



## Attitudes towards trees – A case study in the New Zealand eastern high country

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### ABSTRACT

Attitudes of stakeholders towards the role and management of trees and plantations in the New Zealand eastern high country were surveyed in a series of depth interviews in 1988-89. Analysis of the sample of 58 respondents revealed seven distinctive ways of thinking about trees and plantations. Each was characterised by different perceptions of the appropriate role of trees and plantations, and different beliefs about responsibilities for management.

### INTRODUCTION

Attitudes to the potential role of trees and plantations in the eastern high country of the South Island have changed significantly

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over the past decade (Belton, 1991). For much of the European history of New Zealand scientific interest in trees on mountain lands focused on their perceived role in soil stabilisation and flood control (McKelvey, 1992). The remnant beech forests and scree slopes of the Waimakariri Basin, for example, have provided the basis for an extensive programme of applied forest hydrology and revegetation (Ledgard and Baker, 1988), in addition to work on the ecology and utilisation of the beech forests themselves (Wardle, 1984). On the already deforested tussocklands the perceived role of trees has by and large been limited to the provision of stock and domestic shelter on pastoral runs (Murray, 1986).

A number of factors have recently combined to challenge these established ideas. Scientific understanding of erosion processes has been radically revised (Whitehouse, 1984) and reduced the emphasis upon the soil conservation role of revege-

Y, SOME PEOPLE *can't see*  
t, RESEARCH, MARKETING,  
TECHNOLOGY  
*trees.*

management practices to ensure they're environmentally sound.

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tation in high mountainlands. On the other hand, the productive potential of parts of the high country for both plantation forestry and for agroforestry in association with improved pasture is now widely recognised (O'Connor, 1986).

Changes in the ecology of tussocklands have heightened awareness of the potential for wilding spread from established plantations and shelterbelts (Hunter and Douglas, 1984), and recreation and conservation lobbies have become active in their defence of the cultural and ecological values of tussocklands against the perceived threat of plantation forestry and tree spread (Ashdown and Lucas, 1987; Harding, 1990).

At the same time, the radical reform of central and local government has challenged established beliefs about the appropriate role of government in high-country management, overturned many existing institutional structures and traditions, and revised science priorities (Boston, 1990). There is now emphasis on the need for transparency in relationships between public good science, public policy and private interests in specific resource management issues. The attitudes and values of different stakeholders are explicitly recognised as being significant factors in resource policy formation.

This article reports on an investigation into attitudes of stakeholders (including forestry scientists) towards the role and management of trees and plantations in the eastern South Island high country. The study focused on a range of stakeholders involved in some way with the Craigieburn area of the Waimakariri catchment, and was undertaken in 1988 and 1989. Communication of facts, values and opinions is increasingly seen as the key to successful resource planning and management (Steel, 1992), and a primary aim of the study was to identify the range of beliefs and perceptions held by the different interest groups. The purpose of this article is to present a summary of the findings in the hope that it will lead to improved mutual understanding amongst those involved, which will in turn enhance the process of policy formation (Drysek, 1987).

## RESEARCH DESIGN

The study used qualitative methods within a single case study. The relative merits of qualitative as opposed to quantitative methods in social research has been the focus of vigorous debate for a number of years, as has the role and validity of case studies (Silverman, 1985; Hakim, 1987; Hammersley, 1989). A major advantage of both qualitative methods and a case study approach to social issues is the richness and quality of data that can be obtained and the depth of understanding that can be achieved.

A qualitative method such as depth interviewing (that is, open discussion rather than a formal sequence of questions and answers) allows respondents to express their views in their own ways, and in their own words (Antaki, 1988, Potter and Wetherell, 1987). The interview becomes an extended conversation in which the respondent has opportunity to introduce his or her own concerns and issues. It is therefore a more sensitive measure of the nuances and emphasis of each individual's way of thinking than structured methods such as questionnaires, which impose a predetermined set of concepts and questions on all respondents. Depth interviews also provide a much more complete context against which to evaluate the significance of particular words and phrases, which lose their specific meaning when aggregated in statistical analysis (Silverman, 1985).

Case studies offer similar advantages in revealing the detailed characteristics of a situation (Bulmer, 1984). They are particularly valuable when investigating unique or complex issues or topics where theory is poorly developed, and that are unsuited to quasi-experimental survey methods.

The main disadvantage of qualitative methods in general, and case studies in particular, is the limitation on the extrapolation of their findings. Quantitative methods such as questionnaire sur-

veys are typically designed to sample statistically from a larger population, and thus allow the formal generalisation of their findings. Qualitative methods, on the other hand, typically utilise theoretical samples (Silverman, 1983), which are intended to capture the diversity of individuals or events of theoretical significance to the problem under investigation, but make no claims to represent a wider population.

