



Restoration in action: monitoring of the 220-ha Black Rock Scientific Reserve over 18 years has revealed the dramatic recovery of narrow-leaved snow tussock and the demise of mouse-ear hawkweed once the sheep had been removed. Photo: Alan Mark.



Introduced plants such as sweet brier and self-sown pine trees are spreading rapidly through the high country, overwhelming native plants, displacing grazing, and marring the famous high country scenery. Photo: Mike Harding.

## Land Act review

**C**RITICISM OF the Land Act has not gone unanswered. A review of the Act has been drafted by Government officials and is awaiting the green light from the Minister of Lands. It proposes that pastoral lease land be reassessed and placed in one of three categories: *Conservation Land*: areas with predominant conservation or recreation values; *Restricted Use Land*: areas available for grazing but with significant natural values that must be conserved; *Farmland*: modified areas of productive farmland with no conservation values.

This categorisation process would be based on an exchange of interests between the lessee and the Crown. The lessee would gain the right to freehold the significantly modified, and generally most productive, areas in exchange for relinquishing the grazing rights to important conservation areas. A revised lease for the restricted use land would allow continued grazing but within strict limitations, so that other values were protected, including the sustainability of resource use.

Categorisation would encourage rationalisation of the land held within pastoral leases, and ensure that land inappropriate for grazing passed to the public conservation estate. It would also provide an opportunity to include clear performance standards and environmental monitoring in a revised lease.

The high country is the only large area of Crown land remaining in New Zealand that has not been separated into production or conservation land. The task will not become any easier. With the lack of protected areas in the high country, and the sustainability of pastoral farming under scrutiny, now is the obvious time to determine the appropriate tenure for this vast resource.

land was the main vegetation type for 4000 years after the retreat of the ice age glaciers. These grasslands were gradually colonised by bog pine, celery pine, and hardy *Coprosma* shrubs. As the climate warmed, larger podocarps such as miro, matai and Hall's totara became established and eventually, about 7000 years ago, beech became the dominant forest type. Native grassland, however, persisted on recent river terraces and flats, and in the cold dry basins.

In the last 1000 years fire has disrupted the natural vegetation pattern. There were certainly early fires, triggered by lightning during warmer and drier periods, over at least parts of the high country. These would have eliminated areas of forest and shrubland and favoured the development of tussock grassland. We have a better record of fires over the last thousand years, from oral histories, and from buried wood and charcoal.

### Devastating fires

About 600 years ago devastating fires, associated with Maori settlement of the east coast, burnt from south Otago to north Canterbury. Vast areas of forest were destroyed and replaced by tussock grassland. Subsequent intermittent fires and the dry climate hindered forest regeneration and maintained the

tussock dominance.

Over the last 150 years, European farming practices have devastated the natural grassland ecosystems. The present remnants of the magnificent tussock grasslands are a sorry reminder of their former extent. The vast red tussock grasslands of the Southland Plains have been reduced to a few small patches. Snow tussocks have steadily retreated from montane slopes, to be replaced by short tussock, and much short tussock grassland has been lost to cultivation, particularly in the lowlands.

Over three-quarters of the pre-European area of tussock grassland has been destroyed. In addition to the direct loss of native grassland, the health of the remaining tussocklands has suffered from extensive grazing, the invasion of introduced plants and declining soil fertility. These dramatic changes have not been given the attention they warrant because of the conventional beliefs that pastoralism can co-exist with tussock grasslands. But it is not surprising that the slow-growing perennial native grasses, whose most significant natural herbivores were grasshoppers, have been unable

