Korthalsella clavata in the lower North Island

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INTRODUCTION

For many years it was thought that the dwarf, pygmy or leafless mistletoe, *Korthalsella clavata* Cheesem., was confined to the South Island of New Zealand. In fact, early accounts make reference to its only occurrence being Castlehill Basin (Stevenson 1934). As usual, botanists have proved that wrong. The species is now known from several sites in the North Island including Rangitaua (near Tongariro), Tikitiki Bush (east of Waiouru) and Paengaroa Scenic Reserve near Taihape. A recent discovery of the species in the Wairarapa adds more weight to the claim that this area is one of the most botanically interesting places in the country.

Description

Korthalsella clavata is one of eight native mistletoes that at one time or other occurred in Wellington (Sawyer & Rebergen 2000). Three of those species are from the genus *Korthalsella* (mistletoe family Viscaceae): *Korthalsella clavata*, *Korthalsella lindsayi*, and *Korthalsella salicornioides*. *Korthalsella clavata* (previously known as *Viscum clavatum* (Kirk 1892) and *Korthalsella lindsayi* var. *clavata* (Danser 1937, Allan 1961)) now has specific status that has been, more or less, accepted (Molloy 1976, Moore and Irwin 1978). The species has the general appearance of *K. lindsayi* but is generally intermediate in character between the other two *Korthalsella* species and its vegetative parts have also been described as being more slender (Stevenson 1934). It is a small tufted, parasitic, leafless, plant up to 8 cm long, and is mostly golden brown, but can also be dark olive green (fig. 1). It has few branches that occur at a wide angle to the stem. The flowering branches are usually narrower than those without. The stems of the plant are jointed and they have flattened internodes. The flowers are minute and borne in whorls at the upper nodes (rather than on definite inflorescences as in *K. lindsayi*). It is mainly found on the fringe scrub of wetlands. In Wellington its host is almost exclusively *Coprosma propinqua* although it has also been recorded on *Myrsine australis* and *Muehlenbeckia complexa* at sites to the east of Lake Wairarapa, and *Olearia solandri* at Turakirae Head. In South Island it has also been recorded on other host species including *Discaria toumatou* (matagouri), *Aristotelia fruticosa* (Stevenson 1934, Burrows 1995) and *Coprosma crassifolia* (Rebergen, 2003).

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Fig. 1. *Korthalsella clavata*, growing on *Coprosma propinqua* at J.K. Donald Reserve, Lake Wairarapa. Photo: Aalbert Rebergen.

It flowers from November to February and its fruit are small, single-seeded, fleshy berries. Seeds are squirted out from the fruit under pressure (Wagner et al. 1990). It has been suggested by Stevenson (1934) that this generally results in the fruit or seed falling near the parent or even adhering to the parent itself, and she described the species' ability to disperse as "ineffective". This may be unduly pessimistic, since wind may well carry the seed much further (David Havell pers. comm.). But how can its wide New Zealand distribution be explained if it is only dispersing by squirting seed a few metres? Burrows (1996) suggested that birds may also be involved in long distance seed dispersal through the attachment of seed to bird plumage, but other authors noted that the seed "is very small and quite unadapted to bird attraction" (Stevenson 1934). The best explanation is perhaps that it is a very old species, and in that time it has been able to disperse widely even with such a slow mechanism.

DISTRIBUTION IN WELLINGTON

For some time the Department of Conservation has been raising awareness of *Korthalsella* mistletoes (especially the Nationally Sparse *K. salicornioides*) and encouraging people to record occurrences of them. The Wairarapa

Conservation Corps found a *Korthalsella* at Boggy Pond while collecting *Coprosma propinqua* berries for propagation, only a week after being shown *K. salicornioides* for the first time. This is a place where no dwarf mistletoe had ever been found, despite being surveyed in detail by some of the country's leading botanists. Sure enough on further investigation it was found to be *K. clavata*—a new record for Wellington.

K. clavata is the rarest of the three dwarf mistletoe mistletoes in Wellington and is now known from five places in the region. Four sites are to the east of Lake Wairarapa, and one is just east of Turakirae Head (fig. 2). Why it is so localised in Wellington is a question that remains to be answered. Perhaps its dispersal by dehiscence has limited its ability to spread. Perhaps it is entirely chance that the species survived where it did and that in the intervening space its habitat has been modified or destroyed. Our experience in Wellington suggests that the species may have been overlooked and is yet to be found at new sites. It may also have been misidentified as *Korthalsella lindsayi* (the most common species of *Korthalsella* throughout the Wairarapa Plains and New Zealand). Botanists in Wellington still have much survey to do.

