

Thelymitra matthewsii



CONTENTS

Cover

Thelymitra matthewsii



From the editor

2. British orchid genera VI: *Himantoglossum*.
3. September: Satyriums in South Africa.
5. A list of the New Zealand species with notes.



Review

8. *Australian Orchid Research* Volume 3, 1998. David McConachie



Original papers

10. The New Zealand genera 6: the Asian epiphytes. Dan Hatch.
11. Spring orchids in Golden Bay. Gael Donaghy and Graeme Jane.
15. Monitoring of *Pterostylis micromega* at Ihupuku Swamp, Waverley: 1995-1997.
Jim Campbell, Colin Ogle, Graeme La Cock.
16. Orchid searching in the Wanganui hinterland. Colin Ogle.
18. Observations on *Thelymitra* columns at Te Paki. Bruce Irwin.



The Column: Eric Scanlen

21. The Wharekawa orchid garden.
24. *Thelymitra matthewsii* — the Te Paki jewel.



Close relations: orchids like ours

31. *Thelymitra variegata* from Western Australia.



Historical reprint

32. Elizabeth Johnson's orchid drawings from the *NZ Gardener*.



Australian notes

37. A visit with a rare orchid. Trevor Prescott.
39. *Australian Orchid Research* Volume 3 available.
Calomitra "Memoria Jack Warcup".



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FROM THE EDITOR

British orchid genera VI: *Himantoglossum*

Himantoglossum hircinum is the lizard orchid, its first UK record in 1641, very rare and confined to the southeast in Britain until 1900 when remarkably it began to be found throughout the country, from Yorkshire to Devon. This is a big plant, a metre or so high at roadsides in France, Spain and Italy, and easily spotted from a moving car. I saw one patch of forty or so near Castellina di Chianti in June last year. The leaves are large and oblong, with a basal rosette and stem leaves; the stem is stout, and the flowering spike often bears eighty or so flowers. These are remarkable structures: the dorsal sepal and petals form a cap from which the extraordinary labellum emerges (literally — in the bud it forms a tight coil that unwinds and twists as the bud opens). The midlobe of the labellum is up to 8cm long, and with its leg-like appendages looks like a lizard with its head buried in the flower. The whole effect is of a ragged untidy shambles. The smell is no less remarkable — these orchids smell strongly of billy-goat, as their Latin name attests. There are a range of rather rare subspecies of *H. hircinum* on continental Europe, and several other species have been described, but none is common. Flies, bees and bluebottles are attracted by the goatish perfume, and may be pollinators.



September: Satyriums in South Africa

Capetown, steeped in history (botanical and otherwise) shocks us with its contrasts (Blacks in shanty-towns on the way in from the airport – cardboard, bits of wood, corrugated iron, canvas, the rubbish and sewage in heaps behind the shacks. White teenagers at the beaches in shining convertible Mercs and BMWs). Street markets tempt us with Benin bronzes from Nigeria, ebony carvings from Kenya, serpentine sculptures from Zimbabwe and ornate wooden masks from the Ivory Coast. Hillsides are yellow with proteas and roadsides yellow with Australian acacias (the introduced pest now South Africa's equivalent of our gorse). Botanical gardens display King Proteas like dinner plates, Queen Proteas like giant chess peices.

Karsten Wodrich picks us up from the hotel, shows us the *Satyriums* in his shade-house and drives us east along the coast to look at wild orchids, along the shores of the Indian Ocean, the southernmost parts of Africa: a backdrop of rugged mountains, with boulder-strewn slopes leading to swamps, dunes and clear blue sea.

Southern right whales leap and dive at Hermanus to the delight of the Saturday crowds on the cliff-tops: cheers

unite us in wonder as flukes rise in the air, pause and disappear. The whales spawn in September, and there are 40 or 50 in the bay.



Disa cernua

A troop of baboons retreats from the road. They are a nuisance; they strip fruit trees, and make an awful mess if they get into your house through an open window (actually they are learning to unlock doors and windows to get food). The worst thing is if you disturb them – they tend to defecate copiously if frightened, reducing their bodyweight for fight or flight. They eat orchid tubers too, especially transplanted ones.

Bonatia speciosa is a metre tall, but still in bud under milkwood trees in the dunes.

The first flower we see is *Disa* (was *Monadenia*) *cernua*, in a burned-off area of wetland, then later *Satyrium coriifolium*, bright orange spikes 60cm tall like beacons to the sugar birds that pollinate them. Pink *S. carneum* and green *S. bicornis* are everywhere in these dune slacks, and natural hybrids between *S. carneum* and *S. coriifolium* are dotted here and there. The *Satyriums*

have nonresupinate flowers like our praso-phylums; their labella have twin spurs that



Satyrium coriifolium

stick up like devil's horns if you bend the flower forward, hence the name. The orchid *Acrolophia micrantha* with its branched stem is flowering at the roadside.

There is a twenty-year natural cycle of fires, which burn too hot if the cycle is longer. One species appears only after fires, disappearing, tubers and all, only to reappear after the next fire: the seeds must somehow survive. This whole area has been sold for subdivision: the best hope for the orchids now is to persuade the new owners that they have something to value. Karsten



Satyrium carneum

Paki, except for the zebras, baboons, elands and ostriches roaming there, and the substitution of protea for hakea and tea-tree. The "cape of storms": they say the weather is neither bad nor good, it's just there is so much of it. Crashing seas, foam, spray, busloads of tourists. Sir Francis Drake's "fairest cape of them all": the ghosts of Bartholomew Diaz and Vasco da Gama surface from the deep recesses of my memory. Offshore the swell is breaking over the Bellows rock – the one that accounted for the *Lusitania*.

has designed a leaflet.

There are over 400 South African native orchids, mostly terrestrials, though there are a few epiphytes in the north. There is no native orchid group in South Africa, just a few interested members of the orchid society. The emphasis is on cultivation and hybridising. They are in no doubt these are conservation activities – the availability of cultivated specimens takes the pressure off wild sites.

On another day we make our pilgrimage to the Cape of Good Hope itself. The last few miles remind me of Te

A list of the NZ orchids with notes

The following should not be regarded as a definitive list of the New Zealand taxa. It is rather, a personal view, gleaned from reading, conversation and observation. The last "official" taxonomic treatment of the NZ orchids was by Lucy Moore in Moore & Edgar's *Flora of New Zealand Volume II* in 1970; the notes 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)
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* as 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 also 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 aff. carnea: the common pink form found throughout New Zealand, once mistaken for *C. catesnata* which is now regarded as an Australian endemic.
Caladenia chlorostyla D.Jones et al. *Orchadian* 12 (5):221 (1997); was tagged C. "green column". "Caladenia viridis" is a small green early-flowering *Caladenia* from the Far North, described in HB Matthews's unpublished manuscript.
Caladenia lyallii JD Hook. *Flora NZ*. 1:247 (1853); there may 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, and 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*.
Caladenia nothofagei D.Jones et al. *Orchadian* 12 (5):221 (1997)
Caleana minor R.Br. *Prodr.* 329 (1810): occasional transtasman vagrant, not a *Paracaleana*.
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 with broad variation currently under study.
Chiloglottis formicifera Fitzg. *Austral. Orch.* 1(3): t9 (1877): occasional transtasman vagrant, not seen in NZ for fifty years.
Chiloglottis valida DL Jones. *Aust. Orch. Res.* 2:43-4, 154 (1991): transtasman vagrant, not in *Flora II*; has been 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 cheesemani 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 diemenus 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. aff. rivularis* group [q.v.] as C. "A".
Corybas macranthus (JD Hook.) HG Reichb. *Beitr. Syst. Pflk.* 67 (1871)
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 tagnamed 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 tagname *C. "Waiouru"*; 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 trilobate 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.
- 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).
- 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 *Yoania 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* aff. *sesamoides*: different from the Australian species *Gastrodia sesamoides* — see Ogle C. *NZNOG Journal.* 51:9 (1994). There is variable tuberculateness of the flowers even among NZ plants.
- Gastrodia "long column" agg.*: there is clearly more than one undescribed *Gastrodia* with a long column. See Wilson H. *Field Guide — Stewart Island plants* 1982. p294.
- Genoplesium 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).
- Genoplesium 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): see *NZNOGJ.* 58:16-18. (1996).
- Microtis oligantha* LB Moore. *NZJ Bot.* 6: 473 fig.1 (1969)
- Microtis parviflora* R.Br. *Prodr.* 321 (1810): true *M. parviflora* may occur in NZ. See *NZNOGJ.* 62:5-6. (1996). *Microtis* aff. *parviflora*: most NZ plants differ from *M. parviflora* in the strict sense: 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*: 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 are both taxa in NZ? — see Goodger R. *NZNOG Journal*; 60. (1996).
- Prasophyllum colensoi* JD Hook. *Flora NZ.* 1:241 (1853)
- 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 DL et al. *Orchadian.* 12(6):266-281 (1997): was named *P. graminea* var. *rubricaulis* and later tagnamed *P. "rubricaulis"*.
- Pterostylis alobula* (Hatch) LB Moore. *NZJ Bot.* 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:t3172 (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. *NZJ Bot.* 6:485 fig.3 (1969)

- Pterostylis cardiostigma* Cooper. *NZ Journal of Botany*. 21(1):97 (1983)
- Pterostylis cernua* DL Jones *et al. Orchadian*. 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* "haurangi" is a plant of uncertain status [affinities with *P. irsoniana*] from Haurangi State Forest Park; see *NZNOG Journal*. 67:3 (1998).
- 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 nutans* R.Br. *Prodr.* 326 (1810): occasional transtasman vagrant, recently rediscovered near Taupo — see *NZNOG Journal*. 57:38-39 (1995).
- Pterostylis* *aff. obtusa*: plants found in 1998 near Nelson appear similar to Australian species in the *P. obtusa* group — 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* included it in *P. banksii*, but it is now regarded as distinct.
- Pterostylis porrecta* DL Jones *et al. Orchadian*. 12(6):266-281 (1997): was *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 tanypona* 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. mutca*. 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)
- Pterostylis* "catlins": undescribed; illustrated in St George. *Wild orchids in the far south of NZ*.
- Spiranthes sinensis* (Pers.) Ames. *Orchidaceae*. 2:53 (1908)
- 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). Jones (*Australian Orchid Research* Vol 3, 1998) does not include NZ in the distribution of this species, hinting that our taxon may be different.
- Thelymitra circumsepta* FitzGerald *Australian orchids* 1[4] (1878). Jones (*Australian Orchid Research* Vol 3, 1998) lists NZ in the distribution of this transtasman species; it has 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).
- Thelymitra x denata*: a sterile hybrid of *T. longifolia* and *T. pulchella*: see McCrae DP & Molloy BPJ. *Ecosystems, entomology & plants*. RSNZ Misc Series 48, 1998, p121.
- 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).
- Thelymitra* *aff. ixiooides*: differs from the Australian *T. ixiooides*; the NZ taxon is self-pollinating, and the Australian species insect-pollinated.
- Thelymitra longifolia* JR *et* GJ Forst. *Char. Gen. Pl.* 98 t49 (1776). *Thelymitra* *aff. longifolia* *agg.*: includes several undescribed taxa that appear to be insect-pollinated.
- 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, hinting that our taxon may be different.
- Thelymitra mathewsii* Cheesem. *TNZI*. 43:177 (1911)
- Thelymitra media* R.Br. *Prodr.* (1810). See *T. aemula* above.
- Thelymitra nervosa* Col. *TNZI*. 20:207 (1888): *Flora II* called this plant *T. decora*; Morre was aware of

Colenso's *T. nervosa* but could not place it at that time.

