

A close-up photograph of a purple orchid flower in bloom, with several buds and stems visible. The flower has five petals, with a yellowish center. The stem is green and shows the developing buds. The background is a soft, out-of-focus green and brown.

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See p.21, Jane and Donaghy

1. Seepage area near the Hump. 2, 3. *Prasophyllum colensoi*. 4. *Pterostylis* "airplane".

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Prasophyllum colensoi, Mavora Lakes; photo Graeme Jane & Gael Donaghy—see p.21.

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1. Myco-heterotrophy

There are 200 wholly nongreen orchids, and Martin Bidartondo of the Imperial College, and Kew Gardens, London, has written a Tansley Review [1] on the evolutionary ecology of myco-heterotrophy. In it he makes the interesting point that most nongreen plants that form mycorrhizal relationships with soil fungi, are understory woodland inhabitants. That habitat is only sustainable when sunlight is no longer necessary for nutrition. Furthermore most nongreen plants have evolved from green mycorrhizal plants that inhabited similar places.

All nongreen mycorrhizal plants except *Gastrodia* and *Galeola* are partners in tripartite assemblages (two plants, at least one green, linked by a common fungus). *Gastrodia* are colonized by *Armillaria* which is destructive, and is not known to form mycorrhizal associations with any other green plants. That is what Ella Campbell's research found, but her work has not yet been verified by direct molecular analysis.

Orchids are specialist cheats or generalist cheats of course—both in their selection of insect pollinators and their selection of mycorrhizal fungus. But you wouldn't expect an orchid that specialised in cheating only one fungus to take the reproductive risk of having a single pollinator, and in practice that is borne out. Mycorrhizas may thus be the strongest determinant of the reproductive biology of myco-heterotrophic plants. "A myco-heterotroph specialised on a narrow set of closely related fungi should rely disproportionately upon: (i) the most generalist pollinators available; (ii) allocation of resources to seed production rather than to pollinators; and/or (iii) self-pollination. Contrariwise, a plant that relies on specialised deceptive pollination should be a mycorrhizal generalist."

However, "In the Orchidaceae in particular, the imbalance in our knowledge of reproduction vs mycorrhizas is staggering, even though fungi are widely thought to have shaped orchid characteristics of great evolutionary importance: root structure, seed morphology and seedling physiology. Consequently virtually nothing is known about the ecological and evolutionary interplay of the two dominant forces that both constrain and diversify this huge family."

Reference

1. Bidartondo M.I. The evolutionary ecology of myco-heterotrophy. *New Phytologist* (2005). www.newphytologist.org.

A high proportion of the NZ orchids are self-fertile, which, if the above is true in reverse, suggests mycorrhizal specialisation—Ed.

2. *Nematoceras dienema*

The Antipodes Subantarctic Islands tundra ecoregion consists of five island groups spread across the Southern Ocean: Bounty Islands, Auckland Islands, Antipodes Islands, Campbell Island, and Macquarie Island. Their remoteness provides important resting and breeding areas for marine mammals and seabirds. All the islands are Nature Reserves and listed as World Heritage Sites, but introduced animals, especially mammalian predators, are of serious concern [1].

These islands range in latitude from the cold temperate zone (Macquarie Island) to the cool temperate zone for the others.

The climate on all is wet, cold, and windy. They are lashed by westerly gales and cold fronts: it rains more than 300 days a year. Apart from the Bounty isles, the islands administered by New Zealand's DoC support trees and woody plants. Further to the south, Macquarie Island has a mean annual temperature below 5°C and woody plants do not grow there. It is administered by the

Tasmanian Parks and Wildlife Service.

While these islands are species poor, reflecting the high latitude, the flora include species at the limit of their ecological tolerance and a high number of endemics. Many plants found at or near sea level here are also found in New Zealand subalpine vegetation.

Macquarie Island's maximum altitude is 433m. There is a central plateau covering most of the land area, with a narrow coastal strip surrounding some parts. The vegetation is primarily tussock, short tussock grassland, or feldmark vegetation. Cushion plants are common in exposed sites, and bogs and mires are common throughout.

Introduced weka and cats have been eradicated from Macquarie Island. Mice, ship rats, and rabbits persist. Rats still prey on the eggs of burrowing petrels and prions, and despite a huge reduction in rabbit numbers since myxomatosis in 1978, they still kill large areas of tussock and megaherb vegetation [2].

There are no trees on Macquarie Island, but there are 45 species of vascular plants and many moss and lichen species.

Three plant species are endemic to Macquarie Island: the Cushion Plant *Azorella macquariensis*, the orchid *Nematoceras dienema* (*Corybas dienemus*) and a salt tolerant species *Puccinellia macquariensis* [1].

Nematoceras dienema (dienemos = windswept) was discovered by Brown and colleagues who took it to be *Corybas macranthus*; they described (and illustrated) their discovery in 1978 [3]. Plants collected later by JR Croft were taken back to Canberra, where "The Visitor Centre at the Gardens set up a delicatessen refrigerator, put in some soil and held a 'life in the fridge' display with much success. One disappointment was the shy little *Corybas* orchid. It would not grow...".

It was described by David Jones (who had predicted it would be a new species) in 1993 [4]. His Latin description reads (translated by Dan Hatch), "Related to *Corybas macranthus*,

from which it is separated by the thick, semi-erect leaf, which at flowering forms a cup. Flower small, semi-erect, pale green with red-purple markings; inserted on a distinct peduncle into the heart-shaped base of the leaf."

The entry in *Flora Australia* reads, "Plant 3-5cm tall at flowering. Leaf orbicular, 1.5-2.5cm diam., dark green above, pellucid beneath, cupular and semi-erect at flowering, apiculate, thick-textured. Flowers pale green and reddish purple, semi-erect in cordate base of leaf. Dorsal sepal linear-oblongate, acuminate, cucullate over labellum tube; lateral sepals and petals filiform, long-acuminate, subequal, stiffly erect. Labellum tubular at base; lateral margins flared to incurved, irregularly crenate.... This species can be immediately distinguished by the pale green and red, semi-erect flowers which sit in the cordate base of the leaf".

Distinguished from what, one might ask? seaweed? megaherbs? certainly not from other Nematoceras.

Laursen and his colleagues from the University of Alaska examined the roots of vascular plants from Macquarie Island to determine their mycorrhizal status. *N. dienema* showed typical orchid mycorrhizae [5].

Jones, Clements and Molloy [6] renamed it *Nematoceras dienema* in 2002.

Szlachetko reclassified *Corybas* in 2003 and included *C. dienemus* in his reinstated *Corysanthes* [6].

Mary Skotnicki and Mark Clements are conducting a new study called "Biodiversity, biogeography, reproduction and conservation of the Macquarie Island orchid *Nematoceras (Corybas) dienema*".

Nematoceras dienema is the only known orchid in the Subantarctic region. How on earth did it get there ?

Brown and colleagues thought it was *N. macrantha* and speculated that its seeds had been carried from New Zealand by wind, by shared seabirds, or by man.

But it isn't *N. macrantha* and it has not been discovered anywhere else. Where on earth did



it come from? Not from Australia (no *Nematoceras* have been found there). From southeast Asia, the homelands of *Nematoceras*? it seems an awfully long way. From Gondwanaland? No: Macquarie Island rose recently (600,000 yrs ago) from the seabed.

From the nearby cold temperate islands (Bounty, Antipodes, Campbell, Auckland Is)? There remains some doubt as to the identity of *Nematoceras* from these sites, but according to Edgar, all are *N. triloba* agg.

From New Zealand? Bruce Irwin wrote, “It has always puzzled me that a fragile orchid apparently quite unlike any New Zealand species of the genus, and very different from any of the Australian species should evolve on a smallish scrap of land in latitudes where no other orchid can exist. From what could it evolve? It seems that an identical or at least very similar *Corybas* in NZ has to be the source” [pers.comm.].

Perhaps, though, whatever it evolved from in NZ may itself have evolved into something completely different. Something more like, e.g., *N. longipetala*.

Eric Scanlen describes in this issue, a plant discovered by Steven Reekie at an exposed site on the West Coast, which he believes has affinities with *N. dienema*. It must be said that its flower is also very much like immature *N. longipetala*, which were found a few metres away, higher up in what Steve thought was the same colony.

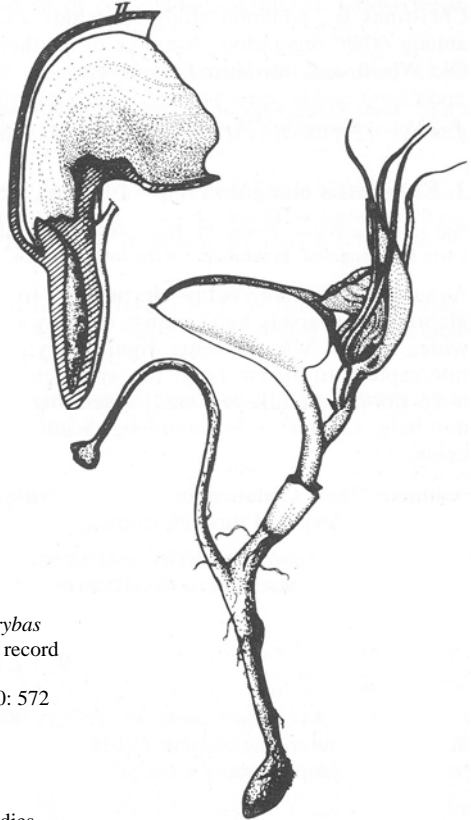
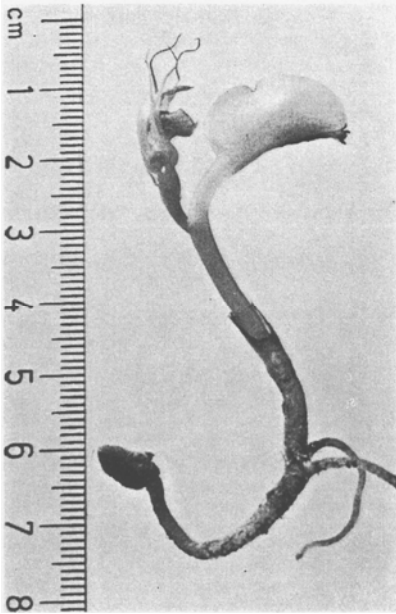
Whatever it turns out to be, its structure—with the short stature, stout tepals and cupped leaf adapted to the exposed site—may give us a hint about why, if not whence, *N. dienema* evolved the way it has.



References

1. <http://www.deh.gov.au/biodiversity/threatened/publications/recovery/albatross/habitat.html>
2. Laursen, GA; Treu, R; Seppelt, RD; Stephenson, SL. Mycorrhizal assessment of vascular plants from subantarctic Macquarie Island. *Arct. Alp. Res.* 29: 483-491. (1997). (<http://instaar.colorado.edu/AAAR/volume29/29-4abs.html>).

Nematoceras dienema p6 TOP L: in situ on Macquarie Is [1]. LOWER L: grown in Tasmania, photo Les Rubenach, supplied by Helene Wild. p7 BELOW L: photo from Brown et al [3]. BELOW R: drawing by D.Boyer [4]. BOTTOM R: habitat shot: "Beach terrace on the west coast of Macquarie Island: *C. macranthus* (sic) grows in the wet bog communities shown above the line of tussocks in the middle ground" [3].



3. Brown MJ, JF Jenkin, NP Brothers, GR Copson. *Corybas macranthus* (Hook.f.) Reichb.f. (Orchidaceae) a new record for Macquarie Island. *NZ J Bot* 16: 405-7 (1978).
4. Jones DL. *Corybas dienemus* sp.nov. *Fl. Australia* 50: 572 (1993) (see also p528).
5. http://www.worldwildlife.org/wildworld/profiles/terrestrial/aa/aa1101_full.html
6. DL Jones *et al.* Nomenclatural notes arising from studies into the tribe Diurideae (Orchidaceae). *Orchadian* 13(10): 437-468 (2002).
7. *Corysanthes dienema* (DL Jones) Szlach. in *Richardiana* 3(2): 98. 2003: *Corybas dienemus*.
8. Draft management plan for Macquarie island (<http://www.parks.tas.gov.au/publications/tech/macquarie/macquarie.pdf>).



The New Zealand orchids: the editor's annual list of New Zealand orchid taxa.

– a personal opinion, wrested from observation, discussion, plagiarism and taxonomic punch-ups. I am indebted to Murray Dawson of Landcare Research, Lincoln, for carefully cross-checking the names against independent lists, correcting typos, and standardising the author and journal titles. Author abbreviations are standardised following Brummitt & Powell (1992) [1], and publication titles are abbreviated (where possible) according to *Botanico-Periodicum-Huntianum*, Suppl. (BPH/S) (1991) and *Taxonomic Literature* (TL2) (1976–1988) and its Supplements (TL2/S) (1992–2000). These resources are available electronically at the International Plant Names Index (IPNI, see <http://www.ipni.org/index.html>).

Acianthus R.Br. Prodr. Fl. Nov. Holland.: 321 (1810) Acianthus alliance

Acianthus sinclairii Hook.f. Fl. Nov.-Zel. 1: 245 (1853).

Acianthus fornicatus var. *sinclairii* (Hook.f.) Hatch. Trans. & Proc. Roy. Soc. New Zealand 75: 369 (1945).

Adelopetalum Fitzg., J. Bot. 29: 152 (1891) Bulbophyllum alliance

Adelopetalum tuberculatum (Colenso) D.L.Jones, M.A.Clem. & Molloy. *Orchadian* 13(11): 498 (2002).

Bulbophyllum tuberculatum Colenso. Trans. & Proc. New Zealand Inst. 16: 336 (1884).

Bulbophyllum exiguum as meant by Buchanan. Trans. & Proc. New Zealand Inst. 16: 397 (1884), is not that of F.Muell. (1861).

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Adenochilus gracilis Hook.f. Fl. Nov.-Zel. 1: 246 t.56 (1853).

Aporostylis Rüpp & Hatch. Proc. Linn. Soc. New South Wales 70: 60 (1946)

Aporostylis bifolia (Hook.f.) Rüpp & Hatch. Proc. Linn. Soc. New South Wales 70: 60 (1946).

Caladenia bifolia Hook.f. Fl. Nov.-Zel. 1: 247 (1853).

Chiloglottis traversii F.Muell. Veg. Chath. Is. 51 (1864).

Caladenia macrophylla Colenso. Trans. & Proc. New Zealand Inst. 27: 396 (1895).

Chiloglottis bifolia (Hook.f.) Schltr. Engl. Bot. Jahrb. 45: 383 (1911).

Caladenia R.Br. Prodr. Fl. Nov. Holland. (1810)

Caladenia alata R.Br. Prodr. Fl. Nov. Holland.: 324 (1810).

Petalochilus alatus (R.Br.) D.L.Jones & M.A.Clem. *Orchadian* 13(9): 406 (2001).

Caladenia minor Hook.f. var. *exigua* Cheeseman. Man. New Zealand Fl. 688 (1906).

Caladenia exigua Cheeseman. Trans. & Proc. New Zealand Inst. 45: 96 (1913).

