



THE
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**NATIVE
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Our main aim is to improve the knowledge of NZ native orchids, so we allow others to republish material published here, provided the source and author are acknowledged. The editor and members may not share authors' views. Quarterly from February. Deadline first of the month preceding.

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Cover: *Thelymitra pulchella* s.l.,
Seddonville. Roger Thwaites.

Orchids in 3D: Eric Scanlen:
Thelymitra tholiformis. ⇨

From the Chair: Gael Donaghy.

Original papers

- 4 Field notes, December 2020 and
- 5 The Greyney's *Pterostylis*.
Gordon Sylvester.
- 7 The Deep South—
Auckland & Campbell Is orchids.
Gael Donaghy & Graeme Jane.

In the inbox

- 11 Assorted images, observations,
ideas and other odds and ends
about orchids. **Contributors**—
Peter de Lange, Pat Enright,
Bill & Helen Kosky, Matt Ward,
Rebecca Bowater, Georgia Steel,
Rebecca Guest, Georgina Upson,
Christopher Stephens & the editor.

Editorial

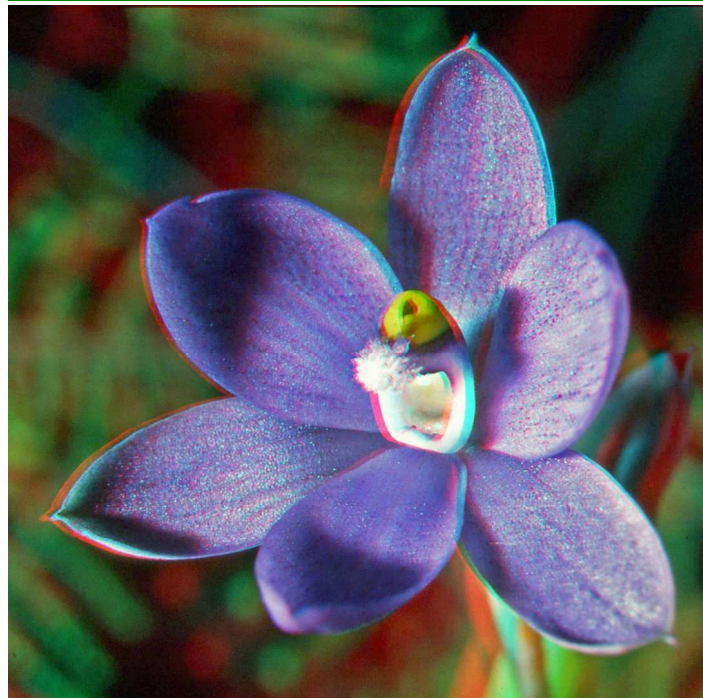
- 23 *Thelymitra* aff. *longifolia*
in the Far North.
- 24 Cryptic species.

The type locality: Ian St George

- 25 *Thelymitra tholiformis*,
not now at Dangen road.

If you don't have 3D specs for viewing these 3D images,
please contact the editor

Orchids in 3D
Orchids in 3D



FROM THE CHAIR



Gael Donaghy

Kia ora tatou

What an issue here! From North Cape to the Sub-Antarctic Islands, from regular contributors to refreshed contributors (good to see you restored to health and back orchid hunting Gordon), from keen amateur sightings to scientific papers, from questions posed to questions answered, and new finds, I hope you will find it as stimulating reading as I have.

Field Days – mid-September. After much debate in the household, and some feedback from the committee, we have decided to go for field days in mid-September, to try and find as many *Corybas* (and *kauri*) orchids as we can in the Central North Island. We could use a house in the Karangahake Gorge as a base, or motels in Waihi or Paeroa for those who wish. Visits will be made to the Coromandel and Kaimai ranges.

AGM – to be held electronically after the end of September. This is because the end of the financial year is 30 September and the AGM is required to

sign off accounts, office bearers, etc. Preparation can be done at the Field days (office bearers, discussion topics, etc), and then ratified by a Zoom meeting, or by email (NZ Botanical Society did this for the year ended Dec 2020).

Tag-Along Tour of the South – mid-October. Graeme and I will be going south for some orchid hunting and invite any interested members to tag along. A tag-along tour works this way: people choose and book their own accommodation and organise their own food. There will be no charge for this tour, as people are responsible for their own costs. Motor camps will not be busy at this time so there is usually room to get together in the evenings in communal areas. A meeting time and place is specified for each day, and people take their own cars, arranging their own car-pooling where possible.

Feedback, expressions of interest and more information available from me at gaeldonaghy@gmail.com.

Field notes, December 2020

By Gordon Sylvester

One of the issues of life is suddenly to find out you are not bulletproof. This was made painfully obvious to me in the Hollyford Valley on the *Corybas* crawl organized by our Editor. It was the most painful experience I have ever confronted.

Shortly afterwards I was called into hospital for replacement knee surgery. Even this event managed to throw a curve ball at me. Recovery to me was to be able to go for a walk up a local mountain asap.

Since that goal was achieved I have managed four trips in the bush. Two into Mt Grey, two into Greyneys Shelter Track.

Mt Grey had *C. trilobus* and *C. trilobus* agg., *C. macranthus* as well as *Thelymitra* “Wilderness”* and *T.* “green stems”. † Similar flowers to “Wilderness” which is my *Thelymitra* with a dark stem and 2 *longifolia* flowers. The green stem variety has a small white *longifolia* flower: two flowers only on both varieties.

A break in the weather was predicted on the TV. Right, a quickie to Greyney’s Shelter track. Melanie arrived at my place to wish me Seasons Greetings. I suggested a trip up to Arthurs Pass. Purpose was to see how the *Pterostylis oliveri* was getting on. Over the last four years the *oliveri* population had decreased dramatically, similar to the situation found at Kelly’s.

* This is what I recognise as *Thelymitra* “fusca”—Ed...

† ... and this *Thelymitra purpureofusca* (green form)—Ed.

