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## **Managing riparian margins to influence the provision of multiple ecosystem services**

**Key words:** farm productivity, natural resource management, nutrient management

### **Abstract:**

Riparian margins can provide a range of environmental, social, and production benefits both on-farm and off-farm and therefore riparian management is a common policy response to address land use pressures on receiving environments. The introduction of vegetation natural capital stocks into retired grass strip riparian margins can provide values additional to those provided by grass strip margins — but which values and by how much and what are the trade-offs? We modelled the provision of water quality, contract recreation, amenity, and food provision ecosystem services in response to grazed, fenced grass strips, and fenced multi-tier planted riparian margin management scenarios based on a lowland dairy farming landscape as typical in the North Island, New Zealand. We used a combination of freely available data, national spatial datasets, published literature, information obtained from dairy farmers, spatial data obtained from local government and the OVERSEER® nutrient budget to model change in ecosystem services provision under the three different riparian management scenarios. Our results indicate that riparian margin management can maintain or increase production values and economic returns, while also contributing to environmental stewardship and community values. We also show that while riparian margin management can improve the provision of our study ecosystem services, they alone are not adequate to address all detrimental outcomes of land use, such as nitrogen leaching, and therefore should be part of wider farm practices in order to maximise opportunities for sustained multifunctionality of landscapes. The results of this analysis will be presented with a focus on how the conversion of grass strip riparian margins to multi-tier planted riparian margins can result in additional provision of ecosystem services including cultural services.