

Frost resistance in titoki (*Alectryon*)

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Thames Street, Mt Eden, Auckland, is lined with planted titoki (*Alectryon*), 1.5 - 6 m tall. Most are local Council plantings, but two of them I grew from seed: one from Great Island (Three Kings Is) and the other from Aorangi (Poor Knights Is). The colder than usual frosts in the winter of 1994 damaged many different Auckland plants. The coldest morning was on 30 June 1994 (-3°C air temperature at the Auckland Botanic Gardens, Manurewa).

On that day at 10 Thames Street this particular frost turned the upper 2 m of stem, of a 5 m tall puka (*Meryta sinclairii*), into jelly. The Council's Thames Street titoki (unprovenanced, but almost certainly from the Auckland mainland) showed: none to minor frost damage, which was restricted to the newest leaves; the titoki tree from the Poor Knights had most of the leaves of the protruding shoots frosted; and the Three Kings titoki had both the recent growth and the old leaves all frost damaged. The damage to the titoki tree from the Poor Knights was clearly intermediate to that seen in the mainland trees and Three Kings tree. There has not been a frost of this severity in Mt Eden since 1994.

In Riccarton Bush at Christchurch where it was reintroduced, titoki were killed by severe frosts in 1895 and 1946 (Molloy 1995: 148). The natural southern limit for titoki is nearly 30 km south of Christchurch on Banks Peninsula. In the Kaituna Valley Scenic Reserve, south-west Banks Peninsula, it is a common canopy species where it benefits from frequent flooding depositing fresh silt in shallow layers (B.P.J. Molloy pers. comm.). The southern and altitudinal limits of titoki are strongly influenced by its sensitivity to frost. Several other New Zealand plants also have their mainland southern limit in sheltered localities on Banks Peninsula: karaka (*Corynocarpus laevigatus*), nikau (*Rhopalostylis sapida*), passionfruit (*Passiflora tetrandra*), kawakawa (*Macropiper excelsum*), akeake (*Dodonaea viscosa*) and puka (*Griselinia lucida*) (Wardle 1991: 132).

Acknowledgements

To Brian Molloy for the comment and Steve Benham for the temperature records at the Auckland Botanic Gardens.

References

Molloy, B. 1995: Riccarton Bush: Putaringamotu. Riccarton Bush Trust, Christchurch. 330pp.

Wardle, P. 1991: Vegetation of New Zealand. Cambridge University Press, Cambridge. 672pp.

Fig. 1: from Poole and Adams, 1990, Trees and Shrubs of New Zealand. DSIR Publishing, Wellington.

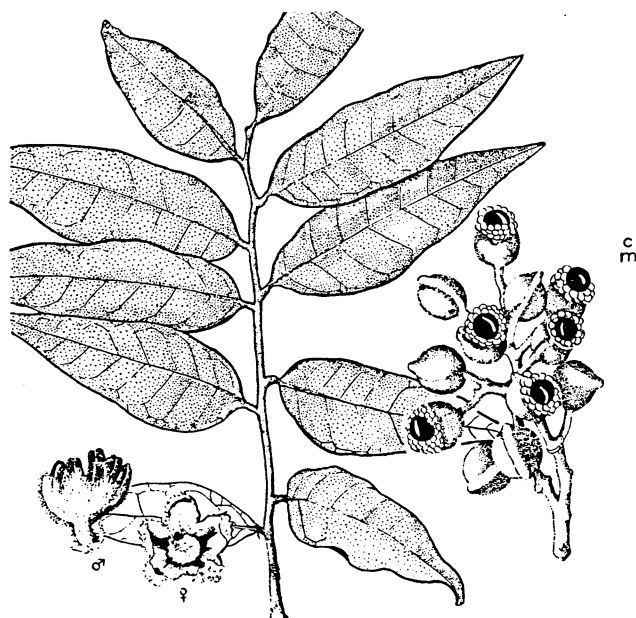


Fig. 1: *Alectryon excelsus*