Thelymitra novelty from Te Mārua

Jeremy Rolfe[1] and Pat Enright[2]

The genus *Thelymitra* is represented in New Zealand by 15–20 named taxa and several unnamed entities (Rolfe & de Lange 2010; St George 2011; Dawson et al. 2012). Several *Thelymitra* species evolved through ancient hybridisation and amphidiploidy (in which the chromosomes acquired from each parent species are doubled, resulting in a diploid complement of each species' chromosomes) that resulted in stable, fertile populations (Molloy & Dawson 1998). These include *T. hatchii* (*T. formosa* × *T. longifolia*), *T. nervosa* (*T.* aff. *ixioides* × *T. longifolia*), *T. pulchella* (*T. cyanea* × *T. longifolia*) and *T. tholiformis* (*T. aemula* × *T. pauciflora*) (Molloy & Dawson 1998, Dawson et al. 2007). Hybrids between *T. longifolia* and *T. pulchella* (*T.* ×*dentata*) are frequently found where the species occur together, so it should come as no surprise that putative hybrids of other *Thelymitra* species are occasionally encountered.

One such example was found in November 2012 by PE near the State Highway 2 underpass at Te Mārua, north-east of Upper Hutt (Fig. 1). It was a robust plant approximately 70 cm tall growing near the edge of the track amongst mānuka (*Leptospermum scoparium*) and gorse (*Ulex europaeus*).

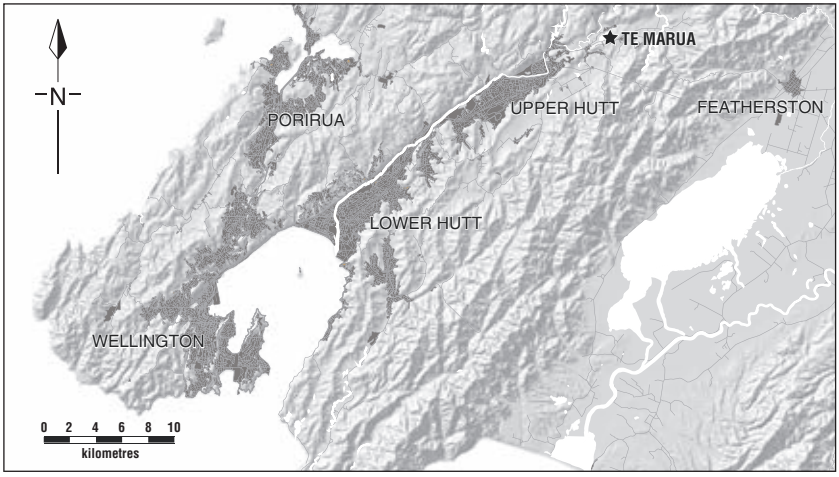

Figure 1. Location of the unusual *Thelymitra* at Te Mārua, north-east of Upper Hutt.

1. Department of Conservation, Science & Capability, National Office, Wellington. jrolfe@doc.govt.nz

2. 99 Waite St, Featherston. enright_patrick@hotmail.com

It bore nine vivid blue flowers with darkly blotched petals reminiscent of *Thelymitra* aff. *ixioides* or *T. nervosa* (Figs. 2, 3). The hooded post-anther lobe was very dark, almost black with a narrow bright yellow apical margin on some flowers (Fig. 4). The leaf was broad and flat (Fig. 5). Nearby were smaller plants with similar flowers, though the stems were shorter and had fewer flowers that differed in the amount of blotching on the petals. These smaller plants also had a consistently broader yellow margin on the post-anther lobe (Fig. 6). Also in the vicinity were *T. longifolia*, *T. intermedia* (the slender entity in *T. pauciflora* agg. that is common in the Wellington region), *T.* aff. *ixioides*, and *T. pulchella*.

Figure 2 (left). The unusual *Thelymitra* at Te Mārua.
Figure 3 (right). Flowers of the Te Mārua *Thelymitra* showing blotched petals, plain sepals and labellum, and a dark, tuberculate post-anther lobe with a narrow band of yellow on the margin.

A voucher specimen of the unusual *Thelymitra* from Te Mārua was not collected because there were so few plants, but photographs of it were taken and forwarded to orchid specialists for comment.

Department of Conservation botanist Peter de Lange suggested that, if not a hybrid, it might be a 'vagrant foreigner' because there are several similar Australian species. New Zealand shares several orchid species with Australia, and arrivals into New Zealand of Australian orchids have

Figure 4 (left). A flower of the Te Mārua *Thelymitra* with almost no yellow on the margin of the post-anther lobe.
Figure 5 (right). The broad, flat leaf of the Te Mārua *Thelymitra.*

been recorded several times—orchid seed can travel huge distances on air currents (St George 1999). In recent years, several 'new' *Thelymitra* specimens have been encountered on Northland's Aupouri Peninsula (Kevin Matthews, Bill Campbell pers. comm.), presumably blown across as seed on the prevailing winds. However, orchid colonisation from Australia does occur in other parts of the country. *Pterostylis alveata* (*Diplodium alveatum*) is becoming established in the Nelson region and a solitary specimen of it was reported from Lower Hutt in 2006 (de Lange et al. 2007) although it has not been seen there since.

