The New Zealand Native Orchid Journal

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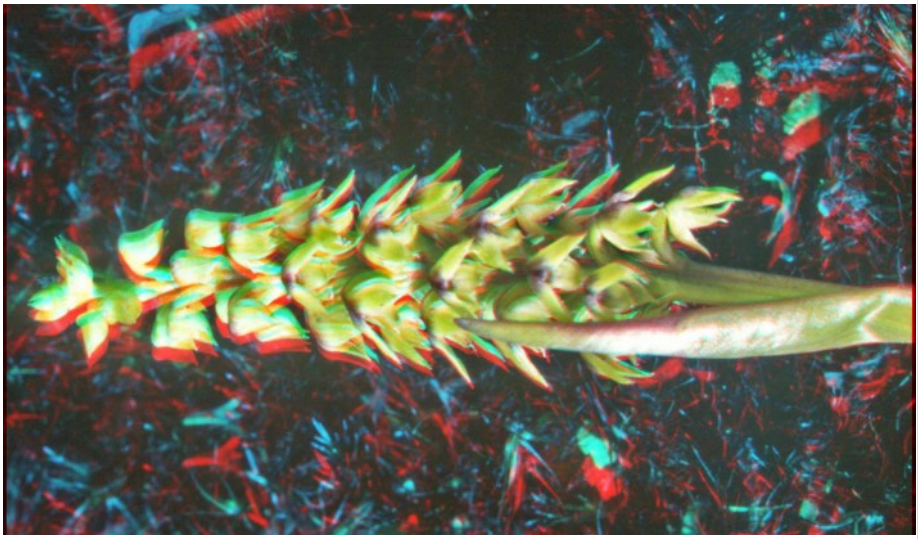
Cover
Corybas macranthus: photograph by Rebecca Bowater under the whispering falls up at the Hacket in Nelson, 6 December 2016.



Orchids in 3D

Eric Scanlen

Corunastylis pumila

The type locality Ian St George

The Hokianga, Edgerley; the "East Coast", Colenso; *Prasophyllum tunicatum*, *P. nudum*, *P. variegatum*; *P. pumilum*... and *Genoplesium*... and *Corunastylis*

JD Hooker described *Prasophyllum (*later *Genoplesium,* then *Corunastylis) pumilum* in his *Flora Novae Zelandiae* in 1853, from specimens collected by Edgerley ("Northern Island") and Colenso ("East coast"). The Type specimen of *P. pumilum* is at Kew (**Fig. 1**). In the same work Hooker also described *P. nudum* from Colenso specimens ("Port Nicholson and Taupo Lake") and *P. tunicatum* from Colenso specimens ("Northern Island. East Coast").

John Edgerley migrated to New Zealand in 1834 and lived at Horeke in the Hokianga as a gardener/botanist till 1841. He sent plant specimens and live plants to Kew and returned to England with both live and dried plants in 1842. He returned to Auckland in 1843 and bought land in Epsom which he worked as a plant nursery till he died in 1849 at 35 years.

In his 1864 *Handbook* Hooker placed *P. tunicatum* in synonymy with *P. nudum*, but subsequent work at Kew (eg. Clements 1987, 1989) annotated *P. tunicatum* as a synonym of *P. pumilum*, with Edgerley's specimen as the latter's type. This position was formalised by Clements in 1982 and1983 and Jones and Clements in 1989 (Brian Molloy, *pers. comm.*).

The 27 year old Colenso, who would become NZ's foremost plant collector, was aware of Edgerley and wrote to Alan Cunningham (1 March 1839),

"There are 2 or 3 Gents. now in the land styling themselves Botanists…. Do you know by hearsay, a Mr Edgerly, living on the banks of the Hokianga? I understand he is employed by some Noble or Gentle man in England to dry and forward plants. A Dr. Day (of the Coromandel) who pd. me a visit the other day, said, that Edgerly had the ferns I have and others also and that he

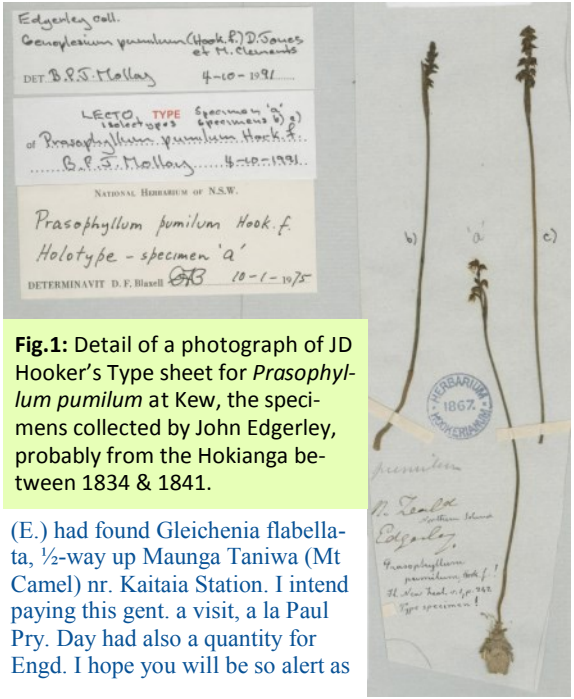


Fig.1: Detail of a photograph of JD Hooker's Type sheet for *Prasophyllum pumilum* at Kew, the specimens collected by John Edgerley, probably from the Hokianga between 1834 & 1841.

