

The Conservation Status of New Zealand's Indigenous Grasslands

Alan Mark¹ & Bruce McLennan²

¹Department of Botany
University of Otago, Dunedin, New Zealand
Phone: +64 3 479-7391 Fax: +64 3 479-8311
Email: pwhigham@infoscience.otago.ac.nz

²Spatial Information Research Centre
University of Otago, Dunedin, New Zealand
Phone: +64 3 479-8096 Fax: +64 3 479-8311
Email: brmclennan@infoscience.otago.ac.nz

**Presented at SIRC 2004 – The 16th Annual Colloquium of the Spatial Information Research Centre
University of Otago, Dunedin, New Zealand
November 29th-30th 2004**

ABSTRACT

The conservation status of New Zealand's indigenous grasslands has been assessed, as of September 2002, against an 1840 baseline, i.e., immediately before European settlement when New Zealand grasslands were essentially indigenous and at their maximum extent. This study was conducted as a part of a global exercise to assess the conservation status of temperate indigenous grasslands by the World Conservation Union (IUCN), and initial results were presented at the Vth World Parks Congress in Durban, South Africa in September 2003.

Five major grassland types are recognised, four of them tussock grasslands: low-alpine and montane to subalpine snow tussock grasslands, montane to subalpine tall red/copper tussock grassland, montane to subalpine short tussock grassland, and lowland sward grassland. The assumed extent in 1840, of areas with at least some grassland dominance, was mapped at 1:50,000 or smaller, on the basis of the best available information, by Geoff Rogers (North Island), Shannel Courtney (Nelson-Marlborough), Peter Wardle (Canterbury and Central-North Westland, Alan Mark (Otago-South Westland) and Brian Rance (Southland). The current (Sept. 2002) extent was also mapped, on the basis of the 'tussock' category in the Land Cover Data Base 1 map (typed as for the baseline map) plus all areas formally protected at this time (records from Department of Conservation). Ecological region boundaries were added and the map information scanned and compiled using ArcGIS™. North Island areas were also assessed as one unit while South Island areas were grouped into one of three broad geographic regions, based on general land use patterns: the rain-shadow rangeland, the western wet non-rangeland, and the eastern lower altitude non-rangeland regions.

Initial findings showed that the total baseline extent of indigenous grasslands was estimated at 84,536 km² (c. 31% of the land area), with another 8701 km² (c. 3.2%) being various high-alpine communities and 1254 km² (c. 0.5%) being permanent ice and snow. Of the grasslands, c. 13% was low-alpine snow tussock grassland (above the climatic treeline), c. 18% montane to subalpine snow tussock grassland, c. 22% montane to subalpine red/copper tussock grassland, c. 44% montane to subalpine short tussock grassland, and c. 2% lowland sward grassland. Most grassland (57%) was in the South Island rangeland region, with 24% in the eastern South Island non-rangeland, 10% in the North Island and 8% in the western non-rangeland regions.

The areas remaining of each grassland type vary largely in relation to altitude and climate, with the greatest reduction from the baseline areas being in the drier lower-

elevation regions. Only scattered remnants of the sward grasslands persist. Overall, protection of the remaining indigenous grasslands, with various degrees of modification and/or degradation, amounts to some 12% of the baseline extent, with a strong bias towards those at the higher altitudes. Geographically, it is greatest in the South Island wet western region (89% of the 97% which still remained as of September 2002), with less in the North Island (40% of the 17% which remains) and eastern South Island non-rangeland region (11% of the 3% which remains). Grassland protection in the South Island rangeland region (12% of the 57% which remained as of September 2002) is currently increasing through tenure review of the Crown-owned pastoral leasehold land here.

These findings are at present being reviewed in light of new information that has come to hand and the discovery of some erroneous data present in the data sets used in the study. It is expected that the figures above will be subject to small amendments.

Keywords and phrases: conservation; ecological services; indigenous grasslands; land use; pastoral leasehold; preservation; protected areas network

