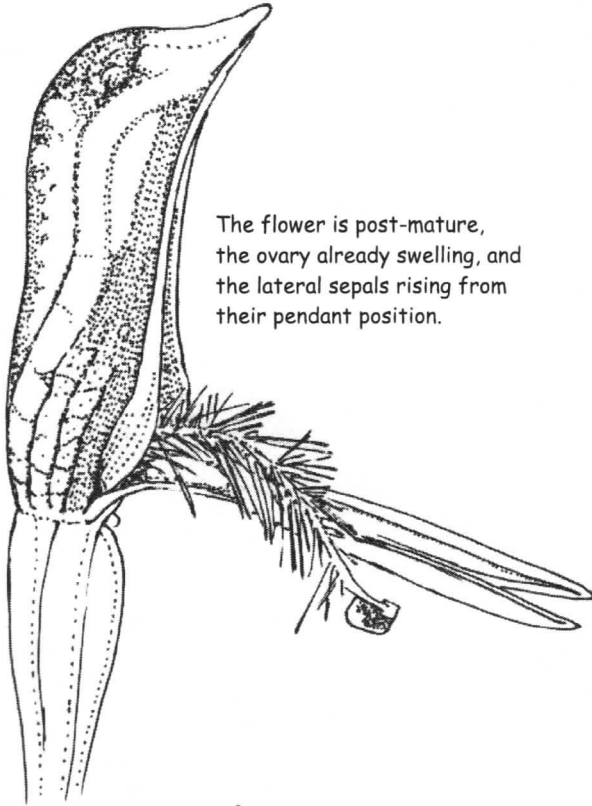
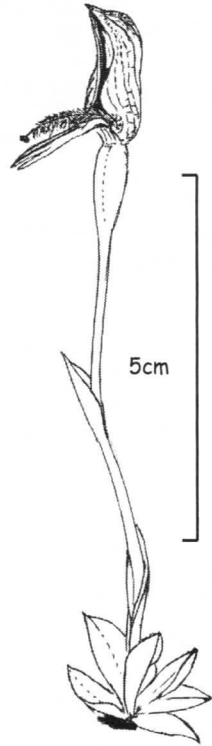


## *Pterostylis tasmanica*

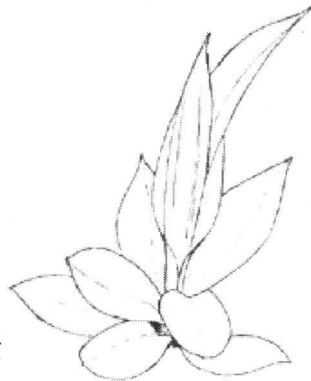
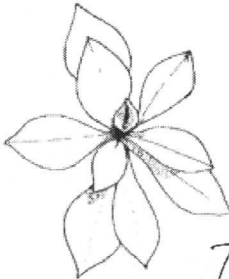
Rubbish Dump Hill, Te Pahi,  
September 1999.



The flower is post-mature,  
the ovary already swelling,  
and the lateral sepals rising from  
their pendant position.



Rosettes



ISG.

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## Editorials

### 1. *Pterostylis tasmanica*

- 1810** Robert Brown described *P. squamata* from Tasmania. Thereafter first FitzGerald and then Nicholls misidentified it.
- 1840** John Lindley described *P. barbata* from Swan river.
- 1853** in his *Flora Novae Zelandiae* JD Hooker identified a specimen Andrew Sinclair sent from somewhere in the North Island as Brown's *P. squamata*.
- 1860** Archer drew *P. squamata* and WH Fitch made an engraving for Hooker's *Flora Tasmaniae* part 2; Hooker included NZ in the distribution (see Fig.1, colour pages).
- 1864** Hooker included *P. squamata* in his *Handbook*.
- 1872:** in Cheeseman's famous paper on the fertilisation of the New Zealand forms of *Pterostylis* he remarked neither he nor any New Zealand botanist had found it. In
- 1874** he reported finding it at Kopu, near Thames (see "Historical Reprint" in this issue). Meanwhile Bentham found Hooker had been wrong in using the name *P. squamata*, and, as Cheeseman put it, "the plant to which the specific name of *squamata* had been applied" was in fact Lindley's *P. barbata*.
- 1882** Cheeseman reported it from Mercer.
- 1904** RH Matthews wrote to Cheeseman he had found it "east of Okahu".
- 1906** Cheeseman referred to the NZ plant as *P. barbata* in his *Manual*, and added Whangarei to its distribution in the appendix. Later he reported it from Cowes on Waiheke under *Leptospermum* scrub, and in 1907 from Days Bay, Wellington.
- 1946** Hatch listed *P. barbata* as common to Australia and New Zealand.
- 1961** George wrote the name *P. barbata*

should be applied to West Australian plants with white labellar hairs and pointed sepals.

- 1969** Cady described *P. plumosa* for eastern Australian plants.
- 1970** Moore called the NZ plants *P. barbata* but noted they might shortly be identified with *P. plumosa*.
- 1981** Cooper used the name *P. plumosa* for NZ plants (after referring to *Orchadian* papers by Vaughan [December 1979] and Brown [June 1980] on the differences between *P. barbata* and *P. plumosa*).
- 1983** Johns and Molloy did too.
- 1994** David Jones described *P. tasmanica* for plants from Tasmania, Victoria and NZ; he distinguished it from *P. plumosa* on the basis of its "shorter habit, smaller leaves arranged in a relatively tight rosette and smaller, self-pollinating flowers with a more densely plumose labellum and a short apical point on the galea, imparting a blunt appearance to the flower. *P. plumosa* grows up to 25cm tall, has leaves of 4cm x 10mm arranged in a relatively loose rosette and flowers to 4.5cm long with an apical point on the dorsal sepal to 4mm long."

This year I was lucky enough to find and later examine a flower that was lying beside a plant: nipped off, perhaps by a bird. It was a little past maturity, the ovary already swelling.

The flower has a vertical stance: this one had two whole, coherent pollinia on the stigma, and none under its anther cap. It appears to be self-pollinating, though the stigma is long and relatively flat for a self-pollinator; it overlaps the sides of the column, and at top and bottom is free of the column. The column wings are typical of *Pterostylis* but carry greatly elongated upper processes. The wings are very hairy, and the hairs seem to narrow the channel through which the pollinia would fall to reach the

stigma, perhaps facilitating self-pollination.

The lateral sepals are separate only in the outer half. They are upright in the bud, hang down to near vertical in the mature flower, and close up again as the flower passes maturity. They are each rolled distally into a half-tube.

The petals are long and narrow, as long as the dorsal sepal whose lateral borders fit snugly into a groove in the outer surface of each petal. The petals taper to a very narrow distal portion and point.

The labellum is a long hairy triangle, 3mm wide at the base, becoming threadlike at the halfway point to the apex, which bears a dark brown winged terminal callus. The labellum is attached near the base by a thin ribbon of tissue, quite floppy and lacking the tissue turgor that springs the labella of other *Pterostylis* species. The base of the labellum extends back beyond the attachment of the ribbon, and here the whole labellum is thickened; it narrows at the back to a blunt hooked point, lacking the usual fimbria.

## 2. *Corysanthes hypogaea* — is it something different?

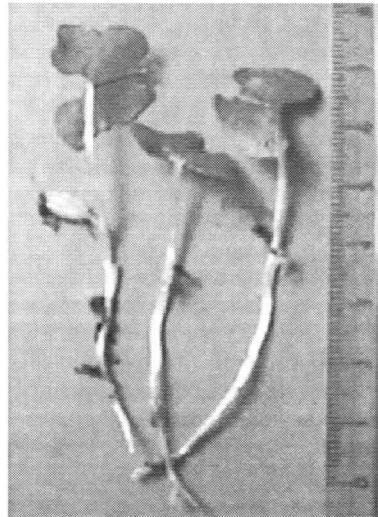
Colenso's *Corysanthes hypogaea* (see p34 of this issue) was included in *Corybas trilobus* by an exasperated Cheeseman who had earlier written to Colenso, "I am sorry that I find it impossible to accept as distinct species most of the plants you have described...". Those of us with a soft spot for Colenso have watched with glee as several of his species have been reinstated, and I have no doubt there will be more to come.

For a time there was a suspicion *C. cryptanthus* was the true *C. hypogaea* (see Moore in *Flora II* p120), but the Type at Kew shows it is certainly

one of the *C. trilobus* forms. I have never been happy that any of those with flowers below the leaf (*C. "Trotters"* and "*Rimutaka*") are small enough to fit Colenso's description.

But on 16 October I found a form that I think may be it. It was under beech in the eastern Wairarapa, and I thought it was just another colony of vegetatively spread *C. trilobus* with a short wide leaf. But beneath the moss and beech leaf litter there were fruit and the shrivelled remains of tiny flowers. These leaves are wider than they are long, veined, purple-silver below, the midlobe triangular and pointed, the posterior lobes earlike.

Next September I will be back to find the tiny flowers with their short, hairlike tepals.



Let's all have a happy & safe Christmas



### 3. British orchid genera X: the saprophytes

Most countries have a few orchids that lack chlorophyll and rely fully on fungi for their nutrition. In Britain they are the Bird's-nest orchid *Neottia nidus-avis*, the Coral-root *Coralorrhiza trifida* and the Ghost orchid *Epipogium aphyllum*.

*Neottia* flowers in dark beech and yew woods, its thick stem 30cm tall, bearing scale leaves and 50-100 honey-brown flowers in June. The dorsal sepal and lateral petals form a loose hood over the column and bifid labellum. At the base of the labellum is a shallow depression which secretes nectar to attract the small flies and thrips that act as pollinators. There is also a slight fragrance. Self-pollination is a fall-back position. The underground portion is a tangled mass of roots around the rhizome, the whole giving the appearance of a poorly made birds' nest. *Neottia* is common in the south of Britain (**Fig.2 of colour pages**).

*Coralorrhiza* does have some green chlorophyll in the stem, but photosynthesis does not play a large part in its nutrition. The mass of knobbly rhizomes resembles coral and produces hairs but no roots and no creeping rhizome. Up to 10 stems may arise from one rootmass. The 10-20cm stems are of course leafless, bear long scales and in June-July 4-12 yellowish flowers with red-brown markings. A bryophil orchid, most common in the far north of Britain, it is also common in the European Alps where I have seen it under fir trees below the Eiger in Switzerland (**Fig.3 of colour pages**).

*Epipogium* is rare everywhere: vanishingly so in Britain, with long spells when it is not seen for years. It has a flattened branching rhizome with runners that extend many metres from the nearest flower. Up to six drooping flowers smell (David Lang says) like gym shoes and attract insects.

### 4. A list of the New Zealand orchids with notes

*This list is published annually: it is the editor's personal view, current as of publication, but a fluid thing, continually modified by reading, conversation and observation as we await the forthcoming checklist of New Zealand orchids being prepared by Brian Molloy, David Jones and Mark Clements. The last "official" full taxonomic treatment of the NZ orchids was by Lucy Moore in Moore & Edgar's Flora of New Zealand Volume II in 1970; the notes here refer to changes since then.*

*Acianthus sinclairii* JD Hook. *Flora NZ* 1:245 (1853); *Flora II* called it

*Acianthus fornicatus* var. *sinclairii*.

*Adenochilus gracilis* JD Hook. *Flora NZ*. 1:246 t56A (1853)

*Aporostylis bifolia* (JD Hook.) Rupp & Hatch *Proc. Linn. Soc. NSW*. 70:61 (1946). There has been a suggestion that there are two taxa: if so we may see the revival of one of the specific epithets *traversii* or *macrophylla*.

*Bulbophyllum pygmaeum* (Smith) Lindl. *Gen. and Spec. orch. Pl.* 58 (1830)

*Bulbophyllum tuberculatum* Col. *TNZI* 16:336 (1884)

*Caladenia alata* R.Br. *Prodr.* 324 (1810); *Flora II* called it *C. carnea* var. *exigua*. See Hatch E.D. and McCrae D. *NZNOG Newsletter*. 32:5-6 (1989).

*Caladenia atradenia* D.Jones *et al. Orchadian* 12 (5):221 (1997); *Flora II* called it *C. carnea* var. *minor* forma *calliniger*. Has been confused with the Australian *C. iridescens*, and was later called *C. aff. iridescens*.

*Caladenia bartlettii* D.Jones *et al. Orchadian* 12 (5):221 (1997); *Flora II* called it *C. carnea* var. *bartlettii*. It has been

- confused with *Caladenia carnea*.
- Caladenia chlorostyla*** D.Jones *et al. Orchadian* 12 (5):221 (1997): was tagged *C.* “green column”. But is this the true identity of *C. minor*? (see Scanlen E. *NZNOG Journal* 1999; 72: 22)
- Caladenia lyallii*** JD Hook. *Flora NZ.* 1:247 (1853); there seem to be two or three taxa currently included in *C. lyallii* agg. – see Gibbs M. *NZNOG Journal*; 35:19 (1990), *The NZ orchids: natural history and cultivation* t20. *C. alpina* may also be in NZ (St George. *NZNOG Journal* 63:4 (1997)).
- Caladenia minor*** JD Hook. *Flora NZ.* 1:247 t56b (1853); *Flora II* called it *C. carnea* var. *minor*. There is controversy about the true identity of *C. minor* (see Scanlen E. *NZNOG Journal* 1999; 72: 22).
- Caladenia nothofageti*** D.Jones *et al. Orchadian* 12 (5):221 (1997)
- Caladenia variegata*** Colenso in *Trans. NZ Inst.* 17: 248-9 (1884). See Scanlen E. *NZNOG Journal* 1999; 72: 22).
- Caladenia* aff. *carnea***: a ragbag of pink forms. *C. pusilla* and *C. fuscata* may be present in NZ (see Scanlen E. *NZNOG Journal* 1999; 72: 22).
- Caleana minor*** R.Br. *Prodr.* 329 (1810): occasional transtasman vagrant, sometimes regarded as a *Paracaleana*. Several forms in Australia.
- Calochilus herbaceus*** Lindl. *Gen. and Spec. orch. Pl.* 459 (1840): a transtasman vagrant, in *Flora II* as *C. campestris*, has been identified as *C. herbaceus*, though there seems to be some doubt as to its identity. See McCrae D. *NZNOG Newsletter.* 24:9. (1987).
- Calochilus paludosus*** R.Br. *Prodr.* 320 (1810)
- Calochilus robertsonii*** Benth. *Flora Austral.* 6:315 (1873)
- Chiloglottis cornuta*** JD Hook. *Flora Antarct.* 1:69 (1844). A transtasman species (or aggregate of species) with wide variation in the labellar calli, currently under study.
- Chiloglottis formicifera*** Fitzg. *Austral. Orch.* 1(3): t9 (1877): occasional transtasman vagrant, not seen in the wild in NZ for fifty years.
- Chiloglottis valida*** DL Jones. *Aust. Orch. Res.* 2:43-4, 154 (1991): transtasman vagrant, not in *Flora II*; was mistaken for *C. gunnii*.
- Corybas acuminatus*** Clements & Hatch. *NZ Journal of Botany.* 23(3):491 (1985); *Flora II* mistakenly called it *C. rivularis* – *q.v.*
- Corybas carsei*** (Cheesem.) Hatch. *TRSNZ.* 75:367 (1945); *Flora II* included it in *C. unguiculatus*. See Irwin J.B. *NZNOG Newsletter.* 23:8. (1987). May be identical with the Australian *C. fordhamii*.
- Corybas cheesemanii*** JD Hook. Ex Kirk in *TNZI.* 3:180 (1871); *Flora II* included it in *C. aconitiflorus*. See Clarkson B.D. *Vegetation of Egmont National Park* 1986. p87.
- Corybas cryptanthus*** Hatch. *TRSNZ.* 83:577 (1956)
- Corybas dienemus*** DL Jones. *Flora of Australia.* 50:572 (1993): reported only from Macquarie Island; appears to be similar to *Corybas orbiculatus*.
- Corybas iridescens*** Molloy & Irwin. *NZJ Bot.* 34:1-10 (1996): was included by Irwin in the *C. rivularis* group [*q.v.*] as *C.* “A”.
- Corybas macranthus*** (JD Hook.) HG Reichenb. *Beitr. Syst. Pflk.* 67 (1871). A possible hybrid with *C. trilobus* has the general shape of *C. macranthus* except for a rounded dorsal sepal. A form on the Chathams is distinct (see de Lange, P.J.; Sawyer, J.W.D.; Ansell, R. 1999: Checklist of indigenous vascular plant species recorded from Chatham Islands. DoC, Wellington).

