

THE NEW ZEALAND
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Thelymitra matthewsii

Orchids in 3D

If you don't have 3D specs for viewing these 3D images, please contact the editor at istge@yahoo.co.nz

CONTENTS

Cover: *Calochilus herbaceus* in the Far North, October 2020—Ed.

Orchids in 3D—Eric Scanlen:
◀ *Thelymitra matthewsii*

3 From the Chair—Gael Donaghy.

Original papers

5 *Pterostylis banksii* agg. “Coastal form.” Mark Moorhouse.

8 A response to Matt Ward’s article in J160. Gael Donaghy and Graeme Jane.

In the inbox

9 Assorted images, ideas, observations and other odds and ends about orchids.

Contributors—Pat Enright, Cheryl Dawson, Christopher Stephens, Uwe Schneehagen, Chris Ecroyd, anon., Ed.,

Editorial

14 Hybrids again.

The type locality—Ian St George

15 *Thelymitra matthewsii* in the Far North.

19 Population ecology of *Thelymitra matthewsii*—Anne Fraser.

FROM THE CHAIR



Gael Donaghy

Using the Journal as a resource and a catalyst to build knowledge of our native orchids.

In reading our last journal (162, August 2021), and in writing a response to Matt Ward re *Corybas sulcatus*, it occurred to me how we can use our journal for more than just pleasurable viewing and reading.

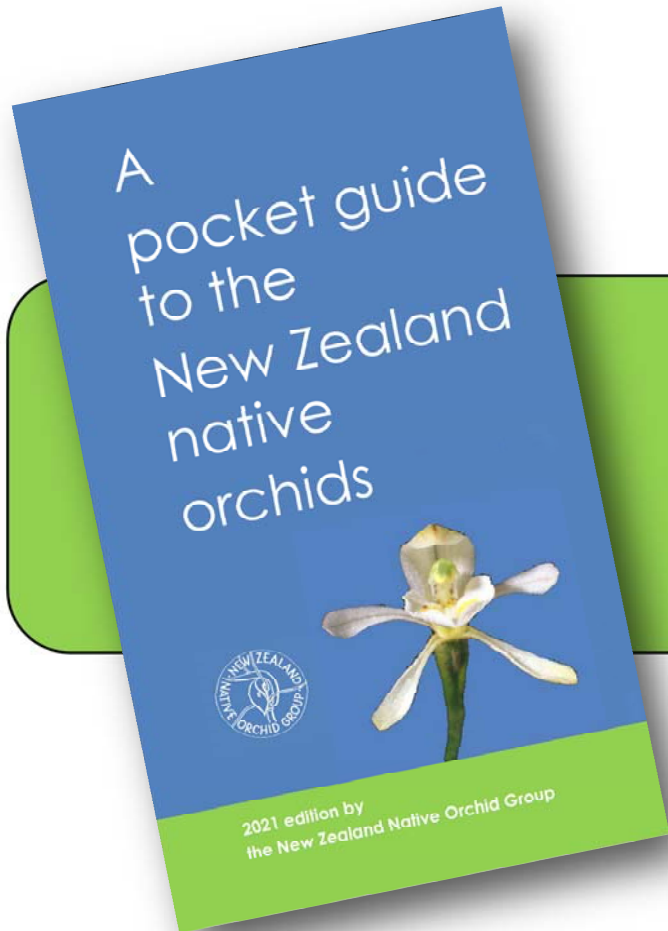
But first some background: as an educator, I was involved in thinking around what education in the 21st century needed to be. The main point was that it needed to more than just replicating existing knowledge in young minds – it needed to be actively seeking to build new knowledge, involving minds of all ages. New discoveries are often made by keen amateurs who have built a solid understanding of a group of plants, and bring fresh perspectives to looking at them. Often in the field, when I am asked why a plant belongs to this taxon, I have to think carefully to list why I think it is, only to have some one point out a conflicting feature. This reflects the importance of sharing our perspectives on plants.