(E.) had found Gleichenia flabellata, ½-way up Maunga Taniwa (Mt Camel) nr. Kaitaia Station. I intend paying this gent. a visit, a la Paul Pry. Day had also a quantity for Engd. I hope you will be so alert as

not to be robbed of your lawful honors by any 'herb-gatherer'…." Cunningham died and I can find no record of Colenso's spying actually taking place.

Edgerley's Type specimen is undated but was probably sent from the Hokianga between 1834 and 1841. There is no sign of a specimen sent by Colenso from the "East Coast" (ie, the east coast of Northland) and recognised by Hooker as *P. pumilum*.

Colenso did however find *P. pumilum* and did send specimens to Kew: he wrote to WJ Hooker (20 July 1841) but JD Hooker described the specimens as *P. tunicatum* (**Fig.2**).

My dear Sir William,

I trust that in the Box now sent you will find something both new and interesting. One new pine and two new orchideæ….

84 A n. sp., of Microtis, found on the high and barren hills near Wangarei. Differing from M. Banksii, not only in appearance, but in its time of flowering, this coming out in the autumn, that in the spring. This is also smaller and its flowers are beautifully & delicately coloured with crimson and purple; whilst those of M. Banksii are green, or greenish yellow. Its sheathing fistulous scape, too, is not so long as its spike of Inflorescence, while in M. Banksii, it is a very great deal longer. The flowers of this n. sp., are often coalesced together, and are not so numerous as in M. Banksii. I subsequently found this, (on returning) on the high table land near Owae. The dry specimens are from the former, those in acid from the latter place, March, 1841.

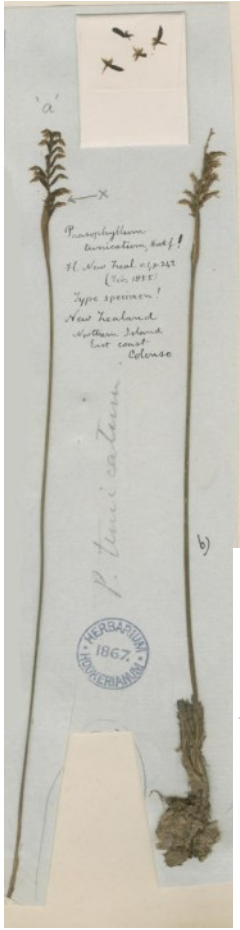
34 years later, in answer to a question from TF Cheeseman, Colenso would recall these collections (Colenso to Cheeseman 25 December 1875)…

You enquire after the local habitats in the Auckland Province of a few scarce plants. Of some of them I well recollect their old homes! (35 years ago!) but even if I were there, should I find them now—denizens of the soil as before? I fear not, judging from what has taken place in this Province, even within the last 10–12 years:—

….

Thelymitra Colensoi (which I suppose is my Th. straminea,) on barren hills among fern inland from Whangaruru Bay, but rather scarce.

….



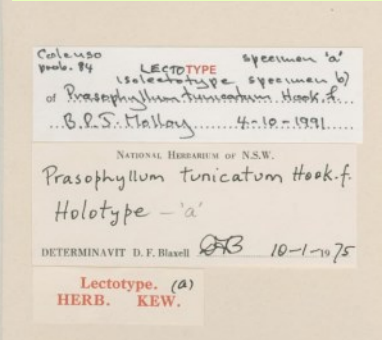
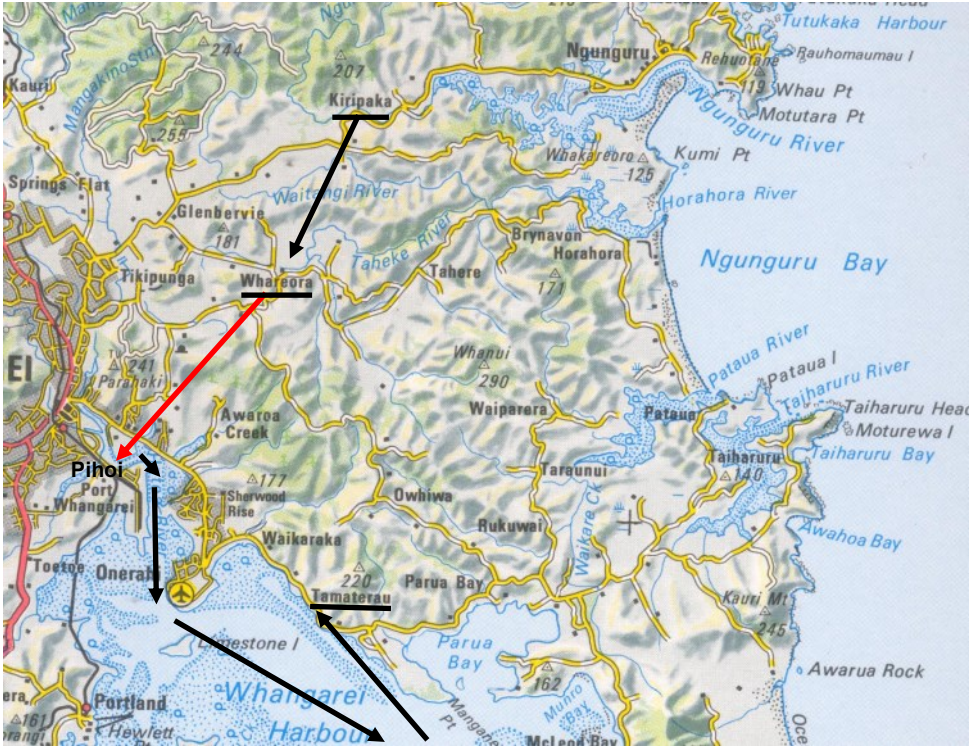


Fig.2: Detail of a photograph of JD Hooker's Type sheet for *Prasophyllum tunicatum* at Kew, the "dry specimens" collected by William Colenso, from "barren hills near Whangarei" in autumn 1841.