There were four main reasons for choosing qualitative methods in this study. First, the study was exploratory. Its primary intention was to identify the range of attitudes, not to predict the attitudes of the population at large. Second, the stakeholders involved in the high country are drawn from a number of diverse groups (e.g. runholders, crown agencies, lobby groups etc) that do not constitute a clearly defined or meaningful population from which to sample statistically. Third, the study aimed to allow stakeholders to express their attitudes in their own words, which required an open method and qualitative interpretation. Finally, the overall context of the study was the social and political process of resource policy formation in the high country. The attitudes of most relevance are those of the stakeholder groups involved. A limited geographical case study was chosen in order to make it practical to interview a wide range of stakeholders whilst maintaining a clear focus of interest.

The implications of this choice of research design and methods are that the findings cannot be formally extrapolated to other areas of the high country, or other resource policy issues. However, the patterns of belief and opinion identified can inform participants in this particular issue and offer insight into other similar situations, and can also provide an initial theoretical framework to be subsequently explored and tested in other areas.

## SURVEY METHODS

The survey comprised 58 in-depth interviews. The respondents chosen were all stakeholders in land management who were predicted to have some particular knowledge and influence upon the issue. No attempt was made to identify a representative sample of the whole population, nor were all stakeholders in the area interviewed. The respondents were selected to include individuals from the different interests that have been expressed in the literature, in public debates, and in the organisations involved. Table One shows an analysis of informants' roles. Most were male, of European descent, and aged between 30 and 50. The study is therefore based upon a selection of elite decision makers and decision influencers.

TABLE ONE: Roles of respondents

	No. of respondents	%
Land managers	7	12
Public administrators/policy planners	16	28
Consultants	9	16
Scientists	8	14
Politicians (local and central)	6	10
Advocates (for the tangata whenua and for conservation and recreation interests)	12	20
Total	58	100

Each interview was recorded and subsequently analysed in three stages. First, a transcript of the interview was systematically reviewed to identify the main ideas, concepts and relationships used by respondents to express their views. These were summarised in diagrammatic form for each respondent (Jones, 1985; Antaki, 1988). The summary diagrams of attitudes were designated as individual 'frames of reference'; that is, a distinctive combination of beliefs, feelings and intentions concerning the issue in question (Swaffield, 1991). Second, the individual frames of reference were compared to identify common patterns

of response. These were designated "common frames of reference": distinctive ways of thinking that were common to a number of individuals. Third, the transcripts for each respondent were re-analysed and coded in terms of a number of attributes – for example, the way they defined the issue of trees and plantations in the high country, their particular attitudes towards the role of government, and the policy outcome they preferred. These attributes were then related to the common frames of reference into which the respondents had been classified.

## SUMMARY OF FINDINGS

Seven distinctive ways of thinking (common frames of reference) about the role and management of trees and plantations in the high country were identified amongst the interview respondents. The categories, and the numbers of respondents falling into each category, are listed in Table Two.

**TABLE TWO: Common frames of reference**

	No. of respondents	%
Multiple use management	17	30
Conservative management	8	14
Consensus by administration	4	6
Conservation by control	9	16
Individual improvement	9	16
Balance of local interests	5	8
System design	6	10
Total	58	100

The following paragraphs summarise a number of key features of how each set of respondents defined the issue of trees and plantations in high country, and include extracts from the transcripts to illustrate some of the views that were expressed.

### Multiple use management

The largest category was designated "multiple use management". These respondents all expressed a strong belief in the need for government to take an active role in promoting the planting of trees in the high country, as part of a multiple use regime:

- \* *There is a golden opportunity for forest development in selected parts of the high country. There is enormous potential with the right type of species.*
- \* *I think that forests should be looked upon as an important national resource – that inevitably means there is a role for government.*

They all regarded trees as a natural part of the high country, and complementary to a goal of long-term sustainable management:

- \* *[I support] the concept of multi-purpose management, of wise land use, of sustainable development, of conservation in the sense of sustainable use and management of resources.*
- \* *Trees are a vital element in sustaining long-term production.*

However, a number were critical of the perceived lack of current direction:

- \* *There isn't a forum or an organisation that is charged with the responsibility for sorting out these kinds of issues.*
- \* *Territorial government has failed badly in this area.*

These respondents included forestry and natural resource sci-

entists, forestry consultants, Maori advocates and environmental policy planners.