First up was *Chiloglottis cornuta* finished flowering: the list was on. *Pterostylis* started by throwing some curve balls with double flowers as well as over extended synsepals doing an almost double curve. Next several *Caladenia* “red stem” in full flower, *Corybas trilobus*, *C. macranthus* (nonflowering), small *Pterostylis* aff. *graminea* in flower. Going onto the lower track we couldn’t locate the large flowered *Pterostylis* we had seen before, but did note *Gastrodia molloyi* in flower on the track side along with two juvenile plants.

Later that evening I received an email from Melanie suggesting we commemorate the 10th Anniversary of the Arthurs Pass Camp. Game on. Melanie arrived, We left midmorning after assembling meals etc: we were off.

First stop was Greyneys again to locate the missing *Pterostylis* colony. We traversed the track and extended onto the more westerly part. Noting our small dark wine red *Thelymitra* “Wilderness” and nearby its companion, the clump forming green plants: buds on them both. Returning towards the ute, a vague memory was triggered. We found the colony we couldn’t find the day before. In fairness the crown fern had thrived over the years obscuring the colony.

Ten metres away a different *Pterostylis* was like a very large *P.* aff. *graminea*, this one had not been seen previously. An excellent start to the trip.

Wednesday, off to the Otira Valley. Locating *Waireia stenopetala*, *Caladenia lyallii*, *Aporostylis bifolia*, *Prasophyllum* sp. with small brown/green flowers.

Moving on down to Kelly’s Creek. *C. trilobus*, *Pt. oliverii*, *Pt.* species (large flower). On top of the spur noted *Earina mucronata* was still there; also noted *C. acuminatus* in the damper tracksides. On the road frontage the prime target was missing—a very large flowering *Pterostylis*—but a lot of immature juveniles were seen.

Returned to Arthurs Pass and the Power Station Walk to look for a couple of old sightings: neither was seen. We returned to Schoolhouse Road and relocated *Pterostylis irwinii*. The site is overgrown but we noted a single flowering plant as well as several juvenile plants nearby

Thursday up early, off to Cora Lynn Road. The *Gastrodia molloyi* colony was reappearing with several plants in full flower. Also noted, *Thelymitra* species no flower visible. Rabbit predation?

Moving onwards we decided to call into Bevan Brown Reserve to look up a very large leaved *Chiloglottis* observed several years ago. We did find *Chiloglottis* in flower but not the very large leaved variety noted earlier.

In all the trip was successful. What we noted was the slow emergence of species returning to most sites after a long period of absence. An argument for periodicity?

26-Dec-20 Greyneys Track: *Chiloglottis cornuta*, *Corybas trilobus*, *C. macranthus*, *Pterostylis oliveri*, *Pt. oliveri* double flower, *Pterostylis graminea*, *Pt. sp. broad flat blunt labellum*, *Pt. sp. hybrid graminea/oliveri*, *Pt. sp. aff. banksii*, *Thelymitra sp.*, *Caladenia "red stem"*, *Gastrodia molloyi*, *Thelymitra sp. dark red brown/2 white flowers*, *Thelymitra sp. mini longifolia 2 white flowers*, *Pt. sp. v. large graminea*, *Pt. areolata?*

Otira Valley: *Waireia stenopetala*, *Caladenia lyallii*, *Aporostylis bifolia*, *Prasophyllum brown/green fls.*

Kelly's Creek: *Corybas trilobus*, *Pterostylis oliveri*, *Earina autumnalis*, 3 unnamed *Pterostylis* species.

Arthurs Pass: *Pterostylis irwinii*.

Power Station Walk: *Corybas trilobus*.

31-Dec-20 Cora Lynn Rd: *Gastrodia molloyi*, *Thelymitra sp. dark red brown/2 white flowers*, *Corybas trilobus*, *Thelymitra sp. 2 white flowers 5mm wide leaf.*

Bevan Brown Reserve: *Chiloglottis cornuta*, *Corybas trilobus*, *Caladenia sp. no flower*, *Thelymitra sp. 2 white flowers 5 mm wide leaf.*



The big Greyney's track *Pterostylis*

The Greyney's *Pterostylis*



Photo 4 January 2021,
Gordon Sylvester

There are discrete colonies recorded on the West Coast at various locations as well as a small double colony near Arthurs Pass. Greyney's Shelter Track has two separated sites with a 10 metre vertical distance and 25–40m separation; the upper colony plants are significantly smaller than the lower colony.

Genus: *Pterostylis*. Species: undefined. E.D. 52.03
Grid Reference E171,35,423; S42, 59, 030. Altitude 763 +/-msl. Height: 100mm to 350–400mm.

Leaves 4–6, lanceolate; length of leaf varies upwards, 34mm to 54mm long, 18mm wide at base, shortly apiculate, undulating margins, 1–2 scapes

below ground. Leaves rotating around stem at 120 degrees between each.

Height of flower 34mm. Width of flower 18mm. Sepals very broad at base tapering sharply about 90mm across. Width at base 16mm length 45mm. Column blunt; 21 mm high 8mm wide. Ovary 12-18mm high.

Generally found in damp ground sometimes under *Blechnum* fern. A colony forming plant growing close together. Dappled shady conditions. Scapes usually just below ground/ leaf litter.

Bottom two leaves very close together. The third leaf has 10mm serration. The top leaf about 20mm above the lower. Top leaf is sickle shaped with lower leaves changing shape upwards.

Juvenile plants are close to ground and exhibit three leaves in the characteristic 120 degree circle.

Flowering December.

Known locations: Arthurs Pass area, Mahinapuna, Marsden, Franz, Fox, Bluff,[‡] Seaward Bush Invercargill and Dolamore Park Gore.

[‡] Eric Scanlen has tagged this entity *Pterostylis* "Bluff" in the past—*Ed.*



Dolamore Park; NZNOJ date and photographer unknown



4 January 2021
Greyney's Shelter
Track.



At Bluff Hill in
2003: photo
Sid Smithies.

ORCHID ART: Buy now from the editor: proceeds to NZNOG.



