



The
New Zealand
Native
orchid
journal

May05
#95



Cover

Gastrodia “long column”, Wharariki, north Nelson; photograph Mark Moorhouse.

Inside front cover

Fig.1: Margaret Menzies’ photograph of putative hybrid *N. iridescens* X *trilobus* s.l. [J93 and p.5 of this issue].

Figs 2 & 3: *Thelymitra cyanea* and *T. pulchella* near Queenstown (p.23).

Fig.4: Phil Norton’s *Aporostylis bifolia* (p.22).

Editorial

4 *Nematoceras* hybrids?

Original papers

10. Comings and goings. Leicester Kyle.

11. *Pterostylis venosa* and *P. humilis*. Bruce Irwin and Dan Hatch.

14. *Pterostylis humilis*: an orchid with a past. Dan Hatch.

15. *Stegostylis* “minor”. Mark Moorhouse.

Close relations: orchids like ours

17. *Gastrodia lacista* from Western Australia

Elementary—E.D. Hatch

18. Grass-leaved greenhoods 2

Historical reprints

20. Jottings from the past

Notes, letters, questions, comments

9. Waikaremoana field trip.

21. “For lack of a moth, the orchid is lost”.

22. Gordon Sylvester on *Pterostylis cernua* etc. Phil Norton’s orchid finds.

24. New South Australian orchids.

25. Wine and wild orchids in the Clare Valley. Tracey and Bernard near Queenstown. Conferences and congresses.

26. Mark Moorhouse’s *Pterostylis* aff. *irsoniana* from Arapawa Island. Amoc responds.

Pat Enright on eastern Wairarapa *Gastrodia*.

27. Tuvalu stamp by British artist shows NZ orchid. North Qld’s *Drymoanthus minutus*.

The column—Eric Scanlen

28. Old *Caladenia* paintings at AK.

29. *Gastrodia* “long column black”.

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Nematoceras hybrids?

- from a presentation given at Iwitahi 2004. For the background to this paper see editorial 4, page 9, NZNOJ 2004; 94: 9.

1 Margaret Menzies' photograph (Fig.1, p.2) and Bruce Irwin's drawing (Fig. 5, this page, at right) show a *Nematoceras* with a round leaf, a broad, short and pointed dorsal sepal, and a flared labellum—characters intermediate between *N. triloba* in the broad sense (s.l. = *sensu lato*), and members of the *N. macrantha* and *N. rivularis* groups. Bruce has suggested it may be a hybrid: *N. iridescens* x *N. triloba* s.l.

2 Pat Enright and I found a rather similar plant at Lowes Bush in Masterton in October 04, an intermediate form between *N. longipetala* and *N. hypogaea*, both of which were growing close by (Fig.6).



Fig.6: putative *N. longipetala* x *N. hypogaea* from Lowe's Bush Masterton.

3 Gael Donaghy and Graeme Jane found an intermediate form between *N. macrantha* and *N. orbiculatus*, both of which were growing nearby, at Sawcut Gorge in October 1998 (Fig.7). The plant had lateral petals shorter than lateral sepals as in *N. macrantha*, lateral sepals longer than those of *N. orbiculatus*, and dorsal

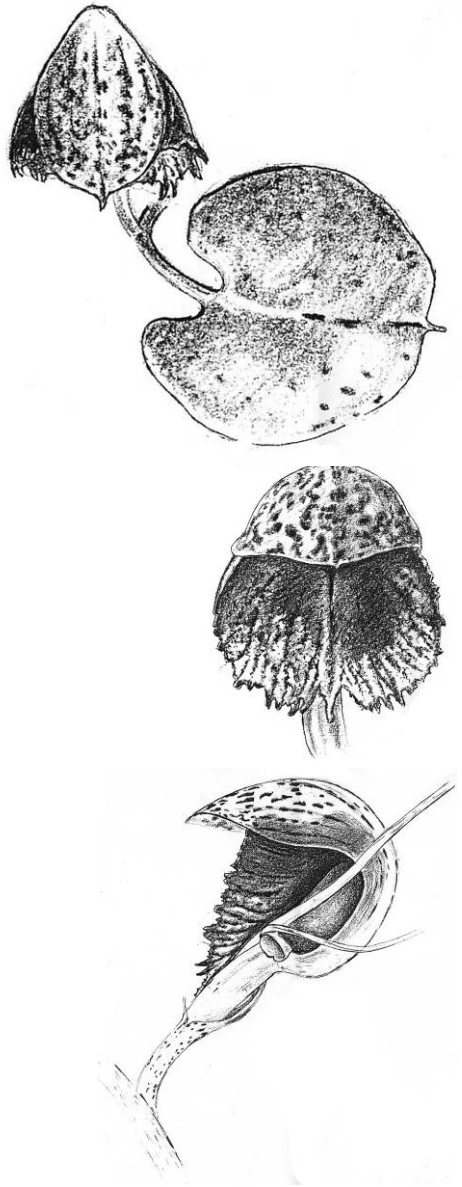


Fig.5: Bruce Irwin's putative *Nematoceras iridescens* x *N. triloba* s.l.

sepal wide as in *N. orbiculatus* but long as in *N. macrantha*.



Fig.7: Gael Donaghy's photos of putative *N. macrantha* x *N. orbiculatus*

4 Another Pat Enright find from the Tinui Taipos is a curious round-leaved plant with a labellum like that of *N. macrantha*, but a dorsal sepal like that of *N. triloba* s.l. (Fig.8). It appears to be identical to one I found south of the Taipos, on the Putangirua Pinnacles track in southern Wairarapa one November, among flowering plants of *N. macrantha* and *N. "Trotters"*; could this be a *N. macrantha* x *N. "Trotters"* hybrid?



Fig.8: Pat Enright's possible *N. macrantha* x *N. "Trotters"* hybrid from Tinui Taipos

5 Bruce Irwin sent drawings of a plant he had found at Dicky's Flat in 1991 (Fig.9 overleaf). He suggested it too is a *N. macrantha* and *N. triloba* s.l. hybrid, and indeed it has a flared labellum and round leaf like those of *N. macrantha*, but a short and rather bluntly pointed dorsal sepal. The other structures of the flower appeared also to be intermediate between those of *N. macrantha* and *N. triloba* s.l., both of which were flowering nearby.

6 Olaf John had photographed a similar flower for the cover of the Wellington BotSoc's *Bulletin* in 1994 (Fig.10)—a plant he found in the Lake Reserve, southern Wairarapa. Its flower is remarkably similar to Bruce's, but has a trilobate leaf.

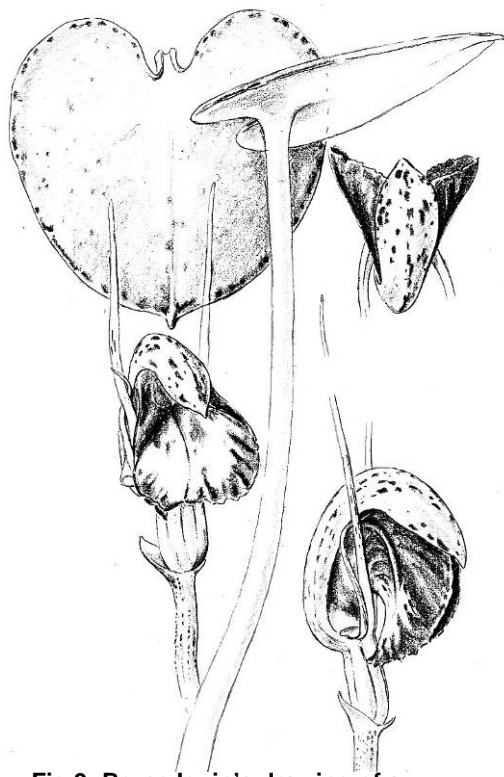


Fig.9: Bruce Irwin's drawing of a possible *N. macrantha* x *N. triloba* s.l., Dicky's Flat.

