

Simons Pass Station – vegetation of Farm Block area under application for exemption from vegetation clearance rule

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Introduction

This report provides an assessment of the inter-tussock vegetation of the area known as the ‘Farm Block’ (the area defined by the red line in Figure 1) that is under application for an exemption for vegetation clearance in terms of Rule 12.1.1.g in the Mackenzie District Plan (Appendix 1). Specifically this rule prescribes limits to the area of short tussock grassland that can be cleared while also identifying the criteria that need to be met to be exempt from this rule. In this case, the specific exemption being sought relates to the dominance of clover and exotic grass in the inter-tussock sward. The rule states that exemption from the rule can be granted where “the site has been oversown, and topdressed at least three times in the last 10 years prior to new clearance so that the inter-tussock vegetation is dominated by clovers and/or exotic grasses”. I understand that the site under application has been oversown and topdressed at least three times in the last 10 years and that evidence is provided separately to support this. In this report, I describe the composition of the inter-tussock sward vegetation.

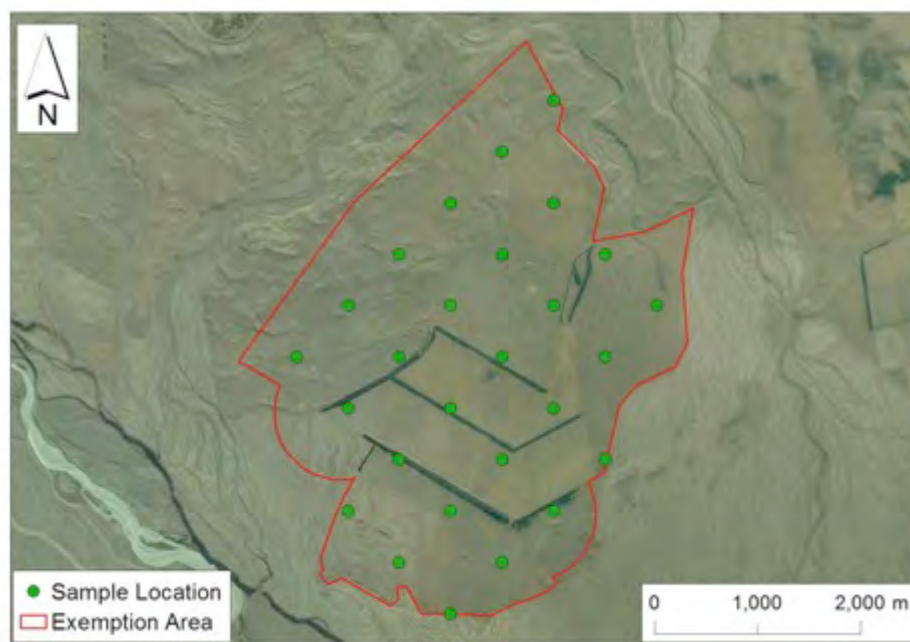


Figure 1. ‘Farm Block’ exemption area with sample points.

Methods

Vegetation sampling was based on sample points located on a 730 m grid (Figure 1). This grid was derived as part of a broader vegetation sampling programme across Simons Pass Station and was generated in a GIS with the grid origin randomly located. Grid points were then entered into a GPS to enable field sample point location. Vegetation sampling followed the Landcare Research procedures for grassland recce plot sampling as described at the National Vegetation Survey web site (<http://nvs.landcareresearch.co.nz>). This approach was

adopted as it has been developed to provide a standard methodology for vegetation sampling and allows the data collected to be entered into the publically available NVS database.

To locate a sample point, a GPS was used to approach the sample site. Once the GPS showed that the distance to the sample point was 20-30 m, the actual sample plot origin was located using a tape measure and compass based on the distance and direction to the sample point from the GPS. This method is used to avoid any bias in final sample plot location. Once the origin was reached, a 10 x 10 m sample plot was established. From the origin, the plot was always located across and down the slope, with the across slope direction always being towards the east. For flat sites, the plot was always located east and then south from the sample point origin.

