

Kohuhu

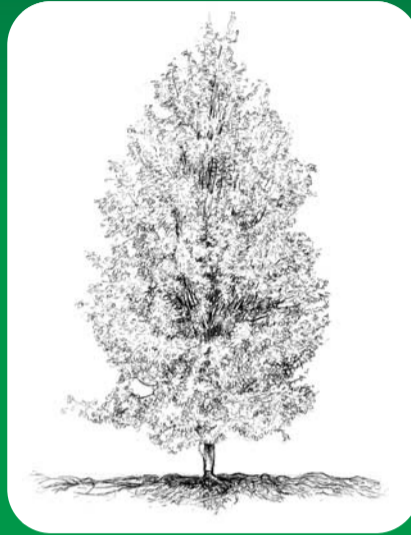
Pittosporum tenuifolium

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Introduction and Methods

The composition and extent of stream-side vegetation influences how well a riparian area functions and hence has a major impact on the state of streams. Though the role of exotic woody species such as willow is well recognised for improving bank stability, information on the performance of native woody species is limited. Thus, there is a need to quantify their effectiveness particularly as stream restoration enhancement projects involving native species increase in popularity.



Side view of canopy and root system of a 5-year old plant (see text box for dimensions)

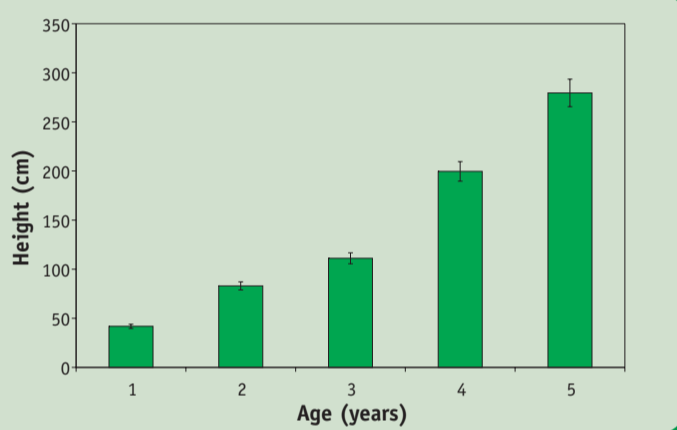
A trial was established in 1999 to assess growth performance of twelve 1 to 5 year-old native riparian plant colonisers. Ten plants were extracted each year and growth parameters measured.



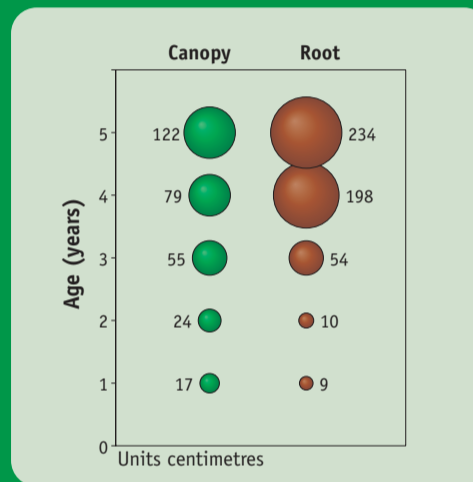
Plan view of 5-year old root system (see text box for dimensions)

Results

Tree Height



Canopy and Root Spread



Distribution and Site Preferences

Occurrence	North Cape to Southland
Local occurrence	forest margins, scrublands and streambanks
Altitudinal range	sea-level to 920 m
Preferred soils	no preference
Moisture	not too dry, not tolerant of waterlogging
Properties	frost tolerant and wind tolerant

Summary of growth characteristics at age 5

Mean height	2.8 m, 10 m in adult trees
Mean canopy	1.2 m
Mean root spread	2.3 m
Max. root depth	0.3 m
Mean above ground biomass	3.9 kg
Mean below ground biomass	1.2 kg

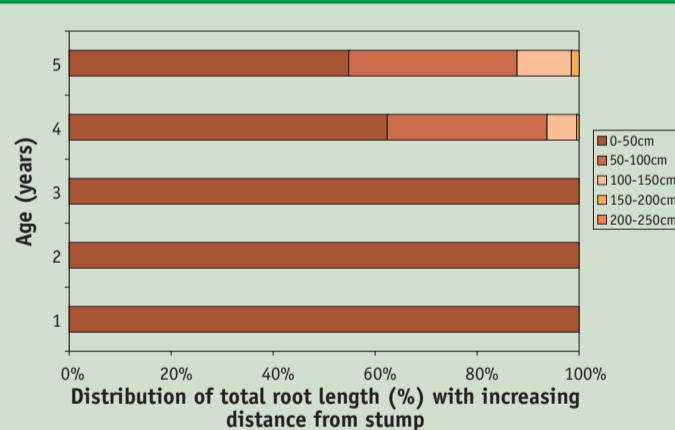
Notes: Fast early growth, tall stature and dense foliage make it good for shelter, as a nurse crop and for providing initial cover on earthworks and deforested sites. Susceptible to topple on heavy, poorly drained and poorly coherent soils. Roots have moderate (mean: 29.3 MPa) tensile strength (Watson, A., Marden, M. 2004).