Caladenia carnea R.Br. var. *alata* (R.Br.) Domin. *Bibliotheca Botanica* Heft 85: 549 (1915).

Caladenia carnea R.Br. var. *exigua* (Cheeseman) Rüpp. Proc. Linn. Soc. New South Wales 69: 75 (1944).

Caladenia holmesii Rüpp. *Victoria Naturalist* 70: 179 (1954).

Caladenia catenata (Sm.) Druce var. *exigua* (Cheeseman) W.M.Curtis. *Stud. Fl. Tasman.*, 4A: 133 (1979).

Caladenia bartlettii (Hatch) D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(5): 227 (1997).

Petalochilus bartlettii (Hatch) D.L.Jones & M.A.Clem. *Orchadian* 13(9): 406 (2001).

Caladenia carnea R.Br. var. *bartlettii* Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 402 (1949).

Caladenia chlorostyla D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(5): 223 f1 (1997).

Petalochilus chlorostylus (D.L.Jones, Molloy & M.A.Clem.) D.L.Jones & M.A.Clem. *Orchadian* 13(9): 406 (2001).

Caladenia catenata as meant by Cooper. Field guide to the NZ native orchids 17 (1984), is not that of Druce (1917).

- Caladenia “green column” tagname.
Scanlen argues that *C. chlorostyla* may be a synonym for *C. minor*. A similar but distinct plant is known as *C. aff. chlorostyla*. *Arethusa catenata* and *Caladenia alba* are names used for Australian plants once confused with NZ taxa.
- Caladenia minor** Hook.f. Fl. Nov.-Zel. 1: 247 t.56b (1853).
Petalochilus minor (Hook.f.) D.L.Jones & M.A.Clem. *Orchadian* 13(9): 410 (2001).
Caladenia carnea var. *pygmaea* (R.S.Rogers) Rüpp. *Proc. Linn. Soc. New South Wales* 69: 74 (1944).
Caladenia carnea R.Br. var. *minor* (Hook.f.) Hatch. *Trans. & Proc. Roy. Soc. New Zealand* 77: 401 (1949).
Caladenia catenata var. *minor* (Hook.f.) W.M.Curtis. *Stud. Fl. Tasman.*, 4A: 106 (1979).
The identity of *Caladenia minor* is not clear; it may be a synonym for *C. alata*, *C. chlorostyla* or *C. aff. chlorostyla*: there are 4 on the Type sheet.
- Caladenia nothofageti** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(5): 226 f.1 (1997).
Petalochilus nothofageti (D.L.Jones, Molloy & M.A.Clem.) Jones & M.A.Clem. *Orchadian* 13(9): 410 (2001).
- Caladenia variegata** Colenso. *Trans. & Proc. New Zealand Inst.* 17: 248 (1885).
Petalochilus variegatus (Colenso) D.L.Jones & M.A.Clem. *Orchadian* 13(9): 410 (2001).
Caladenia “big pink” tagname. Some flowers have a clear two rows of calli on the labellum, others have extra calli scattered to either side of the two rows.
- Caladenia aff. fuscata** a small pink *Caladenia* which appears similar to this variable Australian species, with 1–3 flowers (see Scanlen. *NZNOG Journal* 72: 22 [1999]). It appears to be identical with Matthews’s *Ms. Caladenia* “nitida-rosea”.
- Caladenia aff. pusilla** a tiny pink *Caladenia* with broad oval sepals and petals, an incurved dorsal sepal and a triangular labellar midlobe; grows near Wellington, Taranaki and in Northland (W.M.Curtis. *Stud. Fl. Tasman.*, 4A: 133 [1980]).
- Caladenia subgenus Stegostyla (D.L.Jones & M.A.Clem.) Hopper and A.P.Br. Austral. Syst. Bot. 17: 171–240 (2004).**
- Caladenia atradenia** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(5): 221 (1997).
Stegostyla atradenia (D.L.Jones, Molloy & M.A.Clem.) D.L.Jones & M.A.Clem. *Orchadian* 13(9): 414 (2001).
Caladenia carnea R.Br. var. *minor* forma *calliniger* Hatch. *Trans. Roy. Soc. New Zealand, Bot.* 2: 187 (1963).
Caladenia iridescens as meant by Hatch. *NZNOG Newsletter* 16: 1 (1985), is not that of R.S.Rogers (1920).
“*Caladenia calliniger*”, *Caladenia aff. iridescens* tagnames.
- Caladenia lyallii** Hook.f. Fl. Nov.-Zel. 1: 247 (1853).
Stegostyla lyallii (Hook.f.) D.L.Jones & M.A.Clem. *Orchadian* 13(9): 413 (2001).
There seem to be a number of taxa currently included in *C. lyallii* agg., including a small form from Iwitahi and Nelson Lakes.
- Caladenia aff. alpina**. Plants closer to *C. alpina* than to *C. lyallii* are in NZ. See St George. *NZNOG Journal* 63: 4 (1997).
- Calochilus R.Br. Prodr. Fl. Nov. Holland.: 320 (1810)**
- Calochilus aff. herbaceus.**
Calochilus herbaceus as meant by McCrae *NZNOG Newsletter* 24: 9 (1987) is not that of Lindl.
Calochilus campestris as meant by Hatch. *Trans. & Proc. Roy. Soc. New Zealand* 77: 248 (1949), is not that of R.Br. (1810).
- Calochilus paludosus** R.Br. *Prodr. Fl. Nov. Holland.: 320 (1810).*
- Calochilus robertsonii** Benth. *Fl. Austral.* 6: 315 (1873).
Calochilus campestris as meant by Fitzg. *Austral. Orchids* 1(4): t.6 (1878), is not that of R.Br. (1810).
Calochilus campestris as meant by Cheeseman. *Man. New Zealand Fl.* 686 (1906), is not that of R.Br. (1810).

Chiloglottis R.Br. Prodr. Fl. Nov. Holland.: 322 (1810)

Chiloglottis cornuta Hook.f. Bot. Antarct. Voy., Vol. 1, Fl. Antarct.: 69 (1844).

Caladenia cornuta (Hook.f.) Rchb.f. Beitr. Syst. Pflanzenk. 67 (1871).

Simpliglottis cornuta (Hook.f.) Szlach. Polish Bot. J. 46(1): 13 (2001).

Chiloglottis trapeziformis Fitzg. Austral. Orchids 1(3): t.8 (1877).

Myrmecchila trapeziformis (Fitzg.) D.L.Jones & M.A.Clem. Orchadian 15: 37 (2005).

Chiloglottis formicifera as meant by Cheeseman Trans. & Proc. New Zealand Inst. 33: 312 (1900), appears not to be that of Fitzg. (1877), but argument continues.

Chiloglottis valida D.L.Jones. Austral. Orchid Res. 2: 43-44 t 54 p154 (1991).

Simpliglottis valida (D.L.Jones) Szlach. Polish Bot. J. 46(1): 14 (2001).

Chiloglottis gunnii as meant by Molloy. Native orchids of NZ 9 (1983), is not that of Lindl. (1840).

Corunastylis Fitzg. Austral. Orchids 2(3): t.1 (1888) Prasophyllum alliance

Corunastylis nuda (Hook.f.) D.L.Jones & M.A.Clem. Orchadian 13(10): 461 (2002).

Prasophyllum nudum Hook.f. Fl. Nov.-Zel. 1: 242 (1853).

Prasophyllum tunicatum Hook.f. Fl. Nov.-Zel. 1: 242 (1853).

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The Corybas alliance (Corybas Salisb. Parad. Lond. t.83 [1805])

Anzybas carsei (Cheeseman) D.L.Jones & M.A.Clem. Orchadian 13(10): 443 (2002).

Corybas carsei (Cheeseman) Hatch. Trans. & Proc. Roy. Soc. New Zealand 75: 367 (1945).

Corysanthes carsei Cheeseman. Trans. & Proc. New Zealand Inst. 44: 162 (1912).

Corybas unguiculatus as meant by L.B.Moore. Fl. New Zealand Vol. 2: 116 (1970), is not *Corysanthes unguiculatus* of R.Br. (1810).

Anzybas rotundifolius (Cheeseman) D.L.Jones & M.A.Clem. Orchadian 13(10): 443 (2002).

Corybas rotundifolius (Hook.f.) Rchb.f. Beitr. Syst. Pflanzenk. 67 (1871).

Nematoceras rotundifolia Hook.f. Fl. Nov.-Zel. 1: 251 (1853).

Corysanthes rotundifolia (Hook.f.) Hook.f. Handb. N. Zeal. Fl. 266 (1864).

Corysanthes matthewsii Cheeseman. Trans. & Proc. New Zealand Inst. 31: 351 (1899).

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Corybas cheesemanii (Hook.f. ex Kirk) Kuntze. Revis. Gen. Pl. 2: 657 (1891).

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Corybas saprophyticus Hatch. Trans. & Proc. Roy. Soc. New Zealand 79: 366 t.71 (1952), is not that of Schltr. (1923).

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Corysanthes acuminata (M.A.Clem. & Hatch) Szlach. Richardiana 3(2): 97 (2003).

Corybas acuminatus M.A.Clem. & Hatch. New Zealand J. Bot. 23: 491 f.2 (1985).

Corybas rivularis as meant by Cheeseman. Man. New Zealand Fl. 697 (1906), and others (1906–1985), is not *Acianthus rivularis* of A.Cunn. (1837).

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Corysanthes hypogaea Colenso. Trans. & Proc. New Zealand Inst. 16: 336 (1884).

Nematoceras iridescens (Irwin & Molloy) Molloy, D.L.Jones & M.A.Clem. Orchadian 13(10): 449 (2002).

Corysanthes iridescens (Irwin & Molloy) Szlach. Richardiana 3(2): 98 (2003).

- Corybas iridescens Irwin & Molloy. *New Zealand J. Bot.* 34:1 (1996).
Corybas “A” tagname.
- Nematoceras longipetala** (Hatch) Molloy, D.L.Jones & M.A.Clem. *Orchadian* 13(10): 449 (2002).
Corybas macranthus (Hook.f.) Rchb.f. var. *longipetalus* Hatch. *Trans. & Proc. Roy. Soc. New Zealand* 76: 580 t.60(1) (1947).
Corybas longipetalus (Hatch) Hatch. *NZNOG Journal* 47: 6 (1993), is not that of Schltr. (1923).
Corybas orbiculatus (Colenso) L.B.Moore. *Fl. New Zealand Vol. 2*: 118 (1970), is not *Corysanthes orbiculata* of Colenso (1891).
- Nematoceras macrantha** Hook.f. *Fl. Nov.-Zel.* 1: 250 (1853).
Corybas macranthus (Hook.f.) Rchb.f. *Beitr. Syst. Pflanzenk.* 67 (1871).
Corysanthes macrantha (Hook.f.) Hook.f. *Handb. N. Zeal. Fl.* 266 (1864).
North and South Island forms differ somewhat. Probable hybrids with insect-pollinated members of the *C. trilobus* aggregate have been reported.
- Nematoceras orbiculata** (Colenso) Molloy, D.L.Jones & M.A.Clem. *Orchadian* 13(10): 449 (2002).
Corysanthes orbiculata Colenso. *Trans. & Proc. New Zealand Inst.* 23: 389 (1891).
Corybas “short tepals”, Corybas “C”, tagnames.
Corybas orbiculatus as meant by L.B.Moore. *Fl. New Zealand Vol. 2*: 118 (1970) and others (1970–1996), is not *Corysanthes orbiculatus* of Colenso (1891) - see Molloy & Irwin. *New Zealand J. Bot.* 34 (1): 5 (1996).
- Nematoceras pandurata** (Cheeseman) Molloy, D.L.Jones & M.A.Clem. *Orchadian* 13(10): 449 (2002).
Corysanthes rotundifolia var. *pandurata* Cheeseman. *Man. New Zealand Fl.* 366 (1925), is not *Nematoceras rotundifolia* of Hook.f.
This has been regarded as a synonym of *Nematoceras rivularis*, but its status remains speculative.
- Nematoceras papa** (Molloy & Irwin) Molloy, D.L.Jones & M.A.Clem. *Orchadian* 13(10): 449 (2002).
Corybas papa Molloy & Irwin. *New Zealand J. Bot.* 34(1): 5 (1996).
Corybas “Mt Messenger” and Corybas “B” tagnames.
- Nematoceras papillosa** (Colenso) Molloy, D.L.Jones & M.A.Clem. *Orchadian* 13(10): 449 (2002).
Corysanthes papillosa Colenso. *Trans. & Proc. New Zealand Inst.* 16: 337 (1884).
This has been regarded as a synonym of *Nematoceras macrantha*, but its status remains speculative.
- Nematoceras rivularis** (A.Cunn.) Hook.f. *Fl. Nov.-Zel.* 1: 251 (1853).
Acianthus rivularis A.Cunn. *Companion Bot. Mag.* 2: 376 (1837).
Corysanthes rivularis (A.Cunn.) Hook.f. *Handb. N. Zeal. Fl.* 266 (1864).
Corybas rivularis (A.Cunn.) Rchb.f. *Beitr. Syst. Pflanzenk.* 67 (1871).
Corysanthes rotundifolia as meant by Cheeseman. *Man. New Zealand Fl.* 695 (1906), is not *Nematoceras rotundifolia* of Hook.f. (1853).
Corybas orbiculatus as meant by L.B.Moore. *Fl. New Zealand Vol. 2*: 118 (1970) and others (1970–1996), is not *Corysanthes orbiculatus* of Colenso (1891).
Corybas “Kerikeri” tagname. The *Corybas rivularis* complex includes unnamed taxa tagged C. “Kaimai”, C. “rest area”, C. “Kaitarakihī”, C. “whiskers” (aka C. “viridis”), C. “Mangahua”, C. “sphagnum”, C. “veil” and C. “Pollok”.
- Nematoceras triloba** Hook.f. *Fl. Nov.-Zel.* 1: 250 (1853).
Corybas trilobus (Hook.f.) Rchb.f. *Beitr. Syst. Pflanzenk.* 67 (1871).
Corysanthes triloba (Hook.f.) Hook.f. *Handb. N. Zeal. Fl.* 265 (1864).
About 25 taxa in the *Corybas trilobus* complex are of speculative taxonomic status; they include the tiny May to July flowering forms tagged *Corybas* “pygmy”; the later-flowering C. “Trotters” (*NZNOG News-letter* 28: 10–13 [1988]), C. “Rimutaka” (*NZNOG Journal* 58: 8–9 [1996]), C. “round leaf”, C. “craigielea”, C. “darkie”, C. “trisept”, C. “trivwhite” and many others, including perhaps a tetraploid form on the Chathams (Molloy BPJ *Orchids of the Chatham Islands. DOC*, 2002).
- Singularlybas oblongus** (Hook.f.) Molloy, D.L.Jones & M.A.Clem. *Orchadian* 13(10): 449 (2002).
Nematoceras oblonga Hook.f. *Fl. Nov.-Zel.* 1: 250 t.57B (1853).
Corysanthes oblonga (Hook.f.) Hook.f. *Handb. N. Zeal. Fl.* 266 (1864).
Corybas oblongus (Hook.f.) Rchb.f. *Beitr. Syst. Pflanzenk.* 67 (1871).
There are two or three taxa included in this complex. One was named in manuscript by Matthews as *Corysanthes “aestivalis”*.

