

The
New
Zealand
Native
Orchid Journal



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May 2009 ISSN 1177-4401

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NEW!



Colour field guide
to the native
orchids
of New Zealand

by
Eric Scanlen & Ian St George

Here are all of the newly described or renamed species, along with most of the suggested but yet to be described taxa, as well as some resurrections of old names for familiar and not so familiar taxa.

82 pages of text +
187 colour plates
\$30 includes postage in NZ
(enquire about cost of overseas postage)

From Brian Tyler, 4 Byrd St,
Levin. BandJ.Tyler@xtra.co.nz.

NEW!



Colenso's collections

including the unpublished
work of the late
Bruce Hamlin
on William Colenso's
New Zealand plants
held at Te Papa

compiled
by Ian St George

Here are all of the lists of
specimens sent by
the Rev. William Colenso to Kew,
along with all his letters to Kew
1839-1899.

412 pages + searchable CD
\$35 includes postage in NZ
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From Brian Tyler, 4 Byrd St,
Levin. BandJ.Tyler@xtra.co.nz.

Editorial: Ian St George

Arguing about aggregates and inconsistency in amphidiploids

We know *Thelymitra hatchii* is an amphidiploid (allopolyploid) cross between *T. longifolia* and *T. formosa*; as *T. pulchella* is between *T. longifolia* and *T. cyanea*; and *T. tholiformis* is between *T. aemula* and *T. pauciflora*; and *T. carnea* is between *T. pauciflora* and *T. flexuosa*; and *T. nervosa* is between *T. longifolia* and *T. aff. ixioides* [1]. Murray Dawson pointed out [2]:

- *T. hatchii*, $2n = 66$, a New Zealand allopolyploid between *T. longifolia* ($2n = 26$) and *T. formosa* ($2n = 40$);
- *T. pulchella*, $2n = 66$, a New Zealand allopolyploid between *T. longifolia* ($2n = 26$) and *T. cyanea* ($2n = 40$);
- *T. tholiformis*, $2n = 65$ & c. 66 , a New Zealand allopolyploid between *T. aemula* ($2n = 40$) and *T. aff. pauciflora* ($2n = 26$);
- *T. carnea*, $2n = 62$, an Australian and New Zealand allopolyploid possibly between *T. flexuosa* ($2n = 36$) and *T. pauciflora* ($2n = 26$);
- *T. nervosa*, $2n = 54$, a New Zealand allopolyploid between *T. longifolia* ($2n = 26$) and *T. aff. ixioides* ($2n = 28$).

We know *T. longifolia* and *T. pauciflora* are aggregates of described and undescribed taxa.

And we know that *T. hatchii* is a variable taxon—there are robust plants with yellow cilia, and slender plants with pink cilia.

Similarly *T. pulchella* is inconsistent, with *T. caesia*, *T. pachyphylla*, *T. concinna* and *T. fimbriata* so different they have been described as separate species by Petrie, Cheeseman and Colenso (two) respectively.

Similarly *T. carnea* is variable, with typical pink forms, and unusual yellow forms described as *T. imberbis* by JD Hooker.

Similarly *T. nervosa* is a variable taxon, with differences in the postanther lobe and the

petal spots that have led Scanlen to separate *T. nervosa* from *T. decora*.

Are we right in attributing this as simply within-amphidiploid variation? That is to ask, do these variations arise among plants of the same parentage?

Perhaps not. There is a range of parental possibilities within the *T. longifolia* and *T. pauciflora* aggregates (even more so for the latter if the original parents crossed in Australia, and seed from the subsequent amphidiploids migrated to New Zealand). Perhaps a pink-flowered member of the *T. longifolia* agg. crossed with *T. formosa* to form the precursor of the pink-ciliated *T. hatchii* and perhaps the yellow-ciliated form was fathered by *T. longifolia* s.s.

Similarly which of the *T. longifolia* agg. is the parent of *T. caesia*? of *T. fimbriata*? of *T. pachyphylla*? of *T. concinna*? and of *T. pulchella* s.s.? And which the parent of *T. nervosa* and *T. decora*?

Once the aggregates have been formally split (as Jeanes did with *T. pauciflora* agg. in Australia [3]), someone will have to redo these crosses artificially with the new taxa so we will then know which is the parent of which variation in what may be aggregates of similar but different crosses—otherwise we could never be sure the inconsistency is simply (as conventional wisdom has it) the variability to be expected from same-parent amphidiploids.

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The Type locality: Ian St George

5: Ongaonga and *Pterostylis tristis*



In 1885 William Colenso described *Pterostylis tristis* [1] from plants collected by Henry Hill from the south bank of the Waipawa River. Cheeseman included it in the Australian *P. mutica* [2] (the collections he cited in

the *Manual* also contain *Hymenochilus tanypodus*), but Brian Molloy recognised the differences, and *P. tristis* stands, the genus now been renamed *Hymenochilus tristis* (Colenso) D.L.Jones, M.A.Clem. & Molloy. Austral. Orchid Res. 4: 74 (2002).

Colenso's description

P. tristis, sp. nov.

Plant very small, rather dingy-looking, with a greyish-green appearance. Leaves small, 5–7 sub-rosulate, broadly ovate, obtuse or sub-acute, thickish, pale-green, deeply pitted, sub-concave, midrib stout, white and prominent below, margins closely and finely sub-crenulate, about ½ inch long, including petiole; petiole very broad and stout, 2–3 lines long, white, with three green veins. Scape stoutish, 2–2 ½ inches high, with 3–4 long acuminate bracts, clasping, adpressed, besides those under each pedicel. Flowers 2–3, on rather long pedicels, light-brownish striped with red, scarcely ¼ inch long, and nearly as broad, sub-second, slightly drooping, gaping; galea boat-shaped, much and somewhat abruptly arched with a short tip; petals broadly lanceolate or sub-rhomboidal, lower margin cilio-serrulate, tip acute; lower lip sub-orbicular, bifid nearly to middle, tips sub-acute, scarcely produced; labellum small, pale, highly irritable, broadly oblong, margin entire, very obtuse, with two minute crenulations at tip; appendage short, thickened and rounded at base, sub-erect, free, dark-green; column wings sub-quadrated, auricled, auricles very obtuse and rounded, their margins finely ciliate, not produced above, but

front upper angle thickened and dark-green; the lower and slender portion of the column broadest in the middle; stigma small, scarcely prominent. Ovary (immature) long, clavate; valves widely separate, with narrow, raised, green margins and round apices.

Hab. Open turfy spots, flat lands, south bank of the river Waipawa; 1885: Mr. H. Hill.

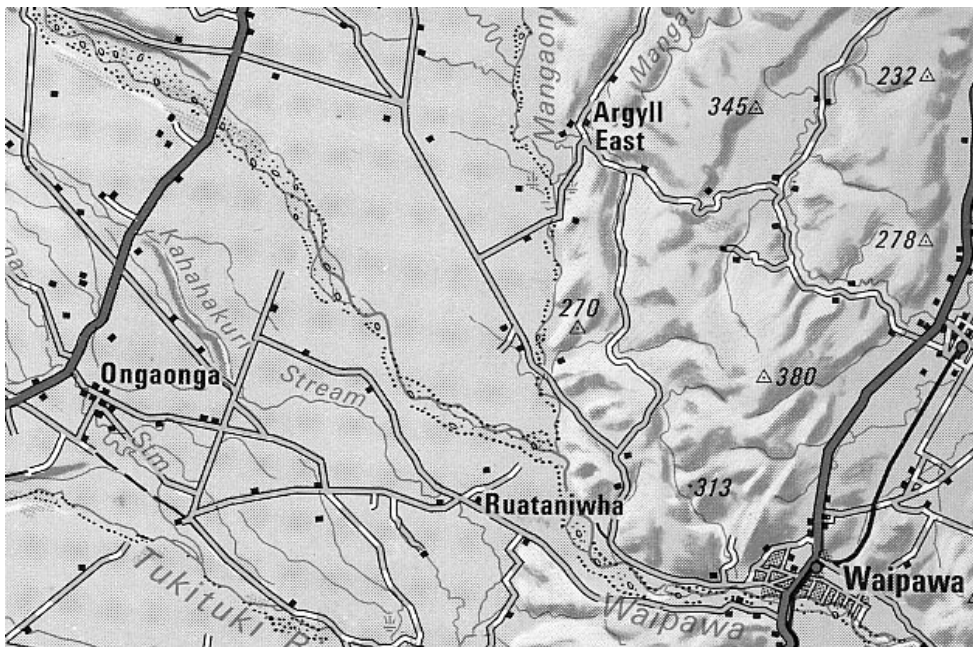
Obs. I. This is an interesting little species, from its differing so very widely from all its known New Zealand congeners: yet, in several particulars, allied to some of the small Australian species, as *P. mutica*, Br., and *P. aphylla*, Lindl. Its little labellum is very irritable, (like those of some other species of this genus,) closing sharply up against the column with a spring on being only slightly breathed on! and so remaining. Their root-leaves, like those of the allied Australian species above-noted, mostly wither before flowering.

II. In the spring of this year (1885), I received from Mr. Hill two very small plants about ¼ inch high, with their tips of greyish leaves scarcely emerging above the tuft of mosses among which they grew, yet, fortunately, with their subterranean stems and little tubers complete. These I carefully planted, and was rewarded in seeing them flower in November. Mr. Hill informs me that it was on a spot where he was resting, during his journey, that he casually found them (in the mosses). I presume, from the smallness of the plant, and its dull, uninviting appearance, it has long been overlooked.



Henry Thomas Hill was born in England, was a gifted educator, and succeeded Colenso as chief district school inspector in Hawke's Bay. He then embarked on a rigorous programme of school inspections. The diaries Hill kept

indicate that he had a very deliberate pattern of visiting to enable him to cover his 8,578



The braided Waipawa river winds its way down from the Ruahines, NE of Ongaonga, past Ruataniwha, and on through Waipawa township. Henry Hill would have ridden upstream.

square mile district on horseback twice each year. On these trips he had to spend nights either camped in the open or in substandard backblocks accommodation. "There are three aspects of life in this district – town, country, bush," he wrote in his annual report for 1880. He pointed out that "the modes of life, the surroundings, and the pursuits of the people" were different in the three environments, and that accordingly so were "the conceptions of the people." Makaretu school teacher William Howlett (who later collected for Colenso) won high praise from Henry Hill for his innovative curriculum, in which the children "learn by doing." The majority of his pupils were Scandinavians, wrestling with the English language. Hill was Napier Mayor 1917–19. A keen scientist, he had a particular interest in the volcanic plateau of the central North Island. He had 38 papers on various subjects published in the *Transactions*. He is thought to have been the first Pakeha to climb to the

crater of Mt Ruapehu. In retirement Henry Hill divided his time between his Napier home and the property he had purchased at Lake Taupo. I don't know whether Henry Hill Rd in Taupo was named for him. He collected the orchids *Bulbophyllum ichthyostomum* (1883), *Pterostylis tristis* (1885), *Orthoceras caput-serpentis* (1889), *Pterostylis speciosa* (1889) and *P. polyphylla* (1889) for Colenso.

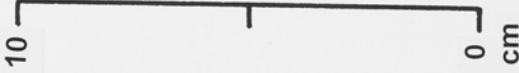
Colenso recorded receiving the plants from Hill, in a letter to David Balfour dated 1 December 1885,

"I don't know if I told you of a peculiar species Mr Hill found between Waipawa and Ongaonga, on the open dry plain among the low *Manuka* bushes; he brought away a big tuft of moss, & in it were 2 or 3 little grey leaves thus.

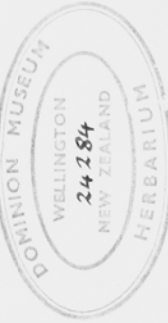


Or scarcely as big; I saw they were Orchids.