Thelymitra aff. *nuda*: several plants bearing flowers with a resemblance to those of this Australian species were found in the Far North in 1996 (see *NZNOG Journal*. 62. (1996).

Thelymitra pauciflora R.Br. *Prodr.* 314 (1810). Jones (*Australian Orchid Research* Vol 3, 1998) does not include NZ in the distribution of this species, hinting that our taxa may be different.

Thelymitra pulchella JD Hook. *Flora NZ.* 1:244 (1853): there may be several plants with affinities to *T. pulchella* – 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) points out.

Thelymitra sanscilia Irwin ex Hatch. *TRSNZ.* 79:397 pl.81 (1952): Moore regarded this as an aberrant form of *T. pauciflora* — see *Flora II* p130 — others now regard it as distinct.

Thelymitra tholiformis Molloy & Hatch. *NZJBot.* 28:105-114 (1990): 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.

Thelymitra "comet": the tagname for a large, late-flowering *Thelymitra* from the Kaweka range.

Thelymitra "Whakapapa": undescribed — see *NZNOG Journal.* 54: 7-8. (1995).

Thelymitra "darkie": undescribed.

Thelymitra "rough leaf": undescribed.

Townsonia deflexa Cheeseman *Man. NZ flora.* 692 (1906). *Townsonia 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*

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

REVIEW

Australian Orchid Research Volume 3, 1998.

Reviewed by David McConachie, Palmerston North.

On 14 October I attended a talk at the Hawke's Bay Orchid Society by David L. Banks. As well as being the current editor of *The Orchadian* he is now the editor of the *Australian Orchid Research* series. I was able to get a copy of the latest volume from him. What follows is a brief review of some aspects that relate to our native orchids.

This is the third volume of an irregular series published by the Australian Orchid Foundation dealing with the results of scientific research about Australian Orchidaceae. The volume contains nine papers that help to clarify the status of 180 orchid taxa in Tasmania including the naming of 44 new species and two new subspecies. This series of papers arose partially out of work identifying fresh specimens sent to the author by David Ziegeler, who was working on a pro-

ject with the Tasmanian Parks and Wildlife Service to prepare an *Atlas of Tasmanian Orchids*. The flow of fresh material continued after the completion of the project and allowed David Jones to identify new taxa as well as clarify confused species, and identify doubtful or erroneously identified herbarium material. The papers are accompanied by David Jones's excellent drawings of new species and previously poorly illustrated species as well as colour photographs of 64 orchid species.

The first paper deals with taxa in 13 genera and identifies material that is new to either Curtis's *Student's flora of Tasmania 4A* (1979) or Buchanan's *A census of the vascular plants of Tasmania* (1995) or taxa whose status was confused or disputed. Of particular interest to us in New Zealand are

the following:

- 1) *Calochilus herbaceus* is not listed as having a New Zealand distribution, whether this is an omission or not is unclear. *Microtis arenaria* and *Microtis rara* also are not listed with a New Zealand distribution but since the possibility of their being in New Zealand has only arisen during the past two years this is understandable.
- 2) *Townsonia viridis* is described as a Tasmanian endemic, so *Acianthus viridis* in New Zealand should be called *Townsonia deflexa*.

Paper two is "A taxonomic review of *Caladenia* in Tasmania". Nine new species are identified and the status of another fifteen taxa is clarified. A key to 35 species present in Tasmania is also included. The paper confirms the transtasman distribution of *Caladenia alata*, states that *Caladenia lyallii* and *Caladenia minor* are New Zealand endemics, and describes a new species *Caladenia silvicola* whose "closest congener is the recently described *C. nothofageti*".

The next paper is "A taxonomic review of *Chiloglottis* in Tasmania". This paper recognises seven species of *Chiloglottis* in Tasmania and provides a key to them. Of note in this paper is the comment in the discussion about *Chiloglottis cornuta*, a transtasman orchid, that it "exhibits a degree of variation which is currently under study". So we may have some new names to look at in the future.

"A taxonomic review of *Diuris* in Tasmania" is a paper that isn't applicable to us yet. One never knows though when the next bush fire will lead to some *Diuris* seed getting to New Zealand and successfully germinating.

The next three papers, "A taxonomic review of (*Genoplesium*, *Prasophyllum*,

Pterostylis respectively) in Tasmania" do not change the status of any New Zealand species. *Genoplesium nudum* and *Genoplesium pumilum* are transtasman as are *Pterostylis foliata*, *Pterostylis nutans*, and *Pterostylis tasmanica*.

The penultimate paper, "A taxonomic review of *Thelymitra* in Tasmania", is co-authored by Mark Clements and it is the most challenging paper in this work. If we accept that there have been no omissions in the distribution data presented then we have to do a rethink on several of our species. *Thelymitra carnea*, *Thelymitra malvina* and *Thelymitra pauciflora* are all not listed with New Zealand distributions. *Thelymitra circumsepta* and *Thelymitra cyanea* are both transtasman taxa, while *Thelymitra nervosa* and *Thelymitra pulchella* are New Zealand endemics. David Jones suggests that "at least three distinct entities shelter under the name '*Thelymitra pulchella*'. Some, if not all, may have been described, since the names *T. concinna* Colenso, *T. fimbriata* Colenso, *T. pachyphylla* Cheeseman and *T. caesia* Petrie have been treated as synonyms of *T. pulchella*". The "ixioides complex" is discussed under *Thelymitra ixioides* and *Thelymitra juncifolia*, and aff. *ixioides* appears to be unnamed. It also appears that we have another transtasman entity here in New Zealand. Specimens of *Thelymitra media* appear to have been confused with *Thelymitra aemula*.

The final paper is "A checklist of Tasmanian Orchidaceae".

This book is a must-get for anyone wanting to keep abreast of current developments in the understanding of orchids in the region.

Australian orchid research Vol 3 : "Contributions to Tasmanian Orchidology 1-9" by David L. Jones is available for A\$19.50 + p&p from the Australian Orchid Foundation, 107 Roberts St, Essendon, Victoria 3040: fax 00 61 3 9379 3570 .



ORIGINAL PAPERS

The New Zealand genera 6: the Asian epiphytes

by ED Hatch, Laingholm, Auckland

(Both *Bulbophyllum pygmaeum* and *Drymoanthus adversus* grow also on rock outcrops)

1: *Bulbophyllum* Thouars

Hist.Plant.Orch. (1822). *nom.cons.*

Name = bulb-leaf, the swollen pseudobulbs at the bases of the leaves

Genotype – *B.nutans* Thouars. *ibid.*

Probably the largest orchid genus, with more than 2000 species, widespread throughout the tropics, declining in numbers as they progress southwards. New Guinea has over 600 species, Australia more than 20, NZ only two.

The NZ species are mat-forming epiphytes on the trunks and branches of forest trees and seem to have a mycorrhizal preference for growing with specific lichens. This symbiosis, while obvious, has not to my knowledge been studied.

1: *Bulbophyllum pygmaeum* (JE Smith)

Lindl. *Gen. & Spec.Orch.Plant.* p58 (1830).

Name = the small plant.

Basionym – *Dendrobium pygmaeum* [Sol.] JE Smith in Rees *Cyclopaedia* 11: n27 (1808).

First discovered (not in flower), at Whitianga in November 1769, during Cook's *Endeavour* voyage, this was described by Solander as *Epidendrum pygmaeum*, "parasitic (actually epiphytic) on trees" and illustrated by Parkinson. Solander's observation, "Please allow me to draw attention to this rather remarkable bulb-bearing plant, with its creeping stems."

Distribution – endemic – Three Kings, North; South; Stewart Is.

Flowers – October-March – self pollinating

2: *Bulbophyllum tuberculatum* Colenso

Trans.NZ Inst. 16:p336 (1884)

Name = the warts on the mature pseudobulbs.

Distribution – endemic – North; South Is.

Type locality – Petane, Hawke's Bay, A Hamilton 1883. (WELT 24263).

Flowers – April-June – self pollinating.

2: *Drymoanthus* Nicholls *Victorian Naturalist* 59: p175 (1943).

Name = forest flower.

Genotype – *Drymoanthus minutus* Nicholls *ibid.*

A small genus of four species, one endemic in Australia (*minutus* Nicholls); one endemic in New Caledonia (*minimus* (Schltr.) Garay); and two endemic in NZ.

1: *Drymoanthus adversus* (Hook.f) Dockrill*

Australasian Sarcanthinae p32 t3 (1967)

Name = the apparently opposite leaves.

Basionym – *Sarcochilus adversus* [Sol.] Hook.f. *Flora NZ* 1: p241 (1853).

First discovered (not in flower), at Whitianga in November 1769, during Cook's *Endeavour* voyage, this was described by Solander as *Epidendrum adversum*, "parasitic (actually epiphytic) on trees", and illustrated by Parkinson.

Distribution – endemic – Three Kings;

North; South; Stewart and Chatham Is.

Type locality – Wairarapa – W.Colenso 1848. (K) Colenso #1957).

Flowers – October-December – insect-pollinated.

* *ibid.* Preface: “The treatment of *Sarcocochilus adversus* Hook.f. within this paper, is at the suggestion of Mr E.D. Hatch of Auckland”.

2: *Drymoanthus flavus* St George & Molloy *NZ Journal Botany* 32: p416 fl (1994)
Name = the yellow flower colour.

Distribution – endemic – North, South and Stewart Is.

Type locality – Tahakopa Bay, Otago – BPJ Molloy 1992. (CHR 482355).

Flowers – October-November – insect and/or self pollinated.

Spring orchids in Golden Bay

by Gael Donaghy and Graeme Jane, Nelson

Last year although orchid hunting trips were full of rewards for Gael there were many disappointments, for often we only caught plants in seed. So this year we decided to start early, well before last year's flowering dates, but... the orchids seem to know better.