### Conservative management

These respondents shared with the "multiple use management" category a belief in the need for some level of government involvement in the management of trees, but they had a more conservative view about the extent of tree planting that should occur:

- \* *I think I would be quite happy to see small pockets of trees and plantations if they were blended into the landscape ... and I would certainly like to be sure there were going to be areas of native tussock, the tall tussock protected for all time.*
- \* *The responsibility ultimately lies with County Councils or managers of crown land.*
- \* *I do feel strongly that (trees) should be there by intention, not accident.*

They filled diverse rôles as scientists, advocates and consultants and typically had a strong personal attachment to the high country.

### Consensus by administration

This small group of respondents defined the issue of trees and plantations as a social problem that arose from the conflicting values and goals of different interest groups. Their primary concern was to achieve a consensus using clearly defined procedures:

- \* *I like to hear all sides of the story, in the presence of everyone ... to get to the root of the matter.*
- \* *There's a paper, a document, the reasons for everyone to see – that's important.*

They were all people trained in public administration who had formerly worked for the Department of Lands and Survey.

### Conservation by control

The individuals in this category defined the issue as a need to conserve the indigenous ecology and identity of New Zealand. They expressed strong views about the need for central government intervention, in order to achieve their preferred conservation goal, and were not confident that individual landowners would be able to control wilding spread. They were also critical of those groups actively promoting tree planting:

- \* *I've nothing against exotics, but they don't belong in this particular environment. They are foreigners here, like deer and possums.*
- \* *Wherever you put plantations in the high country you will eventually have a wilding problem.*
- \* *Local government is too close to the scene ...*
- \* *What you've got is a self-serving group of forestry scientists ...*

These respondents were largely conservation and recreation advocates, with diverse backgrounds.

### Individual improvement

The 'individual improvers' contrasted markedly with the previous category. They defined the role of trees and plantations as an opportunity for improvement, envisaging modest tree planting for shelter and economic production. They were willing to listen to outside views, but strongly defended the rights of individual landholders to make the final decision on land use. For most,

the advantages of tree planting seemed so obvious that they were surprised it was even an issue:

- \* *(I'm) quite happy to have comment, but if they didn't like what I was planting I wouldn't be very happy about it.*
- \* *I think that the County have just got to be hell of a good listeners – I don't think they should meddle too much.*
- \* *I went back for this meeting because I couldn't believe there was an issue.*

These respondents were all landholders, or their technical advisers.

#### Balance of local interests

This group of respondents focused upon the need to ensure that decision making about land use – including the role of trees – was predominantly a local process, that expressed a balance of local interests. They were willing to accept modest incremental change, and could accept local government as a mediator. They resented the influence of urban interests:

- \* *It's a balance, a balance ... the area's big enough to achieve everybody's aim.*
- \* *You can take it back to the basics of people saying "we pay the rates, surely we should have the major input into what is decided in our area".*

They typically had dual roles – both as land managers and as elected representatives in local government or special interest groups.

#### System design

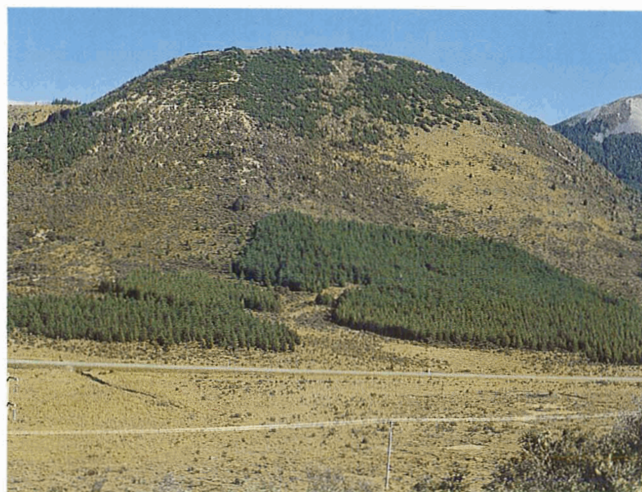
This final category contained people who were not particularly concerned about the role of trees and plantations in themselves, but viewed the issue as an interesting opportunity to discuss the reasons for overall reform of resource decision making. They advocated a greater use of property rights to resolve this type of issue:

- \* *What we need to do is to design an evaluation system that allows us to weigh it up.*
- \* *There are two ways to look at it – public and private rights.*

This group comprised central government bureaucrats and several politicians.



Bridge Hill block, Flock Hill Station. Typical vegetation patterns in the eastern high country (October 1989). Photo: Nick Ledgard, FRI.



Bridge Hill block, Flock Hill Station. Showing effect of protection planting on the summit and production species on the lower slopes. FRI trial plantation (February 1993). Photo: Nick Ledgard, FRI.

