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Note

Three-year study aims to resolve the taxonomic status of more than 20 New Zealand terrestrial orchids.

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In 2018 the conservation status of all known New Zealand (NZ) indigenous vascular plants was published (de Lange *et al.* 2018). This work reports the conservation status of 2502 taxa and of 283 taxonomically indeterminate and/or informally recognised ‘tag-named’ taxa. For the latter category, these plants can generally be easily recognised in the wild by unique features of their flowers or leaves but further research is needed to confirm their taxonomic status. The authors of this assessment have included these potentially novel species to ensure the risk of extinction they face is considered. Furthermore, they believe that listing undetermined taxa highlights issues where taxonomic resolution is needed and this helps to prioritise biosystematics research. In their list each tag-name is accompanied by a herbarium specimen number, which is linked to that particular name only, and the locality where the plant was collected (e.g. *Corybas* aff. *trilobus*; CHR537604, Rimutaka).

Twenty-one orchids of uncertain taxonomic status were listed in de Lange *et al.* (2018) (Table 1). These orchids are listed under the categories Threatened (3), At Risk (7), Data Deficient (6) and Not Threatened (5). They belong to the genera *Corybas* (11), *Microtis* (1), *Pterostylis* (3), *Spiranthes* (1) and *Thelymitra* (5). Interestingly, a widespread tag-named entity known as *Prasophyllum colensoi* “A” reported by the NZ Native Orchid Group was not included (<https://www.nativeorchids.co.nz/>

[Species/Prasophyllum_colensoi_spA.html](#)). Although the morphological distinctiveness of some of these orchids has been acknowledged for decades their taxonomic status has never been investigated or resolved.

Thanks to funding from the **Australia and Pacific Science Foundation** (Grant number APSF19047) we will be able to evaluate the status of these taxonomically indeterminate orchids using DNA barcoding markers and Next Generation Sequencing technologies. The project will extend for three years and we are eager to involve students wanting to make orchid taxonomy part of their thesis project. This study will not only advance the knowledge of New Zealand orchid biodiversity but also help to prioritise conservation actions. At least 10 of these taxonomically indeterminate orchids are currently of conservation concern. Our findings will guide conservation agencies with decision making regarding the management of these orchids and prioritising conservation actions and resources.

If you find any of the orchids listed in Table 1 or know of places where to find them please get in touch by email and send a photo or two. After this, we can organise appropriate permits, then visit and collect voucher specimens and material for DNA analyses.

Table 1: List of taxonomically indeterminate orchids, voucher specimens (if assigned) and tag-name (if one given) to be studied in the next three years. * = Orchids not included in de Lange et al (2018).

Genus	category	species	voucher specimen	tag name
<i>*Corybas</i>	aff.	<i>iridescens</i>	No voucher	pale
<i>Corybas</i>	aff.	<i>oblongus</i>	WAIK 8626	swamp
<i>Corybas</i>	aff.	<i>rivularis</i>	AK 288094	Pollok
<i>Corybas</i>	aff.	<i>rivularis</i>	CHR 534752	rest area
<i>Corybas</i>	aff.	<i>rivularis</i>	CHR 518025	Kaimai
<i>Corybas</i>	aff.	<i>rivularis</i>	CHR 518313	whiskers
<i>Corybas</i>	aff.	<i>rivularis</i>	AK 251833	Kaitarakihi
<i>Corybas</i>	aff.	<i>sulcatus</i>	CHR 300648	
<i>Corybas</i>	aff.	<i>trilobus</i>	WELT SP104146	tridodd
<i>Corybas</i>	aff.	<i>trilobus</i>	CHR 534742	Trotters Gorge
<i>Corybas</i>	aff.	<i>trilobus</i>	CHR 537604	Rimutaka
<i>Corybas</i>	aff.	<i>trilobus</i>	CHR 518304	pygmy
<i>Microtis</i>	aff.	<i>unifolia</i>	AK 296182	late flowering
<i>*Prasophyllum</i>	aff.	<i>colensoi</i>	No voucher	green
<i>Pterostylis</i>	aff.	<i>banksii</i>	WAIK 12546	late flowering
<i>Pterostylis</i>	aff.	<i>graminea</i>	CHR 513330	sphagnum

The type locality: Ian St George

Cyrtostylis macrophylla Hook.f. from Maraetotara

In his 1853 *Flora Novae-Zelandiae* JD Hooker described three species of *Cyrtostylis*, each collected by William Colenso from Hawke's Bay sites...

1. *Cyrtostylis oblonga*, Hook, fil.; folio ovato-oblongo obtuso apiculato basi cordato sessili rarius in petiolum brevem angustato, labello obovato-oblongo apice rotundato v. retuso apiculato.

HAB. Northern Island. Frequent in moist woods and on shady banks, *Sinclair, Colenso, etc.*

Leaf from near the root, ½–1 inch long, oblong-ovate, blunt, apiculate, generally deeply cordate at the base, rarely narrowed into a blunt petiole. *Flowers* usually one or two, ½ inch long from tip of upper sepal to that of lip, yellow-green, with a membranous red-brown tip. *Sepals* and *petals* very narrow. *Lip* oblong, tip often rather dilated, retuse and apiculate.

2. *Cyrtostylis rotundifolia*, Hook. fil. ; folio orbiculari obtuso profunde cordato, labello lineari-oblongo obtuso v. subacuto.

HAB. Northern Island. Raukawa Ridge, Hawkes's Bay, and Cape Kidnapper, *Colenso*.

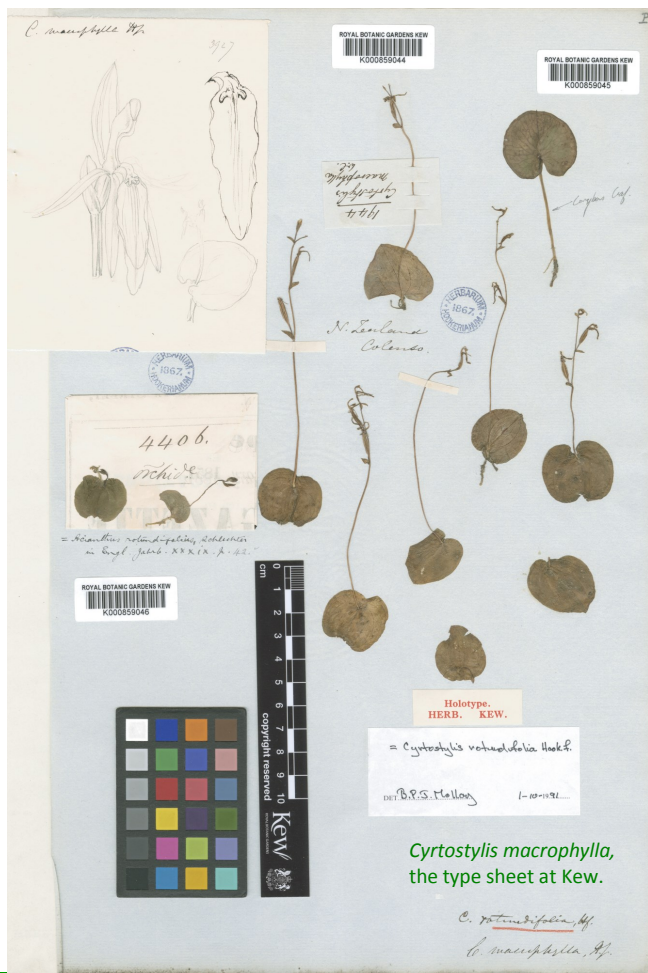
Very similar to *C. oblonga*, but smaller, shorter, with an orbicular leaf, blunt and cordate at the base, and narrower lip, rather narrower at the base than above ; the latter organ is however a variable one in *C. oblonga*.