Cyrtostylis R.Br. Prodr. Fl. Nov. Holland.: 317 (1810)

Cyrtostylis subulata (Labill.) Rchb.f. Beitr. Syst. Pflanzenk. 15 (1871).
Malaxis subulata Labill. Nov. Holl. Pl. 2: 62 t.212 (1806).

Cyrtostylis R.Br. Prodr. Fl. Nov. Holland.: 322 (1810) Acianthus alliance

Cyrtostylis oblonga Hook.f. Fl. Nov.-Zel. 1: 246 (1853).

Acianthus reniformis var. oblonga (Hook.f.) Rüpp & Hatch. Proc. Linn. Soc. New South Wales 70: 59 (1946).

Cyrtostylis reniformis R.Br. Prodr. Fl. Nov. Holland.: 322 (1810).

Cyrtostylis rotundifolia Hook.f. Fl. Nov.-Zel. 1: 246 (1853).

Cyrtostylis macrophylla Hook.f. Fl. Nov.-Zel. 1: 246 (1853).

Caladenia reniformis (R.Br.) Rchb.f. Beitr. Syst. Pflanzenk. 67 (1871).

Cyrtostylis oblonga (Hook.f.) var. rotundifolia (Hook.f.) Cheeseman. Man. New Zealand Fl. 685 (1906).

Acianthus reniformis (R.Br.) Schltr. Engl. Bot. Jahrb. 34: 39 (1906).

Acianthus reniformis var. reniformis (Hook.f.) Rüpp & Hatch. Proc. Linn. Soc. New South Wales 70: 59 (1946).

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

Danhatchia australis (Hatch) Garay & Christenson. Orchadian 11(10): 470 (1995).

Yuania australis Hatch. Trans. Roy. Soc. New Zealand, Bot. 2: 185 (1963).

Drymoanthus Nicholls. Victorian Naturalist 59: 173 (1943)

Drymoanthus adversus (Hook.f.) Dockrill. Australasian Sarcanthinae 32 t.3 (1967).

Sarcochilus adversus Hook.f. Fl. Nov.-Zel. 1: 241 (1853).

Sarcochilus breviscapa Colenso. Trans. & Proc. New Zealand Inst. 14: 332 (1882).

Drymoanthus flavus St George & Molloy. New Zealand J. Bot. 32: 416 f.1 (1994).

Earina Lindl. Bot. Reg. sub t.1699 (1834)

Earina aestivalis Cheeseman. Trans. & Proc. New Zealand Inst. 51: 93 (1919).

Earina autumnalis (G.Forst.) Hook.f. Fl. Nov.-Zel. 1: 239 (1853).

Epidendrum autumnale G.Forst. Prodr. 60 (1786).

Earina suaveolens Lindl. Bot. Reg. 29 (1843).

Earina alba Colenso. Trans. & Proc. New Zealand Inst. 18: 267 (1886).

Earina mucronata Lindl. Bot. Reg. 20 sub t.1699 (1834).

Earina quadrilobata Colenso. Trans. & Proc. New Zealand Inst. 15: 325 (1883).

Gastrodia R.Br. Prodr. Fl. Nov. Holland.: 330 (1810)

Gastrodia cunninghamii Hook.f. Fl. Nov.-Zel. 1: 251 (1853).

Gastrodia leucopetala Colenso. Trans. & Proc. New Zealand Inst. 18: 268 (1886).

Gastrodia minor Petrie. Trans. & Proc. New Zealand Inst. 25: 273 t.20 f.5-7 (1893).

Gastrodia "long column" agg.: there are a number of undescribed *Gastrodia* with a long column.

Gastrodia aff. sesamoides. *Gastrodia sesamoides* as meant by Cheeseman. Man. New Zealand Fl. 697 (1906), is not that of R.Br. (1810).

Gastrodia "city" appears to be a variant.

Ichthyostomum D.L.Jones, M.A.Clem. & Molloy. Orchadian 13(11): 499 (2002) Bulbophyllum alliance

Ichthyostomum pygmaeum (Sm.) D.L.Jones, M.A.Clem. & Molloy. Orchadian 13(11): 499 (2002).

Dendrobium pygmaeum Sm. in Rees. Cycl. (Rees) 11: n.27 (1808).

Bulbophyllum pygmaeum (Sm.) Lindl. Gen. Sp. Orchid. Pl. 58 (1830).

Bolbophyllum ichthyostomum Colenso. Trans. & Proc. New Zealand Inst. 26: 319 (1894).

Microtis R.Br. Prodr. Fl. Nov. Holland.: 320 (1810) Prasophyllum alliance

Microtis arenaria Lindl. Gen. Sp. Orchid. Pl. t.306 (1840).

Microtis biloba Nicholls. Victoria Naturalist 66: 93 f.O–L (1949).

Microtis oligantha L.B.Moore. New Zealand J. Bot. 6: 473 f.1 (1969).

Microtis magnadenia as meant by Hatch. Trans. Roy. Soc. New Zealand, Bot. 2: 185–189 (1963), is not that of R.S.Rogers (1930).

Microtis parviflora R.Br. Prodr. Fl. Nov. Holland.: 321 (1810).

Microtis javanica Rchb.f. Bonplandia 5: 36 (1857).

Microtis benthamiana Rchb.f. Beitr. Syst. Pflanzenk. 24 (1871).

Microtis porrifolia (Sw.) R.Br. ex Spreng. var. *parviflora* (R.Br.) Rodway. Tasman. Fl. 159 (1903).

Microtis aemula Schltr. Bot. Jahrb. Syst. 39: 37 (1906).

Microtis bipulvinaris Nicholls. Victoria Naturalist 66: 92–94, f.A–F (1949).

Microtis holmesii Nicholls. Victoria Naturalist 66: 93 f.G–I (1949).

Microtis unifolia (G.Forst.) Rchb.f. Beitr. Syst. Pflanzenk. 62 (1871).

Ophrys unifolia G.Forst. Fl. Ins. Austr. 59 (1786).

Epipactis porrifolia Sw. Kongl. Vetensk. Acad. Nya Handl. 21: 233 (1800).

Microtis porrifolia (Sw.) R.Br. ex Spreng. Syst. Veg. (ed. 16) [Sprengel] 3: 713 (1826).

Microtis banksii A.Cunn. Bot. Mag. 62: sub 1.3377 (1835).

Microtis frutetorum Schlttdl. Linnaea 20: 568 (1847).

Microtis viridis F.Muell. Fragm. (Mueller) 5: 97 (1866).

Microtis longifolia Colenso. Trans. & Proc. New Zealand Inst. 17: 247 (1885).

Microtis papillosa Colenso. Trans. & Proc. New Zealand Inst. 18: 269 (1886).

Microtis pulchella as meant by Lindl. Gen. Sp. Orchid. Pl. 395 (1840), is not that of R.Br. (1810).

There are a number of different taxa in the *Microtis unifolia* aggregate, perhaps including some of the taxa currently placed in synonymy.

Orthoceras R.Br. Prodr. Fl. Nov. Holland.: 316 (1810)

Orthoceras novae-zeelandiae (A.Rich.) M.A.Clem., D.L.Jones & Molloy. Austral. Orchid Res., 1: 100 (1989).

Duris novae-zeelandiae A.Rich. Essai Fl. Nov. Zel. 163 t.25 f.I (1832).

Orthoceras solandri Lindl. Gen. Sp. Orchid. Pl. 512 (1840).

Orthoceras rubrum Colenso. Trans. & Proc. New Zealand Inst. 18: 273 (1886).

Orthoceras caput-serpentis Colenso. Trans. & Proc. New Zealand Inst. 22: 490 (1890).

Orthoceras strictum R.Br. forma *viride* Hatch. Trans. Roy. Soc. N.Z. Bot.2; 195 (1963).

Orthoceras strictum R.Br. Prodr. Fl. Nov. Holland.: 317 (1810).

Paracaleana Blaxell. Contr. New South Wales Natl. Herb. 4: 281 (1972)

Paracaleana minor (R.Br.) Blaxell. Contr. New South Wales Natl. Herb. 4: 281 (1972).

Caleana minor R.Br. Prodr. Fl. Nov. Holland.: 329 (1810).

Caleya minor (R.Br.) Sweet. Hort. Brit. (Sweet) 385 (1827).

Caleya sullivanii F.Muell. Australas. Chem. Druggist 4: 44 (1882).

Paracaleana sullivanii (F.Muell.) Blaxell. Contr. New South Wales Natl. Herb. 4:281 (1972).

Caleana nublingii Nicholls. Victoria Naturalist 48: 15 (1931).

Sullivania minor (R.Br.) D.L.Jones & M.A.Clem. Orchadian 15: 36 (2005).

Petalochilus R.S.Rogers. J. Bot. 62: 65 (1924) Caladenia alliance

Petalochilus calyciformis R.S.Rogers. J. Bot. 62: 66, (1924).

Moore (1970) treated this as an aberrant form of *Caladenia*.

Petalochilus saccatus R.S.Rogers. J. Bot. 62: 66 t.571, 4–7 (1924).

Caladenia saccata (R.S.Rogers) Hopper & A.P.Br. Austral. Syst. Bot. 17: 171–240 (2004).

Moore (1970) treated this as an aberrant form of *Caladenia*.

Prasophyllum R.Br. Prodr. Fl. Nov. Holland.: 317 (1810)

Prasophyllum colensoi Hook.f. Fl. Nov.-Zel. 1: 241 (1853).

Prasophyllum pauciflorum Colenso. Trans. & Proc. New Zealand Inst. 18: 273 (1886).

Prasophyllum rogersii as meant by Hatch. Trans. & Proc. Roy. Soc. New Zealand 76: 290 (1946), is not that of R.S.Rogers & Rees (1921).

Probably a number of taxa, possibly including Irwin's P. "A" and P. "B" (NZNOG Journal 79: 9–10 [2001]).

Prasophyllum hectori (Buchanan) Molloy, D.L.Jones & M.A.Clem. Orchadian 15: 41 (2005).

Gastrodia hectori Buchanan. Trans. & Proc. New Zealand Inst. 19: 214 (1886).

Prasophyllum patens as meant by Cheeseman. Man. New Zealand Fl. (1906), is not that of R.Br. (1810).

Prasophyllum suttoni as meant by Hatch. Trans. & Proc. Roy. Soc. New Zealand 76: 291 (1946), is not that of Rüpp (1928).

There may be more than one taxon here.

Pterostylis R.Br. Prodr. Fl. Nov. Holland.: 326 (1810)

Pterostylis agathicola D.L.Jones, Molloy & M.A.Clem. Orchadian 12(6): 266 (1997).

Pterostylis montana (Hatch) var. *rubricaulis* (Cheeseman) Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 240 plate.23 (1949).

Pterostylis graminea (Hook.f.) var. *rubricaulis* H.B.Matthews ex Cheeseman. Man. New Zealand Fl. 351 (1925).

Pterostylis "rubricaulis" tagname.

Pterostylis alobula (Hatch) L.B.Moore. New Zealand J. Bot. 6: 486 f.3 (1969).

Diplodium alobulum (Hatch) D.L.Jones, Molloy & M.A.Clem. Austral. Orchid Res. 4: 70 (2002).

Pterostylis trullifolia as meant by Cheeseman. Man. New Zealand Fl. (1906), is not that of Hook.f.

Pterostylis trullifolia Hook.f. var. *alobula* Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 244, t.30, f.3E–H (1949).

Pterostylis alveata Garnet. Victoria Naturalist 59: 91 (1939).

Diplodium alveatum (Garnet) D.L.Jones, Molloy & M.A.Clem. Austral. Orchid Res. 4: 70 (2002).

Pterostylis areolata Petrie. Trans. & Proc. New Zealand Inst. 50: 210 (1918).

Pterostylis auriculata Colenso. Trans. & Proc. New Zealand Inst. 22: 489 (1890).

Pterostylis "Catlins" tagname

Pterostylis australis Hook.f. Fl. Nov.-Zel. 1: 248 (1853).

Pterostylis banksii A.Cunn. Companion Bot. Mag. 2: 376 (1837).

Pterostylis emarginata Colenso. Trans. & Proc. New Zealand Inst. 15: 328 (1883).

Pterostylis speciosa Colenso. Trans. & Proc. New Zealand Inst. 22: 488 (1890).

Pterostylis subsimilis Colenso. Trans. & Proc. New Zealand Inst. 28: 611 (1896).

Pterostylis aff. banksii A smaller taxon than true *P. banksii*, common around Wellington, and apparently found elsewhere (see NZNOG Journal 80: 14,19 [2001]).

Pterostylis brumalis L.B.Moore. New Zealand J. Bot. 6: 485 f.3 (1969).

Diplodium brumalis (L.B.Moore) D.L.Jones, Molloy & M.A.Clem. Austral. Orchid Res. 4: 70 (2002).

Pterostylis cardiostigma D.Cooper. New Zealand J. Bot. 21: 97 f.1,2 (1983).

Pterostylis cernua D.L.Jones, Molloy & M.A.Clem. Orchadian 12(6): 267 f (1997).

Pterostylis foliata Hook.f. Fl. Nov.-Zel. 1: 249 (1853).

Pterostylis gracilis Nicholls. Victoria Naturalist 43: 324–326 (1927).

Pterostylis vereenae R.S.Rogers. Trans. & Proc. Roy. Soc. South Australia 38: 360–361 f.18(2) (1914).

Pterostylis graminea Hook.f. Fl. Nov.-Zel. 1: 248 (1853).

There may be several taxa in the *P. graminea* complex, including one tagged *P. "sphagnum"*.

Pterostylis humilis R.S.Rogers. Trans. & Proc. Roy. Soc. South Australia 46: 151 (1922).

Pterostylis irsoniana Hatch. Trans. & Proc. Roy. Soc. New Zealand 78: 104 t.18 (1950).

Pterostylis irwinii D.L.Jones, Molloy & M.A.Clem. Orchadian 12(6): 269 (1997).

Pterostylis "Erua" tagname.

Pterostylis micromega Hook.f. Fl. Nov.-Zel. 1: 248 (1853).

Pterostylis polyphylla Colenso. Trans. & Proc. New Zealand Inst. 22: 489 (1890).