- Corybas oblongus*** (JD Hook.) HG Reichb. *Beitr. Syst. Pflk.* 67 (1871): are there two forms? see Goodger R. *NZNOG Journal*: 61. (1996).
- Corybas orbiculatus*** Col. *TNZI*. 23:389 (1891): this is not the taxon named *C. orbiculatus* in *Flora II*, but is that tag-named *C.* “short tepals”; see Molloy B, *NZNOG Journal*. 51:12-14. (1994).
- Corybas papa*** Molloy & Irwin. *NZJ Bot.* 34:1-10 (1996): Irwin included it in the *C. aff. rivularis* group (*q.v.*) as *C.* “Mt Messenger”.
- Corybas rivularis*** (A.Cunn) HG Reichb. *Beitr. Syst. Pflk.* 67 (1871): this was Cunningham’s original name and it is now applied to the plant Irwin tagged as *C.* “Kerikeri” – see Molloy BPJ & Irwin JB. *NZJ Bot.* 34:1-10 (1996). Irwin pointed out in 1989 that a range of taxa have affinities with *C. rivularis*; they were misnamed *C. orbiculatus* in *Flora II* and one is now known by the older Hatch name *C. macranthus* var. *longipetalus* as well as by Irwin’s tag-name *C.* “Waiouru” (this taxon has, furthermore, been found at Glenross, the type locality for Colenso’s *Corysanthes papillosa*); others in the *C. rivularis* complex include *C.* “Kaimai”, *C.* “rest area” and *C.* “whiskers”, [Irwin J.B. *NZNOG Newsletter*. 32:1-4 (1989). *NZNOG Journal*. 47:7-9 (1993). *NZNOG Journal*. 55:22-24 (1995)]. See also *C. rivularis*, *C. orbiculatus*, *C. papa* and *C. iridescens*.
- Corybas rotundifolius*** (JD Hook.) HG Reichb. *Beitr. Syst. Pflk.* 67 (1871): was included in *C. unguiculatus* and later tagged *C. aff. unguiculatus* – see Hatch E.D. *NZNOG Journal*. 38:4-5. (1991).
- Corybas trilobus*** (JD Hook.) HG Reichb. *Beitr. Syst. Pflk.* 67 (1871). A number of *Corybas* with 3-lobed leaves show differences in flowering time, size, and sometimes structure [Gibbs M. *NZNOG Newsl.*; 29:2-7 (1989)]. Variants in the *Corybas trilobus* complex include *C.* “Trotters” [*NZNOG Newsl.*; 28:10-13 (1988)], *C.* “Rimutaka” [*NZNOG Journal*; 58:8-9 (1996)], some possible *C. trilobus* hybrids with taxa having long dorsal sepals [*ibid.*; 58:4-7 (1996)], *C.* “round leaf” and others. Colenso’s *Corysanthes hypogaea* is perhaps another. A form on the Chathams is distinct (see de Lange, P.J.; Sawyer, J.W.D.; Ansell, R. 1999: Checklist of indigenous vascular plant species recorded from Chatham Islands. Department of Conservation, Wellington).
- Cryptostylis subulata*** (Labill.) HG Reichb. *Beitr. Syst. Pflk.* 15 (1871): transtasman vagrant, now well established in Northland; not listed in *Flora II*. See Graham D.K.F. *NZ Journal of Botany*. 14:275. (1976).
- Cyrtostylis oblonga*** JD Hook. *Flora NZ*. 1:246 (1853): *Flora II* called it *Acianthus reniformis* var. *oblonga*. See Jones D. and Clements M. *Lindleyana*. 2[3]:156. (1987). Kores has recently suggested *Cyrtostylis* should be re-included in *Acianthus*.
- Cyrtostylis reniformis*** R.Br. *Prodr.* 322 (1810): *Flora II* called it *Acianthus reniformis* var. *reniformis*. See Jones and Clements *ibid.*
- Danhatchia australis*** (Hatch) Garay & Christenson. *Orchadian*. 11(10): 469-471 (1995): was known as *Yuania australis*.
- Drymoanthus adversus*** (JD Hook.) Dockrill. *Australasian Sarcanthinae*. 32:t3 (1967)
- Drymoanthus flavus*** St George & Molloy. *NZJ Bot.* 32:415-421 (1994)
- Earina autumnalis*** (GJ Forst.) JD Hook. *Flora NZ*. 1:239 (1853)
- Earina mucronata*** Lindl. *Bot. Reg.* 20 (1814): includes the robust, late-flowering coastal form, “*E. aestivalis*”.

- Gastrodia cunninghamii*** JD Hook. *Flora NZ*. 1:251 (1853)
- Gastrodia minor*** Petrie. *TNZI*. 25:273 t20 fig5-7 (1893)
- Gastrodia* “long column” agg:** there are a number of undescribed *Gastrodia* with a long column. See Wilson H. *Field Guide – Stewart Island plants* 1982. p294.
- Gastrodia* aff. *sesamoides*:** different from the Australian species *Gastrodia sesamoides* – see Ogle C. *NZNOG Journal*. 51:9 (1994).
- Gonoplesium nudum*** (JD Hook.) D Jones & M Clements. *Lindleyana*. 4(3):144 (1989); was included in *Prasophyllum* – see Hatch E.D. *NZNOG Newsl.*. 37:18. (1991).
- Gonoplesium pumilum*** (JD Hook.) D Jones & M Clements. *Lindleyana*. 4(3):144 (1989); was included in *Prasophyllum* – see Hatch E.D. *NZNOG Newsl.*. 37:18. (1991).
- Microtis arenaria*** Lindl. *Gen. Sp. orchid.* Pl.306 (1840): mentioned in *Flora II* under *M. unifolia* as *M. biloba*; and see *NZNOGJ*. 58:16-18. (1996).
- Microtis oligantha*** LB Moore. *NZJBot*. 6: 473 fig.1 (1969). A distinct taxon on the Chathams is similar (see de Lange, P.J.; Sawyer, J.W.D.; Ansell, R. 1999: Checklist of indigenous vascular plant species recorded from Chatham Islands. DoC, Wellington).
- Microtis parviflora*** R.Br. *Prodr.* 321 (1810): true *M. parviflora* may occur in NZ. See *NZNOGJ*. 62:5-6. (1996). *Microtis* aff. *parviflora*: most similar NZ plants differ from *M. parviflora* in the strict sense, and some may be *M. aemula*, common throughout the Pacific: see *NZNOGJ*. 62:5-6. (1996).
- Microtis unifolia*** (JG Forst.) HG Reichb. *Beitr. Syst. Pflk.* 62 (1871). *M.* aff. *unifolia*: there may be more than one *Microtis* similar to true *M. unifolia* (for instance Colenso’s *M. papillosa* and *M. longifolia* have been treated as synonyms): see *NZNOGJ*. 62:5-6 (1996), and. 67:4-6 (1998)
- Orthoceras novae-zeelandiae*** (A.Rich.) M.Clements *et al.* *Australian orchid res.*; 1:100 (1989): was regarded as identical with the Australian *O. strictum*. But the differentiating features – longer vs shorter floral bracts and round vs pointed labella – are all present in NZ. Is *O. strictum* here? Or will one of the synonyms (*O. solandri*, *rubrum*, *caput-serpentis*) be revived – see Goodger R. *NZNOG Journal*; 60. (1996), and Bates R. *NZNOG Journal*; 71. (1999)
- Prasophyllum colensoi*** JD Hook. *Flora NZ*. 1:241 (1853). Probably a number of taxa, possibly including the Australian *P. rogersii* or the synonym *P. pauciflorum*.
- Prasophyllum* aff. *patens*:** was regarded as identical with the Australian *P. patens*, but now regarded as an undescribed New Zealand taxon.
- Pterostylis agathicola*** DL Jones *et al.* *Orchadian*. 12(6):266-281 (1997): was named *P. graminea* var. *rubricaulis* and later tag named *P.* “*rubricaulis*”).
- Pterostylis alobula*** (Hatch) LB Moore. *NZJBot*. 6:486 fig.3 (1969)
- Pterostylis areolata*** Petrie. *TNZI*. 50:210 (1918)
- Pterostylis australis*** JD Hook. *Flora NZ*. 1:248 (1853)
- Pterostylis banksii*** A.Cunn. *Bot. Mag.* 59:13172 (1832). *P. banksii* var. *silvicultrix* F. Muell. *Veg. Chath. Is.* 51 (1864) is a taxon from the Chatham Islands whose status is uncertain.
- Pterostylis brumalis*** LB Moore. *NZJBot*. 6:485 fig.3 (1969)
- Pterostylis cardiostigma*** Cooper. *NZ Journal of Botany*. 21(1):97 (1983)
- Pterostylis cernua*** DL Jones *et al.* *Orcha-*

*dian*. 12(6):266-281 (1997)

***Pterostylis foliata*** JD Hook. *Flora NZ*. 1:249 (1853)

***Pterostylis graminea*** JD Hook. *Flora NZ*. 1:248 (1853)

***Pterostylis humilis*** Rogers. *Trans. roy. Soc. S. Aust.* 46:151 (1922)

***Pterostylis irsoniana*** Hatch. *TRSNZ*. 78:104 pl.18 A-G (1950).

***Pterostylis irwinii*** DL Jones *et al. Orchadian*. 12(6):266-281(1997): was tagged *P. "Erua"*.

***Pterostylis micromega*** JD Hook. *Flora NZ*. 1:248 (1853)

***Pterostylis montana*** Hatch. *TRSNZ*. 77:239 pl.22 (1949). *Pterostylis* aff. *montana* agg: includes several undescribed taxa; for details of one of those currently tagged "aff. *montana*", see *NZNOG Newsletter*. 25:12-14 (1988). *Pterostylis* "Catlins" is undescribed; illustrated in St George. *Wild orchids in the far south of NZ*. Some of the old Colenso specific epithets may well apply here – *emarginata*, *speciosa*, *subsimilis*, *auriculata*.

***Pterostylis nutans*** R.Br. *Prodr.* 326 (1810): occasional transtasman vagrant, recently rediscovered near Taupo – see *NZNOG Journal*. 57:38-39 (1995).

***Pterostylis alveata*** Garnet. *Vict. Naturalist* 59: 91-4 (1939): found in 1998 near Nelson -- see Donaghy *et al. NZNOG Journal*. 68: 1998.

***Pterostylis oliveri*** Petrie. *TNZI*. 26:270 (1893)

***Pterostylis paludosa*** DL Jones *et al. Orchadian*. 12(6):266-281 (1997): *Flora II* included it in *P. montana*, and it has been known as "*P. linearis*".

***Pterostylis patens*** Col. *TNZI*. 18:270 (1886): *Flora II* had it as a variety of *P. banksii*, but it is now regarded as distinct.

***Pterostylis porrecta*** DL Jones *et al. Orchadian*. 12(6):266-281 (1997): was tagged

*P. aff. graminea*.

***Pterostylis puberula*** JD Hook. *Flora NZ*. 1:249 (1853); *Flora II* included it in *P. nana*, and it has been referred to as *P. aff. nana*.

***Pterostylis tanyпода*** DL Jones *et al. Orchadian*. 12(6):266-281 (1997): *Flora II* included it in *P. cycnocephala*, and it has been referred to as *P. aff. cycnocephala*.

***Pterostylis tasmanica*** DL Jones. *Muelleria*. 8(2):177-192 (1994): *Flora II* included it in *P. barbata*; it has also been confused with *P. plumosa*. See Molloy B. *NZNOG Journal* 51: 14-16. (1994).

***Pterostylis tristis*** Col. *TNZI*. 18:271 (1886): *Flora II* included it in *P. mutica*. See Molloy B. *Proc. 2nd Int. Orch. Conf.* 1985. p2.

***Pterostylis trullifolia*** JD Hook. *Flora NZ*. 1:249 (1853)

***Pterostylis venosa*** Col. *TNZI*. 28:610 (1896); North and South Island plants show some differences.

***Spiranthes novae-zelandiae*** JD Hook. *Handbk NZ Flora* (1864) p667; there seem to be several *Spiranthes* taxa in Australia and NZ; *S. sinensis* (Pers) Ames and *S. australis* JDHook. may perhaps be here (see Molloy B.P.J. *NZNOG Journal* 21: 7-8; and 22: 8-10).

***Thelymitra aemula*** Cheesem. *TNZI*. 51:94 (1919): see Molloy B.P.J. and Hatch E.D. *NZNOG Journal*. 35:20-24. (1990). Jones (*Australian Orchid Research* Vol 3, 1998) says that *T. media* also occurs in NZ and has been confused with *T. aemula*.

***Thelymitra carnea*** R.Br. *Prodr.* 314 (1810). The NZ form may be different, if we interpret Jones DL (*Australian Orchid Research* Vol 3, 1998) correctly; if so the NZ plant is *T. imberbis* JDHook. *Fl. NZ*; i: 244.

***Thelymitra circumsepta*** FitzGerald *Australian orchids* 1[4] (1878). Jones

- (*Australian Orchid Research* Vol 3, 1998) lists NZ in the distribution of this trans-tasman species; it had been known here by the Colenso name *T. formosa*.
- Thelymitra cyanea*** (Lindl.) Benth. *Flora Austral.* 6:323 (1873); *Flora II* included it in *T. venosa*. There appear to be two forms – see Beard C. *NZNOG Journal*. 59:29. (1996); could one be *T. uniflora*?
- Thelymitra x dentata***: a sterile hybrid of *T. longifolia* and *T. pulchella*: see McCrae DP & Molloy BPJ. *Ecosystems, entomology & plants*. RSNZ Misc Series 48, 1998, p121.
- Thelymitra fimbriata*** Col. *Trans.N.Z.I.* 22: 459 (1890). Has been included in *T. pulchella* (q.v.)
- Thelymitra hatchii*** LB Moore. *NZJBot.* 6:477 fig.2 (1969)
- Thelymitra intermedia*** Bergg. *Minneskr. Fisiogr. Sallsk. Lund Art.* 8,21,t5,f.21-24 (1878); regarded as identical with *Thelymitra pauciflora* [Molloy BPJ & Hatch ED. *NZJBot.* 28:105 (1990)], a name which however contains many forms -see below. Irwin and St George [*NZNOG Journal*. 58:25 (1996)] regard the plant tagged *T. "pseudopauciflora"* as the rightful inheritor of this name). Moore wrongly used this name for *T. tholiformis*.
- Thelymitra* aff. *ixioides***: differs from the Australian *T. ixioides*; the NZ taxon is self-pollinating, as is one Australian taxon: the other Australian is insect-pollinated.
- Thelymitra longifolia*** JR et GJ Forst. *Char. Gen. Pl.* 98 t49 (1776). *Thelymitra* aff. *longifolia* agg: name given to some undescribed taxa that appear to be insect-pollinated. Some may be referable to the discarded Colenso epithets, *T. nemoralis*, *purpureo-fusca*, *cornuta*, *alba*, or even Swartz's *T. forsteri*.
- Thelymitra malvina*** M.Clements et al. *Austral. Orchid Res.* 1:141 (1989). Jones (*Australian Orchid Research* Vol 3, 1998) does not include NZ in the distribution of this species, inviting the inference that our taxon may be different.
- Thelymitra matthewsii*** Cheesem. *TNZI.* 43:177 (1911)
- Thelymitra media*** R.Br. *Prodr.* (1810). A trans-tasman vagrant; see *T. aemula* above.
- Thelymitra nervosa*** Col. *TNZI.* 20:207 (1888); *Flora II* called this plant *T. decora*; Moore was aware of Colenso's *T. nervosa* but could not place it at that time.
- Thelymitra pauciflora*** R.Br. *Prodr.* 314 (1810). Jones (*Australian Orchid Research* Vol 3, 1998) did not include NZ in the distribution of this species, allowing the inference that our taxa (there appear to be more than one -- see *T. intermedia* above) may be different (Hooker's *T. colensoi* and Colenso's *T. cornuta* have been treated as synonyms).
- Thelymitra pulchella*** JD Hook. *Flora NZ.* 1:244 (1853); there are several plants with affinities to *T. pulchella* – and furthermore the names *T. concinna* Colenso, *T. fimbriata* Colenso, *T. pachyphylla* Cheeseman and *T. caesia* Petrie have been treated as synonyms of *T. pulchella*, as Jones (*Australian Orchid Research* Vol 3, 1998) pointed out. See *NZNOGJ* 72: 8 (1999)
- Thelymitra sanscilia*** Irwin ex Hatch. *TRSNZ.* 79:397 pl.81 (1952); Moore regarded this as an aberrant form of *T. pauciflora* (*Flora II* p130); others now regard it as distinct.
- Thelymitra tholiformis*** Molloy & Hatch. *NZJBot.* 28:105-114 (1990); wrongly identified as Berggren's *T. intermedia* by Moore, and included in *T. aemula* by Hatch: but see Molloy B.P.J. and Hatch E.D. *NZNOG Journal.* 35:20-24. (1990).

