

Tutu *Coriaria arborea*

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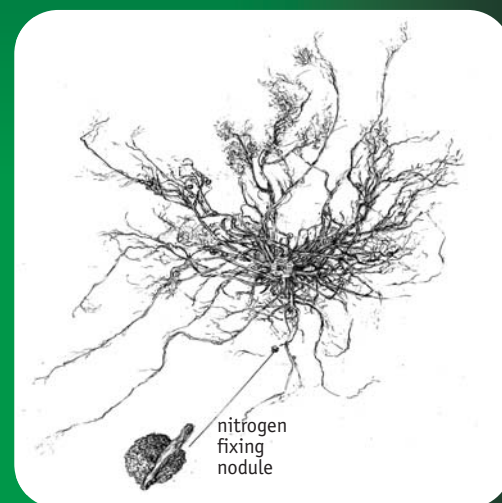
Introduction and Methods

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)

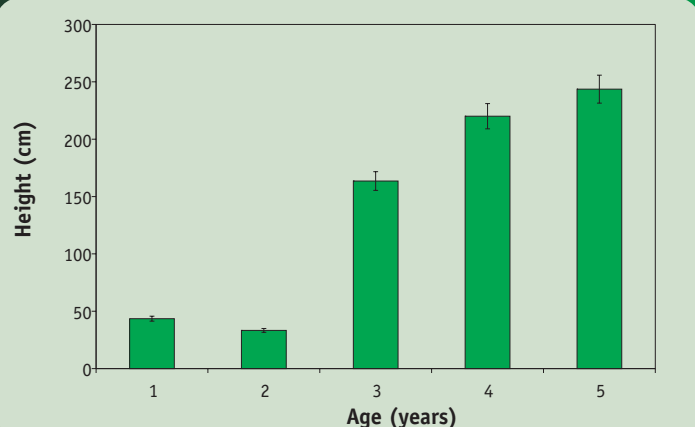
A trial was established in 1999 to assess growth performance of twelve 1 to 5 year-old native riparian plant colonisers. Ten plants were extracted each year and growth parameters measured.



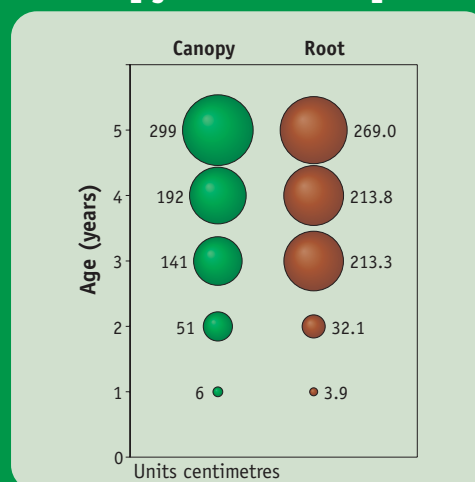
Plan view of 5-year old root system (see text box for dimensions)

Results

Tree Height



Canopy and Root Spread



Distribution and Site Preferences

Occurrence	North Island
Local occurrence	coastal and montane forests, scrubland and forest margins, gullies
Altitudinal range	sea-level to 1100 m
Preferred soils	pumice, alluvial gravels and road batters
Moisture	does not tolerate extreme drought conditions
Properties	pioneer species, tolerates low fertility, foliage poisonous at certain times of year

Summary of growth characteristics at age 5

Mean height	2.4 m (occasionally grows to a small tree (6 m) with a stout trunk up to 3 m)
Mean canopy	3 m
Mean root spread	2.7 m
Max. root depth	0.3 m
Mean above ground biomass	9.2 kg
Mean below ground biomass	3 kg

Notes: Suitable for revegetation of roadbatters, bare pumice, gravel or other free draining soils low in fertility. Suckers freely and has a fibrous root system with root nodules containing nitrogen-fixing fungi, which make it ideal for stabilising bare, friable soils or subsoils. Roots have low (mean: 15.68 MPa) tensile strength (Watson, A., Marden, M. 2004).