The type of *Pterostylis tristis* Col.
in Herb. Colenso at WELT



HERB. W. COLENZO



Pt. tristis
from Mr Hill, Decr
1885 - attached
to tubers - t.
planted

Pterostylis
mutica R. Br.
Waipawa River, N. B. ^{H.M.S.}
Type of *P. tristis*, Col.

Only one
189/26-4-87

Poison
HgC12



partly from their little tubers, and carefully planted them before I went inland in Oct & they grew fast; on my return they were $\frac{3}{4}$ in in height & about to flower (2 on one & 3 on tother) – flowers small thus;



At first I supposed a new genus; and more trouble. However on dissecting carefully one fl. I found it was a true Pterostylis, & allied to an Australian one, (or two), small & reddish ... and without tails. I was much pleased with this novelty." [3].

The Type specimen is in WELT

It is a packet of tiny plants, in seed—see opposite. In Colenso's handwriting is "Pt. tristis from Mr.Hill, Decr. 1885—attached to tubers—t. planted". The photograph is reproduced here with the permission of Te Papa Tongarewa, the Museum of New Zealand.

The Waipawa-Ongaonga road now

The road follows the south banks of the Waipawa as far as Ruataniwha, then turns away from the river toward Ongaonga across open farmland on old river flats. Hill was probably on his six-monthly school inspection, so would have been riding on as direct a route as possible, stopping to rest somewhere near the road, on the moss in the shade of manuka, on what was then "the open dry plain". Now the river is full of greywacke gravel from the Ruahines, on its way to the Napier beaches, with the inevitable lupins; and its environs are all grassed pasture today – no longer suitable habitat for *P. tristis*.

Footnote

I was not aware of any other records of *P. tristis* from the North Island, until Pat Enright showed me Tony Druce's plant list for the Ruahines: it includes *P. tristis*, the specimens collected midjanuary from limestone country near Ruahine Corner hut.

Some fit young orchidologist should go up and look there.

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1. Colenso W. A Description of some newly-discovered and rare Indigenous Plants: being a further Contribution towards making known the Botany of New Zealand. *Trans.N.Z.Inst.* 1885; 18: 271.
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3. Colenso W. Letter to David Balfour 1 December 1885. Original in Alexander Turnbull Library. Reproduced in *Colenso to Balfour*, NZNOG Historical Series 16.

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Far North Diary: Kevin Matthews.

4 NOVEMBER: KEVIN SENT the cover photograph. He noted, “Attached is a side view of *Calochilus herbaceus*, most pics printed are front on and give no idea of the overall structure. Note the furrow in the labellum ‘tongue’; also the green labellum hair topped with red.”

13 NOVEMBER: “THIS IS the scented *Thelymitra* ‘Ngatu’ in all its glory, pity about the bug hole at the base of the column (Fig.8). The lateral sepals are quite long. The anther cap is light green and the anther tip is pink, the acute tip is narrow, upright and reaches to just below the postanther lobe. Forward flowing cilia with column arms curving out slightly. No defined shoulder present on column. Postanther margin blunt. Pollen free and friable. The leaf looks like standard *T. pauciflora* – but I’ll go back and get a cross section etc. Peduncles have 5-8 flowers; stems upright but flowering tops weak and arching/falling over. I had to support the flower to get a decent photo. There are other *T. pauciflora* at another site at Lake Ngatu that have finished flowering and are more in line with the standard description, some having a very deep split right through the p.a. lobe.”

14 NOVEMBER: “I GOT a quarter-open *Thelymitra* ‘Ahipara’; I had to turn down the labellum to get a view of the fertile parts and was able to depict the anther peeping through (Fig.6). After studying several columns of *T. ‘Ahipara’* and ‘darkie’ it is quite clear to me that the differences between the two are consistent. *T. ‘darkie’* has no centre split in the post anther lobe: *T. ‘Ahipara’* does. With the two side by side there is no question that they are certainly distinct. You will also note from the front of *T. ‘Ahipara’* the p.a. centre forms a neater heptagon than *T. ‘darkie’* – that’s with an imaginary line drawn across the bottom. *T. ‘Ahipara’* flowers do not seem

to open generally but when mature the sepals ‘let go’ letting their tips part very slightly; this gap is enough to allow small bugs to enter and perhaps cross-pollinate/pollinate; the next day the flower wilts.”

1 DECEMBER: “THIS WAS my 3rd and only successful attempt to get this *Thelymitra aemula* var. in open flower (Fig.4, IFC). The colony of 6 presents the same i.e. narrow long sepals, pinky red crowned postanther with more upright calli (almost domed compared to the forward facing p.a of *T. aemula*). I found a similar *T. aemula* over at Matauri, east of Kaeo, however the sepals were ‘normal’.”

“I found this mainly large track side colony of *T. ‘rough leaf’* at 300m asl last year but they refused to open for me; however in the tropical heat yesterday there were many flowers open midafternoon (Fig.5,6).”

“How’s this for a freak—a stripeless *T. pulchella* two-in-one—or is that 3 anthers? (Fig.7).”

3 DECEMBER: “I GUESS you’re off to the AGM and I’ve probably missed you. I’m stuck here milking cows... apologies. I made some interesting discoveries yesterday when I took Bill Campbell to see *T. tholiformis* in the Herekino. Attached (Fig.10,11) is a robust *Caladenia* with close affinity to *C. aff chlorostyla*. This 2 flowered specimen stands at 260mm with a 180mm leaf. Long lateral sepals, long and rolled labellum tip. I found 3 plants, one trackside, the other 2 some distance away in bush with dappled light. Also a *Pterostylis*, *P. agathicola*-like in size, however with weaker structure and dissimilar bright red labellum... needs further follow up next year; it’s a reasonable sized colony but only one fresh flower remained. Bill has found a very similar colony very recently without the red labellum.”

5 DECEMBER: “PINKY *T. tholiformis*” (Fig.12) with triangular central lobe.

8



9

10



11



12



13 14

15 16



12 DECEMBER, "... IN RESPONSE to single leaf *Chiloglottis cornuta* finds down country, perhaps the term 'juvenile leaf' for the single leaf plant would be better described as a 'seedling leaf'. I was never sure/happy about the term juvenile leaf because I hadn't previously carried out enough study to follow them through to maturity." *He proves his point with these shots showing vegetatively-spread juvenile plants with two leaves, and a single-leaved seedling—Ed.*



22 DECEMBER: "YOU WILL be pleased to hear that I've found *Microtis arenaria* growing alongside the runway at the Kaitaia

Airport and also in the Herekino Range above Pukepoto."

28 DECEMBER: POPPED UP to the top of the Herekino Range to check out the highly variable *Orthoceras* this afternoon. The one in the picture is looking rather standard with rounder labellum and short floral bract (**Fig.13**). I tried to capture the recurved yellow labullum centre in the side view and the 2 basal labellar calli along with more prominent central yellow callus in the front view. The pix got a little overcooked with the reflective surface.... The few pix I've seen here and in Australia fail to show the inner flower so I'll keep trying for a photo that I'm happy with.

30 DECEMBER: THIS PIC (**FIG.14**) shows clearly the yellow callus bump with the lesser 2 basal calli either side; I've failed to notice (previously) the minute hairy surface of the postanther... and again will try for a better photos to display this feature.

2 MARCH 09: ATTACHED (**FIG.15,16**) is a wee pink *Thelymitra aemula*, a first for me. At the time I was hunting down *T. aff. ixioides* and *Calochilus* in the gumfields south of Ahipara. I'm not prepared to label it a freak as yet until I've completed a more thorough search; your average *T. aemula* is also present in the area however it's sparse and had finished flowering.

Can you tell me what the difference is between *T. aemula* and *T. media* is? some of the Aussie counterparts show a mirror image; allowing that I'm finding a fair bit of variation in our *T. aemula*. (*I cant tell the difference either—see Fig.19, a detail taken from www.retiredaussies.com—Ed.*)

I've noticed that the various photos of what is now called *T. pauciflora* in Aussie look far from our *T. aff. pauciflora* with the postanther spilt, never mind the other forms that turn up here. I also picked up an Aussie photo of an orange topped postanther *Thelymitra* that they label Copper Tops. This one looks very similar to the one I photographed up here at Sand Hills road.

Original papers

Yet another imbroglio

By Bruce Irwin, Tauranga.

Caladenia minor

I didn't know what an imbroglio was until I read Eric Scanlen's "The *Caladenia minor* imbroglio" in NOG Journal 72 p22. Do we really need imbroglios? Provided each new species is described accurately and adequately, imbroglios should not occur. But remember the difficulties Hooker and his associates faced. The plant they were dealing with may have been the first of its genus to be described. How could they know what characters would be important in their description, to ensure the plant in hand could not be confused with others of the genus, yet to be discovered?

While the early botanists struggled to catalogue the New Zealand flora, rules governing taxonomy and nomenclature evolved simultaneously. Some unworthy amendments to the rules of nomenclature were made to ensure that the first legitimate name applied to a plant was preserved. Scanlen's *Caladenia minor* imbroglio reveals that most specimens on its so-called "type" sheets were actually the plant we now know as *Caladenia alata*. However, that plant had already been legitimately described by Robert Brown: possibly not clearly enough, because Hooker in *Flora of Tasmania* Pt 2 published as *C. alata* an illustration of a quite different species showing four rows of laminal calli on the labellum. Incidentally, his illustration of *Caladenia carnea* in the same volume was certainly not of that species. Even the great Hooker made mistakes, in this case a bunch of them.

Strangely, in Australia, Brown's *C. alata* was misunderstood almost since its description in 1810, as was Hooker's *C. minor* in New Zealand since 1853. This confusion continued until 1987 when Australians at last recognised that the plant Brown described as

C. alata, was the plant which NZ botanists at that time called *C. exigua*. How wonderful! names could settle down. However, that did not happen. The *C. minor* imbroglio "blossomed".

Misguided attempts were made to perpetuate the name *C. minor*. *Caladenia chlorostyla* thought to be present on Hooker's so-called "type" sheets was promoted as *C. minor*. How illogical! About the only character likely to be of use in Hooker's description of *C. minor* was that it was pink. *C. chlorostyla* is green, in leaf, stem, ovary and tepals.

The name *C. minor* was redundant and should have been regarded as invalid, thus allowing those specimens other than *C. alata* on Hooker's sheets to be named and described in due course. No, we don't need imbroglios!

Prasophyllum colensoi

The imbroglio I am about to introduce concerns *Prasophyllum colensoi* J.D. Hook *Fl. N.Z.* 1, 1853, 241 Type Northern and Middle Islands, common, East Coast and interior *W. Colenso*; Canterbury *D. Lyall*. No holotype was selected, but according to M. Clements, syntypes are held at Kew (possibly including specimens from both Colenso and Lyall). Hopefully those syntypes are all of a single species, but is it possible to be sure?

I don't think so. Flowers of most *Prasophyllum* species are so small and so alike, that I would be reluctant to attempt identification from pressed specimens. Fresh flowers are quite difficult enough.

For many years it was suspected that *P. colensoi* was identical with the Australian *P. alpinum*, so in 1996 David Jones published "Resolution of the *Prasophyllum alpinum* complex in mainland south-eastern Australia,

Tasmania and New Zealand” [Muelleria 9: 51-62 (1996)]. In that paper I was informed that *P. colensoi* could be distinguished from *P. alpinum* by the column wings being as long or longer than the anther. How distressing! All drawings I had made of *P. colensoi* show a very short column wing barely half the length of the column. Had I been wrong in my identification of the plant drawn? No, not likely. One of these drawings had been prepared to illustrate *Flora II*, and Dr Lucy Moore had approved it. Also, Hooker’s original description of *P. colensoi* in *Flora Novae Zelandiae* stated, “Column very short, with very low 2-lobed lateral pieces”. In no way does that suggest lateral lobes equal anther.

