

# Integrating pastoral and biodiversity values in the high country

**A MAF Sustainable Farming Fund research project with financial support from the High Country Accord Trust, High Country Section Federated Farmers and Merino Inc.**

## The project in summary

This project, jointly funded by MAF and the high country farming community, is considering one alternative model to the predominant approach to tenure review as being implemented by LINZ. Specifically, the project is evaluating the role of whole-property management plans and covenants as a basis for ensuring long-term sustainable management of the full range of values (economic, biodiversity, etc) that occur within a property without the need to split land between full Crown ownership and control, and private (freehold) ownership and control. This newsletter provides a summary of project progress over the 2004/05 summer. Full details on the project can be found at the projects web site: [www.highcountryaccord.co.nz/biodiversity/](http://www.highcountryaccord.co.nz/biodiversity/)

## Property selection



We have selected two high country properties, Glenmore Station and Otematata Station, as our research study sites. Property selection was based on several criteria including (1) a need to cover as much of the range of environments present in the high country as possible, (2) the willingness of the land owner/manager to freely participate in the project, including provision of economic information, (3) merino farming comprising at least 50% of the economic return to the property, and (4) relative ease of access to and around the property.

Glenmore Station (19,200 ha - above) is located on the western side of Lake Tekapo, extending northwest towards the boundary of Aoraki/Mount Cook National Park. This property spans a major rainfall gradient with rainfall decreasing from c. 5000 mm on the northwestern mountains to c. 750 mm at Lake Tekapo. Otematata Station (26,582 ha - right) is located on the southern side of the Waitaki Valley extending from close to Lake Avimore to the crest of the Hawkdun Range. Rainfall is low, c. 500 mm near Otematata township increasing to c. 1600 mm on the crest of Hawkdun Range. The climate of both properties is semi-continental to continental with warm dry summers and cold winters.



Only a small proportion of either property has been cultivated, and less than a third has been aerial oversown and topdressed, with the majority of the land still supporting native vegetation. At both Glenmore and Otematata farming is based primarily on fine wool production from merino ewes and wethers, although some cattle are run and deer are farmed at Glenmore. Most of the higher altitude parts of these properties are used only for summer grazing, which is essential to spell the lower country to allow stock to be carried there through winter and spring.

## Ecological surveys



Over the 2004/05 summer, University of Canterbury students Maria Bosman and Tammy McMahon (left) have been undertaking vegetation surveys of Glenmore and Otematata Stations under the supervision of Assoc. Prof. David Norton. The surveys have focused on mapping the main vegetation types present (including modified types such as cultivated paddocks) as a basis for developing vegetation maps for both properties. The field work has involved covering the full extent of each property. Ecological units (areas of consistent landform and vegetation type) have been used as the basis for mapping, and in excess of 300 units have been identified on each property. For each

unit, notes have been made on the dominant species present, and this information will be used to classify the ecological units into a smaller number of vegetation types. Dr Peter Espie has provided invaluable assistance, spending time with the students at the start of the survey familiarising them with the main species and vegetation types present.

## Future plans

Over the next few months we will be entering the results of the vegetation mapping into a geographical information system (GIS) ready for subsequent analysis. GIS is a spatial computer mapping system that allows us to input information for many different variables (topography, vegetation, management units, stock numbers, etc) and to then compare variations between different variables. At the same time Rodney Patterson will be working with the families at Glenmore and Otematata obtaining information on stock units, grazing times and other management practices for each property. This information will also be entered into the GIS. Once we have both the vegetation and economic information, we will then be able to start addressing a range of questions relating to both native biodiversity and farm management. For example, we will be able to determine how much of each vegetation type occurs on different parts of a property, and what the stock units are for each vegetation type. We also have global positioning system (GPS) collars arriving from Sweden shortly which we will be using to better understand the way in which merino ewes and wethers graze the extensive summer country. The GPS collars record the sheep's position at regular intervals and can be left out for several weeks at a time.

## Further information

Further information on the project can be found on our web site:

[www.highcountryaccord.co.nz/biodiversity/](http://www.highcountryaccord.co.nz/biodiversity/)

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