Black beech (*Nothofagus solandri* var. *solandri*) outlier on Little Barrier Island and cultivated trees in Auckland

Mike Wilcox

For many years the natural range of black beech was generally thought to extend north only as far as the Mamaku Plateau west of Rotorua, and near Ohiwa Harbour (Wardle 1970). However, C. R.(Dick) Veitch then of the Wildlife Service and one of the people responsible for the cat eradication project on Little Barrier Island, discovered there on 21 August 1978 a small population near the end of "Track 7A" cut by the cat eradication team in a remote site above the Waitoki Gorge on the north side of the island. He reported this discovery to Alan Esler, then at the DSIR, Mt Albert, with a voucher specimen (A E Esler 811, CHR 354469). The spot was subsequently visited by Alan Esler and Ross Beever on 2 December 1978 (CHR 362240), and by Ewen Cameron in August 1981 who recorded a population (NZMS260 S08 980 560) of c. 30 trees at an altitude 150 m along a narrow ridge (AK 154967). Ross Beever noted that the 20-30 trees had a *dbh* of 30-50 cm, and were at 800 feet (244 m) near a stand of kauri (*Agathis australis*) and hard beech (*Nothofagus truncata*).

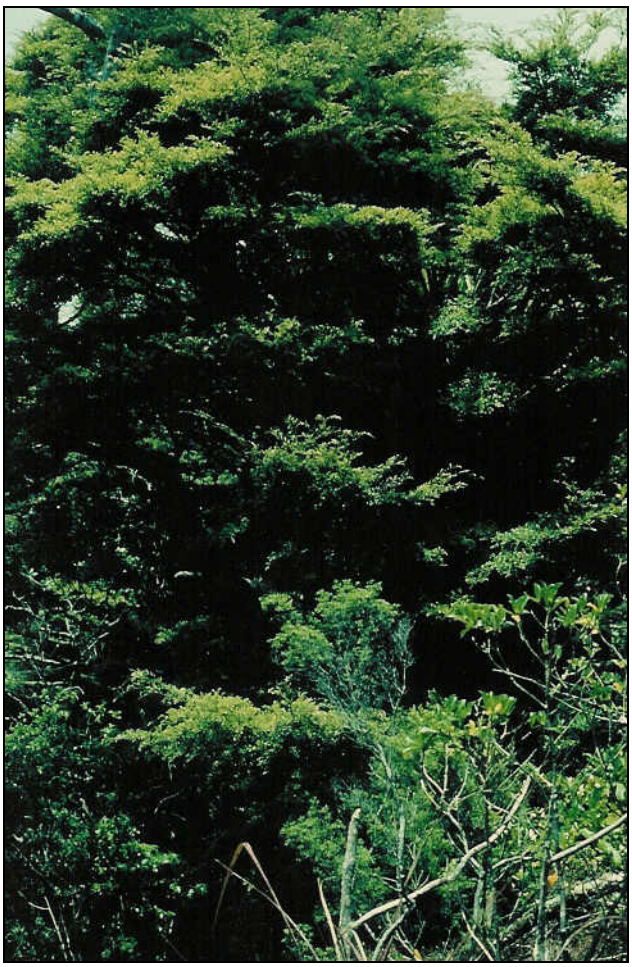

Figure 1. Black beech on Track 7A, Little Barrier Island, 2/12/1978 (Ross Beever).

This remarkable outlier population of *Nothofagus solandri* var. *solandri* – 250 km northward extension of its previously known range – has not had much publicity, though I recall hearing about it in 1979 or thereabouts when engaged on a countrywide seed collection and provenance study of the New Zealand *Nothofagus* species, and showed (with a black dot on the distribution map) Little Barrier Island as a site for both black beech and hard beech *Nothofagus truncata* (Wilcox & Ledgard 1983). Wardle (1984) mentions it and shows it on a distribution map, and Bartlett & Gardner (1983) mention that both black beech and hard beech grow on Little Barrier Island but not on Great Barrier Island. McGlone (1985) discusses the celebrated 'beech gap' in central Westland and other anomalies in the distribution of *Nothofagus*, but makes no reference to the black beech outlier on Little Barrier.

I know of two fine cultivated black beech trees in Auckland. The first is the well-known big tree at 39 Owens Road, Epsom, which features as Tree Number 4 in the Tree Council's booklet on Notable Trees of Auckland (The Tree Council 2002). Native beech trees are very scarce in Auckland's planted treescape, and this black beech in Epsom is certainly a surprisingly large and healthy specimen.

