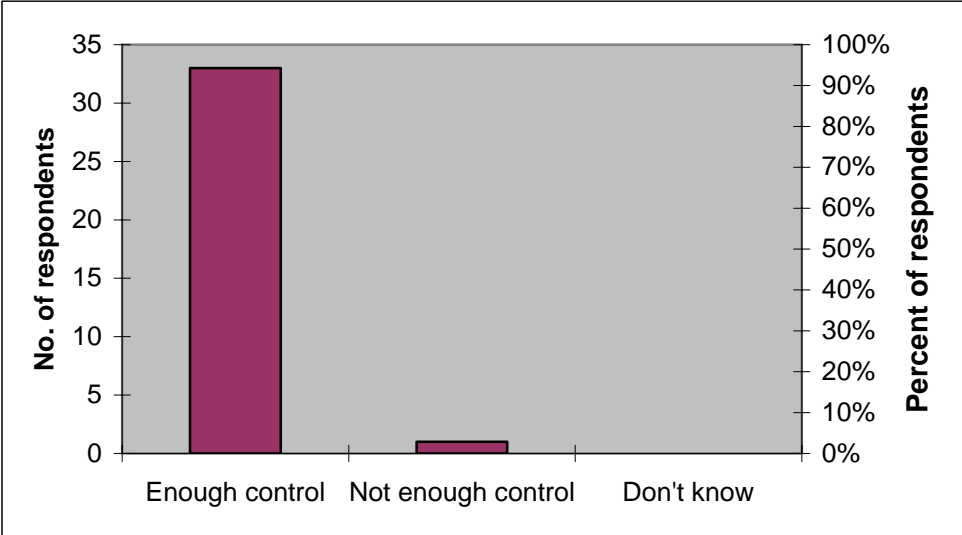
One other respondent commented that ‘numbers were low because of DoC policy on their land, helicopters and judas animals’.

Farmers were asked if they considered that enough was being done to control tahr numbers in the high country and on their property (Figures 8 and 9).

**Figure 8**  
**Farmer perceptions about adequacy of tahr control in the high country**



**Figure 9**  
**Farmer perceptions about adequacy of tahr control on their properties**



Thirty six (94.7%) responded to the question about adequacy of tahr control in the high country with 26 (72.2%) reporting positively (i.e., enough control was being done). Thirty four (89.5%) responded to the question for their own property with 33 (97.1%) reporting positively. The latter seems somewhat surprising given that about 1/3 of respondents considered tahr numbers were increasing on their properties (see Figure 6). However it may also reflect the perception that the presence of tahr is considered acceptable or desirable.

#### 4.8 Ongoing tahr management

Farmers were presented with three long term strategies for tahr from which they could select one option. All farmers responded to this question, with the option ‘sustainably managed’ selected by an overwhelming 35 respondents (92.1%). Three respondents (7.9%) selected ‘controlled to very low numbers’. None selected extermination, although one of the three selecting ‘controlled to very low numbers’ suggested a policy of extermination as a *means* to achieving low numbers.

Further, we asked about who should be responsible for the control and management of tahr. Four organisations were listed plus the opportunity to state a preferred management arrangement (respondents could select more than one option). Some respondents did not select any of the four organisations but separately listed a preferred combination. We have analysed the combined data and presented it in two ways:

1. In Table 5 we tabulate the number of times each organisation was chosen in any option;
2. In Table 6 we show the actual preferred combinations as given by the respondents.

**Table 5**  
**Number of times each key management agency was selected in a preferred organisational arrangement**

<b>Control and management option</b>	<b>Number of times selected by respondents</b>
Department of Conservation (DoC)	12
Expanded Fish and Game NZ	5
Existing recreational hunting organisation	11
Property owners	30

**Table 6**  
**Number of selections for each preferred control and management combination**

Preferred organisational arrangement for tahr control and management	Number of times selected
Department of Conservation (DoC)	3
DoC and property owners	8
DoC, recreational hunting organisation and property owners	1
DoC, expanded Fish and Game, recreational hunting organisation and property owners	3
Expanded Fish and Game NZ	2
Expanded Fish and Game and property owners	2
Existing recreational hunting organisation	1
Existing recreational hunting organisation and property owners	6
Existing recreational hunting organisation + commercial meat hunters	1
Property owners	9
Property owners and independent body to monitor	1
Property owners and DoC to monitor 4-yrly	1
Total	38

There are clear indications of farmer interest in taking control of tahr but there is also a clear focus on the potential and willingness of most property owners to work cooperatively with a variety of other organisations, notably with DoC or with a recreational hunting organisation.