3. *Cyrtostylis macrophylla*, Hook. fil.; folio amplo orbiculari obtuso v. apiculato, floribus majusculis, labello lineari-oblongo obtuso.

HAB. Northern Island. East coast, *Colenso*.

A much larger species than either of the former. *Leaf* 1–1½ inch broad. *Stem* 2–5 inches high. *Flowers* ½–¾ inch long, from the upper sepal to end of labellum; the latter is narrow, linear-oblong.

Date of letter to Kew	Colenso's notes	Date Colenso there
6 August 1846	725. Orchis (? <i>Cyrtostylis</i>) scarcely developed, clayey ground among fern, coast, 10 miles south of Cape Kidnappers.	4, 26 May 1846
21 January 1848	1484. Orchis, from Raukawa.	15–16 Sep, 27–28 December 47.
29 September 1848	1944. <i>Cyrtostylis</i> ? <i>macrophylla</i> , W.C., heights, nr. Cape Turnagain.	9 October 1847
31 January 1853	4406. <i>Cyrtostylis macrophylla</i> , sides of River Maraetotara, at base of above hill. [Kahuranaki].	18–19 August 1852?



Cyrtostylis macrophylla,
the type sheet at Kew.

Colenso suggested his specimens numbered 1944 (near Cape Turnagain) and 4406 (Maraetotara) were different (had bigger leaves) and should be called *Cyrtostylis macrophylla*. Hooker mounted both collections on one sheet, sketched the flower and leaf, and agreed this was new—these leaves were 4cm across, the plants 12cm tall—and described it formally.

By 1864 Hooker was less certain: “My *C. macrophylla* is, I think, nothing but a large state of this (ie, *C. rotundifolia*), which may itself prove to be a variety of *C. oblonga*.”

Cheeseman (1906 & 1925) lumped all three into *C. oblonga*. Hatch (1946) lumped all three into *Acianthus reniformis*, separating var. *oblongus*. Moore (1970) followed suit, commenting that *C. rotundifolia* and *C. macrophylla* “were accepted with some doubt by Hooker himself”.

Recently *Cc. oblonga* and *rotundifolia* have been separated on the basis of habitat range as well as leaf shape: but the flowers appear identical.

The type locality as it was then....

Colenso often travelled from Waimarama to Kohinurakau on his pastoral rounds. He sent *C. macrophylla* specimen 4406 to Kew in January 1853. The likely date he found it on the banks of the Maraetotara below the Kahuranaki hill was therefore 18 August 1852. We don't know exactly where Kohinurakau was, but Bagnall & Petersen place it on the Tukituki SE of Pakipaki. Colenso would therefore have taken a Māori track from Waimarama E & N of the Kahuranaki hill, crossing the Maraetotara on his way. If, as is common, modern roads and tracks follow the old Māori routes, his walk would have followed the red dots at right....

18. ... After breakfast we left Waimarama for Kohinurakau, reaching it by sunset. The villagers seeing us coming rang their bell, when going directly to the Chapel I read Prayers.

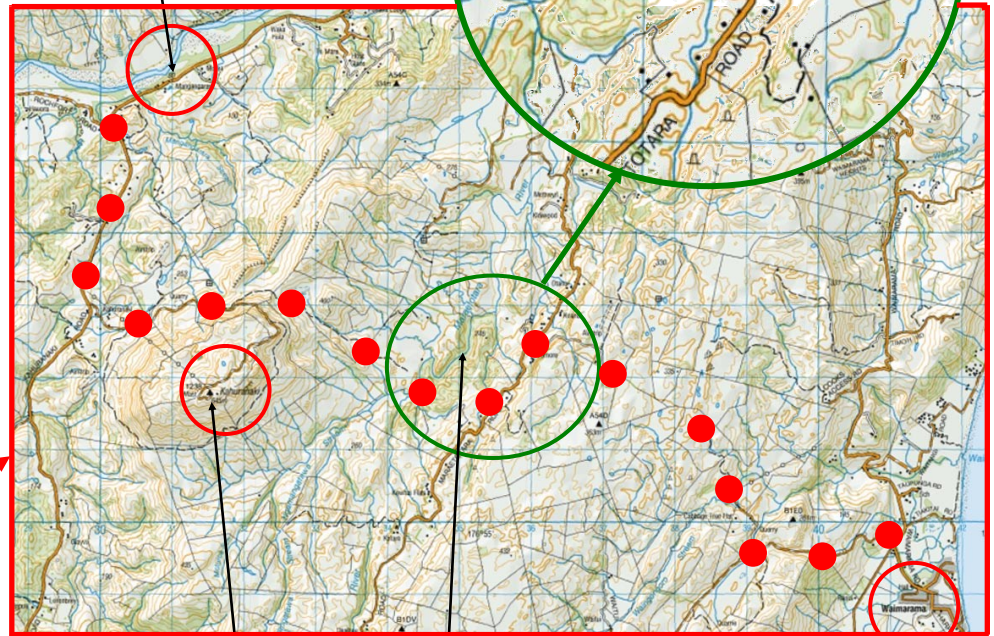
... and now....

Mike Lusk visited three reserves looking for *C. macrophylla* on 24 August 2018. He wrote,

“Mohi Bush and the Maraetotara Reserve are on a plateau well above the stream but not far away from it and I imagine pretty close to Colenso’s route out from Waimarama, which I’d guess probably follows today’s road. Both are pretty wet, (the plateau has an annual rainfall of >200mm I’m told) with mixed large podocarp/tawa forest with essentially no manuka/kanuka, and with any open spaces full of exotic grasses. I mention manuka/kanuka because in all the places locally I’ve seen *C. rotundifolius* they have been dominant. I found no terrestrial orchids in either although there are some in spring in Mohi Bush at least.”

Colenso’s one-day walk from Waimarama to Kohinurakau on 18 August 1852

Kohinurakau about here



Kahuranaki hill

Maraetotara stream

Waimarama

“The Maraetotara Reserve is a bit further downstream, also mature forest and past visits in summer have shown it to be largely orchid free. So no luck there either.

“I’ve always been surprised to see no *Acianthus sinclairii* or *Corybas trilobus* which are both at Cape Kidnappers and the former is in Te Mata Park.

“I’ve looked at the length of the stream on Google maps and can see no sign of manuka/kanuka forest, which is not surprising as it is a very good farming area. That’s not to say there would have been none in Colenso’s time as large areas of Hawke’s Bay were deforested in his day, probably the result of fire.”

Cyrtostylus rotundifolius ►
at Cape Kidnapper,
photographs by Mike Lusk
here and on cover—not quite
as tall as Colenso’s 5 inch
plants.



Editorial: Ian St George

1. Brood site deception by *Corybas*?

Tony Wilson-Bligh, a student at Cambridge University, drew my attention to the deceit pollination syndrome known as brood site mimicry. As part of his 2018 course requirements he wrote a literature review entitled “Deceit Pollination via Brood-Site Mimicry in Orchidaceae—is it just about attracting gravid females?”