Spring starts in April so on the 5th we were out there searching for *Genoplesium*. After checking several sites we finally found a few at Milnethorpe – just about finished. So reckoning higher as later we decided to try the Asbestos Cottage on 2 May. Sorry mate! They were well and truly finished by over a month. One up to the orchids!

To console ourselves the next day we decided to check out progress on *Cyrtostylis* at Mutton Cove. Sure we were early for that, perhaps a month to go BUT we stumbled on *Pterostylis* aff *obtusa* apparently at the end of flowering. Later sightings affirmed this. Score 2-0.

Meanwhile we were monitoring a couple of *Corybas* sites at Puponga Farm Park. At one of these sites, plants were seen last year in seed in August. A check on 12 May this year showed no sign of them yet on 1 June

we found plants in full flower, *en masse*. It was a *Corybas trilobus*. Very tiny! Almost all the plants were flowering, each with a tiny flower above leaf (later to be overtopped by it as the leaf developed). It was



Corybas trilobus with biro



Corybas "Waiouru"

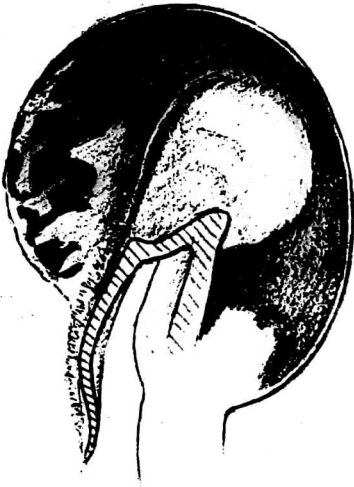
onths before other *C. trilobus* in the area flowered. Those at the Maitai and the Brook were just coming into flower as it was dispersing its seed in September. These latter plants flowered on mature leaves with few plants (less than 1 in 50) flowering in any patch. Orchids 3-0.

A check of the other site found buds showing success at last! This one we followed successfully to flowering over the next month. It turned out to be the superb *C. "Waiouru"* (*C. macranthus* var. *longipetalus*) with its huge dark red flowers and spotted dorsal sepals. Score 3-1.

Now it's full steam ahead into the peak of the flowering season. *Corybas* in flower all over the place, especially *C. "Whiskers"*, but also *C. orbiculatus*, some *C. "Waiouru"*, and *Pterostylis*, *Calochilus*, *Caladenia* and *Thelymitra* coming into bud everywhere -- where to go to next!

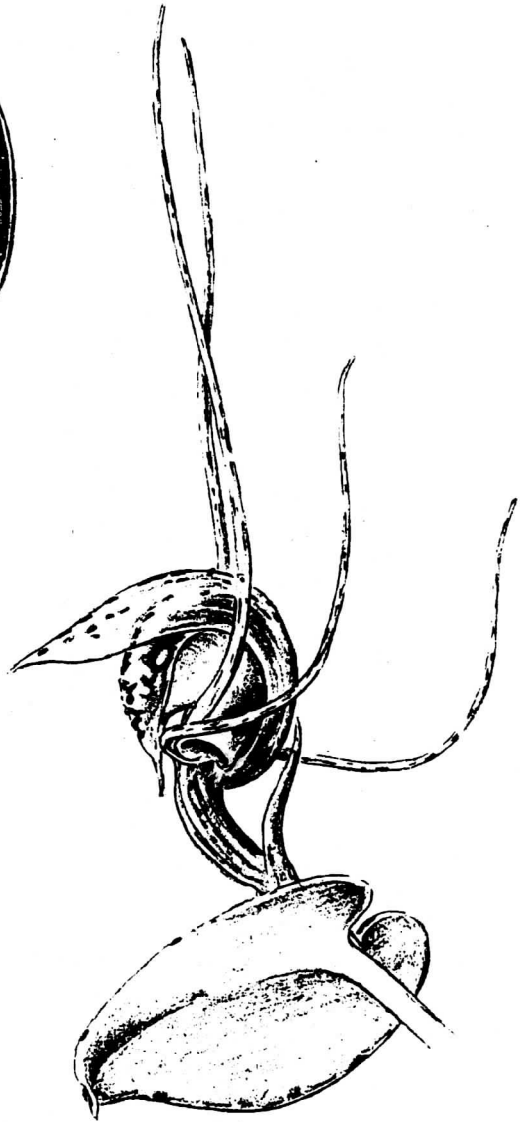
Bruce Irwin received two flowers of Corybas "Whiskers" from Graeme Jane, and wrote, "It is nice to know that 'whiskers' has shown up in the South Island. On the two flowers sent, both had petals back behind the dorsal sepal and extending out to the sides; lateral sepals close together and upright. Conforms quite closely with flowers of C. 'Whiskers' near Horopito in North Island" Bruce's drawing of one flower is shown opposite.

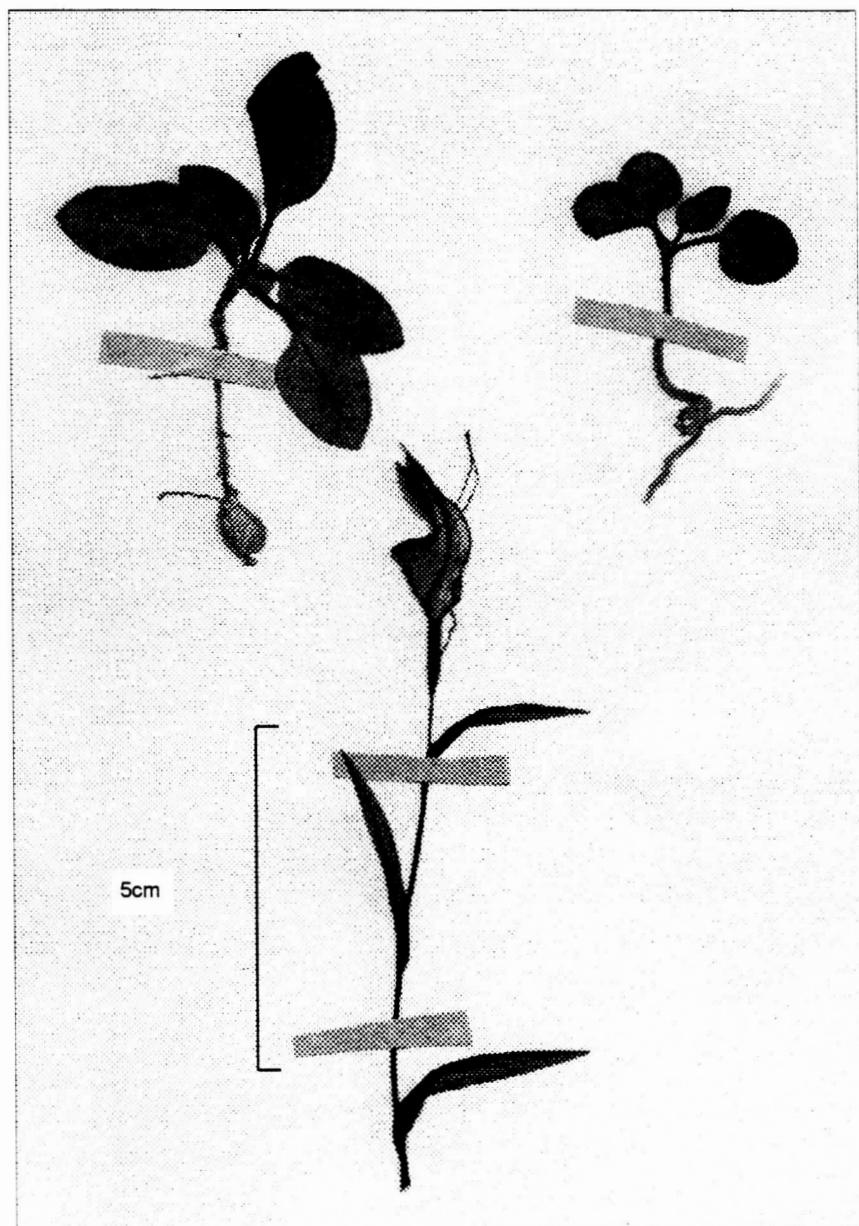
Henry Reijs (address Kijkvitspad 3, 5443 A9, Haps, Holland) writes (20 August) that for the last couple of years he has started to grow native orchids from Holland ("We do have some species!!" he quips). He asks if there is anybody who would like to trade seeds with him. He is 58 years old, married and retired, and he does have a lot of information about media. He seeks native orchid seed from New Zealand, and offers seed as soon as it is wanted. "Hearty regards from Henry" he concludes.



Corybas "Whiskers"

— drawn by Bruce Irwin
from a flower collected
by Graeme Jane from
Cobb roadside below the
power station,
6 September 1998, widespread.





Pterostylis alveata Garnett from Victoria, Australia,
cultivated at Laingholm by ED Hatch, 6 May 1969

Monitoring of *Pterostylis micromega* at Ihupuku Swamp, Waverley: 1995-1997

by Jim Campbell, Colin Ogle, Graeme La Cock, Department of Conservation, Wanganui

Past surveys

Pterostylis micromega, the swamp green hood orchid, has a national conservation status of endangered (Cameron et al. 1995). It was first found in the Ihupuku Swamp at the Ihupuku Wildlife Management Reserve near Waverley by one of us on a botanical survey in December 1993 (Ogle 1994). A detailed survey of orchid numbers was not made at that time. Subsequent searches in the same calendar week of 1995 (Barkla 1996) and 1996 produced totals of 38 plants and 14 plants of *P. micromega* respectively.

Survey area

Ihupuku Swamp lies in shallow valleys in marine terraces of the Manawatu Ecological District and is dammed by dunes of the Foxton Ecological District. The reserve encompasses 39 ha with margin of 12 km. Another 20 ha are in private ownership.

1997 survey

What has become an annual *P. micromega* survey was last carried out in the Ihupuku Swamp on 2 December 1997, in the same calendar week as previous years. The area was wet underfoot and required gumboots, as in previous surveys. The swamp boundary is unfenced and the grass growth was tall because the adjoining paddock was locked up for hay making.

Wide-ranging surveys of the swamp in previous years had pinpointed the range of *P. micromega* to one particular "bay". (A bay is defined here as an area of swampy pasture enclosed by swamp scrub and tall flax on three sides and a hillslope edge on

the fourth.) In 1995, individual orchid plants had been marked and the 1996 and 1997 searches concentrated on these marked plants and the area around them. In addition, a sweep search was carried out of bays north and south of the known "*Pterostylis* Bay", from the swamp margins to the hillslope edge. Approximately 9 person-hours were spent on this search each year.