In searching for an explanation, I found that David Jones’s illustration of *P. colensoi* in the paper was of a plant from Lake Lyndon in Canterbury, one of the ten mentioned under the heading SPECIMENS EXAMINED. It may have been the only specimen received in fresh flower, in which case it would have influenced Jones’s description of *P. colensoi*.

Since then I have examined carefully all *Prasophyllum* flowers found, always finding that the column wing was barely half anther height, until Anne Fraser drew my attention to a purple-stemmed *Prasophyllum* from the up-mountain road above Ohakune. All flowers on this plant had column wings almost as long as the anther and the tepals all carried quite prominent purplish streaks along their midlines. Flowers of *P. colensoi* (as I understand it) may vary from yellowish green to reddish or purplish green but *all* parts of the plant, leaf, stem, flower and ovary are one unvarying colour. We coined the tagname *Prasophyllum*

“A” for the *P. colensoi* look-alike, later finding that the striking dark purplish stem was not constant and that the plant colours varied from yellow green to reddish green to red and almost to purplish black. Some even mimic *P. colensoi*, though the purplish striping along tepal midlines seems constant.

Having realised the distinctiveness of *Prasophyllum* “A” we hurried down to Middle Road just south of Horopito where we had observed a taller *Prasophyllum* on which flowers were

somewhat bi-coloured, a little larger and with longer slimmer tepals. This plant showed a minor structural difference. The floral bracts were tapered, not truncated as in *Prasophyllum* “A” and *P. colensoi* and the plant favoured very wet conditions even growing in shallow permanent water. This form which we tagnamed *Prasophyllum* “B” has been found at Pureora and near Tauranga. It may be widespread. The Lake Lyndon plant sent to Jones may be *Prasophyllum* “A” or “B” or even a third form.

I have just returned from the NOG weekend at Camp Wakarara in the eastern foothills of the Ruahine range (Colenso’s country). I hoped that we might find *Prasophyllum* “A” or “B” as well as *P. colensoi* during the weekend. On the Saturday evening (6 Dec 08), Mary Watson told me she had seen a purple-stemmed *Prasophyllum* high on a minor peak, beyond the point I had reached. Her husband was less sure the stem was purple, but showed me digital images in his camera. Stems were barely evident but flowers showed purplish streaking. They looked like *Prasophyllum* “A” and probably were. The trip planned for the next morning was allegedly on a short almost flat track beyond the Waipawa river. We found the track neither short nor flattish, but to my delight we did find *Prasophyllum* “A” in good numbers. Most had deep purple stems, just as above Ohakune, but a few smaller plants were green-stemmed. If *P. colensoi* was present I didn’t see it, though at first I thought the green stemmed plant might be it. Where else will these unnamed *Prasophylla* be found? and what other forms may await discovery in South Island mountains?

Had David Jones suspected that one or more *Prasophyllum colensoi* look-alikes existed, his “Resolution of the *Prasophyllum alpinum* complex...” would have been just that – a resolution rather than a muddying of the waters.

Now, I make a plea to some keen young botanist to determine what *P. colensoi* look-alikes exist throughout New Zealand, map their distributions, then publish valid descriptions.

Far North *Spiranthes*

By Kevin Matthews, Kaitaia

Having turned up three new sites last year for the elusive Far North *Spiranthes* and given that Bill Campbell and I had seen lots of leaf earlier in the season, I had high hopes of seeing lots of flowering Far North Slipper *Spiranthes*, tagged *S.* “Motutangi”. It is by no means easy to spot hiding itself in amongst rush in ancient Kauri wetland (below).



But on a revisit to Waipapakauri wetland on 20 Jan to see the *Spiranthes*, I was surprised to find that out of the many dozens of juvenile plants seen last season and this past November, I could only find three plants and these were in flower (**Fig.1, IFC**). One had all but finished which would point to its having started flowering in December; last year this colony was still flowering on the 1st of March. It would seem the very wet winter and high water levels may have affected plant growth. I’m hoping the leaf had died off whilst leaving the slender, slightly tuberous, fleshy roots still viable.

At Lake Ohia on 31 January I took a long walk in tropical conditions and the result was just as disappointing, given the good showing Bill Campbell had seen in early December.

Brian Molloy had first described *Spiranthes* “Motutangi” as having a slipper labellum in the mid 1970s. This *Spiranthes* plant was collected unknowingly by the late Lucy Moore in soil along with a collection of *Cryptostylis subulata*; the *Spiranthes* subsequently sprouted and flowered in Christchurch [Brian Molloy: personal communication].

NB The late Digby Graham discovered *C. subulata* in 1974? at Motutangi located south of Mt Camel; this was the first record in NZ.

Spiranthes was also collected by the late Doug Macrae at Motutangi sometime in the mid 1980s and he was able to send a voucher to Brian Molloy who confirmed it as *S.* “Motutangi” [NZNOG Newsletter 22 June 1987].

I have also sent vouchers to Brian Molloy from Sweetwater and he also equates these with *S.* “Motutangi”. Peter De Lange also found this slipper form of *Spiranthes* at Lake Ohia in 1996 and knew it as *S.* “Motutangi”.

The five flowering *Spiranthes* that I’ve found in behind Motutangi have an open ended labellum, these may be yet another variation. The slipper labellum of the Sweetwater, Waipapakauri and Lake Ohia *Spiranthes* remains intact even after the flower has passed maturity.

It will be worth another trip up to Motutangi it see how the *Spiranthes* colony with the open ended labellum (**Fig.2,3**) is faring; this will probably mean looking for matured flowers this late in the season. I believe the site where the late Lucy Moore collected the late Digby Graham’s *Cryptostylis subulata* was in another area and most likely on private land, it will be worth a visit also, that’s if it’s still intact after recent drainage works!

Interestingly the Waipapakauri *Spiranthes* site also has *Cryptostylis subulata* present, making this now the most southerly site for *C. subulata* known – previously it was Lake Ohia.

I’ll continue to follow this rather rare *Spiranthes* “Motutangi” with interest.

(Just an added note – all the *Spiranthes* seen up here to date have a clockwise helix).

Earliest fossil *Dendrobium* and *Earina* from Early Miocene New Zealand

by John G. Conran¹, Jennifer M. Bannister² and Daphne E. Lee³

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The orchids are the largest family of flowering plants with some 25,000 species, but paradoxically, virtually no fossil record [1]. There are several ambiguous vegetative impressions from the Eocene [2], and an alleged Miocene fossil flower impression [3], but the only unequivocal organic fossil is pollinia preserved on a bee in amber from the Early to Middle Miocene Caribbean [4]. Molecular phylogenies suggest divergence of Orchidaceae from the Asparagalean “lilies” between the Early and Late Cretaceous (c. 110–80 Ma) [4, 5], but the lack of good fossils makes accurate dating difficult.

Several monocot families have been recorded as macrofossils from New Zealand [6], but there are no orchid fossils reported from the Southern Hemisphere. Early Miocene plant fossils from maar lake sediments near Middlemarch, South Island indicate a diverse subtropical rainforest [7], containing numerous ferns, conifers, angiosperm leaves, flowers, fruits, seeds and including leaves of at least 10 different monocots. Some of these leaves were found to represent two new species of extant New Zealand orchid genera from subfamily Epidendroideae: *Earina fouldenensis* and *Dendrobium winikaphyllum*, the latter so named because it is apparently close to the sometimes segregated genus *Winika* [8]. This makes them the oldest definite organically-preserved orchid fossils, the first records for the largely epiphytic subfamily Epidendroideae, as well as the first fossil orchids for the Southern Hemisphere

The new orchid fossils are close matches on leaf form and cuticle anatomy to their modern NZ and Australasian relatives in *Dendrobium* (Fig.17) and *Earina* (Fig.18). In particular,

the shape of the stomata and presence of 2-celled papillae on the *D. winikaphyllum* help to place it into the Australasian clade (lineage) within the genus. Similarly, the very distinctive raised ring of cells surrounding the stomata in the *E. fouldenensis* places it closest to that genus. The leaf of *E. fouldenensis* is wider than either living New Zealand species and has more secondary veins, but the width is well within the size ranges for the Pacific Island *Earina* species [9].

The specimens were collected from diatomaceous sediments deposited originally in a deep maar lake created by explosive volcanic activity in the Early Miocene (23–20 Ma) [10]. The ecology of extant New Zealand *Dendrobium* and *Earina* species makes them ideal candidates for preservation in such an environment. Both orchids are abundant in a wide range of habitats, including as epiphytes on exposed branch ends and lithophytes around freshwater lakes. Their leaves have thick cuticles, disarticulate readily from the stems at senescence, and occur in modern lake bed sediments some distance from the shore, indicating the ability to survive transport and become fossilised.

The endemic New Zealand *D. cunninghamii* (= *Winika cunninghamii*) sits at the base of the Australasian *Dendrobium* alliance [11]. The presence of *Earina* and a *Winika*-like *Dendrobium* in Early Miocene New Zealand indicates early radiation by these genera into the now largely submerged subcontinent of Zealandia [12] and helps to place the diversification of the crown Epidendroideae at least as early as the Middle Eocene c. 40 Ma. When the extant distributions of *Earina* and the members of *Dendrobium* related to *D. cun-*

ninghamii are examined, all are found to be more or less restricted to former continental fragments of Zealandia or Australia, with local endemism in New Caledonia, Vanuatu and New Zealand, although *E. valida* also extends to oceanically-derived Samoa [9] although unpublished evidence suggests that *Earina* is a New Zealand endemic, with the Pacific Island species a separate genus [13].

The restriction of most of the *Earina* complex (which is an early segregate from the large and diverse Vandaeae/Cymbideae lineage), as well as the basally divergent Australasian *Dendrobium* lineages (= *Winika* and *Cannaeorchis*) to New Zealand, New Caledonia and continentally-derived Pacific Islands indicates an early radiation into Zealandia prior to this subcontinent becoming largely submerged during the middle Cenozoic [12]. Nevertheless, the presence of a diverse and complex subtropical rainforest with epiphytic orchids surrounding a freshwater lake in Early Miocene Otago supports the assertion that there was land in the New Zealand region throughout the Cenozoic [14], with theories arguing for post-drowning re-colonization by New Zealand endemic taxa [15, 16] being much less plausible.

The position of *Earina* (as part of Agrostophyllinae) relative to Vandaeae/Cymbideae and Epidendreae, as well as the relationships within and between *Dendrobium* lineages are still unresolved making their origins and biogeography areas for future study. There is also a need to determine the relationship between New Zealand and Pacific *Earina*, as well as between the relatives of *D. cunninghamii*, and exploration of their apparently low rates of dispersal away from continentally-derived land masses. Nevertheless, the presence of *Dendrobium* and *Earina* in Early Miocene New Zealand and their present distributions suggest early diversification and radiation, leading to remnant distribution patterns stemming from the subsidence of previously more extensive land masses.

Acknowledgements

The landowners, Mr N. and Mrs Y. McRae, and Dr A. Walker of Featherston Resources are thanked for

kindly allowing us access to the site. The Departments of Geology and Botany, University of Otago and the School of Earth and Environmental Sciences, The University of Adelaide are thanked for resources to undertake this research. Funds for this study were provided by an Otago Research Grant and a Fleming Award from the Royal Society of New Zealand. Jon Lindqvist, Ian Raine and Liz Kennedy provided valuable field assistance.