Vegetation within the sample plot was then assessed using a six-point cover abundance scale (1, <1% cover; 2, 1-5%; 3, 6-25%; 4, 26-50%; 5, 51-75%; 6, 76-100%) for up to four height tiers (<10 cm, 10 – 30 cm, 30 cm – 100 cm, 100 – 200 cm). No vegetation taller than 2 m was encountered in these plots. The cover abundance of all vascular plant species was visually estimated using the cover abundance classes for each tier in which non-reproductive plants parts were present (grass culms extending above foliage were not assessed). In addition, the cover of non-vascular plants, bare ground, litter and rocks were also assessed, as well as various abiotic variables (altitude, slope, aspect, horizon).

For analysis, the cover abundance class values for each species were converted to the mid-point of the class (ie. a cover class of 2 was converted to 3% and a cover class of 3 to 15.5%) and the data for cover abundance from the tier in which the species was most abundant was extracted. Cover abundance values were then summed for each species in the following species groups: clovers, exotic grasses, short tussocks, shrubs and other species. In summing, cover abundance can exceed 100% because of species overlapping each other.

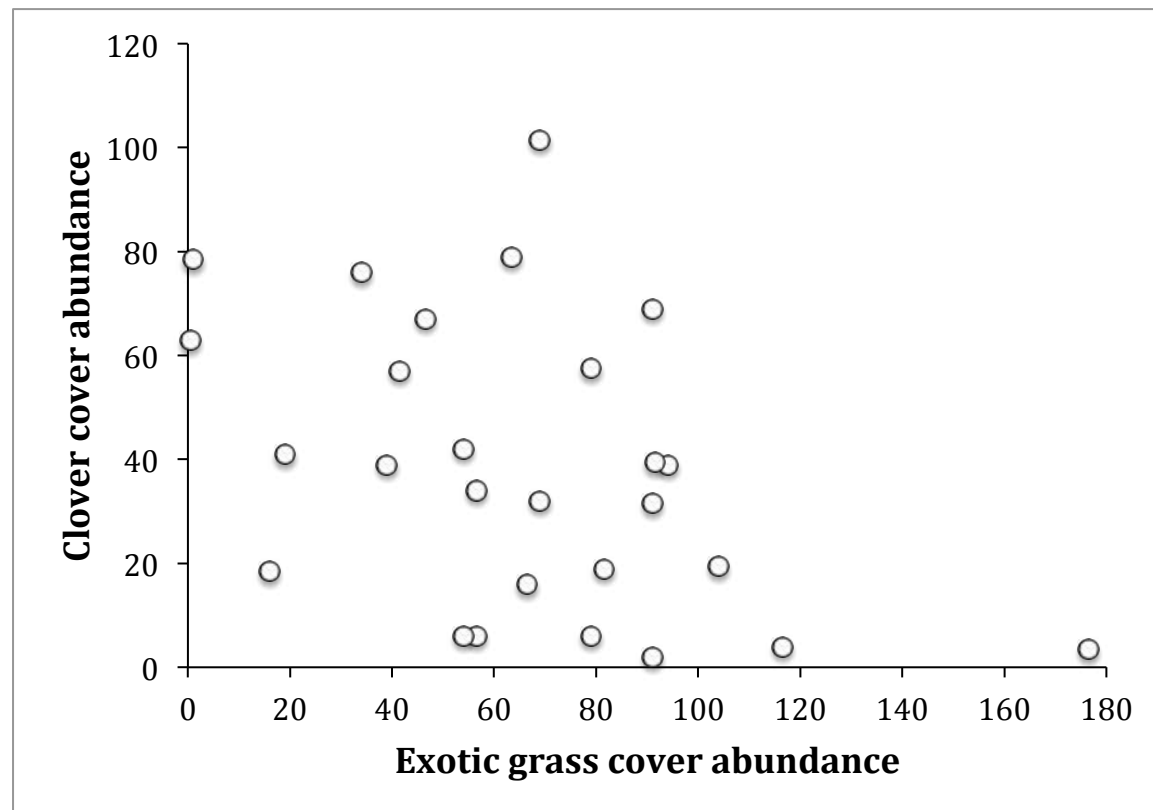
Results

In total, 27 plots were sampled within the exclusion area (Table 1). While short tussock species (almost exclusively hard tussock) were physiognomically dominant in many plots (19/27) they were absent from eight plots and their average cover in the plots they occurred in was low ($10.6 \pm 2.1\%$). In contrast, clover species (white clover, suckling clover and haresfoot trefoil) and exotic grasses (dominated by sweet vernal, browntop and brome species) were present in all plots and their average cover was high ($66.0 \pm 7.2\%$ for clovers and $38.7 \pm 5.4\%$ for exotic grasses). The cover of other species was moderate ($24.1 \pm 3.6\%$), although this was mainly dominated by mouse-ear hawkweed (present in 23/27 plots, $18.1 \pm 3.7\%$ cover). Shrubs (sweet brier and matagouri) were only present in 8/27 plots and their average cover in these plots was low ($0.8 \pm 0.6\%$).

Table 1. Summary data for cover abundance of the main vegetation groups present.

Species group	N	Mean cover %	SE of mean	Cover range %
Hard tussock	19	10.6	2.1	0 – 38.5
Clovers	27	66.0	7.2	0.5 – 176.5
Exotic grasses	27	38.8	5.4	2 – 101.5
Other herbaceous species	27	24.1	3.6	2.5 – 65.5
Shrubs	8	0.8	0.6	0 – 15.5