So to the journal – firstly, there is the pleasure of reading about the orchids, and looking at the photos (and getting over our envy at those photographers who have managed to find these beautiful plants). Secondly, there are challenges – to our understanding of species, to where we look for orchids, and hypotheses about their preferred habitats and their possible origins. For example our Editor challenged us to find *Genoplesium pumilum* as there appears to be a gap from south of Taupo to NW Nelson. Ian asked “How many of us go looking for orchids in April?”(p15).

I am challenged to respond to Philip Simpson’s thoughts

on *Pterostylis alveata* (Journal 162, p12). Phillip says “I see on NZPCN that this species is recently ‘self-introduced’ and therefore regarded as a native. I hypothesise that it is carried on Aussie clothing and therefore is exotic.” Graeme and I first found this orchid in flower near Mutton Cove in the Abel Tasman on 3 May 1998 (J72, Sep 1999, p 16). Setting out to search out other places, we found it on Separation Point in the Abel Tasman, under gorse, and later high on a ledge above its current location on the Abel Tasman Track. Graeme carried a ladder from Mairehau to the site so he could get a closer look to confirm that it was. Subsequently we found rosettes on the track below the ledge. We also found many plants on gorse-covered coal measures over in the Westhaven area of NW Nelson, where there are no tramping tracks for Aussies. Over several years it spread eastward from this site, seed no doubt carried on the prevailing westerly winds. It has also been recorded in the Marlborough Sounds and a woodpile in Wellington! So my hypothesis remains that this is a wind-borne introduction from Australia, and as such should be regarded as native.

And so by sending observations and thoughts to our Editor for inclusion in the journal, we learn and refine our ideas. I sent Ian my original *Pterostylis alveata* (though we didn’t know what to call it at that time) photos and received such a nice email back from him – I cut it out and stuck it in my orchid diary! Corresponding with people like Dan Hatch, Bruce Irwin and Ian is what really developed my interest in orchids for the last 30 years! I have been sending out the new edition of the *Pocket Guide* to quite a few new members, and I encourage you all to consider sending photos and observations to Ian for the journal.



An updated and improved 2021 edition is now available from Gael Donaghy (GaelDonaghy@gmail.com) for \$30 + Postage.

Pterostylis banksii agg. “Coastal form”

By Mark Moorhouse.

This is a taxon which in many ways conforms to the published descriptions of *Pterostylis banksii* but differs in several features making it fairly easily recognised. Briefly said, the leaves are narrower with a weaker main nerve which allows most of the leaves to arch so do not overtop the galea. The tepals are markedly shorter than those of *P. banksii* s.s., but not so short as to be mistaken for *P. australis*, which in the central part of NZ is an upland plant, not occurring anywhere coastal. The average size of the flowers of this “coastal form” is smaller by 5mm than *Pt. banksii* s.s. Several technical differences not obvious to the general observer also occur.

The following description is based on 12 sites where matching colonies occur. These are: Marsden Valley, Brook and Maitai Valleys Nelson, Whangamoia Saddle area, Pariwhakaoho River near Parapara Golden Bay, Jacks Track at Whites Bay, Marlborough, Anapai-Totaranui track ATNP, Chetwood Islands, Arapawa Island, Waikawa Bay Picton, Lake Papaitonga Levin. There are other known sites about Tasman Bay, eg. the short track to Split Apple Rock in Tasman Dist. and a few sites in Marlborough Sounds, Kaikoura and in the Eastbourne area for which I lack good data. While I understand that similar plants in the lower North Island have been equated to *P. auriculata*, that plant’s uniquely lush broad leaves and taller, altogether robust nature are a poor match in my humble opinion. The North Island plants come much closer to this form found in Nelson and Marlborough.

Description

Large flowered *Pterostylis* with arching leaves and sepals of length about half way between *P. banksii* and *P. australis*. In almost all sites it grows near to, or in association with Mahoe, and I believe there may be some symbiosis involved relevant to associated fungi. Sites where mahoe doesn’t occur, it did likely occur in the not so distant past.