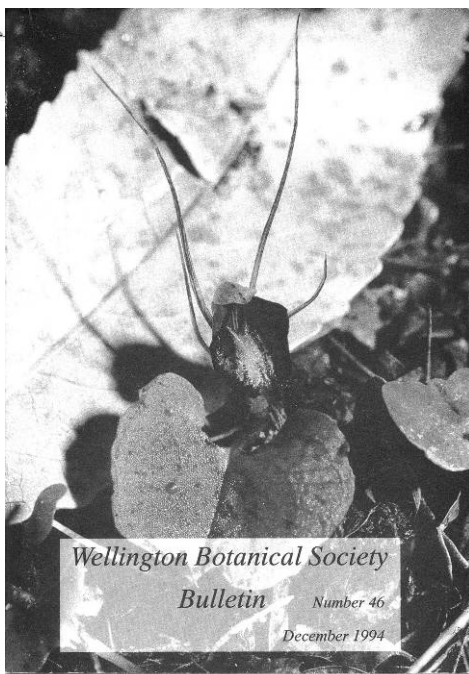


Fig.10: Olaf John's photograph of a plant he found at Lake Reserve, southern Wairarapa.



7 Trevor Lewis sent a photograph of a plant he had found near Nelson (Fig.11). It looks remarkably like Olaf John's plant, with its trilobate leaf but flared labellum and short blunt dorsal sepal..

Fig.11: Trevor Lewis' photograph of a plant found near Nelson.

8 Margaret Menzies and Alan Ducker found a strange *Nematoceras* near Taumarunui (Fig.12). It had a long, broad and pointed dorsal sepal, a tall and narrow labellar shape, rather reminiscent of *N. "rimutaka"*, and a trilobate leaf. Again, the suggestion is it is a hybrid between one of the *N. triloba* agg. and one of the *N. rivularis* group.



Fig.12: the strange *Nematoceras* found near Taumarunui

9 Bruce Irwin photographed and later drew a plant he found at the Paramanawera wetland (Fig.13): *N. macrantha*, *N. "rest area"*, *N. "sphagnum"* and *N. orbiculatus* were also present: is it a hybrid? what are its parents? is it the same as the Taumarunui plant?

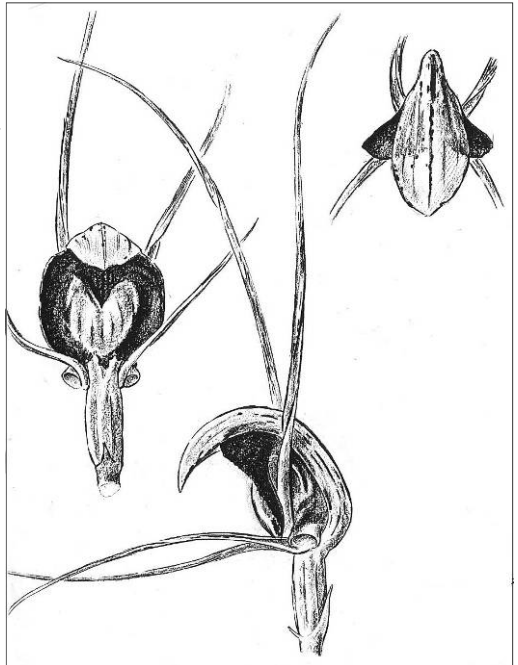


Fig.13: Bruce Irwin's drawings of a plant he found at Paramanawera wetland: is this another *N. triloba* s.l. x *N. rivularis* agg. hybrid?

10 Eric Scanlen's photographs (Fig.14 overleaf) of round-leaved taxa of *Nematoceras* aff. *triloba* with long and bluntly pointed dorsal sepals, and labella like that of *N. hypogaea*, taken at Rainbow Skifield and at Whakapapa, look remarkably similar to each other—and rather like the Taumarunui and Rangataua plants above.



Fig.14: Eric Scanlen's photographs of roundleaved *Nematoceras* aff. *triloba*, the plant at left from Rainbow skifield, that at right from Whakapapa.

11 Is the round-leaved
Nematoceras from
 Horopito (Fig. 15) a
 hybrid? it has a simple
 short rounded dorsal
 sepal, like any *N. aff.*
triloba, but it has the
 round leaf and the
 flared labellum of *N.*
macrantha. If this is a
 hybrid? in which case
 are all roundleaved *N.*
aff. triloba hybrids?

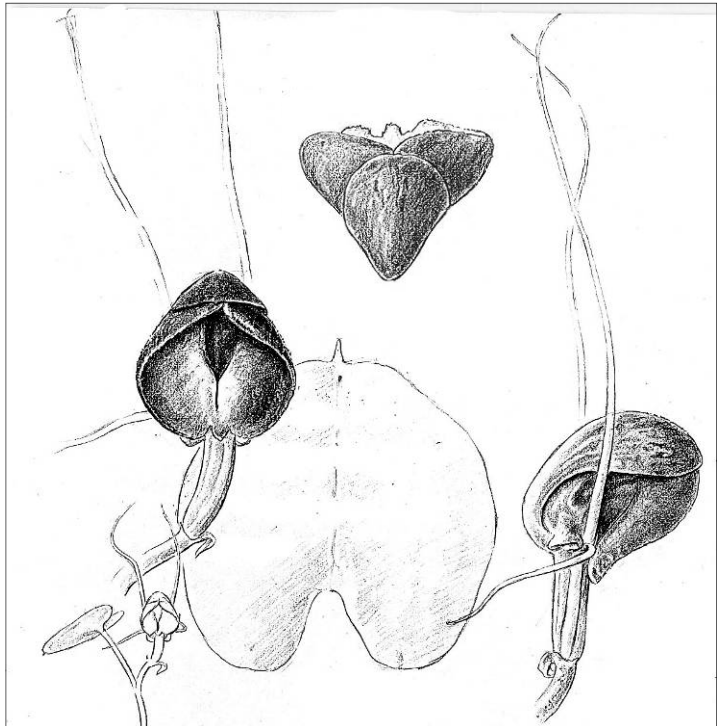


Fig.15:
 Bruce Irwin's
 drawings of
Nematoceras aff.
triloba "roundleaf"
 from Horopito.

Summary

1. There are no proven *Nematoceras* hybrids—to be proved the hybrid must be reproduced by artificial cross-pollination.
2. It seems likely however, that some hybrids do exist in the wild—plants with structures intermediate between supposed parents which both grow nearby, for example
 - N. iridescens* x *N. triloba* s.l. round leaf
 - N. hypogaea* x *N. longipetala* round leaf
 - N. triloba* s.l. x *N.* “whiskers” trilobate leaf
 - N. macrantha* x *N. triloba* s.l. trilobate leaf
 - N. macrantha* x *N.* “Trotters” round leafOne parent is *N. triloba* s.l.
 - N. macrantha* x *N. orbiculatus* (hybrids between members of the *N. rivularis* group and the *N. macrantha* agg. will be hard to spot unless structurally intermediate between two obvious parents nearby).
3. There are some others that have characters between *N. triloba* s.l. and *N. macrantha*, or *N. triloba* s.l. and *N. rivularis* agg. which may or may not be nearby, for example *N. aff. triloba* “roundleaf” forms from Horopito, Whakapapa, Rainbow skifield.