The Deep South – Auckland & Campbell Is orchids

By Gael Donaghy & Graeme Jane

After an eagerly awaited departure we left Bluff on 12 December headed for the NZ subantarctic islands with Heritage Tours. We did not land on the Snares (closed nature reserve) but we first landed on Enderby Is for a loop walk round most of the island, then crossed Port Ross to Auckland Is for a walk to Hardwicke town, cemetery and landing. At Carnely Harbour we visited the Epigwaitt, the *Grafton* wreck site, then the Ehrlangen clearance, both short walks. At Musgrove Inlet there was a long walk to Hinemoa Lake.

On Campbell Is there were long walks from the homestead site to a former peat hut along shore; Astronomers Point and the Frenchmans grave site; to Garden Valley saddle; and from the former Met Station along the Beeman boardwalk to the Col Lyall saddle. We then visited but did not land at the Antipodes Is (closed reserve) and Bounty Is (rocks with only one recorded plant, a cress of seabird nests)!

The focus of the tour was birds, mammals and history (as one of the trip leaders was a historian with a particular interest in the islands); there was no botanical leader. Stops to historic sites were often brief and walks to bird breeding sites were quite focused. Hence while on shore Gael and I often had to keep moving and usually fell to the rear of the party, often of 40 or more. Still, we did manage to subvert the focus of a trip on several occasions.

Previous lists for the islands recorded *Aporostylis bifolia*, *Chiloglottis cornuta*, two *Caladenias*, four *Corybas*, *Prasophyllum colensoi*, *Thelymitra cyanea*, *T. longifolia*, *Townsonia deflexa* and *Wairea stenopetala*, 13 species in all. All of these were on Auckland Is but only a core of *Aporostylis*, *Chiloglottis*, and *Corybas trilobus* were recorded elsewhere.

We saw two *Thelymitras*, only in bud, only one *Prasophyllum* in leaf only – all three on Enderby Is, and a leaf of a *Caladenia* possibly *C. chlorostyla* at Epigwaitt. Although *Townsonia* was recorded from most areas it was not seen, probably because we needed to keep moving. *Wairea stenopetala* was quite common, often in leaf but also in flower (**Fig.1**).

Chiloglottis cornuta was often extremely abundant along the tracks even well out into the tussock areas. It was just coming into flower.

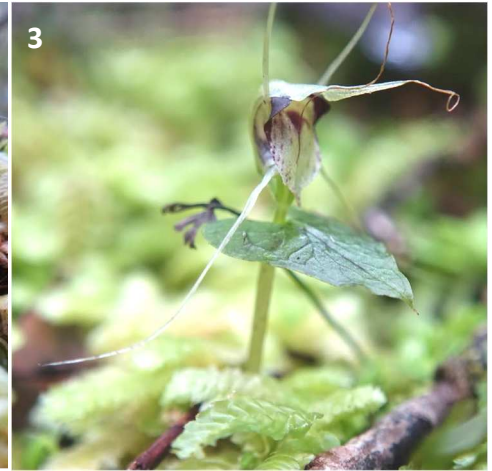
The *Corybas* were abundant but sparingly in flower and were by far the most interesting. We recorded *C. acuminatus*, *C. oblongus*, *C. dienemus* and at least 3 forms of *C. trilobus*. This does not square very well with the previous records of *C. macranthus*, *C. oblongus*, *C. dienemus* and *C. trilobus*. *C. dienemus* has only recently been recognised (since 2003) and could previously have been recorded as *C. macranthus*.

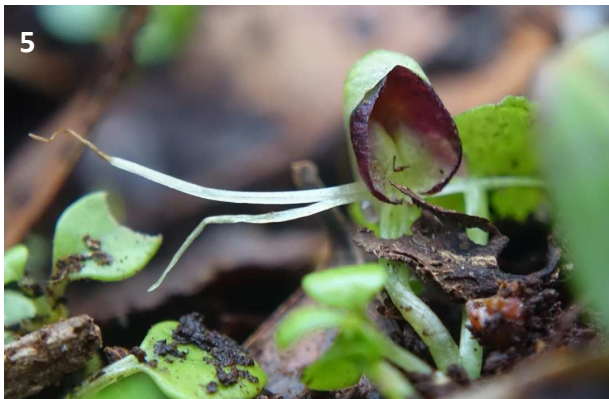


With *C. trilobus*, instead of continuing to see the same taxon we seemed to see a different form at each site.

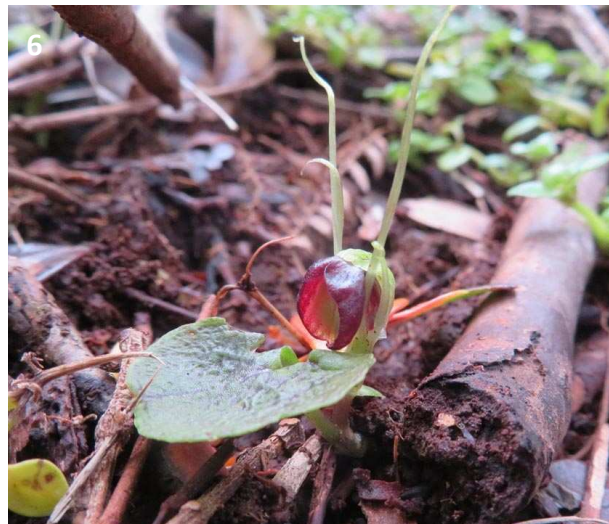
Our first landing at Enderby Is was a learning experience. It was a 5 hour walk or rather a trot between bird sites. We did not manage to loiter long, so saw only *Corybas* in leaf on the boardwalk at the day end. The first site for orchid flowers was at Hardwicke cemetery in open scrub where we saw *C. oblongus* with a very short tube (**Fig.2**), also seen later at several places, and perhaps two *Thelymitra* species in leaf.

The richest place for *Corybas* was at the site of the wreck at Epigwaite a compact site in scrubby area adjacent to less disturbed forest. The forest was well developed with a variety of mosses and lightly shrubby clearings. Here we managed to subvert the interest of the party and found abundant *C. acuminatus* but it was mostly over (**Fig.3**). At one patch the leaves and flowers of *C. acuminatus* were quite variable and often lacked the acuminate tip. At the same patch there was also a solitary tiny *C. sulcatus* type and a range of stripy flowers (**Fig.4**) with a blunt dorsal sepal and rounded leaves that looked a bit like the *Corybas* we have seen at the Hump in Fiordland or perhaps a hybrid with *C. acuminatus*. As we were being hurried on to the boats near the shore, we found a something resembling *C. sulcatus* (**Fig.5**) with its enclosing labellum but a green dorsal sepal. An extreme example was (**Fig.6**). Plants were found with the flower above or below the leaf.