He wrote, “Many plant families exhibit mechanisms of deceit pollination; their various methods of mimicry secure the services of pollination vectors without giving reward. One third of Orchidaceae species evolved deceit pollination syndromes. Food and sexual deceit are widely studied, whereas brood-site mimicry draws less attention from researchers. Brood-site mimicry is the development of floral and olfactory cues to mimic substrates where a deceived pollinating female would oviposit....”

He asked for a copy of Eric Scanlen’s 2006 piece in *NZNOJ* 98 [1], telling me, “A lot of papers reference Eric’s article on seeing eggs laid so I wanted to read it also.”

His paper covered a number of genera whose members deceive pregnant female insects in this way—*Epipactis*, *Dracula*, *Paphiopedilum*, *Satyrion*. On *Corybas* he wrote, “Predominately visited by mycophilous flies, hypothesised to attract fungus gnats by imitating olfactory and visual cues of mushrooms leading to the very broad assumption they are brood-site mimics (Jersáková et al. 2006 [2]; Kelly et al. 2013 [3]). Two research projects focused on *C.cheesemanii*, the first being Kelly et al. (2013) which did not identify solely fungus-gnats as the pollinating flies, concluding a more general view should be taken on which flies are in fact their pollinating vectors. The second project by Kelly & Gaskett (2014) [4] revealed *C.cheesemanii* does not release mushroom-like volatiles. Petal spectral reflectance is

very different to sympatric mushrooms, flowers reflect high UV and red, suggesting it does not mimic mushrooms visually.... Interestingly, reports and photographs from NZNOG suggest sister species *Nematoceras triloba* is a brood-site mimic, so perhaps closer study of its system of deceit would be relevant (Scanlen 2006).” Indeed it would.

Wilson-Bligh concluded, “brood-site mimicry encompasses a variety of adaptations for communicating with pollinators and the behaviour of insect vectors does not always include ovipositing. Consequently the definition of brood-site mimicry should be broader, where ovipositing isn’t a fundamental requirement.”

1. Scanlen, E., 2006. Flies’ eggs in *Nematoceras triloba*. *NZ Native Orchid Journal*, 98 (34).
2. Jersáková, J., Johnson, S.D. & Kindlmann, P., 2006. Mechanisms and evolution of deceptive pollination in orchids. *Biological Reviews of the Cambridge Philosophical Society*, 81(2), pp.219–235.
3. Kelly, M., Toft, R., & Gaskett, A., 2013. Pollination and insect visitors to the putatively brood-site deceptive endemic spurred helmet orchid, *Corybas cheesemanii*. *New Zealand Journal of Botany*, 51(3), pp.155–167.
4. Kelly, M. & Gaskett, A. 2014. UV Reflectance but no evidence for colour mimicry in a putative brood-site deceptive orchid *Corybas cheesemanii*. *Current Zoology*, Vol 60, 1. pp. 104-113.

Flies’ eggs in a sectioned flower of *Corybas* aff. *triloba*, Photo Eric Scanlen



The New Zealand orchids

1. The editor's 2019 list

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

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).

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

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

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

Aporostylis bifolia (Hook.f.) Rupp & 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).

Bulbophyllum Thouars. Hist. Orchid., Tabl. Esp. 3. (1822).

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

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

Bulbophyllum ichtyostomum Colenso. Trans. & Proc. New Zealand Inst. 26: 319 (1894).

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

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

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

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

Caladenia R.Br. (1810). Prodr. Fl. Nov. Holland. 323 (1810).

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

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) Rupp. Proc. Linn. Soc. New South Wales 69: 75 (1944).

Caladenia holmesii Rupp. Victoria Naturalist 70: 179 (1954).

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

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

Caladenia atradenia D.L.Jones, Molloy & M.A.Clem. Orchadian 12(5): 221 (1997).

Stegostylis atradenia (D.L.Jones, Molloy & M.A.Clem.) D.L.Jones & M.A.Clem. Orchadian 13(9): 414 (2001).

Caladenia iridescens as meant by Hatch. NZNOG Newsletter 16: 1 (1985), is not that of R.S.Rogers (1920).

Caladenia carnea R.Br. var. *minor* forma *callingeri* Hatch. Trans. Roy. Soc. New Zealand, Bot. 2: 187 (1963).

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

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

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

Caladenia chlorostyla D.L.Jones, Molloy & M.A.Clem. Orchadian 12(5): 223 fl (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 alba* is a name used for an Australian plant once confused with NZ taxa.

Petalochilus calyciformis R.S.Rogers. J. Bot. 62: 66 (1924) and *Petalochilus saccatus* R.S.Rogers. J. Bot. 62: 66, t.571, 4-7 (1924) are regarded as aberrant floral mutations, probably of this species.

A number of similar forms have been tagged C. "redstem", C. "greenstem", etc.

Caladenia fuscata (Rchb.f.) M.A.Clem. & D.L.Jones, Austral. Orchid Res. 1: 25 (1989).

The NZ plant tagged by HB Matthews as *Caladenia "nitidoa-rosea"* may be *C. fuscata* or *C. atrochila*.

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

Stegostylis lyallii (Hook.f.) D.L.Jones & M.A.Clem. Orchadian 13(9): 413 (2001).

There may be a number of taxa included in the *C. lyallii* group, including a small form from Nelson Lakes, tag named C. "Bacon creek". Some plants appear close to the Australian *Caladenia alpina*.

Caladenia minor Hook.f. Fl. Nov.-Zel. 1: 247, t.56b (1853).

Caladenia carnea var. *pygmaea* (R.S.Rogers) Rupp. 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).

Petalochilus minor (Hook.f.) D.L.Jones & M.A.Clem. Orchadian 13(9): 410 (2001).

The identity of *Caladenia minor* is disputed, but here it is treated as the NZ form of *C. pusilla*, which may differ from *Caladenia pusilla* W.M.Curtis. Stud. Fl. Tasman., 4A: 133 (1980).

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).

Some have a clear two rows of calli, others have extra calli scattered to either side of the two rows.

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

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

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

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

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

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

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

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

Calochilus R.Br. Prodr. Fl. Nov. Holland.: 320 (1810)

Calochilus herbaceus Lindl. Gen. & Spec. Orch. Plant.: 45 (1840).