With the exception of one plot (plot 156) which was located right on the edge of the oversown and topdressed area at the southern extent of the moraine, all plots either had high values of clover or exotic grass (Figure 2). The plot with the very high abundance of clover (plot 54) had an exceptionally luxuriant growth of white and suckling clover mixed together.



Photos of the 27 sample plots are included in Appendix 2.

Discussion

The data presented in this report provides an objective assessment of the relative abundance of clovers and exotic grasses in the short tussock grassland vegetation within the 'Farm Block' area for which an application for an exemption for vegetation clearance is being sought. These data clearly show that for the 27 10 x 10 m plots sampled here, that the cover of clovers and exotic grasses is substantial and based on these data it seems reasonable to conclude that the inter-tussock vegetation is dominated by clovers and/or exotic grasses. From observations of the whole 'Farm Block' area, these plots are considered representative of the overall vegetation pattern present.

Appendix 1: Mackenzie District Plan rule 12.1.1.g relating to clearance of short tussock grassland.

12.1.1.g Short Tussock Grasslands

An interim Rule that will be reviewed three years after the Plan becomes operative.

On each of the individual farm properties existing in the Mackenzie Basin Map as at 1 January 2002 in any continuous period of five years there shall be no clearance including cultivation above the following thresholds of short tussock grasslands, consisting of silver or blue (*Poa* species), or *Elymus solandri*, or fescue tussock where tussocks exceed 15% canopy cover:

- (i) 40 hectares or less – Permitted Activity
- (ii) Greater than 40 hectares – Discretionary Activity

Performance Standards for Permitted Activity

- The landholder shall notify the Mackenzie District Council of the proposed clearance 4 months prior to the clearance being undertaken and shall supply a map of the proposed site.
- The clearance shall be more than 150m from the boundaries of any existing Sites of Natural Significance.

Exemptions

This rule shall not apply to:

- Any removal of declared weed pests; or
- Vegetation clearance for the purpose of track maintenance or fenceline maintenance within existing disturbed formations; or
- Any vegetation clearance including burning which has been granted resource consent for a discretionary or non-complying activity from the Canterbury Regional Council/Environment Canterbury under the Resource Management Act 1991; or
- Any short tussock grassland where the site has been oversown, and topdressed at least three times in the last 10 years prior to new clearance so that the inter-tussock vegetation is dominated by clovers and/or exotic grasses.