Acknowledgements

I am grateful to the artist and photographers whose work is reproduced here.

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originalpapers

Comings and goings

by Leicester Kyle, Buller

Over the seven years for which I've owned this property I've been impressed by the movement of orchids, by their attempts to lodge themselves, their failures and successes. The half-hectare offers a range of environments: it's at 300 metres above sea level, and is bisected by a small gorge cut through the sandstone. Both sides of the creek were once inhabited, but in the 1960s when the coal mines closed, all but two of the houses were taken away; the two remaining are occupied. Bush now covers the vacated sites—rata and kamahi mostly, with some manuka and toro, and emerging podocarps. There is an abundance of tree ferns, while flax and coprosma occupy the less hospitable places. The annual rainfall of three metres means there's always a lot of water around and a great variety of mosses liverworts and filmy ferns, especially in the gorge.

There's a wide range of habitats, and it must have been much wider for a time after the houses were taken away; a good deal of what I now see must be the aftermath of that event, when so many species were presented with vacant lots, piles of bricks, paths, concrete yards, unwanted roads, and old fire bases to claim.

After forty years, however that colonising vegetation is starting to age; some sites are darkening and others are gaining light—this is particularly affecting the *Pterostylis*: once sizeable colonies of *P. irsoniana* and *montana* are now reduced to a few weak seedlings, while new colonies are forming where none grew before.

All the time new sites are being tried out. *Adenochilus gracilis* appeared in a hollow between two pungas; it lasted for three years, never flowering, but then vanished, perhaps overwhelmed by frond-fall. I personally introduced a plant of *Chiloglottis cornuta*—it flow-

ered, seeded, and has since appeared abundantly in many parts of the property; this year there are many seedlings but no flowers. *Aporostylis bifolia* has seeded down-slope from its arrival site, into leaf-mould, and is flowering but rank, clearly not quite content.

Caladenia atradenia & *nothofageti* are widespread and very abundant under scrub, but the great success is *Corybas papa*; this appeared by a foot-track about four years ago, at an old chimney base, as a very new plant, and has spread rapidly, intensifying its growth. It flowers freely in the late winter, but has produced no seed. It shouldn't be here, and its manner of arrival is a mystery, but it might have originated from some papa country about ten kilometres to the north.

Thelymitras are constantly appearing on punga trunks, with pot-plants, by tracks, but they are opportunists and none have stayed. *Microtis unifolia* is more enduring, even in the bush.

The epiphytes can also be transient. *Earina mucronata* has tried several old willows, but not lasted; it prospers on a macrocarpa trunk and on a punga, as does *E. autumnalis*. About three years ago *Bulbophyllum pygmaeum* appeared as a seedling on a toro trunk, was soon joined by another, and now both are one and spreading. Similarly, a *Winika* seedling has lodged on a rock in my rockery.

A *Gastrodia* showed at the foot of my garden, against a macrocarpa tree, as a young plant with five buds. Being on the lawn, it was accidentally mown, then showed again. After being cut a second time it gave up and hasn't reappeared; I've found no others on the property.

Every year there are pleasant surprises, and the odd disappointment. Some seed is brought by water, others by wind, bird or gravity; also, the removal of gorse, blackberry, willow, and other weeds creates new sites. About fifty orchid species grow on the adjacent hills, so there are more to be welcomed yet.

Pterostylis venosa can be distinguished from *Pterostylis humilis*

by Bruce Irwin, Tauranga, and Dan Hatch, Laingholm

When Vic Vercoe published photographs of *Pterostylis venosa* and/or *P. humilis* in *Journal* 73: p28, we felt that we had information which might assist in a positive identification, but Bruce had misfiled his best drawings of *P. venosa*. Fortunately they have reappeared, so here is our belated response.

It is difficult to visualise an orchid from a botanical description published more than a hundred years ago, especially when the author didn't bother to mention characters which are today of diagnostic importance (cf Cunningham, who omitted to mention the leaf shape of his *Acianthus rivularis*. Look at the trouble he caused!).

When Colenso described *Pterostylis venosa*, he made no mention of its stigma. How was he to know that 30 years later another *Pterostylis* species would be found, which while similar to *P. venosa* in outward appearance, would possess a most remarkable stigma? What would be the point of his describing the unremarkable stigma of *P. venosa*?

As it turned out the other plant was *P. humilis*, and it had a remarkable stigma because it was self-fertile. Unfortunately this stigma, hidden within the flower, didn't show in photographs.

In distinguishing *P. venosa* from *P. humilis* the shape of the stigma is paramount. The other items listed in the table are more useful to confirm identification than to establish it.

The following table of characters is based on published descriptions and detailed drawings – those of *P. venosa* from Mt Egmont only (it doesn't occur on Ruapehu); those of *P. humilis* from both Egmont and the Ruapehu area. Characters considered helpful in identifying photographs are marked with an asterisk *.

After fertilisation of the flower, the stem elongates, largely above the floral bract, and in *P. humilis* there is a tendency for the leaves to scatter up the stem, but this is a variable character.

Although the foliage of *P. venosa* is usually yellowish-green and that of *P. humilis* bluish-green, leaf colour is unreliable because the leaves of both species can become bright yellow, depending on the environment/substrate, the age of the plant and the time of the year.

If after photographing the plant, you are not sure of its identity, prise the flower open and examine the stigma – you won't hurt it.

Illustrations overleaf →→

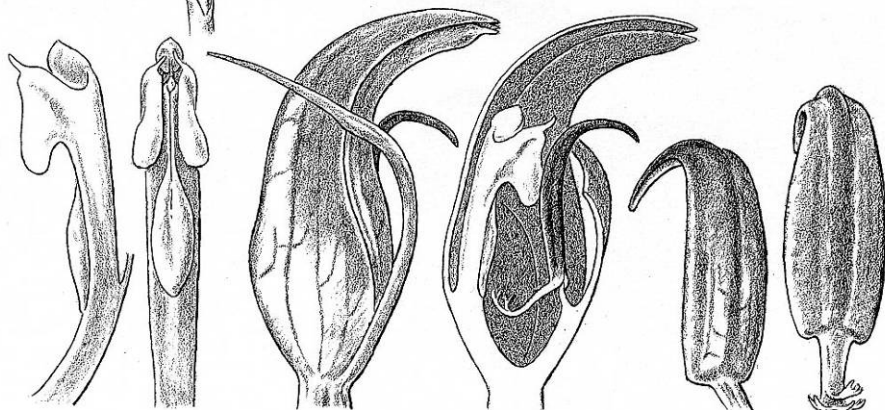
| | <i>Pterostylis venosa</i> | <i>Pterostylis humilis</i> |
|---------------|--|---|
| *dorsal sepal | several short veinlets run angled between main nerves (anastomosis). very obvious on Egmont as illustrated (next page) | connecting veinlets if present, few and not conspicuous |
| *petals | often as long as dorsal sepal | usually shorter than dorsal sepal |
| column | barely thickened below stigma | very much thicker below stigma than above it |
| column-wings | lower lobes short, obtuse, as wide as long | lower lobes rather long, narrow-acute, incurved |
| stigma | narrow-elliptic, not as wide as column | very prominent. heart-shaped, upward facing and wider than column |



Pterostylis venosa

Drawings by Bruce Irwin of a Mt Taranaki plant.