At subsequent sites on Auckland Is we did not see the same range of species variation as the sites were clearances created by shipwreck survivors and no *Corybas* until we walked the Hinemoa Lake track. Here we saw a patch of *Corybas* near the shore that closely resembled that from the Hump but mostly over (Figs 7, 8 [less dorsa]).



At Campbell Is, en route to the sod hut along the shore we finally found typical *C. dienemus* (Fig.9) on a rock, partly hidden under a tussock.

Later in the dense *Dracophyllum* scrub on the Garden Valley track there was an abundance of *Corybas* colonies with quite blue leaves but only two flowers of what looked closest to *C. confusus* (Figs 10, 11) with a very broad face to the labellum and a quite raised central part below the cleft. Then under very wet conditions on the Beenan track there were numerous leaves and an odd flower of one closer to *C. sulcatus* (Fig.12).

So there are probably at least six species of *Corybas* on the islands. We are quite tempted to repeat the trip in the hope of clarifying our observations, but we will probably have to leave that to you or others. Perhaps there already are other "mystery" photos out there we would love to see.



**IN THE
INBOX**



Dendrobium cunninghamii and *Earina autumnalis*. Photo by Pat Enright

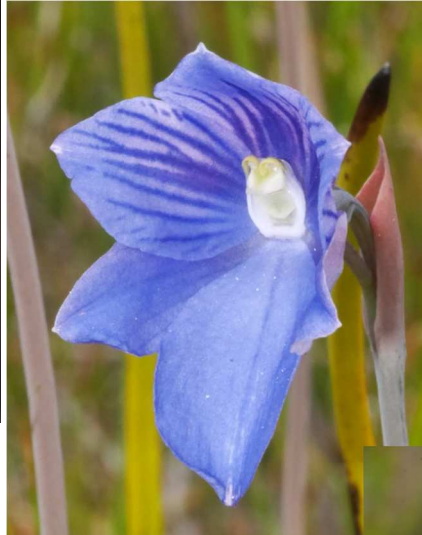
6 December 2020 found the editor in the green moss under beech at the base of the **Routeburn track**, perhaps the most beautiful place in the world, where flowering *Adenochilus gracilis* and a smaller version of *Pterostylis australis* (or is it *P. auriculata*?) were profuse. Also present, *Aporostylis bifolia* (in bud) with normal sized leaves, *Chiloglottis cornuta* with tan labellar calli, other pterostylises and leaves of a corybas of the *trilobus* group—Ed.





◆ ⇒ ***Microtis parviflora*** is ubiquitous in the Wairarapa, where it is short (<20cm) and delicate and flowers from mid-december in old grassland (I have never seen tall robust plants here, only in the far north, where, Bill Campbell tells me, they still don't grow as big as *M. unifolia*). Ours may differ from Australian plants: Peter de Lange wrote "New Zealand plants referred to *M. parviflora* are potentially distinct and may warrant separate taxonomic recognition. It is not clear if they are endemic, and at this stage NZPCN has assumed that they are not."

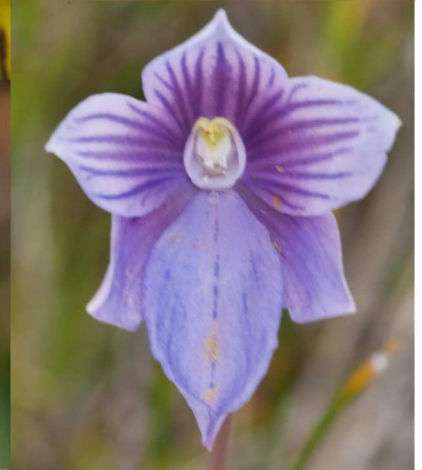
Detail of a photograph (by Mischa Rowan, RetiredAussies) of an Australian plant is shown here at right ⇒ —Ed.

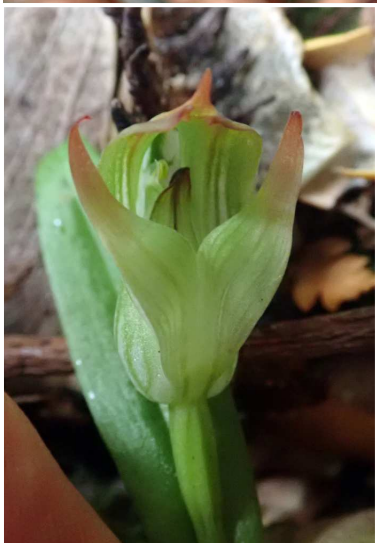


⇒ Christopher Stephens photographed this curiously coloured *Thelymitra cyanea* in the Taranaki on 31 Dec 2020 (posted to *iNaturalist*). Matt Ward posted photos showing its great variation in colour on the Kepler track on 30 December ➡



◆ **The Joys of Orchiding:** Australian orchid hunters Bill and Helen Kosky photographed red-bellied black snakes courting. Beautiful, but they bring out the ophidophobe in orchidophiles of these mercifully venom-free islands across the Tasman.