***Thelymitra* “Ahipara”**: a cleistogamous, unnamed taxon from the far north.

***Thelymitra* “Comet”**: the tagname for a large, late-flowering *Thelymitra* from the Kaweka range. Probably a sterile hybrid – see *NZNOG Journal*. 71: 4 (1999).

***Thelymitra* “Whakapapa”**: undescribed taxon from Ruapehu – see *NZNOG Journal*. 54: 7-8. (1995).

***Thelymitra* “darkie”**: undescribed taxon from the Far North.

***Thelymitra* “rough leaf”**: undescribed taxon from the Far North.

***Townsonia deflexa*** Cheeseman *Man. NZ flora*. 692 (1906). Has been included in *Acianthus*. *T. viridis* is now regarded as a Tasmanian endemic (DL Jones: *Australian Orchid Research* Vol 3, AOF, 1998).

***Waireia stenopetala*** DL Jones *et al. Orchadian*. 12(6):282-287 (1997); the species previously known as *Lyperanthus antarcticus*

***Winika cunninghamii*** MA Clements *et al. Orchadian*. 12(5):214-219 (1997); the species previously known as *Dendrobium cunninghamii*.



## The Annual Iwitahi Native Orchid Weekend 10-13 December

It is almost that time again.

The camp will be open from mid-afternoon on Friday 10 December. Anyone planning to come on Saturday morning should be there well before 9 as everyone disappears promptly. The last of the enthusiasts are on the road home after lunch on Sunday.

The cost is \$10 per night. But remember to bring your own food as we no longer supply it. On the Saturday night we all pool our goodies and have a pot luck meal. We have found that it works very well.

If you have slides or photos to share do bring them. We would all love to see them. Bob Talbot says he is coming so I guess he will have a host of shots we have not yet seen.

Since last year there has been a 20 metre cut made along the internal boundary to give this edge of the reserve time to adjust to being opened up before the remainder of the adjoining trees are felled. This has already proved to be very worthwhile. We should be able to collect a great variety of *Caledenias* from the Low Level Road and replant them along the internal boundary which now has many similarities to their present environment.

What to bring? Trays, spades, slides, cold weather gear, hot weather gear, bedding and of course food.

Anyone who needs further information about the camp or how to get there, ring Trevor Nicholls at 07 378 4813, write to 33 Hinekura Ave, Taupo or email: [nicholls@reap.org.nz](mailto:nicholls@reap.org.nz).



## Original papers

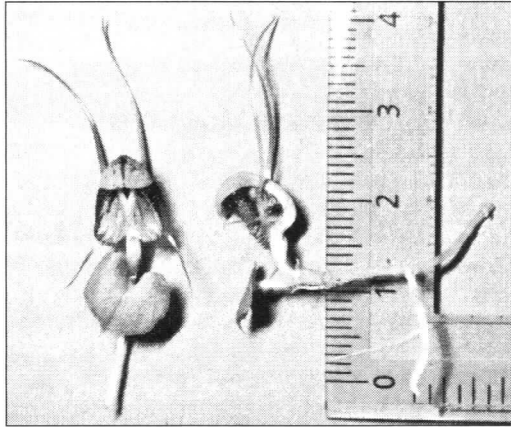
### The second coming

by Graeme Jane & Gael Donaghy, Takaka

Some species continue to surprise us. GD had seen many *Corybas* leaves at Wharariki for a couple of years, but had not seen flowers to identify it. Last year, after finding it in flower in May, we thought that mystery was solved – it was just an early flowering *C. trilobus*. Then in November, on a visit to Farewell Spit, we found huge masses of leaves where there was nothing in May. A few distinctive capsules proved it to be the same as the Wharariki plant. Some colonies were next to huge patches of *Acianthus sinclairii* that we had photographed on the earlier visit – how could we have missed them? We had been at the Spit site in May only a week earlier than at Wharariki. This plant seemed so different from "normal" *C. trilobus*, especially in its massed flowering and small flowers, that we dubbed it *C. "pygmy"*.

This year our checking detected the appearance of Wharariki plants in early May. The same day we visited the Farewell Spit site – to no avail, no plants in sight in spite of careful searching. A fortnight later flowering was evident at Wharariki, so it was back to the Spit. A lot of very careful searching (and many *C. cheesemanii* flowers later) we found the tiny *trilobus* – much harder to find here among the moss and shrubs.

In spite of 100% flowering at this stage capsules were seen on less than 1:1000 plants months later. What was going on? This year we dug up the



*Corybas trilobus* "pygmy" from near Nelson.

tiniest of plants to find a new runner 5 cm or more long already underway. Also we marked a few small squares and watched and waited. Six weeks after flowering another mass of plants suddenly began to appear – twice as many as before. None of these had a flower. Digging a few up showed no connection to the first arrivals. They must be (at least) last year's sterile plants and new seedlings. This growth pattern and early flowering are quite different from other *C. trilobus* forms seen locally.

Two other *C. trilobus* forms are clearly recognisable; a mid season "normal" and a late season one with an almost black flower ("darkie"). "Normal" *C. trilobus* flowers in September-October (when the "pygmy" is seeding) and "darkie" December January when "pygmy" is resting and gone. Unlike *Pterostylis alobula* where flowers can be found at the same site from May to November each of the *C. trilobus* forms has a short (about 3 weeks) flowering period and only a small range in flowering times between lowland and upland sites. "Darkie" flowers in the Cobb (at 900 m on a frost flat) at the



same time as in the Hackett at 100m.

In "pygmy" all the first arrivals flower just as the leaves are developing, but a mass of leaves of sterile plants appears later, each also from a tuber. In the other two *C. trilobus* forms leaves appear months before the flowers and less than 5% flower and no leaves appear after flowering. The capsule too distinguishes "pygmy". It appears quite squat and flattened rather than triangular to rotund.

Each *C. trilobus* form likes a different

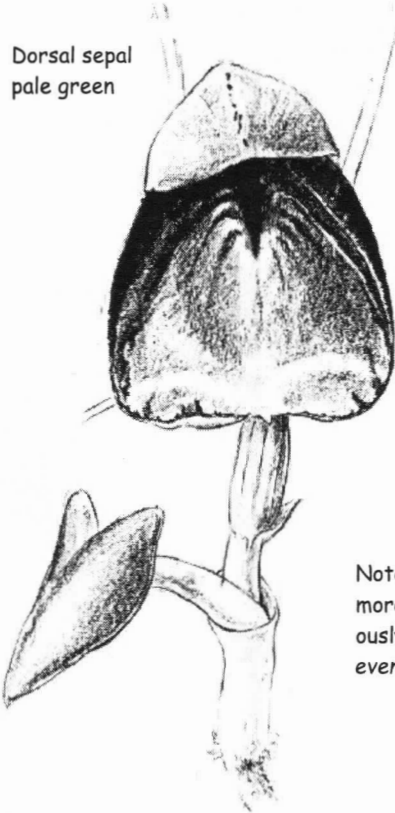
habitat. *C. "pygmy"* is found in four places, two in teatree on sand dunes, one on the edge of broadleaf scrub on a sand drift soil (at Kaihoka) and one in sand overlying coal measure sandstones. "Normal" *trilobus* prefers deep forest litter and "darkie" prefers quite boggy areas in forest and scrub.

Nelson has a hugely varied range of soils, climate, vegetation and habitats and *Corybas trilobus* is so notoriously difficult to find in flower, one wonders how many more different local forms there are!

## *Corybas trilobus* "pygmy/sandhills"

drawings and comments by Bruce Irwin on a plant sent by Graeme Jane from Greenhills Beach, Nelson area, on 11 or 12 June.

Dorsal sepal  
pale green



Small form of *Corybas trilobus* tagnamed *C. trilobus* "pygmy/sandhills" by Graeme Jane. Collected 11 or 12 June 1999 by GJ at Greenhills Beach, Wharewhariki.

### FLOWER 1

Inner surface of labellum sparsely covered with short white hairs.

NOTE the "drainage channel" usual in *trilobus* flowers is not present in this taxon.

Note, leaf said to develop more or less simultaneously with flower but eventually exceeds flower.

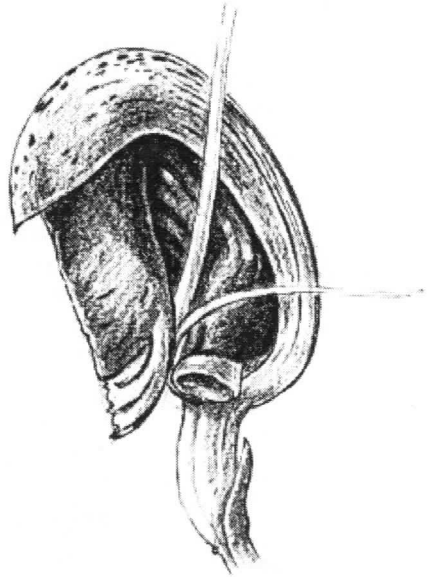
FLOWER 2

Raised ridges of labellum (raised on both surfaces).

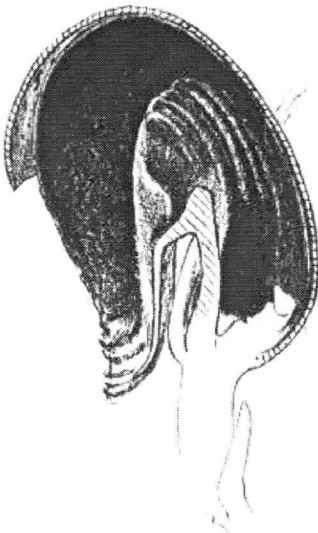
Note, parting of lateral sepals only occasionally clear; usually covered by apex of labellum. Flower viewed somewhat from below.



Labellum apex virtually forms a straight line (truncate)

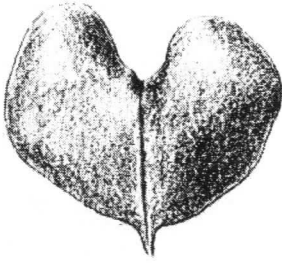


↑ Merest pimple represents secondary bract

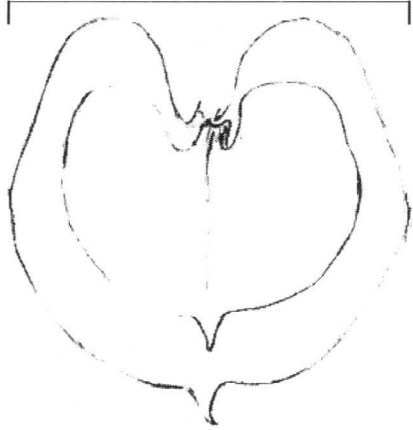


← Concentric, slightly raised furrows on outer surface of rear portion of labellum (approx. mid-height) are echoed on inner surface.

Veins very indistinct on this leaf.



Widest leaf 12.5mm

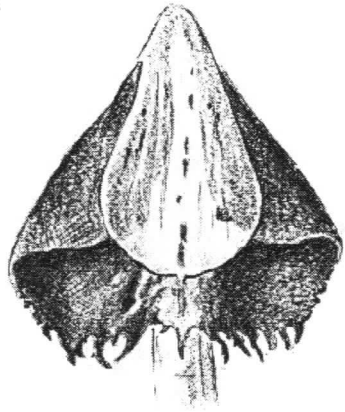
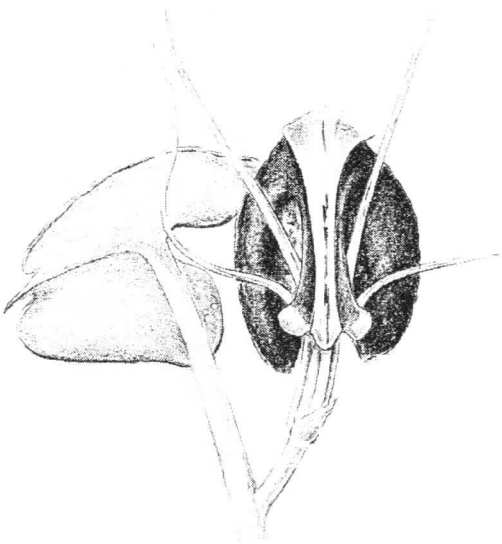


3 leaves of flowering plants all to same scale, some considerably smaller than their flower. The leaves & petioles apparently continue to grow and usually overtop the remains of the flower.

## *Corybas trilobus* from southern Wairarapa

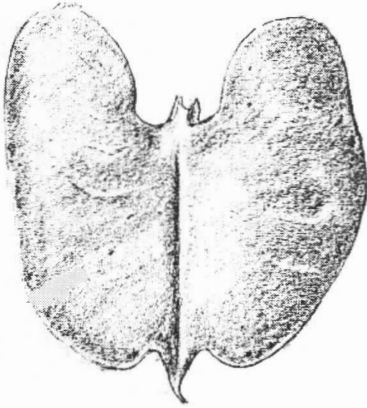
drawings and comments by Bruce Irwin on a plant sent by Ian St George on 23 September '99

Extremely dark *Corybas trilobus*, labellum almost black within throat (rather like plants from Dip Flat, Upper Wairau, sent by Graeme Jane 23 Nov. '98).



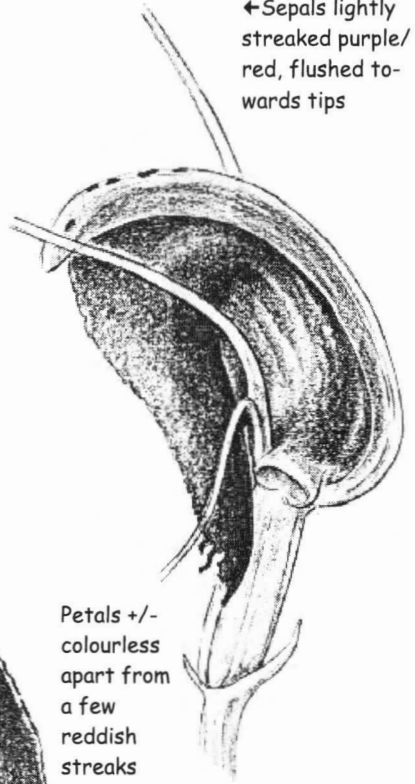
Shape of dorsal from above.

Dorsal sepal very transparent; pale grey/green, few dark red flecks. When wet upper lobes of labellum show through sharply.



Leaf almost plain. Centre-line darker; a few small spots of similar colour close to margins. Flower well below leaf.

