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Establishing native plants in a weedy riparian environment

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Riparian zones are important for influencing stream habitat and water quality. Efforts to populate these areas with native species are frequently hindered by fast-growing weed species. A trial was installed to examine riparian establishment alongside the Sherry River in the Motueka river catchment with seven native species and four weed-control treatments. After 2 years, herbicide use significantly improved seedling survival compared with the other weed-control treatments, but weed mats promoted greater seedling height and crown diameter growth. Seedling survival and growth varied significantly with species. After comparisons of costs and practical issues, weed mats were concluded to provide the most suitable weed control. *Cordyline australis* had the highest survival rate, developed the most crown area and performed well in terms of height increment; *Pittosporum tenuifolium* and *Plagianthus regius* also performed well. All three native species are recommended for use in further plantings at this and other similar locations.

Keywords: native plants; riparian; seedling establishment; weed control; *Cordyline australis*; *Pittosporum tenuifolium*; *Plagianthus regius*

Introduction

In terms of managing catchments to meet a range of environmental needs, the riparian zone is probably the most important site for enhancing stream habitat and water quality (Phillips & Marden 2003). The different functions of riparian margins include bank stabilisation, filtration of run-off, removal of nutrients from shallow groundwater, shading to reduce water temperature and waterway weeds and the provision of habitat for vertebrates and invertebrates both in-stream and on land. Because of their location and the functions they provide, riparian zones are places where management interventions can have a disproportionate effect relative to the rest of the catchment in controlling the effects of broader catchment activities on streams and downstream aquatic ecosystems (Ministry for the Environment 2001). Currently, many New

Zealand land management organisations and some companies are promoting greater care of waterways and their riparian margins (e.g. Taranaki Regional Council 1993; Environment Waikato 2004; Fonterra Co-operative Group 2003).

Until recently, the majority of species used in riparian revegetation plantings were introduced plants, particularly willows and poplars (van Krayenoord & Hathaway 1986), but now interest is shifting to the use of New Zealand indigenous plants (Porteous 1983; Pollock 1986; Phillips 2005; Marden et al. 2005). Regional governments, charged with the protection and maintenance of air, soil and water values, are actively promoting the planting of native species alongside waterways (e.g. Environment Southland 2008).

The management of riparian areas on farmland offers particular challenges (Environment

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