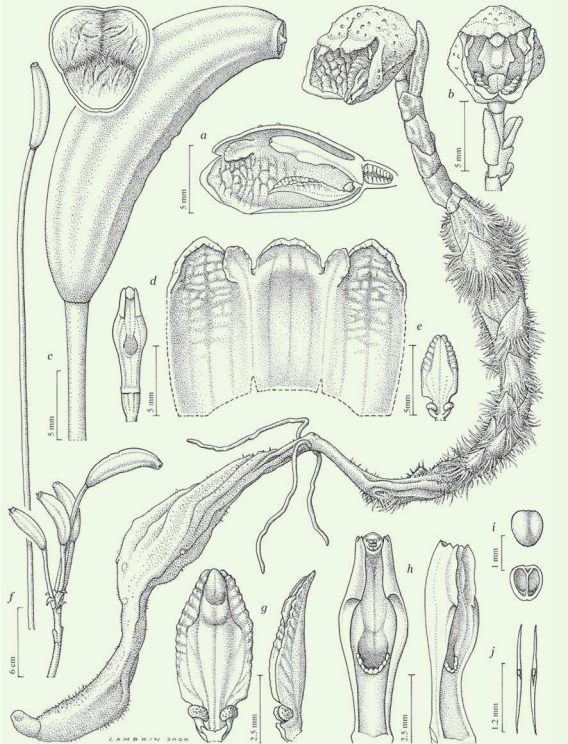




Peter de Lange found *Pterostylis silvicultrix* flowering at Waitangi, Chatham Islands, on 21 December 2020. He noted, "Locally common on forest floor. Often seen with *Pterostylis banksii*, growing in leaf litter under tarahinau (*Dracophyllum arboreum*).... It starts flowering late September and you can still find flowering plants in March." <https://www.inaturalist.org/observations/67103797>.



Read about a newly described Madagascar orchid, *Gastrodia agnicellus*, drawn by Deborah Lambkin at https://www.sciencealert.com/botanists-have-finally-found-it-the-ugliest-orchid-in-the-world?fbclid=IwAR3r4aQXwM6h_ITG9wD2BQQOv-IU3srOSF5qCHT4gK-KDFIQeoxD6okC6fA



Pterostylis australis
 photographed in postmature flower by Pat Enright at Banks Peninsula on 18 January. The type collection by David Lyall was in late February 1851 at Dea's Cove, Fiordland. Clearly, like *P. silvicultrix* (see p.15), it can flower late.



The thinking dog's man.
 The editor's friend Millie absorbing some philosophy after orchiding in the Taranaki.



Dendrobium cunninghamii,
Rakiura 4 January 2020.
Photo by Rebecca Guest
<https://www.inaturalist.org/observations/67563685>

Gastrodia cunninghamii,
Nelson Lakes, 30 December
2020, photographed by
Rebecca Bowater.

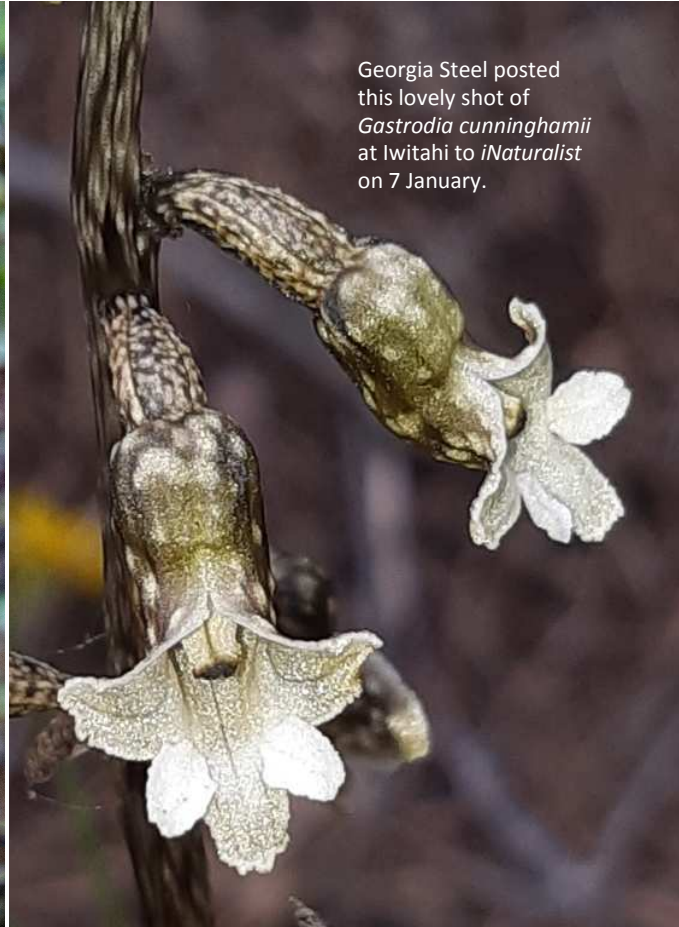
*It lives in the dark of forests,
where it depends on total
parasitism of fungi and (via
the fungi) of other, taller
plants (ie, trees)
that reach the
light and can
photosynthesise*

*Consequently it doesn't need,
itself, to photosynthesise and
indeed is said to be
"nongreen," lacking
chlorophyll,
no longer
even
capable
of photosynthesis.*

***What's the green stuff
then?—Ed.***



Georgia Steel posted
this lovely shot of
Gastrodia cunninghamii
at Iwitahi to *iNaturalist*
on 7 January.



Georgina Upson, referring to her paper in J160, emailed, “There are beetle pollinators and also an ichneumon wasp **pollinator of *Microtis unifolia***. It puzzled me as to why one year I saw only male ichneumon specimens and this year only females.

Now I've solved the puzzle”

Apparently saw flies and wasps have a unique breeding style. After mating the sperm is held in a storage organ (spermatheca) remaining viable for a long period. So mating does not result in egg fertilisation, but the female chooses whether to fertilise or not at the point of laying. Fertilised eggs produce females, unfertilised eggs produce males. Females get to choose the sex.

“I guess if a female does not find a male to mate with the resulting offspring would all be male. Entomologists speculate that site quality (ie of the victim) may influence the sex chosen for resulting offspring. This could result in unbalanced ratios from year to year rather than the expected 50/50 depending on how favourable breeding conditions have been.”



Image provided by Noushka Reiter and Ryan Phillips

Save the Date



ORCHID CONSERVATION
SYMPOSIUM

**22 & 23
JUNE
2021**

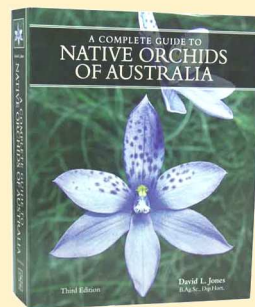
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A complete guide to native orchids of Australia.