In 1997, *P. micromega* plants were found in two groups, both in the vicinity of the previous year's marked plots. Six rosette plants and three with spent seedheads were found and marked. All were within a radius of less than 5 m. It is guessed that the rosettes were immature plants, too young to flower. The 1996 total was 14 plants in flower and no non-flowering rosettes. Because tall grass made searching more difficult in 1997 than other years, the apparent reduction in numbers in 1997 may not be significant.

Microtis unifolia was the only other orchid seen during the 1997 survey. More young raupo (*Typha orientalis*) was noted through the *P. micromega* habitat than in 1996.

Flowering time

Flowering plants were found in the same week of December in 1993, 1995 and 1996 but only seed heads were seen in 1997. Reasons for the earlier flowering in 1997 are not obvious. The winter of 1997 was unusually dry. One consequence was that, for the first winter in a decade, ephemeral wetlands in the district's dune slacks did not hold any surface water. However, Ihupuku Swamp is a spring fed system and should

not have been affected unduly by rainfall fluctuations.

NIWA's data (A. Porteous pers. comm.) suggest that in 1997 the Wanganui area in general was affected by El Nino weather patterns i.e. increased southwesterlies and cooler temperatures. The three months October - December 1997 were cooler than normal by 0.5°C. Rainfall was normal for the same three months but drier in September. Cooler than normal temperatures would suggest a later rather than earlier flowering, which leaves unanswered the cause of the early flowering in 1997.

Management recommendations

- 1) Continue monitoring *P. micromega* at the known site; consider checking for early flowering plants prior to main survey.
- 2) Record the amount and timing of grazing of stock and assess the effects of grazing on the bay; control specific weeds that are competing with *P. micromega*, or which may do so in the near future e.g., hemp agrimony (*Eupatorium cannabinum*), Japanese honeysuckle and gorse, all of which grow very close by.
- 3) Undertake wider search for other sites that may have *P. micromega*. Because the flowering time is very short, there is a very limited period for such a survey.
- 4) Develop an integrated management plan for the wetland to cover weeds and rare

plants.

Summary

There has been a progressive reduction in the numbers of *P. micromega* counted at Ihupuku Swamp over the past three summers. Some of the apparent loss of plants may result from difficulties in searching for them and differences in their conspicuousness from year to year. Continued monitoring of *P. micromega* is needed and wider surveys for more plants.

Acknowledgements

Our thanks to John Barkla, Norm Marsh and Vonnie Cave for field assistance on surveys of orchids at Ihupuku Swamp, and to local landowners for access to the borders of the reserve.

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Orchid searching in the Wanganui hinterland

by Colin Ogle, Wanganui

On 3 October, members of the Wanganui Regional Museum's botanical group took up the invitation of John and Esther Williams to search for orchids on their property 44 km inland of Wanganui. Their farm is in

rugged papa country, reached by following the west bank of the Whanganui River beyond Aramoho then turning away to the north-west along Kauarapaoa Road and following the deeply entrenched Whakangaro-

manga Stream. John reported (NZNOGJ 54:17) on his finding of *Gastrodia* "Long Style" here in January 1995 and, on 23 Jan. 1997, he brought me from the same farm two plants of *Corybas cheesemanii*, each comprising a small leaf and a capsule atop an elongated white peduncle (lodged at the Lincoln herbarium as CHR 512863), and a fruiting plant of a *Caladenia* (CHR 512864).

The Williams's farm is only a few km from places where our botanical group have gone in spring in previous years to see a range of *Corybas* species flowering on damp papa banks. This year's visit was timed to catch what we hoped would be a similar range of orchids a little further east than we'd looked before. We were not focused solely on orchids, however, because we aimed to update a list of all the vascular plants for the area, made by some members of the group in 1991. John and Esther met us before their farm, beside a roadside bank where they had already seen flowering *Corybas*. There, among a sward of flowering mountain foxgloves (*Ourisia macrophylla*) on a dripping wet east-facing bank, were masses of *C. iridescens*, perhaps past their peak of flowering, but still plenty in full bloom. Several clumps of flowering *Pterostylis* aff. *montana* were found among them. I sent a couple of the latter, fresh, to Brian Molloy who reported back to me that they match "material gathered in the past from the Wanganui and central North Island districts". Brian went on to say this taxon is insect-dependent like some other members of the aff. *montana* complex whereas others are self-pollinating with distinctive protruding stigmas.

But back to the orchid hunt! Just when we thought that the road banks in this site had only one *Corybas* species, on a drier site Doris Hamling found a single plant of *C.*

oblongus with a bud that was almost open and nearby I found mature buds on *C. macranthus*. The road cuts off meanders of the adjoining stream as projecting headlands. Some of these are farmed, but a couple have mature black beech forest. The normally dark green canopy of the beeches had a rusty hue this day, as they were in full bloom. Just a few metres off the road, John showed us patches of *C. trilobus* under beech trees and careful searching revealed a few flowers. Linear-leaved *Thelymitra* plants growing under the beeches were surely not the same as the *T. longifolia* plants with ribbed floppy leaves outside on the sunny banks? Something for John and Esther to watch later in the year. The beech forest also contained patches of terrestrial and epiphytic *Earina mucronata* and *E. autumnalis*, some of the former in full bloom.

Another of the "headlands" has been converted from pasture to a mixed species woodlot of pines, macrocarpas, acacias and eucalypts. John took us through these to a row of black beech trees on the rim of the gorge to see *Chiloglottis cornuta* and *Drymoanthus adversus* in flower. The abundance of *Drymoanthus* surprised us all. It grew thickly on limbs of the beech trees, on trunks of rewarewa and kamahi and on the stems of mingimingi (*Leucopogon fasciculatus*).

It was lunch time when we reached the last "beech headland" before John and Esther's home. Here under the beeches we sat on a carpet of *Corybas trilobus* and picnicked to the calls of tui, bellbird, whitehead, robin, grey warbler, kingfisher and shining cuckoo. This forest is less than a hectare but it took us another 1.5 hours to explore most of it. Black beech and tawa predominate, with a range of other trees that include kamahi, black maire (*Nestegis cunninghamii*) and white maire (*N. lanceolata*). Of greatest

interest to me was the find of six slender trees of the NZ sandalwood (*Mida salicifolia*) which, to my knowledge, had not been recorded in this part of the district before. Some beeches had rather small epiphytic plants of *Winika cunninghamii*.

There's just one more orchid to mention: we'd grown used to the beeches with *Drymoanthus* plants bearing typical dull green purple-spotted flowers, when suddenly we found a beech tree with a patch of *Drymoanthus* plants that had plain pale yellow-green flowers. Could we have *D. flavus*? That is a species that none of us had actually seen, which meant we couldn't be sure. The leaves of this colony lacked spots but the flower colour seemed right. I took one of the plants home and checked the flower structure against Molloy and St George's description and Bruce Irwin's excellent pic-

tures in *NZ Journal of Botany* 32: 414-421. Details like the presence of distal calli on the labellum showed that our yellow-green *Drymoanthus* was *D. adversus*, though this flower colour form does not seem to have been reported before. Just to be on the safe side, I sent the plant, with one of "typical" *D. adversus*, fresh to Brian Molloy. He reported to me that the yellowish flowers were slightly larger in all their parts and "slightly different in shape" from the purple-spotted flowers on the typical *D. adversus*, "but nevertheless do not seem to stray outside the boundaries of this tetraploid species". Is our plain yellowish *Drymoanthus* near Wanganui a one-off colour morph (though all the 10 or so flowering plants on one beech tree had the same flower colour). Or have people seen this elsewhere and not reported it?

Observations on *Thelymitra* columns at Te Paki

by Bruce Irwin, Tauranga

Our trip to Te Paki was most successful (*see The Column, this issue*). I tried to make detailed drawings of the column of *Thelymitra matthewsii*. I knew it would be difficult: it was, and painful too.

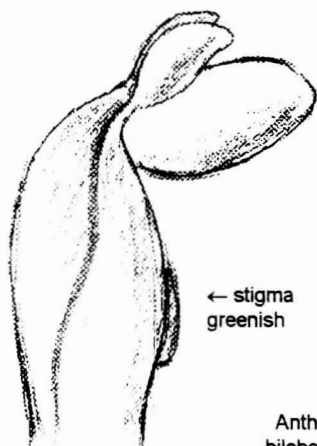
I was able to see the pollinia were attached to the viscid disc in an unusual way. When the flower first opens the fat ends of the pollinia remain within the anther case while the attenuated ends reach down and are attached to the viscid disc. In a few hours the brittle pollinia fall onto the receptive stigma.

Other NZ *Thelymitras* I have drawn usually usually have the pollinia attached to the back of the viscid disc (often not by their

apices but apparently roughly at midpoint). This must happen before full development of the column. As the flower matures the column elongates carrying the anther case upward above the stigma. Because the pollinia are attached to the viscid disc they are pulled clear of the anther and remain tucked in behind the stigma.

You will see on the sketch of the *T. matthewsii* column the pollinia seem to be attached to the top/front of the viscid disc and overhang it. The pollinia on most *Thelymitras* are rather chunky and I have trouble determining just what part of them attaches to the disc and when.

A good project for some botany student.



COLUMN FROM SIDE

← side lobule →

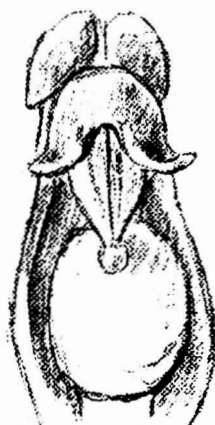
← anther →

pollinia attached to rostellum →

← stigma greenish

stigma →

Anther bilobed. Four pollinia attached by tapered ends to the viscid disc.