- Pterostylis furcata* Lindl. var. *micromega* Hatch. Trans. Roy. Soc. New Zealand 80: 326 (1953).
- Pterostylis montana*** Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 239 t.22 (1949).
- Pterostylis* aff. *montana* agg.**: includes several undescribed taxa.
- Pterostylis nutans*** R.Br. Prodr. Fl. Nov. Holland.: 327 (1810).
- Pterostylis matthewsii* Cheeseman. Trans. & Proc. New Zealand Inst. 47: 46 (1915).
- Pterostylis oliveri*** Petrie. Trans. & Proc. New Zealand Inst. 26: 270 (1894).
- Pterostylis paludosa*** D.L.Jones, Molloy & M.A.Clem. Orchadian 12(6): 271 (1997).
- Pterostylis montana* Hatch. var. *linearis* Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 243 plate.29, 2 (1949).
- Pterostylis* “*linearis*” tagname.
- Pterostylis patens*** Colenso. Trans. & Proc. New Zealand Inst. 18: 270 (1886).
- Pterostylis banksii* Hook.f. var. *patens* (Colenso) Hatch. Trans. & Proc. Roy. Soc. New Zealand 75: 370 (1945).
- Pterostylis porrecta*** D.L.Jones, Molloy & M.A.Clem. Orchadian 12(6): 272 (1997).
- Pterostylis* aff. *graminea*.
- P. “*Hackett*” tagname.
- Pterostylis puberula*** Hook.f. Fl. Nov.-Zel. 1: 249 (1853).
- Linguella puberula* (Hook.f.) D.L.Jones, M.A.Clem. & Molloy. Austral. Orchid Res. 4: 75 (2002)
- Pterostylis nana* as meant by Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 237 (1949), is not that of R.Br. (1810).
- Pterostylis* aff. *nana*.
- Pterostylis silvicultrix*** (F.Muell.) Molloy, D.L.Jones & M.A.Clem. Austral. Orchid Res. 4: 66 (2002).
- Pterostylis banksii* var. *silvicultrix* F.Muell. Veg. Chath. Is. 51 (1864).
- Pterostylis tanyпода*** D.L.Jones, Molloy & M.A.Clem. Orchadian 12(6): 273 (1997).
- Hymenochilus tanypodus* (D.L.Jones, Molloy & M.A.Clem.) D.L.Jones, M.A.Clem. & Molloy. Austral. Orchid Res. 4: 74 (2002).
- Pterostylis cynocephala* as meant by L.B.Moore. Fl. New Zealand Vol. 2: 135 (1970) and others (1970–1997), is not that of Fitzg. (1876).
- Pterostylis tasmanica*** D.L.Jones. Muelleria 8(2): 177 (1994).
- Pterostylis squamata* as meant by Hook.f. Fl. Nov.-Zel. 1: 249 (1853), is not that of R.Br. (1810).
- Pterostylis barbata* as meant by Cheeseman. Man. New Zealand Fl. 683 (1906), is not that of Lindl. (1840).
- Pterostylis plumosa* as meant by Cooper. Field guide to NZ native orchids 51 (1981), is not that of Cady (1969).
- Plumatchilos tasmanicum* (D.L.Jones) Szlach. Polish Bot. J. 46(1): 23 (2001).
- Pterostylis tristis*** Colenso. Trans. & Proc. New Zealand Inst. 18: 271 (1886).
- Hymenochilus tristis* (Colenso) D.L.Jones, M.A.Clem. & Molloy. Austral. Orchid Res. 4: 74 (2002).
- Pterostylis mutica* as meant by Cheeseman. Trans. & Proc. New Zealand Inst. 15: 300 (1883), is not that of R.Br. (1810).
- Pterostylis trullifolia*** Hook.f. Fl. Nov.-Zel. 1: 249 (1853).
- Pterostylis rubella* Colenso. Trans. & Proc. New Zealand Inst. 18: 271 (1886).
- Pterostylis trullifolia* Hook.f. var. *gracilis* Cheeseman. Trans. & Proc. New Zealand Inst. 47: 271 (1915).
- Pterostylis trullifolia* Hook.f. var. *rubella* Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 244 (1949).
- Diplodium trullifolium* (Hook.f.) D.L.Jones, Molloy & M.A.Clem. Austral. Orchid Res. 4: 72 (2002).
- Pterostylis venosa*** Colenso. Trans. & Proc. New Zealand Inst. 28: 610 (1896).
- Pterostylis confertifolia* Allan. Trans. & Proc. New Zealand Inst. 56: 32 (1926).
- Pterostylis trifolia* Colenso. Trans. & Proc. New Zealand Inst. 31: 281 (1899).

Spiranthes Rich. De Orchid. Eur. 20, 28, 36 (1817)

- Spiranthes novae-zelandiae*** Hook.f. Fl. Nov.-Zel. 1: 243 (1853).
- Spiranthes australis* as meant by Hook.f. Handb. N. Zeal. Fl. 272 (1864), is not that of Lindl. (1824).
- Spiranthes sinensis* as meant by Rupp & Hatch. Proc. Linn. Soc. New South Wales 70: 58 (1946), is not that of Ames (1908).
- Spiranthes lancea* as meant by Hatch. Trans. Roy. Soc. New Zealand 82: 614 (1954), is not that of

Backer, Bakh.f. & Steenis (1950).

The name *Neottia sinensis* was never used for NZ plants. Nor was the name *Spiranthes sinensis* var. *australis* (R.Br.) H.Hara & Kitam. *Acta Phytotox. Geobot.* 36 (1-3): 93 (1985).

***Spiranthes* “Motutangi”** tagname for endangered Far North taxon similar to *S. australis*.

***Thelymitra* J.R.Forst. & G.Forst. Char. Gen. Pl. 97 t.49 (1776)**

Thelymitra aemula Cheeseman. *Trans. & Proc. New Zealand Inst.* 51: 94 (1919).

Thelymitra* aff. *brevifolia Jeanes

Thelymitra carnea R.Br. *Prodr. Fl. Nov. Holland.:* 314 (1810).

Thelymitra imberbis Hook.f. *Fl. Nov.-Zel.* 1: 244 (1853).

Thelymitra carnea R.Br. var. *imberbis* (Hook.f.) Rupp & Hatch. *Proc. Linn. Soc. New South Wales* 70: 59 (1946).

Thelymitra cyanea (Lindl.) Benth. *Fl. Austral.* 6: 323 (1873).

Macdonaldia cyanea Lindl. *Bot. Reg.* 25 (1840).

Thelymitra uniflora Hook.f. *Bot. Antarct. Voy., Vol. 1, Fl. Antarct.:* 70 (1844).

Thelymitra venosa as meant by Cheeseman. *Man. New Zealand Fl.* 671 (1906), is not that of R.Br. (1810).

Thelymitra venosa R.Br. var. *typica* Hatch, var. *cedricsmithii* Hatch, var. *cyanea* Hatch. *Trans. & Proc.*

Roy. Soc. New Zealand 79: 390–391 (1952).

Thelymitra* *Xdentata: a sterile hybrid of *T. longifolia* X *T. pulchella*.

Thelymitra dentata L.B.Moore. *New Zealand J. Bot.* 6: 478 f.2 (1969).

Thelymitra formosa Colenso. *Trans. & Proc. New Zealand Inst.* 16: 338 (1884).

Thelymitra circumsepta as meant by Hatch. *NZNOG Journal* 65: 8 (1997), is not that of Fitzg. (1878).

Thelymitra hatchii L.B.Moore. *New Zealand J. Bot.* 6: 477 f.2 (1969).

Thelymitra pachyphylla as meant by Hatch. *Trans. & Proc. Roy. Soc. New Zealand* 79: 394 plate 79 D–H (1952), is not that of Cheeseman (1906).

Thelymitra intermedia Berggr. *Minneskr. Fisiog. Sallsk. Lund* 8: 21 f (1878).

Thelymitra longifolia J.R.Forst. & G.Forst. var. *stenopetala* Hatch. *Trans. & Proc. Roy. Soc. New Zealand* 79: 396 plate 80 F–H (1952).

Thelymitra longifolia J.R.Forst. & G.Forst. var. *intermedia* Hatch. *Trans. & Proc. Roy. Soc. New Zealand* 79: 396 plate 80 J (1952).

Was tagged *T. “pseudopauciflora”* for a time.

Thelymitra colensoi Hook.f. *Handb. N. Zeal. Fl.* 271 (1864) has been identified with *T. intermedia* but the description does not fit well.

***Thelymitra* aff. *ixioides*.**

Thelymitra ixioides as meant by Hook.f. *Handb. N. Zeal. Fl.* 669 (1864), is not that of Swartz. (Kongl. Vetensk. Acad. *Nya Handl.* 21: 253, t.3, f.L [1800]).

Thelymitra ixioides var. *typica* (Hook.f.) Rupp & Hatch. *Proc. Linn. Soc. New South Wales* 70: 59 (1945).

T. ixioides is insect pollinated in Australia – the NZ taxon is not.

Thelymitra longifolia J.R.Forst. & G.Forst. *Char. Gen. Pl.* 98 t.49 (1776).

Serapias regularis Banks & Sol. ex G.Forst. *Prodr.* 59 (1776).

Thelymitra forsteri Sw. *Kongl. Vetensk. Acad. Nya Handl.* 21: 228 (1800).

Thelymitra nemoralis Colenso. *Trans. & Proc. New Zealand Inst.* 17: 249 (1885).

Thelymitra alba Colenso. *Trans. & Proc. New Zealand Inst.* 18: 272 (1886).

Thelymitra cornuta Colenso. *Trans. & Proc. New Zealand Inst.* 20: 206 (1888).

Thelymitra longifolia J.R.Forst. & G.Forst. var. *alba* (Colenso) Cheeseman. *Man. New Zealand Fl.* 339 (1925).

Thelymitra longifolia J.R.Forst. & G.Forst. var. *forsteri* Hatch. *Trans. & Proc. Roy. Soc. New Zealand* 79: 396 p1.80 B–E (1952).

Thelymitra aristata as meant by Hatch. *Trans. & Proc. Roy. Soc. New Zealand* 79 pl. 79–80 (1952), is not that of Lindl. (1840).

***Thelymitra* aff. *longifolia* agg.:** some undescribed taxa that appear to be insect-pollinated.

Thelymitra malvina M.A.Clem., D.L.Jones & Molloy. *Austral. Orchid Res.* 1: 141 (1989).

Thelymitra matthewsii Cheeseman. *Trans. & Proc. New Zealand Inst.* 43: 177 (1911).

Thelymitra nervosa Colenso. Trans. & Proc. New Zealand Inst. 20: 207 (1888).

Thelymitra decora Cheeseman. Man. New Zealand Fl. 1151 (1906).

Thelymitra aff. pauciflora agg.

Thelymitra pauciflora as meant by Cheeseman. Man. New Zealand Fl., ed. 2: 340 (1925), and others until now, is not that of R.Br. (Prod. 314 [1810]).

Thelymitra pulchella Hook.f. Fl. Nov.-Zel. 1: 244 (1853).

Thelymitra concinna Colenso. Trans. & Proc. New Zealand Inst. 20: 207 (1888).

Thelymitra fimbriata Colenso. Trans. & Proc. New Zealand Inst. 22: 490 (1890).

Thelymitra pachyphylla Cheeseman. Man. New Zealand Fl. 1151 (1906).

Thelymitra caesia Petrie. Trans. & Proc. New Zealand Inst. 51: 107 (1919).

T. pulchella is a very variable species, yet all of these appear to have features that are relatively stable in some populations.

Thelymitra purpureofusca Colenso. Trans. & Proc. New Zealand Inst. 17: 249 (1885).

Thelymitra "Whakapapa": undescribed taxon from Ruapehu, may be this, or may be distinct.

Thelymitra sansilia Irwin ex Hatch. Trans. & Proc. Roy. Soc. New Zealand 79: 397 pl. 81 B-E (1952).

Thelymitra tholiformis Molloy & Hatch. New Zealand J. Bot. 28: 111 f.6 (1990).

Thelymitra intermedia as meant by L.B.Moore. Fl. New Zealand Vol. 2: 129 (1970), is not that of Berggr. (1878).

Thelymitra "Ahipara": a cleistogamous, unnamed taxon from the far north.

Thelymitra "Comet": a large, late-flowering Thelymitra from the Kaweka range. Appears to be sterile, so probably a hybrid.

Thelymitra "darkie": undescribed taxon from the Far North. See McCrae NZNOG Journal 24: 11; 77: 22 (1987).

Thelymitra "rough leaf": undescribed taxon from the Far North. See McCrae NZNOG Journal 24: 11; 77: 22 (1987).

Thelymitra "sky": undescribed taxon from the Far North. See Scanlen NZNOG 70: 30-35 f.6 (1998).

Townsonia Cheeseman. Man. New Zealand Fl. 692 (1906) **Acianthus alliance**

Townsonia deflexa Cheeseman. Man. New Zealand Fl. 692 (1906).

Townsonia viridis as meant by Schltr. Repert. Spec. Nov. Regni Veg. 9: 250 (1911), is not Acianthus viridis of Hook.f. (1860).

Acianthus viridis as meant by L.B.Moore. Fl. New Zealand Vol. 2: 107 (1970), is not that of Hook.f. (1860).

Waireia D.L.Jones, M.A.Clem. & Molloy. Orchadian 12(6): 282 (1997)

Waireia stenopetala (Hook.f.) D.L.Jones, M.A.Clem. & Molloy. Orchadian 12(6): 282 (1997).

Thelymitra stenopetala (Hook.f.) Bot. Antarct. Voy., Vol. 1, Fl. Antarct.: 69 (1844).

Lyperanthus antarcticus Hook.f. Bot. Antarct. Voy., Vol. 1, Fl. Antarct.: 544 (1847).

Winika M.A.Clem., D.L.Jones & Molloy. Orchadian 12(5): 214 (1997) Dendrobium alliance

Winika cunninghamii (Lindl.) M.A.Clem., D.L.Jones & Molloy. Orchadian 12(5): 214 (1997).

Dendrobium biforum as meant by A.Rich. Essai Fl. Nov. Zel. 221 (1832), is not that of Sw. (1800).

The new *Field guide to the New Zealand orchids*
(see page 25) will answer some of the questions
that reading the above has raised for you.

elementaryedhatch

6: *Caladenia* (beautiful glands, of the labellum)

—drawings by Ian St George

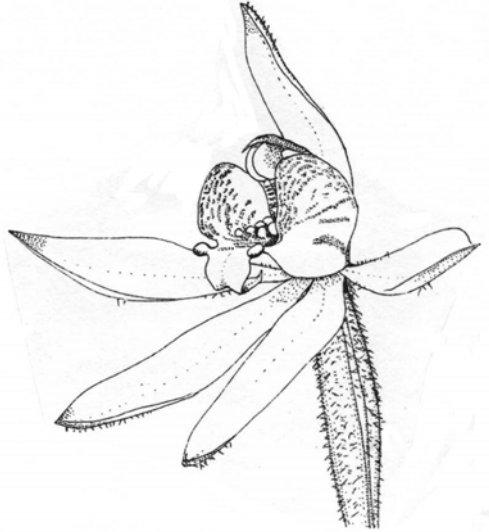
In NZ small, ± hairy plants with a single leaf and usually 1, but occasionally more, white, pink or mauve flowers. The labellum is 3-lobed, with the disc and midlobe variously dotted with brightly coloured calli, in rows or scattered.

1: *Caladenia alata* → (the winged column)

Flowers white or pink: the midlobe of the labellum normally has a large orange callus on either side at the base, but these are sometimes rudimentary or wanting. The midlobe has an orange patch at the tip, but this is often recurved and so hidden

Distribution – Australia – Tasmania, Victoria, New South Wales, Queensland. Also in New Caledonia. New Zealand – North Id. – from the North Cape to Rotorua

Flowers – August-September – self pollinated



2: *Caladenia atradenia* ← (the dark labellar calli)

The flower is dark green with red pubescence, the dorsal sepal strongly cucullate, and the labellum disc, midlobe and all the calli, a dark chocolate-brown. The labellar calli may be in 2 rows or scattered

Distribution – endemic – North Id. – Kaitaia to Iwitahi: South Id. – Nelson district.

