

Chiloglottis trapeziformis,
near Levin, 17 September 2001



Special feature: a new NZ native orchid

Chiloglottis trapeziformis near Levin by Leita Chrystall, Levin

On 11 September, I was on a Forest and Bird walk in a Horowhenua Pine Plantation, planted in 1975 - 76, and as usual was tail end Charlie in case I found something exciting, and this time I did.

I let out a shriek, and 24 Forest and Bird members came running to see what I had found, but on inspecting the insignificant greenish reddish flowers, carried on walking. I knew that I had never seen this orchid before, and Geoff Monk was on hand to video it. Arriving home and checking out orchid books, we agreed that it must be *Chiloglottis formicifera*, but without the wavy leaves.

The next day, as I needed more witnesses several people joined me to inspect the colony and video and photograph it. We also found six more colonies, some a metre square, and some quite small.

At the moment they are very stressed due to lack of moisture, and the pine duff under the trees is very thick and dry. Several more visits have produced a total of 17 colonies, green flowers, red and green flowers, different shaped labellum and calli, thin leaves, wider leaves, some colonies with no flowers; some with longer flower stems and some with seed capsules.

Measurements have been taken, recorded and mapped so that colonies can be found quite quickly and checked next year. Ian St George has inspected the site and advises that *Chiloglottis trapeziformis* is the name.

Our local DOC Officer is meeting with the forest owners and the area will be monitored by a Horowhenua group interested in the proceedings.

And by Brian Tyler, Levin -

Since the original find of *Chiloglottis* near Levin on Tuesday 11 September 2001

members of the Levin Native Flora Club have made several visits to the area in an attempt to find answers for the two most asked questions: (1). How did it get there? and (2). How does it multiply?

We have found it growing in 17 (so far) patches quite separate from each other and mostly circular in shape one as large as 5 x 4 metres down to 0.5 x 0.4m. The area covers some 100 x 50 metres. It is growing in mature pine plantation adjacent to the Tasman Sea and most patches are growing on or near decayed pine logs from past thinning or felling. Several patches have *Chiloglottis cornuta* growing in the immediate vicinity (just starting to flower). The flowers in each patch are similar in shape, colour and size. There are differences in flower size, colour and markings in flowers from different patches.

All flowers rise from a pair of leaves usually with one slightly larger than the other, with stems varying from 70mm to 140mm above leaf. The flower buds enlarge and burst open at the top of the stem. The flowers are long lasting and after reaching maturity the dorsal sepal and column close up. A number of flower stems seem to be wilting before the flower finishes; we suspect this is a result of the very dry conditions at present. The flower drops from the peduncle at the leaf bract. As yet we have found no seed pods.

I am not sure that we can answer either question at this time.

The first discovery of “*Chiloglottis formicifera*” in New Zealand by Dan Hatch

The recent discovery of *Chiloglottis trapeziformis* near Levin prompts me to look back at R.H. Matthews's discovery of similar plants near Kaitaia in 1900. It is significant that both localities are on the west coast and in the path of the southwesterly winds.

Ewen Cameron tells me that there were



Chiloglottis
trapeziformis

Levin, September 2001

(photos Brian Tyler & Ian St George)



only three collections (currently on loan to CHR) in the AK herbarium – all gathered from Kaitaia by R.H. Matthews – AK24813; 21.7.1900 - AK3620; 23.8.1902 - AK108596; 18.8.1903. Doubt has been expressed whether these specimens are *C. formicifera*. Lucy Moore in *Flora 2*: p113 (1970) cited Matthews specimens in WELT and CHR and stated that they vary in detail from Fitzgerald's illustration. *C. trapeziformis* R.D.Fitzg. and *C. truncata* D.L.Jones & M.A.Clem. have been suggested as possible names.

In 1989, with the help of Anthony Wright, I ploughed through the Matthews correspondence in AK and pulled out the orchid references. These were published by Ian St George as part of the NZNOG *Historical Series* [1]. The *C. formicifera* comments follow.

RHM – 9 Sep 1900 – “I am glad to say that I have stumbled on another orchid new to me – 2 leaves, something like a *Chiloglottis*, pale green, covered with minute tubercles, crenate, 2” long. Tubers round, and large for the size of the plant. Grows on hillside”.

RHM – 17 Sep 1900 – “The new orchid I mentioned a few weeks ago flowered yesterday and when digging it up today, I unfortunately broke the stem, so I at once decided on putting it into a bottle of spirit instead of drying it, and posting it to you. The flower is very delicate and curious, quite new to me. Stem and petals kind of pinkish red, column pale green, labellum palest pink with narrow margins of dark shading, tubercles

glossy black near the throat, shading off to reddish or lighter black towards the outer margins where the tubercles are smaller...Although there are plenty of plants I can find only 3 more that are likely to flower soon. I am in hopes more will flower later on but can see no signs at present. So far I have only found this orchid in one locality, close to an old pa...”.

RHM – 8 Oct 1900 – “I am glad to hear you are pleased with the *Chiloglottis formicifera*, which if not quite new, is at any rate new to our flora. I am sorry to say that the plants are not flowering at all freely, so far have secured only 3 specimens for drying. The locality where the plants grow, and plenty of them, is cold and exposed to SW winds; this may account for their not flowering better...Another patch has been found by one of the boys on a hill recently burnt off. About 300 yards from the first patch”.

HBM – 8 Oct 1912 – “*Chiloglottis formicifera* is overgrown with fern and gorse – may come on again after a fire”.

HBM – 7 July 1915 – “I rediscovered the original patch of *Chiloglottis formicifera* which has been lost for some years. The plants are small, but a few may flower in September”.

Reference

1. E.D. Hatch. Orchid extracts from the Matthews

correspondence (to T.F. Cheeseman at AK). NZNOG *Historical Series* 1989; 6: 9.

The pressed Kaitaia orchid is shown overleaf ⇒ ⇨

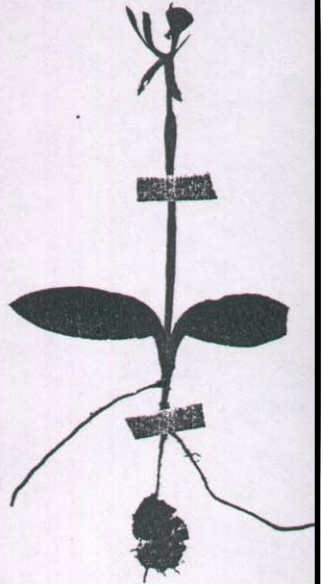
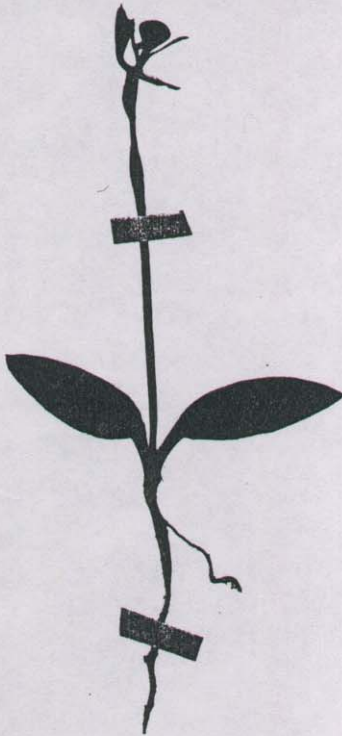
From Cheeseman TF. Some recent additions to the NZ flora. *Trans.NZI* 1900; 33: 312-3.

***Chiloglottis formicifera*, Fitzgerald, Austral. Orchids, i., 3 (1877).**

A small delicate herb, 2in.-3in. high. Leaves 2, at the base of the stem, sessile, 1½in.-2in. long, linear-oblong or oblong-lanceolate, obtuse, thin and membranous; margins often undulate when fresh. Scape 2in.-3in. high, robust, 1-flowered, with a single sheathing bract towards the top. Dorsal sepal erect, linear-spathulate; lateral sepals about the same length, narrow linear-spathulate, acuminate. Petals linear-lanceolate, deflexed by the side of the ovary, rather longer than the sepals. Lip horizontal or ascending, contracted at the base into a long and narrow claw, above suddenly expanded into a short and broad spoon-shaped or rhomboid lamina, the tip of which is usually reflexed. Numerous glands occupy the median portion of the lamina, the largest of which is placed at the base, and projects with a kind of double head towards the column. Rows of smaller glands reach the tip of the lamina, and at the sides of the larger ones are smaller stalked calli. Column rather shorter than the upper sepal, broadly winged.

North Island: Vicinity of Kaitaia, Mongonui County, *R. H. Matthews!*

This is a most interesting and unexpected addition to our flora. Mr. Matthews's specimens agree in all respects with the beautiful plate in FitzGerald's "Australian Orchids."



HERBARIUM 108596

CHILOGLOTTIS FORMICIFERA R.D.Fitzg.

Locality: Kaitaia

Date: 18.8.1903

Collected by: R.H. Matthews

Identified by: E.D. Hatch

Auckland Institute and Museum, New Zealand

From RD FitzGerald's *Australian orchids*. Sydney,

***Chiloglottis formicifera*. (Fitzgerald.) *Chiloglottis trapeziforme*. (Fitzgerald.)**

Chiloglottis formicifera was first obtained in a gully at the Kurrajong, and I should probably have passed it by as *C. diphylla* (it being only in early bud) were it not for the season at which it was coming into flower; and here, it may be remarked, that this point is apt to be overlooked by botanists who are compelled to refer to dried specimens only, but it should never be neglected by the field botanist, for though an Orchid may flower at times out of season, the habitual diversity of period, in forms that might be considered identical, will, according to my experience, upon close examination, be found to indicate that there are other important distinctions.

This Orchid has since been kindly sent to me from Liverpool by the Rev. Canon King, and I am not as yet aware of any other habitats.

Chiloglottis trapeziforme has been so named from the form of the labellum. For the only specimens I have seen I am indebted to the Rev. Canon King. It was found by him at Liverpool, and has not as yet been obtained elsewhere.

It flowers in October.

DESCRIPTIONS

Chiloglottis formicifera

Leaves oblong-lanceolate, amplexicaule undulate crenate, hardly two inches long.

Scape one-flowered, robust, about two inches high, the single bract large near the flower.

Dorsal sepal erect, acuminate, spoon-shaped.

Lateral sepals acuminate, spatulate.

Petals linear-lanceolate, rather longer than the lateral sepals, and three times their width, reflexed behind the ovary.

Labellum horizontal on erect claw, including the claw about three eighths of an inch.

Labellum ovate, the point and edges reflexed, claw very long, the same length as the labellum.

A group of glands near the centre of the labellum, one near the claw being double-headed, and one towards the point heart-shaped, the group surrounded with calli on filiform supports, two rows of small glands extending from the group to the point, with others irregularly placed round them.

Column wings broad (not laterally compressed), rising as high as the top of the anther.

Tuber ovoid close to the leaves.

Chiloglottis trapeziforme

A delicate glabrous plant. Leaves thin, flat, ovate, or oblong-lanceolate. from two to two and a half inches, on long petioles, from half an inch to one inch long.

Scape one-flowered, from three to six inches high, very slender, the single bract one inch or more from the flower.

Dorsal sepal erect, cuneate, gradually contracted downwards.

Lateral sepals linear, longer than the dorsal sepals, recurved.

Petals linear-lanceolate, shorter than the sepals, and four times their width, reflexed close to the ovary.

Labellum erect, about three eighths of an inch, including the claw, rhomboidal, on a long claw, the claw being about one eighth of an inch.

One large gland near the centre having botrychial surface.

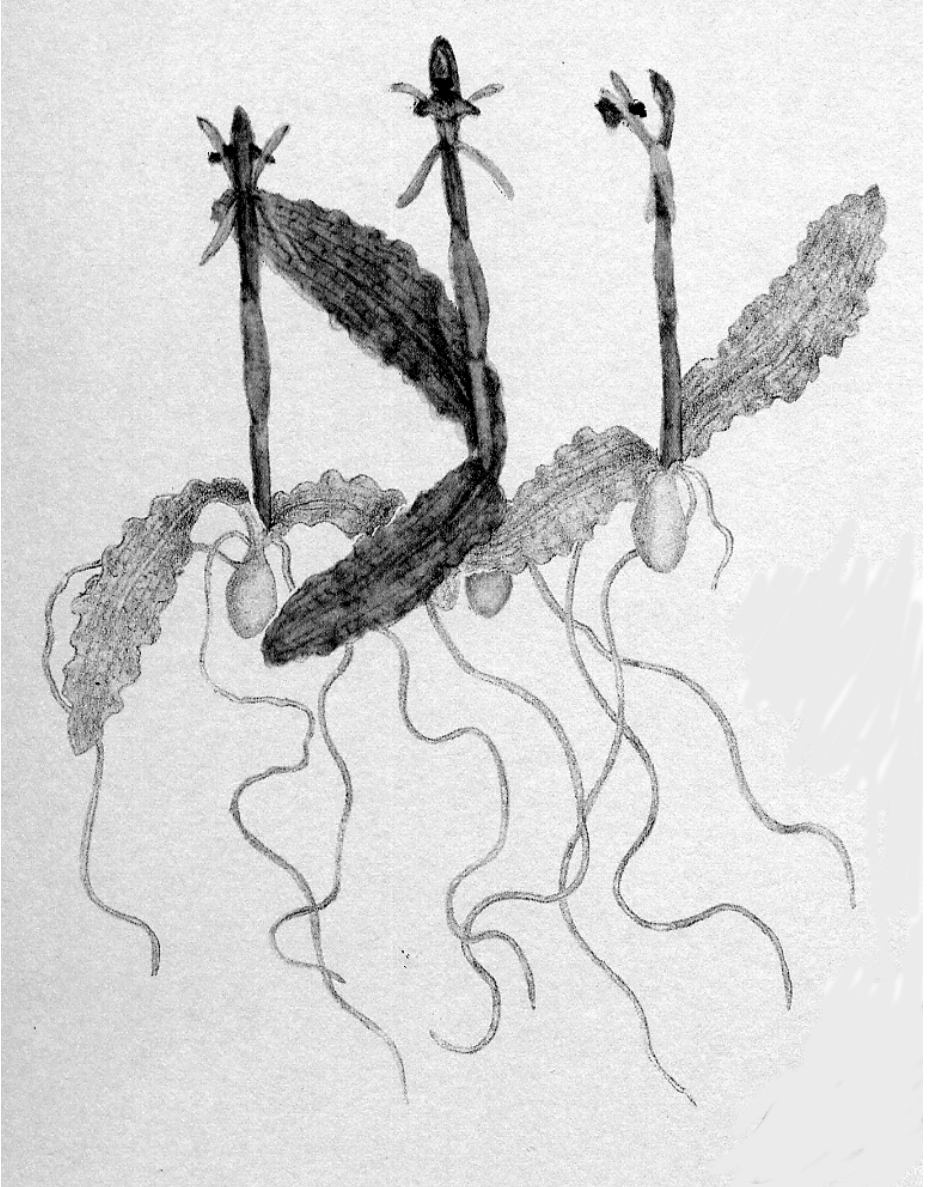
Column wings rising above the anther, laterally compressed near the top.

Tuber globular, not close to the leaves.