Jones, David L.

Sydney: New Holland Publishers, (2021 third edition),

Quarto, dustwrapper, 800 pp., colour photographs, line drawings.

“This book, the magnum opus of Australian orchid expert David L. Jones, is a new and much improved edition of what is already the best and most authoritative book on the subject.”

The new third edition has 1698 taxa and photos, and more detailed text. References are included in the text, with distribution maps, drawings to

emphasise differentiating features between similar taxa and a more complete and comprehensive introduction.

“It will arguably be the best and most complete work on orchids to be published anywhere in the world.”

It is certainly a magnificent and monumental work. It retains the Jones/Clements/Molloy system of names, now rejected by many authorities, but that does not detract from its value. It is available at NZ\$159 postpaid via Trademe—Ed.

Danhatchia

On 3 February 2016 Emma Rowell found ***Danhatchia australis*** at Waikanae, the first report of this orchid from the southern North Island; on 30 January 2021 Christopher Stephens found it there again.

Danhatchia is a genus of terrestrial parasitic orchids, lacking chlorophyll. Three species have been described, *Danhatchia australis* (Hatch) Garay & Christenson, New Zealand; *Danhatchia copelandii* D.L.Jones & M.A.Clem. and *Danhatchia novaehollandiae* D.L.Jones & M.A.Clem., both in New South Wales. Recent opinion suggests *D. novaehollandiae* is identical to *D. australis*.

Matt Ward went to the Waikanae site and wrote, "... about 100 specimens were found growing mostly in isolation with just a few in clumps The association is not clear as there was Rimu, Kohekohe, Tawa and nearish mature Nikau, but only seedlings amongst the orchids as well as a lot of *Icarus filiformis* on the ground and *Metrosideros perforata*. Plants were fruiting, flowering and budding, suggesting a very much staged maturity in this location." (<https://www.inaturalist.org/observations/68909766>).

I visited on 2 February with Pat Enright. We saw a dozen or so plants, one in flower, the flowers fragrant—to me, tangy citrus: lemon or lime zest. Photographs—Ed. →

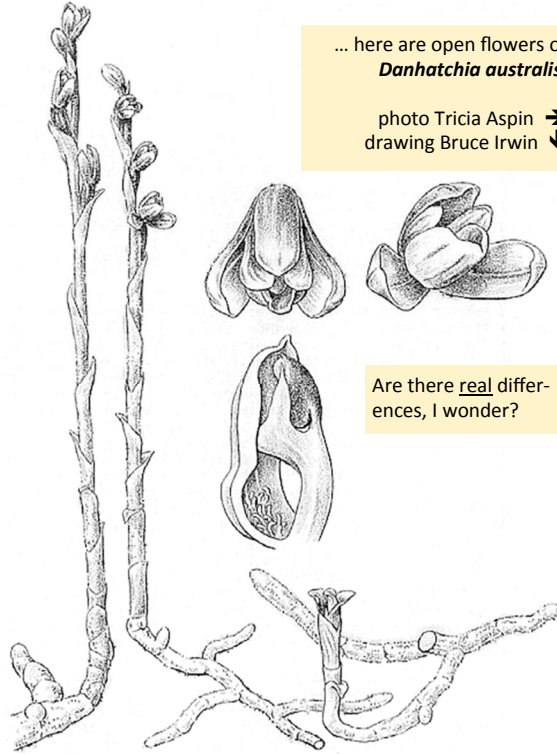




← *Danhatchia copelandii*, photo Lachlan Copeland:
<http://www.ecoaus.com.au/news/senior-ela-botanist-discovers-new-species-in-own-backyard>.
It is said to be the only *Danhatchia* whose flower opens, but...

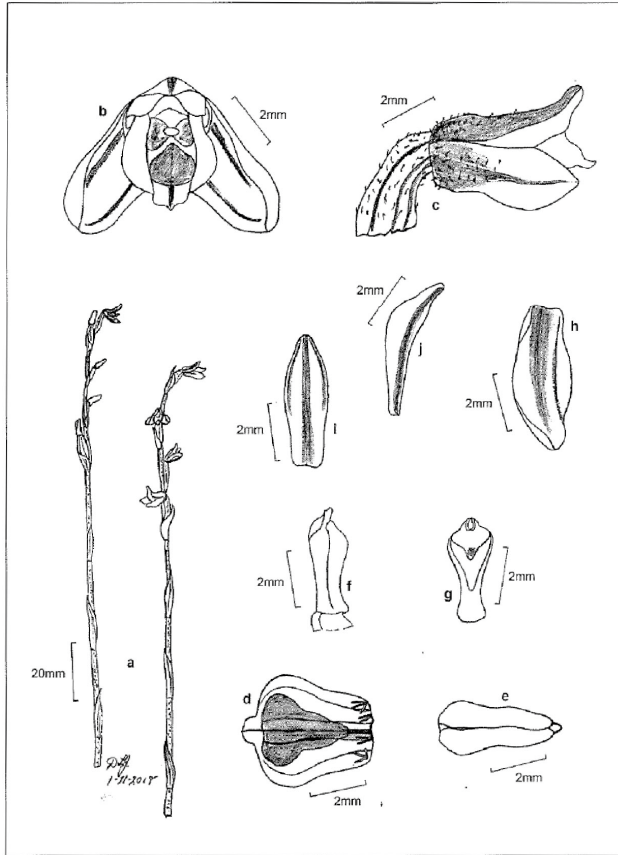
... here are open flowers of
Danhatchia australis,

photo Tricia Aspin →
drawing Bruce Irwin ↓



Are there real differ-
ences, I wonder?





Danhatchia copelandii, Bonville, NSW, L.M. Copeland.

a. flowering plants; b. flower from front; c. flower from side; d. labellum from above, deflattened; e. labellum when finished; f. column from side; g. column from front; h. lateral sepal; i. dorsal sepal; j. petal.

Drawn from type: © David L. Jones 1st November 2018.