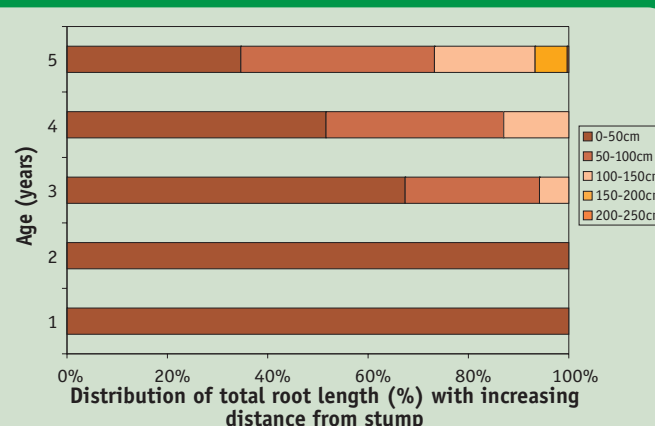
Suitable for streamside stabilisation in small streams and in conjunction with other trees. Its shallow rooting depth makes it unsuitable for riverbank stabilisation in situations where bank height exceeds the maximum rooting depth (~1 m) of adult plants.

Plants contain poisons in the sap and berries and should not be planted near beehives.

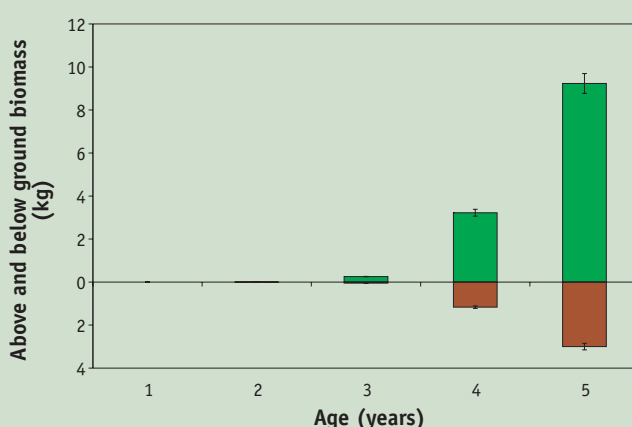
Root Depth



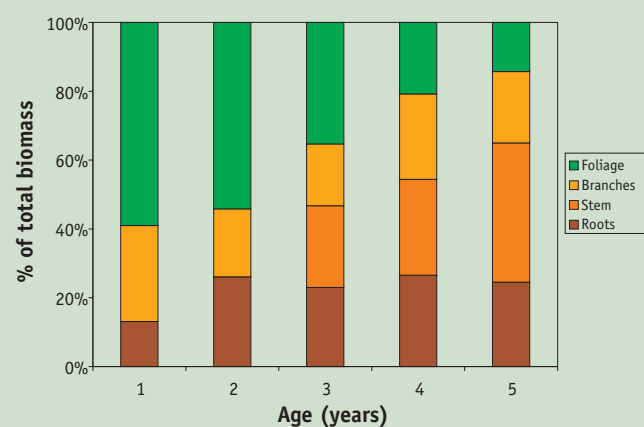
Root Length Distribution



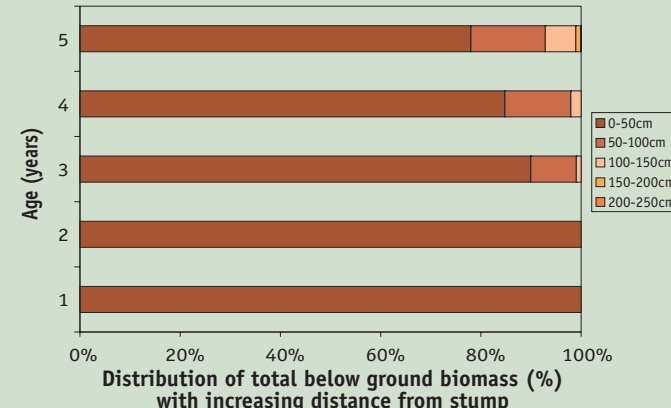
Biomass



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