COLUMN FROM FRONT

***Thelymitra matthewsii*,
— Te Paki 3 Sept 1998**

— sketches by Bruce Irwin



column arms →

anther empty

stigma obscured

***T. MATTHEWSII* BUD — HAD PROBABLY OPENED THE PREVIOUS DAY. POLLINIA DETACHED & SCATTERED OVER STIGMA.**



column arms

spent anther held unnaturally upright

viscid disc obscured

stigma

pedestal

An interesting find a few km south of rubbish dump hill was a very early flowering *Thelymitra* possibly identical with the freak plant Ian St George found [J62, p2] which had three column arms. The flowers were very narrow-tepalled and may be the form with large pale lilac flowers [J62 p14 fig 8]. *T. carnea* was still 2-3 weeks from flowering (I had always thought it the first to flower). Allan Ducker later led me to a normal plant apparently of the same species. It was interesting in that pollinia and viscid disc had been removed, presumably by a

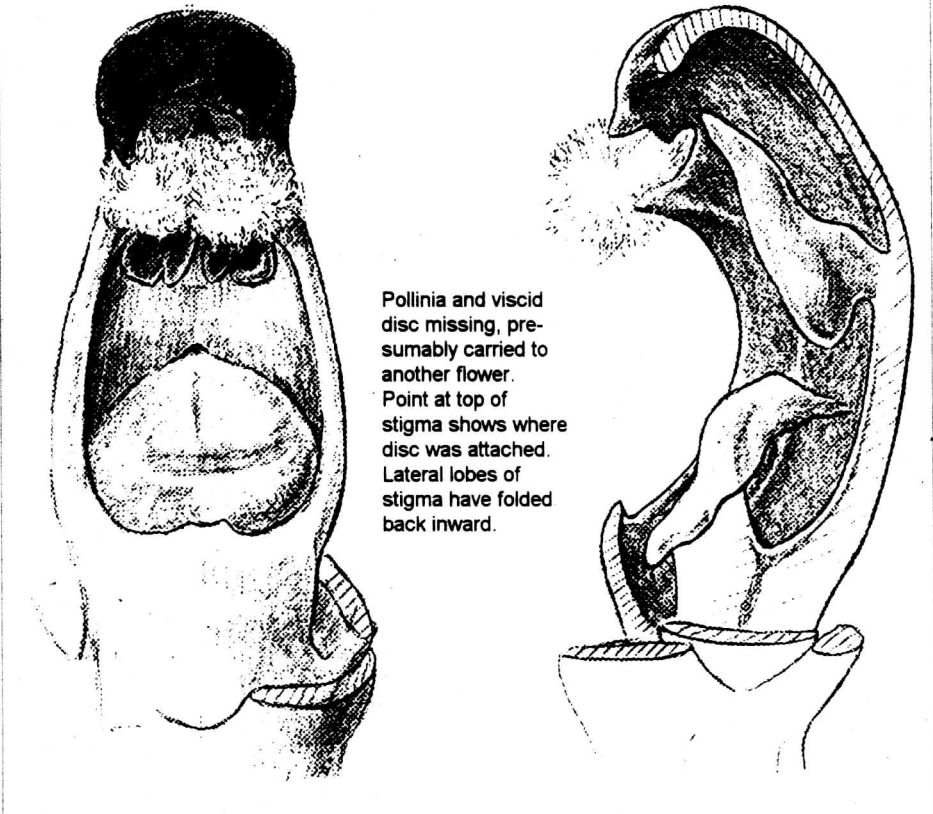
pollinator. My drawing shows a round stigma with a tiny blip on the top: that must be where the disc was attached. The usual fragile lateral lobes that normally overtop the disc seem to be absent, but when I sectioned the column longitudinally I found them folded backward quite out of sight from in front.

At last I start to understand a few of my old drawings which show an extremely short apparently incomplete stigma.

There is a lot to be learned about *Thelymitras*.

Early flowering *Thelymitra* from Te Paki

— sketches by Bruce Irwin





THE COLUMN

The Wharekawa orchid garden

by Eric Scanlen, Papakura

Have you heard about the internationally acclaimed Wharekawa Orchid Garden? Probably not. Travel north up the Firth of Thames coast from Kaiuaa and you could be forgiven for missing this intriguing garden of native orchids, just up from the road, under the kanuka (*Kunzea ericoides*) and tree ferns. By the door to Geoff Stacey's modest abode, 26 species of NZ ground orchids and epiphytes thrive, usually in luxuriant splendour due to some thoughtful TLC from their protector.

Recalling his native Norfolk during the 1950s, Geoff can name nine orchid species and there were others, flourishing under Scots pine and Corsican pine at Wells-next-the-sea, reminiscent of Iwitahi. But he had seen nothing like the little greenhoods that whetted his curiosity soon after he moved to Wharekawa. The locals knew little about the orchids but a farmer took Geoff's cue and brought down a tractor load of epiphytes salvaged from a scrub clearing project. Geoff too has salvaged ground orchids from forest felling, doomed waifs in the cattle tracks and from fencing jobs. Clearing of fern litter and bracken for ground habitat and dropping some tea-tree to let in the light in 1990, started his unique garden of only 200 to 300 square metres on a regenerating bush slope. Now the greenhood family has grown to comprise *Pterostylis agathicola*, *alobula*, *banksii*, *cardiostigma*, *graminea*, and *trullifolia*. *Corybas* comprise *acuminatus*, *cheesemani*, *macranthus* and *trilobus*. *Caladenia* include *atradenia*, *bartlettii* and a hopeful *lyalli* and *Thelymitra* are represented by *longifolia* s.s., *nervosa*, *pauciflora* and one from low altitude on a nearby

farm with wide blue tepals and yellow cilia which sounds intriguingly like *hatchii*. In addition *Cyrtostylis oblonga*, *Chiloglottis cornuta*, *Orthoceras novae-zeelandiae* and *Acianthus sinclairii* galore, round out the ground orchids. All the epiphytes bar *Drymoanthus flavus* and *Bulbophyllum tuberculatum* are thriving here, only about 50 paces from the seashore. Healthy *Pterostylis banksii* even produced a second flower as you can see from Josie Driessen's photo. Note that the second flower sprouts from opposite the floral bract and faces in the reverse direction to the first flower in the manner of *P. trullifolia*, *P. brumalis* and *Corybas oblongus*. But those three sprout their rare second flowers from directly opposite the bract whereas Geoff's *P. banksii* forks from below the bract. The Editor has a shot of a twin *P. australis* with the second flower sprouting from above the floral bract. Green with envy, the column ratted through all his *P. banksii* shots but could find no sign of a second flower or even a fertile bract. A *Corybas acuminatus* of Geoff's, not to be outdone, had twins in 1994 with both flowers at the same level and, just to be different, aiming substantially in the same direction. (cf. *Corybas* "quadriplex" J62 p5). Seedlings of almost all the ground orchids are now showing up metres away from parent plants indicating good seed production and dispersal but it hasn't been easy.

For the first few years, the luxurious growth had to be seen to be believed but the predators started to infiltrate as word got around of the juicy orchids proliferating at Wharekawa. Geoff noticed blackbirds flinging all the leaf litter downslope with those



woomera like orange bills. Ignoring the leaves these black marauders dug up and ate the tubers of *P. banksii*, *graminea*, *trullifolia* and *Acianthus sinclairii*. Re-spreading the litter and pinning it down with netting, at once deterred the blackbirds and enhanced the orchid habitat in that leached greywacke subsoil. In areas still lacking leaf mould, moss has spread naturally and is deepening but the orchids tend to germinate better in the leaf mould, right in the middle of Geoff's tracks. The lightweight fish-net didn't impress the hedgehogs blundering around after snails (bravo!) and several *Pterostylis* species

got flattened in the confusion. Always there are problems! A small brown weevil bored a neat, round hole into every seed capsule on the *T. nervosa* the very night that Geoff had decided to pick them and spread the dry seed in suitable places. There were none left to spread! Is this weevil the reason for *T. nervosa* surviving better at higher altitude?

A family of Californian quail, the next of the international(?) visitors, moved in and feasted on *P. alobula* rosettes and tubers with relish. Not the tomato sort, they liked them plain and of course, soon got the heave ho before the rabbits arrived! These epicures liked a range of *Thelymitra* and *Pterostylis* so one got converted to dog tucker for its troubles. Geoff says the *P. banksii* still produced flowers of a sort even after getting browsed three times, down to the bottom leaf. If the stalk gets nipped off at ground level, the orchid gives up, at least for that season. The chances of them reappearing in the following season are not good and any that do are always

lesser plants with smaller flowers. (Doesn't give our *Pterostylis nutans* at Waihaha much chance after it got browsed right off does it? J64 p4). The rabbits created havoc so this season Geoff has nothing like his previous best. Adding to his woes were a million slugs, give or take a few, cleaning up anything that sprouted, especially the *Caladenia* shoots, in an exceptionally wet July. Even with slug bait spread throughout, these pests of several species continue to cause problems. There are still crickets making dessert of *Orthoceras novae-zeelandiae* in the autumn, numerous species of moth caterpillars and snails on other orchid leaves and suspicions about the 'possums. One has to wonder how orchids ever survive in the wild.

The column took Rhode Island visitors Lynn and Mel Epstein around to Geoff's on 14 March 1998, virtually straight from the airport, knowing that well manicured *Earina autumnalis* would be in abundant flower here. Notable also were numerous seed capsules on *Drymoanthus adversus*, *Earina mucronata* and *Winika cunninghamii*. That's not a common sight and Mel's digital camera was soon taking in a selection, in the gloom, close-up and without attachments, making a certain self respecting photographer gasp in disbelief. The column has Mel's best selection in colour on computer file for your viewing by e-mail or post should you crave indulgence.

With the orchids virtually at his feet, Geoff can observe behaviour that you and I can never hope to emulate in hit-and-run field trips. For instance he has noticed that if some specimens of *Pterostylis* open aiming dorsal sepals at the light, the whole plant then twists clockwise up to 180°, seemingly overnight, towards the darkest part of the bank and stops there. This is not a filthy plot to frustrate photographers but,

aiming the galea windows to the brightest light is to warm up the interior as an attractant to pollinators. (J59 p33). This is reminiscent of Sir David Attenborough's snow poppies keeping their faces to the sun north of the Arctic Circle.

Pollinators Geoff has seen aplenty although the vital evidence of pollen being transferred has yet to be obtained. His *Earina autumnalis* has been visited by honey bees, Red Admirable, Monarch and white butterflies. Adding those to the crane fly (J59, p15) shows that its perfume attracts a range of potential pollinators. Geoff has noticed visitors to his six *Pterostylis* species, including two species of small flies, gnats and mosquito-like insects which could be the ubiquitous fungus gnats (J52 pp18, 41; J59 pp12 & 14). Some photography and specimen collection are definitely indicated here. *Acianthus sinclairii* generally has two fly species and the mosquito-like insects resting on stems and buds long before the flowers open. Last April, however, ants whisked out all the pollinia from one colony, no doubt to their larders but they may have done the trick in passing because there was a good crop of full seed capsules in evidence later.

On 22 August the column fielded a call from Geoff because tawny little flies like fruit flies, had raided his *Cyrtostylis oblonga* colony just after day-break and removed virtually all the pollinia. They had paid a lot of attention to the twin basal calli to the labellum and seemed oblivious to Geoff and his magnifying glass. A seedling lancewood in their midst prevented any netting so the identity of this fly is still not clear. When the column rolled up at 10am, camera at the ready, the flies had gone as had the pollinia, the twin pink calli had turned black and the flowers looked decidedly worse for wear. The column had to

satisfy itself by photographing some early *P. graminea*; nicely open on 22 August.