#### **4.9 Recreation hunting and access issues**

We asked farmers to select one of three options reflecting the kind of access they provided to recreational hunters. A 100% response rate was achieved.

Two respondents provided ‘no access’, 21 provided ‘restricted access’ and 15 provided ‘generally free access’.

Over half (55.3%) the respondents indicated they provided ‘restricted access’ to recreational hunters. Two respondents qualified their responses:

- “very low tahr numbers”;
- “when kidding for humane reasons and safety reasons”.

Three respondents who reportedly provide ‘generally free access’ also qualified their responses:

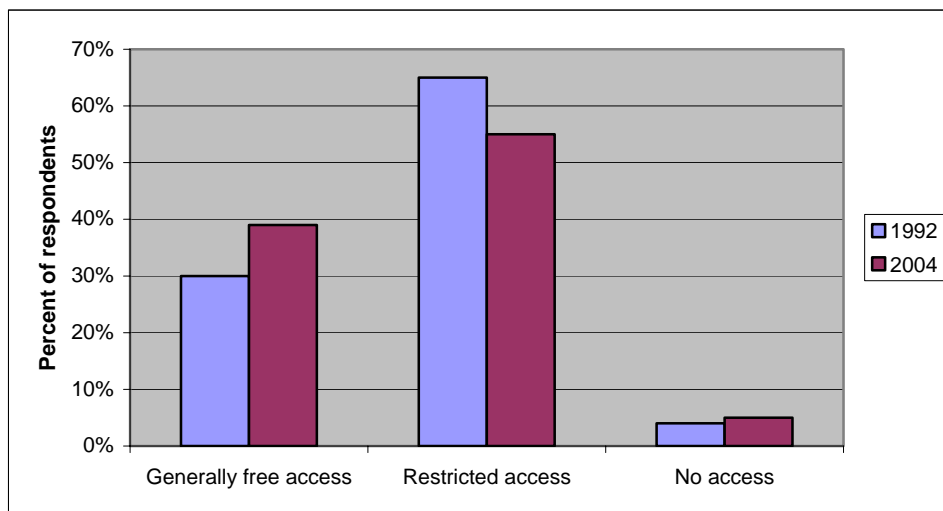
- “not two parties concurrently, giving thereby respect for safety”;
- “as long as they ring and ask”;
- “except for commercial operators”.

Responses from three of the five telephone respondents were:

- ‘No hunting’ (1 respondent);
- ‘Yes’ (1); and
- ‘Yes if asked’ (1).

We also compared the 2004 findings with those from the 1992 survey (Hughey 1997) (Figure 10).

**Figure 10**  
**Farmer attitudes to provision of access for recreational hunters**



A comparison of the two results reveals that a slightly higher proportion of respondents indicated ‘generally free access’ in 2004 c.f. the 1992 survey, while a lower proportion provided ‘restricted access’.

Twenty two (57.9%) respondents indicated they were recreational hunters themselves. We tested whether recreational hunters had a different attitude to access than other respondents but there was no statistical difference (Chi square;  $P=0.25$ ).

#### **4.10 Additional comments**

We asked all respondents if they had any additional comments to make. Comments made by postal respondents included:

- Continuation of the Thar Plan that gives some limitation to numbers is ‘ok’ but DoC intervention for control only as a last resort. Vegetation monitoring on Landcare plots is important to continue;
- Tahr should be confined to its feral range and should be kept to minimal numbers in Aoraki National Park;