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.: 323 (1810).**
- Chiloglottis cornuta** Hook.f. Bot. Antarct. Voy., Vol. 1, Fl. Antarct.: 69 (1844).
- Caladenia cornuta (Hook.f.) Rchb.f. Beitr. Syst. Pflanzk. 67 (1871).
Simpliglottis cornuta (Hook.f.) Szlach. Polish Bot. J. 46(1): 13 (2001).
- Chiloglottis formicifera** Fitzg. Austral. Orchids 1(3): (1877).
- Myrmecilia formicifera (Fitzg.) D.L.Jones & M.A.Clem. Orchadian 15(1): 37 (2005).
Only one record of this vagrant 100 years ago.
- Chiloglottis trapeziformis** Fitzg. Austral. Orchids 1(3): (1877).
- Myrmecilia trapeziformis (Fitzg.) D.L.Jones & M.A.Clem. Orchadian 15(1): 37 (2005).
- Chiloglottis valida** D.L.Jones. Austral. Orchid Res. 2: 43–44, t. 54, plate p.92 (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).
- Corybas Salisb. Parad. Lond. t.83 (1805).**
- Corybas acuminatus** M.A.Clem. & Hatch. New Zealand J. Bot. 23: 491, f.2 (1985).
- Nematoceras acuminatum (M.A.Clem. & Hatch) Molloy, D.L.Jones & M.A.Clem. Orchadian 13(10): 449 (2002).
Corysanthes acuminata (M.A.Clem. & Hatch) Szlach. Richardiana 3(2): 97 (2003).
Corybas rivularis as meant by Cheeseman. Man. New Zealand Fl. 697 (1906), and others (1906–1985), is not *Acianthus rivularis* of A.Cunn. (1837).
- Corybas carsei** (Cheeseman) Hatch. Trans. & Proc. Roy. Soc. New Zealand 75: 367 (1945).
- Corysanthes carsei Cheeseman. Trans. & Proc. New Zealand Inst. 44: 162 (1912).
Anzybas carsei (Cheeseman) D.L.Jones & M.A.Clem. Orchadian 13(10): 443 (2002).
Corybas unguiculatus as meant by L.B.Moore. Fl. New Zealand Vol. 2: 116 (1970) is not *Corysanthes unguiculatus* of R.Br. (1810).
- Corybas cheesemanii** (Hook.f. ex Kirk) Kuntze. Revis. Gen. Pl. 2: 657 (1891).
- Corysanthes cheesemanii Hook.f. ex Kirk. Trans. & Proc. New Zealand Inst. 3: 180 (1871).
Corybas aconitiflorus as meant by Hatch. Trans. & Proc. Roy. Soc. New Zealand 75: 367 (1945), is not that of Salisb. (1807).
- Corybas confusus** Lehnbech Phytotaxa 270 (1): 9 (2016).
- A form on the Chathams identified as *C. aff. sulcatus* may fall within *C. confusus*.
- Corybas cryptanthus** Hatch. Trans. Roy. Soc. New Zealand 83: 577 (1956).
- Molloybas cryptanthus (Hatch) D.L.Jones & M.A.Clem. Orchadian 13(10): 448 (2002).
Corybas saprophyticus as meant by Hatch. Trans. & Proc. Roy. Soc. New Zealand 79: 366, t.71 (1952), is not that of Schltr. (1923).
- Corybas dienemus** D.L. Jones Fl. Australia 50: 572 (1993).
- Corysanthes dienema (D.L.Jones) Szlach
Nematoceras dienemum DL Jones et al. Orchadian 13(10): 437-468 (2002).
- Corybas hatchii** Lehnbech. N.Z. Native Orchid Journal 139: 4 (2016).
- Corybas macranthus (Hook.f.) Rchb.f. var. *longipetalus* Hatch. Trans. & Proc. Roy. Soc. New Zealand 76: 580, t.60(1) (1947).
- Nematoceras longipetalum (Hatch) Molloy, D.L.Jones & M.A.Clem. Orchadian 13(10): 449 (2002).
Corybas longipetalus (Hatch) Hatch. NZNOG Journal 47: 6 (1993), is not that of Schltr. (1923).
- Corybas hypogaeus** (Colenso) Lehnbech. N.Z. Native Orchid Journal 139: 5 (2016).
- Corysanthes hypogaea Colenso. Trans. & Proc. New Zealand Inst. 16: 336 (1884).
Nematoceras hypogaeum (Colenso) Molloy, D.L.Jones & M.A.Clem. Orchadian 13(10): 449 (2002).
- Corybas iridescens** Irwin & Molloy. New Zealand J. Bot. 34: 1, f.1 (1996).
- 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 macranthus** (Hook.f.) Rchb.f. Beitr. Syst. Pflanzk. 67 (1871).
- Nematoceras macranthum Hook.f. Fl. Nov.-Zel. 1: 250 (1853).
Corysanthes macrantha (Hook.f.) Hook.f. Handb. N. Zeal. Fl. 266 (1864).
There are several entities in the *C. macranthus* group.
- Corybas oblongus** (Hook.f.) Rchb.f. Beitr. Syst. Pflanzk. 67 (1871).
- Singularybas 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).
Two or three taxa in this complex. One may be *HB Matthews's Corysanthes "aestivalis"* and a white flowered form (Nelson lakes and subantarctic islands) appears to be separate.
- Corybas obscurus** Lehnbech Phytotaxa 270 (1): 11 (2016).
- Corybas orbiculatus** (Colenso) L.B.Moore. Fl. New Zealand Vol. 2: 118 (1970).
- Corysanthes orbiculata Colenso. Trans. & Proc. New Zealand Inst. 23: 389 (1891).
Nematoceras orbiculatum (Colenso) Molloy, D.L.Jones & M.A.Clem. Orchadian 13(10): 449 (2002).
Corybas orbiculatus as meant by L.B.Moore. Fl. New Zealand Vol. 2: 118 (1970) and others (1970–1996), is not *Corysanthes orbiculata* of Colenso (1891) (see Molloy & Irwin. New Zealand J. Bot. 34 (1): 5 [1996]).
- Corybas papa** Molloy & Irwin. New Zealand J. Bot. 34(1): 5, f.1 (1996).
- Nematoceras papa (Molloy & Irwin) Molloy, D.L.Jones & M.A.Clem. Orchadian 13(10): 449 (2002).
Corysanthes papa (Molloy & Irwin) Szlach. Richardiana 3(2): 98 (2003).
- Corybas papillosum** (Colenso) Lehnbech. N.Z. Native Orchid Journal 139: 5 (2016).
- Corysanthes papillosa Colenso. Trans. & Proc. New Zealand Inst. 16: 337 (1884).
Nematoceras papillosum (Colenso) Molloy, D.L.Jones & M.A.Clem. Orchadian 13(10): 449 (2002).
A form of *Corybas macranthus*.
- Corybas rivularis** (A.Cunn.) Rchb.f. Beitr. Syst. Pflanzk. 67 (1871).
- Nematoceras rivulare (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).
Nematoceras panduratum (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.
- 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).
Undescribed related taxa have been tagged C. "Kaimai", C. "rest area", C. "Kaitarakihi", C. "whiskers" (aka C. "viridis"), C. "Mangahua", C. "sphagnum", C. "Pollok" and C. "Motutangi".
- Corybas rotundifolia** (Hook.f.) Rchb.f. Beitr. Syst. Pflanzk. 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).
Corybas matthewsii (Cheeseman) Schltr. Repert. Spec. Nov. Regni Veg. 19: 23 (1923).
Anzybas rotundifolius (Cheeseman) D.L.Jones & M.A.Clem. Orchadian 13(10): 443 (2002).
Corybas unguiculatus as meant by Hatch. Trans. & Proc. Roy. Soc. New Zealand 75: 367 (1945), is not *Corysanthes unguiculatus* of R.Br. (1810).
- Corybas sanctigeorgianus** Lehnbech Phytotaxa 270 (1): 12 (2016).
- Corybas trilobus** (Hook.f.) Rchb.f. Beitr. Syst. Pflanzk. 67 (1871).
- Nematoceras trilobum Hook.f. Fl. Nov.-Zel. 1: 250 (1853).
Corysanthes triloba (Hook.f.) Hook.f. Handb. N. Zeal. Fl. 265 (1864).
A number of taxa in the *Corybas trilobus* group of speculative taxonomic status include the tiny May to July flowering forms with the tagname C. "pygmy", as well as C. "Rimutaka", C. "Craigielea", C. "tribrive", C. "tridodd", C. "Trotters" and others.