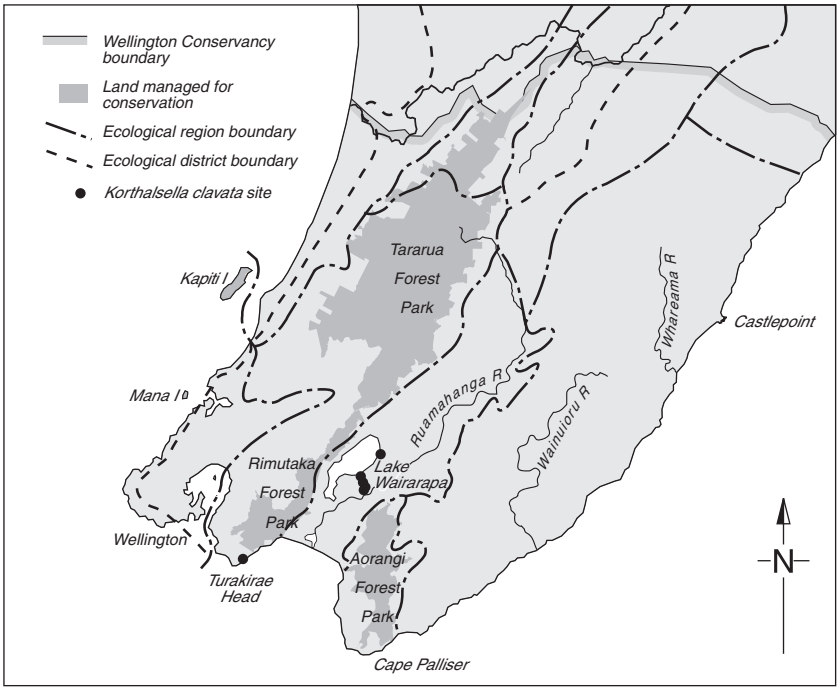

Fig. 2. Distribution of *Korthalsella clavata* in Wellington.

HABITAT OF *KORTHALSELLA CLAVATA*

In Wellington, the plant community in which *Korthalsella clavata* is found is dominated by dense 'mingimingi' shrub. At Lake Wairarapa wetlands the shrub is almost exclusively *Coprosma propinqua*, growing at the edge of shallow lagoons with some flax and cabbage trees. At Turakirae Head it is also found growing in dense shrubland (on *Olearia solandri*), but in this case near the shore line in an environment exposed to salt spray and southerly winds.

THREATS TO MISTLETOE SURVIVAL

The most significant threats to the survival of *Korthalsella clavata* are vegetation succession and habitat destruction. Succession from scrub to forest can result in loss of habitat which may threaten the scrub plant community in which the mistletoe thrives. Destruction of mistletoe habitat is a significant threat to all mistletoes, not just *K. clavata*. It can be through destruction of hosts (by natural senescence) or their surrounding vegetation by forest clearance or logging of native forests. The habitat may also be destroyed by road construction or road widening, by fire or cutting of scrub for firewood or for use as camouflage for mai-mais (at Boggy Pond).

CONSERVATION STATUS

The localised distribution of Korthalsella clavata in Wellington and the limited number of sites has resulted in it being classified as a regionally threatened species. It has been ranked as Regionally Critical meaning it is at risk of regional extinction (Sawyer 2004). Fires through the eastern reserves of Lake Wairarapa and scrub clearance around Cape Turakirae could result in the species disappearing from the Wairarapa. One aspect favouring the conservation of Korthalsella clavata is that all populations (bar one) in Wellington Conservancy are found in reserves on the eastern shores of Lake Wairarapa (fig. 2). Stevenson (1934) suggested that New Zealand Korthalsella "are on the road to extinction". Long-term protection of New Zealand Korthalsella habitat throughout the natural range of each species may yet prove Stevenson wrong but that will involve more than just a covenant, a reservation, a fence or a dead possum. Physical protection of the species is an on-going task that will require considerable effort. The road to the long term survival and success of Korthalsella is through long-term monitoring and careful stewardship of the habitat.

CONCLUSIONS

Wellington Botanical Society members may well encounter *Korthalsella clavata* during their botanical adventures in Wellington. Occurrences may be reported to the nearest Area office of the Department of Conservation. In that way we will build up an even better picture of the species biogeography and

increase our understanding of its ecological requirements. In turn, that will improve our ability to conserve and protect the species in the wild to ensure that Greta Stevenson's prediction never eventuates.

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