

NEW ZEALAND'S

Tussockland Heritage

by Gerry McSweeney* and Les Molloy†



Sandwiched between native forests and alpine herbfields, and spreading a tawny mantle across the South Island's eastern ranges, New Zealand's tussocklands rival the world's other great natural grasslands such as the prairies of North America, the pampas of Argentina and the steppes of Russia.

These tussock grasslands have evolved over thousands of years. In many ways these metre high bunch grasses resemble forests. The tussocks can be decades old and dwarf the tiny herbs growing on the grassland floor. Tussock grasslands contain a unique group of plants and animals adapted to temperature extremes, drought, heavy snowfalls, fire and even to erosion of the unstable mountain ranges.

Unfortunately these plants and animals have less successfully adapted to increasing pressures from agricultural development. Our tussocklands are under threat and are rapidly disappearing.

Subalpine tussocklands extend the length of the Southern Alps and along the North Island's axial ranges. The volcanic uplands of the Central North Island support fire-induced red tussock grasslands gradually reverting to

shrublands. However by far the most extensive tussocklands occur east of the Southern Alps along a belt of montane country from Marlborough to Southland. They once covered nearly 5 million hectares, nearly 20 percent of New Zealand's land surface. Today they cover about half that area.

Natural and Polynesian fires shaped much of the eastern South Island tussock landscape, especially at lower altitudes. These fires destroyed beech, matai, totara and kanuka forests and allowed tussocks growing at higher altitudes and alongside streams and clearings to invade the formerly forested sites.

By the time of European settlement the tussockland pattern was as follows:

□ Snow tussocks (*Chionochloa* species) occupied both the moister, high altitude areas and most of the montane zone. In eastern Otago these tussocks extended almost to sea level (some still survive in a small reserve at Shag Point, North Otago at 50 metres altitude).

□ Short tussocks (*Festuca* and *Poa* species) covered the dry, low altitude areas including the dry basins and riverbeds of Otago, Marlborough, the Mackenzie Country and parts of the

Snow tussock grasslands — Danseys Pass North Otago.

Photo: Quentin Christie, Soil Bureau.

Canterbury plains.

□ Red tussocks (*Chionochloa rubra*) were widespread on damp valley floors, poorly drained moraines and throughout the Southland plains.

Changes since European settlement:

The extent of relatively unmodified tussockland remaining today can be determined from the New Zealand Land Resources Inventory (1). While the merging of tussockland into shrublands and pasture complicates this analysis, it appears that about half the original tussock grassland has now gone. At higher altitudes, there remains at least 1.5 million hectares of subalpine tall tussock and scrub mixture. At the other extreme there is probably only 650,000 hectares of lower altitude short tussock now remaining after a century of conversion to pasture grasses and overgrazing. In the intermediate montane zone, snow tussocks have

* National Conservation Officer RF & BPS

† Soil Scientist, Vice President Federated Mountain Clubs.