- Remove from National Parks, i.e., zero tolerance. Establish a viable meat market based on wild shot and farmed animals. Win/win situation created, nannies controlled and market has sufficient numbers available for consistent supply with farmed animals;
- With government funding, tahr can be properly controlled by property owners and applicable hunting groups. The extermination policy of DoC is not a proper tool for the control of tahr;
- The property is completely ring fenced and the tahr are free range in 6,000 acres plus. They have been stocked on this area and are extensively monitored both for population densities and ecological effect. Consents held;
- The Thar Plan in place is working well on our property;
- DoC does a tahr count either biannually or annually. I am in agreement with this;
- Because of the nature of the country, high numbers are not such a threat;
- Tahr do need to be managed at numbers sustainable to the environment and also increasing numbers impact on traditional pastoral farming. They are a resource but difficult to manage – you can't develop a business plan around them because they might be here one day and gone the next.
- I am of the understanding that tahr exist only in the Himalayas and New Zealand. They are a wonderful animal and a resource, which could well be under threat. The open space outdoors should be a combination of flora, fauna and wild animals.
- If they are endangered in the Himalayas and we need to control them here why not do a joint venture to try to return some to their native range.

Comments from telephone conversations included:

- Tahr are a resource if managed.
- Keep tahr at an acceptable level - they should be seen as a commercial opportunity.



## **Chapter 5**

### **Discussion and Policy Implications**

#### **5.1 Introduction**

In this section we examine the research results, compare them where possible against the 1992 survey, and discuss the implications for overall management of Himalayan tahr in New Zealand. This latter exercise has required recourse to considerable related literature in the area of ungulate and tahr management.

#### **5.2 Implications from the survey response and from the survey design**

We achieved a near 100% survey response. As noted in the methods section it was not always easy deciding which properties might be considered as properties more-or-less permanently containing 'wild' Himalayan tahr. To this end we used local knowledge and advice to identify likely properties. Ultimately we included too many properties in our initial mail out to 55 farmers. This number was subsequently reduced to 43. Of these 'tahr' properties 38 (88.4%) returned the written survey while all of the remainder were subject to a brief follow up phone call which at a minimum ascertained the estimated number of tahr on the property. The high response rate, including all of those properties containing significant numbers of tahr, i.e.,  $N > 100$  tahr, means we can be very confident about the results reported in section 4. As such, policy makers can be assured that the views expressed here are based on the considered response of all of the key tahr properties.

With the benefit of hindsight it is clear that some definitional issues could have been dealt with in the survey. For example, there are multiple ways of exploiting tahr from a recreational hunting point of view and clear definitions of safari hunting, guided hunting and tahr farming, each in relation to the other, might well have clarified some issues further. For example, safari hunting might well, in some circumstances, be behind tahr-proof fences. On the other hand would a few wild-caught bulls behind a fence be considered tahr farming? While these are important issues that should be considered in the design of future surveys, their lack of clarity in this survey does little to reduce the overall conclusions drawn.

#### ***Value/threat/opportunity***

Over 80% of run holders viewed tahr as a resource, with over two thirds of respondents considering that tahr has become more of a resource over time. Although a direct comparison is not possible with the 1992 survey, around a third of respondents to that survey placed a 'value' on tahr. Only two respondents in this survey and one in 1992 considered tahr a serious threat. One respondent noted that tahr can be both an important resource at moderate numbers but a threat at high numbers - this respondent identified a need to keep numbers under careful control. It was also notable that most farmers thought there were greater threats on their properties than from tahr, with rabbits or hares, or gorse or broom, being of most concern to these respondents. Notably those who did provide some additional comment observed that whereas tahr are easily controlled some of these other pests are not.

It was also notable that over 80% of respondents considered tahr to have a value to New Zealand and not just to themselves. The range of this value is broad with almost all farmers

noting the value of tahr to recreational hunters but almost an equivalent number seeing a commercial value from hunting guides. A surprising number of farmers (around two thirds) responded to our question about how much annual income they derived from tahr. Fifty four percent (i.e., 14/24) of these earned something from tahr, with seven reportedly earning in excess of \$10,000 annually. We consider this income an important demonstration of diversification in livestock-based earnings, especially given the management inputs required are likely to be low, e.g., little or no mustering is required, no dipping is needed, and no over-sowing or topdressing. Moreover, it appears likely that at least two thirds of run holders are earning some income from tahr, given that 66% of respondents reportedly allowed professionally guided hunters onto their properties (see Table 5). It would be expected that these guides would pay a fee to the property owner.

Tahr farming is clearly perceived to have potential, although only two respondents reported they were currently farming the animal. Over half the respondents have considered the option, with five planning safari operations and three noting the need to develop markets first.