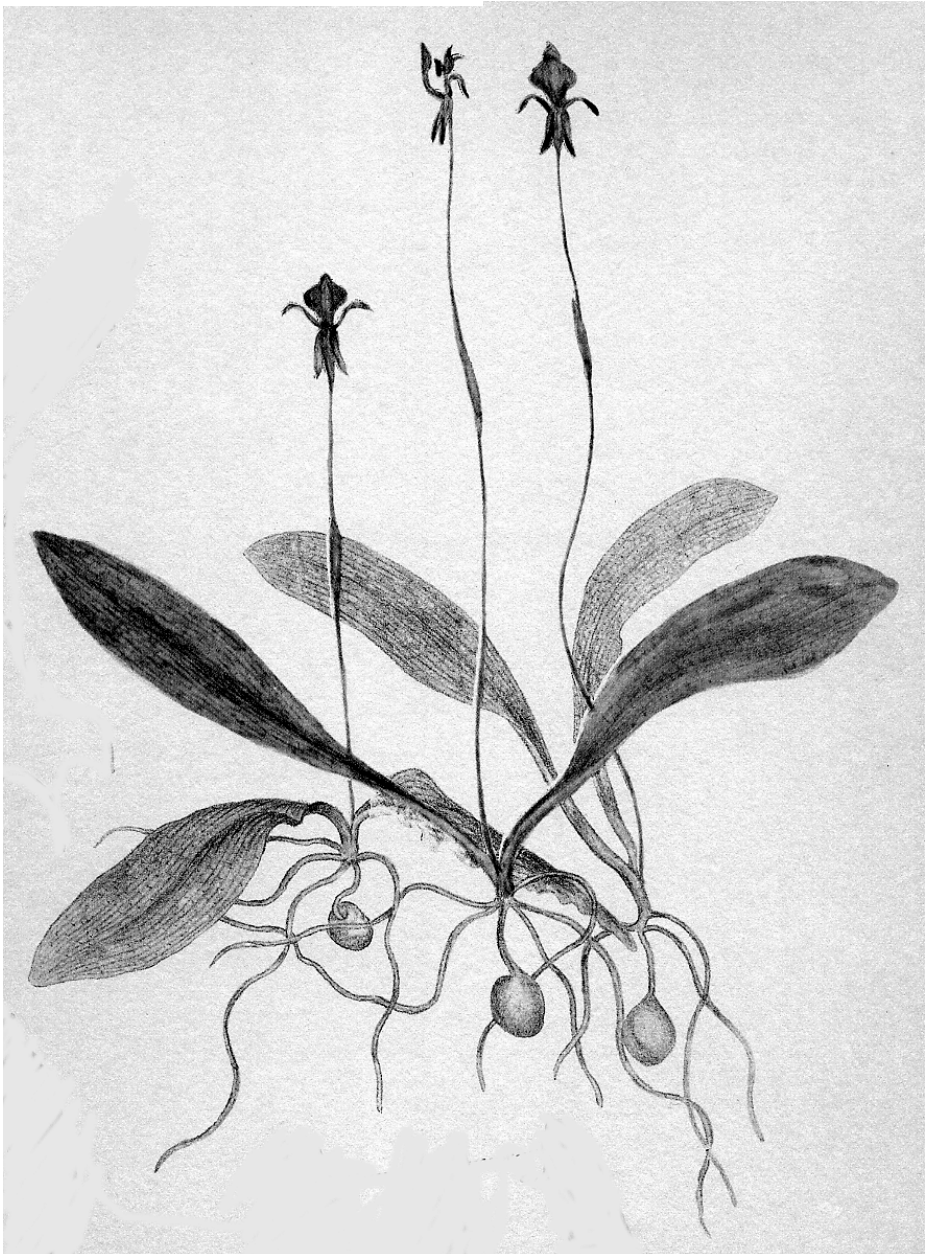
Illustrations from RD FitzGerald's *Australian orchids*, Part 3, 1877.

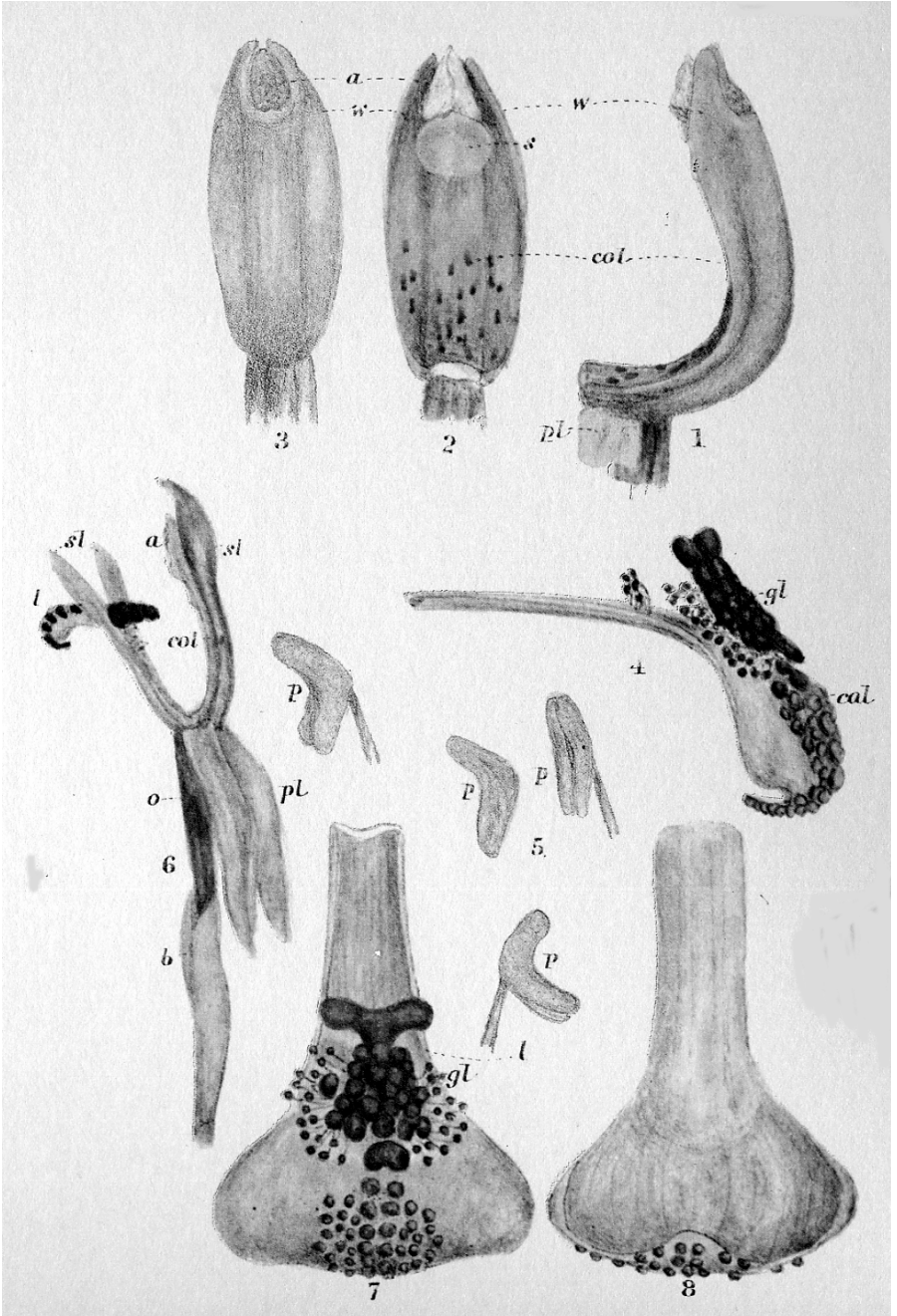
The lithographs on the next four pages all appeared coloured, on a single page of the original; this was the original description of both plants, and he was comparing them.

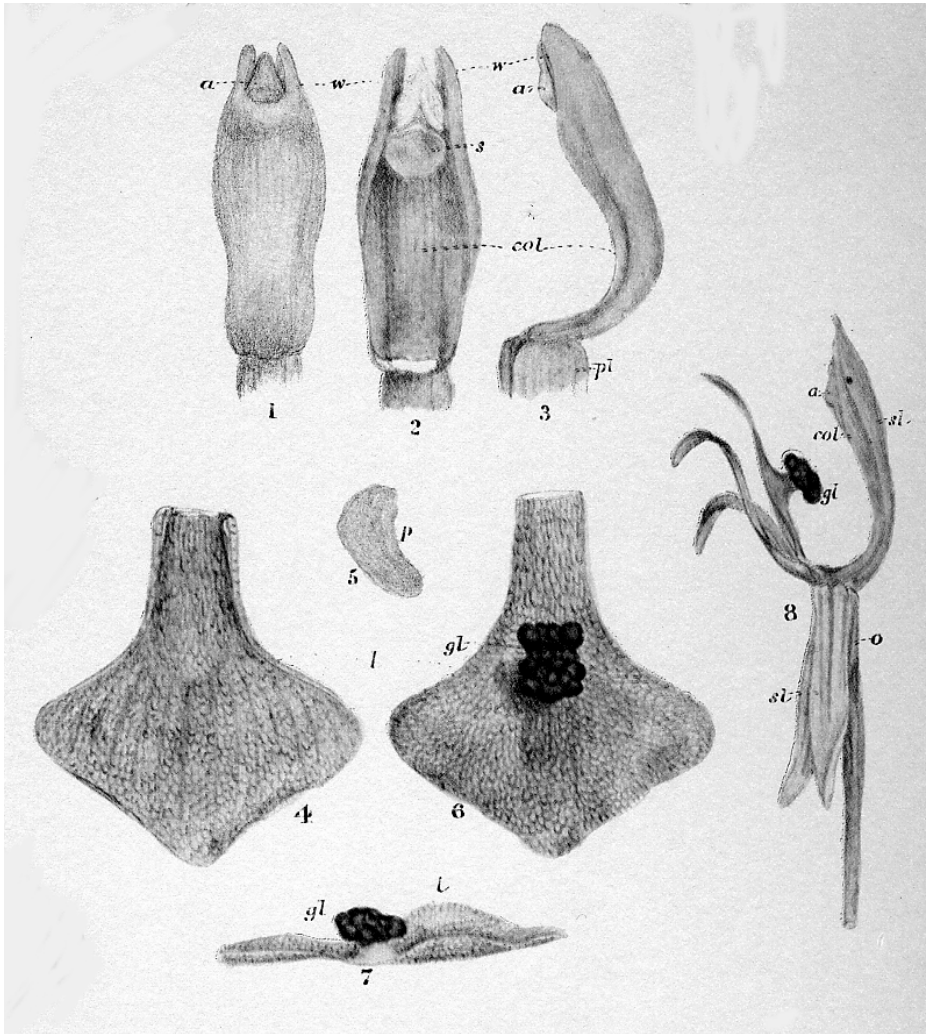
Chiloglottis formicifera ↓



Chiloglottis trapeziformis ↓







← *Chiloglottis formicifera*

Chiloglottis trapeziformis ↑

EXPLANATION OF PLATE

Chiloglottis formicifera—Fig.1. Side view of column. 2. Column, from the front. 3. Column, from the back. 4. Pollen masses. 5. Side view of flower, showing ordinary position of labellum. 6. Labellum, from above. 7. Labellum, from below.

Chiloglottis trapeziforme—Fig. 1. Column, from the back. 2. Column, from the front. 3. Column, from the side. 4. Labellum, from below. 5. Pollen masses. 6. Labellum, from above. 7. Labellum, from the side. 8. Side view of flower, showing ordinary position of labellum.

Some of the ways orchids attract insects...

Scientists from the Division of Botany and Zoology at The Australian National University in Canberra, and the Institute of Organic Chemistry at the University of Hamburg [1], have shown that flowers of sexually deceptive orchids mimic the sex pheromones of their pollinator species. Pollination occurs when the male pseudocopulates with the flowers. They investigated species of *Chiloglottis*, which are pollinated by thynnine wasps, and the European genus *Ophrys*, pollinated by solitary bees. They examined semiochemicals and their detection by the males using gas chromatography with electroantennographic detection (GC-EAD)*. Behavioral tests with flowers of *Chiloglottis trapeziformis* showed that males of its pollinator species, *Neozeleboria cryptoides*, are attracted over long distances, which relates to their mating behaviour. Female thynnines are flightless and call for males by releasing sex pheromones from a low perch. They are rapidly located by the males and transported to a feeding site. In GC-EAD experiments with *C. trapeziformis* volatiles, only one chromatography peak elicited electroantennographic reactions in male antennae. This peak was found in the labella as well as in the sepals of the flowers. *C. valida*, which occasionally shares the same pollinator species, produces the same compound(s), in labella and sepals. This suggests the mimicry of the sex pheromone requires only a few compounds.

In *Ophrys sphegodes*, on the contrary, 14 alkanes and alkenes have been found to elicit electroantennographic responses and were shown to elicit copulation behaviour in the pollinator bee species, *Andrena nigroaenea* [Schiestl *et al.* 1999, *Nature* 399: 421-422]. These compounds also constitute the sex pheromone. The low volatility of these compounds suggests they act primarily at close distance, which is in accordance with the mating behaviour of the bee species. *Andrena nigroaenea* males search for females in aggregations on odour marked trails. Females are thought to fly in an aggregation where mating occurs. Differences between the mating behaviour in thynnine wasps and solitary bees appears to have led to the evolution of different pheromone communication systems, so Australian and European sexually deceptive orchids have recruited male pollinators with contrasting chemical communication systems.

Reference

1. Schiestl FP, Peakall R, Ibarra F & Francke W. Pollinator attraction by pheromone-mimicking volatiles in Australian and European orchids. International Congress of Entomology, Brazil, August 20-26, 2000. Chemical and Physiological Ecology Symposium and Poster Session, Abstract Book I.

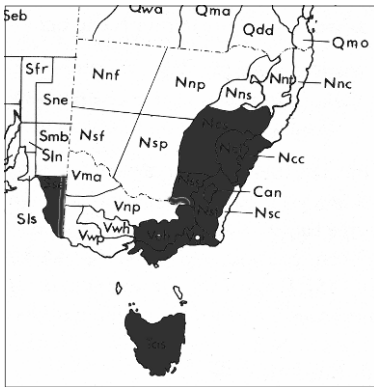
* Insect antennae carry scent receptors (sensilla), and when they detect interesting odours the antennae respond. These antenna responses can be measured using electroantennograms, or EAGs. If volatile compounds are characterised by gas chromatography and detected by an electroantennogram we have a research setup called GC-EAD. The technique has shown malarial mosquitos are sensitive to the smell of human sweat, that insects detect host plants as well as nonhost plants by scent, that dung beetles emit a foul smelling pheromone when attacked – and so on. This area of research has huge potential in a world beset by insect pests..



From the editor: Ian St George

1. *Chiloglottis trapeziformis*

This is an orchid of southwest Australia—see map [1]. Jones added southeast Queensland to the distribution, noted it was found in Tasmania only in the north, and remarked that it may have been introduced into the dysjunct locality in South Australia [2]. It is distinguished by the trapeziform (kite-shaped) labellum with its compact central group of calli and bare anterior expansion.



RD FitzGerald described the species in 1877, and his description and plate clearly set out the differences between *C. formicifera* and *C. trapeziformis* [3—see pp 7-11].

When in 1900 Cheeseman was reporting the specimens Matthews sent him from Kaitaia [4—see pp5&6] he must have had FitzGerald's work there with him for he wrote, "Mr Matthews's specimens agree in all respects with the beautiful plant in FitzGerald's 'Australian Orchids'". He had the choice of identifying it as *C. trapeziformis* but he did not: he identified it as *C. formicifera*. But Moore noted "specimens from Matthews at WELT and at CANTY show some differences in labellum [5].