Dorsal sepal narrow, translucent ↓

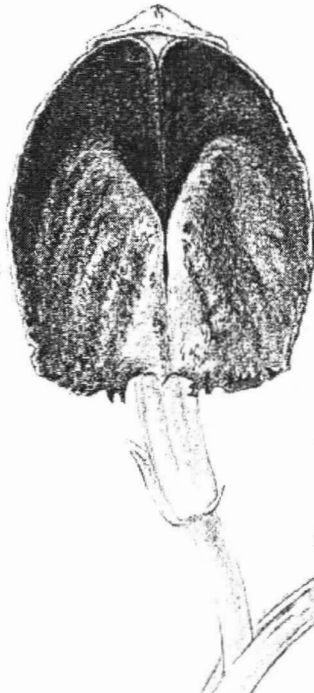


← Sepals lightly streaked purple/red, flushed towards tips

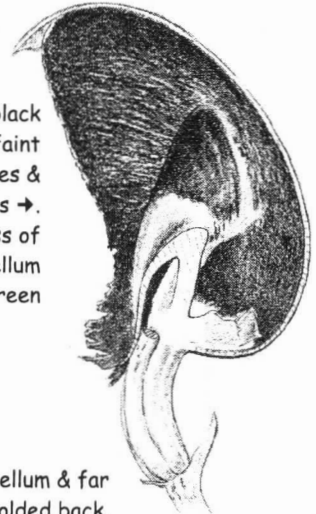
Petals +/- colourless apart from a few reddish streaks

Drainage hole a mere slit

"2-day" black/red stubble on labellum; its apron dull grey/green, heavily overlaid with blackish red pigment almost as dark as stubble. Throat appears dense red/black (virtually black).



red/black faint ridges & furrows →  
Boss of labellum grey/green



Space between front cut edge of labellum & far side lat.sepal occupied by labellar lobe folded back.

## The New Zealand genera 10: *Caladenia*

by E.D. Hatch, Laingholm

(Where I have no personal knowledge of a plant I have not described it)

***Caladenia*** R.Br. *Prodr.* 1: p323 (1810).

Name = beautiful glands (of the labellum).

**Genotype** – *C. carnea* R.Br. *ibid.* p324.

A genus of more than 250 species, almost all of them from Australia/Tasmania, with several extending into Indonesia, New Guinea and New Caledonia. Eight named species (either Australian or derived from Australian species) occur in NZ, and several more have been ‘tag-named’.

**1: *Caladenia alata*** R.Br. *ibid.* p324

Name = the winged column.

**Syn.** *C. exigua* (Cheesem.) Cheesem.

*Trans.NZ Inst.* 41: p96 (1913).

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 also has an orange patch at the tip, but this is often recurved and so hidden.

**Distribution** – Australia – Tasmania; Victoria; NSW; Queensland.

New Zealand – North Is. – From the North Cape to Whangarei.

**Type locality** – Port Jackson, Sydney 1803, R.Brown (Lecto – BM).

**Flowers** – August-September – self pollinated.

**2: *Caladenia atradenia*** Jones *et al. Orchadian* 12(5): p221 September (1997)

Name = the dark labellar calli

**Syn.** – *C. carnea* R.Br. var *minor* (Hook.f.)

Hatch forma *calliniger* Hatch *Trans.Royal Soc. NZ. Bot.* 2:187 (1963). This was described, right or wrong, as a colour form.

Has been confused with the related *C. iridescens* R.S. Rogers. [7]

Not unlike *C. minor* in general form, but 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 Island – Kaitaia to Iwitahi; South Island – Nelson.

**Type locality** – Kerikeri J.R.Don & R.Bell 6.10.1964 (Holo – CHR 141157)

**Flowers** – September-October – self pollinated.

(According to my various dictionaries, the name of this plant should have been *atradenia* – cf *C. chlorostyla* – slip of the pencil no doubt. Rhys Gardner [1] points out that some Australian taxonomists are tending to ignore the ICBN, and inventing their own rules as they go along).

**3: *Caladenia bartlettii*** (Hatch) Jones *et al. Orchadian* 12(5): p227 September (1997)

Name = F.W. Bartlett of Silverdale

**Basionym** – *C. carnea* R.Br. var *bartlettii* Hatch *Trans.Royal Soc. NZ.* 77:402 (1949). Flowers dark mauve to magenta, with dark red bars on the labellum and column. Disc calli in 2 rows with bright yellow tips. Midlobe bright yellow, irregularly sinuate, without marginal calli.

**Distribution** – endemic – North Island – from the North Cape to Auckland, usually in the vicinity of the kauri, or on gum-clay where kauri has previously grown.

**Type locality** – Wade River, Silverdale F.W. Bartlett 8.10.1949 (Lecto – AK 24847)

**Flowers** – October-November – self pollinated.

**4: *Caladenia chlorostyla*** Jones *et al. Orchadian* 12(5): p223 September (1997)

Name = green column

Previously confused with *Caladenia minor*, which it resembles. Eric Scanlen [8], in his paper on *Caladenia* considers *C. chlorostyla* to be a synonym of *C. minor*.

**Distribution** – endemic. Widespread in the North and South Is.

**Type locality** – Tinline River, Marlborough, 4.12.1992 B.P.J. Molloy (Holo – CHR 509017)

**Flowers** – September – January – self pollinated.

**5: *Caladenia lyallii*** Hook.f. *Flora Novae-zelandiae* 1: p247 (1853)

Name = David Lyall – naval surgeon / naturalist H.M.S. *Terror* and *Acheron*.

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. It has been suggested that these may be tetraploid or even hexaploid. Graeme Jane [3], records *Caladenia alpina* [4] from NW Nelson.

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

**Type locality** – on grassy hills, Otago – D.Lyall 12.1850. (Holo – K).

**Flowers** – November-January – insect pollinated.

**6: *Caladenia minor*** Hook.f *Flora Novae-zelandiae* 1: p247 t56B (1853)

Name = smaller (than *lyallii*.)

Fitch's supporting illustration, t56B, (reproduced on the cover of the NZNOG *Journal* 72: September (1999), is considered to be characteristic of the species.

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.; and the northern half of the North Id. –

lowland districts.

**Type locality** – Northern island, dry clay hills, Edgerley (Lecto – K). Edgerley's collecting area was the approximate triangle, Hokianga – Bay of Islands – Kaipara.

**Flowers** – October-December – self pollinated.

*Petalochilus* R.S. Rogers [7], is considered to consist of abnormal forms of *Caladenia minor*. [2]

**7: *Caladenia nothofageti*** Jones et al. *Orchadian* 12(5): p226 September (1997)

Name = the *Nothofagus* forest habitat

**Distribution** – endemic – southern North Id; South Id.

**Type locality** – Puffer track, Wellington B.P.J.Molloy 14.12.1993 – (Holo – CHR 509014)

**Flowers** – November-January – self pollinated

**8: *Caladenia variegata*** Colenso *Trans. NZ Inst.* 17: p248 (1885)

Name = the coloured bars on the lateral lobes of the labellum

**Distribution** – endemic – North Id. – from Iwitahi to Kaitoke [8]

**Type locality** – Norsewood, Waipawa County, Hawke's Bay. W. Colenso 12.1883 (*Lucy Moore* [5], says there are Colenso specimens in AK and WELT. A Lectotype will have to be chosen from one of these.)

#### References

- 1: Gardner R.O. *NZ Bot. Soc. Newsletter* 51: p10 March (1998)
- 2: Hatch E.D. *Trans. Roy. Soc. NZ* 77: p398 (1949)
- 3: Jane G.T. *NZNOG Journal* 71: p17 June (1999)
- 4: Jones D.L. *Muelleria* 9: p41 (1996)
- 5: Moore L.B. *Flora NZ* II: p110 (1970)
- 6: Rogers R.S. *Trans. Roy. Soc. South Australia* 44: p328 f13 (1920)
- 7: Rogers R.S. *Journal of Botany* p66. t571. March (1924)
- 8: Scanlen E.A. *NZNOG Journal* 72: p22 September (1999)



# The Column: Eric Scanlen

## 1. Beguiling Te Paki

Ian St George wished to see *Thelymitra matthewsii* in flower so field trip ① was assured. En Route five of the Group rendezvoused at Bream Tail Reserve on 2 Sept. to inspect the *Pterostylis trullifolia* “trident” [J68 p21] colony for seed capsules – which were all empty. Either a poor pollinating year or else it is a mule. Down by the old coach road rusty red *P. graminea* (**Fig.4 of colour pages**) had their portraits made and the solitary colony of *Corybas oblongus* was seen in bud for the first time. Field trip ② a fortnight later revealed some pale maroon flowers, not the usual darkest maroon; one plant had two flowers. The chewed blooms, being so early, could be candidates for H.B. Matthews’s *Corybas* “aestivalis”. Some hard working visitor had dealt the *Hakea sericea* a major blow, thank you, so the Orchid Group finished off the last stragglers. Gorse took a beating too with axe and tomahawk but a sharp grubber along the main track could soon finish this off before this great little orchid spot gets overrun. Welder’s gloves are handy for the seedlings if visitors can get their groups to spare only a few minutes.

Eleven of the 32 souls contacted re Te Paki screwed up courage to face the *H. sericea*, and the sun shone of course because Bruce Irwin brought his lucky charm. The milky way burned a glowing path across a black sky on arrival at DoC’s shearer’s quarters, auguring well for the next few days and perhaps triggering the animated debate that evening before the lullaby of more-porks.

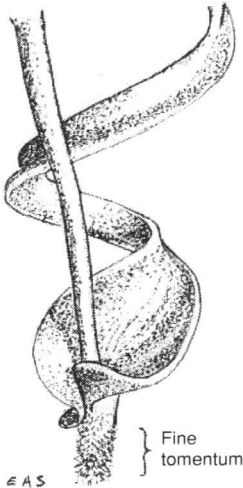
A dawn chorus of turkey gobblers set the scene for Fri. 3 Sept. Some initial pottering around after *Corybas* “aestivalis” (in bud only on ① but open on ②) and *C. rotundifolius* (in seed capsule) in the Shenstone

Block puzzled the newcomers, eager to see *T. matthewsii*: but it doesn’t open until later so there was no rush. *Corybas cryptanthus* also showed up in flower wherever thick, mouldy, black kanuka (*Kunzea ericoides*) debris smothered out any green plants. A gentle hoisting of the debris soon uncovered the white rhizomes with pointed pink bracts among the fungal hyphae, and flowers were never far away. Allan Ducker uncovered five flowers in one hand-span sized plot.

The ten eager scrub scramblers found that Prime Site had plenty of *T. matthewsii* in bud but less than last year and fewer corkscrew seedlings were in evidence despite nose-to-the-ground searches. Sand blowing from a curious but characteristic wind crater in these old sand-hills had overwhelmed some plants within 40m of the highest NE rim of the crater. Storm eddies may lift this sand out but why not over the lower crater rims? At 11am, flowers started opening in the blazing sun. Both plants figured in J68 p18 had flower buds and their continued existence put a question mark on the hypothesis that the plants die after flowering. However, many known plants were absent but a lesser raft of new ones had shown up. A kebab-stick marker struck the impermeable iron-pan bottom some 150mm deep. This was no doubt a moisture retaining hollow of sand which sustains the tuber through the dry spells (**Fig.5 of colour pages**). The dry top layer of sand may prove to be a moisture barrier.

Backhouse and Jeanes [1] have a “short, notched, post-anther lobe” on Aussie plants. Shenstone *T. matthewsii* had only 2 to 4 minuscule, pink, post-anther calli on all flowers examined (**Fig.6 of colour pages**). Not quite the same, is it? The expanded leaf base was not “irregularly lobed” either. A

X20 magnifier did descry a fine tomentum to the sheathing base (cf. finely hairy [1]) of the leaf on



*Thelymitra matthewsii*  
leaf base

flowering plants and to the lower centre section of the corkscrew seedlings (see diagram above).

The Column accidentally bumped a flower whilst setting up camera gear and all four pollinia flew out, two onto its own stigma and two onto the ground. This self pollinating orchid has intact pollinia, not crumbly, but with short brittle stalks connecting them to the rostellum. Pollinia are capable of delicate tweezers handing. All opening flowers were soon self pollinated by vibrations

from the fresh breeze. Why hasn't the pollen in both NZ and Australian plants evolved into crumbs as in other self pollinating orchids? Two or three spikes had swelling ovaries and did not open again so *T. matthewsii* might be a one-day wonder. Several spikes were still developing promising flowers for the following week. But on 18 Sept. field party ② found no open flowers on a warm Saturday although many buds still had slender ovaries; unpollinated? We should have thought to look! With the position of the anther, possibly the labellum prevents the pollinia from dropping onto the stigma until the flower opens. Next year we must check!

Back on ① empty sites were puzzled over and new plants were marked with squares of dry sticks. Noses were cleared of sand and after a well earned lunch, the eager minds set off on not such eager legs for Fri 1 & 2 [J69 p24] some 4 to 5km away as the tracks twist. This promises to be a good year for *C. herbaceus* in bud in damp hollows along the track-sides.. The lone pterostylis colony at the waterfall fooled the uninitiated that they were *P. brumalis* but the Veed sinuses proved them to be the *Pterostylis alobula* of the far north, despite their "cobra hoods".

No open *T. matthewsii* were found on either Fri site but the same reduced pattern of plants prevailed as at Prime site, to the disappointment of the dwindling field party. It was after 2pm so, despite the bright sun, the cool air may have closed them down for the afternoon. One *T. matthewsii* in a cluster of six at Fri 1 sported a second smaller bud, the first twin flowered one any of us had seen. At Fri 2, open flowers last year had protruded from the stunted hakea. With closed flower this year, only one stem and a few seedlings could be seen in the prickly camouflage. Last October's find of *P. tasmanica* [J70 p30] in a damp site in sparse reeds, gorse and tea tree (*Leptospermum scoparium*) had several buds growing in a loop with the tip clasped in the crotch of the first bract. Field party ② zeroed in expectantly two weeks later and filmed normal, boring old *P. tasmanica*. It seems that this species, similar to some corybas, can thrive in either damp hollows or on dry ridges.

Three hardy souls, Ian StG, Graeme Jane and Allan, tested their stamina on a scrub crash from Fri 1 to a bald ridge nearby, scouting for more *T. matthewsii*. What they found, apart from the ubiquitous *Hakea sericea*, was only a pot site in preparation (by whom?) and a dense thicket of tea tree and reeds in three of the inevitable swamps. On the trek home, their wounds, tiredness and sloshing boots somehow seemed to divert their attention from the attractive little *Cyrtostylis reniformis* flowering in several clusters along the track-side. DoC Field Manager,



Simon Job, is prepared to assist in cutting a track from Prime Site to Fri 1 in November which will cut 3km off the present 4km trek.

Jacqui Hewinson had a fine dinner ready for the team and Allan's video close-ups of the day's finds sparked more lively debate that evening. Graeme's lap-top was invaluable for elucidating moot points with his stored encyclopaedic fund of orchid texts and drawings.

Sat. 4 Sept. broke amazingly fine. DoC's weed surveyor, Miriam Ritchie, was on deck at 8am for a look at the orchids so the entourage moved off to RDH. An open *Pterostylis tasmanica* was quickly located by EEE (eagle eyed Ernie Corbett) in its preferred dry habitat here, near the top of the ridge. Shutters started clicking and, sadly, the addictive gleam could be seen in the eyes of first timers like Geoff Stacey, of Wharekawa Orchid Garden fame [J69 p21, J71 p24]. Numerous rosettes of *P. tasmanica*'s sharply pointed leaves were located along with a few in bud at all the old sites. Several *C. herbaceus* were located near the first find in a water channel, well to the East [J62 p11]. A solitary *T. matthewsii* flowered on cue amid five buds, at 11am in EEE's patch where he shamed us last year; as we were at pains to point out. One flower was spent and four seedlings were counted.

After lunch, members who fancied their fitness followed Allan up Horseshoe Hill [J62 p15] to a bare face exposed to the NW and visible 1km south of RDH. This face had yielded some *C. herbaceus* in 1996 but, as with this year, no *T. matthewsii*. However, Ian StG did find an early *T. aff. longifolia* with two white flowers wide open to justify this health-giving climb. Unfazed, some of us later showed Miriam the three corybas already mentioned in the Shenstone Block. *C. cheesemanii* were also in their hundreds and still in flower under a large *Pinus radiata* which DoC have not yet ring-barked. Miriam was nonplussed how we

could go to nondescript spots in hectares of scrub and point out isolated colonies of orchids. Five annual trips with up to 14 orchidologists have certainly winkled out some interesting finds in the Shenstone Block but no new species showed up on this expedition.

That evening the field party enjoyed the ritual dinner at Waitiki Landing's Kanuka Restaurant complimented by a 'phone call from Anne Fraser, green with envy but wishing us well.