Flowers – September-October – self pollinated

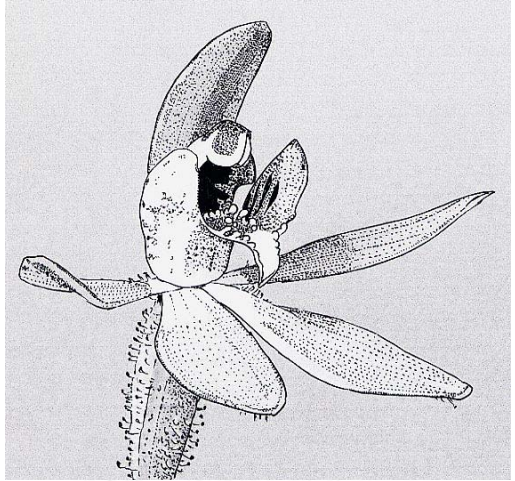
3: *Caladenia bartlettii* →

(F.W. Bartlett of Silverdale)

Flowers dark glazed mauve. Disc calli in 2 rows with bright yellow tips. Midlobe bright yellow, irregularly sinuate, without marginal calli

Distribution – endemic – North Id. – from the North Cape to Auckland, usually in the vicinity of the kauri

Flowers – October-November – insect pollinated



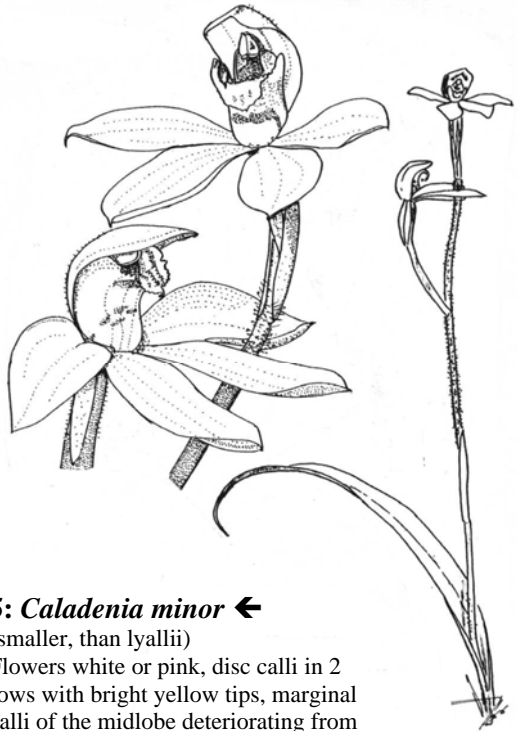
4: *Caladenia lyallii* ↘

(David Lyall, naval surgeon/naturalist)

A much larger plant than those of the *carnea* complex, *C.lyallii* normally has 4 rows of calli on the labellum disc. At Iwitahi and in Otago however, large-flowered plants have been recorded with the labellar calli in 6 rows

Distribution – endemic – North Id.: from Iwitahi southwards: South, Stewart and Chatham Is. – mainly subalpine, but coming down to sea level in the far south

Flowers – November-January – insect pollinated



5: *Caladenia minor* ←

(smaller, than *lyallii*)

Flowers white or pink, disc calli in 2 rows with bright yellow tips, marginal calli of the midlobe deteriorating from base to tip

Distribution – endemic – Three Kings Is.: North and South Is. – lowland

Flowers – September-November – insect pollinated

historical reprint

— from TF Cheeseman's *Illustrations of the New Zealand Flora*, Vol. II, Government Printer, 1914. Drawings by Miss Matilda Smith, engraved by John Nugent Fitch.

This is now *Adelopetalum tuberculatum*.

BULBOPHYLLUM TUBERCULATUM

family ORCHIDACEÆ.]

[genus BULBOPHYLLUM THOURS..

Bulbophyllum tuberculatum, *Col. in Trans. N.Z. Inst.* xvi (1884), 326; Cheesem. *Man. N.Z. Fl.* 664.

Bulbophyllum tuberculatum, the ... species figured on the accompanying plate, is a charming but little-known plant. It was first described, by Mr. Colenso in 1884, from specimens collected by Mr. A. Hamilton at Petane, Hawke's Bay. At a later date Mr. Hamilton also gathered it in woods near Palmerston North. It has since been found near Kaitaia by Mr. R. H. Matthews, in the Lower Waikato by Mr. Carse, in the East Cape district by Mr. L. Wail, and near Collingwood by Mr. Dall. In all probability it is not uncommon in forest districts in the North Island and the northern portions of the South Island; but as it is principally found on the upper branches of tall forest-trees it is not at all easy to detect its presence. Although agreeing in habit with *B. pygmæum*, it differs in the larger size, 2—4-flowered peduncles, and larger flowers with a bright orange-red lip. The lip of *B. pygmæum* is always white.

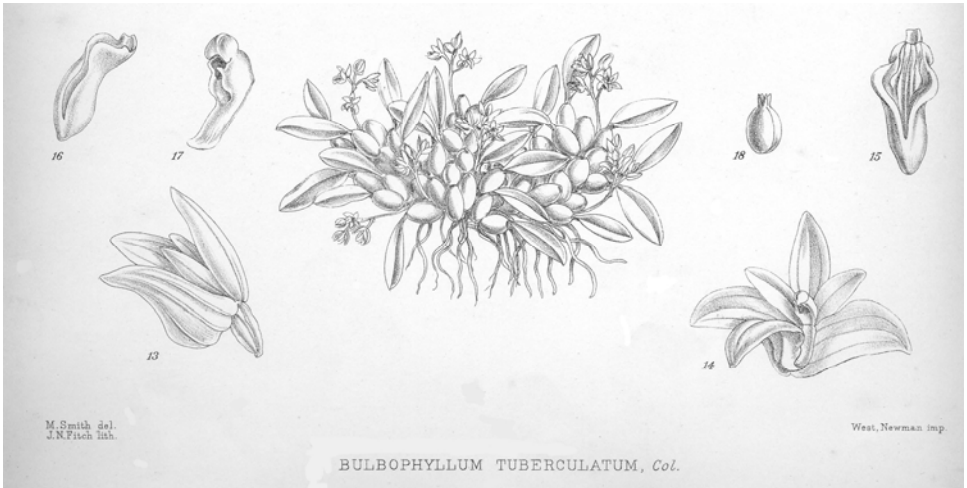


PLATE 191B. *Bulbophyllum tuberculatum*, drawn from specimens collected near Kaitaia by Mr. R. H. Matthews. Figs. 13 and 14, different views of flower (x 8); 15 and 16, front and side view of lip (greatly enlarged); 17, column (greatly enlarged); 18, ripe capsule (x 4).

notesetc

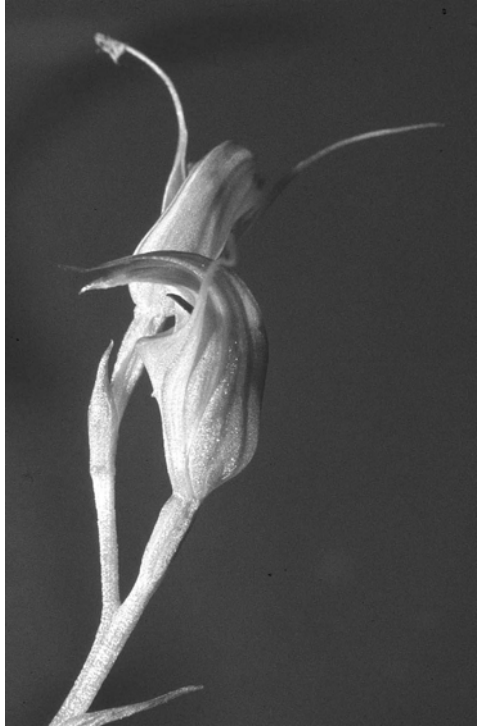
Take a look at these **websites for an interesting range of orchids....**

<http://www.ne.jp/asahi/calypso/lip/japanwild.htm> for wild orchids in Japan, including *Yoania*, *Gastrodia*, etc; <http://www.kankyosekkei.co.jp/plantnote/Gastrodia/Gastrodia00.htm> for *Gastrodia pubilabiata* (no, it isn't a porn site); <http://www.webace.com.au/~chook/orchids/gastrodia/gastrodia.html> for *G lacista*; <http://www.orchidspecies.com/orphotdir/gastrsiamensis.jpg> for *G siamensis*; <http://home.hiroshima-u.ac.jp/shoyaku/photo/Japan/Gunma/030819onino2.jpg> for *G elata*.

The Travis Wetland Trust Newsletter for October 1999 reported, "The currently flowering spider orchid has been recently identified by orchid specialist Brian Molloy, as *Corybas iridescens*. It has not been previously recorded in **Canterbury**."

Bob Bates reports [NOSSA *Journal* 2005; 29 (5): 49] the much awaited *Census of vascular plants of South Australia* edited by Barker, Barker, Jessop & Vonow. "The authors have taken a most conservative approach with the orchids, accepting only one of the recent new genera of Jones and Clements, Szlachetko, and Hopper & Brown, that being *Pheladenia deformis* to replace *Caladenia deformis*. All the other genera are included as synonyms.... The new *Census* lists about 240 species of South Australian orchids and I am aware of the existence of some sixty other unnamed species in this state. This means we now recognise some 300 species of orchid occurring in SA. This is quite a dramatic rise from the less than 120 species listed in *Flora of SA* 3rd edition in 1978." The *Census* is available from the Adelaide Botanic Gardens, with an electronic version from the Gardens' website.

Colin Ogle, stimulated by Brian Tyler's J96 cover photograph of a **double flowered *Pterostylis alobula***, rediscovered this in his archives.... are there more out there?



Double flowered *Pterostylis trullifolia*
photo: Colin Ogle

Graeme Jane and Gael Donaghy reported on **summer in the deep south** — "This last summer we sought out *Corybas* in the tussock grasslands with little success. In fact everywhere we went plants of all species were late flowering - not just a few weeks but often months late. Some did not even flower, the season was so late. Periodic snows to low levels continued to midjanuary throughout the South Island mountains. We did see *Corybas* leaves suspiciously like our tussock *trilobus* on Mt Somers, Mt Eldrig and the Hump but no sign of flowers. The typical habitat seemed to

be seepage areas (Fig. 1, inside front cover). At Bruce Irwin's prompting we also sought out *Prasophyllum* and although we saw a great range of colours (front cover, and Figs 2, 3 inside front cover) they all seemed structurally the same. The real find for the summer is what we called *Pterostylis* "aeroplane" (Fig. 4), an aberrant form of *P. australis* which we saw in several places on the way up to the Hump in south east Fiordland.

Graham Randle wrote, "On 15 July 05 I did a quick trip up to the **East Cape** to see a family member who lives in the area and to visit the Lighthouse reserve. The walk up to the lighthouse is a gut buster of over 700 steps and being in a hurry did not help. The track runs through a thick coastal forest of puriri trees, a forest quite unfamiliar to me and worth another trip. However I did see some orchids; they are not rare but you may like the record in your files. *Pterostylis trullifolia* was growing along the track between the steps; most had finished flowering but a few were still in bloom and at the top of the track out in the open there was a large area of *Corybas oblongus* in leaf. The whole area is worth another trip for an extended time. You never know what you could find. There are also large areas of manuka forest on the way which would be worth a look in the summer months. Hope this is of interest to you. I have not been out again since this trip but hope to go bush over the next few months for a few hours." *We look forward to hearing more, Graham; it is certainly an under-reported region* – Ed.

Nematoceras is a neuter noun. Why then the feminine specific epithets? Murray Dawson asked Brian Molloy, who replied, "... Briefly, a generic name ending in *-ceras* is deemed to be neuter. Why Hooker chose the feminine gender for *Nematoceras* we will never know, but he did. The St Louis Code (ICBN 2000 is quite clear on this matter: Article 62.1 p 100: 'A generic name retains the gender assigned by botanical tradition, irrespective of classical usage or the author's

original usage. A generic name without a botanical tradition retains the gender assigned by the author.' *Nematoceras* lacks a botanical tradition and retains the feminine gender assigned by its author, J.D.Hooker. Accordingly we have followed Hooker's treatment."

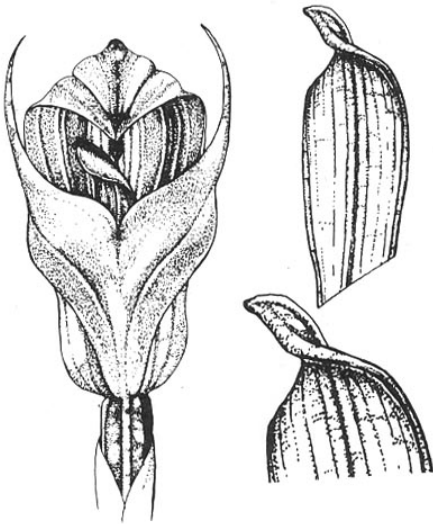
Brian Tyler wrote (23 August), "I was surprised to find **an insect (deceased) inside a *N. longipetala*** from Gladstone Road when I dissected it recently. I unfortunately cut off its wing and then lost it before I could get it under the microscope. Ian Townsend tells me it is of the family mycetophilidae." - *a fungus gnat, its head in the nectary; what a stunning photograph (outside back cover, Fig.17)*—Ed.

The *New Zealand Journal of Botany*, 2005, Vol. 43: 367–371 carried a short communication by Leah Feuerherdt and co-authors from South Australia: "**Distribution of mycorrhizal fungus associated with the endangered pink-lipped spider orchid** (*Arachnorchis* (syn. *Caladenia*) *behrii*) at Warren Conservation Park in South Australia". The very rare *Caladenia behrii* depends on mycorrhizal fungus. The authors conducted ex situ seed baiting of a population of the at Warren Conservation Park to determine the distribution of the orchid's mycorrhizal fungus and to see whether it was limiting the distribution of the orchid. Forty-five samples of topsoil and organic matter were collected systematically from in and outside the orchid population. All samples were baited with *C. behrii* seeds and incubated for 8 weeks to assess germination. Mycorrhizal fungus was present in all the 60% of seeds that germinated: it was distributed independently of the orchids. The distribution of *C. behrii* thus did not appear to be limited by the distribution of mycorrhizal fungus. Further research must focus on the inoculum potential and efficacy of the fungus/fungi in situ over a longer period, as well as other ecological aspects of the orchid's natural history, to identify the reason(s) for its rarity.

Which way does the **labellum twist**? In the *Pterostylis montana* group it twists to the right as you face the flower. I don't think I can recall a NZ orchid whose labellum twists left. But the Australian *P. curta* has a left-twisted labellum in the few illustrations I have seen of it (see below). Does anyone have other observations? or explanations?



