

Abstract

The New Zealand Beef and Sheep Sector's Contribution to Biodiversity and Carbon Sequestration [†]

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Background: Climate change and the environmental impact of food production is a key modern challenge, becoming part of the wider human nutrition discussion in regard to sustainable diets. In the context of New Zealand sheep and beef farming and its land use, an assessment was undertaken to understand how the New Zealand beef and sheep sector currently contributes to native biodiversity conservation and carbon sequestration.

Methods: A desk top analysis of the amount of native vegetation on sheep and beef farms in New Zealand was undertaken using remote sensing information. Sources of land cover data were derived from Agribase, Land Use and Carbon Analysis System, Land Cover Database and Land Environments of New Zealand. A geographical information system was used to calculate the total area of all native vegetation cover, and of native forest cover, on public conservation land, sheep and beef farms and other land use types.

Results: Collectively, sheep and beef farms contain the most extensive land use in New Zealand, accounting for 40% of the total land area; 24.5% of New Zealand's native vegetation (2.8 million hectares) and 17% (1.4 million hectares) of all native forest is estimated to be on sheep and beef farms. This is the largest amount of native vegetation present outside of the public conservation estate. Approximately 1.4 million hectares (13%) of sheep and beef farms is estimated to be covered by native forest. This forest area does not include exotic plantation forests, shelterbelts, erosion planting or riparian planting on sheep and beef farms.

Conclusion: Native forest on sheep and beef farms is an important resource for supporting on-farm and landscape-level biodiversity conservation, and as a source of carbon sequestration in New Zealand, especially in regions where there is relatively little public conservation land. This finding is particularly important in places where there is little native cover remaining, like those in lower altitudes, on more gentle slopes and in drier regions. These findings contribute to the ongoing improvement of sheep and beef farming environmental performance towards a carbon neutral sector by 2050.

Supplementary Material: The poster is available online at www.mdpi.com/2504-3900/8/1/48/s1.



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