Sun. 5 Sept. saw Allan performing the bucket-of-water test on the ignition of two cars. They didn't miss a beat so the traverse of Te Paki Stream to Ninety Mile Beach was on. Jacqui got wind of us taking her Neville through the "quicksand" so a little leg-pull was in order. "Don't worry," said the Column, "we are all going in your beautiful big Ford S/W so that we'll have plenty of manpower to get out and push." Of course that joke backfired and we were banned from taking the Ford anywhere near the stream. So three cars splashed downstream, being careful not to stop and whizzed the 4km up the beach to Scott point, without notable incident.

Scott Point failed us as a suitable habitat for *T. matthewsii*. Every suitable looking north facing habitat (and there were few enough in this wind-torn promontory) was covered in moss. *T. matthewsii* doesn't grow in moss. The soil here has a finer grading than that at Shenstone Block or RDH. Capillary dampness seems to allow too much competition for the jewel to succeed. Bruce and the Column relocated the *Petalochilus saccatus* general area ready for another look in November. A colony of albino *Cyrtostylis reniformis* which EEE found out in the scrub, did get the tongues wagging and the cameras clicking again (the Column's albino pics came out white all over!) before the convoy headed back home for lunch ahead of the incoming tide. —continued on p25.

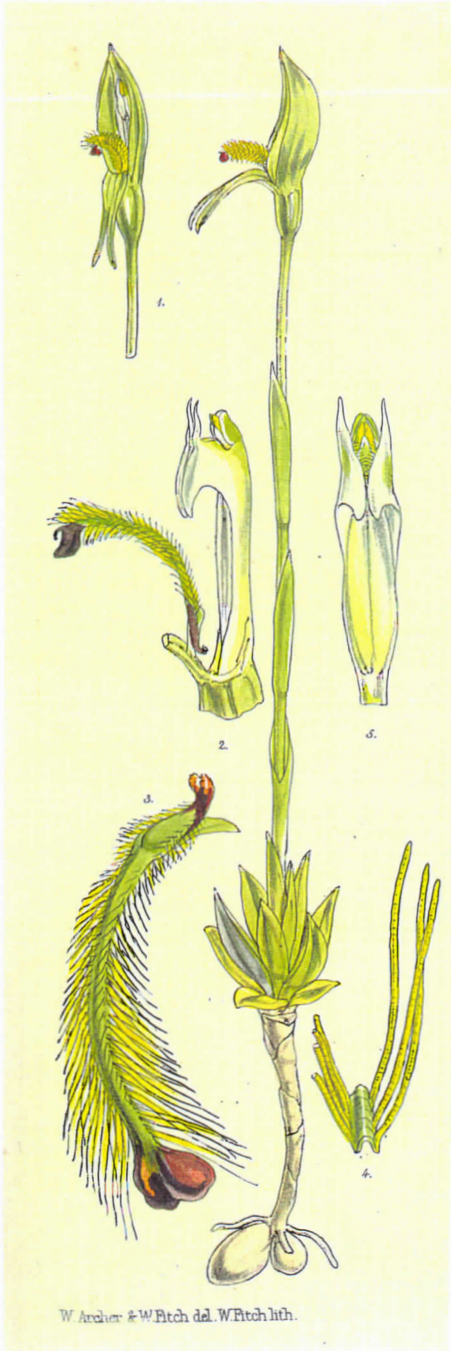
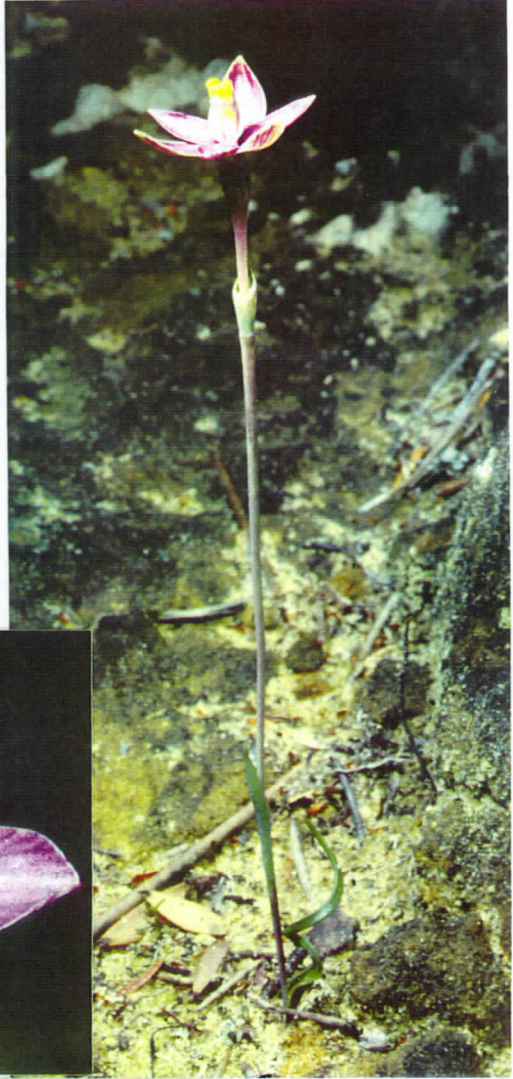


Fig.1: *Pterostylis tasmanica*, drawing by W.Archer and W.H.Fitch, engraved by Fitch, from J.D.Hooker's *Flora tasmanica*.  
Fig.2: *Neofitia idus-avis*, the birds-nest orchid. Fig.3: *Coralorrhiza trifida*, the coral-root orchid.

<u>Te Paki species or taxon (see page 24)</u>	<u>B</u>	<u>D</u>	<u>E</u>	<u>I</u>	<u>K</u>	<u>M</u>	<u>P</u>	<u>R</u>	<u>S</u>	<u>T</u>	<u>W</u>	<u>Ww</u>
<i>Acianthus sinclairii</i>	d	b	d		d	d	d	d	b	f		
<i>Bulbophyllum pygmaeum</i>				d	d							
<i>Caladenia alata</i>	d	b	d			d						
<i>C. atradenia</i>		b										
<i>C. bartlettii</i>									?s			
<i>C. fuscata</i>									s			
<i>C. minor</i> ( <i>chlorostyla</i> , "green column" or <i>viridis</i> )		d	s			d						
<i>C. pusilla</i> (pink <i>C. minor</i> sensu McCrae)	d	d	d	d	d	d		d				
<i>Calochilus herbaceus</i>		d	d						g			
<i>C. herbaceus</i> albino form			d									
<i>Chiloglottis cornuta</i>									e	cw		
<i>Corybas acuminatus</i>					d							
<i>C. cheesemanii</i>		b			f	i	f		d	cw		
<i>C. cryptanthus</i>		b							d			
<i>C. oblongus</i>					d	d		d	?z			
<i>C. rotundifolius</i>			d						z			
<i>C. trilobus</i>					d				f			
<i>Cyrtostylis oblonga</i>		a			d		f	d	a			
<i>C. reniformis</i>							d		f			
<i>Drymoanthus adversus</i>					d	d						
<i>Earina autumnalis</i>					d							
<i>E. mucronata</i>					d							
<i>Gastrodia</i> aff. <i>sesamoides</i>								d	d	cw		
<i>Genoplesium</i> aff. <i>pumilum</i>	d	d	d		d	d	d	d	i			
<i>Microtis arenaria</i>		a						i				
<i>M. parviflora</i>		b		d		d	f	d				
<i>M. unifolia</i>	d	d	d	d	d	d	d	d	d	d		
<i>Orthoceras novae zeelandiae</i>		d	d	d	d	d	d	d	d	d	d	
<i>Petalochilus saccatus</i>							j					
<i>Prasophyllum</i> aff. <i>patens</i>												c
<i>P. colensoi</i>			a									
<i>Pterostylis agathicola</i>					d							
<i>Pt alobula</i>	d	d	d		d				a	d		
<i>Pt. banksii</i>					d					f		
<i>Pt. brumalis</i>									a			
<i>Pt. tasmanica</i>		a		m	j			d	r			
<i>Pt. trullifolia</i>	d		d		d	d				f		
<i>Spiranthes</i> "Motutangi"						d						d
<i>Thelymitra aemula</i>	d	a	d	d	d		f	d	d	d	j	
<i>T. carnea</i>	d	d	d	d	d	d	d	d	d	d		
<i>T. "darkie"</i>	d		d	d	d		d	d	d			
<i>T. intermedia</i>			d	d	d				s			
<i>T. aff. ixioides</i>	d		d					n	r			
<i>T. aff. longifolia</i>	d	d	d	d	d	d	d	d	d	d	j	
<i>T. malvina</i>						s						
<i>T. matthewsii</i>		i			p			d	s			
<i>T. pauciflora</i>	d	d	d	d	d	d	d	d	d	d	j	d
<i>T. pulchella</i>	d		d	d	d	d						
<i>T. sanscilla</i>			?r			i					j	?d
<i>T. "rough leaf"</i>	d	j	d			d	d		j		j	
<i>T. "sky"</i> ( <i>T. "Ahipara"</i> ?)		j							r		r	
<i>Winika cunninghamii</i>					<u>d</u>	<u>d</u>	<u>d</u>					
<b>Te Paki Site →</b>	<b>B</b>	<b>D</b>	<b>E</b>	<b>I</b>	<b>K</b>	<b>M</b>	<b>P</b>	<b>R</b>	<b>S</b>	<b>T</b>	<b>W</b>	<b>Ww</b>





**Fig.4:** Rusty *Pterostylis graminea*. **Fig.5:** *Thelymitra matthewsii*'s inhospitable habitat. **Fig.6:** *T. matthewsii*; the vestiges of a midlobe are a row of tiny pimples. **Fig.7:** *Thelymitra carnea*'s usual salmon pink. **Fig. 8:** yellow *T. carnea* photographed by Bob Goodger.

Pm and the keen ones were tramping out to furthest Sat 1 & 2 in the overcast cool conditions, to check on *T. matthewsii*. Near Sat 1 a previously bare area of sand now had 3 spikes and 3 seedlings but the main area nearby had nothing! Sat 2 finally yielded 5 spikes and 2 seedlings, all bar one in a small island of stunted *Hakea gibbosa* (with only short, vicious, thorns) in a hollow in the iron pan. The Column could see only one spike at first but Ian StG quickly spotted others within a few centimetres, but camouflaged in the prickles. No open flowers were seen here this year due no doubt to the cool conditions. Ian Rutherford and Allan had their first (disappointing) look at Fri 1 then turned up trumps with a second colony of *P. tasmanica* in like habitat to the first, between Sat 1 and Sat 2. Several buds and many rosette juveniles but no flowers on 5 Sept.

Meanwhile, Neville took Jacqui, with her new knee joint, down the Shenstone Track to see for herself the hundreds of *Corybas cheesemani* in the pine needles. Later, in appreciation (?) she cooked a magnificent meal which almost stopped the animated orchid debates. Allan's videos that night, delved back into various caladenia and renewed the debate on the Column's J72 p22 Imbroglia. *Caladenia pusilla*, *variegata*, *minor*, *atradenia* and *bartlettii* (one marginal callus at the base of the mid-lobe), were all there for some avid attention before the snoring started after a wearying day.

Mon. 6 Sept., Ian StG had a last look at RDH with Neville and Jacqui before catching his flight at Kaitaia for an appointment in Wellington at 3:15pm! Ian R had left on Sunday night so seven stayers strode the Sod Wall Track. No sign of any *Calochilus herbaceus* (they were hibernating last year too) but an open *Corybas rotundifolius* at the Sod Wall and six open *Caladenia alata* on the track nearby, took centre stage. The *C. rotundifolius* lacked the usual orange

Mohawk cut inside its labellum and the *C. alata* had variable marginal calli at the base of the midlobe. Its single large golden callus (½mm long) each side of the mid-lobe base varied from a short white one to some with a tinge of gold and only one with the full monty. Disaster struck when the Column found his self adjusted flash-gun had fouled up the last 74 shots so he asked the others to withdraw to a respectable distance whilst he told God all about it. Some hurried shots of *C. alata* were repeated under Allan's umbrella as the rain set in and sent the team scurrying to the cars.

Al Blumhardt scored with a bacon and eggs soufflé that night using sundry leftovers for dinner. Allan's videos of *P. humilis* from Egmont stirred the hottest debate yet. The Column now regrets accusing Graeme, in the heat of the moment, of being a botanist because he espoused opening up every flower to see the definitive stigma. Bruce was sure that *P. venosa* was included in the footage but the Column, who has photographed both six weeks apart (in different years) was surprised that they flowered together. EEE was commissioned to sort it out because he lives closest to Egmont. The exhilarating debate gave everyone a great night's sleep and closed another memorable field trip.

Field party ② of three dedicated souls tramped the best *T. matthewsii* sites on Sat. 18 Sept. so that Anne could record in detail all the plants' progress for her project study. Allan wanted videos of early caladenia and the Column badly needed to repeat some lost photo' opportunities.

Some items of note not already mentioned, from a strenuous two day field trip were

- One *T. matthewsii* seedling, at a marked spot, had appeared and grown 40mm in two weeks.
- For students of spirals, *T. matthewsii* always spiral in a right-hand-thread.

• Scores of *Thelymitra carnea* were in yellow bud [J72 p13]! Allan prised one open and it was palest yellow inside too. Suspicions were aroused because the few mature buds were salmon pink. In common with many native orchids, the colour, it seems, suffuses only when the flower is due to open. An open one of standard salmon pink (**Fig.7 of colour pages**) nestled into the deceptively fluffy growth tip of a *Hakea sericea*. Does anyone have a colour photo' of a naturally opened, yellow *T. carnea*? Please send any to the Editor for priority printing in the Journal. No computer adjusted shots please. (**See Fig.8 – Ed.**)

• Extensive colonies of *Cyrtostylis oblonga* were located under kanuka by a low iron pan promontory across the stream from the *Corybas* “aestivalis” colony.

• On the homeward trip, a stream on the south side of the Maungataniwha Range yielded some in-bud *Corybas rivularis* s.s.; a must for the early November field trip.

• Allan got his wish with an early *Caladenia atradenia* at Bream Tail Reserve on 20 Sept.

#### Reference

I. Backhouse, G. and Jeanes, J. *The Orchids of Victoria*. The Miegunyah Press, Melbourne University. First published 1995.

## The Column 2. Te Paki species list

The Column thought it would whip out a species list (*see Table in centrefold, pages 20 & 21 of this issue*) for the Te Paki Reserves, to put with a report to DoC re the Sept. '99 field trips. Three days of “whipping out” later, this document was spawned. It includes Doug McCrae’s 1988 report plus species lists from NOG Journals 58, 62, 65, 70 & 72.

There are 52 taxa with a top 31 of them in the Shenstone Block but the Kauri Block, at 29, comes a close second. Findings from the *Caladenia Imbroglia* [J72] have been included and Doug’s “pink *Caladenia minor*” have been entered as *C. pusilla*, the most wide-spread of several contenders.

Orchid names in the lists have been translated to the present equivalents. *Thelymitra longifolia* reports, for instance were dropped in favour of *T. aff. longifolia* which seems to have supplanted the former altogether in the far North.

Where doubts surfaced in what the Column calls its mind, the taxon was listed scrupulously except for his own *Pterostylis*

*brumalis* from **K** which was dumped in favour of *Pt. alobula*; with its confusing northern style cobra hood, you understand.

Places within Te Paki are indicated in bold capital letters at the head and foot of the chart. The original list writer or the first known finder is indicated in the chart by a single lower case letter. These key letters are underlined in the names and places below. A “?” indicates a possible separate but related taxon.

**Places:** Spirits Bay Rd., Rubbish Dump Hill, Earth Wall Track, Inland and Darkies Tracks, Kauri Block (Radar Bush), Mokaikai Res. including the Money tree, Scott Point, Scientific Reserve (Surville Cliffs), Shenstone Block, Te Paki Trig, Papawiri Hill, Te Werahi Wetland = **Ww**

**Recorders or finders:** NM Clunie’85, P Mayhill’88, D McCrae’88, E Cameron’84, C Beard’95, E Corbett’96, A Ducker’96, G Marshall’96, M Menzies’96, A Puttnam’96, I StGeorge’96, EA Fraser’97, JB Irwin’98, R Maunder’98 & EA Scanlen’99.



