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## Orchids in unexpected places

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In January 2003 my wife’s observant eyes noted what she thought might be a group of orchids growing in the leaf litter in the flower beds at Mona Vale Gardens, Christchurch. I was a little dismissive at first, but on closer examination agreed that they were indeed native orchids, which I subsequently identified as *Gastrodia* “long column”. Over the years since then we have regularly checked the same spot in the gardens, but have never seen them there again. In January of this year (2020), we were delighted to find another clump of these interesting orchids growing at a different site in the gardens, about 100 metres from the original location. Since our original observation, this plant has been named *Gastrodia molloyi* (Lehnebach et al. 2016). Both clumps of *Gastrodia* were growing in semi-shaded areas, the 2003 specimen under a mature *Podocarpus totara*, this year’s specimen under a large *Quercus palustris* tree, with a paeony, roses, and box hedging nearby (Figs. 1-3, pp. 13 & 14).

*Gastrodia* species are non-photosynthetic plants that obtain energy and nutrients from mycorrhizal and other fungi, with which they form a symbiotic relationship. They are known to like growing in leaf litter and wood mulch, presumably because this encourages the right type of decomposer mycorrhizal fungus (Lehnebach CA, personal communication). They have potato-like tubers, hence their vernacular appellation “potato orchid”. *Gastrodia* species colonise pine plantations and urban areas such as cemeteries, gardens and traffic islands (Lehnebach et al. 2016).



**Figure 1.** *Gastrodia molloyi* flourishing under trees in Mona Vale Gardens, Christchurch.



**Figure 2.** A close-up view of *Gastrodia molloyi* in flower.

According to Lehnebach et al. (2016), the length of the flower column is a fair indicator of the mating system in *Gastrodia* species. Plants with a short column tend to be self-pollinating, while those with a long column are more likely to be cross-pollinating. The interesting paper by Macdonald et al. (2015) studied pollinator dependence of three *Gastrodia* species at four different sites in Christchurch City and at two rural areas modified by planting of exotic conifers in adjacent regions of Canterbury. They observed that *Gastrodia* “long column” had almost no fruit set when pollinators were excluded and that this species was visited by the endemic New Zealand bee *Lasioglossum sordidum*. By contrast, for *Gastrodia minor* and *G. cunninghamii*, pollinator exclusion had no significant effect on fruit set, indicating that these species are self-pollinating.

I have always been fascinated by the ability of some orchids to appear in unexpected places. In England, the country where I spent the first fifty years of my life, this phenomenon is well-recognised. One year, literally dozens of



**Figure 3.** Close-up of an individual flower of *Gastrodia molloyi*, showing the long column (lower structure) and the labellum with its yellow apex (upper structure). The greenish gold to golden brown colour of the perianth with the tuberculate surface is characteristic of *G. molloyi*.

flowering plants of the English native orchid *Spiranthes spiralis*, a species which generally likes old grasslands, appeared in the lawns of the Victorian house in Sussex in which my late father had an apartment. Other English native orchids, such as *Dactylorhiza fuchsii* and *Anacamptis pyramidalis*, not uncommonly appear on road verges and the islands in the middle of roundabouts. *Orchis morio* usually occurs in old grassland, but is becoming increasingly restricted to lawns and churchyards, which act as refuges from the effects of agricultural intensification (Rich et al. 1996).

*Gastrodia* species are an example of an orchid native to New Zealand that also has the ability to appear in unexpected places, as described above. The native orchid *Microtis unifolia* can behave in a similar way, being commonly observed in urban areas in lawns, verges, roadside banks and cuttings, and even amongst moss-filled crevices on old buildings. Native orchids can otherwise provide interest during walks through tedious pine plantations. *Adenochilus gracilis*, *Aporostylis bifolia*, *Chiloglottis cornuta*, *Caladenia lyallii* and some species of *Pterostylis* can all grow quite happily in this type of habitat. *Orthoceras novae-zeelandiae* typically grows on bare roadside cuttings, often in urban areas. *Thelymitra pauciflora* can grow on street verges and wasteland, again in urban areas (New Zealand Plant Conservation Network 2020).

Generally, plants that crop up in gardens where they have not been planted are referred to as “weeds”. Wikipedia’s definition of a weed is “a plant considered undesirable in a particular situation”. I do not believe that anyone would describe these orchid species as undesirable, so for this short paper I chose to use the title “Orchids in unexpected places”.

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## Arowhenua Bush, the restoration project over 45 years

Fraser Ross

Arowhenua Bush is a South Canterbury podocarp forest remnant that stands next to the Opihi River just west of Temuka. In the 1970s there were open clumps of low trees, predominantly of narrowleaved ribbonwood (*Hoheria angustifolia*) and a smaller number of kowhai (*Sophora microphylla*), hung with a great deal of pōhuehue (*Muehlenbeckia australis*) (Fig. 1, p. 16) (Burrows 1984).

In 1975 a severe norwesterly gale struck Canterbury and blew down many trees and buildings over the whole plains of this area. This included many native trees in this last remnant of native podocarp bush on the lower plains at Arowhenua. My first visit there was made with the property owner Ray Lyon not long after the gale to see the devastation first-hand. Many hoheria trees, some plagianthus (*Plagianthus regius*) and two fine specimens of matai (*Prumnopitys taxifolia*) had sadly fallen to the force of the wind.

Following that visit advice was sought about what could be done for the bush from Dr Colin Burrows, Dr Brian Molloy, and the local Lands and Survey Ranger, all of whom were most helpful. Not long after the gale Colin Burrows visited the bush and made the first botanical list of the species found at the time (Burrows 1984).