Despite this positive sentiment toward farming one respondent noted that 'it is difficult to develop a business plan for tahr because of their ability to jump fences and because of the long lead-in time to develop trophy bulls, i.e., around seven years'.

### ***Numbers/trends/harvest***

The Himalayan Thar Control Plan (DoC 1993) identified seven management units for tahr control: four of these units, 1, 3, 5 and 7, contain a mix of conservation land and pastoral leasehold land. The estimated annual harvest of 1600, based on the properties responding to this survey, can be used to estimate numbers on pastoral leasehold land. An annual harvest of around 20-30% is required to maintain or reduce the tahr population at a total population level of around 10,000 (John Parkes, Landcare Research NZ Ltd, pers. comm. 2004). On this basis the population on pastoral lands is likely to be in the range of 5000 (30% harvest) to around 8000 (20% harvest)(noting of course that many of the larger tahr properties border the conservation estate and bulls are frequently on the move). All properties reported either static or increasing numbers thus the harvest is likely to be at the lower end of this 20-30% scale (estimated at 22% from this survey) and numbers might be around the 8000 level. This latter situation could be of some concern to DoC, albeit given the multiple limitations involved with relying on perceptions of numbers to generate these findings. Given there are clearly properties where numbers are too high and the harvest is too low (on a long term basis), more targeted control will be required (see Davys et al. 1999), and this fact is acknowledged by some respondents.

### ***Management of tahr***

Perhaps consistent with an overarching principle of sustainability espoused by many high country run holders (see for example Hughey et al. 2002, O'Connor 2003) it was hardly surprising that almost all respondents favoured sustainable management of tahr in the long run (with only three run holders selecting the control to very low numbers option). This view is also consistent with the overall value that run holders have for tahr and the fact that most see them as a resource rather than as a pest. This is not unlike the deer scenario where wild deer are considered a serious conservation pest yet also a highly valued resource (Nugent and Fraser, 1993).

While tahr management is currently undertaken under the auspices of the Himalayan Thar Control Plan (DoC 1993) and is the responsibility of DoC under the WAC Act (1977), it is clear from the survey that run holders see the possibility of this arrangement being changed. Once again this view is perhaps based on the fact that tahr are seen by almost all of the survey respondents as much more of a resource than a pest. As a result, around 25% of respondents saw property owners as the prime management agency while about half of the respondents expressed a willingness to join with either DoC or an existing recreational hunting organisation for management. No mechanism for establishing these partnership approaches was explored and certainly none exists within the current management approach (see Ottmann and Hughey 2003 and in prep).

### ***Access***

Only two respondents reported that they refused access to recreational hunters and one of these took complete responsibility for tahr control themselves. However, over half had some restrictions on access. These data can be compared to the 1992 survey (Hughey 1997) and indicate a general freeing up of access to recreational hunters over the life of the Himalayan Thar Control Plan (DoC 1993) - why this is the case is not known.

### ***Role of tahr in pastoralism - integrated animal management vs integrated pest management***

Forsyth et al. (2000) make a case for multi species management of the central Southern Alps alpine pest community, i.e., tahr, chamois, red deer, possum and hare. Multi species compared with single species management, it is argued, has three major benefits: first, where necessary multiple species will be controlled to protect conservation resources; second, there will be reduced opportunity costs because sometimes resources are expended on one species when in fact it is another or a suite of species causing the problem, and; third, multi species management aims to control the pest(s) that provide the greatest conservation benefit (Forsyth et al. 2000: 101). We believe this is a useful contribution but note two conflicting findings from this survey. However, before introducing these 'conflicts' it is important to note that merino sheep overlap with tahr on many of the lower and more accessible parts of the tahr range on pastoral leasehold lands (as also noted by Forsyth et al. (2000). Thus:

1. Tahr are generally seen as a resource, i.e., not a pest, to high country run holders in this area; and
2. Other animals, notably merino sheep, also occupy parts of the tahr range on these properties and are generally viewed as a resource in New Zealand.

While merino sheep partially overlap with tahr no consideration was given by Forsyth et al. (2000) to alternative management approaches which deal with the resource-pest relationships amongst the multiple species present on these high country properties.