## Notes, comments, questions, letters

**Y**ou may find it hard to accept, but NZ is, as Brian Molloy has pointed out, a botanical colony of Australia. Especially so for orchids, whose light seed drifts west on the prevailing winds. But does seed drift from here to South America? Apparently not: they have no *Pterostylis* or *Thelymitra*, and although some of the flowers of **South American orchids** look like *Caladenias*, Ruth Rudkin wrote, "they are in the *Chloraeinae* not *Diuridinae*. *Megastylis* is supposed to be in the *Chloraeinae*. Therefore they are Gondwana orchids." In other words some show some similarities, but that reflects a distant common ancestry before the great southern continent split up, not a recent arrival.

While we're on this subject, I noted a piece by Jessica Beever (NZ Bot Soc Newsletter 1999; 57: 10-12) titled "The South American connection – a bryologist's view". She wrote, "Thirty-eight percent of native vascular plant genera found in New Zealand occur also in Chile. At the species level, however, only 2% of the indigenous vascular plants found in New Zealand occur naturally also in Chile. But amongst the cryptogams the situation is different. The moss flora of Chile was delightfully familiar to a New Zealand bryologist. Thirty-three percent of New Zealand's native moss species are recorded in a recent moss checklist for Chile." Is this the result of a common Gondwanan origin for South America and New Zealand, or does it reflect more recent colonisation by windborne seed? She went on to discuss three possible hypotheses. First, mosses may be very slow to evolve so the common taxa may have come from Gondwana. Or second, long distance dispersal may happen more easily for mosses than for vascular plants (one moss has certainly done that, having colonised Kerguelen and

Marion, younger post-Gondwanan islands, on its way from NZ to Chile). Or third, mosses may be accidentally introduced more often and less obviously than vascular plants. As Dr Beever says, "how they made their journeys is yet to be elucidated".

The story about  
the flower.  
It is a windy  
day and there  
is a flower bud  
now it has  
burst into a  
flower this  
kind of flower  
is a sun flower.

"The story about the flower"  
by Violet Hilton, aged 6

**H**ow far south does *Corybas cryptanthus* go? At the time of the controversy around raising Lake Manapouri a single rhizome identified as that of *C. cryptanthus* was found behind the hut at Shallow Bay; in 1970 Lucy Moore reported "also Manapouri" in its distribution. I looked there several times during the '80s with no success. Apart from that, Reefton was its southernmost reported station. But recently Gael Donaghy told me, "I found five *C. cryptanthus* seedheads on Alli and John Knights property on the true left bank of the



Photographs by Vic Vercoe from the Ruahines: left Rangiwahia 23 December '97; right Tunipo track, 2 December '89. *Pterostylis humilis* or *P. venosa*?

Clutha, opposite the Blue Mountains, on 18 January 1995. Nearest area on the map is Tuapeka West. Alli is a keen botanist, and when I found the 'naked' seedheads she was with me, and we marked the spot. It was easy to locate, among the raised roots of an old beech tree, just above the flood level. She returned in the winter of 1996 and found the flowers." Tuapeka is considerably south of Manapouri, so this is now the most southern record for *Corybas cryptanthus*.

Stephen Jay Gould wrote recently, "Science does not deal in certainty, so 'fact' can only mean a proposition affirmed to such a high degree that it would be perverse to withhold one's provisional assent."

Vic Vercoe of Palmerston North sent photographs of *Pterostylis* he had found in the **Ruahines**. This is Colenso's old stamping ground, but no members of the Group have reported visits there, at least in

my memory. Vic's shots appear to be of *Pterostylis humilis* and/or *P. venosa*.

**O**rchid 2000: House of Orchids and Cambridge Travel are organising a tour to the 4<sup>th</sup> **Australasian Native Orchid Conference and Show** 5-7 October 2000 in Melbourne, and afterwards to the 15<sup>th</sup> Australian Orchid Conference and Show in Burnie, Tasmania. The tour will be guided by John Scott, and he can be contacted for details at 145 Manuka Rd, Glenfield, Auckland 10, phone 09-4449771.

**B**ob Goodger wrote, "In J72 p13 mention is made of the **yellow form of *Thelymitra carnea***. During the 1980s there was an extensive colony of *T. carnea* on Lunds Rd near Katikati (since lost to roadworks) which contained about 10% yellow blooms. These were a clear true yellow while the rest varied from palest of pinks through to a dark salmon (*Fig.8 of colour pages*). The yellow

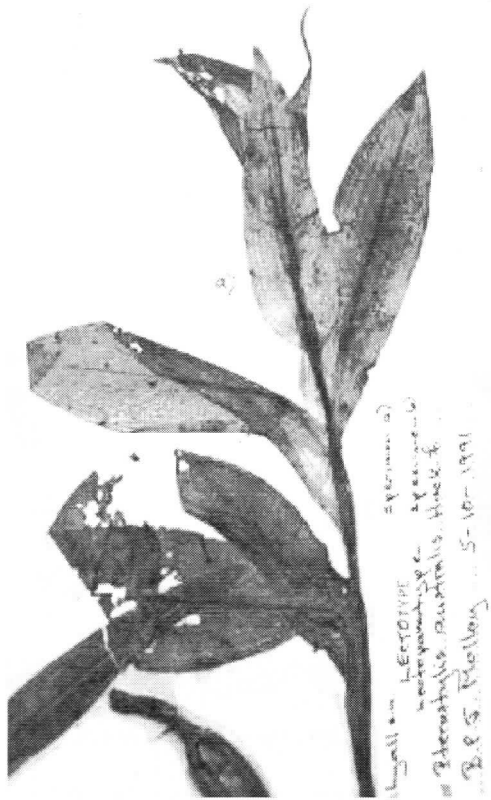


flowers were randomly distributed throughout the colony. The rest of the colonies in the district were all of the pink form.”

Dan Hatch wrote, “In their most recent paper on the flora of the **Poor Knights** Islands (NZ *Journal of Botany* 37: p459 (1999) de Lange and Cameron state, under *Cyrtostylis oblonga* Hook.f, ‘The separation of *Cyrtostylis* from *Acianthus* is strongly supported on DNA evidence (B.P.J. Molloy pers. comm.)’. This confirms what I wrote in NZNOG *Journal* 70: p15 March (1999).”

Pat Enright sent specimens of *Corybas iridescens* and *C. “Trotters”* on 10 October from the southern Wairarapa, the former a new record for the ecological region.

DoC has published *Checklist of indigenous vascular plant species recorded from Chatham Islands* (PJ de Lange, JWD Sawyer & R Ansell, 1999). It contains a list of orchids: *Acianthus sinclairii*, *Adenochilus gracilis*, *Aporostylis bifolia*, *Caladenia* sp., *Chiloglottis cornuta*, *Corybas cheesemanii*, *C. oblongus*, *C. orbiculatus*, *C. aff. macranthus*, *C. aff. trilobus*, *Drymoanthus adversus*, *Earina aestivalis*, *E. autumnalis*, *Gastrodia cunninghamii*, *Genoplesium nudum*, *Microtis oligantha*, *M. aff. oligantha*, *Prasophyllum colensoi*, *P. aff. patens*, *Pterostylis banksii* var. *banksii*, *P. banksii* var. *silvicultrix*, *P. micromega*, *P. montana* agg., *Spiranthes novae-zelandiae*, *Thelymitra cyanea*, *T. formosa*, *T.*

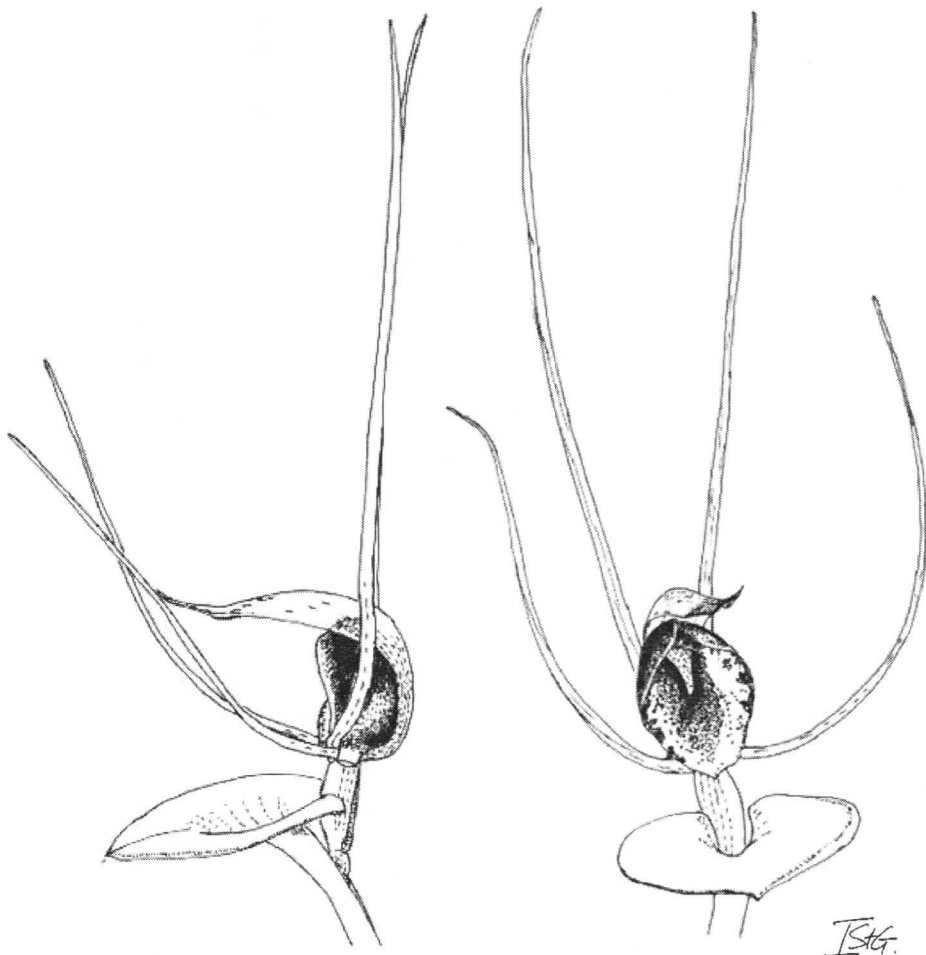


▲ This is what it is: the Type specimen of *Pterostylis australis* at Kew [see J70 p6, “What is *Pterostylis australis* anyway?”].

*longifolia* s.l., *T. pulchella*, *Winika cunninghamii*. The authors are unclear as to the status of the *Corybas* forms approaching *C. macranthus* and *C. trilobus*, but suggest both are probably endemic to the Chathams. They note a complex of forms of *Microtis* centred on *M. oligantha*, one of which is larger than *M. oligantha*, shows subtle differences in the labelum, and is possibly endemic to the islands. They remark that *Pterostylis banksii* var. *silvicultrix* is distinctive, has been confused with *P. australis* in the past, is often sympatric with *P. banksii* var. *banksii*, and warrants species rank.

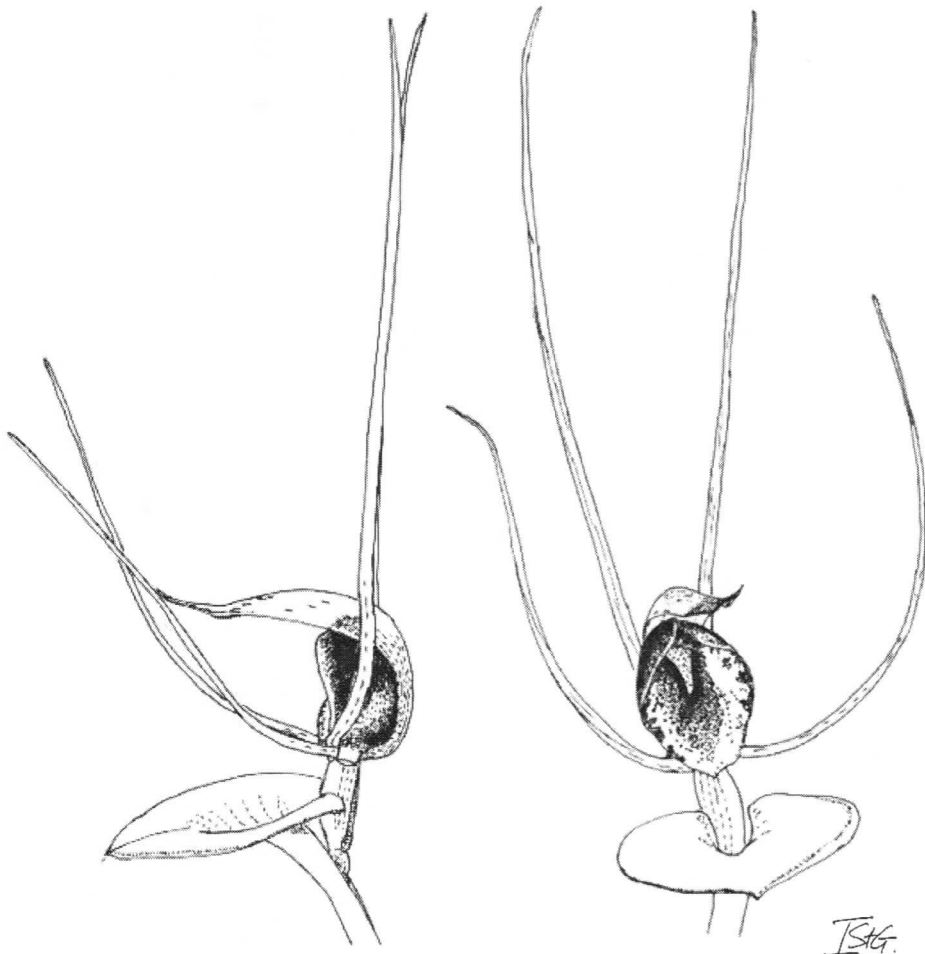
***Corybas macranthus* var. *longipetalus***  
**(*Corybas* "Waiouru")**

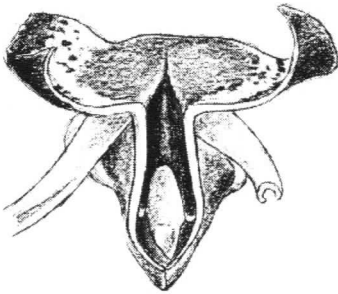
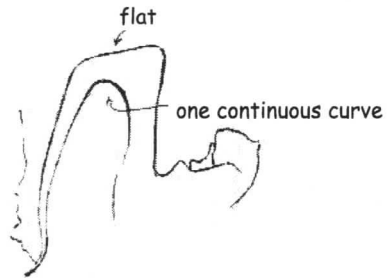
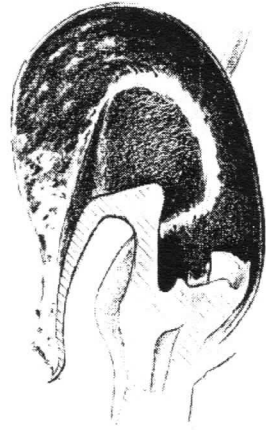
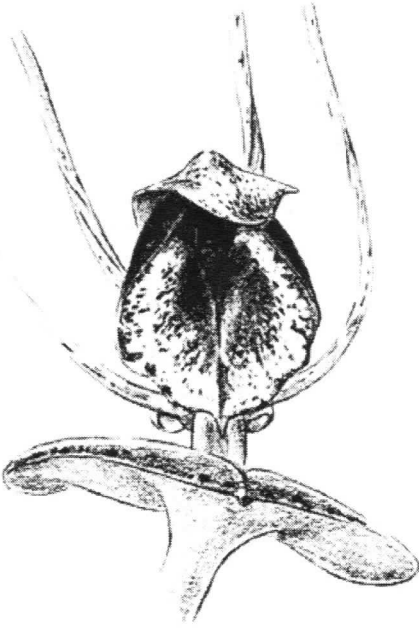
— found by Aalbert Rebergen at Lowe's Bush nr Masterton;  
(the petals are not very long for a taxon called longipetalus).



***Corybas macranthus* var. *longipetalus***  
**(*Corybas* "Waiouru")**

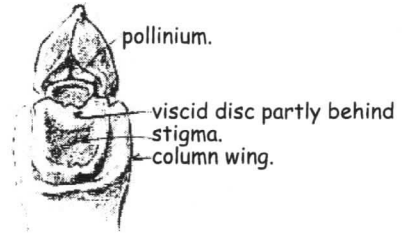
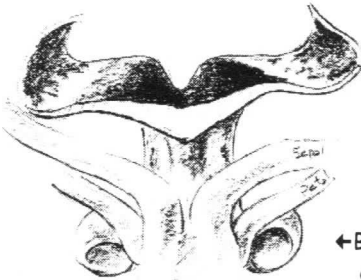
— found by Aalbert Rebergen at Lowe's Bush nr Masterton;  
(the petals are not very long for a taxon called longipetalus).