Flowering time: [late June] – Sept–Nov.



Habitat: tolerates quite heavy shade in coastal sites, but happy to colonise track banks where light is stronger. Substrate well drained on generally poor or scanty soils based on shales, granite, rotting schists, sand. When under mahoe, relies on leaf mulch to retain moisture in drier situations in Marlborough. Recorded site elevations range 10–400 m. **Plant associations** other than Mahoe include *Blechnum* ferns, kanuka, kamihi, rangiora, five-finger and various exotic herbs and grasses.

Height of plant over all 100–240mm. **Leaves** [4]–5–[6]. About 50% of plants also have a lower bract. Leaves normally lax and arching but occasionally the upper leaf is erect and overtops the galea. Leaf ranges: bracts to 35 x 3–7 mm. Lowest leaf: [59]–100–[130] x 6–9 mm, Second leaf: [62]–130 x 6–8 mm, Third leaf [60]–140 x 6–9 mm, Fourth leaf [60]–120 x 6–10 mm, Top leaf [50]–80–[105] x 5–8 mm and generally a little more channelled. Profile of leaves can range flat to channelled V. Colour mid-pale green and unlike *P. irsoniana* which grows sympatrically at times, the leaves are not glossy. In general the leaves are narrower and weaker than plants of *P. banksii* s.s.

Flower: depth of galea [dorsal tip to back] [30]–42–[50] mm. Height of **Galea** [not incl sepals] [22]–25–[31] mm. Width measured at the lower bulbous section 10–11–[15] mm. The stance of the **dorsal** tip is quite variable and may be straight or curved up or down. The dorsal tip length is also quite variable and projects past the petal tips [9]-15-17mm. The tip is consistently terete and colours range mostly fleshy pink to dull red. One example was a whitish cream. Generally the dorsal sepal turns through 90 degrees and the bulbous lower section has 11 stripes in white but 9 and 13 occur.

The **petals**, which are loosely seamed to the dorsal sepal by a groove, frequently twist through 90 degrees, range 32–40mm in length with 3–5 mm of the lateral edge exposed. The petal tip is generally acute, but occasionally acuminate for 3–4 mm. The petal spur generally blunt ranging 80 degrees to 120 degrees and width at this point ranges 8–11 mm. On average the petal begins tapering toward the tip over the last 9–12mm but two study individuals had very abrupt tapers over just 3–5mm.

Synsepalum: this bends through 90–110 degrees but the degree it hangs freely lax from the dorsal affects radically whether the tips are erect or laid back almost to horizontal. This feature is unreliable as it alters as the flower matures. The length of the synsepalum measured from where it is conjoined to the dorsal [the base] to tip ranges [42]–53–[61] mm. Each sepal tip measured from where they



are no longer conjoined to each other ranged 30–45 mm and a great range of angles of convergence occurs. [Again, this is likely due to ageing processes] Tips are consistently rolled and acuminate.

Labellum: [12]–15 mm long, linear to obovate, frequently the distal third arches down, though in several specimens the downturned tip was abruptly so. Width 4 to 6 mm. The basal appendage is generally quite fimbriate, but somewhat variable. Labellum tip colour ranges brown to various shades of red to blackish red, the ridge much darker shading to green at the base. The tip of the ridge is usually not pinched much and can be emarginate.

Column: height: [18]–22–[26] mm and 1.5–2 mm across. Stigma is consistently elongate. The top is usually level with the bottom of the column wings, but varies 1mm either way. Column wings: upper 1–1.5 mm long; lower 3.5–[7] mm

Rostrum: generally penile in appearance. Anther cap uptilted, tip barely, if, apiculate at all.

Ovary: [8]–13–[18] mm long with 6 ridges, mid to lettuce green. Ridges have no coloured gores.