In 1963 Dan Hatch described the NZ species as *Yoania australis*. *Yoania* is mainly distributed in Japan, though *Y. japonica* is also found in Assam, China and Taiwan and *Y. prainii* is found in the Himalaya and in northern Vietnam. *Y. australis* would therefore be the “southern *Yoania*”, putatively the only species of the genus south of the Equator. In 1995 Garay and Christensen recognised the NZ plant was not a *Yoania*, but an undescribed genus they then aptly named *Danhatchia*.



Hatch ED. *Trans. Roy. Soc. New Zealand, Bot.* 2: 185 (1963). Description.

Fairlie Horsley. *Canterbury Bot Soc J.* 23: 19–20 (1989). Discovery in South Island.

Garay & Christenson. *Orchadian* 11(10): 469, f.471 (1995). Renamed *Danhatchia*.

[https://commons.wikimedia.org/wiki/File:Yoania_japonica_\(Mount_Yake\).jpg](https://commons.wikimedia.org/wiki/File:Yoania_japonica_(Mount_Yake).jpg)

EDITORIAL

1. *Thelymitra* aff. *longifolia* in the Far North.

For years we have been looking at one or more entities in the Far North that have been called *T. aff. longifolia*, because they look very superficially like “normal” *T. longifolia*. I had a chance to look again in late October 2020.

What I saw were generally robust plants with heavy arched V-section leaves, many flowers open at once, the tepals variously long and acuminate (flower diameter 30mm) to oval and bluntly pointed, white to mauve to pink. The column is pale pink, the postanther lobe red-black, its anterior margins yellow. The postanther lobe is tripartite, with a prominent dorsal ridge, the cilia white, kinked and upright. There is a broad notch in the anterior margin of the postanther lobe. The flowers have a strong “white floral” fragrance of gardenia/honeysuckle.

“Normal” *T. longifolia* is very robust, its leaf wide and flat and floppy with ridges, only one or two flowers open at once, tepals oval and bluntly pointed (flower diameter rarely >20mm), white. The column is pale pink, the postanther lobe almost black, its anterior margins yellow. The postanther lobe is smooth, not ridged, the cilia white, tangled into “cotton wool”. The anterior margin of the postanther lobe is entire, not notched. There is no fragrance.





2. Cryptic species and the genital apertures of beetles

On Christmas Day the *Guardian* published an article titled **Discovery of “cryptic species” shows Earth is even more biologically diverse.**

It began,

“A growing number of ‘cryptic species’ hiding in plain sight have been unmasked in the past year, driven in part by the rise of DNA barcoding, a technique that can identify and differentiate between animal and plant species using their genetic divergence.

“The discovery of new species... that appear similar to the human eye but are in fact many and separate have thrilled and worried conservationists. Scientists say our planet might be more biologically diverse than previously thought, and estimates for the total number of species could be far higher than the current best guess of 8.7 million. But cryptic discoveries often mean that species once considered common and widespread are actually several, some of which may be endangered and require immediate protection.”

Carlos Lehnebach has shown that *Corybas trilobus* (once thought simply “common and widespread”) contained several species that had “appeared similar to the human eye”, though had been separated morphologically by the more astute observers like Eric Scanlen and Mark Moorhouse: the clues were there.

What the *Guardian* journalist is saying, however, is that even species we still regard as simple and single may contain several

different entities *only* separable by coding.

Barcoding has, for instance, revealed 16 separate humpback flies once lumped together as a single species in Costa Rica.

Some of our orchids behave curiously for seemingly single species: *Microtis unifolia* seems to flower in two peaks, spring and autumn, though the flowers appear identical. In one area *Aporostylis bifolia* has consistently long narrow leaves in similar habitat to those elsewhere with “normal” leaves. Some *Corybas macranthus* always have sessile leaves and flowers while others have long stems. *Microtis parviflora* is delicate and short in the Wairarapa but may be robust and tall in the Far North.

Again, these are clues that might prompt molecular biologists to explore whether the differences are from habitat or genetic effect.

But, as Canadian Paul Hebert (quoted in the *Guardian* article) said: “We’re not going to be looking at genital apertures in beetles in 50 years from now to tell which species were on a tree.”

Michael Sharkey, University of Kentucky: “... despite best efforts morphological evidence is not sufficient. Barcodes will have their drawbacks as well, but they are a vast improvement.”

Those with an educated eye for small differences of structure or behaviour within apparently single NZ orchid species will continue to give researchers clues on where to focus their barcoding efforts, but in addition, large numbers of seemingly identical plants will have to be studied if we are to identify truly cryptic species “hiding in plain sight”.

THE TYPE LOCALITY

Thelymitra tholiformis is not now at Dangen road.

By Ian St George

In 1990 Brian Molloy and Dan Hatch collaborated to describe the new northern New Zealand endemic species *Thelymitra tholiformis*, previously confused with *T. aemula* Cheeseman and *T. intermedia* Berggren. They reinstated *Thelymitra aemula*, in turn confused with *T. ixiooides* Sw., as a distinct species, also endemic to northern New Zealand, but relegated *T. intermedia* to synonymy under *T. pauciflora* R. Br.

Bruce Irwin drew comparative images of the columns of *Tt. tholiformis*, *aemula* and *ixiooides* for the paper and they are still as good a differentiating tool as you will find

►. Molloy had examined Berggren's type material of *T. intermedia* in Sweden and had determined it was *T. pauciflora*—he concluded Berggren's images of the plant were "highly stylised".

At that time *T. pauciflora* s.l. included *T. colensoi* and Berggren's images are not "stylised" but accurate for that species. *T. intermedia* = *T. colensoi*.

The holotype of the new species (CHR 461356) was found at Dangen Road, nr. Oruru, Northland, ridge crest roadcut at 152 m, margin of second growth conifer/hardwood forest, B. P. J. Molloy and D. P. McCrae, 31 October 1988.