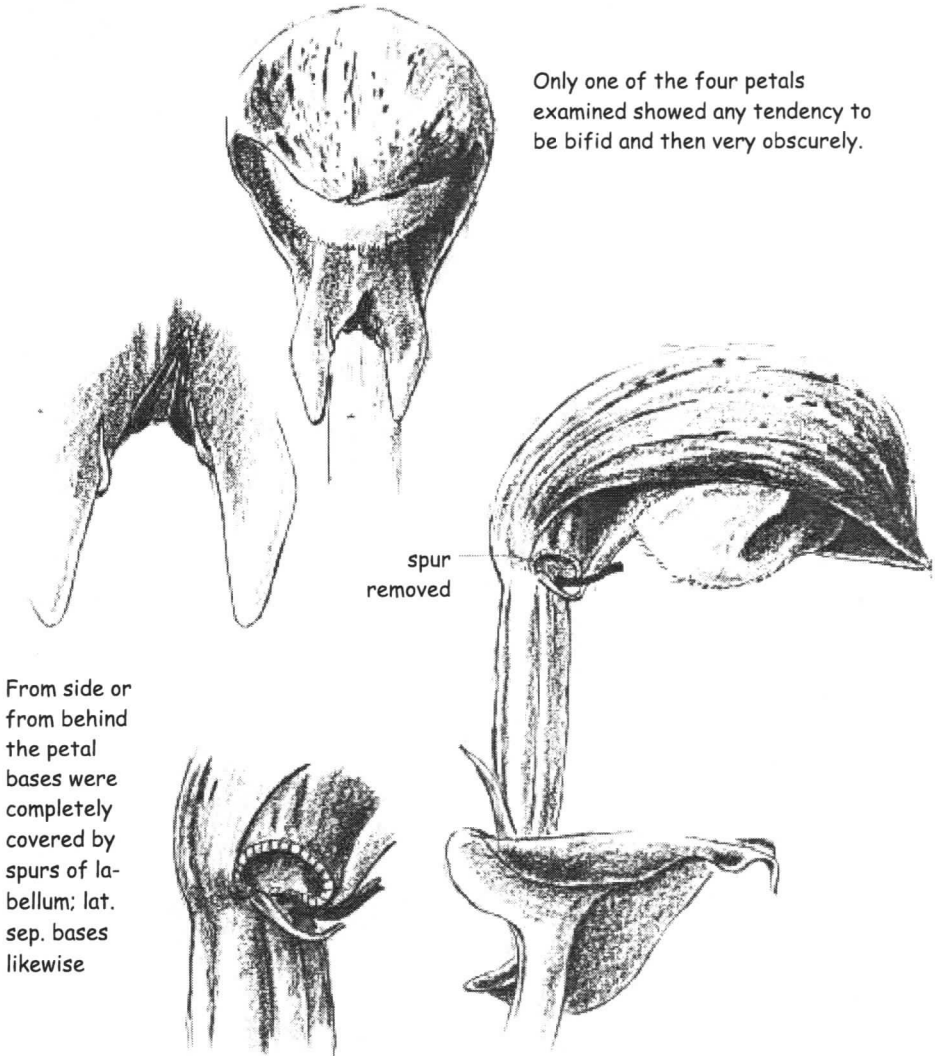
**Corybas "Waiouru"** from Masterton — drawings and dissections by Bruce Irwin

↑ Top of lobes of labellum removed & column entrance viewed from above.



← Blade of labellum removed shortly below entrance, viewed from below.

***Corybas cheesemanii***, Wellington,  
collected by IStG 7 July 1999 and  
dissected and drawn  
by Bruce Irwin.



Only one of the four petals  
examined showed any tendency to  
be bifid and then very obscurely.

spur  
removed

From side or  
from behind  
the petal  
bases were  
completely  
covered by  
spurs of la-  
bellum; lat.  
sep. bases  
likewise



## Other islands' orchids: The Solomon Islands and Bougainville

— extracted from BA Lewis & PJ Cribb. *Orchids of the Solomon Islands and Bougainville*. RBG, Kew, 1991, with permission.

285 species are described in this account, 8 of these being introduced species which have become naturalised. There are 87 genera although *Dendrobium* and *Bulbophyllum* represent a considerable proportion of the total species. Conversely, many genera are represented by one species only. Some genera reach the eastern limit of their range in the Solomons, for example *Paphiopedilum*.

The majority (76%) are epiphytic or climbing. Of the terrestrials (24%), three are saprophytic: *Epipogium roseum*, *Stereosandra javanica* and *Didymoplexis micradenia*.

The number recorded reflects the amount of collecting as much as the species diversity. Guadalcanal is the best explored island because it is the most accessible. Several of the more remote and outlying islands are botanically under-explored and can be expected to yield more species when better studied.

Only 130 species have been recorded from Bougainville; surprising when New Guinea is estimated to have between 1500 and 2000 species. Major reasons are the lack of collecting because of political unrest, the clearance of large areas of forest for open-cast copper mines. In addition both Bougainville and the Solomons have a restricted variety of ecological niches for orchids in comparison with New Guinea: much of the rain forest has been replaced by thickets of small trees and climbers following cyclones, earthquakes, landslips and man, and furthermore the islands have only a limited altitudinal range with everywhere relatively close to the sea.

Despite the above almost three-quarters (74%) of the orchids also occur in New

Guinea, as would be expected from its proximity and the rich orchid flora it possesses.

41% of the species are also found in other Pacific islands, especially in Vanuatu: the Santa Cruz Islands are only 270km from the Torres and Banks Islands in Vanuatu.

15% also occur in Australia, though they are all of New Guinea or Malay origin and not Australian orchids in the strict sense. This relationship is weak, first because the Solomons and Bougainville, recent volcanic islands, have never been attached to Australia; and second, because the predominant Trade winds blow northwest to the southeast so the Solomons and Bougainville are more likely to receive seed of Asiatic and New Guinea than of Australian orchids. Some 20% of the Solomons and Bougainville orchids are widely distributed throughout southeast Asia across to the Pacific.

There are fewer endemic orchids than predicted and considerably fewer than is estimated for New Guinea. This suggests strongly the islands have a young migrant flora and the colonisation of the archipelago has taken place very rapidly in recent times. The flora has been insufficiently isolated in space and time to permit speciation to develop to any significant degree. The endemic orchids all have close affinities with New Guinea species. Some of them, such as *Paphiopedilum bougainvilleanum*, *P. wentworthianum* and *Dendrobium rennellii* appear to have a very restricted distribution and are under threat from plant hunters and development in the islands.

*New Zealand shares the genera Acianthus, Bulbophyllum, Corybas and Spiranthes with these islands, but the only shared species is the ubiquitous Spiranthes sinensis — Ed.*



## From the internet

Einer T. Ludvigsen told subscribers to NativeOrchids@OneList.com (NO), "On pp231-232 in her book *Terrestrial orchids from seed to mycotrophic plant* Hanne Rasmussen wrote (on **Seedling establishment**),

"Fungal persistence around the adult plant might mean that seedlings have a greater chance of establishing in the vicinity, i.e. a kind of seedling nursery as suggested by Dixon (1991). In some habitats the substrate of the mother plant may still be suitable for seedling growth, but several observations suggest that the ideal germination site often differs from the site of the adult plant; in open spots with limited competition, such as newly exposed soil or sand, seedlings may occur in high numbers (Case, 1983). These opportunities for seedling establishment could be a main reason why many orchid species show a preference for somewhat disturbed areas. I almost never observed seedlings of *Tipularia discolor* close to flowering individuals, but they were abundant in a different habitat, i. e. decaying logs (Rasmussen, 1992a). The search for orchid seedlings is usually concentrated around adult plants, which could explain why they have been found so rarely in the field (e.g. Whigham & O'Neill, 1988).

"Orchids are potentially long-lived but, by virtue of their massive seed production, opportunistic in their initial choice of site. Adult plants may occur in sites that would no longer be suitable for recruitment of seedlings, so that the population may need to move in order to maintain its overall size. This is due to the heterogeneous and unstable distribution of substrate for the fungi. Events such as windfalls or fire may deposit dead biomass for fungal decomposition in unpredictable locations and at unpredictable

times. It is likely that the weedy and unstable nature of many orchid populations is partially a result of opportunistic use of the sudden food resources, although the prospering orchid population may not become visible until several years after the event. Typically the highest increase in population size occurs shortly after initial invasion; after a span of years the population may be declining because of low seedling recruitment (Sheviak, 1974; Case, 1983). Some of the populations that we observe today may in fact be senile rather than stable (Tamm, 1991). Clones of *Cypripedium calceolus* can reach an age of about 192 years, if estimated on the basis of annual increment of the rhizome (Kull, 1988) – more than enough time for successional changes to occur in the habitat. Figures in about the same range were reached by Tamm (1991), who calculated the half-life in a declining population of *Listera ovata* to be 70 years. A lack of recruitment in populations of such plants will not be obvious for a long time. However, at the other extreme, *Ophrys sphegodes* has an almost weedy strategy, reaching the reproductive stage so quickly that about 84% of the plants that emerge above ground for the first time flower in the same year (Hutchings, 1989). In this species the rate of seedling recruitment has an almost immediate influence on the population size (Waite, 1989).

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- "My own experience in this field limits itself to two different sets of behaviours shown by two species of the Dactylohriza genus, *D. maculata* ssp. *fuchsii* (*D. fuchsii*) and *D. majalis* ssp. *praetermissa* (*D. praetermissa*). Around one single and newly established plant of *D. praetermissa* no less than 116 individuals could be found 9 years later, all occupying less than 8 square metres. On the other hand, during a 10 years

period, the numbers of registered plants of *D. fuchsii* in the same area has risen from one to 25. In addition, since the distance between them is normally in the range of scores of metres, all these plants can best be regarded as single individuals.

"Therefore, the difficulties in conditions for the growth of seedlings around mother plants seem in some cases to depend on other factors than the age of the population." Someone calling themselves "Bog" replied from Ireland, "My observations of *Ophrys apifera* 'new sites' concur, both in England (Worcestershire) and Ireland (Clare). Favoured sites have been the side of an earth slip alongside a quarry, the made up embankment of a relatively new road (specimen *Ophrys* were found growing within 0.5m of a heavily trafficked road), a garden formed from imported top-soil, not seeded but left wild, an area of slippage alongside a farm track."

Heather Rope wrote to NO, "Here in Nova Scotia, Canada we have about five colonies of *Goodyera pubescens*. These colonies are growing anywhere from five miles to forty miles from each other. What we have been noticing was that all the colonies bloomed last year but this year there is hardly a flower to be seen. This **every second year blooming pattern** has been going on for quite a few years. Has anyone else noticed this pattern of blooming every second year and did you notice them not blooming this year? Is this world wide or is it that all our colonies originated from the same plant?

Hal Horwitz responded, "Here in VA and WVA this plant is fairly common, but this year was definitely a 'down' year, with few blooming. We put it down to the widespread and severe drought throughout the region.

*In New Zealand last spring we had the best flowering anyone could recall for Winika cunninghamii. In addition the sum-*



mer preceding had been the sunniest on record. There is research suggesting the rate of flowering of some species relates best to the length of the preceding summer, and that makes sense for plants that rely on photosynthesis for nourishment and growth. Perhaps in the case of *Goodyera pubescens*, which I suspect relies on mycorrhizal relationships for its nourishment, the right amount (for the fungus) of dampness of the preceding season is what is critical — Ed.

Patrick Marks wrote to NO, “I have been looking at a local population of *Anacamptis pyramidalis* which has been the most northerly population in Britain for several decades. When I first started observing this colony on the south coast of Fife in Scotland over 10 years ago there were only about 50 plants. In the last couple of years the population has risen to several hundred plants, and in 1998 the species was discovered to have extended its range further north. There has been a plant discovered at a site 10 miles to the east at Crail in Fife and several plants east of Dundee on a coastal site. This would appear to indicate an **expansion of this species range**, but whether it is due to climate change or other factors is unclear.”

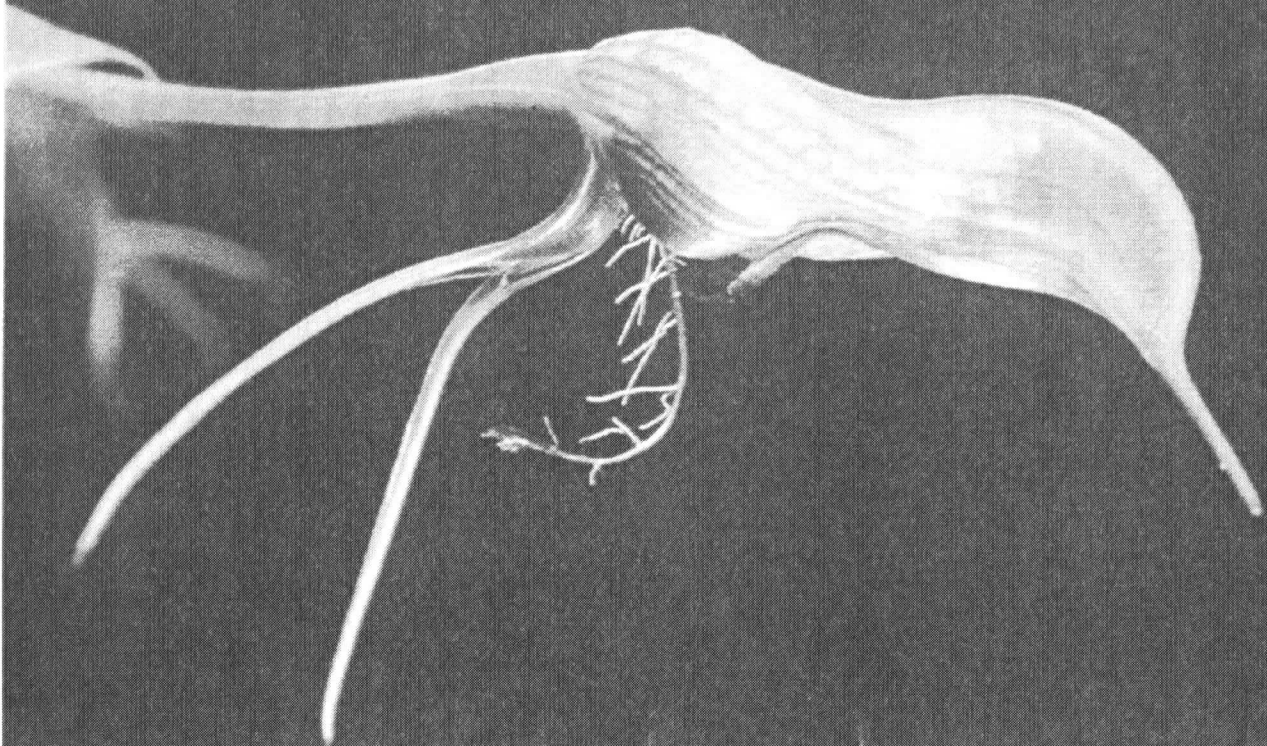
Einer T. Ludvigsen responded, “In Denmark, *Dactylorhiza majalis* ssp. *praetermissa* (*D. praetermissa*) is not only rare, until a few years ago it was seriously questioned whether it is present in the country at all. Very recently, however, plants from the western part of the country (Jutland) have been identified with certainty as being *D. praetermissa*.... The distance from these plants to the nearest known population is in the range of some hundred kilometres. Another possibility, however, is that the seed has come from a population growing in some garden nearby.... *D. praetermissa* can be bought in Danish garden shops. Finally, one more quote from the book by Hanne

Rasmussen: ‘Indeed orchids seem to be able to migrate further than any other wind-dispersed flowering plants. *Orchis militaris* has colonized areas well over 100km outside its previous known range in England and seedlings of *O. simia* have been found at a distance of c. 250km from the nearest known seed source. The orchid flora of the Atlantic islands of the Azores comprises three species, all of which are closely related to the species occurring in continental Portugal about 1500km away. The long-distance dispersal that is inferred from this geographical distribution is so far the most extreme known in orchids. Dispersal over distances of 5-10km seems to be common.’”