Photographs by Ian St George, of plants found near Berwick, Otago.

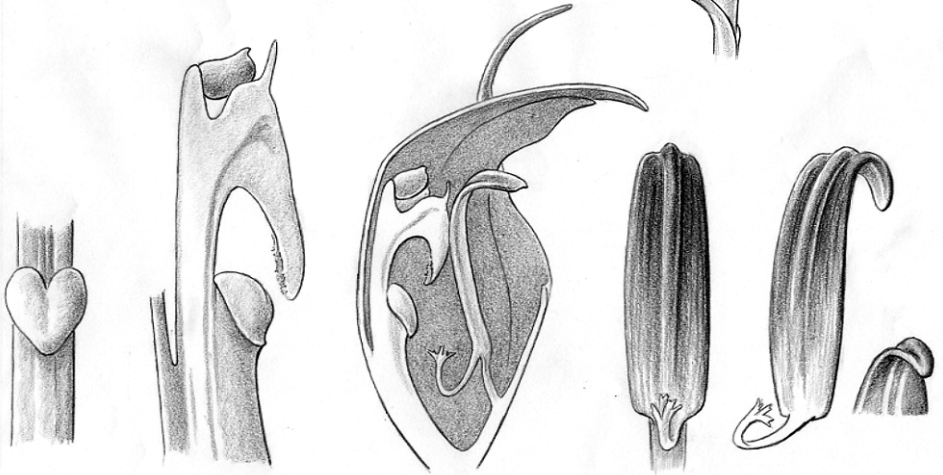




Pterostylis humilis

Drawings by Bruce Irwin of plants from Ruapehu and Mt Taranaki.

Photographs by Ian St George of a plant found at Whakapapa, Ruapehu.



Pterostylis humilis R.S.Rogers: an orchid with a past

by ED Hatch, Laingholm; reprinted from *NZNOG Journal* 55:11

I first found *Pterostylis humilis* in the autumn, in April, when the large leaves were turning bright yellow and were most conspicuous. The plants were of course in seed. I had no idea what they were and they didn't seem to be listed in Cheeseman's 1925 *Manual*. (I did not in fact discover the identity of this plant until May 1944, when I was in Dunedin, and Dr Ella Campbell gave me a copy of Rogers' paper.)

They were growing in the shelter of *Hebe odora*, on the edge of one of those pumice stacks, which in pre-bulldozer days, were such a feature of the Rangipo Desert.

In 1942 there were several *Nothofagus* copses on the southeast side of Ruapehu, at about 1200m asl, containing a number of orchid species which I duly noted and examined – *Chiloglottis cornuta*, *Corybas trilobus*, *Gastrodia cunninghamii*, *Pterostylis montana*, *P. patens* and what I later learned was *P. humilis*. Most of these grew inside the copses, in the relative calm of the low forest, but *P. humilis* grew round the margins, exposed and out in the open. I had never before seen an orchid actually flowering in the snow, and wondered how the plant managed to survive in that harsh sub-alpine environment. Tracing one plant down through the scree, I found that the relatively large tubers were 150mm below the surface. Pile a metre or so of snow on top of that and *humilis* would be as happy as a hibernating bear. The tubers had to be large, in order to store enough nourishment to enable the rhizome to reach the surface. I'm still a bit puzzled though, to know how the seed manages to germinate under such conditions.

The plants were obviously self-pollinated. The column was erect, so that the anther was directly above the stigma. The pollinia were extremely sensitive, the slightest touch to the flower being sufficient to cause them to fall. The stigma was globose and relatively large, protruding forward beyond the vertical line of the anther. The lower lobes of the column-wings were strongly incurved and almost touching the stigma – so that the falling pollinium was caught between them and the viscid

stigmatic cells. (In passing, *P. montana* was similarly self-pollinated, while *P. patens*, though growing under the same conditions, but with a different column structure, was not). *P. humilis* does not always grow in such bleak places, and I found it later on the Ohakune Track, on the forested west side of the mountain; far away to the east on the Kaimanawa Ranges; and of course on Mt Egmont, where it grows under subalpine scrub.

The history of *Pterostylis humilis*

In January 1921 H.B. Matthews found seeding plants “near the Haunted Whare, Waimarino”. (The shepherd's hut which used to stand beside the Tawhai Falls, on State Highway 48 – the road up to the Chateau Tongariro). Matthews dug up the plants, pressed the specimens, and took the tubers back with him to Auckland, where he planted them out in a wooden seed tray. By 23 October 1921 these tubers had produced stunted plants with malformed flowers, nothing like the species as it grew in the mountains. Matthews nevertheless pickled the plants in spirit and sent them off to Dr Rogers in Adelaide, along with a photograph showing one of them beside one of the original pressed seeding specimens. Rogers described *Pterostylis humilis* from the stunted spirit specimens, at the same time mentioning the photograph of the large-leaved plant.

In 1944 I asked Dr H.H. Allan to compare *P. humilis* from Ruapehu, with his *P. confertifolia* from the Ruahines. He replied that they were identical. Unfortunately he was wrong. *P. confertifolia* was in fact a synonym of Colenso's *P. venosa*, as was later pointed out by A.P. Druce. But who was I to argue with H.H. Allan? I had never seen the type specimens of either *confertifolia* or *venosa*, nor could I gain access to them, and *P. venosa*, (like *P. irsoniana*), while common enough on Egmont, was unfortunately absent from Ruapehu, so that I could not compare living material.

In 1945 I chose one of Matthews' original seeding specimens to be the Lectotype of *P. humilis* (AK 108491 C).

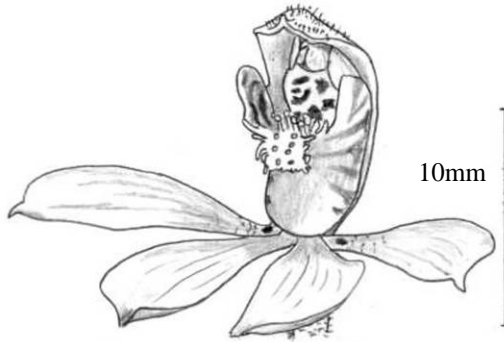
Stegostyla “minor”

by Mark Moorhouse, Stoke, Nelson

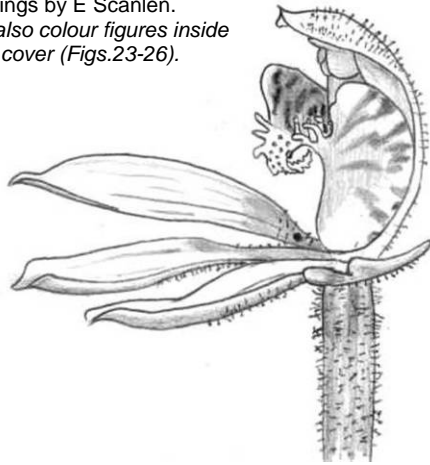
Dec 1982 saw me involved in a Forest Service scrub cutting contract on the south side of the Big Bush State Forest not too far from the Nelson Lakes National Park. At the time it was a serious clash of interests. The indiscriminate cutting of virgin kanuka forests and my interest in our native orchids were at loggerheads. I decided to do an intensive survey of the plants on the blocks we were working on in the hope of presenting to the Forest Service hierarchy some evidence of the idiocy of their slash and burn policy. Perfect orchid growing environment was being destroyed at an unprecedented rate in an attempt to beat the time frame set for the closing down of native forest cutting by Govt policy.