Comment: two relatively recent reports of this plant seemingly flowering well outside its normal range suggests there may be adaptation to climate. Many species of this family have flowering times that occur over the greater part of the year and are triggered by either spring or autumn rains given propitious timing – for example *P. alobula*. The differences between these local plants and *P. banksii* s.s. may simply be evidence of adaptation to our locally drier climate. Smaller bulbs underground produce smaller plants and a higher proportion of nonflowering specimens. There is a high proportion of juveniles some years. Plants that do flower could be limiting growth of leaves rather than skimping on flower production. Hence we witness weaker narrower foliage. All a bit of a catch 22 for the plant but perhaps this is their option for survival. Produce many juveniles and live to fight another day when conditions are optimum.

One of the recent reports is this plant, photographed by Chris Ecroyd flowering remarkably early on 16 July 2021 near Nelson and submitted to *iNaturalist* ►



A response to Matt Ward's article in Journal 160.

By Gael Donaghy and Graeme Jane

We read with interest Matt's description of the *Corybas* he found on the Dunblane Track, west from Jack's Pass (on the road going north from Hammer Springs, heading towards Molesworth). By coincidence he headed off the track into a moist gully, the same gully that Graeme and I had visited twice in search of orchids (28 December 2003 and again on 11 December 2011). Matt has called this orchid *Corybas* aff. *sulcatus*.

Rereading the article we wrote in Journal 91 (2004), "Some Christmas Orchids" (pp 9–10, Figs 2, 3, 4, pp 9 and 11), I note that we concluded it was a "*C. trilobus* type". I see that we sent a couple of flowers to Bruce Irwin, and he wrote about this taxon, accompanied by his detailed drawings in Journal 90 (p30–31).

Because we had only found a few late flowers, the visit in 2011 allowed us to get better photos as there were more flowers (Journal 125, 2012, pp 12 & 19). We refer to this orchid as *Corybas* "tussock", and note that we have often seen similar leaves in the alpine zone of the South Island, from Mt Eldrig (near Monowai), Mavora Lakes, to Lake Cobb area in NW Nelson, but this was the first site we have seen it in flower.

Comparing the drawings and photos in J90, J91 and J125, with Matt's photos in J160, we conclude these are of the same taxon. The leaf shape is like that of *Corybas macranthus* and the flowers are dark crimson with a raised, greenish boss, and a distinctly cupped labellum. The dorsal sepal is plain crimson, broad, and sits tightly clamped onto the top of the labellum.

A reading of "A new species of *Nematoceras* and characterisation of *N. dienenum* (Orchidaceae), both from subantarctic Macquarie Island" (2007) in *Telopea* 11(4) 405–411 by Clements and Jones, indicates this taxon is close to *Corybas sulcatus*. The only anomaly is that the boss (the differently coloured bit in the middle of the labellum) is described as white to yellow in Clements and Jones description, while the photos of these plants the boss is more green than yellow or white.



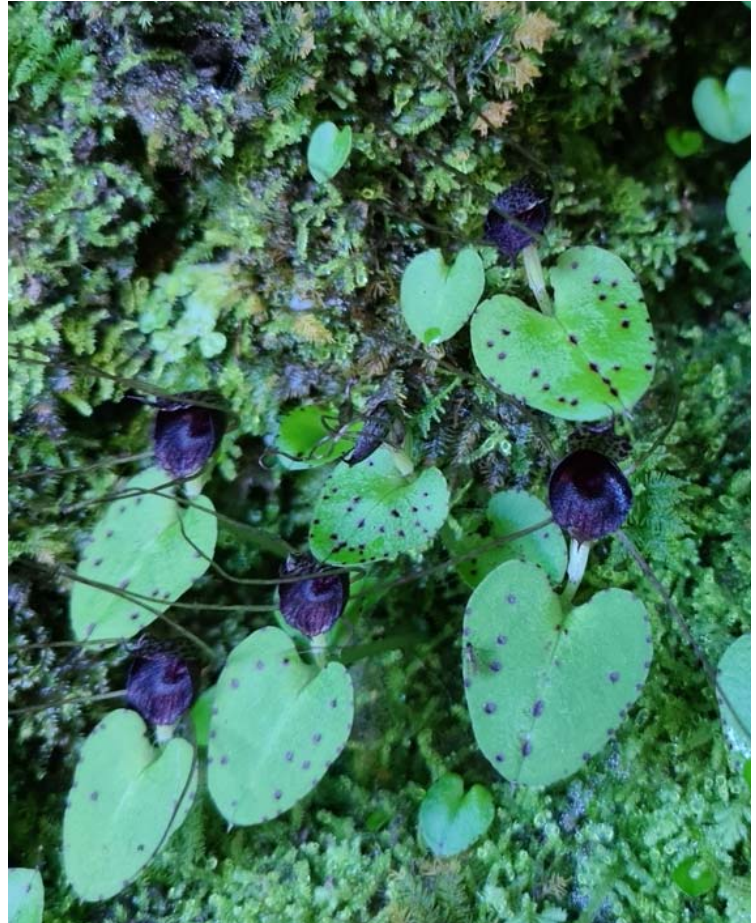
Corybas sulcatus, NZNOJ 2012; 125:12.

