

Water and tussocks



Why is tussock important?

Snow tussock (*Chionochloa rigida*) is an iconic feature of the rugged mountains of Otago's high country. It is also an important and valuable plant for the region's natural water supply because it sustains high water yield through reduced transpiration. Catchments covered in tussock produce more water than those covered with pasture or forest.

Some of these catchments include Te Papanui Conservation Park on the Lammerlaw and Lammermoor ranges west of Dunedin, and the Kakanui and Manuherikia catchments. The water yield from tussock grasslands to the streams, bogs and rivers running through these catchments is world class and its value to the economy is worth millions of dollars.

Some catchments yield up to 86% of rainfall to waterways and ultimately into the drinking glasses, kettles, baths and showers of Otago people. Studies have shown that the yields are better than from any other cover, even bare soil, since tussocks use very little water.



Tussock at Te Papanui Conservation Park

Threats to tussock

Human activity is the greatest threat to tussock. Large tracts of indigenous tussock grasslands are becoming rare due to cultivation, grazing and burning for farming.

Tussocks can tolerate fire but not grazing mammals, particularly after fire when the new leaves are highly palatable. Concentrated grazing on small burnt patches can kill snow tussocks in just one season, and probably explains their absence in some areas where they would be expected to grow.

Grazing and burning opens up the plant cover, exposing the soil to weeds and rabbits. Grazing animals eat the more palatable species first, leading to a concentration of unpalatable species. This may encourage more burning by farmers. The spread of wilding pines has also had a detrimental effect on tussock.

Studies have shown that converting tussock grasslands into pasture can reduce water yield by 50% and conversion into forest by 62%.

How can you help?

If you visit the high country, please stick to marked paths and avoid damaging tussock. Thoughtful land and water management planning will help sustain tussock cover.

Given the increasing demand for fresh, clean water, it is timely that DOC is recognising the value of tussock and protecting more tussock grassland.

Further information

For more information about tussock, please contact your local Department of Conservation office.



DOC Director-General Al Morrison at Te Papanui