Amongst the 20 odd species I located were a couple of plants of the *Caladenia* family I had never encountered before and which I feebly attempted to explain away in *Newsletter* no. 6 in June 1983 as a possible hybrid between what was then *Caladenia lyallii* and *C. catenata* (now *Stegostyla lyallii* agg and *C. chlorostyla*). To all intents and purposes to the uninitiated, it appeared like a giant *C. chlorostyla*. What I had failed to observe at that time was that the two rows of calli which ran down the centre of the labellum actually extended onto the central lobe and gradually diminished in size as they approached the tip. So by definition these plants fitted the new category of *Stegostyla* (or did it? Read on!). What had taken my eye initially was their size (18-23mm across) and the unusual intense covering of red glandular hairs on the outer sides of all tepals.

This habitat was duly destroyed by the scrub cutting and although there were a couple of small reserves left



Drawings by E Scanlen.
See also colour figures inside
back cover (Figs.23-26).



intact, it became evident that there were none of this rare plant within these areas. It was to be 21 years before another encounter (with hoots of jubilation!) of these same plants was made on my niece's property in the Baton Valley area, in Nelson's Western Ranges. Three plants were located in 2003 and two in 2004, thanks to my niece, Mrs Georgiana Upson's persistence. (I managed to mistime visits to the location 3 times in 2004). Because of their scarcity, to date no specimens have been offered for study and no cross sections taken. Plants have been tagged for next year's studies. However, sketches and detailed digital photographs have provided some material which needs to be shared in the hope that other, more prolific colonies will come to light, and professional studies can proceed.

Plants are robust, up to 25cm in height with a

typical *Caladenia* type of leaf, very linear to about 12 cm in length but quite narrow compared to *Stegostyla lyallii* and *S. aff. alpina*, being usually only 4mm or less wide. The typical “tip burn” of the leaves of *S. lyallii* was not evident in this species. Some stems of plants recently located have a reddish suffusion (others without) and are covered in white glandular hairs with a tiny red gland at the tip of each hair. The floral bracts were all situated around 15mm below the ovary which is approximately 20mm long, hairy with red vein markings. Four of the five plants had two flowers. One, this year was pale pink, the rest white, but close inspection indicated that the pink one had no physical differences that we could see, other than colour. The flowers are fertile and some set seed.

The dorsal sepal stands almost erect in fully open flowers and the tip recurves. On fully open flowers the edges also recurve. The tip is quite acute and over-reaches the column and labellum wings. It is covered in red tipped glandular hairs. In white flowers the outer dorsal surface is quite greenish similar to *Caladenia chlorostyla*. The dorsal sepal is relatively narrow for the *Stegostyla* family, being only as wide as the labellum wings, and this feature distinguishes it from both *S. lyallii* agg and *S. aff. alpina*, both of which in the Nelson area, have dorsal sepals wider than the labellum wings. The other sepals and petals are narrow ovate with quite acute flattish tips that often turn down slightly rather than forming the cupped tips of the other larger *Stegostyla*. These tepals are also covered in glandular hairs in similar fashion to the dorsal sepal but in addition have sparse glandular hairs at their inner base as well.

The column sweeps in an even curve and is weakly marked in erratic red bars and dots. The column wing is quite broad and almost evenly curved in the opposite direction to the column, reaching from top almost to the bottom of the column. This feature seems to be a distinguishing point from the local *S. lyallii* which has a broad wing only at the top of the column and waists down to very narrow half

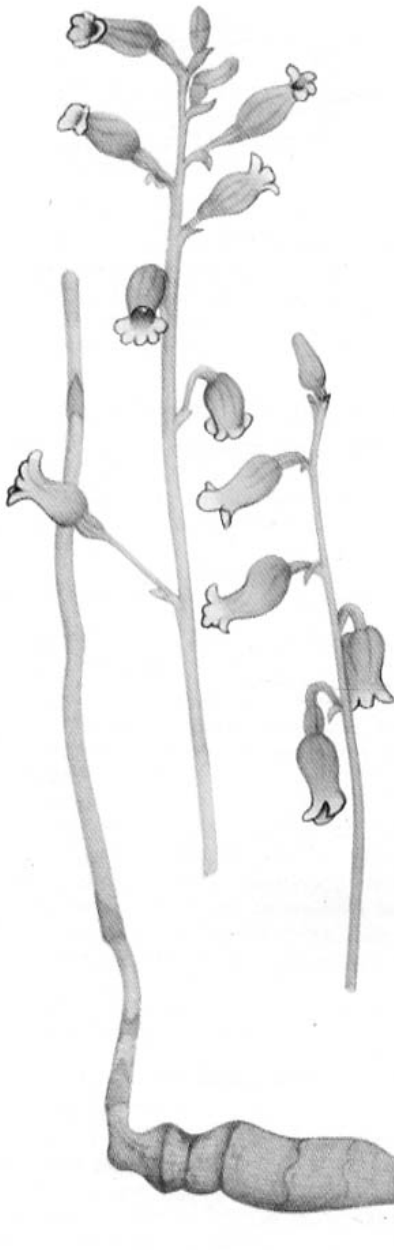
way down the column. The anther cap is bright green on top but reddish pink on the front below the connective, which is prominent, apiculate and down-turned. This feature is one distinguishing it from *S. lyallii* and may place it in *Caladenia*. (Taxonomy is only mooted pending further studies by those more qualified than the humble observer.)

The labellum carries two rows of laminar calli, but has strays outside this toward the front of the central area. It is weakly marked with red bars and blotches only a few of which extend up the side wings. The laminar calli are red stalked with yellow clubbed heads that lean forwards toward the tip. The two rows of these calli extend onto the midlobe where they gradually shorten, losing the red coloured stems, and reducing to small yellow bumps by the time they reach the recurved tip of the midlobe. The midlobe is fringed by long stalked calli which tend to stand straight and are a pale creamy yellow. These extend the full length of the midlobe but reduce in length towards the tip to raised bumps. The labellum wings are tall, evenly curved to match the column, and the front edge may display some small undulations.

The plant has been tagged *Stegostyla* “minor” as it is about the size of the small two row *S. lyallii* species of Nelson environs. The habitat is similar to the other *S. lyallii* agg. It seems to prefer mature kanuka with very little broadleaf shrub association. Elevation 400 to 600 meters at Nelson latitude. Like others of the family it grows where there is at least some exposure to sun for a part of each day. *Caladenia nothofageti*, *C. chlorostyla*, *Stegostyla* aff. *alpina*, *S. lyallii* and *S. lyallii* agg. have all been found in this plant’s location along with 40 odd other orchid species including what appears to be a variant form of *Caladenia bartlettii*.

Dear reader, please find inspiration to revisit your favourite montane kanuka haunts. There must be more of these plants out there somewhere. I am sure the Editor would be delighted to hear about new finds of what could easily be mistaken for *S. lyallii*.