Some other snippets from Geoff's observations:

- earliest three *P. banksii* open in 2nd week in July '97,

- earliest *P. trullifolia* open on 5 April.

If you are going to be nearby, give Geoff a call on 025 2763419 and he may be able to introduce you to the strange and wonderful attributes of his Wharekawa Garden.

Thelymitra matthewsii — the Te Paki jewel

Thelymitra matthewsii had been beckoning for several years but apart from a few spent flowers, some corkscrew seedlings and one deceptively late flower seen by Anne Fraser [1] and other Bot. Soc. members on 22 October 95, the main-crop flowers had eluded the NZ Orchid Group so far. Anne, well down that slippery slope of orchid addiction, caught the first 1998 glimpse of flowers at Prime site in the Shenstone Block. Send-'er-down-Hughie relented with an unseasonably hot day and three or four flowers obligingly opened on Friday 28 August. In defiance of the gremlin who runs the coin 'phone at Waitiki Landing, Anne got through to the column on the third and fourth attempts to see if anyone wanted to set off for Te Paki then and there. But the main party of nine (out of 23 invited) was set for the following week and none could break away ahead of time. We were bringing Bruce Irwin so fine weather was assured but would we be too late?

September 3 found six devotees and DoC's endangered plant specialist, Nicky Sybdall, worming their way through the tea-tree and *Hakea sericea* to Prime site. It was 9am on a beautiful morning but feelings alternated from optimism for open flowers to pessimism that Anne had seen the last of *T. matthewsii*'s flowers.

Not a flower was open! Worse, half the

plants seen on 10 July had disappeared!

The column was prepared with two Mark III *Thelymitra* openers. Do not be tempted to use these black plastic bags with clear windows. Pinned and velcroed around suitable plants with reflectors to direct more sunlight at them, they can raise the temperature by 15°C. Mature flower bud No. 1 soon started to wilt, unopened, and the Mark IIIs got quietly banished. Flower 2 opened later in its own good time. As well as a need for dry warmth, has this orchid a timer to control flower opening?

At 10am, Ernie Corbett found an open flower and a whoop of joy went up. We had finally broken the three year jin. xThe stem was bent double under a dry stick but the flower had turned up and was beautiful beyond belief despite a dented lateral sepal (Fig. 1). The cameras started clicking around this veined, purplish magenta delight.

Back lit sepals overpowered the purple inside with the outer pale green (Fig. 2) and caused some misleading claims about different colour forms. The inner colour shade varied little although some were paler than others. This is a tricky shade to capture on film. Sandra Jones' shot [1] tends too far to the red. Sandra assured the column by 'phone that the *Journal* print matched her slide colour nicely but she wasn't sure if the

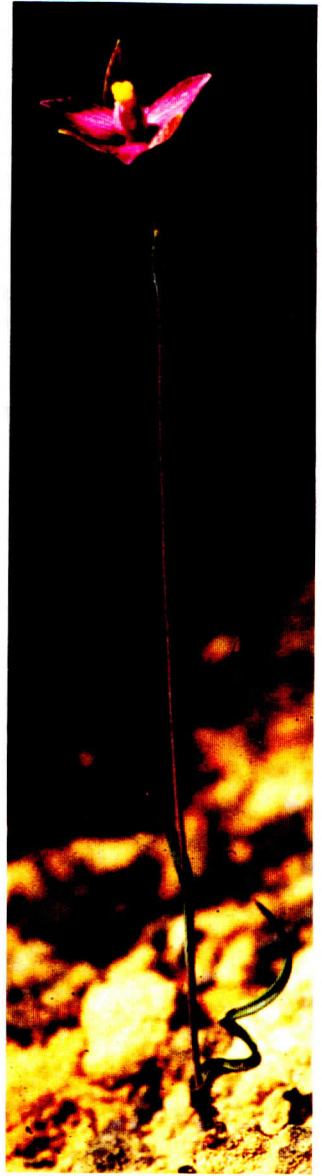


Fig. 1: Freshly opened *T. matthewsii*.
One piece of pollinium already dislodged.



Fig. 2: Backlit sepal shows green coming through
from outer surface

colour of that curiously short stemmed, seven weeks late flower, was truly represented by the film. Electronic flash delivers too blue a shade in both Ektachrome and Fuji film but Val Smith's shot of the whole plant (Fig. 3) in diffuse sunlight, is as true as one can judge. This is not the "dark purple to violet" described by David Jones



Whole plant,
accurate colour in diffuse sunlight.
Photo by Val Smith.

[2] nor the “deep bluish purple...” of Backhouse and Jeanes [3], nor is there a “dense grape-like cluster of calli” on the “post-anther lobe” as described by David Jones [2, p299]. A close scrutiny of the photo’s showed only a single pointed callus behind the large yellow anther which masquerades as the mid-lobe in other *Thelymitra*. Fig. 4 shows a typical Te Pahi specimen with no mid-lobe calli visible from this angle. David Jones’s drawing of the column arms [2, p300] shows nodules all over; ours are smooth except for a solitary white nodule on top. His leaf [2, p25] is crenate around the broadened base and finely hairy whereas ours were smooth and glabrous (J68, p18). The degree of variation between Australia and Shenstone suggests that the migrant(s) arrived here many generations ago and that the Australian species is not strictly *T. matthewsii*.

Back at Prime site, other flowers soon started to open, readily, in the warm sunlight. By mid-afternoon enough stood wide open to save photographers and artists from queuing. Bruce, lens in hand, was drawing *T. matthewsii*'s unique column and pollinium arrangements, in between much appreciated shutter release duties for the column, on reversed-lens close-ups. During the filming, a runt *Hakea sericea* wounded his delicate elbow and got yanked out. That was a mistake. It sprayed the flower with particles of dusty soil so it looks like a tip in the photo's and, evidence suggests that the *Hakea* has a symbiosis with *T. matthewsii*. On another specimen, with intact pollinia, a whirling heat eddy briefly vibrated the flower and your column saw in the viewfinder, half a pollinium twitching down onto the stigma. *T. matthewsii* is definitely self pollinating. Pollinated flowers were in the majority, some with four distinct white segments on the viscid disc (Fig.4). Pollinia



Fig. 4: *T. matthewsii* column. Stumps of pollinia on rostellum.

are shaped like hollow segments of an orange which split into two when they fall from their fragile attachment to the rostellum. Pollinia segments, when well stuck to the viscid disc, fracture into numerous pieces and white pollen grains scatter over the tepals. The bud in J68, p18 had now finished flowering, the seed capsule was swelling nicely and its companion seedling was still alive and well in the gathering heat. One robust *T. matthewsii* flower, 150mm or more tall, climbed out of ankle high, stunted *Hakea* making magnifier inspection a prickly task; but what great protection from rabbits! The more numerous specimens in open areas, kept to only 100 or 120 mm tall and never looked as healthy. Nicky, whose young eyes had found several

additional specimens, departed at lunch time, her sombrero bobbing above the scrub as she wended her way back to the office.

Other bare patches of iron pan could be seen from high ground and it was resolved to inspect as many of these as possible whilst the weather held. Ian Rutherford arrived that evening and listened patiently to the rhapsodising about these single flowered wonders. Allan Ducker delivered some fine video close-ups that evening as a bonus for the day's classic finds.

Next morning broke amazingly fine. Allan woke the ladies with a cuppa (he started it, now he's stuck with it) and we were soon all out in the Shenstone Block again. There was no rush to the Prime site; all the care in the world had left the dry crust downhill from the *T. matthewsii*, somewhat scuffed and flowers don't bother to open until after 10am anyway. So attention was diverted to see *Corybas cryptanthus* where Allan had upstaged Margaret Menzies and uncovered it near the gate in the thick, black, blight covered, tea-tree leaf mould. It was in full flower and others were revealed with a little judicious tedding by Ernie to give the photographers a choice. This remarkable orchid was late at this northern site; it flowers at Margaret's Omoana site from July to August (J57, p21).

The nearby colony of *Corybas* "aestivalis" also received due attention. One flower was already open and close inspection revealed, inside the base of the labelum, the clustered dark maroon cilia that HB Matthews (J61, p16: transcripts available on request) and others had described. The cilia, in an arrow-head mound pointing at the column, are the chief difference from *C. oblongus*. The cilia are darkest maroon so let's blame that for the column's dismal photo's. The column (and any other takers, please) have more work to do on Bob Goodger's behalf, on this *C. oblongus* look-alike.

Cyrtostylis reniformis was in flower by the track (Fig. 5). The flowers looked to be identical with *C. oblonga*. The colonies are inextricably intermingled here in the Shenstone. Some thought that the little heart-shaped, yellowish leaves were really *C. oblonga* in exposed sites but a similar mixed colony spotted by Ernie under low tea-tree, scotched that hypothesis. The *Field Guide* says the chromosome counts differ so, do they hybridise

and why do they always grow together here?

The Friday morning was advancing so a sally was made on a nearby bald spot in the scrub. Let us call it Fri 1. It seemed too easy getting there and a twenty minute scan by the seven, turned up no *T. matthewsii*. Bruce, Ernie and the column stood on the bare iron pan figuring out the next move when a curly leaf caught the column's attention right at their feet; a *T. matthewsii* bud arose from a small pocket of alluvium in this barren site and didn't it start a



Fig. 5: *Cyrtostylis reniformis*. Yellowish heart-shaped leaf.

hubbub? The advance party rushed back and 5m away in pine needles, on the south side of a sizeable *Pinus radiata*, Margaret spotted an open flower. Ian's eyes lit up with orchid addict's sparkle. Sad in a way, but he had pencil and pad at the ready and soon a respectable image had materialised under his expert hand. A renewed search with new certainty in the air, revealed a number of plants (two in flower) hither and thither in the edges of the scanty vegetation. The chastened field party mumbled on about shadows in the strong sunlight, difficult-to-see green stripy calices and curled leaves being harder to find than straighter ones but in effect, none of us had expected to find them so we hadn't. EEE (eagle eyed Ernie) was in the clear though; he had searched only the south aspect where none was ever found. Squares of dried sticks were placed around exposed plants. People and animals automatically avoid standing on the sticks so the plants win. Hunger now drove four to return to base for lunch leaving Val, Margaret and the column to forge on. First they were distracted by something hiding under brushwood; a Northland green gecko (*Naultinus grayii* [4]) with parallel pairs of gold bars down its back. It is on film! Then on to Fri 2 where the afternoon heat had a healthy scattering of open *T. matthewsii* flowers with their entourage of corkscrew seedlings. The shadows were lengthening so only flowers were sought and possibly many seedlings were missed. About half of the flowers here were peeping out over the carpet of stunted *Hakea*. These *Hakea* associated orchids were always more robust in both leaf and flower stem on our third Shenstone site. The column's pin cushion like shins (and other places) soon bore witness to the *Hakea* here but even a stumble which sat him hard on a long spined bush, couldn't quell the triumph of this find. Does *T.*

matthewsii have the same association with *Hakea* in Australia? More possible habitat could be seen farther south again but hunger called and 4pm is too late for lunch in anyone's language. The earlier lunching four had gone on to scrutinise a bare area east of the main road but drew a blank, as so often happens, in non-sand-hill based soils.