Jeff Jeanes of the National Herbarium of Victoria commented that, in Australia, hybrids nearly always occur where members of

Figure 6. A plant at Te Mārua with only two flowers on the stem, almost no blotching on the petals and a broad yellow margin on the post-anther lobe, similar to *Thelymitra nervosa*.

Figure 7. *Thelymitra* aff. *ixioides* from Waikumete Cemetery, Auckland. Note the blotched dorsal sepal and very short post-anther lobe.

the *Thelymitra longifolia/nuda/pauciflora* complex and *T. ixioides* complex occur together. Given the proximity of *T.* aff. *ixioides*, *T. intermedia* and *T. longifolia* to the unknown orchid, Jeff suggested that *T.* aff. *ixioides* could be hybridising with one of the other species. Blotching on the flowers is the main similarity that *T.* aff. *ixioides* has with the Te Mārua orchid, although blotching on *T.* aff. *ixioides* extends to the dorsal sepal, and the post-anther lobe is quite a different form (Fig. 7).

Local orchid expert Ian St George suggested that the Te Mārua specimens fell within the circumscription of *Thelymitra nervosa* (Fig. 8) or possibly a hybrid between it and something else.

Early in 2013, Ian alerted us to a newly described species from South Australia, *Thelymitra corrugata* (Bates 2012, Fig. 9) that appeared to be very similar to the Te Mārua orchid. Bates (2012) postulated that *T. corrugata* might have originated as a hybrid of unknown parentage. However, this would be less likely if the Te Mārua orchid also proved to be *T. corrugata* (Jeff Jeanes pers. comm.). The possibility that the Te Mārua orchid had affinities to *T. corrugata* was quickly dispelled by Robert Bates (pers. comm.). Unlike the Te Mārua orchid, *T. corrugata* has an erect, fleshy, deeply channeled leaf; its post-anther lobe is distinctly corrugated on the outer surface (Fig. 10); the markings on the petals are paler than on the Te Mārua orchid and are linear rather than irregular blotches.

At this stage, the identity of the Te Mārua orchid remains in doubt. The absence of blotching on the sepals and the tuberculate post-anther lobe suggest affinities with *T. nervosa*, as initially proposed by Ian St George, rather than *T.* aff. *ixioides*. It will be necessary to collect specimens for comparative analysis to determine whether it is a hybrid of species found locally or a species new to New Zealand.

ACKNOWLEDGEMENTS

Our thanks go to Robert Bates, Peter de Lange, Jeff Jeanes, and Ian St George for sharing their ideas about the Te Mārua novelty. Murray Dawson kindly supplied a copy of Molloy & Dawson (1998). June Niejalke and Catherine Houston supplied images of *Thelymitra corrugata* photographed in South Australia. Chris Hopkins and Tony Silbery accompanied us on field trips to the site at Te Mārua. Graeme La Cock made useful comments on a draft of this article.

Figure 8 (left). *Thelymitra nervosa* from the southern Tararua Range, showing blotched petals, plain sepals and labellum, and a dark, tuberculate post-anther lobe with a broad yellow margin.
Figure 9 (centre). *Thelymitra corrugata* from South Australia, first described in December 2012. Photo: June Niejalke.
Figure 10 (right). Side view of the column of *Thelymitra corrugata*, showing the corrugated post-anther lobe. Photo: Catherine Houston.

REFERENCES

Bates, R.J. 2012: A new species of sun orchid *Thelymitra* from the Mt Lofty Ranges in South Australia. *The Orchadian 17(7)*: 312–313.

Dawson, M.I.; Molloy, B.P.J.; Beuzenberg, E.J. 2007: Contributions to a chromosome atlas of the New Zealand flora—39. Orchidaceae, *New Zealand Journal of Botany, 45(4)*: 611–684.

Dawson, M.; Rolfe, J.; New Zealand Native Orchid Group & others. 2012: Key to native orchids of New Zealand. Accessed at http://www.landcareresearch.co.nz/resources/identification/plants/native-orchid-key. Date of access: 20 Apr 2013.

de Lange, P.J.; Rolfe, J.R.; St George, I.; Sawyer, J.W.D. 2007: Wild orchids of the lower North Island. Department of Conservation, Wellington. 194 p.

Molloy, B.P.J.; Dawson, M.I. 1998: Speciation in *Thelymitra* (Orchidaceae) by natural hybridism and amphidiploidy. *The Royal Society of New Zealand Miscellaneous Series 48*: 103–113.

Rolfe, J.R.; de Lange, P.J. 2010: Illustrated guide to New Zealand sun orchids, *Thelymitra* (Orchidaceae). Jeremy Rolfe, Lower Hutt. 57 p.

St George, I. 1999: The Nature Guide to New Zealand native orchids. Random House, Auckland. 176 p.

St George, I. 2011: New Zealand native orchids species list. Accessed at http://www.nativeorchids.co.nz/Checklist.htm. Date of access: 20 Apr 2013.