

# Aerial glyphosate application reduces grey willow (*Salix cinerea*) canopy cover, increases light availability and stimulates kahikatea (*Dacrycarpus dacrydioides*) growth

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Grey willow (*Salix cinerea*) is widely established in New Zealand's remaining swamps and fens, and in many areas has replaced endemic kahikatea (*Dacrycarpus dacrydioides*) forest. Conservation managers need to know how to restore willow-invaded wetlands to a resilient natural state, but knowledge on how to achieve this is limited. We planted kahikatea into an intact stand of grey willow and into areas where the herbicides glyphosate or triclopyr had been aerially applied to control grey willow 1.5 years earlier. We measured canopy cover, light availability and the growth of kahikatea seedlings. In areas treated with glyphosate, grey willow canopy cover was reduced to 44 percent 95% CI [40.3,47.7], light availability increased to 64 percent 95% CI [49,79] of full sunlight, and kahikatea plants grew an average of 44 cm 95% CI [32,56] in 14 months. In contrast, there was little or no kahikatea growth under the intact willow canopy and in the triclopyr treatment where grey willow canopy cover remained high and mean light availability was 25 percent 95% CI [21,29] of full sunlight. We conclude that the removal of the grey willow canopy through aerial glyphosate application created favourable conditions for kahikatea growth and may enable the restoration of kahikatea forest in wetlands dominated by grey willow.