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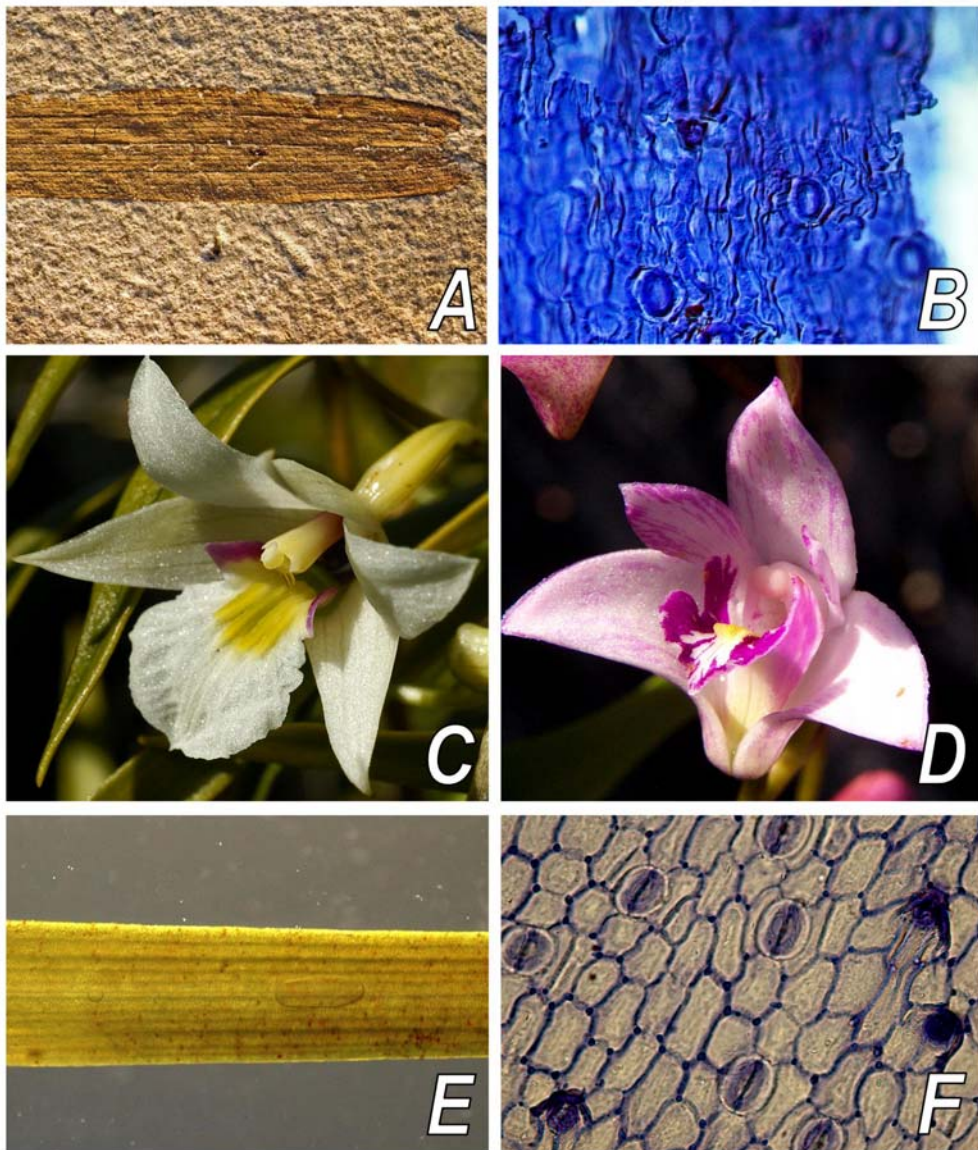


Fig. 17. *Dendrobium winikaphyllum* fossil leaf (A) and cuticle (B), with modern *D. (Winika) cunninghamii* flower (C), leaf (E) and cuticle (F) and *D. kingianum* from the Australasian *Dendrobium* alliance (flower, D) for comparison.
 Photos A–B, D–F: J Conran, C: Ian St George, with thanks.

See pages 17-21.

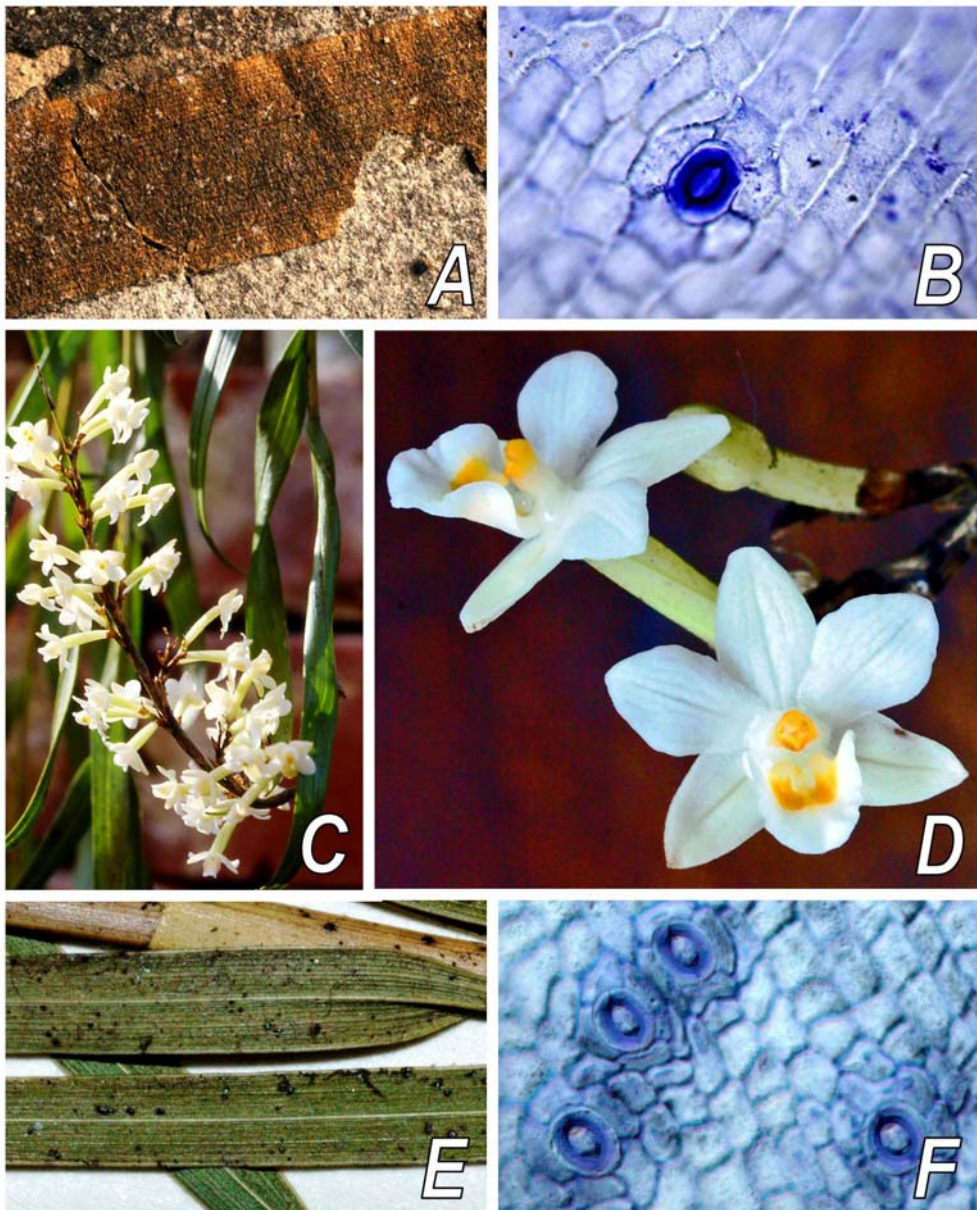


Fig. 18. *Earina foulidenensis* fossil leaf (A) and cuticle (B), with modern *E. autumnalis* plant (C), flower (D), cuticle (F) and *E. mucronata* leaf (E) for comparison. Photos A–B, E–F: J Conran, C–D: Ian St George, with thanks. See pages 17-21.

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KEVIN MATTHEWS EMAILED, “I realised I had not forwarded these pix to you; I’m sure you will find them of interest. This **unidentified fly** visited all sixty plus flowers and was so compelled that it never seemed to bother about the a 100mm macro lens following its every move. I didn’t think these *Microtis* offered very much in the way of nectar so perhaps the attractant is a pheromone to help with pollination? If you look closely you can see pollen attached to the hairs between the eyes.” – and its proboscis seeking nectar from the basal calli? – Ed.



Notes etc

OBIT. **DOREEN ABRAHAM.** We were sad to learn of Doreen's death—she was a stalwart at Iwitahi meetings.

DAVID LANG WROTE from Sussex, “I hope you have had a better year than we have had in UK. The weather has been awful and the orchid season was dismal. Many woodland species failed to appear at all, and everything else was below standard!.... I spent several weeks on Colonsay and Barra—islands in the Hebrides off the northwest coast of Scotland. I met up with Scottish botanist colleagues to study *Spiranthes romanzoffiana*, which occur in the Hebrides and nowhere else in Europe, with main distribution across North America. There has been argument for decades that there were two species in UK, despite the taxonomists lumping, and recent DNA study has agreed, so I wanted to see at first hand. I was lucky to find plenty in both populations, and feel they merit sub-specific rank, but not total separation. It was all very enjoyable, and the locals friendly and helpful.”

GRAEME JANE SENT the extraordinary photograph of a forest of *Corybas cheesemanii* fruiting peduncles, taken at Farewell Spit (Fig.23).

RUTH RENNER EMAILED from Diggers Valley, “Your website is delightful to view. I found it when searching for orchids after I stumbled upon this one (Figs.24,25), on 11 November, which I can't specifically match to any of those shown in the website photographs. It, and the Onion Orchid growing next to it, are growing in the cracks in the trunk of a fallen, now dead, Puriri. We are about 10km southwest of Kaitaia, near the Herekino Forest. I've not seen any of these orchids before and I suspect these plants are new to this location, since the tree is a regular climbing playground for visiting children and

we hadn't noticed any plants in our way before I climbed up to see what some Kotare were up to in an epiphyte growing further along the tree. Are you able to identify it from these pictures please? The plants are now fruiting.” *I wasn't able to say what it is, but Eric Scanlen identified it as **Thelymitra “sansfimbria”**, which Kevin Matthews discovered recently – Ed.*

JEREMY ROLFE EMAILED Pat Enright (14 Dec 08), “I went for a walk up the **ridge track behind the Rimutaka tearooms** this morning. Plenty of *Thelymitra hatchii*, *T. pulchella*, and *T. longifolia*, as you noted last weekend, but it was cloudy and none were open. I also saw a few *T. pauciflora* long since finished flowering. I got some decent pics of *Pterostylis montana* (Fig.26) about halfway up the ascent to the *Pimelea gnidia* site on the high point north of Turnbull....”

MIKE LUSK SENT the photograph (Fig.27) of a **broad-leaved *Pterostylis*** from the same track as his photographs of *P. trifolia* (aka *venosa*). He wondered if it might be a hybrid between the latter and another species. *Could be—but note the broad leaves of Jeremy Rolfe's P. montana* (Fig.26)—Ed.

GARY LITTLE WROTE, “As Asta and I live in the back-blocks of the Herekino region and rely mainly on firewood for our hot water and heating, regular excursions have to be made into the surrounding bush to ensure our living standards don't cool off.

“While we were supplementing our wood supply a few months ago, I selected a dead tree for firewood and was preparing to reduce it to manageable chunks when I noticed a good-looking specimen of *Drymoanthus adversus* on the trunk. Not wanting to have the demise of this plant on my conscience, I removed it, along with some surrounding moss, and ultimately

'replanted' it under the bark of a totara stump just outside our garage door.

"This enabled me to keep an eye on its progress. Things went well, and as the flowering season got closer, the little plant began to do its thing and buds appeared and in due course, a couple of groups of flowers began to bloom. When everything appeared to be photogenically ready, I started taking images of these flowers. As you are probably aware, *D. adversus* produces really small flowers. I gauge that these ones were only about 4mm across, so you can understand my amazement when I examined the images on the computer and found small (very small) ant-like creatures inside the flowers.

"I have checked our literature, but as at the time of writing, have not identified these little critters. They have a distinctive striped abdomen, like a bee.