The photocopy of the AK specimens (page 5), apart from the rounded end of the labellum, makes them look very like *C.*

trapeziformis, and indeed Brian Molloy (*personal communication*, 2001), who has carefully examined all the NZ specimens, says they are all *C. trapeziformis*; he doubts if we have ever had *C. formicifera* in NZ.

Jones noted, "Occasional intermediate forms exist between *C. trapeziformis* and *C. formicifera* [2], and indeed, the Kaitaia plants' labella bore anterior calli, and the labellar tip turned under, as in *C. formicifera*."

In Australia *Chiloglottis* are pollinated exclusively by small wasps of the subfamily Thynninae [6—and see p12]. There are no thynnid wasps in New Zealand.

At the Levin site seventeen separate patches have been found, ranging 40cm to 2.5m diameter, with no plants observed outside or between these patches. None has yet set seed. Chromosome count showed $2n = 40$, the same as Australian plants (P. de Lange, *personal communication*).

C. trapeziformis appears, like *C. valida*, to be a vagrant which, lacking its insect pollinator, spreads vegetatively here; the presence of several discrete patches at one site, with different flowering times, different colour and patterns of labellar calli, suggests occasional crossing with seed dispersal over some metres. The different flowering times among the colonies may however simply result from variation in light intensity.

References

1. Clements MA. Catalogue of Australian Orchidaceae. *Australian Orchid Research* 1989; 1: 37.
2. Jones D. *Native orchids of Australia*. Reed, Frenchs Forest, 1988; p149.
3. FitzGerald RD. *Australian orchids*.
4. Cheeseman TF. Some recent additions to the NZ flora. *Trans. NZI* 1900; 33: 312-3.
5. Moore LB. In Moore LB and Edgar E. *Flora of NZ vol II*. Government Printer, Wellington, 1976, p113.
6. Bower CC. Determination of the pollination of sexually deceiving terrestrial orchids in the subtribe Caladeniinae in New South Wales. Project report to the Australian Orchid

2. Population studies

Essential to the conservation of rare orchids is an understanding of how populations behave over time – what influences them for the better or for the worse. The only way we can reach such an understanding is through long term observation.

There are two main kinds of medical study of populations of people – cross-sectional and longitudinal. Let's say we want to study how children's blood pressure changes during high school years. A cross-sectional study would, on one day at a high school, measure every pupil's blood pressure, plot blood pressure against age, and get a graph that showed blood pressure is higher in older children. We could draw the inference that blood pressure rises with age, but there might be other explanations – older children might have been under more stress that day. A longitudinal study would look at a group of say a hundred 12-year-olds and measure their blood pressures every year for five years. The graph would also show an increase with age, but this time we have proved blood pressure rises with years – no inference is necessary. Cross-sectional studies have advantages—they are quick and you can use a single observer. Longitudinal studies more closely measure reality, but they do take time and the observers at the start of the study may not be around when it finishes.

Long-term studies of orchid populations have been reported in this Journal (notably by Chris Ecroyd on *Caleana minor* and Peter de Lange on *Corybas carsei*, but usefully also by others such as Mark Moorhouse on the changes in labellar calli of *caladenias* over time, and Bob Talbot on *Bulbophyllum pygmaeum*), but we need more, and over longer periods if we are to understand the requirements of threatened orchids.

“In the western world at least, (terrestrial orchids) are often perceived as the flag-ship of the conservation movement. They are the plant equivalent of the panda. As their numbers decline throughout the world as a result

of changes in land use, considerable concern has been expressed about their survival. Efforts are being made to halt this decline by managing areas where they still exist in a more sympathetic manner. To do this effectively it is necessary to study all aspects of the population ecology of orchids. This will include gathering data on their demography, population flux, survivorship, pollination, longevity, as well as monitoring their response to changes in management.” (TCE Wells and JH Willems. *Population ecology of terrestrial orchids*. SPB Academic Publishing, The Hague, 1991. Preface).

A new department, beginning in this issue of the *Journal*, will summarise lessons from research papers that have appeared elsewhere in the world orchid literature, especially work on temperate zone terrestrials, for they have the most to teach us about how we should study threatened New Zealand orchids.

3. Pterostylis unzipped

In 1992 I wrote about what I called the exploded Pterostylis of Upper Morrison's Creek [J41: pp2-4]. A vegetatively spreading colony near Dunedin appeared to be a mutant *P. aff. montana*. It had widely separated flower parts as a result of failure of the edges of the dorsal sepal to “zip” into the grooves on the petals—structures rather like the zipper of a self-sealing freezer bag. I have seen lesser degrees of failure of this zipper mechanism in other Pterostylis taxa, and wondered if the *P. trullifolia* “trident” discussed by Eric Scanlen [J68 p21] might simply be another one. Pat Enright's report of “trident” in the Wairarapa sparked my curiosity again.

When in August Pat found a trident form of *P. alobula* at Pukerua Bay near Wellington I had a chance to examine specimens. Indeed, the divergence of the lateral petals away from the dorsal sepal is caused by a failure of the “zipper” mechanism in the distal two fifths of the length of the petals. That may permit (or perhaps result from) greater elongation of the



Pterostylis aff. *montana*

Partly unzipped (trident): Silverpeaks, Otago ↑
Fully unzipped, Upper Morrison's Creek, Otago ↓



P. albula trident form, Pukerua, Wellington ↓



petals than in normal flowers, as well as turning up of the tip of the dorsal sepal.

The character is consistent in subsequent seasons in *P. trullifolia* as Eric Scanlen pointed out of the plants found by Alan Ducker [J68 p21], and in one colony the trident form flowered consistently earlier than normal plants nearby.

Nonetheless, the discovery of “trident” forms of other *Pterostylis* species suggests partial failure of the zipper structure may be a common mutation in the genus.

4. A list of the NZ orchids

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.

Acianthus sinclairii Hook.f. *Flora NZ* 1:245 (1853). *Flora II* called it *Acianthus fornicatus* var. *sinclairii*.
Adenochilus gracilis Hook.f. *Flora NZ* 1:246 t56A (1853).

Aporostylis bifolia (Hook.f.) Rüpp & Hatch *Proc. Linn. Soc. NSW* 70:60 (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 (J.E.Smith) Lindl. *Genera & Spec. Orch. Plants*. 58 (1830).

Bulbophyllum tuberculatum Colenso *TNZI* 16:336 (1884).
Caladenia alata R.Br. *Prodr.* 1:324 (1810). *Flora II* called it *C. carnea* var. *exigua*. See Hatch E.D. and McCrae D. *NZNOG Newsletter*. 32:5-6 (1989).

Caladenia alpina R.Rogers *Trans & Proc. Roy. Soc. S. Aust.* 51: 12 (1927). Plants closer to *C. alpina* than to *C. lyallii* are in NZ (St George. *NZNOG Journal* 63:4 [1997]).

Caladenia atradenia D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(5):221 (1997). *Flora II* called it *C. carnea* var. *minor* forma *calliniger*. Similar to the Australian *C. iridescens*, and was for a time called *C. aff. iridescens*.

Caladenia bartlettii (Hatch) D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(5):227 (1997). *Flora II* called it *C. carnea* var. *bartlettii*. It has been confused with *Caladenia carnea*. See Scanlen E. *NZNOG Journal* 1999; 72: 22. Recently found well south of the “kauri zone”.

Caladenia lyallii Hook.f. *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.

Caladenia minor Hook.f. *Flora NZ* 1:247 t56B (1853) syn.

- Caladenia chlorostyla* D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(5):223 (1997). Was tagged C. "green column" (see Scanlen E. *NZNOG Journal* 1999; 72: 22).
- Caladenia nothofageti*** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(5):226 (1997).
- Caladenia variegata*** Colenso *TNZI* 17:248 (1885). Has been tagged *Caladenia* "big pink": see Scanlen E. *NZNOG Journal* 1999; 72: 22). Colenso described a flower with two rows of calli and others scattered alongside: a similar plant with only a clear two rows has been referred to as *C. aff. carnea* (see Jane, *NZNOG Journal* 2001; 80: 13)
- Caladenia aff. fuscata***: A small pink caladenia which appears similar to this variable Australian species, though it may have several flowers (see Scanlen E. *NZNOG Journal* 1999; 72: 22). It appears to be identical with Mathews's *C. "nitido-lutea"*.
- Caladenia aff. pusilla***: a tiny pink caladenia with broad oval sepals and petals, an incurved dorsal sepal and a triangular labellar midlobe grows near Wellington and in Northland (W.M.Curtis *Students' Flora Tasm.* Pt. 4A:133 [1980])
- Calcaea minor*** R.Br. *Prodr.* 1:329 (1810). Occasional trans-tasman vagrant, sometimes regarded as a *Paracalcaea*. There are several forms in Australia; this is a self-pollinating taxon.
- Calochilus aff. herbaceus***. In *Flora II* as *C. campestris*, has been identified as *C. herbaceus*, though there is some doubt as to its identity. See McCrae D. *NZNOG Newsletter*. 24:9. (1987).
- Calochilus paludosus*** R.Br. *Prodr.* 1:320 (1810).
- Calochilus robertsonii*** Benth. *Flora Austr.* 6:315 (1873).
- Chiloglottis cornuta*** Hook.f. *Flora Antarctica* 1:69 (1844). A trans-tasman species (or aggregate of taxa) with wide variation in the labellar calli, currently under study).
- Chiloglottis formicifera*** R.D.Fitzg. *Austr. Orch.* 1(3): t9 (1877). The NZ herbarium specimens appear to be *C. trapeziformis*. It is doubtful if *C. formicifera* ever grew in the wild in NZ.
- Chiloglottis trapeziformis*** R.D. Fitzg. *Austr. Orch.* 1(3): t9 (1877). Rediscovered near Levin in 2001. See Chrystal L. *NZNOG Journal* 2001; 81: 2.
- Chiloglottis valida*** D.L.Jones *Austr. Orch. Research* 2:43 (1991). Trans-tasman vagrant, was mistaken for *C. gunnii*.
- Corybas acuminatus*** M.A.Clem. & Hatch *NZJB* 23(3):491 (1985). *Flora II* mistakenly called it *C. rivularis* – q.v.).
- Corybas carsei*** (Cheeseman) 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*** (Kirk) Kuntze *Rev. Gen. Plant.* 6:657 (1891). *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 iridescens*** Irwin & Molloy *NZJB* 34(1):1 (1996). Was included by Irwin in the *C. rivularis* group [q.v.] as *C. "A"*.
- Corybas macranthus*** (Hook.f.) Rchb.f. *Beitr. Syst. Pflk.* 67 (1871). North and South Island forms differ somewhat. 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 said to be 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*** (Hook.f.) Rchb.f. *Beitr. Syst. Pflk.* 67 (1871). Are there two forms? see Goodger R. *NZNOG Journal*. 61, (1996).
- Corybas orbiculatus*** (Colenso) L.B.Moore *Flora NZ* II:118 (1970). 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 *NZJB* 34(1):5 (1996). Irwin included it in the *C. aff. rivularis* group (q.v.) as *C. "Mt Messenger"*.
- Corybas rivularis*** (A.Cunn.) Rchb.f. *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"*, *C. "Kaitarakihī"* 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*** (Hook.f.) Rchb.f. *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*** (Hook.f.) Rchb.f. *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 the tiny unnamed June and July-flowering form; the later-flowering 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]), two distinct taxa tagged *C. "round leaf"* and others, including perhaps Colenso's *Corysanthes hypogaea*. The *Corybas trilobus* agg. appears to contain more and more taxa every time we look. A form on the Chathams appears 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.) Rchb.f. *Beitr. Syst. Pflk.* 154 (1871). Trans-tasman migrant, now well established in Northland. See Graham D.K.F. *NZ Journal of Botany*. 14:275. (1976).
- Cyrtostylis oblonga*** Hook.f. *Flora NZ* 1:246 (1853). *Flora II* called it *Acianthus reniformis* var. *oblonga*. See Jones D. and Clements M. *Lindleyana*. 2(3):156. (1987). Ko-

- res has suggested *Cyrtostylis* should be re-included in *Acianthus*.
- Cyrtostylis reniformis*** R.Br. *Prodr.* 1:322 (1810). *Flora II* called it *Acianthus reniformis* var. *reniformis*. See Jones and Clements *ibid*.
- Danhatchia australis*** (Hatch) Garay & Christenson *Orchadian* 11(10):469 f471 (1995). Was known as *Yoania australis*.
- Drymoanthus adversus*** (Hook.f.) Dockrill *Australasian Sarcanthinae* 32 t3 (1967).
- Drymoanthus flavus*** St George & Molloy *NZJB* 32:416 f1 (1994).
- Earina aestivalis*** Cheeseman *TNZI* 51:93 (1919).
- Earina autumnalis*** (G.Forst.) Hook.f. *Flora NZ* 1:239 (1853).
- Earina mucronata*** Lindl. *Bot. Reg.* sub t1699 (1834).
- Gastrodia cunninghamii*** Hook.f. *Flora NZ* 1:251 (1853).
- Gastrodia minor*** Petrie *TNZI* 25:273 t20 f5–7 (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).
- Genoplesium nudum*** (Hook.f.) D.L.Jones & M.A.Clem. *Lindleyana* 4(3):144 (1989). Was included in *Prasophyllum* – see Hatch E.D. *NZNOG NewsL.* 37:18. (1991).
- Genoplesium pumilum*** (Hook.f.) D.L.Jones & M.A.Clem. *Lindleyana* 4(3):144 (1989). Was included in *Prasophyllum* – see Hatch E.D. *NZNOG NewsL.* 37:18. (1991).
- Microtis arenaria*** Lindl. *Genera & Spec. Orch. Plants* t306 (1840). Mentioned in *Flora II* under *M. unifolia* as *M. biloba*; and see *NZNOGJ.* 58:16–18. (1996).
- Microtis oligantha*** L.B.Moore *NZJB* 6:473 f1 (1969). An apparently 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.* 1:321 (1810). True *M. parviflora* may occur in NZ. See *NZNOGJ.* 62:5–6. (1996). There may be several taxa in the *M. parviflora* agg. Some may be *M. aemula*, common throughout the Pacific: see *NZNOGJ.* 62:5–6. (1996).
- Microtis unifolia*** (G.Forst.) Rehb.f. *Beitr. Syst. Pflk.* 62 (1871). There may be more than one *Microtis* in the *M. unifolia* agg. (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.A.Clem., D.L.Jones & Molloy *Catalogue Austr. Orch.* 100 (1989). Was regarded as identical with the Australian *O. strictum*. But the differentiating features – longer vs shorter floral bracts and pointed vs round labella – are present in some NZ plants, suggesting *O. strictum* is also here.
- Prasophyllum colensoi*** Hook.f. *Flora NZ* 1:241 (1853). Probably a number of taxa, possibly including the Australian *P. tadgellianum*, *P. rogersii* or *P. pauciflorum*.
- Prasophyllum* aff. *patens***: was regarded as identical with the Australian *P. patens*, but now regarded as at least one undescribed New Zealand taxon.
- Pterostylis agathicola*** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(6):266 f (1997). Was named *P. graminea* var. *rubricaulis* and later tagnamed *P. “rubricaulis”*.
- Pterostylis alobula*** (Hatch) L.B.Moore *NZJB* 6:486 f3 (1969).
- Pterostylis alveata*** Garnet *Vict. Naturalist* 59:91 (1939). Found in 1998 near Nelson – see Donaghy *et al.* *NZNOG Journal.* 68: 1998.
- Pterostylis areolata*** Petrie *TNZI* 50:210 (1918).
- Pterostylis australis*** Hook.f. *Flora NZ* 1:248 (1853).
- Pterostylis banksii*** A.Cunn. in Hook.f. *Flora NZ* 1:248 (1853).
- Pterostylis banksii* var. *silvicultrix*** F. Muell. *Veg. Chath. Is.* 51 (1864) is a separate taxon from the Chatham Islands.
- Pterostylis* aff. *banksii***. A smaller taxon than true *P. banksii*, common around Wellington, and apparently found elsewhere too.
- Pterostylis brumalis*** L.B.Moore *NZJB* 6:485 f3 (1969).
- Pterostylis cardiostigma*** D.A.Cooper *NZJB* 21(1):97 (1983).
- Pterostylis cernua*** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(6):267 f (1997).
- Pterostylis foliata*** Hook.f. *Flora NZ* 1:249 (1853).
- Pterostylis graminea*** Hook.f. *Flora NZ* 1:248 (1853). There may be several taxa in the *P. graminea* agg.
- Pterostylis humilis*** R.S.Rogers *TRSA* 46:151 (1922).
- Pterostylis irsoniana*** Hatch *TRSNZ* 78:104 t18 (1950).
- Pterostylis irwinii*** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(6): 269 f (1997). Was tagged *P. “Erua”*.
- Pterostylis micromega*** Hook.f. *Flora NZ* 1:248 (1853).
- Pterostylis montana*** Hatch *TRSNZ* 77:239 t22 (1949).
- Pterostylis* aff. *montana* agg.**: includes several undescribed taxa; for details of one of those 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.* 1:327 (1810). Occasional transtasman vagrant, recently rediscovered near Taupo – see *NZNOG Journal.* 57:38–39 (1995).
- Pterostylis oliveri*** Petrie *TNZI* 26:270 (1894).
- Pterostylis paludosa*** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(6): 271 f (1997). *Flora II* included it in *P. montana*, and it has been known as “*P. linearis*”.
- Pterostylis patens*** Colenso *TNZI* 18:270 (1886). *Flora II* had it as a variety of *P. banksii*, but it is now regarded as distinct.
- Pterostylis porrecta*** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(6):272 (1997). Was tagged *P. aff. graminea*.