Corybas vitreus Lehnbach Phytotaxa 270 (1): 12 (2016).

Corybas walliae Lehnbach Phytotaxa 270 (1): 13 (2016).

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

Cryptostylis subulata (Labill.) Rchb.f. Beitr. Syst. Pflanzenz. 15 (1871).

Malaxis subulata Labill. Nov. Holl. Pl. 2: 62, t.212 (1806).

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

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

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

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. Pflanzenz. 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.) Rupp & Hatch. Proc. Linn. Soc. New South Wales 70: 59 (1946).

Cyrtostylis reniformis as used by many authors until now is not that of R.Br. Prodr. Fl. Nov. Holland.: 322 (1810).

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

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

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

Dendrobium Swartz. Nova Acta Regiae Soc. Sci. Upsal., ser. 2, 6: 82. (1799).

Dendrobium cunninghamii Lindl. Bot. Reg. 21 sub. t. 1756 (1835).

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

Dendrobium lessonii Colenso. Trans. & Proc. New Zealand Inst. 15: 326 (1883).

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

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 cooperae Lehnbach & J.R.Rolfé. Phytotaxa 277 (3): 242 (2016).

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 molloyi Lehnbach & J.R.Rolfé. Phytotaxa 277 (3): 244 (2016).

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

Genoplesium R.Br. Prodr. Fl. Nov. Holland.: 319 (1810)

Genoplesium nudum (Hook.f.) D.L.Jones & M.A.Clem. Lindleyana 4(3): 144 (1989).

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).

Prasophyllum variegatum Colenso. Trans. & Proc. New Zealand Inst. 20: 208 (1888).

Genoplesium pumilum (Hook.f.) D.L.Jones & M.A.Clem. Lindleyana 4(3): 144 (1989).

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

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

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

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

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

Microtis papillosa Colenso. Trans. & Proc. New Zealand Inst. 18: 269 (1886). The type has not been found but Colenso's notched labellum suggests *M. arenaria*.

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. Pflanzenz. 24 (1871).

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

Microtis aemula Schltr. Bot. Jahrb. Syst. 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. Pflanzenz. 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 Schldt. Linnaea 20: 568 (1847).

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

Microtis longifolia Colenso. Trans. & Proc. New Zealand Inst. 17: 247 (1885). This is a small autumn flowering grassland form and is probably distinct.

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

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).

Diuris novae-zeelandiae A.Rich. Essai Fl. Nov. Zel. 163 t.25, f.1 (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). Many botanists regard *Orthoceras* as a monotypic genus; the reported differences between *O. strictum* and *O. novae-zeelandiae* are inconsistent.

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, including Irwin's P. "A" and P. "B" (NZNOG Journal 79: 9–10 [2001]).

Prasophyllum hectorii (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 Rupp (1928).

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

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

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

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

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

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. Roy. Soc. NZ 77: 244, t.30, f.3E–H (1949).

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

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

Diplodium alveatum (Garnet) D.L.Jones & 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 australis Hook.f. Fl. Nov.–Zel. 1: 248 (1853).

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

Pterostylis trullifolia Hook.f. var. *rubella* Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 244 (1949).

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

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

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.2 (1997).

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

Structurally similar to *P. banksii* but consistently smaller and with a consistently notched labellum tip.

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

Pterostylis vereanae R.S.Rogers. Trans. & Proc. Roy. Soc. South Australia 38: 360–361, f.1&2 (1914).

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

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

There are several taxa in the *P. graminea* complex, including tagnamed *P. "sphagnum"* and *P. "peninsula"*.

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 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 montana group: may include as many as 14 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 furcata Lindl. var. *linearis* Hatch. Trans. & Proc. Roy. Soc. NZ 77: 243, plate 29, 2 (1949).

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 puberula Hook.f. Fl. Nov.–Zel. 1: 249 (1853).

Lingoulla puberula (Hook.f.) D.L.Jones, M.A.Clem. & Molloy. Austral. Orchid Res. 4: 75 (2002).

Pterostylis rana as meant by Hatch. Trans. & Proc. Roy. Soc. New Zealand 77: 237 (1949), is not that of R.Br. (1810).

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

This name is apt for a widespread entity similar to *P. patens* but with shorter tepals.

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

This name is here applied to distinct large-flowered Ruahine & Tararua plants.

Pterostylis tanypoda 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).

Plumatchilos tasmanicum (D.L.Jones) Szlach. Polish Bot. J. 46(1): 23 (2001).

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).

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).

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 trifolia Colenso. Trans. & Proc. New Zealand Inst. 31: 281 (1899).

Pterostylis confertifolia Allan. Trans. & Proc. New Zealand Inst. 56: 32 (1926).

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 names *Neottia sinensis* and *Spiranthes sinensis* var. *australis* (R.Br.) H.Hara & Kitam. Acta Phytotax. Geobot. 36 (1–3): 93 (1985) have been used for *Spiranthes australis* in Australia.

Spiranthes "Motutangi": a larger plant, not separable by DNA.

Taeniophyllum Blume, Bijdr. Fl. Ned. Ind.: 355 (1825)

Taeniophyllum norfolkianum D.L.Jones, B.Gray & M.A.Clem. in Jones et al., 15: 157 (2006)

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 brevifolia Jeanes. Muelleria 19: 19–79 (2004).

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

Thelymitra imberbis Hook.f. Fl. Nov.–Zel. 1: 244 (1853). A yellow form.

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

Thelymitra colensoi Hook.f. Handb. N. Zeal. Fl. 271 (1864)

Thelymitra intermedia Berggr. Minneskr. Fisiog. Sallsk. Lund 8: 21 f (1878) is a synonym.

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).

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 Trans. & Proc. Roy. Soc. New Zealand 79: 390, plate 77 A-C (1952).
 Thelymitra venosa R.Br. var. cedricsmithii Hatch Trans. & Proc. Roy. Soc. New Zealand 79: 390, plate 77 D-E (1952).
 Thelymitra venosa R.Br. var. cyanea Hatch. Trans. & Proc. Roy. Soc. New Zealand 79: 391, plate 77 F-H (1952).
Thelymitra X dentata: 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 circumsecta 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 concinna Colenso. Trans. & Proc. New Zealand Inst. 20: 207 (1888) appears to be the pink-ciliated form of T. hatchii, and if so has precedence.
Thelymitra ixioides 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).
 This may not be the same as the Australian plant.
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, plate 80 B-E (1952).
 Thelymitra aristata as meant by Hatch. Trans. & Proc. Roy. Soc. New Zealand 79: 395, plate 79 M-N, plate 80 A (1952), is not that of Lindl. (1840), and has been tagnamed T. "tholinigra" by Scanlen.
 If the name T. longifolia is restricted to plants with wide ridged floppy leaves and entire column midlobes, some of the plants included in synonymy above may indeed prove to be separate.
Thelymitra longifolia group: 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). Spotted and unspotted forms grow together.