"However, the important point to note, was whether or not these fellas were active in the pollination process of the *D. adversus*. They appeared to be placing their attention mainly at the base of the frontal lobes of the labellum. One of the images showed two ants present at the same time in one flower. Another flower seemed to contain a dead ant, but there does not appear to be any sign of pollen on any of the ants.

"So, apart from getting close and visually intimate with these flora and fauna, I am unable to shed any light on this potential pollinating process for *D. adversus*. Maybe next year I may get another chance to get personal again." **Fig.35** shows two ants in one flower, and another flower whose anther cap has been dislodged, exposing the pollinia and their stipe—Ed.

BANDORE: AN OBSOLETE musical instrument like a guitar. Also, *bandora*. Also called *pandora*, *pandore*, *pandoura*, *pandure*. Earlier *bandurion* < Sp *bandurria* < L *pandūra* < Gk *pandoûra* three-stringed musical instrument. From the Latin *pandura* comes the epithet *pandurate* = fiddle-shaped, as in the leaf of *Nematoceras panduratum*, a misnamed *N. rivulare* with *pandurate* leaf.

PAT ENRIGHT SENT a candidate for our "Whats this then?" department: a curious pale *Pterostylis* with a very upright dorsal sepal (**Fig.28**): features of *P. montana* and *P. cardiostigma*? (the stigma was long and flat, as in *P. montana sensu* Hatch). *Postsript: a few weeks later I was browsing old photos and came across this one of mine: now why didn't I make a note of where I saw that? - Ed.* ▼



PAT ALSO SENT (16Jan09) a very late, wide-leaved, small-flowered *Pterostylis* aff. *graminea* from Mt Surf in the Aorangi SFP region (**Fig.29**). Brian Molloy kindly identified it as similar, if not identical to *P. "sphaenum"*.

THE JULY 2009 issue of *Muelleria* promises a paper by JA Jeanes entitled, "Resolution of the *Thelymitra variegata* ... complex of southern Australia and New Zealand". That complex includes, of course, *Thelymitra matthewsii*. We'll anticipate that eagerly.

GEORGINA UPSON EMAILED (18Jan09), “North West Nelson has provided its share of excitement this season.

“A healthy population of *Linguella puberula* was found over a sizeable area in northern Golden Bay when the plants I discovered last year were surveyed. Mark Moorhouse spent days searching this rather inhospitable terrain so it was pleasing to have such a result. Around 500 plants were seen.

“*Thelymitra aemula* can no longer claim to be a Kauri zone plant with it being this season’s Golden Bay surprise. Found near Takaka, the tall plant with loosely closed flowers seemed a little too blue to be *Thelymitra* aff. *pauciflora*. I reached up on a high bank to try to ease open the flower but gave up deciding that it must be *T.* aff. *pauciflora* after all. Not so for the next group of plants that I found! (Fig.30).

“On the Nelson side of “the hill” in the Baton area, an “aha” moment saw me sending specimens of a *Nematoceras* I had been puzzling over for several years, to Brian Molloy. They seemed to match the description of *Nematoceras sulcatum*. At present it stands as *Nematoceras* aff. *sulcatum* with a reply from Mark Clements pending. Brian Molloy states that Chatham Island plants are very like these except they are larger and lack the reddish/purple colouration which is a striking feature of the Baton plants. This seems to be the first mainland find but perhaps others have found plants like this elsewhere (Fig.31-33).

“In the same vicinity are to be found plants resembling *Nematoceras* “Pollok”. There were only two flowers that I saw among what otherwise appeared to be a *Nematoceras* “whiskers” colony which had more or less finished flowering. These need further study (Fig.34).

“I investigated the question of “fur” on the labellums of *Pterostylis venosa* to find that with 20x magnification the basal 1/3 was slightly papillose although this could be merely cell structure. The apical 2/3 is thickly covered in transparent needle tipped teeth facing the labellum base. These are minute, arranged in the manner of a wood rasp, and

cover the entire upper surface. This may serve the purpose of encouraging small insects to travel down the labellum into the flower, or may hold and fling an insect into the column area when the labellum is triggered. It is these teeth that give the labellum a velvety appearance when light is reflected off them.”

GRAHAM DICKSON SENT Eric Scanlon photos of *Hymenochilus tristis* and *H. tanypodus* (Figs 20,21) growing within a metre of each other by the Old Dunstan Road west of Middlemarch at altitude 1005m, on or about 9 January. He and others including member Jan Kelly, had their noses to the ground at the exact site where Graham found lots of *Stegostyla alpina* last year [J109:39] but there was no sign of it this year, just these tiny *Tanypodus* instead, thriving amongst the invasive weed, *Hieracium pilosella*.

GEORGINA UPSON EMAILED, “The notes in Kevin Matthews Far North Diary concerning the putative *Thelymitra* aff. *brevifolia*, Figs. 26, 27 J111 were of great interest to me. The photographs appear to show flowers that would seem to fit the description of *Thelymitra brevifolia* with the exception that the column arms appear to be sharply bent upwards. The description in David Jones’s *Native Orchids of Australia* seems to stress that the column arms are gently curved. The folded leaf is also at odds with David Jones description of a flat leaf. I can therefore understand the use you make of the term affiliated.

“This last season I found plants that also seemed to match the *Thelymitra brevifolia* description in Abel Tasman National Park, Fig.22, but then balked when confronted with a folded leaf. These plants are growing in sandy clay soils in a relatively dry, baking trackside situation. They are similar to *Thelymitra* aff. *pauciflora* and very reluctant to open even on a hot day. Due to this similarity I had planned to revisit the site this coming season for further study however this may stimulate debate on the matter meanwhile.



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“Leaf descriptions of *Thelymitra* have caused me considerable difficulty with them frequently not matching the species the flowers indicate. I have almost reached the point of disregarding them except in the broadest sense. Do others have the same problems?”

GORDON SYLVESTER EMAILED, “This shot (of *Winika*, Fig.36) from my place on Sunday 8 Feb”. *Interesting 4 labellar ridges as in “Winika lessonii” – but wait! isn’t that a tiny 5th midline ridge?* – Ed.

GORDON EMAILED AGAIN (17 Feb 09), “About 3 weeks ago I went looking for the *Corunastylis* on my property. I could not locate any this season, and presumed because there was such a good display last year this was a down year for the genus. On 7 Feb I went over to the same sites to have another look and to my surprise noted not only were the plants showing but were in seed. I was a little disappointed to say the least. I went back on 8 Feb and finally located one plant still extending. I marked the fertilised *Corunastylis* as a locator for a visit the next weekend. On Sat 14 Feb I returned to my marked site and the plant was looking like it had been fertilised also. I took a couple of shots to record this and noted that the plant in the viewfinder was not the plant I thought I was looking at. Flowers were open (Fig.38)!

“As it was early evening, to escape the heat of the day I shot several photos and hightailed out to civilization. The gnats were in fine form.

“After looking at my shots I decided to go back in on Sunday 15th and have another look at the plant in early morning light. It was at this junction I noted several differences between the two stems and flower heads. It set to wondering what if any is the agency for fertilisation, Gnats would seem to be the perfect size but I have no other evidence for that comment. Is the earlier plant self fertile (I have never seen that particular variation open)? There are fewer flowers on the “self fertile” species. Hmm more work for next season. I took several more shots and returned home.”

REBECCA BOWATER EMAILED (16 Feb 09), “I found this (Fig.37) in Golden Bay last week and was checking if it is *Gastrodia sesamoides* egg or *G. cunninghamii*?” – *I think it’s Gastrodia “long column”* – Ed.

21 TO 22 FEBRUARY SAW YOUR EDITOR & son climbing the unkind, rough, cynically-named “Gentle Annie” track to the Powell hut near the summit of Mt Holdsworth in the Tararuas. It is the best year I have seen for *Earina autumnalis*: the damp misty air was filled with its scent well before we spotted the plants. *Winika* was almost over, as was *Orthoceras*. Scads of *Thelymitra cyanea* seed capsules witnessed the great season just past; and a small colony of fruiting *Pterostylis* aff. *areolata* (the same one we saw in the Ruahines in December) was trackside near the hut. The nor’westers were too strong for us to stay upright along the summit ridge, so we retreated in timid discretion back down, legs shrieking in protest.

“AND TO THE QUESTION, – *What constitutes a really distinct genus – or, species?* I cannot give a satisfactory answer. I know not of any certain rule; and I find the first Botanists of the day opposing one another in their speculations; while not a few are engaged in laboriously undoing what their predecessors or compeers have toiled to rear.” (Colenso to JD Hooker 28 Aug 1854).

ALVA GOSLING SENT INFORMATION about a delightful and informative new publication from the Marie Selby Botanical Gardens (Cornell University Press), *Illustrated dictionary of orchid genera* by Peggy Alrich & others. Alva is one of those acknowledged as helping to compile this vast project.

Diary ahead now!
6th ANOS Conference & Show
25-30 August 2010.
Venue: Club Panthers-Newcastle



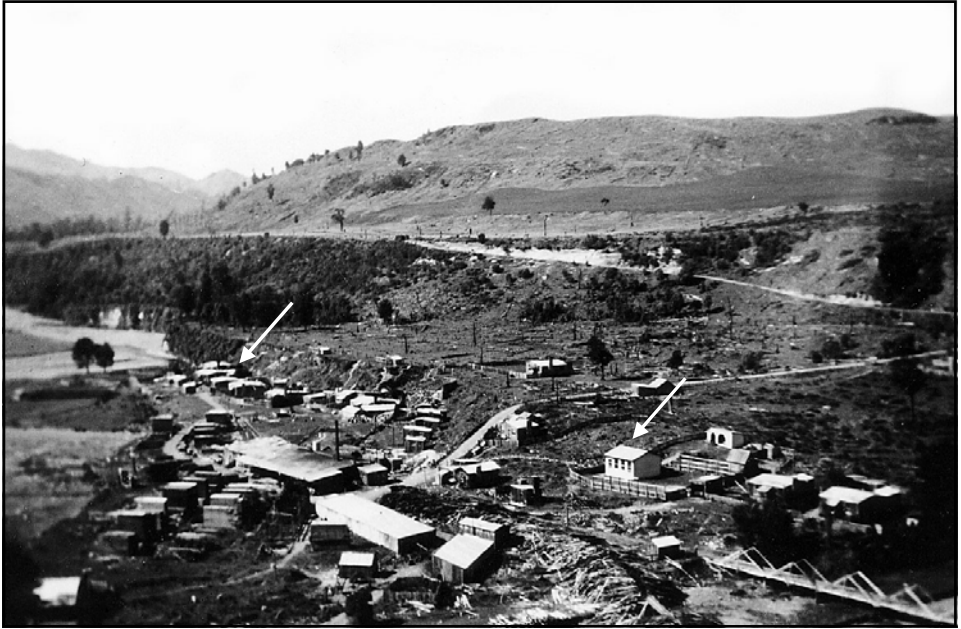
ON THE WAY FROM TE PAKI TO THE BEACH.

A SMALL VOLUME in the Auckland Museum library caught my eye: it was "*I. Romance of the Flora of New Zealand, and II. Farthest North in New Zealand – A Memorable Tour*" by Sir George Fenwick, published in 1922. Fenwick (1847-1929) had been editor of the *Otago Daily Times* 1880-1909; he "wrote widely, his articles and pamphlets reflecting his enthusiasm for tramping, natural history and travel" (George Griffiths, in *Dictionary of NZ biography*). There is a great photograph (above) of the car at Te Paki stream, accompanied by this paragraph, "After a magnificent run of an hour and a half the 60 miles of beach were traversed and Scott's Point reached. Here the car was turned back, as we had over-run our distance by a few miles. We were met at the mouth of a sandy-bottomed creek by a messenger from Te Paki station, and conducted up the wide bed of the creek and over some scrub-covered country to the homestead,

where a most cordial welcome was given us by the owner, Mr. R. Keene, of Wellington, and the manager and his wife, Mr. and Mrs. West Hill."