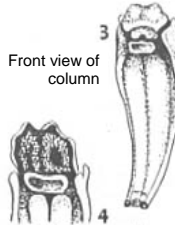
closerelations



1
View of flower from above



2
Side view of column & labellum



3
Front view of column



4
Top of column showing anthers removed



5
Fro Front view of labellum

" Potato orchid, *Gastrodia sesamoides*," Plate 31 of Rica Erickson's *Orchids of the West*. Paterson Brokensha, Perth, 1965.
This plant is *G. lacista* DL Jones, the only *Gastrodia* now recognized from Western Australia.

elementary yedhatch

3: Grass leaved greenhoods 2

—drawings by Bruce Irwin and Ian St George

5: *Pterostylis irsoniana* (named for Bruce Irwin and Owen Gibson, who first found it on Mount Egmont)

Labellum gradually narrowed to a slightly swollen, truncate or variously crenulate tip. Labellum unique in having a large, dark, prominent callus at the base, and sometimes incipient calli along the midline

Distribution – endemic – North Id From Mount Egmont/East Cape southwards – not so far recorded from Mount Ruapehu. South Id Nelson/Westland

Flowers – December-February – insect pollinated

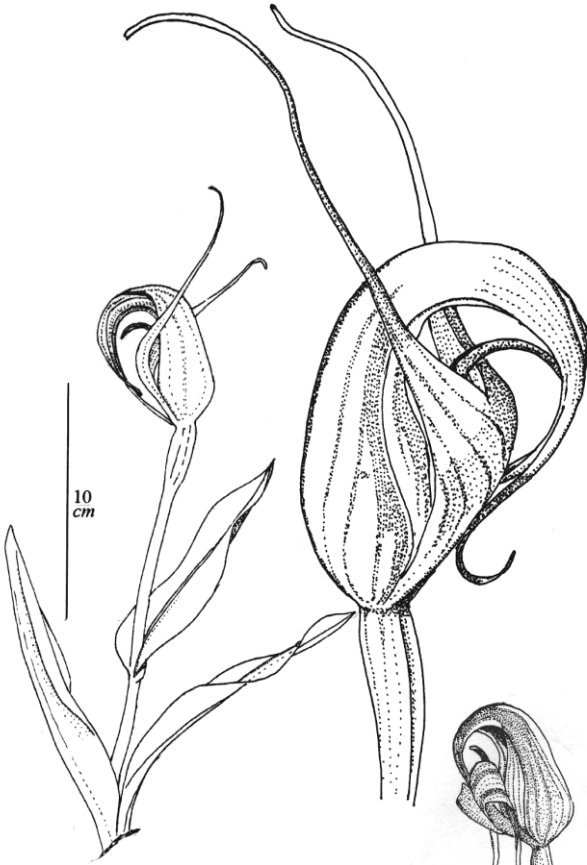


6: *Pterostylis montana* (growing on mountains)

Flower squat, box-like, sepals short, the lateral broadly acuminate, barely exceeding the galea. Labellum tip unevenly constricted. Stigma shortly ovate

Distribution – endemic – North Id Taupo-Ruapehu-Egmont southwards. South Id mountain areas throughout. Stewart Id Chatham Is

Flowers – December-February – self pollinated



7: *Pterostylis oliveri*

(Professor D. Oliver of Kew)

Leaves in a semirosette, or scattered up the stem. Dorsal sepal strongly incurved. Lateral sepals with long, ± erect caudae

Distribution – endemic – South Id Nelson-Arthur's Pass

Flowers – November-January – insect pollinated



8: *Pterostylis patens* (in the context, gaping, the floral segments)

The montane/subalpine form of *banksii*. The most obvious characters are the strongly recurved caudae of the sepals

Distribution – endemic – North Id montane and subalpine areas from the Rangitoto Range (Te Kuiti) southwards

Flowers – December-January – insect pollinated

historicalreprints

The *Otago Witness* (fore-runner to today's *Otago Daily Times*) reported the following 100 years ago: "When pig-hunting in the Upper Waihora, we got on to a large boar that had given us a few hard runs on previous occasions,' Mr. W. O. Leith writes from Martinborough, Wairarapa. 'He went off on his usual route, with the dogs hard on his trail. His track took him around a long point. I set out for three-quarters of a mile over a fairly steep ridge, in order to get a passing shot at him. I found it very hard to get up the beech face, but reached the top, and I had started to go down through the undergrowth at a good pace when I ran into a bank of perfume. It was the sweetest and strongest perfume I ever smelt. I pulled up, and on climbing back a few yards, saw some flowers growing close to the ground. They were small, whitish, waxy flowers, clustered on hard, wiry stems. I thought at the time that they were the prettiest bush flowers I had seen. When I walked up to them the perfume seemed to change to a pungent smell, like the smell of large yellow garden bulbs. I took some of the flowers, crammed them into my hat, shoved my hat half through my belt, and continued the hunt until the dogs gave out. When I returned to my three mates, we sat down to have a smoke. I hardly had rolled a cigarette when one of them, about six feet away, sat up and asked where the sweet smell came from. I showed the flowers, which were strange to all my mates'."

The Waihora runs down from Haurangi State Forest Park, site of the Group's late November field trip—Ed.

William Townson wrote in 1906, "I had the good fortune to discover in the same situation (Mount Rochfort) a little orchis which forms a new genus, and which Mr Cheeseman has honoured me by naming *Townsonia*."

The Dunedin teacher G.M. Thomson wrote (of *Adenochilus gracilis*) in the *Journal of Science* in 1882: "I found the plant this last January, when botanising in the neighbourhood of Lake Hauroto (Howloko), in the south-eastern corner of the South Island.... Mr. Petrie informs me that he believes it occurs in the forest at the head of Lake Wakatipu, but he has only seen the leaf".

Petrie was right—I have seen it there—Ed.

Miss Helen Dalrymple, science teacher at Otago Girls High School, rallied the schoolgirls on an outing to a part of Signal Hill in Dunedin (1937): "But the rarest little orchid on Stony Hill has so far evaded us. It is a very slender pink-flowered plant called *Caladenia minor*, and the girl who first finds it is to have threepence as a reward!"
My guess? Caladenia variegata—Ed.

G.M. Thomson, science teacher at the high schools in Dunedin wrote (of *Chiloglottis cornuta*) in 1878, "The arrangement of the parts is so simple that an insect alighting on the labellum and advancing its head into the base could hardly fail to remove the pollinia; nor could one entering with pollen on its head fail to leave them on the stigma.... I am inclined to think self-fertilization takes place in flowers which have not been visited by insects.... I examined one sunny day twenty-two flowers growing in the open; of these only three had both pollinia removed...."

“Come with us in imagination,” Helen Dalrymple (1937) invited us, “on an excursion up Stony Hill on a shiny summer morning.... It is not long before we find our first spider orchids at the foot of some low manuka scrub... lovely dark ruby red flowers, one flower to a leaf, with rounded hoods, and long spider-like feelers.... Shrieks of delight from other groups are heard as they discover fresh patches...”

For lack of a moth, the orchid is lost

From US Fish & Wildlife Service Feature Series, Vol II No. 4.

The western prairie fringed orchid stands as one of the gems of North America's remaining tallgrass prairies. This flowering orchid may grow to 4 feet tall, comparable in height to the surrounding prairie grasses, and may have up to two dozen white to creamy white fringed flowers.

Curiously, the regal appearance of this plant does not attract insects to pollinate the plant during the daylight. Rather, as night descends over the prairie, the orchid's flowers increase its fragrance to attract the roaming moths. Shrouded in this cover of darkness, the long-tongued hawkmoth rises to visit the intoxicating flowers.

