

Woody weed populations in New Zealand: persistent or ephemeral?

Kate G McAlpine¹, Susan M Timmins¹, Sarah D Jackman², Shona L Lamoureaux²

¹*Department Of Conservation*, ²*AgResearch Ltd*

Resources to manage plant invasions are limited, so the ability to determine which species are likely to die out naturally is valuable. One of the main indicators of long-term persistence at a site (in the absence of disturbance) is the ability of a species to regenerate under its own canopy, and thus replace individuals as they die. A light-demanding species that does not regenerate under its own canopy is instead liable to be replaced by shade-tolerant species that can establish there. In this study, understory regeneration was surveyed at sites dominated by a mature, closed-canopy population of one species of woody weed to determine which weed species are likely to persist, and which might be replaced by native plant succession. In total, 133 populations of 42 woody weed species were surveyed. Twenty weed species had zero, or very few, conspecific seedlings (beyond cotyledon stage but < 1 m high) or saplings (>1 m high) present beneath the parent canopy. These species appear to be least likely to persist in the absence of further disturbance, particularly where a dense native understory is present. Eight species or species groups had high numbers of conspecific seedlings and saplings present, and thus appear most likely to persist. The remaining 14 species had moderate numbers of conspecific seedlings/saplings present, making successional outcomes unpredictable. Some weed species had variable regeneration, with high numbers of seedlings at some sites, but none at others. There was a dense native understory present at many sites, with more than 170 native species recorded overall. *Melicytus ramiflorus* was by far the most common native species, present at 61% of sites. Managers can use these results to assess likely successional outcomes at specific sites, and better prioritise woody weed control.