The sore four, not to be outdone, led an early start on Saturday for the south-most areas of the Shenstone Block. Ian led new arrivals, Don and Diana Pittham, to the field party and at a new sizeable bald area, Sat 1, a few plants were soon spotted around its fringes. Most were minuscule corkscrews but several were due to open. Nearby, a larger balding area, Sat 2, perhaps 400m long and S shaped, served as a useful lunch site. Soon, a strangled cry from Don announced his first sighting of a *T. matthewsii* flower and his tripod came out like a sword from a scabbard. Diana soon found one nearby and her voice went up an octave and 10 decibels. Those two are clearly on the slippery slope. Before long, more plants showed up under a diligent search, several of them in flower. The cameras got clicking again and Bruce uncovered further *Corybas cryptanthus* in some nearby tea-tree. The trek home past Fri 1, turned up seven more *T. matthewsii* there, one in flower, and brought to light a shrivelled black shadow of a yesterday's strong green corkscrew, in its square of sticks. Too hot and dry? Was the plant sacrificing the leaf for the tuber? How else could these delicate orchids survive in hot, dry, sandy silt, exposed to the midday sun?

After observing plants at various sites, the revised, preferred habitat for *T. matthewsii*, is now:

Bare, dry, elevated but wind-protected areas with a northerly aspect, in a quickly draining, stable alluvium of silty sand of-

ten with a thin carpet of dead leaves or mould but never in moss. Strongest plants are associated with stunted Hakea sericea but the sunny side of Kunzea ericoides and the south side (2 examples) of Pinus radiata also serve on occasions. Old sand-hill geology is favoured but not exclusively, over soils based on weathered rock such as at Surville Cliffs, the Kauri Block [1] and Rubbish Dump Hill.

Now that good old *T. matthewsii* was becoming almost commonplace, discussion waxed over further possible habitat sites. RH Matthews (father of HB) had found the Type specimen in old sand-hills been be-

tween Lake Tongonge (now drained) and the coast according to Cheeseman but the map and our eyes revealed mostly pine forests and kikuyu grass from Ahipara to Te Paki. Both are great for reclaiming sand-hills but they are also anathema to *T. matthewsii*. The skyline was scanned for possible sites south of the Te Paki Recreational Reserve. Nilsson's farm had ideal looking habitat but that had proved barren in July due to stock and rabbits. It is possible that the Shenstone Block is the remaining best habitat area for this strange little plant but more informed searching is needed. Nilssons were approached later but

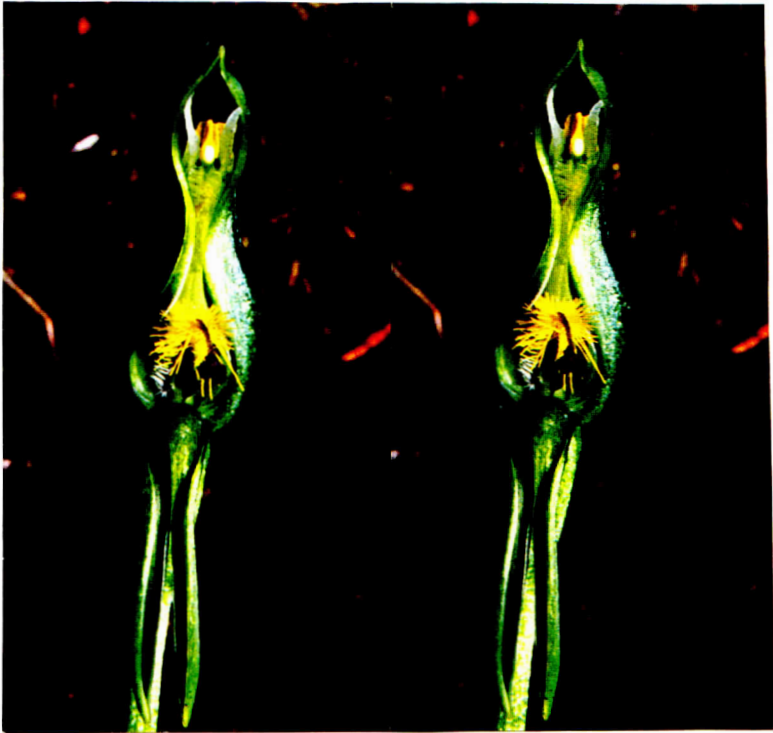


Fig. 6: *Pterostylis tasmanica*. White whiskered lateral petals peep out the top of the dorsal sepal. Try to get the left and right eye images to merge as a stereo pair.

John said they had been unable to find corkscrew leafed plants in their pines so the goats had been returned to control the undergrowth. Farming and forestry cannot be expected to suit *T. matthewsii*.

A quiet dinner at the Waitiki Landing's Kanuka Restaurant that night saw plans laid, because of the deteriorating weather, for a Sunday rummage on Rubbish Dump Hill, by the road near Cape Reinga. The column assured them it would be wasted effort at this time of year and in non-sand-hill geology. He has been wronger before but not much. A copper skink (*Cyclodina aenea*) and three common brown geckos [4] (*Hoplodactylus maculatus*) all differing in detail from each other and the book, posed for their portraits. Then EEE found three flowering *Pterostylis tasmanica* clustered with well developed rosettes on flowering [6] and juvenile plants. Lateral petals peeping out of the top of the all-encompassing dorsal sepal (Fig. 6.) are bewhiskered too but in white, not the yellow of the labellum. Ian sketched a late flowering *Pterostylis alobula* and the column was jubilant at discovering a new, slender corkscrew seedling, at Ian St George's patch. But, eagle eyed Ernie spotted another cluster of *T. matthewsii*, some of flowering size, in a

colony of only some 15 square metres which the others had missed three years in a row! Recent jubilation turned first to incredulity then to that silly feeling again. Ernie was threatened with no further invitations if he insisted on making the rest of us feel foolish! In truth, everyone was overjoyed that the little jewel in the Te Paki crown, which had once been listed as "probably extinct" was alive and well, at least for the immediate future and Ernie, being top eye of the field party, could take a bow for his efforts. DoC too should be well satisfied that they have secured this unique orchid's future by setting aside the Shenstone Block to revert naturally and preserve its unique and enigmatic habitat.

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The much-advertised and beautifully glossy Viking publication *The Natural World of New Zealand* by Gerard Hutching has a couple of pages on native orchids, sadly error-ridden and outdated. The excellent colour photographs show *Earina autumnalis*, *Thelymitra pulchella* (labelled as *T. ixioides*), *Caladenia lyallii* (labelled as *Pterostylis alobula*), and *P. graminea* (labelled as *Caladenia lyallii*); the text tells us there are eighty species, the southernmost of which is *Corybas macranthus* from Macquarie Island. Oh dear.

David Lang wrote from East Sussex, "A splendid orchid year in England — two new hybrids (*Orchis purpurea* x *Aceras anthropophorum* in Kent, and *Ophrys apifera* x *O. insectifera* in Sussex) and a new species (*Serapius lingua* in South Devon). Many other species flowered in prodigious numbers."

CLOSE RELATIONS: orchids like ours



Thelymitra variegata, the Queen of Sheba orchid,
from a watercolour by Patricia Dundas of the Botanical Artists Group of Western Australia.
"grows in coastal sandheath, endemic in Western Australia, flowers July to September"

HISTORICAL REPRINT

Marguerite Maud Johnson used the pseudonym "Rewa Glenn" when her book *Botanical explorers of New Zealand* was published in 1950 by Reed in Wellington. She had originally written the material as a series of radio talks for the New Zealand Broadcasting Commission. The cover flap stated "With two colour plates by Margaret Johnson;" one of the plates was labelled, "The orchid that interested Cheeseman and Darwin – these species are from Mt Egmont"; it is *Pterostylis patens*, then regarded as a variety of *Pterostylis banksii*.

The paintings were actually done by her sister, Elizabeth Johnson. Elizabeth also provided the line drawings for a series on the New Zealand flora first published in the *New Zealand Gardener* in the fifties. In 1968 nearly 200 of these illustrations were reproduced in another book by Marguerite Johnson, *New Zealand flowering plants*, dedicated "To the Memory of My Sister Elizabeth". Three orchid illustrations by Elizabeth Johnson are reproduced here with accompanying text by Marguerite Johnson.

Orchidaceae

The name 'orchid' is generally associated with the exotics in our greenhouses or with the marvellous blooms of which we have read: the brilliant epiphytes of the tropics and the colourful terrestrial orchids. Here in New Zealand we cannot vie with these in colour or size, yet we have some very charming and interesting species. There are more than 80, mostly terrestrial. The most fascinating and colourful is *Corybas macranthus* (*Corysanthes macrantha*), especially in its primitive habitat: a bushclad hillside and a spring oozing out from a mossy stony grotto. Here one may find large patches, the fleshy leaves more than an inch across glistening on the undersurface like silvered shot silk, with the dark green of the upper daintily edged and centred with russet dots. Here and there the rich red-purple helmets shine out while the elongated dark purple sepals, like insects' antennae, curve above.

The genus *Corybas* has been found at the foothills of the Himalayas and extends through Malaya, the Philippines, New Guinea and Australia where a large white-flowered species is found. Some seven species have been listed in New Zealand. There is a pink variety on Stewart Island, and an underground species, *C. cryptanthus* discovered fairly recently in a damp locality at Wellsford. Both the half-inch flower and rudimentary leaf stay beneath the surface. After the flower fades and the seeds begin to set, the stem, flecked with red and topped with the small seed capsule, shoots above. Our *Acianthus fornicatus*, seldom more than three inches in height, is a variety of *A. sinclarii* of Australia. The taller pink-flowered *Caladenia minor*, is an Australian species. The genus with both pink and blue-flowered varieties is abundant across the Tasman. Orchids are world wide in distribution from Greenland in the north to Campbell Island in the south.

