

Predicting the replacement of woody weeds by native plant succession in New Zealand



Native regeneration beneath a stand of *Pinus radiata*

It is widely known that native forest can regenerate through gorse. But does this happen with any of the other 55 thicket-forming woody weeds that the Department of Conservation manages?

The aim of this work-in-progress is to provide general guidelines about where, when, and how woody weeds get replaced by regenerating native plant species on conservation land (assuming that native seed sources are present and disturbance is minimised).

Managers will be able to use this information to predict which woody weed species are likely to die out naturally in their area, and which are likely to persist if they are not actively managed.

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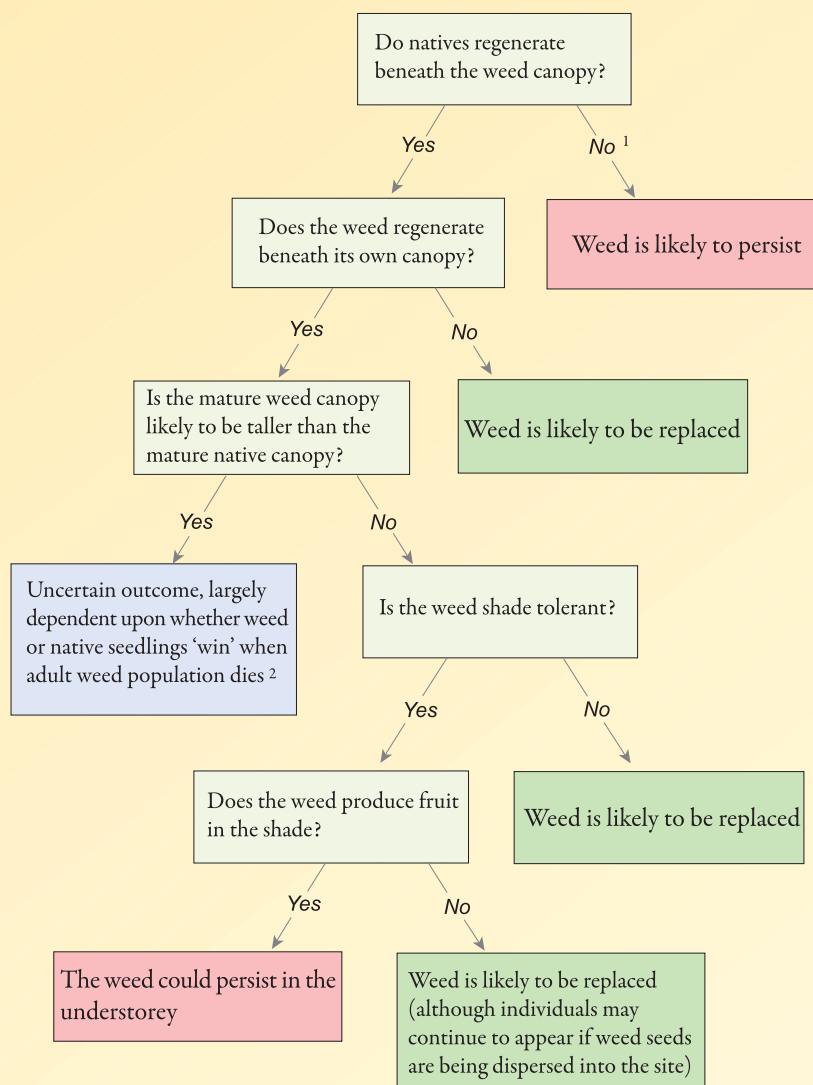
Using native plant succession to 'control' weeds means less

- cost and effort
- herbicide use
- non-target damage
- disturbance and other ecological damage
- chance of re-invasion of same or new weed
- carbon emissions



Natives regenerating through gorse

Flow chart for predicting the likelihood of natives replacing weeds at any given site



Using native plant succession to 'control' weeds might not be the best option if

- eradication can be cost-effectively achieved
- there is a need to prevent spread to neighbouring sites
- threatened species are at risk
- the ecosystem has been irreversibly damaged
- succession through the weed will result in the loss of desirable native species
- environmental conditions do not promote sufficient native regeneration



A thicket of alder (*Alnus glutinosa*) near Lake Wairarapa

¹ Determine why native seedlings are not establishing beneath the weed canopy. For example, is it because the weed stand is extremely dense and dark—this may change as the population ages and naturally thins out. Is seedling regeneration suppressed by allelopathic interference—unlikely to change over time.

² This could be tested experimentally by controlling the weed in a way that imitates natural senescence, then monitoring subsequent seedling regeneration.