Thelymitra pauciflora R.Br. Prodr. 314 (1810).
 Thelymitra pauciflora sens. strict. is in NZ according to Jeanes (Muelleria 19: 19-79 [2004]); however, there are also a number of other forms in this group.
Thelymitra pulchella Hook.f. Fl. Nov.-Zel. 1: 244 (1853).
 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 "sansfimbria" with plain blue flowers from Far North (see Scanlen. NZNOJ 98: 36 & 102: 39, 45) appears to be an unstriped form with a similar column.
Thelymitra purpureofusca Colenso. Trans. & Proc. New Zealand Inst. 17: 249 (1885).
Thelymitra sanscilia Irwin ex Hatch. Trans. & Proc. Roy. Soc. New Zealand 79: 397, plate 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 Berggren (1878).
Thelymitra "Ahipara": an unnamed taxon from the Far North, similar to T. "darkie".
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 "fusca": a tiny, brown-leaved beech forest plant.
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]).
Thelymitra "tholinigra": (see Scanlen. NZNOJ 85: 10, 15).
Thelymitra "Whakapapa": undescribed taxon from Ruapehu.
Townsonia Cheeseman. Man. New Zealand Fl 692 (1906).
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).



The New Zealand Native Orchid Journal

The main aim of the New Zealand Native Orchid Group is to improve knowledge about native orchids, so we allow others to copy material published here, provided the source and author are acknowledged. Authors should note this condition of publication. The editor and members of the Group may not share authors' views. **Chair:** David McConachie, 42 Titiro Moana Rd, Korokoro, Lower Hutt, david@mcconachie.nz. **Secretary:** Pam Shearer, 7 Ring Terrace, St Marys Bay, Auckland. pam@insidetrack.co.nz. **Treasurer:** Judith Tyler, 4 Byrd St, Levin, **Books and publications:** Brian Tyler, 4 Byrd St, Levin, bandj.tyler@xtra.co.nz. **Webmaster:** Michael Pratt, www.nativeorchids.co.nz, Michael@nativeorchids.co.nz. [The *website* posts journals six months after first publication]. **Editor:** Ian St George, 32 Hawkestone St, Thorndon, Wellington 6011 istge@yahoo.co.nz. [The *Journal* is published quarterly from February; deadline for copy is the first of the month prior. Please send email or printed copy].

The New Zealand orchids

2. Orchid references in *Conservation status of New Zealand indigenous vascular plants, 2017*.

By Peter J. de Lange, Jeremy R. Rolfe, John W. Barkla, Shannel P. Courtney, Paul D. Champion, Leon R. Perrie, Sarah M. Beadel, Kerry A. Ford, Ilse Breitwieser, Ines Schönberger, Rowan Hindmarsh-Walls, Peter B. Heenan and Kate Ladley. *New Zealand Threat Classification Series* 22. 82 p. ([PDF, 8.580K](#)).

Taxa and indeterminate entities assessed for the first time

Corybas aff. rivularis (e) (AK 288094; Pollok)
Corybas aff. oblongus (WAIK8626; "swamp")
Corybas aff. trilobus (d) (WELT SP104146; "tridodd")
Corybas confusus Lehnebach
Corybas obscurus Lehnebach
Corybas sanctigeorgianus Lehnebach
Corybas sulcatus (M.A.Clem. & D.L.Jones) G.N.Backh.
Corybas vitreus Lehnebach
Corybas walliae Lehnebach
Gastrodia cooperae Lehnebach & J.R.Rolfe
Gastrodia molloyi Lehnebach & J.R.Rolfe
Microtis aff. unifolia (AK 296182; "late flowering")
Microtis arenaria Lindl.
Pterostylis aff. montana (a) (AK 3500; Chatham Is.)
Pterostylis aff. banksii (a) (WAIK 12546; "Late flowering")
Thelymitra aff. brevifolia (a) (AK 347116; Northland)

Taxa that have moved to a worse category because of actual decline
Drymoanthus flavus St George & Molloy
Pterostylis irwinii D.L.Jones, Molloy & M.A.Clem.

CONSERVATION STATUS

Extinct

none

Data deficient

Caladenia minor Hook.f.
Corybas papillosus (Colenso) Lehnebach
Corybas sanctigeorgianus Lehnebach
Corybas sulcatus (M.A.Clem. & D.L.Jones) G.N.Backh.
Microtis arenaria Lindl.
Thelymitra colensoi Hook.f.
Corybas aff. rivularis (e) (AK 288094; Pollok)
Corybas aff. oblongus (WAIK8626; "swamp")
Microtis aff. unifolia (CHR 532775; Fox)
Pterostylis aff. montana (a) (AK 3500; Chatham Is.)
Pterostylis aff. banksii (a) (WAIK 12546; "Late flowering")
Spiranthes aff. novae-zelandiae (CHR 518297; Motutangi)
Thelymitra aff. brevifolia (a) (AK 347116; Northland)

Key

CD Conservation Dependent
De Designated
DP Data Poor
EF Extreme Fluctuations
EW Extinct in the Wild
IE Island Endemic
Inc Increasing
OL One Location
PD Partial Decline
RF Recruitment Failure
RR Range Restricted
SO Secure Overseas
Sp Sparse
St Stable
TO Threatened Overseas

Threatened

Critical

Caleana minor R.Br. A(1) CD, EF, OL, SO
Calochilus herbaceus Lindl. A(1) EF, SO, Sp
Corybas carsei (Cheeseman) Hatch A(3) CD, EF, OL, RR, TO
Corybas dienemus D.L.Jones A(3)
Gastrodia cooperae Lehnebach & J.R.Rolfe A(1) DP
Thelymitra matthewsii Cheeseman A(3) EF, RR, TO
Thelymitra sanscilia Irwin ex Hatch A(3) DP, EF, Sp
Corybas aff. rivularis (AK 251833; Kaitarakihui) A(3) EF
Corybas aff. trilobus (d) (WELT SP104146; "tridodd") A(1) DP
Thelymitra (a) (WELT SP79140; Ahipara) A(3) DP, RR, Sp

Endangered

Pterostylis irwinii D.L.Jones, Molloy & M.A.Clem. A(3) DP, EF, Sp
Pterostylis micromega Hook.f. A(3) DP, EF, RR

Vulnerable

Pterostylis puberula Hook.f. C(3) EF, Sp
Pterostylis tasmanica D.L.Jones C(3) EF, SO, Sp

At risk

Declining

Drymoanthus flavus St. George & Molloy A(1) DP, Sp
Prasophyllum hectorii (Buchanan) Molloy, D.L.Jones & M.A.Clem. A(2) PD
Pterostylis paludosa D.L.Jones, Molloy & M.A.Clem. A(1) DP, RR
Pterostylis tanyopoda D.L.Jones, Molloy & M.A.Clem. C(1) DP, EF, Sp
Pterostylis tristis Colenso B(1) DP, EF, Sp
Spiranthes novae-zelandiae Hook.f. A(2) DP, EF, Sp