Table Three summarises the way respondents in each common frame defined the overall issue of trees and plantations in the high country. Definitions included those who saw it as a socio-political issue of lack of government leadership, or a conflict of values; those who conceptualised the situation in normative terms, that is, how the high country 'ought' to be (perception of this ranged from "naturally forested" to "naturally grassland"); and those who defined the issue in more technical or procedural terms, focusing upon the feasibility of wilding management or the need for appropriate procedures of decision making. Preferred outcomes ranged from extensive revegetation and afforestation to maintenance of the status quo.

#### TABLE THREE: Definition of the Issue

Common frame of reference	Issue Definition
1. Multiple use management	Need for leadership and active management to promote tree planting
2. Conservative management	Need for active management with a conservative bias
3. Consensus by administration	Need for correct and balanced procedures
4. Conservation by control	Need for active control to conserve NZ identity against threat of exotic trees
5. Individual improvement	Opportunity for improvement
6. Balance of local interests	Need for decisions that express a balance of local interests
7. System design	Opportunity and need for reform

#### DISCUSSION

Analysis of attitudes of a range of stakeholders in high-country management has revealed a diverse range of beliefs, values and opinions. Despite the diversity, this range of attitudes fell clearly into several distinct categories, designated in this study as common frames of reference.

In some cases, particular frames of reference are characteristic of particular groups of stakeholders. The forestry scientists

interviewed clearly came into the 'multiple use management' category, and expressed views favouring the extensive use of trees for enhancing both biological and economic productivity of the high country. Similarly, all those expressing views described as "individual improvement" were land managers and their advisers. However, not all land managers expressed these views. Several had experience as office holders in local government or representative associations. Their expressed attitudes were significantly different from their colleagues' and came into the category 'balance of local interests'.

Common frames of reference were not always characterised by a particular set of roles. The 'conservative management' frame contained a diverse range of stakeholders with widely different roles. However, they all shared strong personal attachments to the high country. Whilst role is therefore an important indicator of likely attitudes, it is not a totally reliable predictor. Local and personal circumstances are also significant influences.

Attitude towards the preferred role of government was an important differentiating factor between frames of reference. Attitudes fell into two broad categories, which resulted in some interesting conflicts and coalitions of interest. The 'multiple use management' category (respondents who favoured extensive tree planting) and those expressing ideals of 'conservation by control' (who strongly opposed tree planting) both assumed or advocated a significant role for central government – either to promote coordinated research, implementation and management of tree planting (multiple use management) or to ensure strong policies controlling tree planting (conservation by control). They agreed on the need for government intervention, but for dramatically opposing reasons. In contrast, respondents with both the 'individual improvement' and 'system design' frames opposed government intervention for complementary reasons. The first, to defend their autonomy of action as land managers; the second, as part of a broader agenda of reform that emphasised the role of property rights in the resolution of resource policy issues.

Preferred outcomes were also closely linked to definitions of the issue and attitudes towards the role of government. Those who defined the issue in procedural terms, for example, sought either consensus or administratively efficient outcomes, irrespective of their content. Others focused upon more substantive goals, for example, extensive tree planting.

Table Four summarises the relationships between common frames of reference, role of respondent, their attitude to the role of government, and their preferred outcome. A comprehensive analysis of the interview results is presented in Swaffield (1991).

The frames of reference clearly express the way that the stakeholders interviewed each linked the different aspects of the overall issue of trees and plantations in the high country into a coherent pattern of values, beliefs and opinions. The frames describe the context within which individuals interpreted their experiences and made sense of information they received (Rein, 1984). Individual frames of reference are not always internally consistent. Several respondents acknowledged conflicts or ambiguity in their views. Overall, however, the different common frames of reference identified provide a coherent set of perspectives upon the issue. Whilst clearly an interpretive classification, the common frames are highly plausible, and offered insight into the sometimes confusing range of opinions concerning trees and plantation in the high country currently being expressed in both public and private debate.

## CONCLUSION

The main implications of this study of stakeholders involved in the debate upon the future role of trees and plantations in the eastern high country are first to reveal the range of attitudes held by the different people involved, and second to highlight the impor-

**TABLE FOUR: Relationships between common frame of reference, role of respondent, preferred role of government and preferred outcome**

Common frame of reference	Role of respondent	Preferred role of government	Preferred outcome
Multiple use management	Scientist Consultant Policy planner Maori advocate	Coordination and intervention at all levels	Extensive tree planting for improved production, integration and sustainability
Conservative management	Advocate Scientist	Ambivalent - modest intervention	Balanced use and a healthy environment
Consensus by administration	Public administration	Intervention within clearly defined limits	Consensus, as a balance of needs
Conservation by control	Advocate	Central government intervention to protect the public interest	Status quo, with no further planting and the control of existing exotics
Individual improvement	Land manager	Consultative only	Moderate tree planting for shelter and economic production
Balance of local interests	Diverse roles	Local government as a mediator	Acceptance of modest change brought about by local decisions
System design	Politician Policy planner	System design and maintenance only	Conflict resolution and greater use of property rights

tance of acknowledging the context in which people express particular opinions or beliefs.