Based on the above it is our view that notions of integrated pest management (IPM) or multi-species pest management on these lands are misplaced. There is clear evidence from this survey and from Fraser (1995) that management should be considered on a joint pest-resource basis. If this is the case, then run holders and DoC should consider a new approach, perhaps best termed Integrated Animal Management, as their main philosophy. Property management under such a philosophy would be based around a total stock unit-based grazing regime with the condition of the land monitored to sustain that regime. For pastoral lease properties such a

regime would necessarily need to comply with stock limitation provisions and exemptions.<sup>3</sup> Such an approach is consistent with the growing sense that tahr are an important resource for many property owners in the high country—it would also be consistent with a broader interpretation of the benefits of multi-species management suggested by Forsyth et al. (2000).

### *Policy issues*

This survey has further highlighted the growing tension between those seeing tahr as a resource (farmers and hunters) and those who view them as a pest (DoC and others). Clearly the majority of run holders value tahr (for a wide range of reasons) and many are now obtaining a complementary income from the species. While the existing Thar policy and Thar Control Plan (DoC 1993) broadly encompass these values any moves to further restrict the range or to lower target densities within areas occupied by these run holders is likely to be met by strong opposition. To this end the survey points to a need for a new management regime for Himalayan tahr on pastoral run lands. This regime could address the following components:

- Recognition that for most run holders (as well as to other New Zealanders - see Fraser 1995) tahr are either a significant resource or both a resource and a pest;
- Promotion of a cooperative management approach between run holders, DoC and hunting interests who seek to meet the combined interests of all these parties (see Bergartt 2005 for example).

It is our view that such a regime would substantially improve prospects for sustainable management of tahr and the high country. Such a regime might require a review of the Wild Animal Control Act (1977), perhaps incorporating a merger with the Biosecurity Act (1993), although further debate of the merits of such a review are beyond the scope of this report.

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<sup>3</sup> A pastoral lease, when granted under the Land Act 1948, usually included a provision restricting the number of stock to be carried on the land comprised in the lease but run holders could apply for exemptions. The Crown Pastoral Land Act 1998 also allows for stock limitation exemptions (Land Information New Zealand, 2000)

## Chapter 6

### Conclusions

Tahr are a resource, to be valued by farmers, recreationalists and other commercial interests, regionally and nationally. Moreover many farmers already gain financially from tahr, thus providing a level of diversification that is not otherwise available on many tahr properties. These resource values need to be carefully appreciated by policy makers:

- There are many other animals and plants that are far more ‘pesty’ for farmers than are tahr. As a resource (with pest potential) tahr should be treated within an Integrated Animal Management regime, rather than treated simply as a pest – this conclusion will require external policy makers to change their management philosophy toward this species;
- While around a quarter of farmers consider only they should be responsible for tahr management many others (around a half) are very willing to work with other agencies in a combined approach to the species – this sort of approach would be unique in New Zealand and may require legislative change;
- Most farmers provide access to recreational hunters, with a slightly greater proportion doing this than was shown in the 1992 survey. Almost all farmers have some restrictions, legitimated for a variety of mainly animal management reasons. From a policy perspective this should be reassuring to those interested in public access.

Given all the above it is our view that the conclusions from this survey should provide a positive contribution to ongoing tahr management.