IN THE INBOX

The beautiful backlit photograph of *Pterostylis australis* was taken by an anonymous contributor to *iNaturalist* on 18 February 2019: southwest coast of Southland. ▼



Corybas iridescens flowered early: detail of photograph by Cheryl Dawson near Dargaville on 5 July ►





◀ ▲ Pat Enright photographed this early flowering *Corybas* aff. *trilobus* near Featherston on 7 July.

*I think on reflection this may be *Corybas hypogaeus*. I have usually looked for that species in the habitat Colenso described: “its delicate flower is 1–2 inches below the surface... of mosses and debris of fallen *Fagus* leaves” – ie under beech litter or buried in moss. He did note it was “very early flowering”. I photographed the swamp-dwelling *Corybas* (above right) near Masterton in 2004 and Brian Molloy identified it as *C. hypogaeus*. Perhaps when this species grows in different habitats it looks a bit different in each. The early flowering and the almost bilobed labellum seem important for ID—Ed.*



A flower in July



Leaves in November

This tiny *Corybas* aff. *trilobus* was in flower on 28 July in wet mossy leaf litter and low light under beech 30cm above the water of the Five Mile creek near Queenstown. I have seen flowers in July and August in the past. Usually half a dozen plants flower (there was only one this year), then weeks later a mat of nonflowering leaves emerges over a 0.25m² area. Easy to miss as the few flowering plants are very small and far from obvious – and they flower in winter when only mad dogs and Englishmen go out. I think it's just an impoverished locally modified *C. vitreus*. The ground above it was frosted but down by the water it was warmer. Low light, early flowering and tiny leaf suggest soil > sun nutrition: does the green dorsal sepal persist to increase the photosynthesising surface area in low-light-dwelling *Corybas*, though?—Ed.



Christopher Stephens took these stunning images of *Corybas cryptanthus* near Wellington in early September and posted them to *iNaturalist*.

Pat Enright posted these photographs of *Corybas* “Remutaka” from Western Lake, Wairarapa, in the Remutaka foothills, early September. He noted, “Locally common under tall kanuka. These are mature flowers. The flower opens as an oval shape with inrolled labellum edges but changes shape as the flower matures. The last photograph shows the hairs in the labellum either side of the midline.”



Uwe Schneehagen posted this photo of *C.* “Remutaka” from the Wellington side of the range, on *iNaturalist* on 12 September. Narrow, minutely apiculate dorsal, “long face”.



◀◀ Chris Ecroyd posted these photographs to *iNaturalist* of what appears to be a pale *Pterostylis banksii* flowering near Nelson on 7 July. Is 2021 just an early-flowering season? Is it the effect of global heating? (June '21 was the warmest on record in NZ).

Some hypochromic orchids derive more of their nutrition from mycorrhizal association and less from photosynthesis than fully green forms, so theoretically they should need less sun, in which case they might flower on shorter days.

Is that true? Do pale pterostylises flower earlier?