Pterostylis aff. *montana*

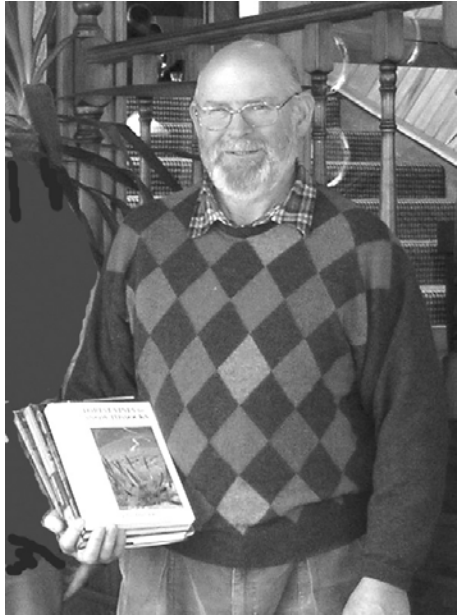


Pterostylis curta

drawings by Erika Stonor.

Fig.174 from Bates RJ, Weber JZ. Orchids of South Australia. Government Printer, SA, 1990.

Congratulations to Gordon Sylvester, recently recognised by a DoC certificate for his work with orchids: **“The Department of Conservation acknowledges the valuable contribution Gordon Sylvester has made to conservation through his work to record and protect rare orchids.”**



Gordon Sylvester with his award

The West Coast Times reported “When road maintenance on a new drain system in Kumara was threatening, Mr Sylvester took some (of the rare orchids) to raise carefully on his property, before returning them to the area once the work was complete. An avid orchid fan since the 1950s when he lived in Napier, he found several new species in Nelson, setting a total of nine records for the beautiful plants. ‘There’s plenty of room out there yet,’ he said.” Gordon notified DoC of the impending road works to the type locality of *Pterostylis cernua*. Phil Knightbridge and he consulted on the best action to take, and with the assistance of Ted Brennan and two other Doc staff collected and relocated 6 fish crates of plants

from the environs of Drain 53, and relocated these onto his property for eventual relocation back to the drain when the environment had reestablished itself. DoC and he are monitoring the populations to ensure there is no decline. "The only thing that has come out of this was the local abundance of *P. cernua* in the roadside drain compared to other locations on the coast where it is also known to exist. The type locality is now a sterile environment down to bare rock and will take some time to re-establish itself. The entire drainage ditch for 8km through the Okuku Reserve has been severely modified."

Y'all ready for this? *The Orchadian* of Sep 2005 carries a taxonomic paper by DL Jones, and MA Clements which retypifies *Caladenia* as *C. flava*, and makes **a number of name changes** to Australasian orchids. Those affecting NZ orchids are the new combinations *Sullivania minor* (R.Br.) D.L.Jones et M.A.Clem. (*Paracaleana minor*); *Myrmecchila trapeziformis* (Fitzg.) D.L.Jones et M.A.Clem. (*Chiloglottis trapeziformis*); *Myrmecchila formicifera* (Fitzg.) D.L.Jones et M.A.Clem. (*Chiloglottis formicifera*); and *Prasophyllum hectori* (Buchanan) Molloy, D.L.Jones et M.A.Clem. (one of the *P. aff. patens* agg., if indeed there are more than one). See note from Brian Molloy, p.29—Ed.
Reference: Jones D.L, Clements M.A. (2005). Miscellaneous nomenclatural notes and changes in Australian, New Guinea and New Zealand Orchidaceae. *Orchadian* 15: 33-42.

STOP PRESS "New record!" Gordon Sylvester exclaimed (if you can exclaim in an email), "Have just returned from a foray on private property and can report a sighting of a small colony of *Acianthus sinclairii* ED 48.05 between Barrytown and Punakaiki. There were about 20 plants in the colony in the Nikau dominant forest. Other species nearby *Nematoceras* aff. *trilobus*, *Earina mucronata* and *autumnalis*, *Winikia cunninghamii*:" There's magic out there still, folks....

Georgina Upson emailed (11 Sep), that last year, in the Moutere clay lowland of Nelson, she discovered a **curious *Caladenia***. White, but distinctly different to *C. nothofagei*; she has tagged it *C. "corrugated"* in the meantime. It is 2-2.5 times taller, up to 25cm or more, and multiflowered with up to four flowers but normally two. The labellar midlobe is a broad, troughed triangle shorter than the tapered oblong of *C. nothofagei*.



Caladenia "corrugated" (above), and *Caladenia nothofagei* above right. See p.24 & outside back cover.

It is longitudinally corrugated resembling a crinkle cut potato chip, giving the appearance of three lines down the midlobe. The laminar calli are tall, relatively fine, angled toward the midlobe but only bend at the club end - whereas the laminar calli of *C. not-hofagei* are shorter and more bent. The club and midlobe calli are pale cream, compared with yellow to darker cream in *C. not-hofagei*. The labellum side lobes of this plant are translucent, a feature absent in *C. nothofagei*. The flower is about a third larger, and it is a more pristine white tinged green from the pale green outer tepal colouration. Tepals are held in a planar fashion, sometimes drooping at the extremities (Figs.15, 16 p.40).

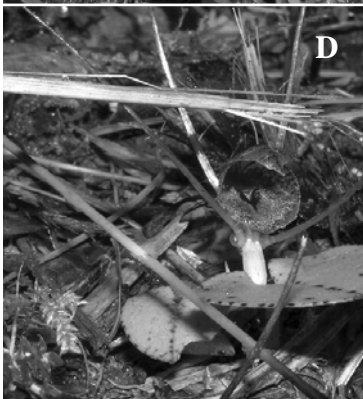
NEW!

Field guide to the New Zealand orchids

3rd (2005) edition

available now from
Brian Tyler
4 Byrd St Levin

Mark Moorhouse wrote, "... re the ***Nematoceras* found just south of Punakaiki flowering late July-early August**. ... Attached are some pics from my daughter Kendyll who is living at Charleston and responded to my request to go and have a look at her patch of coast with the following email and pictures. Photos A and B (overleaf) are taken on the beach at the end of Truman Track where a creek runs down over the cliffs and looks mighty like *N. iridescens* to me. Certainly something akin. Photos C and D (overleaf) were taken a few days later on a foray up into limestone country in the Nile River valley and appear to be similar, if not the same. Photos E and F were taken on their farm at Charleston and appear to be a different species. Kendyll thought the labellums were without hairs but otherwise are somewhat similar to *N. "whiskers"*, but we would both be most happy to be corrected in our diagnosis. They are not like the *N. "whiskers"* we have in Nelson. The photo mentioned taken at Bullock Creek was of a freshly dead flower with a spotless leaf that could pass for *N. macrantha* in appearance but not in texture...". Kendyll wrote, (28 Aug 2005), "Hi Dad. Went down to Bullock creek (Punakaiki) today and had a wander around there. We went down to the beach afterwards and I found several colonies of *Nematoceras* (see Bullock beach photo); there was only the one seedhead and no sign of any other flowers. We then went down the Truman track to the beach there and right next to the waterfall was another colony of *Nematoceras*, not so sure that it is the same variety although leaf shape is similar if not the same, see what you think. I found one flower open and two other finished flowers, no other buds (see Truman track beach photos). I looked down at the Charleston beach and found nothing, but noted that the rock there is a type of granite and not limestone. At beach level the rock seems to change from limestone to this granite between Truman track and Woodpecker Bay. Hope this is of use." —it certainly is, Kendyll, thank you—Ed.



Shock! Horror! Dismay! Startled Disbelief!!! but Bruce Irwin swears it is true: at the Fifth International Orchid Expo hosted by the Orchid Council of New Zealand, and held in Hamilton this September, the “Award for Best New Zealand Native Orchid” was awarded to... (wait for it...)

Pterostylis nodding grace, a manmade hybrid between the Australian natives *P. curta* X *P. nutans*. Now that is taking Closer Economic Relations too far! Or did I miss something? **have we joined the Australian federation?**

Pat Enright found *Nematoceras* “whiskers” at Kaitoke, the first time it has been found in Ecological Region 39.

Gordon Sylvester found these **comments** by **Joseph Dalton Hooker** as Editor in *Icones Plantarum* Third series Vol part 1 page 2. Published 1877.

“When describing *Corysanthes Cheesemani* (Tab 1120) I left in doubt certain points of structure, in respect of which I differed from the discoverer of the plant and from the artist whose figure is quoted above. These I am now enabled to clear up by means of specimens in spirits, kindly communicated by Mr. Cheeseman.

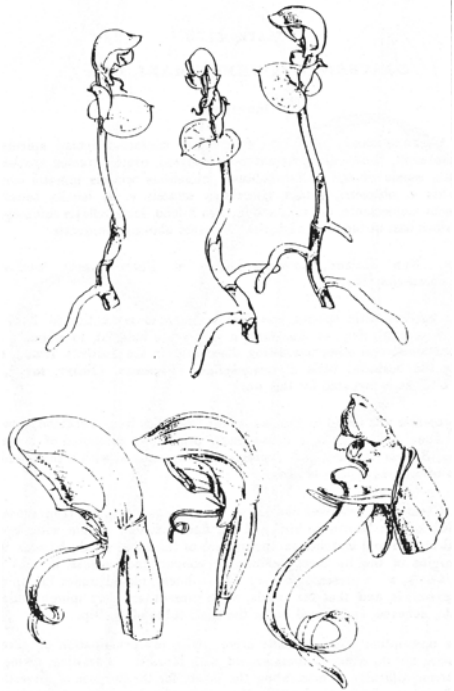
“In none of these do I find the ligulate process figured, nor anything in its place. The base of the lip is produced downwards on each side of the mesial line into a conical hollow obtuse short spur, between which spurs the two lateral sepals, reduced to subulate ascending processes, are projected as represented in figs. 1 and 2. I find no trace of petals. The lamina of the lip varies much in shape ; it appears usually as represented at fig. 1, but sometimes as in fig. 2, and in few cases it is reduced at the apex, having no reflected portion.

“As a species , *C. Cheesemani* is very clearly allied to the Australian *C. fimbriata*, Br., differing chiefly in the spurs of the lip and absence of petals.

“A specimen of *C. (Nematoceras) macrantha*, Hk. F. (Fl. N. Zeald. 1. 249, t. LVII, ; Handbook , p. 266), sent by Mr. Cheeseman

with the above, shows that the petals are inserted at the base of the lip at its outer margin, one on each side, apparently on a level with the lateral sepals, which are placed between the petals, that is to say, nearer to the mesial line of the lip. The lip is twisted from the base, so that access to the pollen and stigma is gained from the base of the flower, not as in *Corysanthes Cheesemani*, by the mouth of the lip. If this arrangement is constant, and prevails through the other plants upon which I established the genus *Nematoceras*, in the New Zealand Flora, it may indicate the propriety of retaining that genus instead of merging it in *Corysanthes*, as I have done in the ‘Handbook of New Zealand Flora.’ The whole genus demands an attentive study from the local observer, in respect of structure and mode of impregnation. - J. D. Hooker.”

“It seems,” Gordon wrote, “that the experts couldn’t agree 130 + years ago what is or not a



W.H.Fitch's drawing

correct description. How are we supposed to make definitive identification now?"

*Well, I think by looking again and again at plants, by adopting the stance that we may not have got it right the first time, and by being prepared to accept new evidence that contradicts our former views; Hooker did just that. He had, in his original description of *Corysanthes cheesemani*, described (and Fitch had illustrated) a "curious ligulate, often twisted, process, which proceeds in some specimens from the very base of the lip, at its medial line...." Goodness knows what it was, but Hooker recognised he had got it wrong and later withdrew and apologised.*

*Intriguing too, that he thought the auricles of *Nematoceras macrantha* to be entry points for pollinators. I think he was wrong about that too; I have often wondered where that myth had originated—Ed.*

Does winter chilling hasten flowering in *Nematoceras*? asked Bruce Irwin.

"In a letter to our editor, I mentioned the possibility that winter chilling may encourage early flowering in the *Nematoceras rivularis* complex. Ian thought that a novel concept and asked for a short article. I must emphasise that my impressions on the subject are just that—impressions.

"Until recently it was thought that the name *Corybas (Nematoceras) rivularis* applied to a single taxon. If this were so, it would be difficult to accept that *C. rivularis* flowered in early September at Waiouru, but not until early November near Kaitaia. Nowadays it is generally accepted that several taxa, whether species, subspecies or varieties make up an aggregate under the name *N. rivularis*. This being so, the anomalous flowering times might seem to be explained, but let us consider what we know about the two species from the localities mentioned.

"Distributions of the various taxa within the *N. rivularis* agg. are far from complete, but *N. rivularis* s.s. appears to be confined to the far

north, except for a disjunct colony at New Plymouth. Plants in the far north flower in November, later than any other taxon in the group. Significantly the New Plymouth colony flowers much earlier, in September & October. Those facts are surprising.

"Also surprising is that *N. longipetala*, the earliest form to flower, does so in much colder climates, as early as July in Westland and at Pukeiti near New Plymouth. Even at Waiouru, mature flowers have been recorded as early as 4 September. Clearly some *Nematoceras*, despite their fragile appearance, can withstand severe frosts. Why then does *N. rivularis* flower so late and *N. longipetala* so early? Is it because the far north experiences a more severe climate than Waiouru? I borrow a famous phrase: 'Not bloody likely'.

"Whether or not chilling encourages early flowering may become clear when the various taxa in the *N. rivularis* agg. are better understood and their flowering times recorded more precisely".

Well, isn't that a fascinating concept? I looked on the net, and came up with a few possible pointers about winter chilling.

For instance, fruit trees grow rapidly during the spring and first half of the summer. Later in the season, the growth rate declines, and in the autumn stops, as length of day and temperatures decrease and the trees drop their leaves. In a reaction to length of day and temperature, the trees produce growth inhibitors (eg, endogenous gibberellins and abscisic acid). In the winter the trees are dormant because of the growth inhibitors.

Dormancy is broken when sufficient cold temperature breaks down the growth inhibitors. This is called vernalisation, "chilling," or "winter chill." A cumulative number of hours of chilling (temperature below 7 deg C), is required to break dormancy, and the number is specific to each species. Once the number of hours of chilling has been achieved, active growth can resume in the spring when the trees are exposed to warm enough temperatures for natural growth processes to begin.

Temperate trees grow best where the winters are warm enough that plant tissue is not killed from extreme low temperatures, but not so warm that buds receive inadequate chilling to break dormancy. Flower and shoot buds of deciduous fruit trees and olives will grow normally in the spring only after exposure to sufficient winter cold. After winters with inadequate chilling, the plants leaf out late in the season, blossoming is prolonged, buds may deteriorate and drop, and few flowers are produced.

In Te Puke a year of high winter chilling will generally mean more kiwifruit flowers, an earlier flowering period once spring temperatures arrive, and often a more compacted flowering period.

Phaius tankervilleae is a large terrestrial orchid, native over a wide range from China to Australia, and plants from the northern regions can withstand temperatures down to 40°F (5°C), possibly lower. In fact, although in general the plants like warm to intermediate temperatures, they need a period of winter chilling to bloom satisfactorily.