Appendix 2: Photos of sample plots.

Plot 33



Plot 34



Plot 40



Plot 41



Plot 42



Plot 46



Plot 47



Plot 48



Plot 49



Plot 53



Plot 54



Plot 55



Plot 70



Plot 152



Plot 156



Plot 157



Plot 158



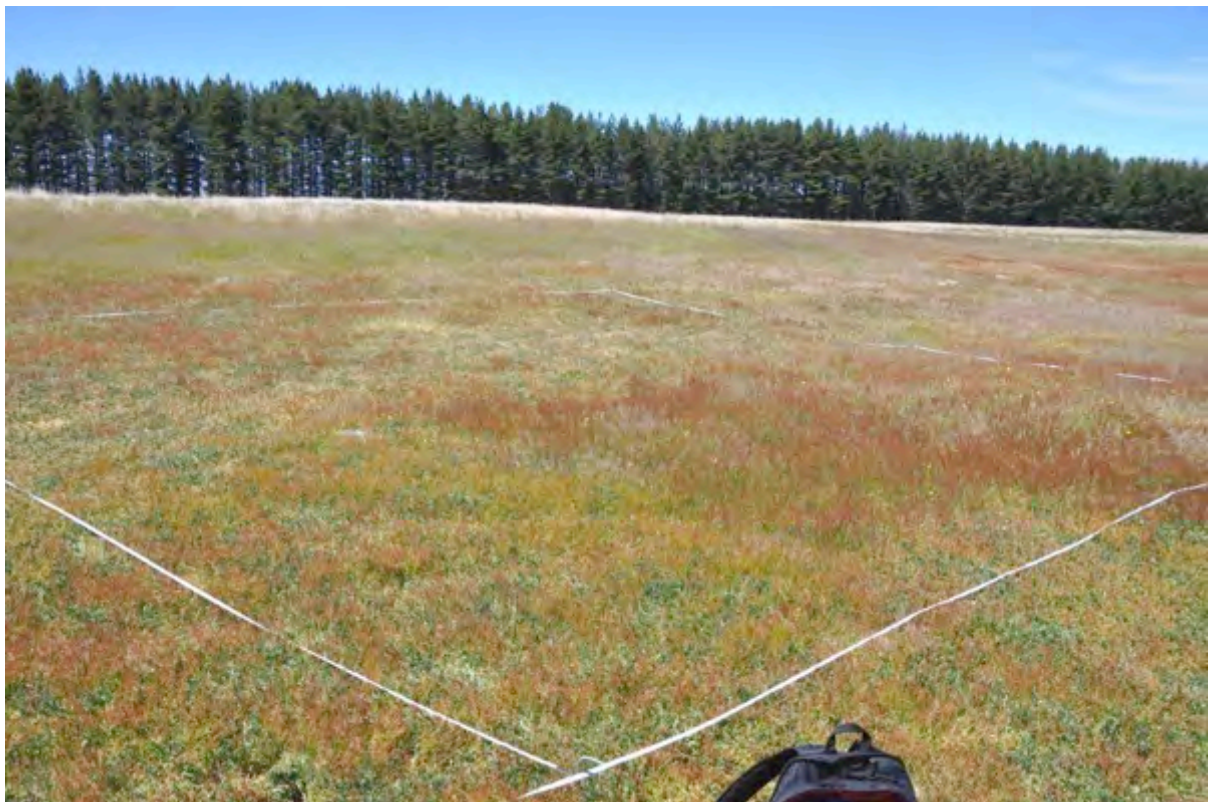
Plot 161



Plot 162



Plot 163



Plot 166



Plot 167



Plot 168



Plot 169



Plot 172



Plot 173



Plot 178