EDITORIAL

Hybrids again

When we find a plant that doesn't quite fit accepted species we consign it to "within-species variation," or we suggest it is a new as-yet-unnamed species, or (bravely) we suggest it might be a hybrid.

In the past calling it a hybrid has been frowned upon as the refuge of the intellectually bereft, or at best of the taxonomically illiterate.

I think (hope) we are wiser now.

We do know some orchids have very specific pollinator relationships (or are obligate selfers) and are therefore unlikely to cross readily.

But we also know some orchids attract a range of pollinators that also visit other orchids and we suspect some of these species are quite unstable, with frequent crossings and so frequent appearance of hybrids.

Time and DNA will tell.

Thelymitra matthewsii in the Far North

Thomas Frederic Cheeseman described it in 1911: *Trans NZ Inst* 43: 177,

Thelymitra Matthewsii Cheesem. sp. nov.

T. variegata Lindl. affinis, sed caule multo brevior, floribus singularibus, gynostemio non cristato.

Caulis gracilis, flexuosus, 9–14 cm. longus. Folium solitarium, 3–6 cm. longum, spiraliter contortum, lineare, basi ampliato. Bracteae 2. Flos solitarius, ratione plantae magnus, 1–2 cm. diametro. Perianthium subregulare, patens. Sepala et petala similia, lanceolata vel ovato-lanceolata, acuta vel acuminata. Gynostemium breve, bialatum, aliis magnis, crassis, clavatis, obtusis, apice non fimbriatis aut lobatis.

Hab.—North Island: Manganui County, low hills between Lake Tongongoe and the coast; *R. H. Matthews!*

Stem slender, wiry, flexuose, 4–6 in. high. Leaf solitary, sheathing the stem at the base, the sheath finely and closely puberulous; lamina 1½–2½ in. long, much expanded at the base, and then suddenly narrowed into a linear blade, which is usually spirally twisted so as to coil round the stem; margins involute. Bracts 2, the lower one below the middle of the stem, the upper almost close to the flower, both broad and sheathing. Flower solitary, large for the size of the plant, ½–¾ in. diameter. Perianth-segments alike, lanceolate or oblong-lanceolate, acute or shortly acuminate. dark purplish-blue with darker longitudinal

veins. Column much shorter than the perianth-segments, not produced at the back behind the anther, but furnished with two large lateral lobes which equal the anther in height, and which are oblong or oblong-falcate, obtuse, somewhat flattened but thick and fleshy, not lobed nor furnished with cilia. Occasionally there are evidences of a slight crest connecting the lateral lobes at the base. Anther very large, oblong, obtuse. Base of the column purplish; lateral lobes and anther bright yellow.

A charming little plant, worthily dedicated to its discoverer, who has added more to our knowledge of the New Zealand orchids than any other observer of late years. It is closely allied to the Western Australian *T. variegata* Lindl., principally differing in the much smaller size, in the solitary flowers, and in the column-wing scarcely crested on the back behind the anther. Mr. Matthews informs me that the remarkable spiral twist or coil in the leaves is constant in all the specimens he has seen. This peculiarity is also more or less observable in *T. variegata*.

As Dan Hatch and Eric Scanlen have separately detailed [1, 2], the original discovery of the plant is well recorded in the letters by RH Matthews from Kaitaia to Cheeseman in Auckland:



21 September 1909

On the sand hills between Lake Tangonge and the beach the Boys found the enclosed *Thelymitra*. I have not known any to flower so early, I would have sent it on whilst fresh only that the Boys intended going again last Saturday and taking bottle for specimens but the wind was too high for crossing the Lake.

8 October 1909

I have deferred writing hoping against hope, but the weather has been so rough and showery that the Boys have not been able to go to the west coast, the weather just now is fine, and if all's well the Boys intend to make a start tomorrow and camp out for a night, to give time to hunt for the new *Thelymitra*....

I'm afraid it is too late for the new *Thelymitra*, it is a month ago since first picked. Will let you know the result of the hunt.