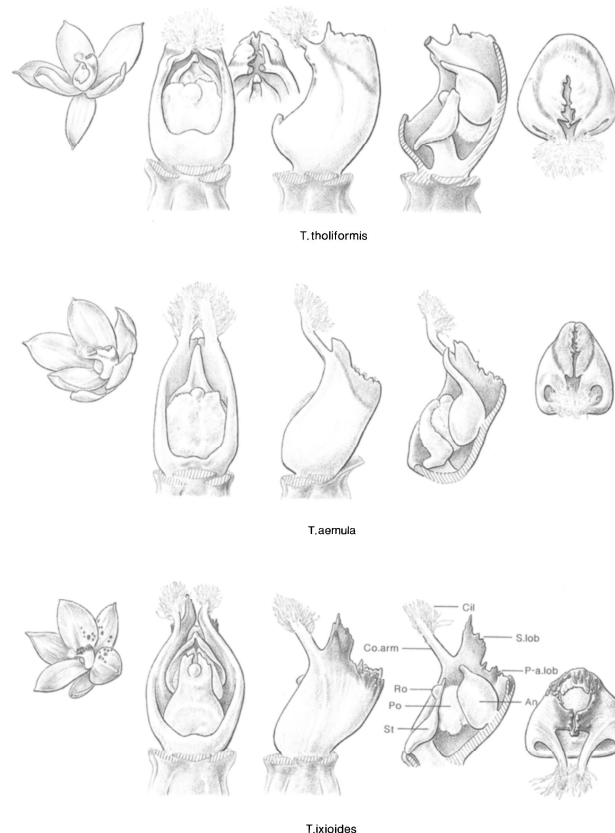


Fig. 1 Comparative drawings of flowers and columns (front, side, cutaway, vertical views) of *Thelymitra tholiformis*, *T. aemula*, and *T. ixiooides* N.Z. An = anther; Cil = cilia; Co. arm = column arm; P-a. lob = post-anther lobe; Po = pollinia; Ro = rostellum; S. lob = side lobe; St = stigma.

Thelymitra tholiformis Molloy et Hatch sp. nov.

T. aemula subsimilis. Lobus medius columnae haud cucullatus, tholiformis, vividi-flavus, margines supra denticulati. Lobi antici absentes. Cilia loborum lateraliurn, alba densa caespitosa.

Description: Plant at flowering up to 60 cm tall, usually less. Leaf solitary, up to 36x1.5 cm, linear-lanceolate, sub-erect, shallow-concave with exterior ridges on mature plants, usually green, often with reddish margins and base. Stem slender to moderately robust, blue-green; basal sheath up to 30 mm long, pale, truncate, mucronate; stem bracts usually 2, 20–90x3–6 mm, lanceolate, sheathing in basal half to two thirds, occasionally with a third leaf-like bract at base up to 150 mm long. Floral bracts 10–20x3–6 mm, lanceolate. Flowers 1–15, 10–15 mm diameter, pale to strong mauve, on short pedicels. Ovary slender, oblanceolate, terete, 5–10x3–5 mm. Perianth cupped, parts ovate, apiculate, up to 12x5 mm; sepals narrower than petals; petals minutely papillate externally. Column up to 5 mm tall, erect, concave in side view, pale purple with yellow striae and a narrow purple band near the top. Post-anther lobe as high or exceeding the anther, tholiform, not cucullate, bright yellow, margin irregularly denticulate. Column arms ± terete, horizontal or upturned, with short, dense, globose tufts of white cilia. Anther erect, apex usually pointed, sometimes curved forward; pollinia white, in two pairs, friable, with monad pollen. Stigma short, broad, ±concave, bilobed above; rostellum orbicular, very prominent. Capsule 10–15x5–7 mm, elliptic, green.

Distribution: Northern New Zealand; from the Waitakere Range, Auckland, to North Cape. Endemic. **Habitat:** Gumland scrub and second growth conifer/ hardwood forest on podzolised soils formed under kauri and associated species. **Flowering:** October to February; seldom more than two or three flowers open at the same time on any one plant. Flowers open tardily. **Pollination:** Predominantly self-pollinating (autogamous).

—Brian PJ Molloy & ED Hatch 1990. *Thelymitra tholiformis* (Orchidaceae)—a new species endemic to New Zealand, with notes on associated taxa. *New Zealand Journal of Botany*, 28(2): 105-114. <https://www.tandfonline.com/doi/pdf/10.1080/0028825X.1990.10412350>



The column of *T. tholiformis*. From <https://www.nativeorchids.co.nz/> ➔

Of the other spotless stripeless *thelymitras*, the column of *T. hatchii* can appear almost tholiform at times. The images below are from a single colony near Wellington.



At Dangen road, Northland 0482 now

We visited the Far North in late October 2020 and took the opportunity to look at the ridge crest roadcut at 152 m (4m lower down from where the 156m contour line crosses Dangen road) at the margin of the forest, as Molloy and McCrae had carefully described the type locality.

Only its not that easy. The roadsides have certainly changed, the scrub has grown and there must be a lot more shade than there was in 1988. We didn't find *Thelymitra tholiformis*.

What I did gain from the exercise was a reminder of the extraordinary contributions of three men: Dan Hatch, Brian Molloy and Doug McCrae. Brian and Dan are well known and well recognised. Doug McCrae perhaps less so. Yet he was the young man who took on the mantle of Harry Carse

and the Matthews, re-exploring their old botanising grounds in the Far North, rediscovering orchids that had not been seen by anybody after them (*Thelymitra matthewsii* most famously) and discovering a range of new entities that have yet to be described (*Thelymitra* aff. *longifolia*, *T.* "Ahipara", *T.* "rough leaf", *T.* "darkie"). I had the pleasure of working with him on a booklet on NZ orchids and got to know him pretty well.

He wasn't just a discoverer, he was a careful and successful grower of native orchids. He reproduced in his orchid house the cross between *T. longifolia* and *T. pulchella* that is *T. xdentata*, proving its hybrid origin.

But after a time he just seemed to become inaccessible. Mutual acquaintances said he was clinically depressed and certainly he became withdrawn and uncommunicative. It was some years later I heard he had been suffering from a particularly nasty early onset dementia known as Creutzfeldt-Jakob disease. In the end it killed him, robbing his wife and children of a stimulating husband and father and depriving the New Zealand native orchid community of one of its most enthusiastic and competent experts.