I believe there are several of our Orchids yet undescribed, especially of the genera Thelymitra, Pterostylis, and ?Microtis (or some closely allied genus). I remember a gem! which pleased me much: I never found it but once, but then it was plentiful and in a good state. I took it to be a Microtis, & named it M. autumnale,—it was colored purple & yellow, & very sweet scented!—it grew with Thelymitra Colensoi. It is not one of Dr. Hooker's Prasophyllæ.



The letter to Cheeseman thus identifies the site for Colenso's manuscript-named "Microtis autumnale" (which was "one of Dr Hooker's Prasophylla") as "high table land near Owae" growing with *Thelymitra colensoi.* Eric Scanlen and I found *T. colensoi* near that locality, on the track at the end of Papakauri Road. A return visit in March-April might just turn up this sweetly scented purple and yellow gem.

Where, though, did Colenso find the specimens on "the high and barren hills near Wangarei" that became the type for *P. tunicatum*? He gave a clue in a copy of his journal sent to his father in Penzance in 1841. On 8 March of that year he was walking south towards Whangarei…

Left this place (Parakaraka, near modern Kiripaka, at the head of the Ngunguru river) *proceeded to Wareora…. brought up in the wilderness, by the side of a small stream.*

9th. Rose, breakfasted, held prayers, and proceeded. Ascending a steep and barren hill, found a lovely little Orchis—Microtis. At 11 a.m. we arrived at… Pihoi (Pihoi was near the modern port of Whangarei—somewhere, therefore, between Whareora and Whangarei)….

[They paddled out to Parakaraka near the harbour mouth, then back to Tamatarau, where, six months later, Colenso would find local Maori using the now famous Tamil Bell as a cooking vessel].

That wasn't the end of Colenso's experience with *P. pumilum*. In the autumn of 1884 David Balfour sent plants in spirits from Glenross in Hawke's Bay. They were past flowering and for the next couple of years Colenso reminded Balfour that he wanted fresh specimens. In 1887

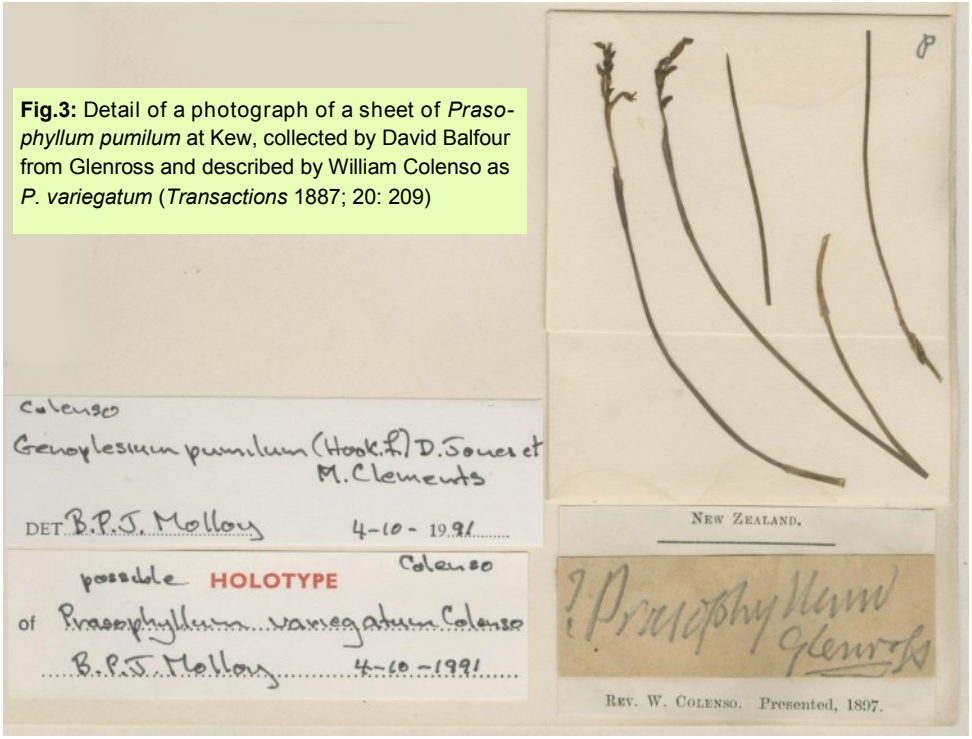


Fig.3: Detail of a photograph of a sheet of *Prasophyllum pumilum* at Kew, collected by David Balfour from Glenross and described by William Colenso as *P. variegatum* (*Transactions* 1887; 20: 209)

they arrived and Colenso duly described the plants as *Prasophyllum variegatum:*

P. variegatum, sp. nov.

Stem slender, erect, 5 inches high, green above, red below, minutely speckled with white papillose spots, sulcated on one side, with a loose sheath below near base. Leaf, ¼ inch under spike, very short, about ½ inch long, striate, adpressed, subacute, tip thickened. Spike short, ½–¾ inch long, few (3, 5, 8,) flowered; flowers rather distant, drooping; bracts very small, adpressed, broad, truncate and retuse. Perianth greenish tinged with red, small, 1–1 ½ lines long; dorsal sepal broadly ovate, 3-veined, tip acute; lateral sepals ovate-acuminate, 3-nerved, tips sub-mucronate, dilated; lateral petals very small, narrow, lanceolate-acuminate, 1-nerved, tips acute, labellum short, sub-cordate-ovate, sub-acute, reticulately veined, 1-nerved, the nerve central and very narrow, margins red, sub-tuberculate-fimbriate; anther large; column very short. Ovary sub-erect, 3 lines long.