"Ironically," notes Kathy Martin, a botanist with the U.S. Fish and Wildlife Service in Bismarck, North Dakota, "this moth is unremarkable in appearance and coloration. What's unusual about it is its uniquely evolved tongue for harvesting the orchid's nectar. The orchid's white fringed petals direct approaching moths to the spur and the plentiful supply of nectar it holds." As the moth hovers with its long tongue extended into the spur, two specialized pollen-bearing structures brush pollen onto the eyes of the moth.

The western prairie fringed orchid nectar spur is the longest of any North American orchid. Only those species of hawkmoths with suitable length tongues and properly spaced eyes can act as pollinators.

After attaching to the eyes, the pollen may be deposited upon the next orchid flower the moth visits. This transfer of pollen among orchids results in fertilization and ultimately the production of seeds.

The remarkable relationship between the long-tongued hawkmoth and western prairie fringed orchid has been continuing

successfully for centuries until European settlers settled the heartland of North America. "They found the tallgrass prairie yielded fertile soils, ideal for raising a variety of crops," said Martin. "Millions of acres of America's prairies were rapidly converted for cropland. Today we have only about two percent left of the tallgrass prairie and less than 40 percent of the original western prairie fringed orchid populations."

Today, tallgrass prairie has generally been reduced to small islands in a sea of cropland, and the orchid, facing potential extinction, was listed as a threatened species under the Endangered Species Act in 1989.

The fragmented prairie landscape created by man poses the greatest obstacle for these insect-oriented orchids. The expanses of cropland act as a barrier for free movement of hawkmoths between different orchid populations, reducing genetic diversity of isolated stands. Pesticide drift from nearby cropland also poses a threat to non-targeted insects such as the hawkmoth. In some areas, hawkmoth numbers are so depleted that only a very small percentage of flowers are pollinated and produce seed.

These remaining tallgrass prairie tracts must also be intensively managed to prevent native trees and shrubs from invading and shading orchids out, or by exotic weeds such as leafy spurge that can displace the orchid and other native prairie vegetation.

Approximately a quarter of known western prairie fringed orchid sites are protected in preserves or other publicly-managed areas. Land managers are concentrating their efforts on meeting the orchid's needs through implementing long-term management plans.

Providing hawkmoth "corridors" of native prairie between orchid populations could offset the immediate threat that faces isolated populations. However, some orchid preserves are isolated tens or even hundreds of miles

apart. For these secluded populations, pollinating the plants by hand can buy the orchid some time until their prairie habitats can be rejoined and pollination can be reclaimed by its original masters. Long-term survival of this tallgrass prairie gem requires not only protecting its habitat but also insuring the survival of the orchid's only means of reproduction, the long-tongued hawkmoth.

Gordon Sylvester wrote (2 February), "Urgent widening works are to be carried out on a two or three kilometre stretch of road. 'What's so important about this?' I hear you ask. To be more specific it is the stretch of provincial highway that has the honour to be the **Type locality for *Pterostylis cernua* at culvert 53.**

"It was brought to the attention of the local DoC, and botanist Phil Knightbridge did a brief survey along with other DoC officers. They decided to approach Transit NZ to attempt to relocate a specimen sized population to a similar location and to reseed the site when all was finished and the habitat has regenerated.

"Accordingly two DoC personnel and a Society member recorded and moved about 40 plants to a secure location nearby.

"During the collection another *Pterostylis* reared its head. It hadn't been spotted previously, but is thought to be *P. aff. montana* as this is also present in the area along with *P. irsoniana*.

"While moving the plants an opportunity presented itself to discuss how this particular species came to be in this specific location, whereas it is normally found in Manuka sphagnum moss areas. Here it is podocarp kahikatea forest along the side of the roadside drain, invariably on the side away from the roadside and in areas where the *Blechnum* fern is not present; it likes full sun and air movement. The best guess is that it is adventive, migrating down the drain from the manuka association at the top of the hill. A careful search was made and there were no

plants below a certain point in the length of the road. A search is to be made above the Type locality to determine this population, if it does exist, before the road works overtake the search. We will keep all posted about the progress of this project."

Phil Norton of Blenheim wrote that they "**ventured far and wide over the South Island**; Christchurch, Oamaru, Naseby, Bealey, Karamea - eventually walking the Heaphy Track before returning home. The weather could have been a lot worse. Naturally I always have my head down looking for orchids and have been rewarded with some good (for me anyway) finds some of which I think I have identified; others I hope that you may be able to help me with.

"Of the pictures attached, Fig.16 and Fig.17 I found in the bog on the saddle at Arthurs Pass. Fig.16 appears to me to be *Aporostylis bifolia* - which would fit its location. Fig.17 I think is *Caladenia lyallii* - it is quite big (about 30mm).

"Fig.18 I found a lot of around the Saxon Hut on the Heaphy, I think this is *Pterostylis humilis* or *venosa* (I think *venosa*) judging by the three leaves.



Fig. 16



Fig.17 ↑

Fig. 18 ↓

Fig. 19 →



Phil Norton's photographs of *Caladenia lyallii* (top left), *Pterostylis venosa* (bottom left), *Prasophyllum colensoi* (right, this page), *Waireia stenopetala* (left, next page), and an unidentified plant, resembling *Waireia*, but with a very strange dorsal sepal.

“The remainder I found in an afternoon at the Perry Saddle in open herb fields and light scrub. Fig.19 had me puzzled until I realized it was not a *Microtis* but a *Prasophyllum* of some sort. It looks a bit like *P. colensoi* but

the flower parts are smaller than the picture on the web site.

“Fig.20 I don't have a clue.

“Fig.4 (see page 2) looks like the *Aporostylis bifolia* I found at Arthurs Pass but it is bigger and has extra larger dark red-



Figs. 20 (left) and 21 (Phil Norton photographs)

brown spots on the labellum. It does have the two odd sized mottled leaves though.

“Fig.21 would appear to be *Waireia stenopetala*, I found quite a few of these at the base of the slope in mossy wetter areas.

“I also saw many *Pterostylis* (some magnificent *banksii*) and a stunning *Gastrodia* which I didn’t photograph (it was raining).

“No orchids in the Naseby forest which disappointed me - maybe one day they will establish there.”

Bob Bates reported [NOSSA Journal 2004; 28 (11): 113] that there are still ten unnamed taxa of *Thelymitra* in South Australia; that “news is gradually coming through that many SA leek orchids of the *Prasophyllum odoratum* alliance ... are now

being worked on and there could be as many as a dozen of these in SA”; and that there are still almost **a hundred unnamed species** waiting to be written up. “Not only are we lucky enough to be living in a time when so many things can be discovered but we will also be the last people to see many of them before they disappear forever”. *It’s a sobering thought—Ed.*

In the same issue Bob lists a dozen good **Orchid sites in the Clare Valley**—one of SA’s best wine-growing regions. We could do

Tracey and Bernard wrote **from Queens-town**, “These photos were taken up on the east side of the Mt Crichton loop track at twelve mile creek Queenstown. We had been keeping a close eye on the orchids in this area and were disappointed a couple of weeks ago when someone maintaining the track went and cut quite a lot down on the side of the track with a trimmer. We are waiting for a paler colour to flower but don’t think it is going to happen this year.” *The photographs were of Microtis unifolia, Prasophyllum colensoi, Pterostylis australis (Fig. 22 at right), Thelymitra pulchella with a large labellum, and Thelymitra cyanea—see Figs 2 & 3, p.2—Ed.*



Fig.22: *Pterostylis australis* (?) from Twelve Mile Creek, Queenstown.