## References

- Berngatt, R.M. (2004). Determining and Integrating Social Frames of Reference into the Management of Himalayan tahr (*Hemitragus jemlahicus*) in New Zealand. Lincoln University, Master of Resource Studies Thesis.
- Davys, T.R., Forsyth, D.M. and Hickling, G.J. (1999). Recreational Himalayan thar (*Hemitragus jemlahicus*) hunters in Canterbury, New Zealand: a profile and management implications. *New Zealand Journal of Zoology* 26: 1-9.
- Department of Conservation. (1993). Himalayan Thar Control Plan. Conservation Management Planning Series No.3, Christchurch, Department of Conservation.
- Forsyth, D.M. (1999). Long-term harvesting and male migration in a New Zealand population of Himalayan tahr *Hemitragus jemlahicus*. *Journal of Applied Ecology*. 36: 351-362.
- Forsyth, D.M. Habitat selection and coexistence of the Alpine chamois (*Rupicapra rupicapra*) and Himalayan tahr (*Hemitragus jemlahicus*) in the eastern Southern Alps, New Zealand. *Journal of Zoology (London)*. 252: 215-225.
- Forsyth, D.M., Parkes, J.P. and Hickling, G.J. (2000). A case for multi-species management of sympatric herbivore pest impacts in the central Southern Alps, New Zealand. *New Zealand Journal of Ecology* 24(1): 97-103.
- Fraser, W. (1995). Public attitudes to Introduced Wildlife and Wildlife Management in New Zealand. Pp 101-111, in Proceedings of the 10<sup>th</sup> Australian Vertebrate Pest Control Conference, Hobart, Tasmania.
- Griffith (1992). Questionnaire - Himalayan Thar. Letter sent to High Country Run Holders as part of preparation of DoC's Himalayan Thar Control Plan, 9 January 2002, Christchurch.
- Hickling, G. J., Hughey, K.F.D. and Eggleston, J.E. (2003). The Contribution of Research to the Development of Wild Ungulate Management Policies in New Zealand. Isaac Centre for Nature Conservation, Lincoln University.
- Hughey, K.F.D., Keller, M., Kilvington, M., Smith, T. and Wilkinson, R. (2002). *Environmental Aims and Outcomes: A Study of 6 Community Based Environmental Management Groups in New Zealand*. Lincoln University and Landcare Research, Lincoln University.
- Hughey, K.F.D. (1997). *Conservation and Himalayan tahr on leasehold land in New Zealand*. Pp. 287-289, in: P. Hale and D. Lamb (Eds). *Conservation Outside Nature Reserves*. Centre for Conservation Biology, The University of Queensland, Brisbane.
- Land Information New Zealand. (2000). Stock Limitations, Crown Pastoral Land Standard 4. From [http://www.linz.govt.nz/rcs/linz/6348/stock\\_limitations.pdf](http://www.linz.govt.nz/rcs/linz/6348/stock_limitations.pdf). Accessed 31 May 2005.

- Marshall, D. (1991) *The Himalayan Thar Management Policy*. Wellington, Minister of Conservation.
- Nugent, G. and Fraser, K.W. (1993). Pests or valued resources? Conflicts in management of deer. *New Zealand Journal of Zoology*, 20:361-366.
- O'Connor, K.F. (2003). Conflicting innovations: A problem for Sustainable Development of New Zealand High-Country Grasslands. *Mountain Research and Development* 23(2): 104-109.
- Ottmann, G. and Hughey, K.F.D. (2003). *Himalayan Tahr: How to Safeguard Nature Conservation Values by Managing the Species as a Valued Resource*. 3<sup>rd</sup> International Wildlife Management Congress. Canterbury University, Christchurch, New Zealand, 1-5 December 2003.



## Appendix

### Appendix 1.

#### A SURVEY OF HIGH-COUNTRY SOUTH ISLAND FARMERS WITH HIMALAYAN TAHR ON THEIR PROPERTY

Ongoing management of Himalayan tahr (thar) on high country pastoral leasehold land and on conservation lands of the central South Island High Country is controversial. Tahr are valued by hunters and some others as a resource but are viewed by others as a pest to be exterminated.

1. Do you regard Himalayan tahr on your property as a threat to, or opportunity for, your farming activities?

- i. Tahr are a very serious threat
- ii. Tahr are a serious threat
- iii. Tahr are a slight threat
- iv. Tahr are neither a threat nor an opportunity
- v. Tahr are a minor resource and not a threat
- vi. Tahr are an important resource and not a threat
- vii. Tahr are a very important resource and not a threat

2. Do you place a 'value', e.g., commercial, recreational, scenic, upon Himalayan tahr?

Yes \_\_\_\_\_ No \_\_\_\_\_ (If no then move directly to question 4)

If Yes, do you consider tahr to have 'value' to (You can tick more than one alternative):

- (a) yourself? Yes \_\_\_\_\_ No \_\_\_\_\_
- (b) your neighbours? Yes \_\_\_\_\_ No \_\_\_\_\_
- (c) the region (mid/south Canterbury)? Yes \_\_\_\_\_ No \_\_\_\_\_
- (d) the South Island or New Zealand? Yes \_\_\_\_\_ No \_\_\_\_\_

3. What sort of 'value' do you place on tahr? (You can tick more than one box)

- Commercial, i.e., revenue generated from arrangements with hunting guides
- Commercial, in terms of tahr live animal/meat recovery

- Commercial, in terms of tahr farming
- Commercial, in terms of safari operations
- Recreational value for hunters
- Conservation value of tahr
- A balance of the above (if so, which?) \_\_\_\_\_

4. On average, how much income per year do you earn from tahr on your property?

\_\_\_\_\_

5. Are there any other animals or plants that you would consider to be of greater threat to the viability of your business than tahr?