Recovering

none

Relict

none

Naturally uncommon

Bulbophyllum tuberculatum Colenso DP, Sp, St
Caladenia alata R.Br. DP, SO, Sp
Caladenia atradenia D.L.Jones, Molloy & M.A.Clem. EF, Sp
Caladenia bartlettii (Hatch) D.L.Jones, Molloy & M.A.Clem. DP, Sp
Caladenia variegata Colenso DP, Sp
Calochilus paludosus R.Br. DP, EF, SO, Sp
Calochilus robertsonii Benth. DP, EF, SO, Sp
Corunastylis nuda (Hook.f.) D.L.Jones & M.A.Clem. EF, SO, Sp
Corunastylis pumila (Hook.f.) D.L.Jones & M.A.Clem. EF, Sp
Corybas cryptanthus Hatch DP, Sp
Corybas hypogaeus (Colenso) Lehnebach DP, Sp
Corybas obscurus Lehnebach DP
Corybas rivularis (A.Cunn.) Rehb.f. DP, RR, Sp, St
Danhatchia australis (Hatch) Garay & Christenson DP, EF, Sp, TO
Pterostylis auriculata Colenso DP, Sp
Pterostylis cernua D.L.Jones, Molloy & M.A.Clem. Sp
Pterostylis foliata Hook.f. SO, Sp
Pterostylis humilis R.S.Rogers Sp
Pterostylis porrecta D.L.Jones, Molloy & M.A.Clem. Sp
Pterostylis silvicularis (F.Muell.) Molloy, D.L.Jones & M.A.Clem. IE
Thelymitra formosa Colenso EF, Sp
Thelymitra ixiooides Sw. S?O, Sp
Thelymitra tholiformis Molloy & Hatch Sp
Townsonia deflexa Cheeseman DP, Sp
Corybas aff. rivularis (CHR 534752; "rest area") DP, Sp

Corybas aff. *sulcatus* (CHR 300648; Chatham Islands) IE, RR
 Corybas aff. *trilobus* (b) (CHR 534742; Trotters Gorge) DP, Sp
 Corybas aff. *trilobus* (c) (CHR 537604; Rimitaka) Sp
 Pterostylis aff. *graminea* (CHR 513330; "sphagnum") RR, Sp
 Thelymitra (c) (AK 229531; "rough leaf") Sp
 Thelymitra aff. *longifolia* (a) (CHR 537579; Whakapapa) DP, RR

Vagrant

Chiloglottis *formicifera* Fitzg. SO
 Chiloglottis *trapeziformis* Fitzg. SO
 Chiloglottis *valida* D.L.Jones SO
 Pterostylis *nutans* R.Br. SO

Coloniser

Cryptostylis *subulata* (Labill.) Rehb.f. SO
 Pterostylis *alveata* Garnet DP, SO
 Taeniophyllum *norfolkianum* D.L.Jones, B.Gray & M.A.Clem. DP, OL, TO
 Thelymitra *malvina* M.A.Clem., D.L.Jones & Molloy EF, SO

Not threatened

Acianthus *sinclairii* Hook.f.
 Adenochilus *gracilis* Hook.f.
 Aporostylis *bifolia* (Hook.f.) Rupp & Hatch
 Bulbophyllum *pygmaeum* (Sm.) Lindl.
 Caladenia *chlorostyla* D.L.Jones, Molloy & M.A.Clem.
 Caladenia *lyallii* Hook.f. SO?
 Caladenia *nothofageti* D.L.Jones, Molloy & M.A.Clem.
 Chiloglottis *cornuta* Hook.f. SO
 Corybas *acuminatus* M.A.Clem. & Hatch
 Corybas *cheesemani* (Hook.f. ex Kirk) Kuntze
 Corybas *confusus* Lehnebach
 Corybas *hatchii* Lehnebach
 Corybas *iridescens* Irwin & Molloy
 Corybas *macranthus* (Hook.f.) Rehb.f.
 Corybas *oblongus* (Hook.f.) Rehb.f.
 Corybas *orbiculatus* (Colenso) L.B.Moore
 Corybas *papa* Molloy & Irwin
 Corybas *rotundifolius* (Hook.f.) Rehb.f. EF, Sp
 Corybas *trilobus* (Hook.f.) Rehb.f.
 Corybas *vitreus* Lehnebach
 Corybas *walliae* Lehnebach
 Cyrtostylis *oblonga* Hook.f.

Cyrtostylis *rotundifolia* Hook.f.
 Dendrobium *cunninghamii* Lindl.
 Drymoanthus *adversus* (Hook.f.) Dockrill
 Earina *aestivalis* Cheeseman
 Earina *autumnalis* (G.Forst.) Hook.f.
 Earina *mucronata* Lindl.
 Gastrodia *cunninghamii* Hook.f.
 Gastrodia *minor* Petrie
 Gastrodia *molloyi* Lehnebach & J.R.Rolfé
 Gastrodia *sesamoides* R.Br. SO
 Microtis *oligantha* L.B.Moore
 Microtis *parviflora* R.Br. SO
 Microtis *unifolia* (G.Forst.) Rehb.f. S?O
 Orthoceras *novae-zeelandiae* (A.Rich.) M.A.Clem., D.L.Jones & Molloy
 Prasophyllum *colensoi* Hook.f.
 Pterostylis *agathicola* D.L.Jones, Molloy & M.A.Clem.
 Pterostylis *alobula* (Hatch) L.B.Moore
 Pterostylis *areolata* Petrie
 Pterostylis *australis* Hook.f.
 Pterostylis *banksii* A.Cunn.
 Pterostylis *brumalis* L.B.Moore
 Pterostylis *cardiostigma* D.Cooper
 Pterostylis *graminea* Hook.f.
 Pterostylis *irsoniana* Hatch
 Pterostylis *montana* Hatch
 Pterostylis *oliveri* Petrie
 Pterostylis *patens* Colenso
 Pterostylis *trullifolia* Hook.f.
 Pterostylis *venosa* Colenso
 Thelymitra *aemula* Cheeseman
 Thelymitra *carnea* R.Br. SO
 Thelymitra *cyanea* (Lindl.) Benth. SO
 Thelymitra *hatchii* L.B.Moore
 Thelymitra *intermedia* Berggr.
 Thelymitra *longifolia* J.R.Forst. & G.Forst.
 Thelymitra *nervosa* Colenso
 Thelymitra *pauciflora* R.Br. SO
 Thelymitra *pulchella* Hook.f.
 Waireia *stenopetala* (Hook.f.) D.L.Jones, M.A.Clem. & Molloy
 Corybas aff. *rivularis* (CHR 518025; Kaimai)
 Corybas aff. *rivularis* (CHR 518313; "whiskers") DP
 Corybas aff. *trilobus* (a) (CHR 518304; "pygmy") DP
 Microtis aff. *unifolia* (AK 296182; "late flowering")
 Thelymitra (b) (CHR 518036; "darkie")

Pat Enright was spending a wet Wairarapa day surfing the net and found https://phytokeys.pensoft.net/browse_journal_articles.php?form_name=filter_articles&sortby=&journal_id=3&search_hidden=Orchidaceae&search_in=2&search_in_hidden=2.

You will see there descriptions of the new *Gastrodia kachinensis* from Myanmar by Aung & Jin and the new Asian *Spiranthes himalayensis* by Surveswaran, Kumar & Sun.



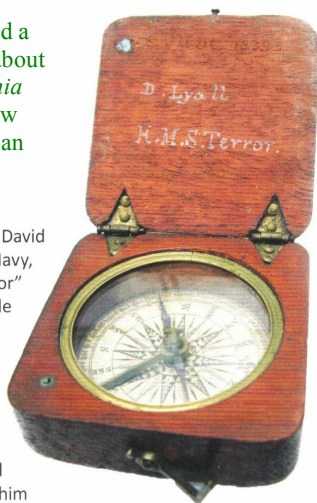
◀ *Spiranthes himalayensis*:
 A habitat, B plant & C inflorescence.

▼ *Gastrodia kachinensis*

The inbox

The *Linnean* of April 2019 carried a letter from Andrew Lyall FLS about Dr David Lyall, after whom *Caladenia lyallii*, Lyall Bay and many other New Zealand things were named. Here is an excerpt...