Suitable for streamside stabilisation in small streams with stable banks and in conjunction with other species. Its shallow rooting depth makes it unsuitable for riverbank stabilisation in situations where bank height likely exceeds the maximum rooting depth (~2 m) of adult trees.

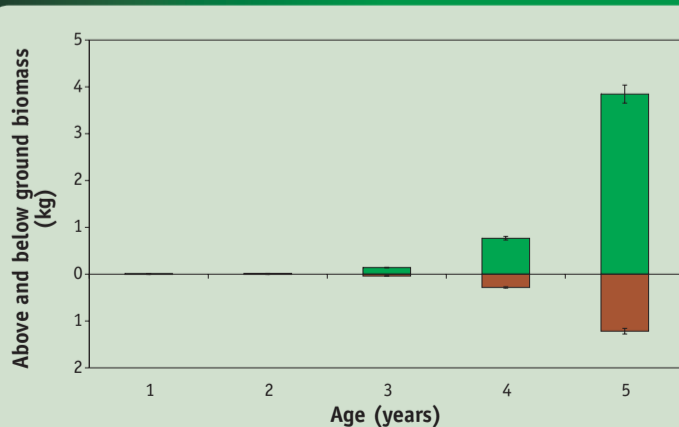
Root Depth



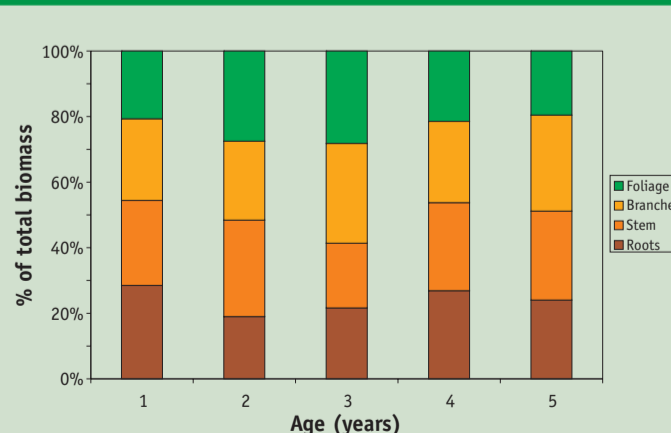
Root Length Distribution



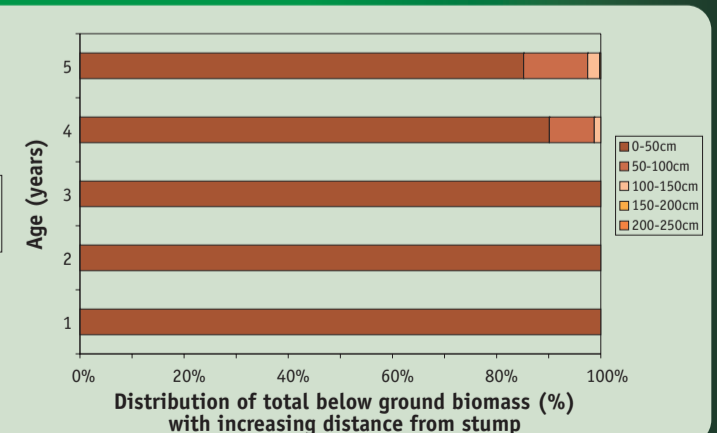
Biomass



Total Plant Biomass



Root Biomass Distribution



References

- Marden, M., Rowan, D & Phillips, C. 2005: Stabilising characteristics of New Zealand indigenous riparian colonising plants. *Plant and Soil* 278 (1-2): 95-105.
- Pollock, K. M. 1986: Plant Materials Handbook for Soil Conservation. Volume 3: Native Plants. Water and Soil Miscellaneous Publication No. 95, 66p.
- Watson, A., Marden, M. 2004: Live root-wood tensile strengths of some common New Zealand indigenous and plantation tree species. *New Zealand Journal of Forestry Science* 34(3): 344-353.

Acknowledgements

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- http://icm.landcareresearch.co.nz/science_themes/freshwater/stabilising_characteristics_of_nz_native_riparian_plants.htm