- Pterostylis puberula*** Hook.f. *Flora NZ* 1:249 (1853). *Flora II* included it in *P. nana*, and it has been referred to as *P. aff. nana*.
- Pterostylis tanypoda*** D.L.Jones, Molloy & M.A.Clem. *Orchadian* 12(6):273 (1997). *Flora II* included it in *P. cyncocephala*, and it has been referred to as *P. aff. cyncocephala*.
- Pterostylis tasmanica*** D.L.Jones *Muelleria* 8(2):177 (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). May become *Plumatochilus tasmanicus*—see p26 this issue.
- Pterostylis tristis*** Colenso *TNZI* 18:271 (1886). *Flora II* included it in *P. mutica*. See Molloy B. *Proc. 2nd Int. Orch. Conf.* 1985. p2.
- Pterostylis trullifolia*** Hook.f. *Flora NZ* 1:249 (1853).
- Pterostylis venosa*** Colenso *TNZI* 28:610 (1896). North and South Island plants show some differences.
- Spiranthes novae-zelandiae*** Hook.f. *Flora NZ* 1:243 (1853). There seem to be several *Spiranthes* taxa in Australia and NZ; *S. sinensis* (Pers) Ames and *S. australis* Hook.f. may perhaps be here (see Molloy B.P.J. *NZNOG Journal* 21: 7-8; and 22: 8-10). One tagged *S. "Motutangi"* from the Far North is vanishingly rare.
- Thelymitra aemula*** Cheeseman *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.* 1:314 (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* Hook.f. *Fl. NZ*; i: 244.
- Thelymitra cyanea*** (Lindl.)Benth. *Flora Austr.* 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 xdentata***: 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*** L.B.Moore *NZJB* 6:477 f2 (1969).
- Thelymitra intermedia*** Bergg. *Minneskr. Fisiog. Sallsk.* Lund 8:21 f (1878), a form of the *Thelymitra pauciflora* agg. (Molloy BPJ & Hatch ED. *NZJBot.* 28:105 [1990]). Moore wrongly used this name for *T. tholiformis*. De Lange P. (*Tane* 36: 1-14) suggests *Thelymitra colensoi* (Hook. f. *Handbk NZ flora* 1864; 271) is the correct name for the plant.
- 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*** J.R.Forst. & G.Forst. *Charact. Gen. Plant.* 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. nemorialis*, *purpureo-fusca*, *cornuta*, *alba*, or even Swartz's *T. forsteri*.
- Thelymitra malvina*** M.A.Clem., D.L.Jones & Molloy *Austr. Orch. Research* 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*** Cheeseman *TNZI* 43:177 (1911).
- Thelymitra nervosa*** Colenso *TNZI* 20:207 (1888). Syn. ***T. decora*** Cheeseman. *Flora II* called it *T. decora*; Moore was aware of Colenso's *T. nervosa* but could not place it at that time.
- Thelymitra pauciflora*** agg. Jones (*Australian Orchid Research* Vol 3, 1998) did not include NZ in the distribution of this species, inviting the inference that our taxon (there appear to be more than one) may be different (Colenso's *T. cornuta* has been treated as a synonym, for instance). Plants with flowers showing a cleft extending down the back of the column resemble *T. holmesii*.
- Thelymitra pulchella*** Hook.f. *Flora NZ* 1:244 (1853). There are several plants with affinities to *T. pulchella* – and 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 sancilla*** Hatch *TRSNZ* 79:397 (1952). Moore regarded this as an aberrant form of *T. pauciflora* (*Flora II* p130); others now regard it as distinct.
- Thelymitra tholiformis*** Molloy & Hatch *NZJB* 28:111 f1 (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. Appears to be sterile, so probably a 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.
- Thelymitra "sky"***: undescribed taxon from the Far North; blue, sometimes white flowers.
- Townsonia deflexa*** Cheeseman *Manual 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*** (Hook.f.) D.L.Jones, M.A.Clem. & Molloy *Orchadian* 12(6):282 (1997). The species previously known as *Lyperanthus antarcticus*.
- Winika cunninghamii*** (Lindl.) M.A.Clem., D.L.Jones & Molloy. *Orchadian* 12(5):214 (1997). The species previously known as *Dendrobium cunninghamii*.

Population studies: 1

—from Willems JH, Bik L. Long-term dynamics in a population of *Orchis simia* in the Netherlands. In TCE Wells and JH Willems. *Population ecology of terrestrial orchids*. SPB Academic Publishing, The Hague, 1991, pp33-45.

Orchis simia, the European “Monkey orchid”, has its greatest numbers in the warmth of France, but small colonies hang on in Britain. In the Netherlands a single plant found in 1905 ended its days in a herbarium, but another was found near Maastricht in 1969. The colony that formed has been monitored ever since. The site is a chalk grassland slope, ungrazed and succumbing to woody weeds.

In mild winters *Orchis simia* appears above ground in December-January, though in severe winters with snow its appearance is delayed until February-March. It flowers in May and capsules are set in June-July. The green above-ground parts disappear by the end of July.

This paper described the relationship between population dynamics and climate over about 20 years. Plants were mapped once a year using a triangulation method (the distance from each of 2 permanent pegs was plotted) - thus one can return to a plant, or note its absence, or note the recruitment of new plants, subsequently.

Cold

By 1981 there were 45, and by 1983 58 plants. After 1983 there was an irregular decline to 40 plants in 1990. In three successive winters (1984-7) midwinter temperatures were below zero—in 1984-5 22 plants died and there were only 2 new ones; in 1985-6 17 died. In retrospect the mildness of the 1969-72 winters was responsible for the establishment of the colony from a single “mother plant”.

After 1986 the number of “missing” plants also increased. Missing plants are those that were not seen above ground for 1 or 2 years, but did reappear. By definition, if a plant was missing for more than 2 years, it was considered to be dead.

Flowering

Plants had to be above the ground for at least 3 years before they could flower; flowering plants had at least 4 leaves in the basal rosette, and a minimum leaf area of 65 sq.cm.

From 1972-90 113 individuals were recorded and only 29 (26%) produced flower spikes in 1 or more years. The mother plant flowered in 19 years, but daughter plants rarely flowered in more than 3 years (no explanation). First-time flowering was often followed by a period in which plants remained vegetative, possibly as a recovery phase. Flowering was poor in the season following a severe winter, and good following a mild winter. If the leaves were grazed by animals the plant did not flower the next season.


Capsules and seeds

The underground protocorm stage lasts at least 3 years before the plant appears above ground. Most of the present plants have originated from the single mother plant. Seed production is decreasing as taller weeds invade the site.

Conclusions

The shallow tubers of *Orchis simia* suit a warm southern European climate. At the extreme of its distribution they are susceptible to cold, which kills plants, reduces recruitment and affects flowering

The 3 years between first seed germination and first appearance above ground, and the next 3 years while a rosette of leaves is forming in preparation for flowering, appear to form a critical bottleneck in population development. In a cold year plants remain underground longer, so their opportunity to transfer reserves to the tuber is reduced, making flowering less likely. Vegetative reproduction is rare, so seed production is vital.



Iwitahi native orchid weekend - The Irwin Orchid Symposium

A note from Trevor Nicholls: I will be away 17 September to 17 October. Secondly, so you will read it and I do not forget to say it: we/you have NOT got access to the forest outside the Reserve because of the logging in progress. Please observe this. The information about the accommodation is as follows. The camp is an ex-forestry one, so the accommodation is quite basic. You will need to bring your own bedding, including pillows, and towels.

We each do our own catering. The kitchen contains suitable cooking and storage facilities. Saturday night we have a pot luck meal. So please plan your catering with this in mind.

The fee is \$10 per night for those staying in the camp. All attenders at the symposium will pay \$5 to cover the hire of some comfortable seating!

Those who are prepared to assist with the maintenance of the reserve by working on the Sunday are invited to bring a spade, a pair of gloves and secateurs which could be very useful, if Max is not looking. We do have a few extra spades available for those who may like to use them!

Don't forget that Iwitahi is sub alpine and the weather can change very quickly. It is wiser to bring some extra clothing than have to go home early. OK there has only been one over all the years of having folk out at the camp. Would you believe, he had just returned from the Himalayas?

Where is Iwitahi? It is 25 kilometers out of Taupo on the Taupo-Napier highway. If you wish it, I can send you a 'map'.

PS There is a new resident caretaker at the camp. I think you will notice a few differences since your last visit. However, the reason for this note is that he has put restrictions on the movement of vehicles around the camp. While this may cause some inconvenience, the end result will be a much more attractive setting. Be warned.

Pack goods so that they can be carried and not just thrown from vehicle to hut!

**Barbara and Trevor Nicholls, 33 Hinekura Ave, Taupo 2730, New Zealand,
Phone: 64-7-378 4813 Fax: 64-7-378 3222, email: nicholls@reap.org.nz**

Field guide to the New Zealand orchids 2001 edition

by Ian St George, Bruce Irwin, Dan Hatch and Eric Scanlen

The extensively updated 2001 edition is \$20 to members: order your Christmas gift copies now from

Ian St George, 22 Orchard St, Wadestown, Wellington.

The Irwin Orchid Symposium

A symposium on New Zealand Native Orchids

is to be held at

Iwitahi on 7-9 December 2001

to mark the 80th birthday of Bruce Irwin
and to acknowledge his work on
New Zealand native orchids, and his efforts for
the NZ Native Orchid Group and its aims.

Final programme

Friday 7 Dec. 7.30pm Allan Ducker: **new videos**

8.30pm Eric Scanlen: **New 3-D images,
emphasising Caladenia.**

Saturday 8 Dec.

9am Max Gibbs: **On *Gastrodia* "city", a
roundabout orchid in Hamilton.**

9.30am Carlos Lehnebach: **Chilean orchids.**

10am Ian St George: **"Read my lip": fast
movement in *Pterostylis*.**

10.30am TEA

11am Bruce Irwin: **Some unnamed species.**

11.30am Peter de Lange and John Sawyer:
**Biogeography and orchid conservation:
case studies from the Department of
Conservation's orchid files.**

12.15pm LUNCH

1pm **THE FIRST FIELD FORAY**

6.30pm DINNER

8pm Wolfgang Rysy: **European orchids:
beauty and dangers.**

8.45pm SHORT REPORTS: show your shots

Sunday 9 Dec.

9am **THE FOLLOWING FIELD FORAY**

For information on the scientific programme, please contact
Ian St George, 22 Orchard St, Wadestown, Wellington
(istge@rnzcgp.org.nz).

For accommodation and other arrangements, see previous page, or please contact
Trevor Nicholls, 33 Hinekura St, Taupo (nicholls@reap.org.nz).



Original papers: Orchids of the Manukau Peninsula by Tricia Aspin, Waiuku.

Here are a few notes on additions to my original list of orchids found on the Manukau Peninsula [J71 p11-13]. As previously noted there is a considerable lack of epiphytic orchids especially in the northern area of the peninsula. Further south near the Gaps, where there is a little more rainfall the late flowering *Earina mucronata/aestivalis*? is common [J74 p22].

I have discovered one *Winika cunninghamii* in the Matakawau Reserve high on a taraira. Stella Christoffersen remembered an orchid from years ago and we checked it out—great! An *Earina autumnalis*. They are out here, elusive, but we will find them.

On 3 September a visit to Nancy and Ian Dodd's reserve at Wattle Bay revealed large numbers of *Pterostylis brumalis* under the kauris, and a good showing of *Cyrtostylis oblonga*. I have also found one colony of *C. oblonga* in the Matakawau Reserve (nonflowering in 2000 and 2001) and three colonies in Lee's Bush. *Pterostylis brumalis* hasn't been spotted before.

Nancy and Ian were original members of NZNOG and Ian has a notebook of records of his patch. Eric Scanlen is fascinated by his mention of a *Pterostylis* which flowers in December—this will be checked out.

We do have another *Corybas trilobus* out here too. ES and Graeme Jane have checked out the "June flower" of my original list (June 2000?). This is the early flowering *Corybas* with green and red flowers, broad, blunt dorsal sepal, flowers nearly always above leaf, floral bract present plus a little "collar" where the flower stalk and leaf stalk meet, is a prolific flowerer, seems to like a lot of sunlight (trackside in full sun, scrub and light bush), seed capsules well formed by August.

Last year I found another colony of *Corybas trilobus* and noted: one late flower in Septem-

ber—long sepals, 50mm. This colony is in deep shade and is constantly damp. This year I note: 3 flowers on 28 August and no sign of more to come (a shy flowerer), all below the leaf, have a blunt but narrow dorsal sepal (fairly colourless but with greenish tones), 50mm sepals, 15mm petals, floral bract present but no "collar" where leaf and flower stems meet. The flowers have maroon stripes on the outside (below dorsal sepal and behind the labellum—I don't know what you call this part of the flower), there is solid maroon on the top part of the labellum and fringing on the outside to partway down; the triangular shaped "eye" where the petals and sepals emerge (auricle) is a very dark maroon. The labellum is almost colourless, wavy along the bottom (not pointed), is 8mm wide and 10mm deep, cleft noticeable. The bottom is hard-pressed against the ovary giving the appearance of being joined.

This "August flower" is also present in Dodd's Reserve and was in flower on 3 September. One seed capsule was also forming. There is more light at Dodd's and I noted shorter leaf and flower stalks than those of the above in Matakawau reserve.

I can find no photograph or picture in my Journals, *Field guide* or *Nature guide* that is like it. I could say it has *C.* "whiskers"'s wishy-washy colouring (*Nature guide* photo) plus *C.* "Kaimai"'s maroon labellum top, stripes and dark "eye", *C.* "Trotters"'s long sepals—but then it is of the *C. trilobus* lot and so—confusion, confusion to the novice!