Remember the South African weed orchid *Monadenia (Disa) bracteata* that is infesting several Australian states [J60 p3]? In Southern Ontario the European *Epipactis helleborine* has become very common. This orchid was probably brought to Canada by settlers who used it for medicinal purposes. It was originally identified there in 1879 in Toronto. It has now spread throughout, finding suitable habitat in many disturbed areas including pre-bog habitats, and under white cedar, poplar, Canada balsam and black and white ash. It is generally found among mixed hardwood and conifer successional areas growing in sandy lime-based soils. It has been found at the edges of partly shaded lawns. It was proclaimed a nuisance weed by the Ontario Ministry of Agriculture about 10 years ago. Morris & Eames (*Our wild orchids*) write with pleasure of finding this plant near Peterborough about 1929, 70 miles from the nearest recorded station. Today in Peterborough this would no doubt be the most common orchid. It finds suitable sites in the unique habitats for Ontario native orchids, as well as in the fields and forests surrounding Peterborough, where no native orchid has ever been found.

## Close relations: orchids like ours

*Pterostylis barbata*, photograph by Herb E. Foote, from *Orchids of Western Australia*. Westviews, Mercantile Press





## Historical reprints

### On Hooker's *Nematoceras triloba*

(*Flora Novae Zelandiae* Part 1 1853)

Hooker received specimens from North and South islands, "damp woods. East Coast and interior, Colenso"; he didn't say who sent the South Island specimens. He wrote, "A smaller plant than *N. macrantha*, with proportionally still longer thread-like lateral sepals and petals. Leaf petiolate,  $\frac{3}{4}$  inch across, deeply cordate-reniform, trifid, rarely entire at the point; middle lobe acute. Peduncle shorter than the petiole, often much lengthened when in fruit. Perianth  $\frac{1}{3}$  inch long; sepals 2 inches; petals half the length of the lateral sepals; upper sepals retuse and dilated at the point. Lip very large, of two parallel recurved lobes, and having two curved ears at the base; margins nearly entire. Column very small."

Later Hooker reiterated much of this in his *Handbook* (1864), clarifying the leaf shape as " $\frac{3}{4}$ - $1\frac{1}{4}$  in. diam., membranous, orbicular-reniform, 3-lobed at the very tip; middle lobe acute; petiole  $\frac{1}{2}$ -3 in. long." He added that the South Island specimens "alluded to in *Fl.N.Z.*, I think are rather referable to *C. macrantha*, which differs in the much larger size, very coriaceous, rarely 3-lobed leaf."

Nowhere did he state the flowering times of his specimens, but the N.Is. ones sound like the small, early flowering *Corybas trilobus* I have seen from Queenstown, Nelson, Wairarapa. And what were his S.Is. ones? surely not *Corybas macranthus*? Perhaps *Corybas* "Trotters"?

### Colenso names *Corysanthes hypogaea*

(*Trans. N.Z.I.* 1884; 16:336)

*Corysanthes hypogaea*, sp. nov.

*Plant* very small, terrestrial, tender, succulent; *leaf* single, 6-8 lines diameter, membranous, shining, much veined, veins largely anastomosing with longitudinal dots in the interspaces, cordate-reniform, 3-lobed at tip, middle lobe produced, acute acuminate, side margins sinuate with a single notch on both sides near base, auricles large, distant, subhastate, very blunt; light green above, midrib and marginal spots purple; silvery below and sometimes dashed with a purple hue; *petiole*  $\frac{1}{2}$ - $1\frac{1}{2}$  inches long, white, often pinkish, with a sheathing truncate bract at base; *peduncle* short, 1-2 lines long, bibracteate close to base of flower, the front bract much smaller linear, the hind one ovate-oblong, both obtuse; *flowers* 3-4 lines diameter, much veined, dorsal sepal arched, closely clasping, subobovate-spathulate, narrowest at base, rounded and slightly sinuate or subapiculate at apex, green with a purple median line; *lateral sepals* and *petals* linear acuminate, very narrow filiform, upper pair  $\frac{3}{4}$  inch long, lower pair hair-like, 4 lines long; *lip* large, dark blood-red above with darker stripes, greenish below spotted with red, bi-lobed at top, lobes rounded entire, 2-3 deep lacinations or ragged lobes below, with the sides much cut and jagged and incurved, a delicate circular bordered ear-like aperture on both sides immediately behind bases of petals.

*Hab.* Among mosses, steep cliffy sides of dry hills, *Fagus* forests near Norsewood, Waipawa, County; 1880 (plentifully but barren); 1882 (a few capsules long past flowering); and 1883, September, in flower: W.C.

*Obs.*—I have known this plant for some years, but never found it in flower until the spring of 1883, mainly owing to its peculiar manner of growth, and its very early flowering; for while its one small leaf is spread flat on its mossy bed, its delicate flower is 1-2 inches below the surface, and never appears above during its flowering, though afterwards (in a few observed instances) its capsule is shown just above the surface, owing to the elongation of the peduncle after flowering, which habit is also common to the genus. It grows pretty thickly scattered in beds, showing its small glistening leaf just above the mosses and debris of fallen *Fagus* leaves (*F. solandri*), but flowering specimens are very scarce, not one plant in twenty bearing a flower. A species possessing close affinity with *C. triloba*, Hook. fil.

*Cheeseman dismissed this as simply Corysanthes triloba. It does seem to be one of the Corybas trilobus forms, flowering in September, found in the Ruahines, flower below the leaf, dorsal sepal rather pointed; the "auricles" Colenso refers to are the posterior lobes of the leaves, not the auricles of the labellum. See p3 of this issue — Ed.*

## Cheeseman finds *Pterostylis tasmanica* near Kopu

("On *Pterostylis squamata* in New Zealand"  
*Trans. N.Z.I.* 1874; 7:352-3)

For the discovery of this singular plant in New Zealand, we are indebted to the late Dr. Sinclair, so well known for his successful researches into the natural history of this country. Specimens collected by him in some locality near Auckland were forwarded to Sir W. Hooker at Kew, about twenty-four years ago; and accordingly we find the plant described in the first volume of the *Flora Novae-Zelandiae*. Nearly the same description is reproduced in the more recently issued Handbook, but with no additional habitats attached. Unfortunately, no precise record appears to have been preserved of the station in which it was found, and consequently,

The Lectotype of *Corysanthes hypogaea* at Kew, selected by Brian Molloy in 1991 ↓



On Dr. Sinclair's decease, the species became entirely lost to New Zealand botanists. Since then, although the vicinity of Auckland has been repeatedly searched, no traces of its presence have been observed, nor, until a few months ago, had it been found elsewhere in the colony. As the plant must undoubtedly be considered one of the rarest members of the New Zealand flora, and as it is structurally one of the most interesting, it seems not out of place to put the fact of its rediscovery on record.

During a recent visit to the Thames, while examining the low clay hills which skirt the river immediately behind the native settlement of Kapu, I observed a solitary *Pterostylis*, that on inspection proved to be the long-lost *P. squamata*. On a further search two more specimens were found, but both of these were barren. Unfortunately the time at my disposal was not sufficient to enable me to make a complete examination of the district, and to ascertain definitely if the plant is abundant or rare in this, the only locality in New Zealand of which we have now any certain knowledge of its occurrence. It seems most probable, though, that it will prove to be far from common although isolated specimens will doubtless be met with.

*Pterostylis squamata* can be distinguished from its congeners in New Zealand by the very obvious character of the lateral sepals being turned downwards, instead of being erect. This distinction has been made use of to divide the genus into two sections; the first, *Antemnoea*, to which the majority of the Australian and New Zealand species belong, having the sepals erect; the second, *Latochilus*, which includes our plant, having them deflexed. Another excellent character is afforded by the labellum, which is filiform and hangs out of the mouth of the flower. It is also clothed throughout its whole length with copious golden-yellow hairs, except at the apex, where it bears a curious large purple gland, which has been aptly compared to the head of a nail.

Although *Pterostylis squamata* is rare and local in New Zealand, it is comparatively common in Tasmania, and is also found in Victoria and South-Western Australia. In this respect it agrees with *Epacris purpurascens* and *Leucopogon richei*, both of which are abundant Australian plants, and both of which are confined to limited areas in New Zealand.

It is worth remarking that the affinity existing between the temperate Australian and New Zealand floras, easily recognised except in a few anomalous instances, is perhaps more clearly shown in the Orchideae of the two countries, than in any other order of equal extent. Thus, in examining the distribution of the eighteen genera found in New Zealand, we find that no less than sixteen also occur in Australia, while the two remaining ones, although peculiar to New Zealand, are yet closely related to Australian forms. The result, striking in itself, becomes more so if we look closely into it, when it appears that out of the sixteen, six are absolutely peculiar to the two countries, and six others, although possessing outlying species in the Indian Archipelago or Pacific Islands, yet plainly have their head-quarters in Australia and New Zealand. *Pterostylis* is a good instance of this. It has twenty-four species in Australia, and seven in New Zealand. One of the Australian species extends into New Caledonia, but beyond this the genus is endemic in the two countries.

In the sixth volume of the *Flora Australiensis*, recently issued, I observe that Mr. Bentham considers the true *P. squamata* of R. Brown to be a form only of the *P. rufa* of the same author; and the plant to which the specific name of *squamata* has been, in many instances, applied by later botanists, is referable to a species long ago described by Dr. Lindley. If this view should meet with the general acceptance of botanists, as seems likely, our plant will in future bear the name of *Pterostylis barbata*, Lindley.

— it did, for a time — Ed.



## Australian notes: David McConachie

### New Caladenias

In the latest *Orchadian* Vol.13 No.1 Sept.1999 pp5-24, David Jones described "Eight new species of *Caladenia* (Orchidaceae) from Eastern Australia". He has previously reviewed the Tasmanian members of the genus in *Australian Orchid Research 3* and is continuing studies into the Western and Eastern groups prior to a comprehensive treatment of the Australian members of the genus in the long awaited Vol. 47 of the *Flora of Australia*.

In this paper three of the species described are of particular interest to New Zealand as they are members of the "carnea/catenata" complex. The three species are *Caladenia chamaephylla* from Queensland, *Caladenia maritima* from New South Wales, and *Caladenia porphyrea* from Victoria. There is some discussion that the last two taxa may have arisen from stabilised hybrids between *Caladenia catenata* and *Caladenia carnea*.

### "NOSSA members discover new orchid species" J. NOSSA Sept. 1999

Could there still be undiscovered orchid species out there? Judging by the discoveries made in South Australia in the last decade there could still be some very attractive orchids yet to be found. Many NOSSA members seem to a lot of time looking. The Bayleys of Balaklava and the Houstons are among them.

Last Spring they were exploring on Yorke Peninsula when they came upon an old cemetery with its tiny patch of sandy, she-oak woodland. This is now an endangered habitat. One would assume that the site was chosen as a cemetery especially because its sandy soils are surrounded by kilometres of sheet limestone which is particularly hard to dig graves in. Very fortunate for the orchids present. The orchid enthusiasts were overwhelmed at first by the fragrance of freesias but amid the creamy freesias were sparkling white *Caladenia* flowers. At first it was thought that they had located a distinct population of *Caladenia rigida*, but the leaves were quite distinctive, being broad and covered in dense, short, silky hairs, most unlike the narrow leaf of *C. rigida* with its few long hairs. The osmophores were less distinct too and the flowers were smaller and of a thinner texture. Your editor soon confirmed that this was indeed a new species. A type collection was made this year and plants were sent to David Jones for drawing.

The NOSSA conservation group is planning to work with the Threatened Plant Action Group in 2000 to poison the bridle creeper and pull up the freesias which threaten the new *Caladenia*. It is thought that the plants at the cemetery and a few in the adjacent paddock may be the last remaining plants of this species. The site may remain a secret for a while for extra protection. We don't want any of the plants dug up. Just 103 plants were counted in 1999, flowering from about the beginning of August. Hand pollination was used to supplement the little bit of natural pollination, which was being effected by a very shiny *Phymatothyne* wasp which was seen later feeding on flowers of a new winter flowering subspecies of *Prasophyllum odoratum* growing nearby.

### The Most Remarkable Plant

by John Lynch

From ANOS-Hawksbury Group's website — originally published in their *Bulletin*. *Caley*

This remarkable plant lives only in Australia. It grows quite happily in the harshest conditions imaginable for a small plant. It grows on exposed rocks where its root system seems to obtain little or no food. In winter its location exposes it to frost and snow. The triangular shaped fleshy leaves are sharply pointed and grow vertically from the rock. This growth habit will prevent snow and frost settling on the plant but some snow and frost must settle on the roots for long periods in winter. With winter over and Spring in the air, an examination of these plants reveals no scarring from frosts or snow and with the warmer weather new growths are produced. The nutrients normally needed by plants to enable them to flourish is virtually nil in the case of these plants. However; minute particles of decaying matter must have to be blown onto the plants roots to have obtained some food.

As Summer arrives needle like flower stems rise from the base of the growths of these little gems. The daytime temperatures sore and the temperature on the exposed rocks become so hot you cannot bear to touch them. In fact, can you believe you can fry an egg on them? Yet sitting there on the very hot rock with its "hot pink" flowers is this little gem. Its leaves are now a purple colour and no doubt its sharply pointed leaves enable the plant to cool down quickly after sundown. This remarkable "Little Gem" is *Sarcophilus ceciliae*, an Australian native orchid.

# Profile of a threatened N.Z. orchid: 1

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—from Dopson SR et al. *The conservation requirements of New Zealand's nationally threatened vascular plants*. Biodiversity Recovery Unit, Dept of Conservation, Wellington, 1999.

## *Pterostylis micromega* Hook.f.

<b>Family:</b>	Orchidaceae	
<b>Endemic to:</b>	New Zealand	
<b>Common name:</b>	Swamp greenhood	
<b>Ranking:</b>	A, Endangered	<b>In cultivation: Yes</b>
<b>Descriptor:</b>	Large flowered, greenhood orchid with small, wavy leaves.	
<b>Conservancy:</b>	Waikato, Tongariro/Taupo, Wanganui, East Coast/Hawke's Bay, Wellington, (Northland, Bay of Plenty, Nelson/Marlborough)	
<b>Habitat:</b>	Swamps, mires, and bogs of mesic to early oligotrophic (pH band ~6).	
<b>Threats:</b>	Habitat degradation (fluctuating water levels as a result of water extraction); weed encroachment (including willows and grasses); collectors; trampling by stock on wetland margins.	

### Work undertaken to date

Survey and monitoring (Waverley, Tangiwai): unsuccessful surveys at Lake Wairarapa, Kuripapango, Eltham/Ngaere Swamps, and Mangaroa Swamp; located at National Park Wetland, National Park; taxonomic status known and cytological work has been done.

### Priority sites for survey

Chatham Islands; Cobb Valley (North West Nelson); rest of Ihupuku (Waverley); Waiouru wetlands, Kuripapango Lakes.

### Monitoring: objectives and priority sites

Known sites for population trends and weeds (willow, osmunda, hemp agrimony, lotus, grasses).

### Research questions

What is the best disturbance regime required to maintain the populations? How can weeds be effectively controlled to protect threatened wetland plants? What is the distribution and threats to *P. micromega* in the Tongariro/Taupo Conservancy?

### Management needs

Appropriate water regime maintenance; weed control; advocacy to mitigate the effects of collecting, and stock trampling.

### Selected references

- Champion PD 1998. Selective control of weeds in New Zealand wetlands using herbicides NIWA Client Report DOC80220 National Institute of Water and Atmospheric Research Ltd Hamilton.  
 Clarkson BR; Druce AP 1984 *Flora and vegetation of Kaweka Lakes., Kaweka State Forest Park*. Unpublished report. Botany Division. DSIR.  
 St George I; Irwin B; Hatch, D 1996. *Field guide to the New Zealand orchids*. New Zealand Native Orchid Group, Wellington.



## *Pterostylis micromega*



Drawing by Bruce Irwin,  
from St George IM, Irwin JB and Hatch ED.  
*Field guide to the NZ orchids.*  
NZ Native Orchid Group, 1996.