Yes \_\_\_\_\_ No \_\_\_\_\_ Tahr are not a threat \_\_\_\_\_

If Yes then what are these species? \_\_\_\_\_

Why are they more of a problem? \_\_\_\_\_

\_\_\_\_\_

6. Do you think tahr have become more of a resource or more of a problem on your property over the last 10 years?

A lot more of a problem

A little bit more of a problem

Stayed the same

A little more of a resource

A lot more of a resource

7. Overall, have tahr numbers on your property in the last 10 years:

Increased?

Decreased?

Remained static?

Don't know?

8. How many tahr are there approximately on your land

Less than 50?

50 – 250?

250 – 500?

More than 500?

Some, but no idea how many

9. Have you considered farming tahr? Yes \_\_\_\_\_ No \_\_\_\_\_

If 'Yes' then what are your plans?

\_\_\_\_\_

If 'No' then why not?

\_\_\_\_\_

10. What sort of tahr hunting do you allow on your property? (You can tick more than one box)

Professionally guided hunters

Recreational hunters, no discrimination

Recreational hunters, but only those belonging to a specific organisation, or known personally

Commercial tahr meat/live animal recovery operations

Department of Conservation animal control operators

None, we do all control ourselves

11. How many tahr are taken from your property in a typical year? \_\_\_\_\_

12. Do you consider that enough is being done to control tahr numbers in

(a) the high country? Yes \_\_\_\_\_ No \_\_\_\_\_ Don't know \_\_\_\_\_

(b) on your property? Yes \_\_\_\_\_ No \_\_\_\_\_ Don't know \_\_\_\_\_

13. In the long term should tahr be:

- (a) Exterminated?
- (b) Controlled to very low numbers so as to safeguard native vegetation?
- (c) Sustainably managed, e.g., with emphasis on reducing nanny numbers while maintaining relatively high numbers of bulls, so as to safeguard native vegetation and maintain a viable hunting population?

14. Who should be responsible for the control and management of tahr (If you think a combination of the following then please tick any number of boxes or write your preferred combination below)?

- Department of Conservation
- An expanded Fish and Game New Zealand
- An existing recreational hunting organisation
- Property owners

My preferred management arrangement for tahr would be

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15. How long have you been on this property?

- < 1year
- 1-5 years
- 6-10 years
- 11-20 years
- >20 years

16. Do you provide access to recreational hunters?

- Generally free access
- No access
- Restricted access, e.g., seasonal or limit on number of hunters

17. Are you a recreational hunter? Yes \_\_\_\_\_ No \_\_\_\_\_

18. Do you have any additional comments to make concerning the Himalayan tahr and its management? Please note in the space below...

### TOURISM QUESTIONS

19. Do you currently have any tourism operations on your property?

Yes \_\_\_\_\_ No \_\_\_\_\_

If 'Yes' then what are they?

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20. What do you consider are the potential opportunities for tourism activities on your property?

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21. Do you see that your property may be particularly suited to eco-tourism?

Yes \_\_\_\_\_ No \_\_\_\_\_

If 'Yes' then what kind of eco-tourism activities do you envisage?

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22. What barriers to the development of tourism operations on your property do you think currently exist?

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23. What do you think needs to be done to remove these barriers?

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Thank you for completing the questionnaire. Simply return it to me in the enclosed reply-paid envelope by Friday 19<sup>th</sup> November.

I would like a copy of the completed report. Yes \_\_\_\_\_ No \_\_\_\_\_

Send to:

Name \_\_\_\_\_

Address \_\_\_\_\_

Email (so that we can send it electronically) \_\_\_\_\_