As my good Mentor says, "Just note it all" and "It sounds a bit like what Geoff Stacey has".

And so that now is my list to add to the original for the Manukau Peninsula—a total of twenty-seven different orchids. Given time, I'm sure we will find more.

Pterostylis thigmonasty 2

By Tricia Aspin and Ian St George

Tricia Aspin observed the labellum closure of *Pterostylis trullifolia* and *P. agathicola*. On 28 August she placed 4 stems of each in tap water indoors at 16°C. Her first set of observations began at 7am, and her second set at 5pm the following evening. Her results are shown in Table 1.

Table 1:

No.	7am→	1 st reset	2 nd sprung	2 nd reset	5pm→	1 st reset	2 nd sprung	2 nd reset	3 rd sprung	4 th reset
-----	------	--------------------------	---------------------------	--------------------------	------	--------------------------	---------------------------	--------------------------	---------------------------	--------------------------

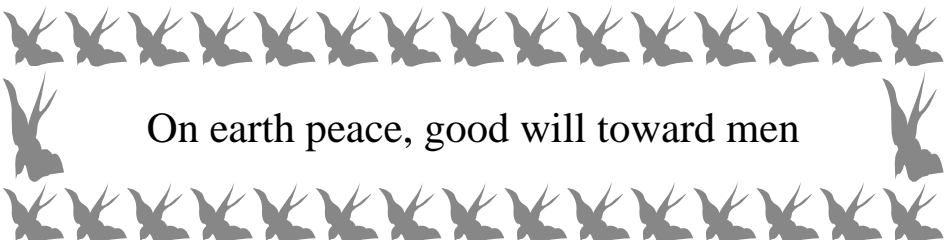
Pterostylis trullifolia

1	7am	69	33	38	5pm	20	12	44	15	27
2	28	91	12	53	29	24	9	45	13	32
3	Aug	54	48	36	Aug	19	15	20	30	19
4		83	23	47		21	12	26	17	32
mean		74±16	29±15	44±8		21±2	12±2	34±13	19±8	28±6

Pterostylis agathicola

1	7am	91	61		5pm	33	30	33	33	30
2	28	54	50	34	29	24	9	45	13	32
3	Aug	85	67		Aug	53	52	35	52	37
4		46	59	25		29	25	29	26	31
mean		69±22	59±7	30±7		35±13	29±18	36±7	31±16	33±3

Tricia noted “the unresponsive time is much shorter in the evening”, and that *P. trullifolia* is very sensitive to stimuli. The diurnal variation should be checked again—if it is true it may give important clues about pollination. On the other hand it might simply reflect plants, traumatised by picking, taking a while to settle down in water. If we ignore the morning observations, the labella of *P. trullifolia* stayed closed half an hour, and were then unresponsive for a quarter of an hour. Those of *P. agathicola* stayed closed half an hour and were then unresponsive for a further half an hour. Both species, however, showed a good deal of variability.



New Zealand Native Orchid Seed Bank: “Conservation through Accessibility”

- a new concept for New Zealand in the conservation, preservation and dissemination of native orchids. By David Shaw, Ashburton

New Zealand’s flora, like our fauna, is very unique and special, as I am sure you all realise. With more and more pressure on areas where our native orchids are found there is a real concern, felt by many, that we may lose many of our indigenous orchids forever. Compounded by the added pressure of people with little forethought or knowledge ‘ripping’ plants from their natural habitat so that they can possess them, often with fatal consequences for these plants. I can understand, but not condone, the actions of these people; there is a sort of hypnotic lure, which our orchids seem to use to attract their human ‘prey’.

Now let me take a few moments to introduce myself and to attempt to explain why I felt there was a definite need, in New Zealand, for a ‘seed bank’. My name is David Shaw and I live in Ashburton, a small town in Mid-Canterbury. My passion for and fascination with orchids started in my early teenage years. Even then, N.Z. orchids intrigued me but my interest strayed to the Northern Hemisphere Terrestrials. Over the years I have done much research into the cultivation of the more endangered genera especially *Cypripedium*. This has involved an awful lot of time, money and disappointment, I am sure many of you have also experienced the same ‘joys’.

Over the years I have been a regular member of foreign seed banks, making many ‘withdrawals’ and a few ‘deposits’. I am positive some species would not still exist in their natural habitat if it wasn’t for the excellent service provided by these banks.

Numerous times in correspondence, originally ‘snail mail’ and now email, the question “what N. Z. natives do you grow” is asked of me and my reply was, up until

recently, “none” and that was usually the end of it. Until one grower ‘had the cheek’ to ask me “why not?”. He then went further and extolled the uniqueness and inherent beauty of N.Z. orchids, explaining that they are considered very worthy of cultivation in other countries and questioning why they weren’t commonly cultivated in their own country, New Zealand.

To cut a long story short, I had a severe conversation with myself and asked why I had spent so much time working with European orchids and none with our own unique natives. I immediately decided to rectify this shortcoming of mine and to devote my efforts to New Zealand Native Orchids. This is where I ran into a few problems when trying to source some of our natives for myself, there are very few people with them. There was no way I was going to take them from their natural habitat, especially without knowing more about their cultivation. Our natives are rarer in cultivation than they are in the wild, its no wonder they are not appreciated in their own country. So, I thought to myself “there’s bound to be a seed bank”, but, oh no there’s not. The reply I received from Ian St George when making these enquiries, “No, we don’t have a seedbank – we need someone to start one really – you?”, started me on the road to where we are now.

At the time of writing this article there are still a few administration details, regarding the operation of the ‘bank’, to be worked out. When you get your copy of the Journal in December they should be all sorted out and the Seed Bank up and ready to accept your enquiries, comments and seed ‘deposits’. Operation will be similar to those overseas. I cannot emphasise enough that this is not a

business venture but a way of preserving and distributing our own unique orchids. Of course there will be small charges to some users to cover operating costs e.g. postage etc. as I am unable to completely support the 'bank'. My time, knowledge, computer (and probably a reasonable amount of my own cash – please don't tell my wife) etc are freely given so the Seed Bank can achieve, what I see as, its goals.

Below is a brief outline of a few of the things you can expect from the Seed Bank –

- Seed of all native orchids will be gratefully received and stored, under appropriate conditions.
- Species will be allocated gradings according to rarity and threat.
- The "Bank" is available to everyone who requests seed. However NZNOG members will have priority.
- Everyone who completes a profile form and registers with the bank will receive a regular stock list – at the moment we are looking at probably every 2 months.
- Anyone is able to request seed, by completing a 'withdrawal form'. NZNOG members and those who have 'deposited' seed will have priority.
- Should we, and I certainly hope we do, have a large surplus of any seed it will be

offered to reputable domestic and international public organisations e.g. botanical gardens etc.

- At a later date it is also hoped, dependent on legalities, to provide an 'in vitro bank'.

The New Zealand Native Orchid Seed Bank can only succeed if everyone gives it their total support. Seed collected from both culture and natural habitat will be accepted. However, if you are collecting seed from the wild, please only take a small amount and treat the plants with extreme care.

If you would like to know more or would like to participate in the conservation, preservation and distribution of our native orchids. To obtain an information pack, please contact -

New Zealand Native Orchid Seed Bank

P. O. Box 491

Ashburton

email: seed_bank@msn.com

The info pack will have more details, registration form, deposit & withdrawal forms and sample seed envelope.

(Members wanting to find out about seed banks might look at <http://members.home.com/ahicks51/osp/Seeds/Seedlist/Seedboxes/seedboxes.html>, an Arizona site. See also p29 of this issue —Ed).

Corybas and the dancing priests of Phrygia

Cybele was a very early mountain-dwelling earth-goddess. In later times her attributes of fertility and unrestrained sexuality predominated. Her later consort is her son, the god Attis, whom she drives mad and who castrates himself and dies. Cybele, passionate for Attis, revives him in the springtime (the Easter, the egg, the oestrus).

In classical times Cybele's worship spread throughout the northern Mediterranean, and continued in the Roman Empire, where she was known as "Mother of the Gods," "The All-Nurturing One," and "All-Mother". Her priests were men who whipped, slashed and finally castrated themselves in a frenzy of sexual guilt. Once a year one of them was nailed to a tree.

In Samothrace Cybele became the mother of Corybas, to whom she bore a daughter, also named Cybele. Corybas gave the name Corybants to those who celebrated the sacred rites of his mother by acting like men possessed. They established the Cybele-Corybas ritual in Phrygia. Corybas was thus father, lover, and son of Cybele (he knew who a boy's best friend is!). His followers enjoyed self-abuse to a degree we would call extreme masochism today.

Funny name for an orchid.

Orchid Keys 3: Key to the NZ genera

By Graeme Jane, Tauranga

This time of the year there are few orchid species flowering, and those that are, belong to a range of genera. Hence I have taken the opportunity to provide a key to the genera.

Where to start though! *Cryptostylis subulata* was only added in 1976; *Danhatchia* (separated in 1995) was first described as a species of *Yoania* in 1963; *Winika* was separated from the Australian *Dendrobium* in 1997; and *Waireia* separated from *Lyperanthus* also in 1997. Other genera have been in debate for a long time and the debate (to 1963) is carried in the Flora Vol II. These include *Prasophyllum/ Genoplesium* originally separated by Robert Brown in 1810 but merged late and split as recently as 1989 (now well accepted) and the *Acianthus/Cyrtostylis/Townsonia* splits, the split of the last two first recognised by Cheeseman (1906) is still strongly debated. Then there is the mystical *Petalochilus* of Rogers (1924) and rejected by Hatch in 1949 is generally regarded as anomalous forms of one or more *Caladenia* species. As a reference point then the recent field guide (St George *et al* 2001) is used as the most up to date statement of the status of the genera.

- | | | |
|----|--|--------------------|
| 1 | Plants with at least one green leaf in addition to the flowering bracts | 2 |
| | Plants leafless (occasionally with colourless bract-like leaves) and only scaly bracts along the stem | 25 |
| 2 | Plants tufted with a single stem, swards or clumps of individual plants may occur; plants usually annual | 3 |
| | Plants usually creeping with several stems from a single root system; plants perennial | 20 |
| 3 | Solitary leaf on flowering stem | 4 |
| | Several leaves usually present | 15 |
| 4 | Leaf flat or channelled | 5 |
| | Leaf tubular; flower spike emerging from the leaf-tube | 13 |
| 5 | Leaf more or less flat, broad | 6 |
| | Leaf usually folded or channelled; relatively long and narrow | 10 |
| 6 | Flowers mostly solitary | 7 |
| | Flowers usually few | <i>Acianthus</i> 8 |
| 7 | Flower borne close to or just above the leaf; labellum without calli | Corybas |
| | Flowers borne high above the leaf; labellum tip with numerous stalked calli | Adenochilus |
| 8 | Labellum more or less flat, oblong | Cyrtostylis |
| | Labellum curved towards the tip and laterally, ovate | 9 |
| 9 | Tips of petals and sepals quite pointed; leaf conspicuous, heart-shaped | Acianthus |
| | Tips of sepals and petals rounded; leaf minute, ovate | Townsonia |
| 10 | Stem glandular hairy; leaves often hairy | Caladenia |
| | Stem glabrous; leaves glabrous | 11 |
| 11 | Flower of 6 more or less similar sepals and petals; labellum not developed | Thelymitra |
| | Flowers of 5 dissimilar sepals and petals; labellum well developed, extended beyond the petals | 12 |

12 Labellum pendent from flowers usually with conspicuous reddish beard	Calochilus
Labellum uppermost, its peltate tuberculate lamina attached by slender claw	Caleana
13 Flowers green or yellow green; labellum prominently pendulous	Microtis
Flowers at least partially coloured red or purplish; labellum on the upper side of flower	14
14 Leaf-lamina long and obvious at flowering	Prasophyllum
Leaf-lamina very short and inconspicuous, just below or amongst inflorescence	Genoplesium
15 Flowers solitary	16
Several flowers on each stem	18
16 Leaves glandular-hairy; petals and sepals mostly white	Aporostylis
Leaves glabrous	17
17 Lateral petals partly or totally held beneath dorsal sepal	Pterostylis
Lateral petals projecting laterally or drooping	Chiloglottis
18 Leaves ovate; plants very small	Pterostylis
Leaves long, narrow, stiff; substantial plants	19
19 Lateral sepals inconspicuous, drooping	Waireia
Lateral sepals prominent, erect	Orthoceras
20 Swamp plants	21
Plants usually epiphytic, sometimes on rocks or the ground, in forest or scrub;	22
21 Flowers pink; leaves ovate	Spiranthes
Flowers greenish with deep red labellum interior; leaves lanceolate	Cryptostylis
22 Plants somewhat fleshy with a prominent bulbil at the base of the leaf	Bulbophyllum
Plants stiff, leathery with long thick roots rather than bulbils	23
23 Plants small; leaves more or less ovate	Drymoanthus
Plants large with almost bamboo-like stems; leaves lanceolate to linear-lanceolate	24
24 Stems branched; flowers axillary	Winika
Stems unbranched; flowers terminal	Earina
25 Plants colourless, single flower largely hidden beneath the litter	Corybas cryptanthus
Plants brownish usually with many flowers on a single stem well above the ground	26
26 Sepals and lateral petals free; flowers about 5 mm long	Danhatchia
Sepals and lateral petals fused into a tube; flowers 10 mm or more long	Gastrodia

“Following a stimulus to the callus, the lip suddenly snaps upward to a ‘closed’ position between the petals and the large column-wings. This creates an effective cage from which the pollinator can escape only by crawling past the stigma, rostellum and pollinia. Pollinia adhering to the pollinator would be transported to the stigma of another flower, should the pollinator fall into the trap of the other flower. After a period of time, the lip descends again to the open position.”

—*Sounds like a piece on Pterostylis doesn't it? No, it's from a description of the mechanism of the sensitive labellum of Acostaea from Central and northern South America* —from Luer CA. *Icones Pleurothaldinarum IV: systematics of Acostea, Condylago and Porroglossum (Orchidaceae)*. Missouri Botanical Garden. 1987, p2.



Notes, letters, questions, comments

Pat Enright wrote (13 Aug), “On Saturday I was on the **Tinui taipos** and came across *P. alobula* growing in an unusual situation. The tops of the taipos are large vertical to near vertical sandstone bluffs. The *Pterostylis* was growing near the base of one ‘wall’ in very small alcoves in the sandstone. Just little pockets of detritus. The ‘wall’ in other parts forms a ‘skin’ of matted roots with both earinas and winika in the mix of other plants like *celmisia* and *lycopodium*. There are a lot of wild pines on the taipos and some seed into this bed. Unfortunately when they get to a certain size gravity takes over and the whole lot peels off like a carpet and you get a mass of vegetation piled up at the base of the bluff. Tony Druce also noted *Genoplesium nudum* (along with a lot of other orchids) from the Tinui taipos.”

John Dodunski wrote (23 August), “I discovered *Bulbophyllum tuberculatum* in **New Plymouth**. I went for a little walk around some of our scenic reserves checking out *Drymoanthus adversus* to see if there were any differences as reported to me by a NOG member. As I was wandering along a track I came across a number of branches trimmed off the track by DOC workers. Here, thinking it would be a likely place for *Drymoanthus*, I ‘dived’ into the debris: no *Drymoanthus* but plenty of *Bulbophyllum*, both sorts I might add. There were ‘tons’ of *B. tuberculatum*, but most of it was dead as I would say the branches had come down about two to three years ago. There was enough live material to make a positive I.D. The tree was an old rimu. I also found some pseudo-bulbs on another rimu tree nearby. I rang other members of NOG and informed them of the find. Rob Ward checked them out and confirmed the

species as I didn't think he believed me at first.