Taken in isolation, many of the views expressed by respondents could be interpreted by others involved in the issue as being either irrelevant, misguided or even downright antagonistic. All these interpretations were in fact offered by respondents when discussing the involvement of other parties in the debate. However, if particular beliefs or opinions are placed in the context of the overall frames of reference by which different people make sense of the issue then they become much more understandable. For example, opposition to tree planting by some lobby groups can be, and has been, interpreted as unwarranted interference in individual land managers' autonomy. From the lobby groups' perspective, however, it is seen as a legitimate expression of concern for the indigenous ecology and identity of the country as a whole. Clearly any coherent policy response will need to address both perspectives, and also acknowledge the associated values and assumptions that underpin each set of views.

Clarification of the differences in attitudes between different groups of stakeholders is a necessary first step in policy formation. A second important characteristic of the frames of reference identified was the existence of shared attitudes between different frames of reference. This indicates the potential for coalitions of interest in developing policy responses. It is clear, for example, that despite their apparent opposition in regard to tree planting there is a significant commonality of interest between those stakeholders whose frames of reference expressed support for a significant involvement of central government in land management. Similarly several sets of respondents with different views about the role of government nonetheless expressed broad agreement on the most preferable outcome in regard to tree planting

and management (see Table Four). Identification of these shared interests can provide the basis for compromise and mediation (Drysek, 1987).

The study itself has illustrated a potential role of qualitative research methods in natural resource planning and management. Foresters and forestry scientists are developing increasing interest in the 'social' dimensions of their discipline (Bentley, 1991). This study provides one example of the way that qualitative social science techniques can be applied to forestry issues. The concept of a frame of reference has proven to be a useful analytical technique and the approach adopted has provided a detailed picture of the views of stakeholders who will be involved in any policy negotiation. The common frames of reference identified are both plausible and coherent and provide an initial set of categories that can be subsequently tested, modified or extended with other research techniques.

The inclusion of forestry consultants and scientists in the survey also provides an interesting insight into the attitudes of the forestry professionals involved in the management of trees and plantations when compared with the other stakeholders. Steel (1992:2) has commented: "The provision of high-quality information that fully and fairly sets out the objectives and aspirations of forestry, and foresters, is the responsibility of us all". All the forestry scientists interviewed fell into the 'multiple use management' category. If the forestry professionals involved wish to participate fully in the policymaking and management process, it will be essential that they articulate these views, beliefs and interests clearly and openly to the other participants. It will also be important for forestry interests to be aware of, and be seen to acknowledge the legitimacy of other views that differ from their own. A number of respondents expressed views concerning forestry interests that give some support to Steel's subsequent observation that "Whether we like it or not, forestry people are perceived as having an island culture...". This article has aimed to help bridge the gap, real or perceived, between different stakeholders involved in the management of trees and plantations in the high country.

### ACKNOWLEDGEMENTS

The findings in this article are drawn from an unpublished Ph.D Thesis. I wish to acknowledge the help of the 58 respondents who gave freely of their time and opinions. Professor Kevin O'Connor, Dr Harvey Perkins, and the late Dr Angus MacIntyre provided invaluable advice upon the research methodology. Two referees provided helpful comment upon the structure and content of the article. The opinions and interpretations presented remain, however, the sole responsibility of the author.

### POSTSCRIPT

Economic circumstances have changed significantly in the high country since 1989, when these interviews were completed. Average returns on traditional high-country properties have declined dramatically. At the same time, world prices for saw logs have firmed, and some properties have gained substantial returns from harvesting mature stands of exotic plantings. There has also been a suggestion that some returns may be possible from harvesting wildings.

Very recent research into attitudes towards different land-use options in the Mackenzie/Waitaki Basin (Fairweather et al, 1994) indicates that there may have been some shift in runholder perceptions regarding the potential role of trees and plantations, to embrace a greater recognition of productive potential. However, the overall frames of reference identified in the study reported here are still compatible with the attitudes towards land-use change identified in the more recent survey.

**Editor's note:** This article was held over from early 1993 for publication in this High Country issue of NZ Forestry.

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