The compass (RIGHT) is apparently the one David Lyall had from the time he joined the Royal Navy, as it has the words "D. Lyall, H.M.S. Terror" inscribed inside the lid and also, just visible and scratched into the surface above it, the date "6 June 1839". That was the date on which he joined the navy and HMS *Terror* as assistant surgeon on Sir James Clark Ross's famous expedition (alongside the HMS *Erebus*) to the Antarctic in 1839 to 1843. This object must have been a prized possession and he probably had it with him throughout his naval career on his expeditions not only to Antarctica but also to New Zealand, the Arctic and North America.



Congratulations and best wishes to Helene Wild, editor of the high quality ANOS Victoria Group *Bulletin*; she intends retiring as Editor at the Group's AGM in August when she will have completed 30 years and 330 issues. Impressive.

Taxonomists' terms

Richard Austin explained some terms to ANOS Vic Group's May 2019 *Bulletin* readers,

TYPE: The single herbarium specimen on which the description associated with the original publication of a name was based.

The **TYPE** of a taxon can be **HOLOTYPE**, **LECTOTYPE**, **NEOTYPE** or **ISOTYPE**.

HOLOTYPE: The sole specimen used by an author as the **TYPE** example of a species when the description is first published.

LECTOTYPE: A specimen selected from the original material on which the name was based. A **LECTOTYPE** is only necessary when the original author failed to designate a **HOLOTYPE**.

NEOTYPE : A plant specimen chosen to act as a standard taxonomic reference point following the irretrievable loss of all **TYPE** material. The **NEOTYPE** should match the original description as closely as possible and ideally come from the same locality as the original **TYPE** material.

ISOTYPE: A specimen collected at the same time and from the same localised population as the **HOLOTYPE**. These duplicate specimens are often separated and deposited in several Herbariums.

The June 2019 ANOS Victoria *Bulletin* carried this, from Wikipedia...

A WARNING TO PHOTOGRAPHERS

As of 2014 many cameras and mobile phones have a built-in GPS receiver that stores the location information in the Exif header when a picture is taken. Some other cameras have a separate GPS receiver that fits into the flash connector or hot shoe. Recorded GPS data can also be added to any digital photograph on a computer, either by correlating the time stamps of the photographs with a GPS record from a hand-held GPS receiver or manually by using a map or mapping software. The process of adding geographic information to a photograph is known as geotagging. Photo-sharing communities like Panoramio, locr or Flickr equally allow their users to upload geocoded pictures or to add geolocation information online.

Just something for photographers to think about before posting photos to the internet as this could jeopardise rare/endangered orchids. If anyone is intending to post photos of their orchid finds they should turn off the GPS app.

A Cultivation and Propagation sub-group?

Dear NZNOG Editor,

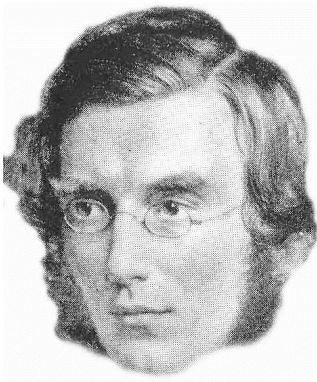
I'm a new member and have recently read the *NZNOJ* February 2007 editorial "Conservation by cultivation". Even though it's now over twelve years later, has anything changed that diminishes this idea? To me, if anything, it's more urgent now than ever.

I propose the formation of a Cultivation and Propagation sub-group within the NZNOG. The idea is to promote native orchid cultivation and propagation expertise within New Zealand in support of conservation. Depending on what resources are available, this could include both laboratory and shade-house based techniques. Activities could include such things as sharing growing conditions information, propagation media formulae and (member only?) seed and plant exchange. I invite further discussion of appropriate possibilities.

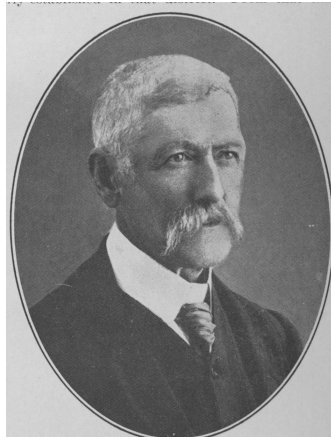
Note that the Australian Native Orchid Society Victoria Group has an active Terrestrial Cultivation & Seed Propagation Group. I've already used information from them, tuned to NZ conditions, to make a start with shade-house based cultivation.

Interested readers can contact me directly at: jrugis@gmail.com

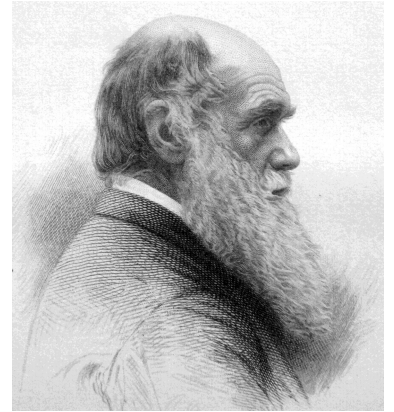
John Rugis
Maraetai



JD Hooker young ▲ & old ►



Harry Carse



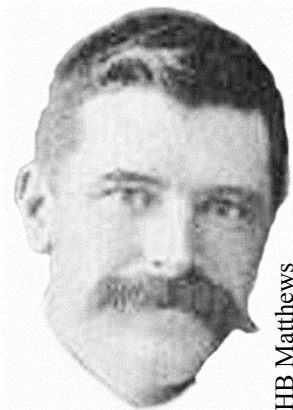
Charles Darwin



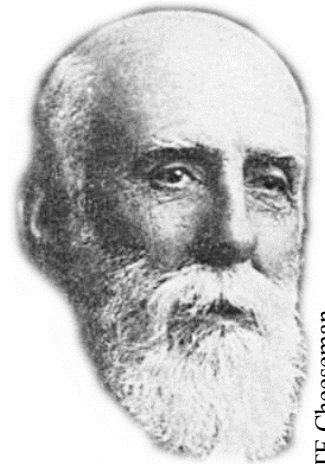
Mark Clements



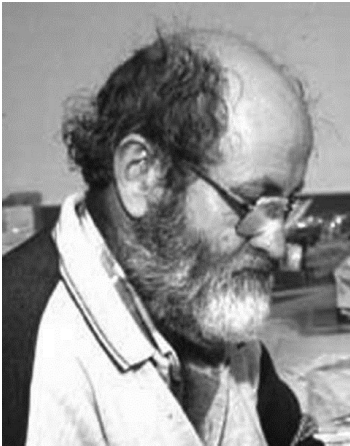
ED Hatch



HB Matthews



TF Cheeseman



David Jones



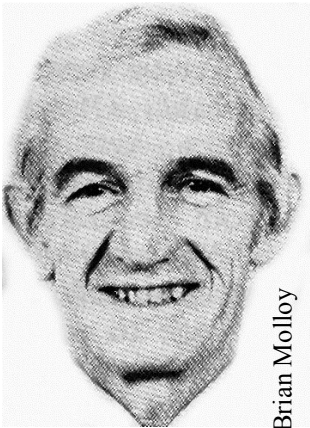
WJ Hooker



Bruce Irwin



Lucy Moore



Brian Molloy



RH Matthews



William Colenso: young



.....and old