“The reserve is called Ratapihipihi Reserve situated in the Western suburb of New Plymouth; it is administered by DOC. The orchid is quite safe as it is situated high in the canopy of the bush. Most species of trees around the rimus are kohekohe. As for the *Drymoanthus* I found no differences to the rest in Taranaki, Some were thicker and rounder in leaf while others were of a thinner texture.”

John also wrote, “With respect to the **hybridising of *Drymoanthus***, and in particular some of the flasks that were distributed by the late Malcolm Campbell:

Malcolm may have done some further hybridising before he died, but I know I sent him some seeds from some crosses I made. The only problem was I had mixed the seed by mistake, so as I told him I could not make a positive I.D. of the lots of seed I sent him. He still insisted that he would flask them, and I know that he labelled them with what I thought each lot was. I further must say I do not think he wrote my name on the flasks - he may have in the notebook he used. So I think that there may be some plants around of doubtful parentage, (I never received any of those flasks so I have no idea where they ended up). A D.N.A. test may be the only way to tell the correct cross. The seed parent was *Sarcomoanthus* Emarcy Gem (*Drym.adversus* X *Sarcochilus ceciliae*) in every case. With this I selfed it, I crossed it with *Pterocerus hirticalcar* and also with *Sarcochilus hartmannii* - so those are the three crosses I did. Anyone with these flasks can take their pick. D.N.A. testing would be a good option. I will try these crosses again some time as I am now sowing seed into flasks myself.

As an aside I must mention that I am doing

some *Winika cunninghamii* crosses. So far I have deflasked *Win. cunninghamii* with *Dendrobium fleckeri*, *D. Hilda Poxon*, *D. Golden Fleck*, (Pixie X Red Baron) and also with *Dockrillia fulginosa*. That's five crosses to date and I hope to do some more in the future."

Peter de Lange wrote (August), "While I was in Australia (Sydney) I saw *Pterostylis longifolia*, *P. grandiflora* and *P. nutans* in all their glory (and again marvelled at how common *P. nutans* is in its home turf), and then *Acianthus fornicatus* (which is so different from our *A. sinclairii*) but the icing on the cake was seeing *Corybas fordhamii* ALIVE on - aptly I felt - my birthday, at the Royal National Park, just south of Sutherland, Sydney. The plants were found in the time honoured 'gotta have a pee' fashion. I found eight in flower and within conservation constraints (it is after all a very rare plant in Australia) I carefully examined several flowers and sterile plants - they are (to me anyway) absolutely the same as *C. carsei*. Same shape, colour, even down to the presence of the retrorse labellar callii and I found that in my admittedly small sample the leaf size was just as variable as it is at the Whangamarino. It even grows with similar bed fellows - *Baloskion fastigiatum* (restiad), *Empodisma minus* (restiad), *Epacris* spp., *Lycopodiella lateralis*... Interesting eh? Alas no photographs: it was not a good day, and I did not ever think to find it."

The Orchid Specialist Group (OSG - NZNOG is a member) of the Species Survival Commission of the IUCN (The World Conservation Union) has established an *Ex situ Conservation Group*, chaired by Philip Seaton, a seed technology expert. The main roles of this committee are to establish a global network of orchid seed banks, create a database of information on orchid species germplasm held in *ex situ* collections, promote the exchange of orchid germplasm amongst growers (particularly of threatened

species), and provide advice on methods of seed storage and orchid propagation for conservation purposes. The third issue of *Orchid Conservation News*, the OSG newsletter, included an article about recent advances in orchid seed storage, along with a questionnaire to act as a starting point for the establishment of an international network of orchid seed banks. The first returns from botanic gardens, commercial nurseries, and amateur groups, indicate an increasing interest in seed storage as an *ex situ* conservation tool. The bulk of the material is stored at 40°C, and a high proportion is well documented and of local origin. The majority of seeds are, however, housed in North American and European facilities. There is thus a clear need to stimulate the development of orchid seed banks in their countries of origin.

[From Philip Seaton, Chair, OSG *Ex situ* Group - Philip@seatonorchids.freeserve.co.uk - *Species*, Spring 2001].

Kew brew: some have asked how to preserve plants. I understand there are actually two "Kew brews", one for immediate fixing, and one for longterm preservation. I use one brew for both: 40% meths, 40% water, 5% formalin, 5% glycerol.

The editor spent a happy *Corybas* day on 8 September with members of the **Levin Native Flora Club**, going strong in its 61st year, looking at sites in the western Tararua foothills. *Corybas iridescens* was in full, glorious bloom, some flowers 20mm across. At another site was a similar *Corybas*, later identified by Bruce Irwin as a possible hybrid between *C. iridescens* and *C. "whiskers"*. There was one site under pines and macaracarpa that boasted four different *Corybas*: *C. iridescens*, a small but distinct dark purple *C. "trotters"*, another large member of the *C. trilobus* aggregate with a 12mm flower and a notched broad apple-green dorsal sepal, and a form midway between—perhaps a hybrid.

AUSTRALIAN ORCHID REVISION:
The Western Australian Native Orchid Study and Conservation Group's *Bulletin* of September 2001 broke this news:

Many know David Jones has been working on a revision of *Pterostylis* & *Diuris* and is almost ready to go to print. Unfortunately a Polish botanist who is unknown in Australia has rushed in with a paper, with errors, unfortunately advancing the same arguments as David Jones. An article by Andrew Brown for information and appropriate action is summarised below.

Notes on the Szlachetko paper, Polish Bot. J. 46: 11- 26(2001)

Dariusz Szlachetko published a recent paper in which he placed quite a few Australian orchids into new genera. The Western Australian Herbarium is currently accepting only two of these genera (*Plumatichilos* and *Oligochaetochilus*). *Plumatichilos* contains all the bearded-labellum orchids in *Pterostylis* while *Oligochaetochilus* contains the rufa group and others.

Some of the generic names published by Szlachetko (2001) were apparently given an incorrect gender, and there are other errors.

Plumatichilos

barbatus, *plumosus*, *tasmanicus*, *turfosus*.

Oligochaetochilus

...will perhaps include *O. tristis* and *O. tanypodus*?

Brian Molloy's advice is the old names are still legal, and we should continue to use them until this mess is sorted out – *Ed.*

Tricia Aspin wrote (24 September), "Last year I photographed a colony of *Corybas oblongus* which had two seed capsules on two of the plants. This season there are 7 leaves (plants). Four of these have double flower heads, 3 have single. I have photographed the colony as is and will revisit in about 3 weeks. The larger leaves are quite purple. No, I would say they are very purple!"

Where can the frequent enquirers from NZ and abroad **buy native orchids** for cultivation? If any reader knows of nurseries or others who can make plants available, please write to the editor. (We are not interested in hearing about those who illegally take plants from the wild.)

In early October Pat Enright found *Corybas orbiculatus* at Blue Rock Road, southern Wairarapa, a new species for the region.

On 7 October Eric Scanlen, visiting the southern North Island on a speaking tour, found a member of the *Corybas trilobus* **agg., like a small C. "Trotters"** (flowering at the same time at a nearby site), but with strongly inturred edges to the labellum. Both he and your editor exclaimed at this apparently new taxon, but after a day in a bottle the flowers had opened fully and are, in the editor's opinion, just small *C. "Trotters"*.

Leita Chrystall wrote, "*Acianthus sinclairii* increased and flowered well under pines at Himatangi this year. Trees are 20 years old and the colonies are not at the site as they were when I first found plants 40 years ago under the second pine crop. Wildling *Pinus pinaster* were there originally with marram grass, Matagouri and *Pentachondra pumila*, so there is no way of knowing how long the *Acianthus* have been around."

Tricia Aspin emailed, "While at Lee's bush I was also delighted to add another species to my list of Awhitu orchids. I found 2 *Thelymitra carnea* in flower on Suite Ridge – such a distinct little *Thelymitra*! It's going to be a good season for *T. carnea* here. Wayne & I went for a run in the morning to Mata-kawau Point. There on the cliff top was a clump of *T. longifolia* in full flower – many flowers so maybe it is *T. aff. longifolia*."

Distant relations? orchids (a little) like ours

Porroglossum is a genus of 34 species in the Andes. The lip is the defining characteristic: it is hinged and snaps shut when stimulated by a pollinator, thus trapping the insect to ensure that the pollinia will be removed and later transferred to the stigmatic surface. The lip opens after 30 minutes or so to release the insect, but also closes at night and reopens at dawn [1]. The stimulus "causes a rapid loss of turgor in the cells... (which) allows the lip to spring upward" [2].

That is remarkably like Pterostylis isn't it? Makes you wonder if they came from a common Gondwanan ancestor. Similar pleurothallid genera have sensitive labella—Condylago, Jostea and Acostaea—Ed.

References

1. Lynn O'Shaughnessy's Pleurothallid Alliance website.
2. Turkel M, Christenson EA. Flipping lips: *Porroglossum*, a genus of Pleurothallids with flexible lips. *Orchids* 2001; January: 15-21.

From Luer CA. *Icones Pleurothalidinarum IV: systematics of Acostaea, Condylago and Porroglossum (Orchidaceae)*. Missouri Botanical Garden. 1987, p27 (reproduced with permission).

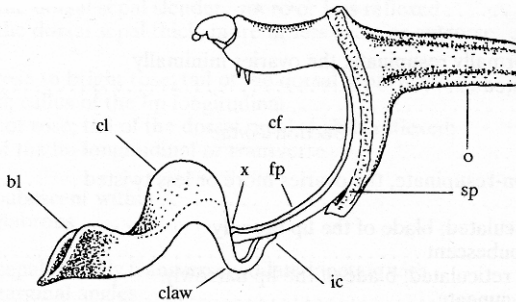


Figure 1. The lip in the open, or receptive position (*Porroglossum olivaceum*).

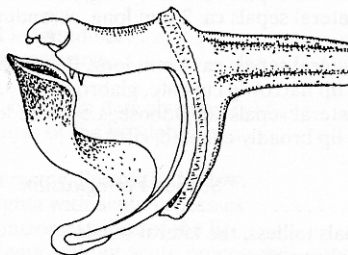


Figure 2. The lip in the closed position. The claw has slipped around the apex of the column-foot.

bl = blade of the lip; cl = callus of the lip; claw = claw of the lip; ic = insertion of the claw on the back surface of the column-foot; cf = column-foot; fp = free portion of the column-foot; o = ovary; sp = sepals and petals cut away; x = point of pressure between the outer layer of cells of the upper surface of the claw and the apex of the column-foot

Profile of a threatened NZ orchid: 9

Reproduced with permission —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 puberula Hook.f.

Family:	Orchidaceae	
Endemic to:	New Zealand.	
Common name:	Dwarf greenhood.	
Ranking:	O, Critical.	In cultivation: No.
Descriptor:	A small plant with a basal rosette of silvery-green, trowel-shaped leaves on narrowly winged stalks, and hairs on the flower-stem.	
Conservancy:	NL, WK, (WL, NM, AU, BP). Recorded recently (1990) from North Cape and from several sites near Thames (1996, 1997).	
Habitat:	Open, clay pans (especially gumlands and ultramafic sites), under low manuka scrub and on starved soils.	
Threats:	Habitat degradation and destruction (weed encroachment, pig rooting, natural succession); naturally small populations make them susceptible to catastrophic events; collectors.	

Work undertaken to date

Cytology; taxonomy resolved - this species was previously incorporated in the Australian complex of *Pterostytis nana*, (hence the Category O listing in Molloy and Davis, 1994). In 1995 it was established that the New Zealand taxon was distinct from *P. nana* s.s., and the name for the New Zealand plant (*P. puberula*) was revived; breeding ecology, and mycorrhizae studied: suitable sites surveyed in the North Island (Northland, Auckland, Waikato, Wellington); monitoring of known populations.

Priority sites for survey

All historical sites.

Monitoring: objectives and priority sites

Photograph sites to determine population trends in Kauaeranga Valley.

Research questions

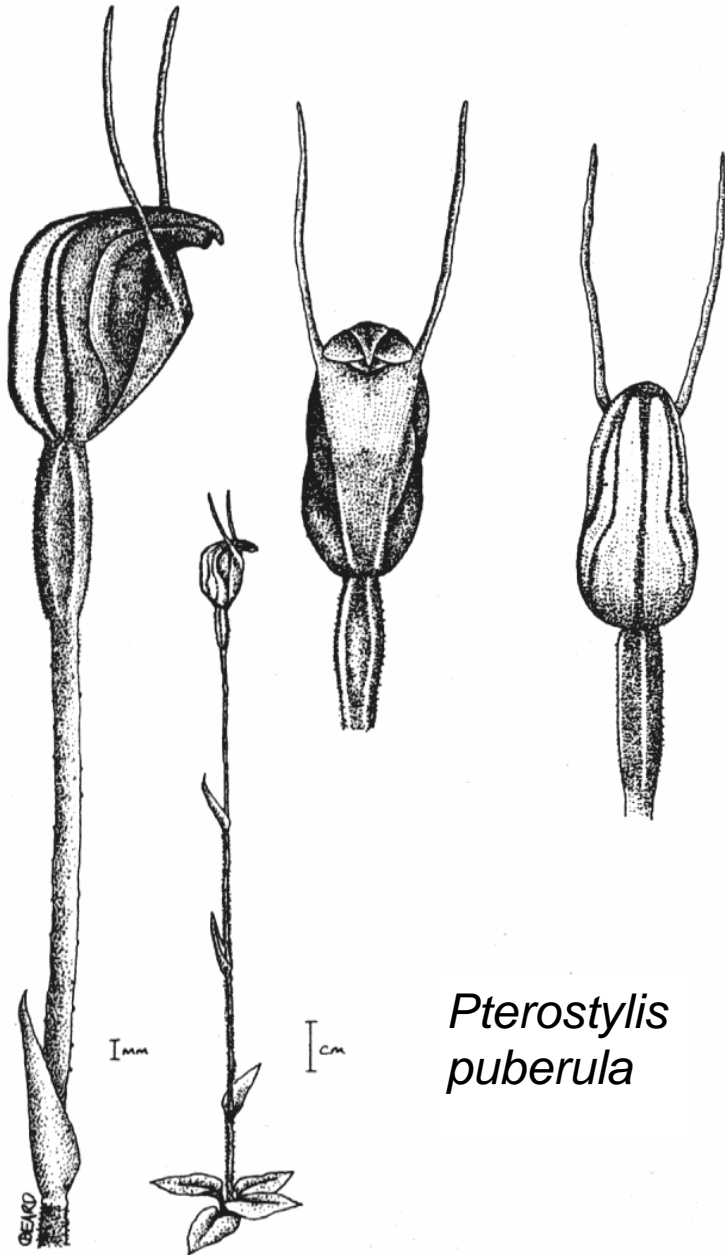
What are the population ecology and dynamics of *P. puberula*?

Management needs

Weed control at sites; animal (pig) control; translocation to establish new populations; advocacy with orchid collectors to stop collecting and report sightings.

Selected references

- de Lange, P.J. 1996. *Pterostylis puberula* - is it really so scarce? *NZ Native Orchid Group Journal* 60: 16-18.
St George, I. 1996. *Pterostylis* aff. *nana* (aka *P. puberula*). *NZ Native Orchid Group Journal* 53: 1-2.



Pterostylis puberula

Orchids on CD: a brief review of two CD-Roms. David McConachie

Pictorial guide to the wild orchids of Victoria by Jeffrey Jeanes and Gary Backhouse. Published by Zoonetics ERBooks. AUD66 including p&p.