Hab. Glenross, County of Hawke's Bay; 1887: Mr. D. P. Balfour.

Obs. I have received several specimens of this plant, but all, save one, had just passed flowering; they were very much alike, merely differing (as above noted) in the number of their flowers.

Ten years later Colenso sent specimens to Kew, where, however, they were identified as *Prasophyllum pumilum* (Fig.3), later to be renamed *Genoplesium pumilum (*Hook.f.) D.L.Jones & M.A.Clem., and (later still) *Corunastylis pumila* (Hook.f.) D.L.Jones & M.A.Clem. [Orchadian 13(10): 461 (2002)].

Eponymous orchids: Dorothy Anne Cooper (1941–) and *Gastrodia cooperae*

By Val Smith

The fourth of five daughters in a family of six children, Dorothy Anne Cooper (née Berry), was born in Wellington, New Zealand, on 11 December 1941. Her father Reginald George James Berry (1906–1979) had emigrated from England on the *Ionic* in 1925, and after two years as a farm cadet in Gisborne, paid off his assisted passage and arrived in Wellington. He obtained work as a commercial artist with an advertising agency, and later designed stamps and medals. After saving enough to buy a section overlooking the harbour, on 3 February 1932 at St Jude's Church, Lyall Bay, he married office secretary Miriel Frances Hewitt, who he had met through his work. They rented a furnished flat until the spring of 1935, when they moved into their new house at 56 Nevay Road, and it remained the family's home base for more than forty years. Dorothy, like her sisters, was educated at Worser Bay School and Wellington East Girls' College, while her brother Ken went on to Rongotai College.

Dorothy pursued her interest in biology at Victoria University; she married geologist Roger Cooper in March 1963, and after graduating BSc at the end of the year, joined him in Borneo where he was working on a United Nations development programme. Their son Alan was born in1966 in Dunedin when Roger was studying limestone resources for agriculture. The family then moved back to Wellington and Roger's work for the former DSIR. Between 1968 and 1990 Dorothy, Alan and later his sister Julie (born 1968) joined Roger on most of his annual field trips to Nelson, where he was studying the Palaeozoic rocks of the area. The children were almost brought up in backpacks! The family loved the bush, and Dorothy became so interested in the many different orchids she was finding, "some of them so small and yet so intricate", that a microscope was often packed as well! Reading about Darwin's findings on the pollination of orchids by insects added to her interest and led to a series of articles in the Wellington Orchid Society *Journal* from March 1978 to August 1981.

When Roger Cooper was awarded a Nuffield Science Foundation Fellowship the family went to England for eighteen months 1980–1981, and the children went to school there. Orchid Society contacts showed Dorothy some of the European wild orchids and the conservation efforts required to protect them. With spare time now available, she decided to expand her earlier work into a book. She studied the extensive orchid collection at Kew and those at the British Museum, and read all the early articles published in the *Transactions of the New Zealand Institute.* Although she had no art training she did all the line drawings, her husband provided the photographs, and her *Field Guide to New Zealand Native Orchids* (1981) sold out in the first year. Back home in Wellington she formed a native orchid group, organised outings and circulated a newsletter for a several years before handing over the reins to Ian St George in 1988. One day at Day's Bay she noticed a *Pterostylis* (greenhood) that looked different from any she had previously seen, and she later found more plants with similar characteristics. Her further investigations indicated it was indeed a new species, and in 1983 her description of *Pterostylis cardiostigma* was published in the *New Zealand Journal of Botany*.

In 2016 two new species of potato orchid were described by Te Papa botanist Carlos Lehnebach and his team. *Gastrodia cooperae* was named in acknowledgement of Dorothy 'Dot' Cooper and the signif-

icant contribution she made to the knowledge of New Zealand native orchids, "which led to the recognition of this species as distinct".

Gastrodia cooperae

Gastrodia, meaning "pot-bellied", refers to the shape of the flowers. There are now five described species of these non-green potato orchids in New Zealand. They have erect, brown or greenish-brown leafless stems with up to 40 dull, drooping, scented flowers in the summer. Similar to *Gastrodia cunninghamii,* except for the long column (in *G. cunninghamii* it is very short) and the black labellum apex, "long column black" was first considered a different entity by Cooper in 1983. Today it is known from only a few locations: In eastern Wairarapa in the North Island and a small area of northwest Nelson. Flowering is December–January.

References

Alan Cooper—explorer and scientist: http://www.royalsociety.org.nz/ (accessed 2 December 2016).