P.S. Many thanks for the telegram, unfortunately, the Boy who found the *Thelymitra* had to help nurse his Brother and attend to the milking whilst laid up in bed – so with sickness and frequent floods it has been quite impracticable to go. I regret it very much.

11 October 1909

The Boys returned from W. coast last night. They found a fair number of the new *Thelymitra* [*matthewsii*], but too late for flowers. All the plants seen were in fruit. They dug up and brought home three plants without disturbing the tubers. I have planted them in a pot with the idea that if they grow and flower would indicate the right time to hunt for them. To judge by appearance of the capsules, full size and mature, it must be at least a month since they flowered. I think it is quite likely that the specimen sent to you was a late flowering plant, no others were seen. Probably should be looked for not later than 1st Sept. All the plants seen had only one capsule each. The leaf is comparatively broad at the base but tapers off rapidly to a narrow point, about 1½" in length. I'm sorry the Boys did not find plants in flower and hope more successful next year if all's well.

19 July 1910

I am sorry to say that the slugs have eaten through the flower stem of the west coast *Thelymitra*. I planted several tubers in a pot for the convenience of watching the growth, and time of flowering

and give the Boys an idea when to cross over the Lake to have a hunt with almost a dead certainty of finding plants in flower. It's no joke of a place to get to when there is so much water about.

5 September 1910

Two of my boys returned late last night from a trip across the Lake to the W. coast tired and very much disappointed. After a long search they at last found only four plants of the new *Thelymitra*, one of these the flower was closed. I put three into spirits for dissection and pressed the other to show the colour of the flower, and perfect plant. Neither of the flowers was quite open being wide bowl shaped like *T. imberbis*. The Boys feel sure that the single specimen found last year about 14th Sep^r the petals were fully expanded. It is certainly a little beauty and distinct....

20 September 1910

We are delighted with your report about the new *Thelymitra*, and the Boys are pleased with your suggestion of naming it *T. matthewsii*, and accept it as a great compliment. I have compared notes with the Boys and we believe that you have described the colour of the flower exactly, viz dark violet purple, with darker stripes or veins, the anther and top of the column bright yellow shading to pale pink at base of column. It is a great pity that it is such an awkward country to get to, it is very difficult to get there at this time of the year when the swamps are full of water. In the summer time everything is dried up. So far as I know the country between the Kaitiara river and the W. coast has not been worked i.e. botanically.

25 April 1911

Engineers at present taking levels for draining Lake Tangonge.

Indeed, Lake Tangonge was drained, the land farmed, the habitat destroyed and *Thelymitra matthewsii* became extinct at its type locality. It was regarded as extinct in New Zealand until 78 years later, when in 1988 Doug McCrae rediscovered it much further north, at Te Pahi [3]. It is now regarded as “Threatened – nationally critical” [4].



Lake Tangonge from an 1899 Land Transfer map overlaid on Tumonz Default Scheme. Note that most of the area of the now drained lake is still swampy. [Scanlen, 2005].

References

1. Hatch ED 1989. *Orchid extracts from The Matthews Correspondence*. No. 6 in the NZNOG Historical Series.
2. Scanlen E 2005. *Matthews & Son on orchids*. Number 14 in the NZNOG Historical Series.
3. McCrae D 1988. The rediscovery of *Thelymitra matthewsii* in New Zealand. *NZNOG Newsletter* 29: 1.
4. De Lange P. <https://www.nzpcn.org.nz/flora/species/thelymitra-matthewsii/>
5. Jones D 2020. *A complete guide to the native orchids of Australia*, p461.



It had been lost in Australia for many years too, until its rediscovery at Genoa in Victoria in the early 1980s. It is regarded as vulnerable there and endangered in South Australia [5].

In Australia *Thelymitra matthewsii* is one of the *Thelymitra variegata* complex: “Leaf curved or spirally twisted; post-anther lobe very short, adorned with globose to finger-like papillae; column arms without hairs, extending as slender colourful anther-like structures; flowers brightly coloured, sometimes iridescent with brilliant colour patterns; anther prominent at the top of the column, with a beak-like apex” [David Jones, 5].