Orchids of New Guinea Vol. I. Illustrated checklist and genera by André Schuiteman and Ed de Vogel. Published by ETI/National Herbarium of the Netherlands. Euro 59 plus p&p.

These two CDs exemplify different paradigms of presentation.

The first is described as an ER (Electronic Reference) Book and the replacement for Jeanes and Backhouse's *Orchids of Victoria*, which is now out-of-print. It is a PDF file that can be viewed on both Macs and PCs running Windows 9x with Adobe Acrobat Reader. You can get a bound or unbound hardcopy version but at AUD264 and AUD165 I can't afford either. The publication covers almost all species, subspecies and varieties of native orchids found in Victoria, with over 1300 photographs showing whole plants and flowers. Of interest is the illustration of variation within a species as well as examples of natural hybrids. This is something we need to do for the New Zealand orchids. Each genus has a brief introduction, highlighting number of species, distribution and natural history. Species information includes common and scientific names, key features, distribution and flowering times. There is an excellent key, glossary and appendices updating *Orchids of Victoria*. New Zealand enthusiasts will be particularly interested in the species we have in common with Victoria as well as near relatives. It was good to see *Thelymitra malvina* is back listed with a NZ distribution (cf. *Australian Orchid Research* 3). The *Caladenia* section will have Eric and others up till all hours trying to see if the photos help with the imbroglios. Other items of interest include New Zealand distributions for *Corybas fordhamii* and *C. unguiculatus*, as well as *Pterostylis mutica*. The best way to view the book is with View set to Full Screen, otherwise the two-page spread can become annoying. However you need a large monitor if you wish to read the text in this mode. The photos are embedded in the file so you can't use the disk in the presentation of a talk or for preparing articles.

The second CD is a more traditional CDROM based on the Linnaeus II interactive software for biodiversity documentation developed by the Expert Centre for

Taxonomic Identification (ETI). It is the first in a series to cover the orchids of New Guinea completely: an overview covering all the 132 genera recognised by the authors as well as a checklist of species. A small number of species are dealt with in detail but many are illustrated in the 2000 photos and illustrations. Many of the illustrations come from the archive of J.J. Smith in the National Herbarium of the Netherlands and have been scanned and cleaned up digitally. Of note the National Herbarium has also been scanning its collection of Type Specimens and uploading them to the Net <http://nhncml.leidenuniv.nl/rhb/>. When you start the program you are presented with a Navigation screen, which contains links to the other modules of the program, such as "Introduction", introducing the diversity in flora and fauna in New Guinea. "Glossary" has at least 500 botanical and other technical terms with their meanings, all of which are hyperlinked. "Literature" is a bibliography of references used. "Habitat" describes the different types of forest and vegetation illustrated with photos. "Higher Taxa" lists all genera, together with the images available to a particular species or genus. Only 3 genera out of 132 have no illustrations, while the others may have one to many. Synonyms are given. "Species" has a selection from a number of genera where you get detailed text descriptions and some magnificent photos and line drawings. These present the layout of species descriptions for the future CDs. The Checklist is a complete list of all 2931 recognised species. While there are no species in common between New Zealand and New Guinea some genera are. So it was interesting to look at *Corybas* and see the New Guinea species are closer to New Zealand's than are Australia's.

I may be a traditionalist when it comes to computer programs so I prefer the New Guinea CD to the Victoria CD. If you would like to see either of these programs they will be available for viewing at Iwitahi.



From nativeorchids@egroups.com

Interested in **books on North American native orchids**? A request for this information prompted several replies:

Native orchids of United States and Canada by Carlyle Luer: the "bible" of North American Orchids.

Orchids of the Western Great Lakes region by Frederick. Case, Jr. 1987 is an excellent tome. (Revised from 1964 publication)

Orchids of Indiana by Michael Homoya 1993: the best Native Orchid book ever. The photos in this book are superb - they must have been taken by a medium format camera.

Our wild orchids by Morris & Eames - an old book, long out of print and published in 1929. This book is different in that it gives you stories of the "hunt", which to me is the best part of Orchidizing!

Orchids of Ontario, by R. E. Whiting and P. M. Catling. 1986.

Missouri orchids, by Bill Summers. 1987. (First published in 1981)

Wild orchids of Arkansas, by Carl M. Slaughter. 1993.

Orchids of Minnesota by Welby R. Smith. 1993.

The wild orchids of California, by Ronald A. Coleman. 1995.

The orchids of the Ottawa district, by Joyce M. Reddoch and Allan H. Reddoch. 1997. (Special issue of the Canadian Field-Naturalist)

The orchids of Bruce and Grey, by the Bruce-Grey Plant Committee. 1997.

Wild orchids of the northeastern United States, by P. M. Brown. 1997.

Orchids of the northeast, by William K. Chapman. 1997.

Wild orchids of Texas, by Joe Liggo and Ann Orto Liggo. 1999.

Native orchids of the Southern Appalachian Mountains, by Stanley L. Bentley. 2000.

Orchids across America by Phil Keenan.

Hello, I am new to this list. I joined because I had a question about the ladyslippers growing behind my home. While walking through the woods a few days ago I counted 45 ladyslipper plants, some blooming and the ones I saw were pink. This was within 1/8th of a mile. I know of a place deeper in those woods that is thick with ladyslippers also. The problem is the woods belong to a local logging company that grows pine. Is there anything I can do to stop them from destroying the area where these beautiful plants grow? I will be foraging back there later this week for some other plants and will do an area count on the ladyslippers. I only touch these beautiful orchids with my eyes and my heart and know not to move them in any way.

By the way, my name is Dawn Manyfeathers. I am a Lenape Native American who now resides in a beautiful place on Maryland's eastern shore. Please forgive me for not telling you this to begin with.

The same woods that produce the ladyslippers also produces indian pipe and several other rare plants.

If there are any suggestions please let me know. These people are ruthless when it comes to logging an area.

David McConachie is interested in getting copies of *The Orchadian* prior to Vol 9 no. 5. If anyone has copies available can they let him know price—

David McConachie, 15 Battersea Place, Palmerston North, phone 06 3586559, email pleione@ihug.co.nz.



Historical reprint: Lesson's *Dendrobium*

Banks and Solander found eight orchids while the *Endeavour* was on the NZ coast 1769-70. Among them was *Winika cunninghamii*, named "Epidendrum pendulum" by Solander in his unpublished manuscript [1]. Good old entrepreneurial marketplace competition delayed and prevented publication.

Under the captaincy of Duperry, the French corvette *La Coquille* visited the Bay of Islands from 20 March to 17 April 1822. Dumont D'Urville was first lieutenant, and René-Primevère Lesson was surgeon-naturalist: the latter 'was expected to attend to matters relating to botany' [2]. They were too late for orchids, and none were recorded.

La Coquille was renamed *L'Astrolabe*, and this time with Dumont D'Urville as Captain and Pierre-Adolphe Lesson (R-P's younger brother) as Surgeon 3rd Grade, she reached Tasman Bay, and stayed off the north of the South Island from 14 January to March 1827. This time they did find orchids.

Dumont D'Urville had studied the Forsters' account of New Zealand and had worked with the great French botanist Achille Richard. The botanical culmination was the publication in 1832 of *Flore de la Nouvelle Zélande*, text by P-A Lesson and Achille Richard, with an octavo Botanical Atlas.

Two plates illustrated three New Zealand orchids, *Thelymitra forsterii* (*T. longifolia*), *Diuris Novae-Zeelandiae* (*Orthoceras novae-zeelandiae*) and *Dendrobium biflorum* (*Winika cunninghamii*) [3].

This was the first published description of *W. cunninghamii* which Lesson and Richard wrongly identified with the Tahitian *Dendrobium biflorum* [4]. Lindley later saw the difference and formally described *Dendrobium cunninghamii* from specimens collected by Richard Cunningham in Northland in 1836.

In 1883 Colenso, in splitting mood, described *D. lessonii* from Hawkes Bay and the southern North Island, regarding it as distinct from the "northern form" [4]: nobody since then has agreed with him.

Among the bound papers of R-P Lesson at Rochefort (where the Lessons were born) are watercolours of *Orthoceras* and *Winika* [5], attributed to him. But both were found at Tasman Bay and are annotated "Janvier 1827". They must have been collected by his younger brother Pierre-Adolphe who was the one that visited the South Island with Dumont D'Urville in 1827.

Indeed, D'Urville recorded in his diary for 16 January, when P-A. Lesson accompanied him on the third day of their visit –

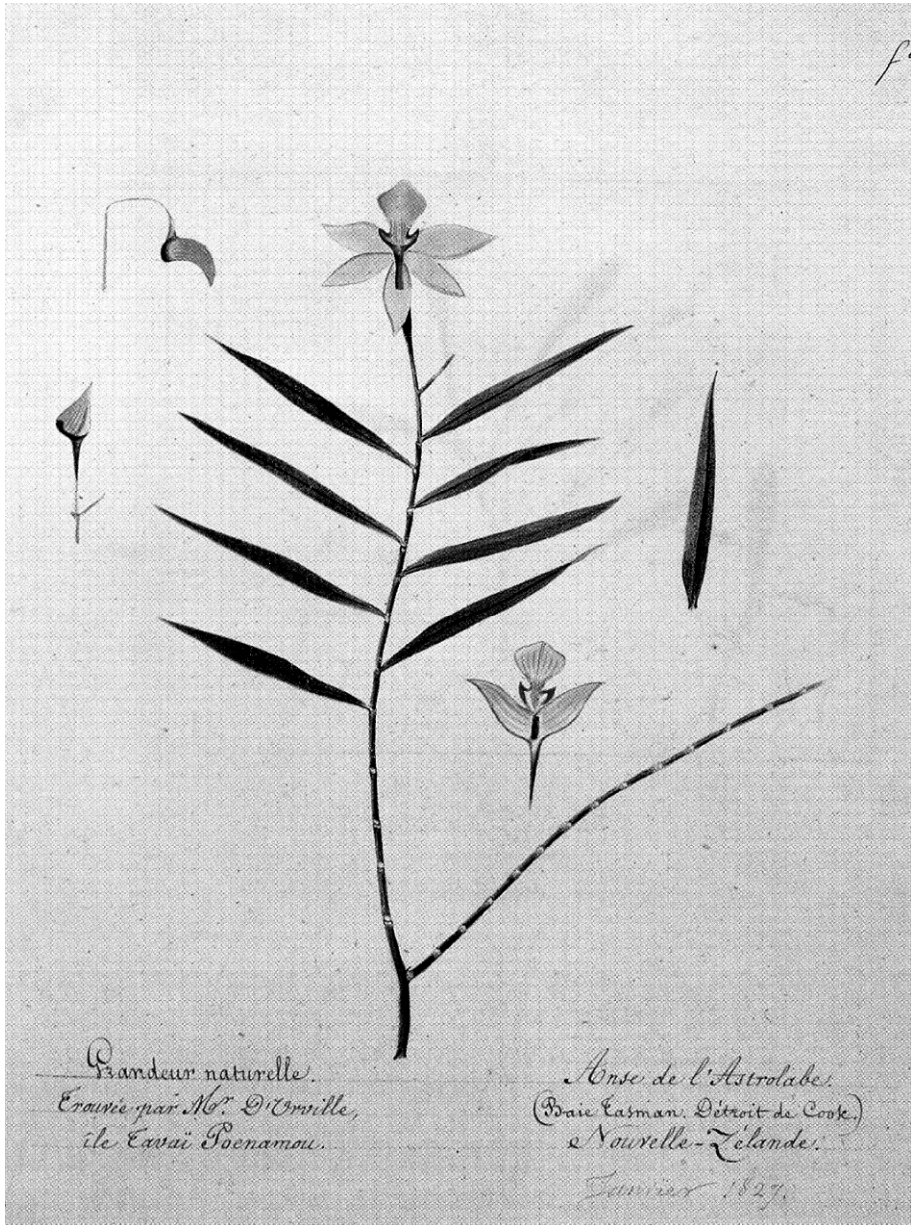
'Among the parasitic plants, I noticed some fine Epidendrum or Dendrobium' [6].

The *Winika* watercolour was published for the first time in Christine A Hemming's *The art of the French voyages to New Zealand 1769-1846*. Heritage Press, Auckland, 2000; plate 18. We are grateful for permission to reproduce it here.

References

1. Hatch ED. Orchids collected on Cook's voyages. *NZNOG Journal* 1987; 21: 6.
2. Wright, Olive. *New Zealand 1826-1827 from the French of Dumont D'Urville*. Wingfield Press, 1950. p 56.
3. Lesson A. and Richard A. *Flore de la Nouvelle-Zélande: Atlas Botanique*, 1832. In Dumont D'Urville, Jules Sebastian César. *Voyage de la corvette l'Astrolabe, exécuté par ordre du Roi, pendant les années 1826-1827-1828-1829, sous le commandement de M.J. Dumont D'Urville... publié par ordonnance de sa Majesté*. Paris, J. Tastu, 1830-35.
4. Colenso W. *Trans NZI*. 1883; 15: 326.
5. Fonds Lessons, Ms 8168 Res 1-C, ffo 211 (*Winika cunninghamii*) and 213 (*Orthoceras novae-zeelandiae*). Bibliothèque Municipale, Rochefort, France.
6. Wright, p 13.

Winika cunninghamii, watercolour attributed to René-Primavère Lesson, but the plant certainly collected by Pierre-Adolphe Lesson, 1827. Reproduced from Christine Hemmings. *The art of the French voyages to New Zealand 1769-1846*. Heritage Books, Auckland, 2000.





Australian notes: David McConachie

Pterostylis despectans project

By Andrew Dilley: *from ANOS Victorian Group Bulletin.*

On Tuesday the 5th of June, ten members met with Jenny Alexander from the Bendigo region of NRE, at Talbot, to view several *Pterostylis despectans* sites and discuss the various issues relating to the management of the colonies. Six sites were visited and, although *P. despectans* is a late flowering orchid, rosettes were positively identified at three of the sites. One of the sites turned out to have a far greater number of plants than previously thought.

After viewing the orchid's environment, it was clear that it was under **threat** from the following:

White winged choughs These birds actively search for the orchid tubers, digging down at the base of the plant, eating the tuber and leaving the remains of the plant to die. The birds are voracious foragers and once they find a colony they will continue digging until most plants have been eaten.

Rabbits and wallabies In the flowering season, plants were being grazed and were not able to set seed. There was also evidence that rabbits were digging to get to the tubers.

Prospecting The habitat in which these plants are growing is gold prospecting country. Weekend prospectors may dig up plants while searching for gold, as well as trampling the area.

Firewood collection Some of these areas are also available for firewood collection. Clearing out the area of dead wood may expose the plants to other threats such as the local wildlife. Again, the plants may be trampled in the process.

Vehicles Many of the colonies were located on the sides of roads and were particularly vulnerable to having vehicles drive over them.

Possible lack of pollinators At this stage

it is not known whether the natural pollinator is in the area. So few plants have been seen to flower without being eaten that it is not known at this stage whether the pollinator is still active in these regions.

As a result of identifying the above threats it became clear that some form of **protection** will probably be necessary. The possibilities identified on the day were:

Caging This is probably the most effective way of keeping out the choughs and other wildlife. However, it does have its disadvantages. It can be a relatively expensive exercise, especially if stainless steel cages are used. The orchids generally are not in compact colonies, so many plants can not be protected by a single cage. As many of the orchids are in areas close to public access, cages will attract the attention of passers by, which will encourage more trampling and potential tampering. Another disadvantage of caging is the need for regular checking and maintenance as grasses and weeds will tend to grow up if grazing is prohibited.