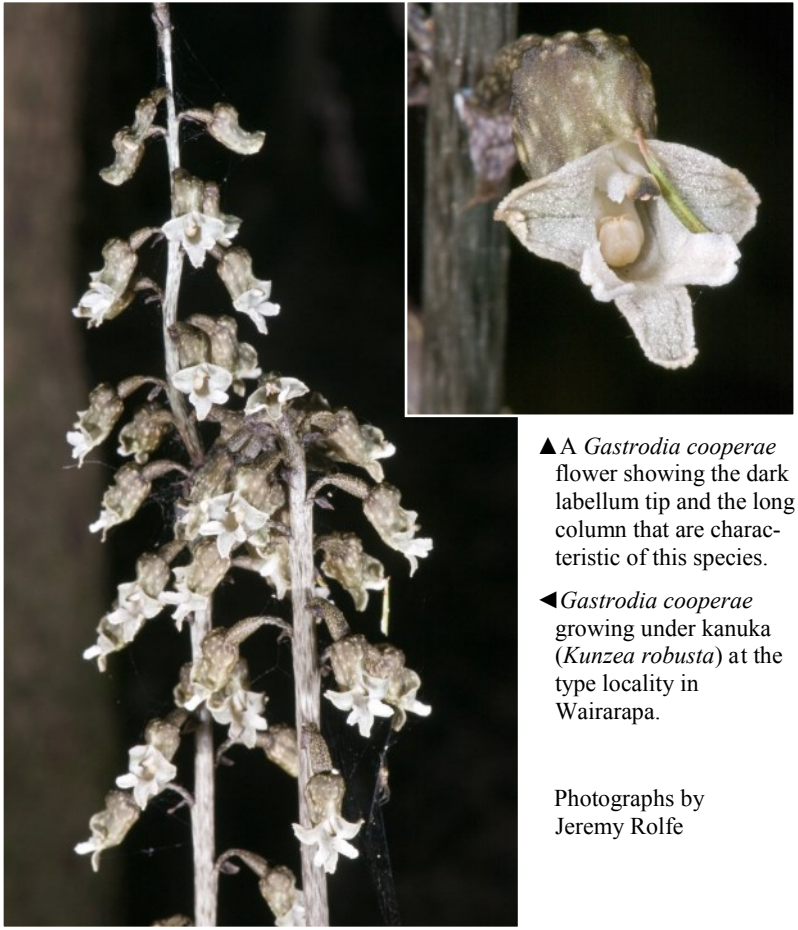
Cooper, D 1983. *Pterostylis cardiostigma*—a new species of Orchidaceae from Wellington, New Zealand. *New Zealand Journal of Botany* 21(1): 97-100 (accessed online 12 December 2016).

Lehnebach, C A 2016. Two new species of Gastrodia (Gastrodieae, Orchidaceae) endemic to New Zealand. *Phytotaxa* 277(3): 237-254 (accessed online 12 December 2016.

St George, I; McCrae D 1990. Dorothy Anne Cooper 1941-. *The New Zealand Orchids: natural history and cultivation.* 13-14. Dunedin, New Zealand Native Orchid Group.

Tye, J R 1984. *The Image Maker: the art of James Berry*. Auckland, Hodder & Stoughton.

Eric Scanlen points out that a photograph of what we now know as Gastrodia cooperae was published (as "G. sesamoides") in Dorothy Cooper's book "NZ Native Orchids" in 1981—Ed.



▲A *Gastrodia cooperae* flower showing the dark labellum tip and the long column that are characteristic of this species.

◀*Gastrodia cooperae* growing under kanuka (*Kunzea robusta*) at the type locality in Wairarapa.

Photographs by Jeremy Rolfe

The Hatch Medal 2016

NZNOG Chairman David McConachie writes,

The Kaikoura Earthquake caused our 2016 AGM and Field Trips to be cancelled at short notice. As a result I was unable to present the 2016 Hatch Medal to its very worthy recipient.

I would like to quote from the nomination submission:

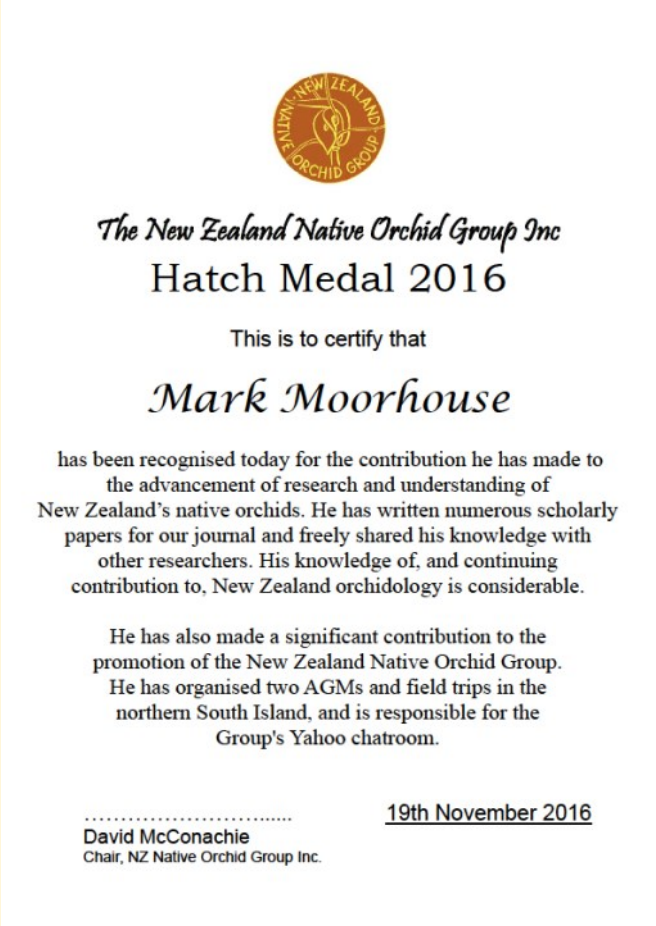
"Orchids have played some part in Mark's life for many years. Atop his wedding cake was an exquisite icing orchid made, we understand, by his bride. He has had an extensive collection of orchid stamps from around the world and been a member of the NZNOG since its founding.

