

Dryland Kanuka Shrubland Restoration: What's moss got to do with it?

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The Canterbury Low Plains ecological district is a highly modified, productive landscape containing a severely reduced amount of indigenous vegetation. However, one large dairy farm scheme aims to restore 150ha of native habitat within its vicinity. The native plant communities that are present comprise scattered fragments of dryland kānuka shrubland and both these and the newly created reserves are surrounded by pivot irrigated dairy farm landscape introducing nutrients, moisture and exotic species into an already stressed environment.

This research aimed to investigate the function of non-vascular plants in the ecology and maintenance of existing kānuka shrubland remnants to assist in the design, implementation and management of restoration blocks.

Data collected from the remnants with regards to community structure of vascular and non-vascular plants, soil moisture, soil temperature and chemistry of moss and soil were analysed.

It was found that the moss cover, dominated by *Hypnum cupressiforme*, was correlated with increased soil moisture and reduced soil temperature fluctuation providing conditions suitable for vascular plant growth. Moss cover was negatively correlated nitrate and with cover of graminoids thereby assisting growth of native plants suited to nutrient poor environments whilst reducing nutrients available for grasses. This may prevent grasses dispersing into the nutrient poor shrubland and forming a dense ground cover preventing regeneration of native plants, particularly kānuka.

It is concluded that the mosses under the kānuka canopy of the remnant habitats assist in the maintenance of such ecosystems and are therefore an important component in both the functional and composition restoration of dryland shrubland upon the Canterbury Plains.