

## *Ascarina lucida* in the Auckland Region

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### Introduction

*Ascarina lucida*, in the family Chloranthaceae, is a small tree species endemic to New Zealand. The species is common on the west coast of the South Island, but in the North Island is regarded as rare, occurring as small, isolated populations (McGlone and Moar, 1977). In the Auckland region, *A. lucida* is classified as being naturally uncommon and sparse (de Lange *et al.*, 1999). This paper outlines the distribution and abundance of *A. lucida* in the region, and then by investigating common site characteristics, discusses key aspects of the ecology of this species.

### Distribution and abundance

*Ascarina lucida* has been collected from the Waitakere Ranges (AK 159433), Hunua Ranges (AK 155440), Little Barrier Island (AK 3702, CHR 420640), and the Kaiarara Stream (CHR 403497) Awana Stream (AK 252203), and near Mt Matawhero (AK 256402), Great Barrier Island.

The record from Maroha Stream in the Waitakere Ranges dates from the early 1980's and has never been relocated, despite several searches by myself and other Botanical Society members. The record stated that *A. lucida* was found growing in association with *Leptospermum scoparium*, at an altitude of 240 m. It is quite possible that it no longer exists at this site.

The Hunua Ranges population is the largest in the Auckland Region. *A. lucida* becomes increasingly

common above 600 m altitude on Kohukohunui, and at the summit, at 688 m altitude, is one of the dominant species (Fig. 1). A few *A. lucida* trees at this site had stems 20 cm or more in diameter, the largest found at any of the North Island populations surveyed. The age of these trees has been estimated to be c. 130 years (Martin, 2001). The vegetation has been described as montane scrub forest (Barton, 1972). *A. lucida* on Kohukohunui grows in association with *Quintinia serrata*, *Dicksonia squarrosa*, *Cyathea smithii*, and *Meliccytus ramiflorus*, these being the top species for percentage density, for plots where *A. lucida* was present (Martin, 2001). Rainfall in this area is high, in excess of 2400 mm per annum (Barton, 1978). The mean annual temperature at the summit is 10 °C (Barton, 1972), and snow-falls have been recorded (Cranwell, 1981).

The Little Barrier Island population was not able to be surveyed. T F Cheeseman collected *A. lucida* from the island in 1898, at an altitude of 600 m. *A. lucida* was again collected by W. R. Sykes in 1985 and was described as growing in "low mixed forest on wet slope".

While unsuccessfully searching for the Kaiarara Stream population, several trees were discovered beside Mt Heale (AK 255899, AK 255900). These trees were adjacent to the South Forks Track between 340 and 420 m in altitude, and were primarily associated with *Leptospermum scoparium*, *Knightia excelsa*, *Weinmannia silvicola*, and *Pseudopanax arboreus*. The



Fig. 1 Submontane scrub forest with *Ascarina lucida*, Kohukohunui, Hunua Ranges, 688 m altitude.

vegetation of this area has regenerated following large scale forest disturbance associated with the kauri logging of this area from 1860 to c. 1940 (Sewell, 2001). Peter de Lange's collection from nearby Mt Heale found *A. lucida* growing in scrub, associated with *Kunzea* aff. *ericoides*, *Kunzea sinclairii*, *Leptospermum scoparium*, and *Dracophyllum patens*.

Most recently, *A. lucida* has been collected from an unnamed peak near Mt Matawhero. At this site, one shrub c. 2 m tall is growing in association with *Kunzea* and *Coprosma*.

The Awana Stream population appears to have increased from the one tree recorded in 1982, to a population of one tree and six saplings. This population is growing on an alluvial river terrace under a tall canopy of *Kunzea* aff. *ericoides* (Fig. 2).

On Great Barrier the current scarcity of *A. lucida* may possibly be attributable to the large scale forest destruction on the island during the logging era. The climate of the island, with its mild temperatures and high rainfall (NZMS Misc. Publ. 145), appears well suited to this species, yet *A. lucida* appears to be very rare. It is probable that *A. lucida* may have been all but wiped out on the island during the fires of the past 140 years, which the loggers used to burn the scrub to the ground (Sale, 1978). Thus, *A. lucida* became restricted to small areas of scrub where the fires were less frequent or absent, and it is now expanding in distribution from these refugia (Peter de Lange pers. com).

The recent discovery of several new populations in the northern North Island over the past few years,

suggests that *A. lucida* may be more common than the available herbarium records suggest. The species is often confused with other more common species, for example pukatea (*Laurelia novaeseelandiae*), and more searching may result in further populations being found. Several features distinguish *A. lucida* from pukatea. The young branchlets of pukatea are roughly square in cross section, whereas *A. lucida* branchlets are rounded. The tips of the leaf serrations on *A. lucida* are darkly coloured, pukatea leaf tips are homogenous with the rest of the leaf. de Lange (1998) also draws attention to the distinctive hair like leaf stipules on *A. lucida* that are absent on pukatea.

#### The ecology of *A. lucida* in the Auckland Region

*A. lucida* in the Auckland Region grows in lowland and submontane forest in areas of high rainfall. The sites range in altitude from 20 m to 688 m and grow on a wide range of soil types. All *A. lucida* sites surveyed either had low canopy height due to altitude and wind exposure, or evidence that the vegetation had been disturbed in the past. These site characteristics are similar to other *A. lucida* sites in the northern North Island. However, there are no records of *A. lucida* growing in swamps in the Auckland Region, as it does elsewhere in the North Island. For example at Puhipuhi, Northland, *A. lucida* grows in association with *L. scoparium*, kahikatea (*Dacrycarpus dacrydioides*) and maire tawaki (*Syzygium maire*) (Martin, 2001).

The species associated with *A. lucida* at the lowland sites, such as *L. scoparium* and *K. aff. ericoides*, are characteristic of disturbed environments. Burrows (1996) describes *A. lucida* as attaining its greatest abundance in early successional vegetation. The



Fig. 2 *Ascarina lucida*, Awana Stream, Great Barrier Island, 20 m altitude.

species that *A. lucida* is commonly associated with, in combination with the knowledge that the species produces large numbers of seeds that have the ability to remain dormant (Martin, 2001), suggests that *A. lucida* is a colonizing species.

#### The future of *A. lucida* in the Auckland Region

Large *A. lucida* populations are only likely to persist where regular disturbance ensures continued recruitment. Thus the Hunua Ranges population, with its high altitude disturbance regime, is likely to remain.

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## Mountain cabbage tree (*Cordyline indivisa*) in the Hunua Ranges

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While the distribution of mountain cabbage tree in the Hunua Ranges has become more restricted in recent years (Greene, 2000), predictions of young plants emerging from a viable seed bank in the absence of a high goat population, particularly west of Kohukohunui trig (McCraith and Carlaw 2000) have proved true. Two small plants < 20 m high were noted adjacent to the boardwalk approach to the "Kokako café" — a hut used

by Auckland Regional Council staff, when undertaking kokako protection. A small clearing was made on a ridge for the hut in 1996/97, facing NW at 600 m asl (NZMS 260 062 600). A photograph of the plants was given to the Auckland Museum herbarium. Hopefully more mountain cabbage trees will appear now that the goat population is being held to low densities.

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