"For a number of years he studied only the *Corybas trilobus* agg. when many taxa in that group were being tagged and wrote up detailed records of the various types. His knowledge of the whereabouts of these different taxa was no doubt of benefit to the studies Carlos Lehnebach has subsequently carried out.

Mark has always freely shared his knowledge with others; this contributed to (for example) Georgina Upson and others becoming more involved in orchids and the Group. His helpful tips on how to identify one species from another have been of great assistance to baffled beginners. Visitors to the district are guided to the best areas for orchids or where to find particular species.

Mark has organised two AGMs and field trips in the northern South Island, has written scholarly papers for our journal and is responsible for the Group's Yahoo chatroom. His knowledge of and continuing contribution New Zealand orchidology are considerable."

I congratulate Mark Moorhouse as recipient of the 2016 Hatch Medal.



The New Zealand Native Orchid Group Inc

Hatch Medal 2016

This is to certify that

Mark Moorhouse

has been recognised today for the contribution he has made to the advancement of research and understanding of New Zealand's native orchids. He has written numerous scholarly papers for our journal and freely shared his knowledge with other researchers. His knowledge of, and continuing contribution to, New Zealand orchidology is considerable.

He has also made a significant contribution to the promotion of the New Zealand Native Orchid Group. He has organised two AGMs and field trips in the northern South Island, and is responsible for the Group's Yahoo chatroom.

19th November 2016

.....

David McConachie

Chair, NZ Native Orchid Group Inc.

Notes

More attentive readers will have noticed the journal is tipped on its side and is presented in landscape orientation. We believe this will make its perusal effortless for those who subscribe to electronic copy and only marginally more awkward for those taking paper. Of course we welcome your opinion.

In January 2016 I found *Thelymitra purpureofusca* in late fruit at the Fensham Reserve, Carterton; I determined to return early enough for flowers but events overtook me and I didnt get there till Boxing Day when they were again in fruit. I'll go again early in December this year. The stems and leaves range green, brick red to purple-brown, 5–25 (most ~20) cm tall; larger plants in clumps, even tiny singletons having borne a flower. Under beech, trackside on clay slopes in dappled light, these are slender plants. Several entities in the *T. longifolia* complex can show purple/brown in the stems, leaves and backs of sepals, but that doesn't make them *T. purpureofusca* any more than lack of such coloration negates that identification—*Ed.*

The New Zealand Native Orchid Journal

The main aim of the **New Zealand Native Orchid Group** is informing people about native orchids, so we permit others to copy material published here, provided the source and author are acknowledged. Authors should note this as a condition of acceptance of their work. The *Journal* is published quarterly from February, and deadline for copy is the first of the month beforehand. We like copy to be typed or sent by email.

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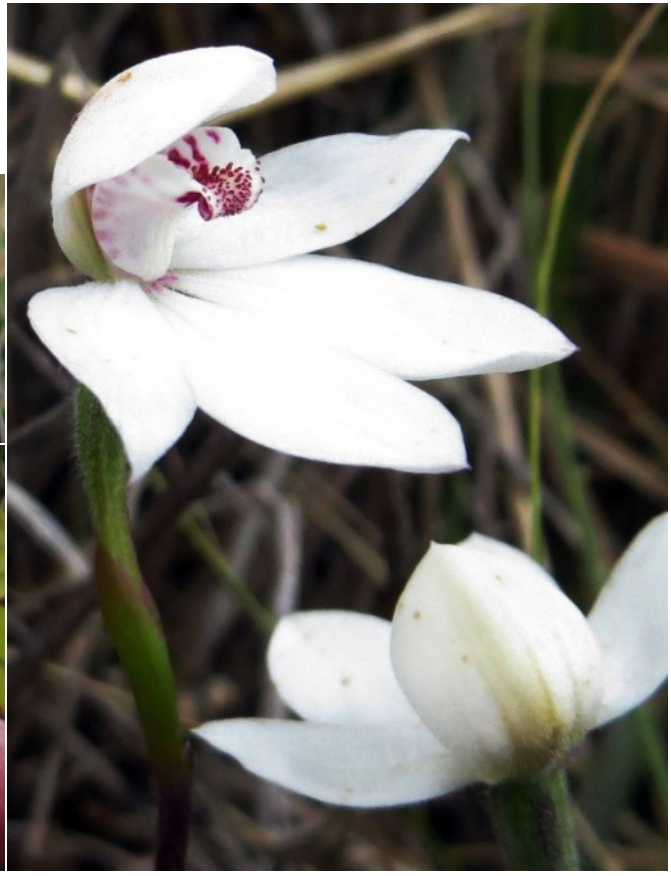
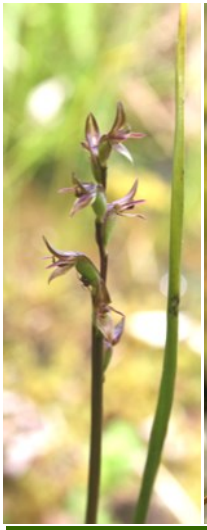
Kathy Warburton photographed these plants in the *Caladenia lyallii/C. alpina* complex in December 2016, at the type locality of *C. lyallii* on the hills around Dunedin. The red calli on the labellar midlobe are unusual (they are usually yellow). This complex is either one very variable species, or several species, or colonies exhibit a hybrid swarm between two. Let's try to sort it out.