I came across another black beech recently, growing in the coastal bush at the Waikowhai Reserve, Hillsborough (map reference R11 646 725). This seemed at first quite an exciting find as it looked natural. As of 24 February 2004 the tree was 12 m tall with a *dbh* of 55 cm. It has a healthy crown. This reserve has probably had all sorts of things planted in and around it over the years, and judging by its size the beech tree must have been put in 40-50 years ago, I would guess. It is emergent above native trees such as *Myrsine australis* and *Dysoxylum spectabile* growing in association – it is not out in the open as a specimen tree. J. K. Bartlett collected a specimen (AK 151953) from this tree in October 1980: "Cultivated. One tree, 25 cm basal diameter, in tall scrub". So it has grown c. 30 cm in diameter in the last 24 years. It is known to Alan Esler and Willy Kuschel, and had been recorded by Phyllis Hynes in the 1970s.

Peter de Lange has seen specimens (collected by Myles Goodwin) taken from a large planted black beech in otherwise seemingly natural indigenous forest near Rewiti.

Acknowledgements
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Rats – another mammalian browser of *Tupeia antarctica*?

Bec Stanley

Leafy Mistletoes in Auckland

Auckland has three extant native leafy mistletoes (of five extant leafy species in total native to NZ): *Peraxilla tetrapetala*, *Ileostylus micranthus* and *Tupeia antarctica* (de Lange, 1997). *Peraxilla tetrapetala* is now restricted to Hauturu (Little Barrier Island). *Ileostylus* is the only mistletoe we still have on the mainland of Auckland (see Cameron 2000). *Tupeia* was last reported in this Journal as extinct in Auckland (Stanley 1998), but has now been re-discovered on Motukino (Fanal Island) in the Mokohinau Island Group in the outer Hauraki Gulf.

Tupeia antarctica

Tupeia antarctica is a semi-parasitic shrub which grows to approximately 1m across. It has tiny yellow insect pollinated flowers and once pollinated has small white fruit with purple specks (hence the common name). *Tupeia* parasitises a number of tree species, most commonly *Pseudopanax* species, *Pittosporum* species and *Carpodetus serratus* (putaputaweta) but is known on about 50 different hosts (de Lange *et al.*, 1997).

Historical distribution of *Tupeia* in Auckland

Tupeia was known from the Titirangi district in the late 1800's (Cheeseman 1871), Maraetai in 1887 (from Cheeseman's field notebook cited in Stanley 1998), Kawau Island in mid-late 1800's (Buchanan 1875), Omaha in 1950 (Ward WAIK 9812) and Rewiti in 1886 (Ball, AK 261245, ex AKU 2384), and Lucy Cranwell (1981) notes "old records" from the Waitakere & Hunua Ranges.

Re-discovery in Auckland

Four years ago (April 2000) Department of Conservation ranger Phil Todd discovered *Tupeia* on Motukino. Initially Phil found one plant parasitic upon a coastal maire (*Nestegis apetala)* and sent a sprig to me for identification with a note saying "is this a mistletoe?". I took the sprig to Ewen Cameron (as no mistletoes had been recorded on Motukino before, I was a bit surprised) who confirmed it as *Tupeia antarctica*. Later that year Phil discovered three more coastal maire with *Tupeia* attached. Since then Jonathan Boow, Cameron Kilgour, George Wilson and myself have found more each year with the total now standing at 11 coastal maire trees with *Tupeia* parasitic on them.

The *Tupeia* are restricted to one valley on the island which is primarily filled with mixed coastal broadleaf forest including large puriri (*Vitex lucens*), houpara (*Pseudopanax lessonii*), tawapou (*Pouteria costata*), karaka (*Corynocarpus laevigatus*), kohekohe (*Dysoxylum spectabile*), mahoe (*Melicytus ramiflorus*), pohutukawa (*Metrosideros excelsa*), and parapara (*Pisonia brunoniana*).

All the host maire are large old trees. Most mistletoes are on the lower third of the host trunk centred around large blackened and rotting scars. A few mistletoes are on lateral branches which have hollowed. The mistletoes and the host truly look locked in a battle for survival – it really looks like the tree is trying to evict them!

Many of the mistletoes are merely 5cm tall sprouts emerging from the bark around a central rotted scar. A few *Tupeia* are larger more shrub-like plants up to 1m across.

Tupeia is dioecious and both male and female plants have been located (Jonathan Boow *pers. comm.*). However, in four years of monitoring, no fruit has been observed (they should be produced in Autumn). *Tupeia* is insect pollinated thus the spacing of the mistletoes may be too far (there is at least 30m between plants that have been observed in flower) for pollinating insects to fly between male & female flowers (Nick Singers *pers. comm.*).

Threats to *Tupeia*

The well-known threats to all our leafy mistletoes are: habitat loss through forest clearance; collecting by humans (botanists); decline in native birds which are required to distribute seed (and pollinate some leafy mistletoes but not *Tupeia* which is insect pollinated);