EWEN CAMERON IS LOOKING for **photographs of insects visiting orchids** for a forthcoming exhibition at the Auckland Museum. If you would be willing to lend him your photographs he would be grateful and you would be a famous exhibitor.

NZNOG MEMBER ALVA GOSLING was sad to have missed the Wakarara field trip, since "... they did try to educate me at Makaroro School. On p29 is a photo taken in 1938 of the Gardner & Yeoman sawmill site on the banks of the Makaroro river. Our house was the second to last at a position midway down the left side of the photo, to the right of two native trees on the river bank



(arrow - Ed). The old school is the four window building (arrow - Ed), just above the entrance to the bridge across the river—now washed away.”

NZNOG CHAIR DAVID MCCONACHIE wrote (19 Feb 09) to Michael Duncan, President of ANOS Victoria, “I am writing to you on behalf of the Committee and members of the New Zealand Native Orchid Group to extend our sympathies and condolences to you and all the members of ANOS Victorian Group who have suffered a loss as a result of **the recent bushfires**. The enormity of what has happened is difficult to comprehend and while the loss of plants and property is extremely sad, the loss of life is a tragedy.”

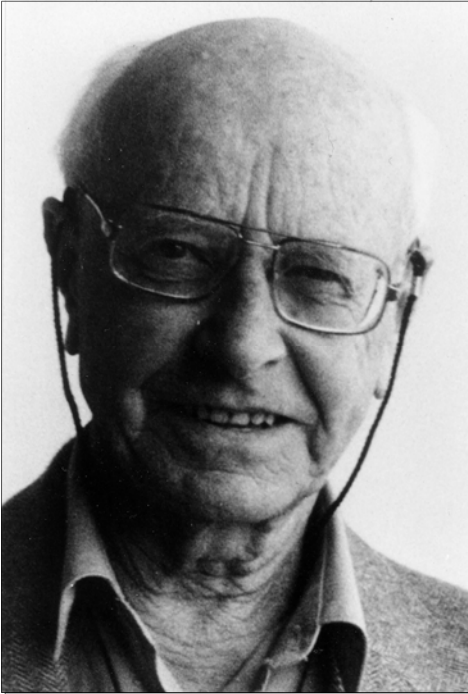
Mike Duncan replied, “Thanks to you and all our friends in the NZNOG for your kind thoughts at this difficult time. The recent fires have been unprecedented and had a huge impact on our lives. Due to the enormous scale of the disaster, it seems that most people in Melbourne know someone who has lost a

home or friend / relative in the fire. Unfortunately it appears that a few ANOS Victoria members are amongst those killed in the fire, while others have lost their homes. Conversely, a few members were able to successfully defend their homes against the flames. The support received from all our friends in the orchid world has been greatly appreciated.”

Western Australian Orchids and Orchids of South Australia

One DVD: editor R. Bates

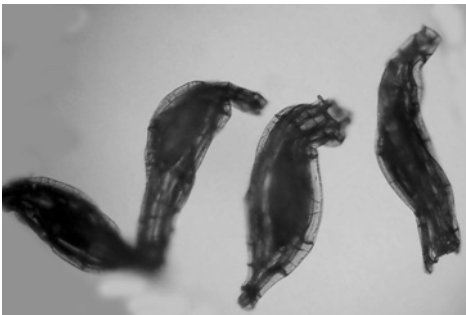
Through the generosity of the Native Orchid Society of South Australia (NOSSA) NZNOG members pay only the cost, plus \$5 to NOSSA: send \$15 for the DVD of these two (cheque made out to NZNOG) to Ian St George, 22 Orchard St, Wadestown, Wellington.



The late Dan Hatch at 80.

To date \$701 has been donated for the Hatch Medal. Thanks to C.Hubbert, Sandra Jones, Sue Morris, Melanie Newhook, Bill Campbell and Eric Scanlen for their generosity.

Kevin Matthews emailed (5 March), "Attached are the 'seahorse'-like seeds of *Orthoceras novae-zelandiae* (below). I suggest the wing edge is an aid to help wind dispersal. The pic was taken at 100x plus the magnification through the digicam."



The seeds of *Orthoceras*

Colenso to Balfour

Orchid extracts from William Colenso's letters to his collector David Balfour of Glenross.

16 in the NZNOG's *Historical Series*.

Available: \$10 in NZ, from Brian Tyler, bandj.tyler@xtra.co.nz.

And

Orchids in Black & White

Fifty important monochrome halfplate photographs of NZ native orchids

by HB Matthews.

17 in the NZNOG's *Historical Series*.

Available: \$22 in NZ, from Brian Tyler, bandj.tyler@xtra.co.nz.

NZ orchids on disk

The NZNOG is making information on NZ orchids available on CD or DVD.

Now available are

Bruce Irwin's drawings

(one CD),

NZNOG Historical Series

(Nos. 1-15 on one DVD), and

The New Zealand orchids

(republishing the 1999 *Nature guide* and the 2005 *Field guide* on one CD)

Price: \$20 for *Irwin*, \$10 each for *Historical Series* and *NZ orchids*, from Brian Tyler 4 Byrd St Levin bandj.tyler@xtra.co.nz.

Arthurs Pass Odyssey 4-10 January 2010

In Journal 111 we proposed a trip to explore the orchid flora of the Alpine Highway. I am pleased to report that we have nine confirmed participants: four from the North Island and five from the South. We have room for another six.

I have been in contact with Arthurs Pass Outdoor Education Centre and have obtained a pencil booking for the week 4-10 Jan 2010. Because of the distance the N.I. people have to travel I have arranged with the Centre for a 6 day period of occupation. They are comfortable about people staying for a shorter period but have not indicated any price differences. I intend to visit and have a face to face talk with the manager.

One of our members has kindly agreed to look at transport from Christchurch to the site. There are two possibilities: minivans or a minibus dependent on the licences required. The locals will no doubt bring their own transport, and may be willing to share some expenses at the site, travelwise: some of the proposed sites are up to 30 km away, but I am sure there will be plenty to look at within a 12 km radius of Arthurs Pass – even for persons with limited mobility.

I have prepared a rough menu and sent it to the participants to assist in the purchase of food for the trip and will need to pick this up beforehand and transport it to the Centre. There are adequate cooking facilities at the Centre although there are two restaurants nearby.

The internet site (APOEC) provides a list of recommended clothing and bedding to bring. However it is aimed at school children. You will need to adjust it for yourself. The weather is entirely unpredictable. I have experienced sleet in Arthurs Pass in January. You need to carry sufficient clothing to deal with those conditions as well as temperature up to 18 degrees but down to almost frost level at nights.

What is there to look at? The scope is enormous, from subalpine to tussock grasslands and Mountain beech forest in between. We will be exploring virgin territory. Already two new records have been disclosed in recent journals. Who knows what else is up there? *Pterostylis* is showing some curious examples as well as *Prasophyllum*.

Time is limited. If you wish to join us please email Gordon now to ensure a place. The costs so far are a booking fee of \$50.00.

Gordon Sylvester: southcol@xtra.co.nz.

Aussie notes: David McConachie

Exciting discoveries of the nationally endangered sun orchid *Thelymitra matthewsii* Cheeseman in two separate regions of South Australia in 2007 and 2008.

by R Bates, K and B Bayley, C Houston and J Niejalke, reprinted from *The Orchadian* 2009; 16 (3): 106-107, with the permission of the author.

Thelymitra matthewsii the Spiral-leaved Sun-orchid was first described in 1911 from plants collected in Mongonui County, New Zealand by amateur botanist R.H. Matthews. The species was named in his honour.

The same species was redescribed in 1930 by Dr RS Rogers as *Thelymitra daltonii* from Australian plants after being discovered by CW D'Alton in Victoria's Grampians in 1922. Rogers later realised his mistake and reduced *T. daltonii* to synonymy.

T. matthewsii was found in South Australia in the 1960s by Doreen Hunt in the Southeast near Willalooka and Messent and on Kangaroo Island by Ida Jackson and by Rob Bates near Kuitpo in the Adelaide Hills in the 1970s and again by Bates on Kangaroo Island in 1992 when a single plant was found in Flinders Chase after a bushfire.

By 1995 all South Australian populations seemed to have disappeared. The species had occasionally been reported from Western Australia but Jones (2006) and Backhouse and Jeanes (2006) reject it from that State.

By 2005 *T. matthewsii* had been declared as a threatened species for Australia as it was known only from small populations at a handful of sites in southern Victoria and the Grampians. It was considered even rarer in New Zealand. Some thought it to be possibly ex-

tinct in South Australia. The Kuitpo population had been ploughed up and planted to pines and despite thousands of man hours spent searching by enthusiasts no plants were found at previously known sites. Climate drying convinced many that it would never be seen again. Jones (2006) gave us some hope by reminding that the species flowered best after bushfires or disturbance and could not be expected to flower every year.

Then in 2007 there came a breakthrough!

As reported by Andy Young in the October 2007 edition of the *Journal of the Native Orchid Society of South Australia*, a colony of spiral-leaved Sun-orchids was found on Kangaroo Island by the Island's resident botanist Bev Overton and Trish Mooney from the Department of Heritage and Environment. The actual location has been withheld but it is in a conservation reserve on the north-west coast not far from the original discovery by Ida Jackson. Young noted that he and others searched the area and found 22 plants growing along a cleared path on lateritic soil and that a bushfire nearby had allowed ash to wash into the site. Hence it could be observed that both the requirements suggested by Jones had occurred. Only 2 flowers were found but the whole picture was about to change!





The 2008 breakthrough!

A planned orchid survey by NOSSA members of more than 90,000 hectares burnt on Kangaroo Island in late 2007 did not take place due to lack of funding but luckily Forestry SA, based at Mount Gambier in the State's South-east region offered NOSSA funding to carry out an orchid survey in one of its forestry reserves over three months from August to October 2008.

With a dozen members walking firebreaks recording orchid species in August amateur orchidologist June Niejalke (with Dianne Richman) found several spiral sun orchid leaves with single buds and called us all over. The "experts" confirmed that her find was *Thelymitra matthewsii* and by the end of the day over a hundred plants had been counted. Troy Horn of Forestry SA advised that maximum protection would be afforded the population.

Flowers opened in late August and during the September leg of the Survey over a hundred more were located on several tracks. All plants seen were on slashed heathy woodland in leached sandy or sandy-clay soils. Flowering continued for more than four weeks. Plants were single or had formed small clumps of 2-4 plants. No plants had more than one flower. Flowers opened in temperatures as low as 15 degrees Celsius but were more prolific in sunshine and at higher temperatures. All flowers were self pollinated as pollinia collapsed onto the stigma even if blooms stayed closed.

No hybrids were observed and the only other sun orchid species in the area to flower by the end of September was the yellow *T. antennifera* and these were several hundred metres away. It was tempting to transfer pollinia by hand to see if the resulting crosses might produce *T. mackibbinii* but this was not done.

(*T. mackibbinii* was once listed from South Australia but the collections labelled as such in Melbourne proved to be something else and *T. mackibbinii* has been deleted as a South Australian taxon.).

Management of the populations will con-

tinue as at present with slashing of the firebreaks done after seed release in November. Ploughing will not be allowed but some additional slashing and mosaic burns may be carried out in adjacent native vegetation. Horses have occasionally trampled the plants and their hoof prints were still evident at the time of our survey but signs will advise of horse riding restrictions in future. The area is largely weed free except where ploughing occurs in damp areas.

Summary

This new population, estimated at 500 plants represents the first record of *T. matthewsii* in the lower South-east district and appears to be the largest population in existence. Dr Mike Duncan who has written recovery plans for the species notes that until this new population only about 850 plants were known in the World. Its discovery gives hope to the future of rare flora in South Australia as although annual rainfall has declined by as much as 20% since the 1950s (which is only slightly less than most forecasts of long term rainfall decline) species such as *T. matthewsii* are still holding on.