Gordon Sylvester posted this season's photograph of *Pterostylis irwinii* which he had seen in the past at Arthurs Pass, its southernmost reported site.▼

Gael Donaghy made a surprising discovery near Invercargill over Christmas–New Year 2016–7: *Pterostylis porrecta* in by far its southernmost reported site. ►

The *Orchadian* of December 2016 carried a paper by Peter Tonelli on his discovery and the description (by David Jones in 2006) of *Prasophyllum atratum* on Three Hummock Island of the Flerieu group off the NW corner of Tasmania. Photographs suggest it closely resembles our common *Prasophyllum* "B" (as Bruce Irwin called it). But a photograph of the lectotype of *P. colensoi* at Kew ► shows clear separation of the lateral petals, suggesting that *P. colensoi* is in fact *P.* "B", so we should not rush to suggest that *P. atratum* is *P.* "B" (though Jones's paper omits mention of similar NZ species). The lectotype material of *P. colensoi* was collected by Colenso (No. 912) in 1846: he wrote to JD Hooker, "912. a new (?) Orchis—grassy spots, near Station—of which I have plenty for you: stalks dark red, & brown,—flowers scented—pl. 10–14 in."

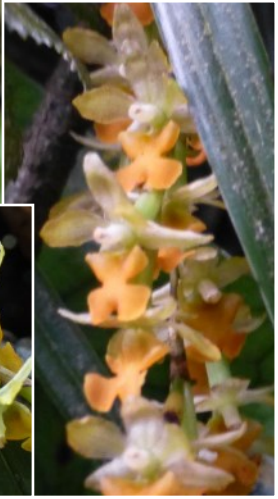


P. colensoi, Taylorville, by G. Sylvester

P. colensoi Waiharara, by I St George

P. atratum Three Hummock Is, P. Tonelli.

Cheryl Dawson sent shots of *Earina aestivalis* far from the sea in the Manawatu Gorge on 1 February and more on 13 February, showing variation in the overall shape of the flower and the colour of the labellum….



Val Smith took this photograph on Taranaki/Mt Egmont on 11 February "about half way up the Puniho Track on a regenerating flood-scoured area. It is not as clear as I would have liked (conditions for photography were rather difficult) and I have tentatively identified it as *Thelymitra hatchii,* but the long, broad lax leaf has me perplexed. What do you think?" *I agree: very late, like many this season—Ed.*

Mike Lusk was "on the Sunrise Track, Ruahine Ra at 1100m and there found a small colony of *Caledonia chlorostyla* ►► with a couple of plants still in flower". *Curious colour? What a late season it is! Pat Enright found Prasophyllum colensoi in bud in February at Remarkables skifield and Thelymitra cyanea has been found flowering in early March!—see "The Column" this issue for further discussion—Ed.*

Don't forget

the W.A. Orchid Spectacular Conference & Show at the Rendezvous Hotel, West Coast H/W, Scarborough, Western Australia 5 & 6 August 2017.

Philip Simpson "recently found a nice population of *Danhatchia* in a grove of nikau along the Wainui River, Abel Tasman National Park—a new record in the park".

Mark Moorhouse emailed (15 March),

March 1-6. Visited Cupola Basin and the upper Travers Cirque in Nelson Lakes National Park in perfect weather condtions with botanical interests in mind. At this time of year most orchids were done, but many still present, and visible in seed mode. However, a number of species could still be found in flower at elevation. These included a green form of *Gastrodia cunninghamii*. Interestingly the black forms were all well into seed-pod mode with some beginning to dehisce, an indication that they had flowered in December. No claims to a new sp, just an interesting observation to share.

At elevations over 1500m *Prasophyllum colensoi* begins to appear, in places plentiful next to gentians and Celmisias. No sign of *Prasophyllum* down on the river flats at all. This hiatus in distribution is not easily explained away as there are acres of suitable short rough pasture all the way up the Travers Valley. Oddly *Microtis* is also extremely scarce on these flats too. The valley is 30km long and in that distance I encountered only one colony of *Microtis* of any substance [about 15 plants] and two or three other plants as individuals.

Chiloglottis cornuta is well distributed throughout, from valley floor to snowline, where they were happily still in flower. Attached are *Microtis* flowering March 4th about 5km up from Lake Rotoiti, and a *Prasophyllum* from about 1650m near Gunsight Pass a day earlier between Cupola Basin and the Sabine Valley. This is vegetable sheep and edelweiss territory.

Other species identified, *Corybas confusus* and *C. wallii* [presumed] in seed, *Aporostylis bifolia, Pt banksii, Pt* aff *graminea, Pt australis* and *Pt montana* all in seed. Two *Thelymitra* sp., *Adenochilus* in seed. Another round-leafed *Corybas* in conditions that suggested *C.* "whiskers", *C. macranthus* and a few *Caladenia lyallii* well done above the snow line.

The Column Eric Scanlen

1. *Caladenia atrochila* in NZ

The Column's J143 write-up, re *Caladenia* aff. *atrochila,* missed a cogent clue from Gary Little's archived email of 1 November 2009. Gary has had *C. atrochila* flowering at his Digger's Valley place, south of Kaitaia, since at least 2009, as you can see in his attachments, **Fig. 2, 3** & **4.** At the time, in 2009, the Column passed it off uneasily as another form of *C.* "nitidoa rosea", (Matthews), not being aware then of the 1999 description of Tasmanian, *C. atrochila* by David Jones.

The Column's penny dropped when he happened on Gary's forgotten, archived email with its excellent photos, just after J143 went to the printers. Having only just studied photos of *C. atrochila* in [1], plus those by Corrine & Jack Denny and by Mischa & C. Rowan, of Retired Aussies.com, it became clear that Gary had something special in his bush property in Diggers Valley. Some more scientific analyses than photos would be advantageous, but meanwhile it does look as though Gary has *C. atrochila.*

In Figs. 2, 3 & 4, all the features of *C. atrochila* show in varying degrees, as described in [1] with photo on p61.