The largest orchid genus of New Zealand is *Pterostylis* with about 22 species. This genus is abundant too in Australia; six of our species are to be found in that continent, among them *P. barbata*, that across the Tasman is nicknamed 'beardy'. The galea or hood is opalescent pale green with veins of darker tint. The narrow black-tipped tongue or lip is covered with long golden hairs so that one gets a reflection of gold through the semi-transparent green of the



Orchids Queen Charlotte Sound

From left: *Cyrtostylis oblonga*, *Caladenia minor*, *Pterostylis tasmanica*, *Acianthus sinclairii*,
Pterostylis banksii, *Pterostylis graminea*, *Corybas macranthus*, *Pterostylis alobula*



Pterostylis banksii (now *patens*) and *Pterostylis australis* (*venosa*?) from Mt Egmont



NZ Orchids, Queen Charlotte Sound

From left: *Gastrodia cunninghamii*, *Earina autumnalis*, *Dendrobium (Winika) cunninghamii*, *Thelymitra venosa (cyanea)*, *Orthoceras strictum (novae-zeelandiae)*

hood. The largest and most common of the greenhoods is *P. banksii*, to be found in light bush and scrub throughout New Zealand. The straight stem may be from six to 18 inches tall topped with a two to three inch solitary flower in pastel green with darker pencilled lines. The curving tails are sometimes shaded from the tips in red. A tall specimen seen beside a bush pool was clear and bright with colour. When Darwin wrote his *Fertilization of Orchids* he had had no opportunity to study the genus *Pterostylis*. Cheeseman had made careful observations by which these orchids gained cross fertilization and sent his findings to Darwin. In a later edition Darwin published a full account of the tricky device giving Cheeseman credit for his 'admirable description' and sent him an autographed copy of the book.

P. australis is closely allied to *P. banksii*, but is shorter with smaller flowers streaked with white and green and with red tinged tails. The leaves are shorter and broader with a slight silvery tinge. At Egmont these quaint greenhoods grow in the bush area on the borders of the paths. They are also common on the Chatham and Stewart Islands. There is much variation in the different districts: this is in confirmation of Darwin's assertion that 'the important causes of variation in living things is the environment to which they are subjected'.

Besides the Terrestrial orchids there are Saprophytic species that get their nourishment from rotting organic matter and so need no chlorophyll. Our leafless *Gastrodia cunninghamii* is one of these. With stem and flowers cream mottled with fawn and brown it harmonises so well with its surroundings, often tall bracken, that it is easily passed by. The large tuberous root was formerly eaten by the Maoris. When searching for the plant they were careful not to make a noise for fear it would hide. The other 14 species of the genus extend from Africa across to Japan and down to Australia. Then there are the epiphytic orchids which grow on rocks or trees and feed on the humus collected in the crevices. *Earina autumnalis* with its cream orange-dotted flower is soon detected by the sweet scent wafted down from its usually high perch in a forest tree. Of the ten species five are in New Caledonia, two in New Zealand and the rest in Tahiti, Samoa and Fiji. Although the genus *Dendrobium* is one of the largest of the Orchidaceae with the centre New Guinea, one species only – an endemic epiphyte – is native to New Zealand. The stiff leaves are bright green and the flowers cream delicately tinted with rose. Many species are to be found in Australia and across Malaya to India and Japan.

The one species of *Orthoceras* is confined to Australia and New Zealand. *O. strictum* is a lover of clay banks and sunny hillsides. There is charm in the gnome-like flowers peeping round the tall erect stem. The blooms are greenish purple, the tapering sepals purple and the lip purple with a yellow stripe.

The 60 species of *Thelymitra* extend through Australia to the Philippines. Here these attractive little ground orchids with flowers in blue, white and purple prefer manuka scrub slopes. Before the days of sweet shops the tubers were relished by Maori children.



Fourth Australasian Native Orchid Society

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Melbourne 5-8 October 2000

Conference Secretariat, PO Box 2142,

Templestowe Heights, Victoria 3107



AUSTRALIAN NOTES

Trevor Prescott wrote a piece for the Geelong Advertiser, and it was subsequently reprinted in the ANOS Victorian Group's Bulletin. It relates a similar tale to Eric Scanlen's paper in this issue — Ed.

A visit with a rare orchid

While it may not yet be classed as an endangered species, the Spiral Sun orchid, *Thelymitra matthewsii*, is a very rare plant.

It is found in south-western Victoria from northern Grampians to Ararat and near Anglesea, and in the Cann River and Genoa regions in the state's far east. There are records of the plant in Western Australia where it is extremely rare and at the northern tip of New Zealand's North Island. Even with this wide distribution there are few plants known to exist — possibly as low as only several hundred, with no more than a handful in the orchid-rich areas around Anglesea.

Its preferred habitat is lightly forested land where there is a sufficiently-open tree canopy to allow sunlight to penetrate. It grows in gravelly or sandy soils where the single, coiled leaf is difficult to find among the stones and forest debris on the ground.

The flower is beautiful — an “intense purple” according to Dr. J. Willis in his *Handbook to Plants in Victoria*. Until one day in early September, I had to accept that description for all my attempts to see the flower with petals open had failed.

My introduction to *T. matthewsii* came more than ten years ago when I was shown several of the quaint cork-screw leaves in bushland near Airey's Inlet. But it was too late in the season to expect the flowers to be present. Then, in 1983, the forest was devastated in the Ash Wednesday holocaust.

When I visited the site later in the year hoping to find the plants thriving, as many species of orchids do after a fire, I could not find any sign of them. It seemed the plants may have been destroyed.

Several years later I was shown another group of leaves, again only three or four plants, growing in gravelly soil closer to Anglesea. And when two buds appeared there last August, my anticipation at being able to see the “intense purple” flowers open to the sun were high.

One of the two buds was broken from its 80mm tall stem before it fully developed, but the other continued to grow, and I began visiting the site whenever there was strong sunshine that seemed hot enough to tempt the flower to unfurl its petals ... but it didn't!

Instead, the ovaries below the closely-folded flower began to swell and the unopened petals withered without ever seeing the sunshine. *Thelymitra matthewsii*, it seems, is one of those plants that self-pollinates when the need arises, not always relying on external help to transfer the pollen to fertilise the seeds.

It had always puzzled me why a flower that opens only when there is the hot, sunny, humid weather that sun orchids need, should elect to bloom in late winter when hot weather and active pollinator insects would be least likely to occur.

This September, my enquiries about the plants at Anglesea revealed that none of that group had set buds, however there was one near Airey's Inlet that was looking good — and to my delight I was shown a healthy plant in flower in the area I had first seen them those many years ago. The flower was not fully opened on the afternoon of our visit, for so short is its flowering span that

we had arrived a day too late. But the colour was there in the intensity that neither photograph nor painting, nor written description could adequately portray.

The future of *T. matthewsii*, the Spiral Sun Orchid, is by no means secure. Fire seems to damage rather than enhance its growth. Botanists will recall the way many orchids flourished in the Anglesea heathlands after Ash Wednesday. There was the spectacular flowering of Lizard Orchids where they had not previously been seen, and others dependent on fire such as the Red-beaks and Hare Orchids, which flowered in profusion for several years after.

There is a tendency to see fire as a good, even essential, stimulus for native orchids, a fact often quoted when fuel-reduction burning is proposed. But the Spiral Sun Orchid and some others do not need that fiery rebirth, and too-frequent burning may be detrimental to them in the long term. With so few specimens known to exist, it is essential for their survival that we understand their needs.

It is encouraging to note that these thoughts are also in the minds of the members of the Australasian Native Orchid Society who are carefully monitoring the wellbeing of the local plants. It is these enthusiasts who will ultimately provide the data necessary for proper conservation and management of the species.

The Bulletin editor, Helene Wild, noted: "We can sympathise with Trevor's attempts to see Thelymitra matthewsii in flower. The Terrestrial Study Group visited Anglesea on the 29th of August, hoping to see the species in flower. Alas, it was not to be, for the single bud our guides had located was eaten off the day before our visit."

Australian Orchid Research Volume 3 makes a major contribution to Tasmanian orchidology: it includes nine papers dealing with major genera such as *Caladenia*, *Diuris*, *Genoplesium*, *Prasophyllum*, *Pterostylis* and *Thelymitra*. It is available now (see review p8).

The celebrated South Australian botanist and mycologist Jack Warcup died recently. Heinrich Beyrle, a German scientist who worked with Warcup in Adelaide, wrote to the NOSSA Journal, "Enclosed please find a photograph of a recently flowered hybrid: *Calochilus robertsonii* x *Thelymitra nuda*. I made this cross in 1993, germinated seeds in 1995 and it flowered in March 1998. As these hybrids do not appear to occur in the wild and artificial hybrids between *Calochilus* and *Thelymitra* are not previously recorded as flowering the



Calomitra Memoria Jack Warcup

hybrid is of some scientific interest! I expected the flowers to be similar to *Calochilus imberbis* but with the colours of green, yellow, blue and red it is much prettier. I intend to register it at Kew as *Calomitra* 'Memoria Jack Warcup.'" Bob Bates added, "The cross *C. robertsonii* x *T. nuda* was made by George Nieuwenhoven in the early 1980s and flasked by Jack Warcup. Seedlings were strong but did not deflask well: two years out of flasking one plant

looked like flowering but in 1988 none were left. Heinrich remade the cross using *T. cyanea*. At the same time Les Nesbitt and others made *Calochilus* sp. x *T. antennifera* etc and those are now flasked and doing well. It is likely that given the current success using sphagnum as a deflasked first medium we will soon see lots of *Calomitra* crosses."

The photograph is reproduced overleaf with permission – Ed.

Iwitahi Native Orchid Weekend, 11-13 December

Contact is Trevor Nicholls, 33 Hinekura Ave, Taupo. Phone: 07 378 4813 email:
nicholls@reap.org.nz N.B. unavailable 11 November - 6 December!
(see September Journal for details)

The New Zealand Native Orchid Group CONFERENCE & FIELD DAYS

4-6 DECEMBER 1998

at Taylor Memorial Lodge, Ruapehu

PROGRAMME & FINAL CALL FOR LATE REGISTRATIONS

Friday	6.30	Dinner
	8pm	<i>Unusual and new Ruapehu orchids:</i> Bruce Irwin
	8.45	<i>3D presentation of NZ orchids:</i> Eric Scanlen
Saturday	9am	FIELD TRIP 1
	1pm	FIELD TRIP 2
	6.30	Dinner
	8pm	<i>Conservation in the flowerpot — a contradiction in terms?</i> David McConachie
	8.30	<i>Orchids with love! the orchid in medicine.</i> Ian St George
	9pm	<i>The stage is yours.... brief presentations welcome</i>
Sunday	9am	FIELD TRIP 3
	1pm	Disperse

There are a few places left. The fee including accommodation and catering is \$60.