Curiously a single plant was seen in pod in the burned out Ravine de Casoars Wilderness on Kangaroo Island in October indicating that there may be populations there too.

The actual localities have been withheld for security reasons.

References

- Clements MA 1989. Catalogue of Australian Orchidaceae. *Australian Orchid Research* Volume 1.
- Jeanes J and Backhouse G. 2006. *Wild orchids of Victoria*, Aquatic Photographics, Victoria.
- Jones DL 2006. *A complete guide to native orchids of Australia*, Reed Australia.
- Young A 2007. *Thelymitra matthewsii* rediscovery on Kangaroo Island, *J. Native Orchid Soc. S. Australia*, vol 31. page 76.

Elementary: ED Hatch

21. *Thelymitra* 1

Drawings by Bruce Irwin

Thelymitra

(woman's head-band, the complicated mid-lobe of the column)

A large Australian genus extending to New Caledonia, Timor, Java, the Philippines and New Zealand. The NZ plants are either Australian or derived from Australian species. They don't look much like orchids; the tepals being similar in size and shape, and the flowers opening wide (when they open at all) to face the sun. In Australia they call them "Sun Orchids"!

The genus was described by J.R.

Forster from the endemic NZ

T. longifolia. 20 or so species are recorded for NZ, as well as a number of tag-named forms. Most are defined by details of the column structure and only a few can be identified by vegetative features. I shall give only a selection here.

1: *Thelymitra longifolia*

(the long leaf).

Mature plants with broad, ribbed, very long leaves which lie flat on the ground. Younger plants have erect, concave leaves. Flowers white, pink, blue or maroon. Column pale pink, the midlobe dark, hooded, with a bright-yellow, variously indented margin. Lateral lobes with short, dense tufts of white cilia.

Distribution – endemic – Three Kings Is., North, South, Stewart and Chatham Is. (prefers grassland or open areas in light scrub).

Flowers – October-December – the type form is self pollinated. (another form, common in the far north, and known as *T. longifolia s.l.*, is insect pollinated and particularly pretty).



2: *Thelymitra aemula*

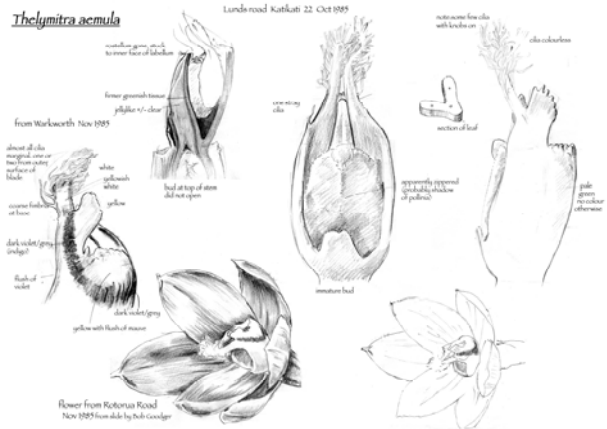
(the similarity to spotless forms of *T. ixioides*).

Flowers plain blue. Column pale purple with yellow striae, and a narrow purple band near the top. Midlobe not hooded, the upper margins bright-yellow and irregularly toothed. Lateral lobes with tufts of white cilia.

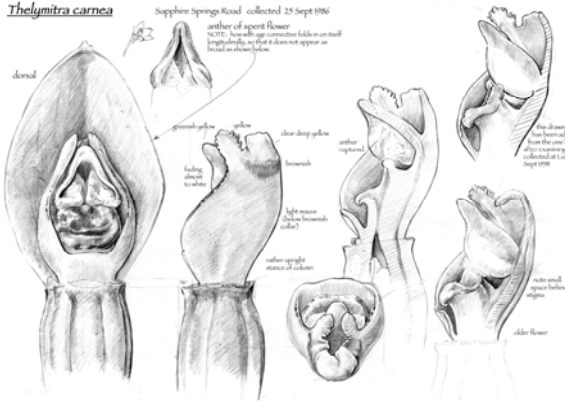
Distribution – endemic – North Id., North Cape south to Tauranga. A kauri zone species.

Flowers – November–December – self pollinated.

Thelymitra aemula



Thelymitra carnea



3: *Thelymitra carnea* (flesh-coloured).

Leaf tightly rolled, appearing terete, but becoming concave in old plants. Column pinkish with a darker band near the top. Midlobe slightly hooded, bright-yellow with finely toothed margins. Lateral lobes oblique, narrow, bright-yellow with toothed upper margins and no cilia.

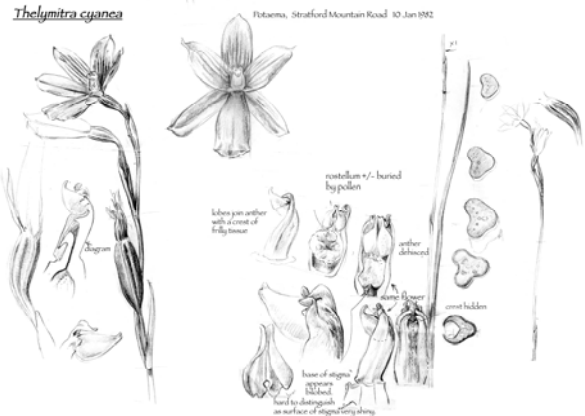
Distribution – Australia: Tasmania, South Australia, Victoria, New South Wales, Queensland. New Zealand – North Id., South Id., Sounds/Nelson district (in grass and/or gum-clay). **Flowers** – Sept–November – self pollinated.

4: *Thelymitra cyanea*

(the blue flower)

Plants of bogs and swamps. Flowers dark blue, rarely white. Tepals conspicuously striped. Labellum broad at the tip, with wavy margins. Column purplish at base with broad, blue, vertical stripes. Midlobe absent, lateral lobes bright-yellow, erect, twisted, without cilia

Thelymitra cyanea



Eponymous orchids: Val Smith

James Bruce Irwin and *Pterostylis irwinii*

Bruce Irwin's love affair with New Zealand orchids began in his birthplace, Wanganui, where his father Samuel Irwin from Ballybooley, County Antrim, Ireland, was for many years a men's outfitter; his mother Margaret (nee Howie) was born in Invercargill. During his secondary school years at Wanganui Technical College Bruce had two unusual friends – unusual because of their interest in native plants – and on weekends the three boys would bike and walk miles in the vicinity, looking for new plants, including orchids.

In 1939, at seventeen, Bruce joined the Lands and Survey Department in New Plymouth as a survey draughtsman. Close by was Egmont National Park, to explore with new friends Sid Gibson and his son Owen, and more orchids to find and draw. He was enthused. But war intervened, and despite life in army camps, military mapping back with Lands and Survey, pilot training with the RNZAF, and a year in Japan with J-Force, he pursued his orchid interests whenever possible. Much of his work with Owen Gibson on Mt Taranaki, and most of his orchid watercolours were done during or soon after the Second World War.

Later, when he was working in the Cartographic Branch of Lands and Survey in Wellington, botanist Lucy Moore happened to see his paintings, and was impressed. Irwin left the department in 1962 when he bought a run-down holiday camp in Marlborough Sounds. Dr Moore visited him there, and a long and productive collaboration began, starting with work for Volume II of the *Flora of New Zealand* (1970) and culminating in *The Oxford Book of New Zealand Plants* (1978). By then Irwin was working part-time at the Art Department of the Otago Medical School, and had long been doing detailed large-scale pencil drawings, rather than watercolours, considering them of greater botanical value. Lucy Moore gave him lessons in botany, and for 11½ years all his spare time was spent on illustrations for the Oxford book. He “retired” to Tauranga to grow orchids.

Bruce Irwin continues to observe orchids in the field, and study, draw and write about them. His work is prolific and his skills are in constant demand. He made the drawings for Clarkson's *Vegetation of Egmont National Park* (1986), and makes a major contribution to publications of the New Zealand Native Orchid Group, of which he is a life member—most recently Brian Tyler's beautiful *Bruce Irwin's drawings of New Zealand orchids* (2007). He has received several botanical awards, and two species of *Pterostylis* have been named for him. He planted and cares for orchids at Te Puna Quarry Park, and corresponds with friends and fellow enthusiasts. Bruce has a quiet and unassuming manner with a dry sense of humour; and shares his knowledge without being obtrusive. In 2006, this octogenarian admitted that perhaps it is time he took an interest in something other than orchids – but what?

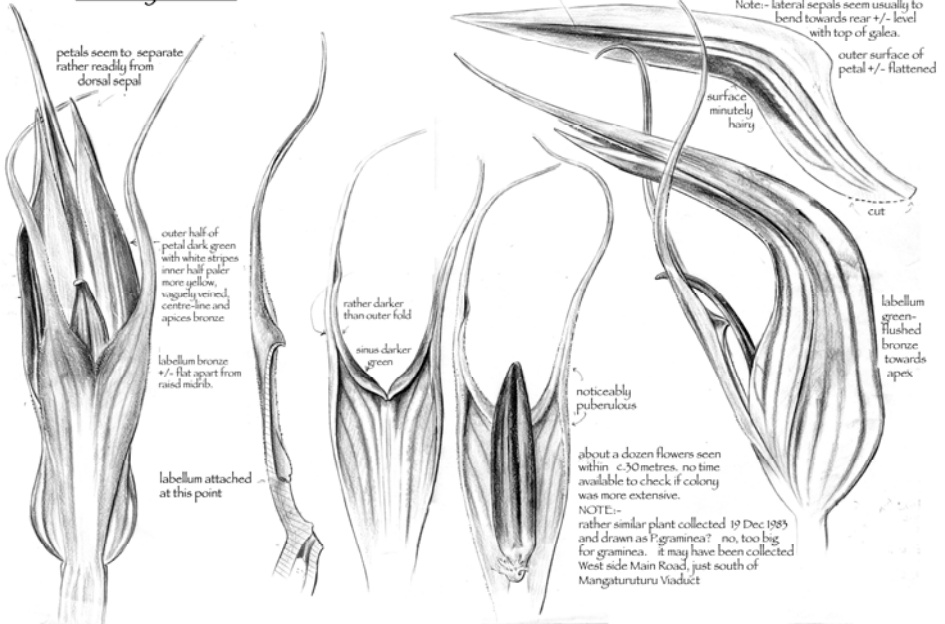
Pterostylis irwinii Greenhood

Pterostylis: “winged column”; *irwinii*: after JB Irwin, orchid enthusiast, who discovered it at Erua.

One of the so-called grass-leaved orchids, *Pterostylis irwinii* is a large, slender-leaved plant. The flowers appear from November to December. The tepal ends are sometimes reddish; the lateral sepals are incurved and lean forward, forming an inward turning jug spout at the sinus; the labellum is dark and tapered. *P. irwinii* grows in light scrub or bush; until 1998 it had been found in only one site near Ruapehu, but has since been discovered in Northwest Nelson.