Joseph Arditti (in "Fundamentals of orchid biology") lists orchids whose flowering appears to be related to photoperiodism (relative light and dark periods), and thermoperiodism (alternation of, or specific temperatures). Low temperature dependent plants include a number of *Cattleya*, *Dendrobium*, *Cymbidium*, *Sarcophilus* and *Thrixspermum* species.

For some orchids, the chilling requirements have been found to be quite specific: for instance *Paphiopedilum insigne* needed night temperatures of 13 deg C for 2-3 weeks.

Of course we know nothing of the chill requirements of our native orchids, but if they behave in similar fashion to other plants, including other orchids, Bruce may well be right: chilling of *Nematoceras* may destroy growth inhibitors that may be present in the tubers during dormancy, and may thus induce early flowering; the danger of early flowering is of course frost damage, and I have seen *Nematoceras longipetala* whose tepal ends were withered by frost—Ed.

Brian Molloy wrote, "In the latest *Orchadian* (Vol 15 No 1) there are **several changes in orchid nomenclature** proposed by David Jones and Mark Clements that affect New Zealand orchids.

"1. Firstly, these authors respond to the criticism of Hopper and Brown about their treatment of the Caladeniinae, especially their recognition of *Caladenia flava* R.Br. as the generic type of *Caladenia*, based on a paper by Pfitzer in 1889. Their arguments are soundly based and supported by two prominent Australian taxonomists Laurie Adams and Tony Orchard. After traversing the historical treatments of this group they conclude that their choice should stand. I concur with them on this issue, along with their recognition of the segregate genera affecting New Zealand, viz., *Stegostyla* and *Petalochilus*.

"2. Jones and Clements reinstate the genus *Sullivania* F.Muell., an earlier name for *Paracaleana* Blaxell; recognise two subgenera, *Sullivania* and *Tanychila*; and provide new combinations, including one affecting New Zealand, viz., *Sullivania minor* (R.Br.) D.L.Jones et M.A.Clem. *comb.nov.*

"3. A new genus *Myrmechila* D.L.Jones et M.A.Clem. is segregated from *Chiloglottis*, and new combinations made, including one affecting New Zealand, viz., *Myrmechila trapeziformis* (Fitzg.) D.L.Jones et M.A.Clem. *comb. nov.* The other segregate genus proposed by Szlachetko in 2001, *Simpliglottis*, is now accepted, based on molecular studies and morphology. Thus for New Zealand we can safely recognise *Simpliglottis cornuta* (Hook.f.) Szlach., and *Simpliglottis valida* (D.L.Jones) Szlach.

"4. The following transfer and new combination affecting New Zealand is made: *Prasophyllum hectori* (Buchanan) Molloy, D.L.Jones et M.A.Clem. *comb. nov.*"

Reference

Jones, D.L., Clements, M.A. 2005: Miscellaneous nomenclatural notes and changes in Australian, New Guinea and New Zealand Orchidaceae. *Orchadian* 15 (1) : 33-42. (includes references to other authors cited).

1. Field trip report - Potter's Scrub 10 July 05

by Thelma Bridle (From *J.NOSSA Vol.29:7 August 2005*)

Winter is greenhood flowering time for terrestrial orchids in South Australia and Potter's Scrub provided a feast of these. Potter's Scrub is part of the Coorong National Park and is situated about 20km west of Meningie. Limestone ridges run NE/SW and orchids grow mainly on the SE facing slopes in sandy soil. Bridal creeper was found to be extremely invasive here and conservation efforts will be made to get some rust spore control at this site.

About 10 years ago *Oligochaetochilus* (then *Pterostylis*) *arenicola* was found in large numbers and monitored at the site for a number of years. Rosettes were still abundant with larger rosettes having obvious developing buds. Part of the area suffered a bushfire in 1994.

The spider *Caladenia* species here have surprisingly been lumped together as *C. australis*. Previously NOSSA have recorded *C. reticulata* and hybrids, *C. stellata*, *C. aff. valida* and *C. tensa*. Some further examination of flowers is required to ascertain species present. A number of leaves were found of *Caladenia* spp., some with buds developing in the leaf axil. *C. latifolia* was abundant throughout and some had quite well developed buds.

Five different *Diploidium* (*Pterostylis*) species have been recorded at Potter's Scrub. The tall purple coloured *D. aff. alatum* flowers early. Any flowers for 2005 had either aborted, due no doubt to the earlier drought conditions or been chewed off. There was quite a lot of evidence of animal diggings in the area.

D. erythroconchum, with large reddish-brown hoods and "horns" (lateral sepals) at right angles to the hood, were just coming into flower, whereas *D. dolichocheilum* were

in full flower. The flowers of this species were bright red with the sun shining through and the "horns" were pointing forwards. The narrow labellum just pointed through the slightly v-shaped sinus. The large, thick labellum of *D. erythroconchum* was quite prominent through a more pronounced v-shaped sinus.

A new species to some of us was the *D. aff. dolichocheilum* "Newland Head", which is also known to grow on Kangaroo Island. It occurred quite commonly at Potter's Scrub. The flower was narrower than *D. dolichocheilum*, with prominent green veining on the broad, swollen petals. The large, greeny labellum just reached the slightly notched sinus.

D. robustum was the short mallee form at this site. One very large colony had several groups of flowering plants. With a long flowering season, May – Sept, there were still a number of buds present.

All these *Diploidium* species had many more non-flowering rosettes than flowering scapes, usually reckoned to be in the ratio 100:1.

Cyrtostylis robusta had large colonies of leaves but far fewer flowers. One smaller colony had variegated leaves, so it would be expected that the buds would develop into paler flowers than normal. The *Thelymitra* aff. *nuda* had broad, strap leaves which flopped from mid-way along their length. Leaves for the rare *T. epipactoides* were not found on this occasion, nor could 12 pairs of eyes locate *Linguella* (*Pterostylis*) *nana* "Hills" type, which has only been recorded once from this site.

Orchids recorded

Acianthus pusillus (f)(a); *Caladenia australis* (l)(b)(w); *C. latifolia* (b)(a); *Cyrtostylis robusta*

(f)(a); *Diplodium*. Aff. *alatum* "tall purple" (l)(u); *D. dolichocheilum* (f)(w); *D. aff. dolichocheilum* "Newland Head" (f)(w); *D. erythroconchum* (f)(b)(u); *D. robustum* (f)(b)(l); *Eriochilus cucullatus* (l)(u); *Hymenochilus sp.* (l); *Oligochaetochilus*; *arenicola* (b)(l)(a); *Microtis arenaria* (l)(c); *M. sp* (l); *Pterostylis pedunculata* (l); *Thelymitra aff. nuda* (l)(c). (f – flower; w – widespread; b – bud; a – abundant; l – leaf; c – common; l – localized; u – uncommon).

2. Basalt plains greenhood monitoring

by Dick Thomson (*From ANOS(Vic) Bulletin Vol 38:4 October 2005*)

Out on the basalt plains where the wind blows and the sun rarely shines in winter; "Pleurisy Plains" as the locals know it, four *Pterostylis* species grow - one named and three to be named. They choose to grow more or less together, on the rocky basalt knolls where farmers have retained native grassland vegetation.

Our challenge today was to identify these orchids and indicate what proportion of the four species made up the approximately 4000

plants over about a dozen sites.

Prior to the day, and to help with identification, we had all undertaken detailed study of photographs of the leaves of each species, leaving us confused and with a belief that the task was impossible. After much discussion and peering at plants it was agreed that we could tell one species with about a 70% certainty and the others looked the same until they were in flower.

Our task was made a little easier when we found some of the *Pterostylis* sp. aff. *mucida* in flower. The consequence of the day's play was lots of plants marked for further monitoring as their flowers open.

You may ask why monitor now? Why not wait until they are in flower? A jolly good question! This is partly answered by noting that when the grass and herbage grows the plants are hidden. We cannot find them without a lot of difficulty and high risk of damage by trampling.

We also left with a further question. If the flowering periods of the four species overlap, might there also be hybrids present? And what of Pleurisy Plains? It was a beautiful, sunny day without a breath of breeze. Fantastic!

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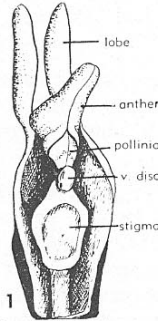
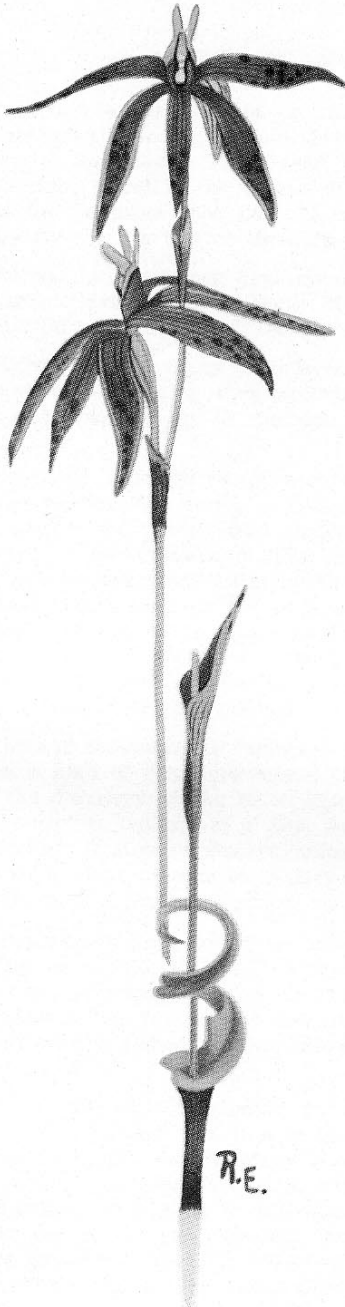
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closerelations

Thelymitra variegata

- the Queen of Sheba orchid, from Plate 4 (original in colour), Erickson R. *Orchids of the west*. 2nd ed. Paterson Brokensha, Perth, 1965.
(see also the stamp on the inside back cover)



1
Front view of column showing long lateral lobes and prominent extension of anthers projecting. Pollinia and viscid disc are present



2
Back view of column showing crest between lobes



3
Pollinia removed with viscid disc

thecolumnericscanlen

1. *Caladenia alata*: a chequered past

Michael Pratt's cover shot of a pink *Caladenia alata* on Journal 94 raised a few eyebrows. How did this far-north orchid get down to Rainbow Mountain? Michael found the more common white ones there too (pers. comm.) The Column tried to explain *C. alata*'s chequered past to new member Georgina Upson but kept stalling on minor difficulties which needed investigating. The inimitable sequence of events below is the result.

Michael's photo sparked memories in Colin Ogle who dug out his own Rainbow Mountain shots (J96:26) of *C. alata* from 15 Oct 66 first labelled *C. carnea* ssp. *minor* then *C. caternata*. The Column's 1960s shots of *C. bartlettii* had those names and a few others successively crossed out too; classification was such a shambles at that time. Peter de Lange's report of *C. alata* at Great Barrier Island and Waikumete Cemetery [J77:10] had been a big enough surprise but, south of Rotorua? Amazing! Or was it? Read on if you think you can handle another imbroglio.

Robert Brown started it all in his 1810 *Prodromus* [1] by first describing *Caladenia alata* R. Br. from Sydney, long before any Pakeha had reported it in NZ. The all important type specimen went to BM, the British Museum's herbarium.

JD Hooker would have made his own *Caladenia* collection in NZ in late 1841 [2] and he received specimens of NZ's *C. alata* (Fig. 5, inside back cover) and *C. minor* (Fig 6) from Edgerley of Hokianga and from Colenso. JDH's specimen sheet labelled "409 *Caladenia* N. Zealand" at K (Herbarium at Kew) had 13 specimens of open *C. alata* and 9 of *C. minor* in bud but his earlier *Caladenia minor* Hook. fil. sheet at K-L (Lindley's Herbarium at Kew) had 4 specimens of *C. minor* (pers. comm. B. Molloy). JDH did not recognise *C. alata*, either in his 1852 NZ Flora [3] or in his 1855 Tasmanian Flora [4] where his description confused *C. alata* with either *Stegostyla an-*

gustata or *S. gracilis*. This is evident by his own doubts, "I have referred this plant to Brown's *C. alata* with some hesitation;" and Fitch's drawing of the labellum with 4, not 2 rows of disc calli. Hooker's 1864 *Handbook* [5] surely had *C. alata* and others lumped into *C. minor* because his curious description [NZNOG J 84:5] including traits from several different taxa [J85:12], yet he was in a managerial role at Kew from 1855-1885 [2] and could have checked Brown's type specimens at the British Museum relatively easily.

Enter RH Matthews who, according to his letter of 5 December 1898, first sent a pickled specimen of Kaitaia *C. alata* to TF Cheeseman on 5 September 1898. No other *Caladenia* flowers this early so it had to be *C. alata*. Many more specimens were sent as a "new species" by RH. Matthews and his son HB Matthews according to their letters.

TFC also missed the Robert Brown connection. No wonder with Sir JD Hooker's erroneous description [4] so Cheeseman described *C. alata* as *Caladenia minor* var. *exigua* Cheesem. in his 1906 *Manual* [6]. But he decided in 1913 [7] and in his 1925 *Manual* [8], published posthumously, that the Matthews' specimens were different enough from *C. minor* to have specific status as *Caladenia exigua* Cheesem. because of; earlier flowering, a midlobe with only one marginal callus instead of several, plus acute sepals and petals instead of obtuse. What? TFC may have been looking at *C. aff. pusilla* (Fig. 7, also J92:13,17), a rare NZ *Caladenia* with obtuse petals or possibly *C. bartlettii*, (Fig.8) but *C. exigua* had acute petals. That's okay, TFC had it right for his time, *C. bartlettii* wouldn't be split from *C. minor* Hook. fil. until 1949 [9] and *C. aff. pusilla* which was *C. minor* in the 2000 Field Guide, only got tagged out in 2002 by Ian St George [J82:15].

Czechoslovakian botanist Karel Domin, in 1915, started the *C. carnea* revolt by misclas-

sifying *C. alata* as *Caladenia carnea* R.Br. var *alata* (R.Br.) [10] for Aussie plants. His misclassification ran parallel with our *C. exigua* which held sway until 1944 when Australian Rev. HMR Rupp [11] who must have read Domin's German language paper, saw reason to lump all the small Aussie and NZ *Caladenia* into *Caladenia carnea* R. Br. with numerous varieties but precedent would have ruled so he too missed the *C. alata* connection in NZ. Thus in 1944, Rupp reclassified ours anew as *Caladenia carnea* R. Br. var. *exigua* (Cheesem.) Rupp as reported by Dan Hatch in the 1945 Transactions [12]. Robert Brown (R. Br.) at least got into the citation even if for the wrong orchid. Rupp himself had doubts as he wrote to Frank Bartlett on 18 Nov 49 [J78:34], "It is rather curious that *C. carnea* in NZ, although showing the same tendency to develop distinct varieties, as it does in Australia, keeps them all very diminutive."

Dan was also uneasy with the Domin/Rupp arrangement and stated [13], "Since then [1944], additional material of *C. carnea* var. *pygmaea* [RS Rogers's classification for *C. minor* and *C. pusilla*, J74:31] has raised some doubt as to whether it would not have been better to retain Hooker's name as a distinct variety. But even the varieties of *C. carnea* are themselves so liable to vary, that for the present, at all events, we think it best to let the matter rest." Seeds of dissent were emerging, it seems.