Fig. 1 *Caladenia atrochila* s.s. from Tasmania, by Corrine & Jak Denny.
Fig. 2 *Caladenia atrochila* from opposite Possum highway, Diggers Valley by Gary Little, 1 Nov 2009. Notice the dark red inner column, acute tepals, green ovary with red ridges, greenish back to the tepals with an outer red midrib, red stem and two pairs of marginal calli to the base of the labellum midlobe.
Fig. 3. *C. atrochila* front, Possum highway, by Gary, 1 Nov 2009. Notice in this just opened flower, that the lateral sepals are still conjoined at the tip.

Fig. 4. *Caladenia atrochila* from opposite Possum highway, Diggers Valley by Gary, 11 Nov 2009. Lateral sepals are still conjoined at the tip, also the backs are greenish with a red midrib.

Reference

Jones D, Wapstra H, Tonelli P, Harris S, *The Orchids of Tasmania*, The Miegunyah Press, Melbourne University 1999. ISBN 0 522 84851 6.

2. *Caladenia* "Kaweka" & "Bealey"

Mike Lusk has been posting photos and paragraphs about a very late flowering, montane, *Caladenia 'chlorostyla'* from the Kaweka Range, **Fig. 1,** since August 2007. The Column has filed 14 of Mike's pix of this anomaly but, has anyone else recorded, *Caladenia* "Kaweka"? It retains the *C. chlorostyla* trait of no red glands on tepal backs but flowering dates vary from 9 Feb. to 2 March, say three months too late, at altitudes from 1,100m on the Sunrise Track to say 2,000m around Kuripapango. So montane habitat has to be a feature of this taxon of *Caladenia.* But what else differs from *C. chlorostyla*, apart from,

A. flowering some 3 months later;

B. 1, 2 or 3, basal pairs of the labellum midlobe's marginal calli, have red legs. A good recognition feature as midlobe marginal calli in *C. chlorostyla* are always white, but it carries little weight in species identification.

Then there are some consistent traits for *C.* "Kaweka" which show up on occasions in *C. chlorostyla* such as;

I, red legs on all the disc calli;
II, red hairs on stem and ovary,
III, never an all-white labellum area between disc calli.

Some *C. chlorostyla* specimens' photos show notable exceptions to all the above including:—

Kelly Rennell's *C. chlorostyla* from far south Lake Hauroko, **Fig. 2,** at about 160m a.s.l, on 5 Jan. 2008. Very late for a fairly typical specimen but getting well south. Also note red legs to the disc calli. *C. chlorostyla,* **Fig. 3,** recorded by the late Gary Penniall from 1,200m at Bridal Veil Falls, Arthur's Pass, very late on 9 Jan. 2010. Is that a smudge of red on one of the basal marginal calli? Might it be a hybrid *C.* "Kaweka" x *chlorostyla*?

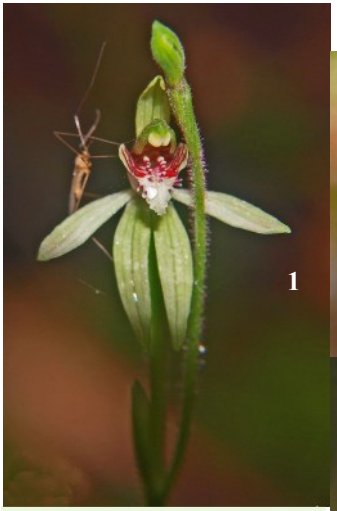


Fig. 2 Kelly Rennell's late (5/1/08) C. chlorostyla from far south Lake Hauroko, 160m a.s.l. Note the atypical red legs to disc calli.

Fig. 3 Gary Penniall's high altitude, 1,200m, late, 9/1/10, *Caladenia chlorostyla*, from Bridal Veil Falls, Arthur's Pass with red smudge on marginal callus leg, trying to be *C.* "Kaweka"?

Fig. 1 Mike's *Caladenia* "Kaweka", Kuripapango, 27 Feb. 2012, with two pairs of red legged marginal calli, red legs on disc calli also red hairs on stem and ovary plus possible pollinating crane fly.

Then there is *Caladenia* "Bealey", **Fig. 4**, by Allan Ducker, from Bealey Spur, at say 900m, also on 9 Jan. 2010, with anomalous red stem and ovary, plus numerous red glands on tepal backs. Could it be *C. minor* x *chlorostyla*? Gary Penniall also recorded this taxon at the nearby Bridal Veil Falls **Fig. 5,** on the same day, by coincidence, and Kendyll Levy got it **Fig. 6,** at Charleston on 5 Dec. 2013 which tends to discount the hybrid thought. A possible new species do you think?


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Fig. 4 Allan's late, 9/1/10, *Caladenia* "Bealey" with red stem and ovary plus red glands on tepal backs from Bealey Spur, 900m a.s.l. All atypical traits for *C. chlorostyla.*

Fig. 5 Gary's *Caladenia* "Bealey" also on 9/1/10, from Bridal Veil Falls, Arthur's Pass at 1,200m, showing dense red glands on the dorsal sepal back.

Fig. 6 Kendyll's *Caladenia* "Bealey" from Charleston, near sea level on 5/12/13. Note the stray disc calli. Could it have some genes from *C. variegata* Col.?