

21 July 2016

George Ormond
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Dear George

WILDING TREE MANAGEMENT ON PUKAKI DOWNS STATION

You have asked us to advise on management options for controlling wilding trees on Pukaki Downs Station, with reference to your submission on Plan Change 5 to the Canterbury Land & Water Regional Plan. I understand your submission seeks greater flexibility to increase nutrient levels to allow intensification of farming use as a means to provide continued long term control of wilding trees.

Wilding trees in New Zealand – in particular *Pinus contorta* – are reported to be spreading at a rate around 5 percent per year (New Zealand Wilding Conifer Management Strategy 2015-2030). This compounding rate of spread leads to exponential costs to deliver effective control, which for most landowners is unachievable. Mature wilding pine ‘forests’ are expensive to control, which is made worse by the loss of productive farmland due to invasion and the associated reduction in revenue. Further to this is the loss of biodiversity, the reduction in water yields, impact on aesthetic and cultural values and the increased risk of wild fires. Land-use options are severely diminished where wilding trees are allowed to grow into dense, mature stands.

Wilding tree seeds are wind dispersed; *Pinus contorta* seeds are particularly small and light and are capable of traveling large distances in strong winds. Whilst there is a significant seed source on Pukaki Downs Station, Ferintosh Station – immediately to the north of Pukaki Downs – also has large, mature infestations of *Pinus contorta*. Land administered by the Department of Conservation (DOC) to the north and west of Pukaki Downs is also reported to have mature wilding conifers. With the prevailing wind blowing from the north-west, seed from both Ferintosh Station and DOC-administered land is likely to be dispersed onto Pukaki Downs and establish where there is suitable habitat. Additionally, seed produced from Pukaki Downs’ own wilding trees continue to invade the farmland on Pukaki Downs which is being maintained clear of wilding trees.

There are a number of wilding tree management options available currently, which are considered 'best practice' and may be considered for use on Pukaki Downs. These include:

- Mechanical Control – using saws, loppers, chainsaws, bull dozers or excavators to fell trees;
- Aerial Spraying – using a herbicide mixture developed by the Department of Conservation to foliar spray trees and leave them standing once sprayed;
- Basal Bark Application – application of a herbicide and oil mix which penetrates the bark of the tree. Can be applied via helicopter or by ground operators; and
- Stem Injection – drilling holes and injecting herbicide into individual trees.

For dense stands of trees, like those found on Pukaki Downs, only the first two management options are considered 'best practice' and are economically viable. Aerial spraying is a viable option with a kill rate of up to 90%, however trees must remain standing for a number of years to 'shade out' the surrounding land and reduce the level of seedling establishment. Over time the sprayed trees will decay allowing increased light to reach the ground, and with a constant seed source from adjoining land seedlings will establish and the sprayed stand will eventually return to wilding trees unless further control is carried out.

Mechanical control is the recommended method, followed by the clearing of tree slash, cultivation and intensification of the land. The advantages of this method are twofold; the land can be reverted to a productive state allowing increased revenue, which can then be used to control more wilding trees, and by stocking the improved pasture at an appropriate level wilding tree seedlings can be effectively controlled through pasture management and grazing. Moreover, it is far more cost effective to maintain the land which is currently free from wilding trees in a state which does not allow wilding trees to establish. This, too, is best achieved through land intensification, pasture management and grazing with appropriate stocking levels.

The future of the mature wilding trees on Ferintosh Station and the DOC-administered land remains unclear at this time, however it would be prudent for management of Pukaki Downs Station to expect a continual seed source from this land for some years to come. You have also made it clear that it may be many years before the dense, wilding tree infestation on Pukaki Downs is effectively controlled. It is, therefore, imperative that land currently free of wilding trees on Pukaki Downs Station is maintained free from wilding trees through utilising pasture management and grazing as a control tool.

Yours sincerely
BOFFA MISKELL



Marcus Girvan
Biosecurity Consultant