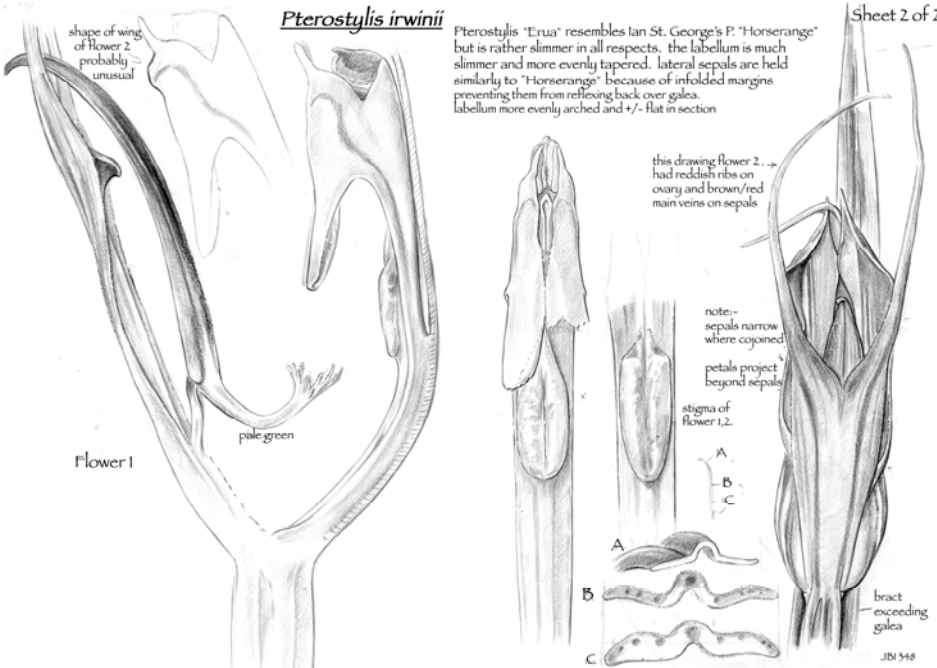
Pterostylis irwinii

found Erua 6 Dec 1991 Sheet 1 of 2



Pterostylis irwinii

Sheet 2 of 2



Drawings by Bruce Irwin from Brian Tyler's *Bruce Irwins drawings of New Zealand orchids*, 2007.

The Column: Eric Scanlen

1. *Petalochilus* “Gurdies”

Rudie Kuitert of Seaford Victoria, has a colony of *Petalochilus* “Gurdies” (Fig.39) a petaloid taxon amongst *Caladenia catenata*, in the Gurdies, some 90km SE of Melbourne. He has had them under surveillance since 2004. Rudie contacted the Column after seeing Kevin Matthews’ pic of similar *Petalochilus calyciformis* in J103:39. Both have RS Roger’s “linear appendage with sigmoid flexure, furnished with a little cup at the apex, erect in front of the column” [1] (Fig.40) plus a petaloid labellum smaller than the other tepals. Rudie’s colony of *P.* “Gurdies” is similar too, and is intermingled with, normal *Caladenia catenata* (Fig.41). Could it be that this trait of cup-on-stalk-and-petaloid-labellum (COSAPL) is a throw-back to an ancestral form? Some have suggested this and Hatch referred to the stalk-and-cup as the “staminoid appendage” [2]. It is possible that some section of the DNA is prone to accidental loss in these closely related little *Caladenia* species, thus producing similar mutations in at least three of them plus a *Leporella*. These four comprise

1. Rudie’s *P.* “Gurdies” clearly stemming from *C. catenata*,
2. Kevin’s *P. calyciformis* [J103:39] externally quite like *C. minor* (was *C. aff. chlorostyla* see J108:30)
3. *P. saccatus*, similar to *C. chlorostyla* according to HB Matthews [3]. He wrote to TF Cheeseman on 28 Oct. 1912, “Casually it could be taken for the green-white,” his apt reference to *C. chlorostyla*, described 85 years later.
4. WH Nicholls described teratological (the science or study of abnormal formations in organisms, from the Greek for monstrous)

specimens of *Caladenia (Leptoceras) menziesii* [4] with petaloid labellum still retaining vestigial calli and column wings fused to form a cavity embracing the lower two thirds of the column, which all sounds very familiar albeit in a different genus.

Is it also possible then that of these surprisingly consistent mutations, the first three can all be accepted as belonging to the genus *Petalochilus*? If the “teratological” specimens can produce viable seed and survive in their own right, why not give them specific status?

HB Matthews wrote to Cheeseman on 17 Nov. 1912 that “plants seed freely” referring to *Petalochilus calyciformis* and on 28 Oct 1912 that *P. saccatus* occurred “in three places in the one locality and as much as a mile apart” [3]. A fairly clear indication of seed propagation in the Column’s view. Rudie Kuitert is intent on checking next year’s crop of *P.* “Gurdies” for viable seed production. There is no record of viability trials in the past for any of these four taxa, possibly because of the peloric (regularity of structure occurring abnormally in flowers normally irregular, from the Latin for monstrous) botanical label attached to them.

References

1. Rogers, R.S. *Petalochilus – a New Genus of New Zealand Orchids* Proc. NZ Inst. 56: 16-18, 1926
2. Hatch, E.D. *Petalochilus* Rog. and the New Zealand forms of *Caladenia* R. Br. *Trans.Roy.Soc.N.Z.* 1949. 77: 398-402
3. Scanlen, E.A. *Matthews and Son on Orchids* NZNOG Historic Series No. 14, 2006
4. Nicholls, W.H. *Vict. Natr.* 61, 1945
5. St George, I.M. *The Orchid Papers of E.D. Hatch, Historic Series* No. 2 Vol. 1, 92, 1989

2. Eight tags new and old for J111 taxa

The Journal Indexer alias The Column knew not how to index four taxa in Journal 111, a fifth (a *Prasophyllum* which had taken a beating back and forth in emails for months) needed filling out, the yellow *T. carnea* needed distinction and a couple of other sun orchids came into question too. So he bullied the finders into putting an index tag on the unnamed ones so that they could be referred to without dredging through all 260+ references on for instance, *Nematoceras trilobum* agg. So the eight taxa below will indubitably clarify matters for any confused readers.

1. *Thelymitra* “Tohanga” [J111:Cover, 8, 10, 11] found by Kevin Matthews in ER4, at a low hilly area known as Tohanga, Maori for “to hand out”. Doubtless a notable new form of *T. carnea* in that delicate orchid pink, big flowers opening more freely in dull conditions and with a green floral bract, not the usual salmon pink; plants to 450mm tall and up to six flowers on a stem. A maximum of five on our common salmon pink. About time *T. carnea* displayed the variability expected in amphidiploid hybrids [1]. The index tag will save one sifting through 87+ references to find them. Incidentally, Jeanes & Backhouse [2] describe the Victorian *T. carnea* as brighter pink than the salmon pink of *T. rubra* which has more ornate column arms. Don't be confused. Dawson et al [3] have *T. rubra* with $2n=62$ chromosomes from all four Victorian and Tasmanian specimens so it too would seem to be one of the *T. carnea* agg. where *T. pauciflora*, $2n=26$, crossed with *T. flexuosa*, $2n=36$, then doubled up to give the requisite $2n=62$.

2. *Thelymitra imberbis* Fig.42, was Hooker's name for the rare yellow *T. carnea* of Kevin's [J111:8,10 Figs. 12 & 14]. It is retained in the index as *T. imberbis* for ease of access. The chromosome count of $2n=62$ for this amphidiploid hybrid [1] of yellow Aussie *T. flexuosa*

and one form or another of Aussie *T. pauciflora*, is shared by both colour forms; possibly all four. *T. imberbis* has thrown back to the yellow parent. It also has yellow floral bracts not salmon pink as in like coloured *T. carnea* nor green as in *T. “Tohanga”*.

3. *Thelymitra* “Otangaroa” [J111:11,19 Fig. 17] as “scented *T. pauciflora*” in Kevin's modest terms, but not really like it being unusually pale and scented. However *T. aff. pauciflora* has a like column structure. *T. “Otangaroa”* was at Otangaroa forest near Mangonui ER4, on 26 October 2008 and at Kevin's farm. *T. aff. pauciflora* in its northern livery of blue is uncommon in the far north.

4. *Thelymitra* “sansfimbria” [J111:11,19 Fig. 23] the unstriped, perfumed form of Kevin's and of his great, great uncle Richard's [4] from December 1904, has the other traits of striped *T. pulchella*, that amphidiploid hybrid [1] of *T. longifolia* and *T. cyanea*. This tag saves students ploughing through the 160+ index references under *T. pulchella* agg, looking for this unique form.

5. *Thelymitra* “scaphifolia”, Kevin's *Thelymitra* with an orange topped post anther lobe, from 25 Nov 08 [J111:11,20] showed up fairly convincingly in H.B. Matthews' 1922 B&W photo at Ak Museum [7]. This orchid has had a chequered career being no doubt mistaken for *T. aff. pauciflora* which also has the split column only yellow. Then Allan Ducker spotted the orange top at Wilks Rd. Silverdale and it got tagged *T. aff. pauciflora* “orange top” [J92:15]. The Editor amended that to *T. aff. brevifolia* [J94:12] from Aussie *T. brevifolia* [2] but that has a coppery topped column. The Column interpreted HB Matthews' description of *T. “scaphifolia”* as *T. intermedia* Bergg. in 2006 [4] then the Ak Bot. Soc. had it as *T. colensoi* on Rangitoto Id. [5] in 2007. However, the 2009 *Colour field guide* [6] has reverted it back to HBM's 1922 photo as *Thelymitra* “scaphifolia”, awaiting formal description.

6. *Prasophyllum* “Tohanga” Figs 43, 44; also J111:11, was also found by Kevin Mat-

thews at Tohanga and is included in the *Colour field guide* only as a possible. It has many of the traits of *Pr. hectori* except that the flashy white labellum is replaced by a sombre purplish brown one, the spongy looking green stigma has doubled in size almost obscuring the clear glassy tip of the rostellum, it flowers in October/November not December/February and the habitat is damp ground, not a reed choked stream. It has numerous spiky seedlings around so is likely to be a new taxon but needs more info such as, do the seedlings reproduce close replicas of the parent plants? and, if possible, what pollinates it?

7. **Nematoceras “tridobson”** [J111:18,20 Fig. 30] is Gordon Sylvester’s from 21 Nov 08, tagged in honour of Arthur Dobson of Arthurs Pass fame. As the Editor noted, the round leaf and longish, pointed dorsal sepal on an otherwise *N. trilobum* agg. plant, makes it look like an hybrid with either *N. macranthus* or an *N. rivulare* agg. taxon. However, this is an unique specimen so it needs isolating in the index. It also needs some close inspection next season for the parents, Gordon?
8. **Nematoceras “triarthurs”** [J111:21,35] Steve Reekie’s *N. trilobum* agg. from a waterfall behind the Outdoor Education Centre at Arthur’s Pass, 2 Nov 08. The dorsal sepal usually covers the labellum wings in this aggregate and sometimes protrudes obtusely but rarely draws back as Steve’s has. It could possibly be a parent form of *N. “tridobson”* above. This aggregate is fairly unusual at this 780-800m altitude and at this latitude. No doubt the falls under canopy would keep the air above freezing point even in heavy frosts. (Fig.46)

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Acknowledgements

Many thanks to Steve Reekie, Gordon Sylvester, Kevin Matthews and Ian St George for material in this article, for their proof reading, timely amendments and their permission to publish.

Figures: IBC & OBC

- Fig.39.** *Petalochilus* “Gurdies” showing the small petaloid labellum and cup-on-stalk in front of the column.
- Fig.40.** The curious stalk and cup in front of the column of *Petalochilus* “Gurdies”, a hallmark of NZ *Petalochilus*. Note the texture of the cup is close to that of the column back.
- Fig.41.** *Caladenia catenata* showing its similarity and likely association with *Petalochilus* “Gurdies”.
- Fig.42.** *Thelymitra imberbis* from Tohanga by Kevin Matthews, 13 Oct 08 with typical crumpled lateral petals from there. A form of *T. carnea* reflecting one hybrid parent, yellow *T. flexuosa*.
- Fig.43.** *Prasophyllum* “Tohanga” by K. Matthews showing a peduncle with flowers in all stages on 29 Oct 08 at Tohanga ER4.
- Fig.44.** *Prasophyllum* “Tohanga” column by K. Matthews, bi-lobed column arm, upper left, green stigma centre, tip of rostellum below with thread-like stipe connecting to pollinia below, sitting in the anther cap. Purplish brown labellum above and green dorsal sepal below.
- Fig.45.** *Prasophyllum hectori* column somewhat over-mature, by the Column for comparison with that of *P. “Tohanga”*.
- Fig.46.** *Nematoceras “triarthurs”* flower close-up by S. Reekie.



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Photographs from The Column: pp.41-42:
Eight tags new and old for J111 taxa.