Rupp, a dedicated amateur orchidologist, got caught again (by Hooker's description? [4]) it seems, with a September 1953 specimen of *C. alata* from Wyong classifying it in 1954 as *Caladenia holmesii* Rupp [14] but this was a purely Aussie sidetrack.

Moore and Edgar, in the 1970 Flora II [15], extended the Domin/Rupp lead and lumped all the NZ *Caladenia*, including our *C. alata* and *Stegostyla atradenia*, into *Caladenia carnea* R. Br. with no varieties. But they put a full page footnote in fine print, detailing the historic descriptions of the earlier varieties and species then being lumped but expressed their own doubts as, "No critical description of the

type of the species has been seen, and a number of vars have been described in Australia where the limits of the species itself have been variously interpreted." Their page of fine print is now of far more value than their preceding description of misclassified "*C. carnea*".

Next, it seems, Dr. Winifred Curtis [16], stated a "comb. nov." in 1979 for our *C. alata* as *Caladenia catenata* (Sm.) Druce var. *exigua* (Cheeseman) W. M. Curtis — with Brown, its original describer, cut out of the citation but Smith, Druce, Cheeseman and herself all now included, despite none of them having any part in the classification of *Caladenia alata* R. Br. Curtis had broken the *carnea* deadlock but had gone from the frying pan into the fire by linking the whole genus to the related *C. catenata*, a large, white Australian species.

Don't weep, gentle reader, this is just getting interesting. You can be forgiven for thinking that successive taxonomists were getting further and further from the facts. They were none of them fools, far from it, these were the innovators following the basic precepts of science and building on the works — and errors, more's the pity — of their esteemed predecessors. However a vital link in the chain had been missed by all, Robert Brown had only his acutely brief description in Latin [1] plus his type specimen on the other side of the world at the British Museum so that, deciphering his original species, was an almost impossible logistical hurdle for Australasian students especially with Hooker's misinformation in [4] to misguide them.

Our Brian Molloy [17] said, in 1983, "According to the Australian botanist Don Blaxell, [18, 1980] *C. catenata* is the correct name for orchids grouped under *C. carnea*." On p19, Brian had John Johns' photos of three taxa of so called "*C. catenata*" which Brian clearly depicted as different. The Column identifies these 3 now as, Fig. 11, *Caladenia* aff. *chlorostyla*, Fig. 12, *C. nothofageti* and Fig. 13, *C. aff. pusilla*. *C. alata* would have been included within Brian's *C. catenata* of course but didn't feature here along with a

number of other northern taxa unavailable to Johns' camera. Brian also mentioned Winifred Curtis' above contribution and wisely added, "We have not attempted to resolve these issues here." So Rüpp, Hatch, Molloy, Moore & Edgar, all had doubts about the *C. carnea* and *C. catenata* connection with NZ but were in no position to argue without access to BM & K specimens.

However, a light was beginning to dawn. Mark Clements, during one of his many visits to European herbaria, on a momentous assessment of Australasian orchids, examined Robert Brown's type material of *C. alata* on 1 Mar 84. [pers. comm. B. Molloy]. He also examined Hooker's type sheets at Kew for *C. minor* [19] but only noted, in March 1985, that the "4 specimens... do not represent typical *C. carnea*". But Mark looked further at BM & K-L and wrote to Brian on 19 Sep 87 announcing — wait for it — that *C. exigua* Cheesem was synonymous with *Caladenia alata* R. Br., finally, 177 years after R. Br.'s original description [1]. So, *C. alata* finally got recognition in New Zealand whilst *C. exigua* got quietly dumped.

Brian mentioned the synonymy at the Kaimau-Ahipara native orchid field days on 7 & 8 Nov 87, attended by Doug McCrae, Bruce Irwin et al. Bruce writes that Doug was pointing out *C. exigua* seed capsules on both those days but Doug first reported them as *C. alata* in Newsletter 24:10,11 Dec. 1987, quite casually, as he did *Calochilus herbaceus*, as though these two were well known. Not so, this revelation was a minor bombshell at the time.

David Jones, also reported in 1988 [20, p93] that "In New Zealand, this species (*C. alata*) has been known as *C. exigua* Cheeseman." so Mark's official 1989 announcement [21] of his incisive revelation, must have fallen a little flat after 2 other publications had stolen a key piece of his thunder. Nonetheless, Mark mentioned 5 earlier names for *C. alata* [21, p20] and one for *C. minor* [21, p28] where he designated one specimen as *C. minor* on Hooker's K-L type sheet and added that "All other syn-

types are *C. alata*." 2 years after Doug had slipped *C. alata* into Newsletter 24.

Back on 4 Dec 87, Doug had visited Chris Ecroyd [pers. comm.] and spotted Chris's "*Caladenia carnea*" (NZFRI 12454) in the Forestry Research Institute Herbarium and re-determined this Whakarewarewa specimen of 29 Sep 82, as *C. alata*, drawing on his knowledge of one month back. Chris included this in a 1990 Bot. Soc Newsletter [22] but it missed the NOG Journal until Michael Pratt asked the question in Feb 2005.

But in September 2001 [23] David Jones, et al deduced that *Caladenia flava* (Pfitzer 1889) was the type for *Caladenia* so they chose a discarded historic epithet for the genus, as was their perceived duty and Australasian *C. alata* became *Petalochilus alatus* (D.L. Jones) D.L. Jones M.A. Clem.

Petalochilus? This was the genus that R.S. Rogers had erected [24] for two species of HB Matthews from Kaitaia when TF. Cheeseman declared them freaks. As freaks, they did not get included in his 1925 Manual [8] which, coincidentally, had to be nearing publication at the time. But were they freaks? *Petalochilus* were undoubtedly *Caladenia*-like, possibly mutant *C. minor* having petaloid labella as in Thelymitra but HBM insisted, in letters to Cheeseman and to Rogers that extensive colonies were propagating by seed. That is the norm for *Caladenia* too [20, p90], so they were not sterile mutants. Why then shouldn't they be accorded specific and generic rank? The tea tree habitat was subsequently cleared to pasture and this neglected genus was lost to Kaitaia. However, Bruce Irwin found a bud of *Petalochilus saccatus* at Scott Point on 29 Sep 97 [J65:14] so the genus might still be around despite Cheeseman and his NZ followers neglecting it into near oblivion. So it would seem inappropriate to shift the genus to cover species with elaborate labella, don't you think?

Hopper & Brown [25, p180] consider that Mark Clements actually lectotypified *Caladenia carnea* [25, p21] not Pfitzer and his *C. flava*. So, they reinstated *Caladenia alata*

R.Br. Who is right? The taxonomists may eventually come to consensus after close analysis of the *International Committee on Botanical Nomenclature* rules but meanwhile the Column for one, is more or less happy reverting back to *Caladenia* for plants in the same morphological genus as *C. carnea* and *C. catenata*, i.e. 2 rows of disc calli not extending right down the midlobe, including *C. alata*.

But we haven't finished. Those ten classifications underlined above may not be the last word. The Tasmanian distribution of *C. alata* s.s. [26] stretches down to latitude 43° 25' on Bruny Island. That is as far south as Kaiapoi in NZ! We all thought Rainbow Mountain (latitude 38° 19') was a long way south for *C. alata*, didn't we? That big difference in latitude and climate says that NZ and Aussie *C. alata* either have to be different taxa or else ours hasn't had enough millennia, since blowing in to Northland, to move further south than Rainbow Mountain. What do you think?

Perhaps molecular studies comparing Aussie's and NZ's *C. alata* would clarify this matter? Even though it looks the same as the Tasmanian species, it may well be correct to call it *Caladenia exigua* Cheesem. The Column is plugging for *C. alata* R.Br. in NZ. Does anyone want to argue?

Acknowledgements

Thanks in a large measure — for the incentive, information, comment and kind permission to publish appropriate quotations — are due to Chris Ecroyd, Chris Gemmell (was Chris McCrae), Dan Hatch, Brian Molloy, Colin Ogle, Michael Pratt, Ian St George and Georgina Upson.

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2. *Nematoceras* aff. *dienema* in the South Island?

Steve Reekie had his camera with him near Punakaiki on 23 July 2005, when he smelt *Corybas* alliance orchids in flower. Who else among us can do that? The Column can't so he would dearly like someone with olfactory gear like Steve's on the next orchid hunt. Any volunteers please? Steve homed in on the offending *Nematoceras rivularis* agg. on a very damp mossy cliff, facing more or less south and above the beach where flax, mahoe, Hebes, coprosmas and kawakawa protected the cliff from the full force of the wind and shaded the orchid. Now Steve, recently from Pirongia but moved to Barrytown, is basically a fungus enthusiast, among many other interests so it is to his credit that he even bothered to take shots of this lowly orchid, Figs. 9-10, and more to his credit that he sent these fine shots to the Column for ID.

Have you ever looked at a pic and had the hair prickle on your head? What's left of the Column's hair, did just that at the sight of — no it couldn't be — *Nematoceras dienema* from Macquarie Island? (Fig. 11, and see p6). But a hunt through the references found this orchid in [1] below but with a cupped leaf and no wonder. Macquarie Island is at about 54° south latitude, well south of the Auckland Islands, according to the world map. An orchid opening there in the frightful fifties, even in Nov. to Jan. would have to protect its bud in a cupped leaf, just like our Otago and Southland *N. aff. iridescens* Fig. 11. There is actually a resemblance there too. Punakaiki however is at a sub tropical(?) 42° 6' which could explain the flat emerging leaves (see Fig. 9) to down-curved margins on Steve's adult *Nematoceras* aff. *dienema*, and possibly explain the 4 to 6 months earlier flowering time.

The likeness to *N. dienema* (J82:21) is unmistakable with the robust tepals all in the hands-up position and incidentally, petals mostly at the back (atypical for *Nematoceras*) although *N. dienema* has an oblanceolate dorsal sepal (no apiculus) and Steve's has an

extended apiculus. Then that other similar one, *N. aff. iridescens*, flowers inland from a cupped leaf and two months later in September. In bud its tepals are erect at the base but the mature flower dutifully lowers its filamentous petals to sweep forward past the auricles like any self respecting *Nematoceras*. Habitats are similar though for Steve's and for *N. dienema*, "Very wet communities mainly on bleak, windswept, raised beach terraces." at Macquarie Id. according to Jones et al [1] and very similar to one in the sandhills behind Cathedral Beach in the Catlins reported to Ian St George some years ago. These orchids either prefer or can manage in salt laden air. The Catlins one had just finished flowering in September. Perhaps we have more *N. aff. dienema* around the bleak windswept beaches of the South Island? Do have a look folks, say in August any damp, shady places behind the dunes around the west and south coast, perhaps Stewart Island, Campbell Is. and the Auckland Is? Don't limit yourselves!

Curiously nothing resembling *N. dienema* has been recorded between the South Island and Macquarie Id. Anyone down that way in October might profit from a hunt around wet places behind bleak beaches thereabouts because "no record" doesn't mean it's not there. Not many hardy souls with a nose for *Corybas* alliance, have been looking much, particularly in late winter.

Steve, in awe at the Column's ID above, shot out to get some more shots, ran into John and Bev Coates at their farm called Corybas, would you believe. They led Steve through beautiful forest where they have 12 species growing and to where "a carpet of *Corybas/Nematoceras triloba* were in full flower." Steve's sharp but back-on shots of an early flowering *N. triloba* duly arrived plus more *N. rivularis* agg. from up the hill from, but not of *N. aff. dienema*! Fig. 12 & 13 have to be *N. longipetala* going by its long petals, tepal attitude and labellum shape. Steve was under

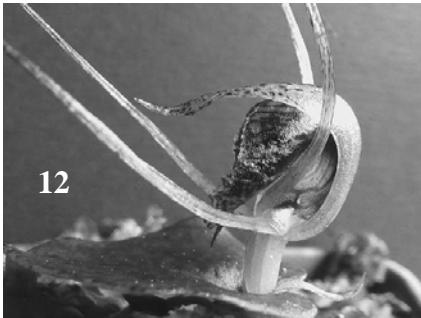
strict instructions to get specimens to Brian Molloy and Bruce Irwin and to photograph internal details of these treasures if possible but had a serious mishap with his camera plus related calamities before any of this could happen. So feast your eyes on the classy shots he has left us and join the Column in wishing Steve all the best in his future.

Acknowledgements

Photo credits go to Les Rubenach for Fig. 11, Sid Smithies for Fig 124 and Steve Reekie for the rest.

Reference

1. Jones, DL, Wapstra, H, Tonelli, P, Harris, S. *The orchids of Tasmania* Miegunyah Press, 1999: 118



13. *Nematoceras longipetala* 29 July 05 also from Punakaiki, quite similar to *N.aff. iridescens* but has longer petals and is not *N.aff. dienema* either.

Figures

The Column (p33) Inside back cover

5. *Caladenia alata*, one pair of blade-like, golden marginal calli and golden midlobe tip curled under. Quite unlike its Hooker description in *Flora Tasmaniae*, more akin to Aussie *Stegostyla angustata* with 4 rows of disc calli, right to the tip of a toothed midlobe.
6. *Caladenia minor* as per 4 specimens on the type sheet is like Fitch's lithograph with Hooker's lumped description. Midlobe is definitely "glanduloso" but not pink, nor are sepals obtuse (*C. bartlettii*) or the leaf glabrous (*C. nitida rosea*) as Hooker described.
7. *Caladenia* aff. *pusilla* with petals verging on obtuse, is rare but may be Cheeseman's idea of *C. minor* with obtuse tepals. It was named *C. minor* in the 1996 NOG *Field Guide*.
8. *Caladenia bartlettii* pink with acute petals but obtuse sepals was lumped into the *C. minor* description by Hooker and was perhaps Cheeseman's mental type for *C. minor*.
9. Steve's *Nematoceras* aff. *dienema* from exposed Punakaiki coast. Upright chunky tepals are all *N. dienema* but the wiry apiculus to the dorsal sepal and other features separate them. Note juvenile leaves are not cupped.
10. Side view of *Nematoceras* aff. *dienema* just opening. Other *N. rivularis* agg. plants in NZ hold their tepals erect at this stage too. *Thelymitra variegata* stamp (see p32)

Outside back cover

11. In a cupped leaf, *Nematoceras dienema* from Macquarie Island with those characteristic, chunky, upstanding tepals. Australia's only *Nematoceras*.
14. *Nematoceras longipetala* 29 July 05 from Punakaiki. Whole above-ground plant including sheathing bract. This is a new record for North Westland, ER 48.
15. *Caladenia* "corrugated" - see p.24.
16. *Caladenia* "corrugated"
17. A fungus gnat that died in *Nematoceras longipetala* (photo Brian Tyler: see p.22).

Upper left, this page (mono)

12. *Nematoceras* aff. *iridescens* from Lake Hauroko 11 Sep 03 for comparison. The leaf cups the bud, sometimes opening in the snow with fairly chunky tepals but the petals lie forward.