Protecting the plants with natural materials It was proposed that plants could be "caged" using materials found nearby, the advantage being that it would not attract so much attention from the casual passer by. The downside is that natural materials are not as effective as cages in keeping out the wildlife, and the natural materials may shade the plants more than they like. Natural materials also have a tendency to collapse and, therefore, will need to be regularly maintained.

Fencing This is good for enclosing large areas of dispersed plants and will help prevent trampling but, like caging, will attract public attention and encourage weeds and

grasses to grow. It is also no defense against the Choughs unless netting is placed over the top.

Bollards These can be effective at keeping vehicles out of areas, but the construction of these barriers may cause more damage where plants are very close to road verges. This method is no defense against the other threats and would need to be used in conjunction with some other method.

Banning of firewood collection NRE is prepared to ban firewood collection from threatened sites, but putting up signs alone is no guarantee that this practice will stop and policing such a ban is very difficult.

The strategies that we came up with as a result of our investigations and discussions were to try different approaches. Various techniques would be used as appropriate for the site.

- Cages could be used in areas that are not readily noticeable to passers by and where locals are able to keep a regular eye on them.
- Plants would be protected using natural materials in areas of greater public access.
- Fencing may be employed in areas where plant populations are more widely spaced out and where it is necessary to keep prospectors and firewood collectors out. Fencing may also need to be used in conjunction with caging to keep out the Choughs.

Other activities that will be conducted as part of this project will be **searching and monitoring**. At various times throughout the year, the A.N.O.S. Victorian Group Conservation Group will be conducting searches of various sites so that we can get a better idea of the extent of the areas and the broad numbers of plants that are growing. We will also search other potential areas to determine if there is sufficient diversification between colonies. Further -

searching will probably be conducted at the end of July or early August when the rosettes are more established

Selected locations will also be established for detailed monitoring. This will probably be conducted by marking out some grid squares using wooden pegs and then mapping all the plants in the grid. Monitoring of the orchids will determine the percentage of plants flowering and setting seed and will determine if numbers are multiplying in future years. The marking of individual plants using steel pegs was not deemed suitable in this area as prospectors may locate the peg and dig it up along with the orchid.

Further controls may be carried out comparing areas of hand pollination to areas of natural pollination.

We will probably also be seeking permission to collect seed. This seed would then be stored and returned to the site the following autumn when germination normally takes place. It is felt that this will help produce a larger number of germinated seedlings rather than leaving the seed pods to be eaten or dispersed to areas unfavourable to germination. At this stage there are no plans to try and grow plants from seed *ex-situ* as the numbers of plants are not sufficiently depleted to believe that this orchid is in imminent danger of extinction in the wild. Growing plants from seed and then trying to reintroduce them into their natural environment introduces another set of problems and should be avoided unless there is no other option.

Addendum Since this field trip, Adrian and Myra Morton have returned to the site where many more rosettes were found than previously known. Their searching located 817 plants. While this figure is extremely encouraging, it should not be a sign for complacency. This area has been attacked by choughs recently and it still is not known whether sufficient plants are flowering and setting seed to ensure the plants' survival.



The column: Eric Scanlen Wharekawa GLOS

Twin flowered *Pterostylis trullifolia* Geoff Stacey's twin "trull" which the field party (except the Column!!) examined on 2 July in the Auckland Regional Park at Wharekawa, was still in fresh flower 58 days later (**Fig 1**). A twin "trull" is a rare event and this was only the Column's second sighting in 40 years. A flourishing colony about 1m square, hosted the twin. It had a 300mm stem, to get above the tree root which you can see backgrounding its portrait. On 6 September, No. 2 flower was still reasonable but No.1 had started to shrivel. Very few others in the colony had by then survived another opossum attack. The blighter had singled out *Pterostylis* as prime food and just nipped the flowers off the top! Geoff converted her to dog tucker; with a piece of the Column's best apple for trap bait. On 18 September Geoff 'phoned the good news that the ARC is recommencing follow-up poisoning after their highly successful 1080 drop of 1995 in the Hunuas. The Column hopes his e-mails to the ARC were instrumental. But Geoff also offered that 2 sheep and a lamb had since strayed into the park and preferentially browsed off most remaining orchids including many of the tiny *Corybas hypogaea* mentioned below.

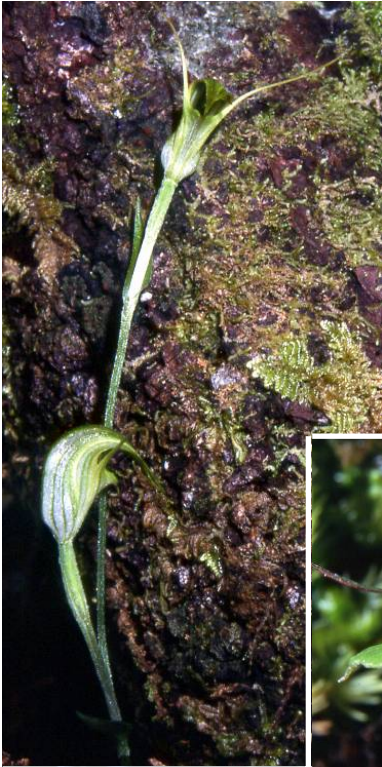
Twin *Corybas acuminatus* However, Geoff had called the Column, on 29 August, mainly to capture a healthy twin *C. acuminatus* (**Fig 2**) only 200m from the twin "trull" but this time in Ross Higgins' Island Block of bush/farm. Notice that the second flower springs from the site normally occupied by the wire-like fertile bract and as with twin *C. oblongus*, these look as out-of-place as Siamese twins.

***Corybas* "triaug"** Not far from the twin *C. acuminatus* stood a colony of Geoff's August flowering colony of *C. trilobus* agg. This third Hunuas taxon has the elsewhere

common, green, cap-like and emarginate dorsal sepal, but it is short, showing part of the labellum protruding beneath. The bib of the bulging labellum has the unusual, two deep lacinations à la Colenso's *C. hypogaea*. **Fig. 3** is the only flower the Column captured; please excuse the unnoticed bite out of the labellum.

Corysanthes hypogaea Back in the ARC's Park on 6 September, Geoff pointed out the fourth Hunuas taxon of *C. trilobus*. (**Fig. 4**) He suspected it was *C. hypogaea* because most of Colenso's description [1] was embodied in this strange little plant. They had been only in bud on 29 August but here were six flowers amongst say 120 curiously shaped leaves, in a 10m long strip across the ridge top. (**Fig 5**) Flowers were sometimes concealed by the litter of *Nothofagus truncata*, but, Colenso had them 1-2 inches below the surface of moss and *Nothofagus solandri* litter plus jagged sides to the labellum which were here fairly smooth. However, this taxon has so many traits that fit, we reckon it could be included in *C. hypogaea*. Its "sheathing truncate bract" was once the Column's key ID of *C. "pygmy"* which flowers here and elsewhere in June and July so it seems there are at least two *C. trilobus* agg. taxa with this character.

***Corybas* "trisept"** The Column could see similarities between Geoff's *C. hypogaea* and *C. "trisept"* from the Wairoa Valley on the western side of the Hunuas so Phil Mitchell was called upon also on 6 September and the trio inspected a colony of *C. "trisept"* [J76 p40]. The flower was about twice the size of the *C. hypogaea*, in regenerating ponga and native scrub, not in beech litter. The dorsal sepal was similar to Geoff's *C. hypogaea* but the 2 lacinations were missing from the labellum bib as was the truncate bract at the



↖ Fig. 1 Top end of the twin, 300mm tall *Pterostylis trullifolia*.

↑ Fig. 2 Twin *Corybas acuminatus* jostling for position. The second flower is still opening.

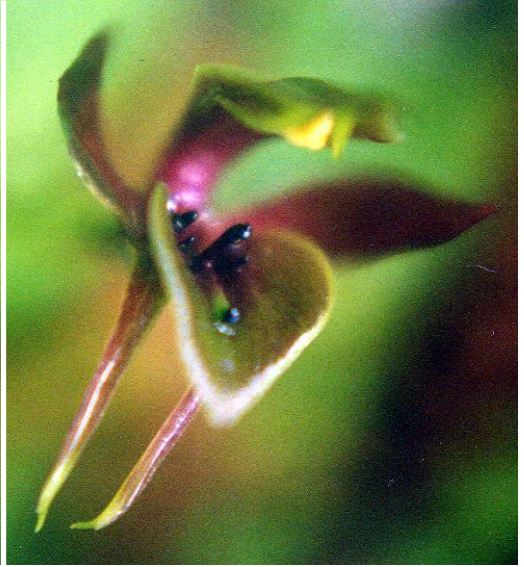
← Fig. 3 The third *Corybas trilobus*

taxon in the Hunuas, *C.* "triaug" with short, emarginate dorsal sepal. Flower is 10.3mm high.

← Fig. 4 *Corysanthes hypogaea*. Note "2 deep lacinations" to the lip, "sheathing truncate bract" to the base of the petiole. The flower is 7.3mm in height and hides in the beech litter.

Fig. 5 → Plan view of *C. hypogaea* showing "substataste [sub arrow shaped] very blunt" leaf and "subapiculate" dorsal sepal. The leaf is a mere 11.7mm wide and typical.





Chiloglottis valida, Te Anau (↑ & ↗).

Hypochromic (↓) and fully coloured (⇒)
members of the *Corybas trilobus* agg.
(same scale): Lake Wairarapa.

The same plant and a larger plant ↓.



base of the petiole. The leaf was longer too, but the similarity in the “sub-apiculated” dorsal sepals was unmistakable.

In fact, several traits were shared variously among all four of the Hunua *Corybas trilobus* aggregate making one suspect hybridisation. The different flowering times

would make this unusual to rare but no doubt there are overlaps so hybrids are possible. With Geoff’s eagle eyes, the Wharekawa part of the Hunua Ranges is becoming another GLOS.

Reference

1. Colenso, W. *Corysanthes hypogaea*, *Trans NZ Inst.* 1884 16: p336.

On 20 December 2000 Tim Park of QE2 Trust located new colonies of *Chiloglottis valida* near the Snag Burn in the Murchison Mountains west of Te Anau. Two colonies were found a couple of hundred metres apart, with a total of three flowers. Tim’s photos (see ←opposite) were taken without flash, shot at 1/30 second, hand held with topo map used as a light reflector. In the same area were many *Corybas cryptanthus*, confirming Colin Burrows’s finding of a rhizome of this species during excavations at the time of the threat to raise Lake Manapouri.

On 1 September Pat Enright found specimens of *Corybas trilobus* agg. at Western Lake Reserve, Wairarapa. There was a tiny plant with a flower 5mm across but with a narrow apiculate dorsal sepal and a long-axis-vertical labellar opening that looked like a small version of *C.* “rimutaka”; a much larger plant with a 10mm flower, its labellar opening round and its dorsal sepal wide and notched, and a white flowered form intermediate between the two. This site is at sea level—so much for the theory the white forms are montane—see ←opposite. Also scanned are the small and large fully coloured forms from the same site.

Pat Enright continues his exploration of the **Tinui Taipos**, a strange serrated ridge in the eastern Wairarapa. In late September he turned up a curious *Corybas* — for all the world like a *Corybas macranthus*, but with the dorsal sepal of *C. trilobus*. This looks very like the plant I saw on the Putangirua Pinnacles track (southern Wairarapa coast) last season: it was growing between patches of flowering plants of *C. macranthus* and *C.* “Trotters” on either side of the track, and I took it to be a hybrid between them [J79 p3].



Contents

Special feature: a new New Zealand native orchid

Cover: *Chiloglottis trapeziformis*. **2.** *Chiloglottis trapeziformis* near Levin. Leita Chrystall; Brian Tyler.

The first discovery of “*Chiloglottis formicifera*” in New Zealand. ED Hatch. **5.** TF Cheeseman on *Chiloglottis formicifera*. **6.** Matthews’s specimen from Kaitaia. **7.** RD FitzGerald on *Chiloglottis formicifera* and *C. trapeziformis*. **12.** How orchids attract insects.

From the editor: Ian St George

13. *Chiloglottis trapeziformis*—comments. **14.** Population studies. *Pterostylis* unzipped. **15.** A list of the New Zealand orchids.

Population studies—1

19. *Orchis simia* in the Netherlands. From JH Willems and L Bik.

Original papers

22. Orchids of the Manukau Peninsula. Tricia Aspin.

23. *Pterostylis thigmonasty* 2. Tricia Aspin, Ian St George.

24. New Zealand Native Orchid Seed Bank: “Conservation through Accessibility”. David Shaw.

26. Orchid Keys 3: The New Zealand genera. Graeme Jane.

Notices, notes, letters, questions, comments

20, 21. The Irwin Orchid Symposium at Iwitihi. 2001 edition of the *Field guide*.

25. *Corybas*: funny name for an orchid.

27. The sensitive lip of *Acostaea*.

28. Pat Enright and *Pterostylis alobula* at the Tinui Taipos. John Dodunski finds *Bulbophyllum tuberculatum* at New Plymouth. John then tells the truth about hybrids of *Drymoanthus adversus* and others. **29.**

Peter de Lange finds *Corybas fordhamii* at home in Australia. The OSG *Ex situ* Conservation

Group.Kew brew. *Corybas* near Levin. **30.** New names for some Australian *Pterostylis*? Tricia Aspin and big *Corybas oblongus*. Source cultivated natives? *Corybas orbiculatus* in Wairarapa. Small *C.* “Trotters” briefly excites discoverers. *Acianthus sinclairii* over 40 years near Levin. *Thelymitra carnea* added to Awhitu list.

43. Tim Park finds *Chiloglottis valida* near Te Anau. Pat Enright finds *Corybas trilobus* agg. near Lake Wairarapa. A curious *Corybas* at the Tinui Taipos.

Distant relation? an orchid like ours?

31. *Porroglossum*’s irritable labellum.

Profile of a threatened NZ orchid—9

32. *Pterostylis puberula*.

Review

34. Two new CDs. David McConachie..

From the internet: nativeorchids@egroups.com

35. Books on North American orchids. Dawn Manyfeathers and her slipper orchids.

Historical reprints

36. Lesson’s *Dendrobium*

Australian notes: David McConachie

38. *Pterostylis despectans* project. Andrew Dilley.

The column: Eric Scanlen

40. Wharekawa GLOS.

The New Zealand Native Orchid Group owns copyright of this material: our main aim is informing people about native orchids. We therefore do not guard material in our *Journals* as exclusive intellectual property, but permit other botanical publications to copy it, provided the source and author are acknowledged. Authors should note this as a condition of acceptance of their work. The *Journal* is published quarterly from March, and deadline for copy is the first of the month preceding. We prefer copy to be typed or sent on disk or by email.

Subscription \$25 in NZ, \$30 elsewhere.

Editor: Ian St George, 22 Orchard St, Wadestown, Wellington, phone 04 4994227, fax 3894178, istge@rnzcp.org.nz.

Conservation officer: Peter de Lange, DoC, PO Box 68908 Newton, Auckland, phone 09 307 9279, email pjdelange@xtra.co.nz.

ANOS liaison: David McConachie, 15 Battersea Place, Palmerston North, phone 06 3586559, email pleione@ihug.co.nz.

Seed bank: David Shaw, PO Box 491, Ashburton, PO.Box 491 Ashburton, email: seed_bank@msn.com.

Field trips: Eric Scanlen, 4 Sunny Park Ave, Papakura, 09 2984868, email eascanlen@xtra.co.nz.