Within that complex Jones separates the Queen of Sheba group of *Tt. apiculata*, *pulcherrima*, *speciosa*, *variegata*, from the *Thelymitra spiralis* group of *Tt. maculata*, *matthewsii*, *spiralis* and *uliginosa* [5].

**Some orchids in the
Queen of Sheba
(*Thelymitra variegata*)
group**

Clockwise from left:
Thelymitra matthewsii at
Te Pahi, NZ (Ed.);
T. variegata, *T. speciosa*,
T. pulcherrima (Mischa
and Colin Rowan,
RetiredAussies.com);
T. spiralis (David Lawson,
West Australian Native
Orchid Study and
Conservation Group).

Some say *T. spiralis* is
identical to *T. matthewsii*,
but images at [http://
wanoscg.com/thelymitra/
thelymitra-spiralis/](http://wanoscg.com/thelymitra/thelymitra-spiralis/)
suggest it is much more
variable, at least than the
NZ plants (which are un-
spotted).



Population Ecology of *Thelymitra matthewsii* Cheeseman, Orchidaceae, in Northern New Zealand

can be read at <https://researchcommons.waikato.ac.nz/bitstream/handle/10289/2291/thesis.pdf?isAllowed=y&sequence=1>

Abstract: The terrestrial orchid *Thelymitra matthewsii* Cheeseman, uncommon in New Zealand, was studied to increase knowledge of the species' life cycle, morphology and ecology. Results will enhance future conservation management for the species. New information related to the morphology of *T. matthewsii* was obtained. The species was found to emerge in one of four discrete life stages of distinctive morphology and height range that remained constant for the season, not developing into a more advanced life stage. The leaf of the three pre-adult life stages designated a hook, a spiral, and a nonflowering stage, did not inflate at the base, but rose smoothly from the tuber. Apparent morphological differences in the column between descriptions of the Australian taxon and the small New Zealand sample examined suggested further study was needed. Comprehensive monthly monitoring was carried out at five study sites in three locations in the Te Pahi area of the Far North, from 2002 to 2004. No patterns emerged in plant life stage succession, flowering, and presence or absence of labels, reinforcing the concept that variability was a common component of the population census. Seasonal and partial absence was a major component of the populations. An average of 32.8% of plants, over five study sites, were present throughout three seasons, while 66.9% were recorded as absent (not visible) at monitoring. New plants appearing in 2003 and 2004 showed a high percentage of subsequent absence (mean 85.7%). To determine population stability, recruitment and absence were compared. Plant absence exceeded recruitment by 7% (mean plant absence 30.5%; mean recruitment 23.4%). Plants continued to

appear during the monitoring period, and labelled plants increased two-fold over commencement numbers. Adults, recorded as 28% of labelled plants over three seasons, were outnumbered by preflowering stages. Only 5% of population numbers exhibited succession from a smaller to a flowering plant. Life stage modelling indicated a life stage was more likely to be followed by the same stage than an expected successive stage. *Thelymitra matthewsii* was found to be present in four substrates in the Far North. The survey of vegetation found the indigenous species *Kunzea ericoides* and the exotic *Hakea gibbosa* dominant for both height, and cover. Litter and bare ground dominated ground cover. Differences in vegetation and ground cover, of sites supporting *T. matthewsii* and comparison sites that did not, were minor and suggested that another factor, for example a suitable fungal partner, influenced the species' presence or absence. The results of the study indicated the present threat classification of *Thelymitra matthewsii* is inadequate in the light of the species' relatively circumscribed, widely separated habitats, the small number of reproducing individuals and vulnerability to habitat modification.

Researchers at Te Papa are beginning a new study of fungus gnats: look here: https://blog.tepapa.govt.nz/2020/11/10/the-underappreciated-lives-of-new-zealands-fungus-gnats/?mc_cid=b4228d2e8f&mc_eid=348d7eb922.



Paraparaumu 13 November 2003 – Ed.