- 4th Native Orchid Conference** 9-12 July 2005, St Benedict's Retreat & Conference Center, Winnipeg, Manitoba, Canada: organised by the Native Orchid Conference Inc, a web-based forum whose aim is to "foster the study, conservation, and enjoyment of the native orchids of the United States and Canada". Go to <http://groups.yahoo.com/group/NativeOrchidConference/>
- 3rd International Orchid Conservation Congress** 16-23 March 2007, simultaneously with the 2nd International Conference on Neotropical Orchidology, San José, Costa Rica. Organised by Jardín Botánico Lankester (also the host), Universidad de Costa Rica, Charles H Lankester Foundation, and the Orchid Specialist Group. Provisional details are available online in the OSG's newsletter, Orchid Conservation News (OCN), Issue 5, pages 24-27.
- 19th World Orchid Conference** February-March 2008 Miami Beach, Florida, USA: hosted by Fort Lauderdale and South Florida Orchid Societies. Includes, as always, a comprehensive lecture programme.

Mark Moorhouse wrote, “Your article [J94] on hybrids is excellent and clearly lays it all out. Thanks for the enlightenment. In the light of this and the picture on p25 of the artificial hybrid *P. banksii* x *irsoniana*, I think I have a solution to a **mystery *Pterostylis* on Arapawa Island** (Fig.23). It would seem likely that it is a natural hybrid between

P. irsoniana and *P. montana*. Also present within a half mile radius are *P. banksii* and *P. graminea*, both of which are less likely parents due to the flowering time of 19 December. *P. graminea* is present there in numbers, *P. montana* and *P. banksii* much less so. It has clearly a *P. irsoniana* labellum with basal callus but otherwise the galea could be *P. montana*.



Fig.23: a mystery *Pterostylis* from Arapawa Island—is this a natural hybrid *P. irsoniana* X *P. montana*?

A letter in reply to Omoc: “On pages 7-8 of J93, the editor explained his very sound reasons for including articles on alien orchids and very cleverly informed a critic that ‘it is not the journal of NZ native orchids, but the NZ journal of native orchids, so any country’s native orchids are fair subjects.’ I thought those very reasonable explanations would end the matter. They did not.

“Omoc (one member or critic) overflowed a complete page in J94 listing specious reasons for his complaints. How dare he thus deprive readers of valuable space for articles on native orchids, NZ or alien?”

“Omoc says he must remain anonymous. Why then did he leave two full columns of evidence, leading inexorably to his identity?”

Amoc (another member or critic).”

Pat Enright, Featherston, wrote, “There is a **very nice area of bush in the eastern Wairarapa** that has yielded a few botanical surprises. When I asked permission to survey the area I was told that it was ‘mainly kanuka’ and the implication was of not a lot of interest. It is mainly kanuka but has a fascinating collection of other species growing underneath. Including ferns, herbaceous species and at least one tree species of note.

“Included in this assemblage is

Gastrodia 'long column'. There are two entities present in differing ecological niches. In the drier kanuka scrub there is a black version of the taxon and in the wetter more sheltered areas a yellow version is to be found. Eric has determined that there is at least one difference in the specimens I sent to him being a variance in the shape of pseudo-pollen ridges under the labellum. Further expert opinion may be forthcoming but it seems that it currently leans towards colour morphs of the same thing.

"I have seen a lot of the yellow flowered entity on the wetter slopes of the Tinui taipos but no sign of the black version in the same area.

"There is a very small window of opportunity to get flowering specimens of *Gastrodia* in the Eastern Wairarapa as the generally hot dry weather around flowering time ensures a rapid 'flower to seed' advance. The areas where the gastrodias can be found are quite a distance apart and few in number and the number of plants in any one area is usually small. Most areas where gastrodias are found have a fair degree of moisture available either by virtue of a nearby stream or hilltops under tall timber where more shelter and mist are available. The black entity may be an adaptation to a drier area but this is purely speculative and I would appreciate comments from other observers.

"I will be going back to the area this spring to check out the rest of the orchid flora which was pretty much toast by the time I got started on the survey.

"A plug for what are regarded by many people as 'firewood lots' is in order. Kanuka stands can be areas of intense botanical interest as the above example shows and should be protected wherever possible. They act as nursery areas for other tree species and can be great places to botanise in the orchid season. Who knows what has been lost in the past through clearance of kanuka blocks?"



Tuvalu doesn't have *Thelymitra venosa* any more than it has *T. cyanea* (which this appears to be), but it does have a thriving industry in **postage stamps**, and a world-wide following of dedicated philatelists who collect the product. Jennifer Toombs (look her up on the internet) is a stamp designer, lives in Britain, but has designed stamps for many countries.

In *The Orchadian* this month, Michael Harrison writes about "Twig epiphytes of Australia", including a photograph of cousin *Drymoanthus minutus*. It grows on the outermost twigs of rainforest trees in north Queensland, north of Townsville south to Cairns. It is often seen within accumulations of broken twigs and mosses that hang from lower tree branches. Invariably it grows in wet forest, often near creeks and rivers, usually in heavy shade. The leaves are rarely more than 20 x 5mm, and the inflorescence bears 7-8 flowers which are 3mm tall, green with a fleshy white labellum. It flowers in summer.

Old *Caladenia* paintings at AK

The AK Herbarium at the War Memorial Museum Auckland (under “W” in the white pages) has a collection of fine paintings of native plants, including about 36 of orchids, by the Column’s great aunts, Eleonore & Lydia Blumhardt and their life-long friend Claire Scott [J51:18, 52:37]. One by Lydia

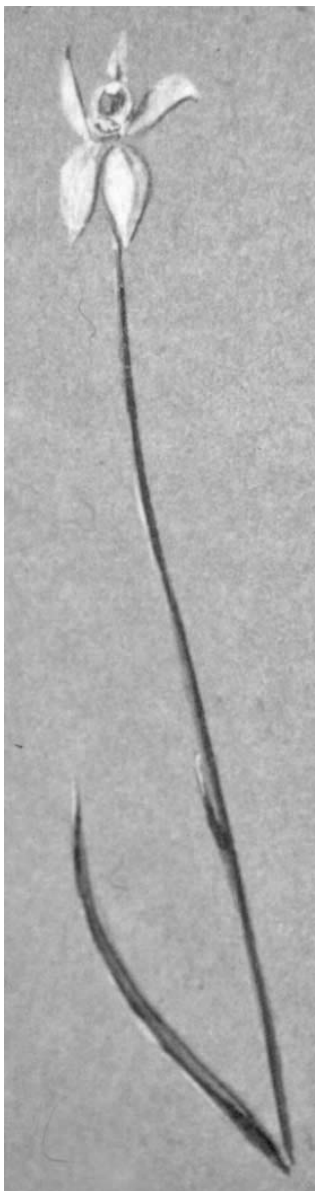


A: *Caladenia bartlettii* & *C. “nitida rosea”* by Lydia Blumhardt c.1910 at Whangarei. The latter, probably from the same flower as Eleonore’s, painted at the same time from a different angle.

circa 1910 from Whangarei, has the only two *Caladenias* included in the collection (Figs A & B); one is clearly a *C. bartlettii* with its obtuse sepals, pink tepals shading back to white and all four lateral tepals in a flat plane. cf. Jean Smith’s (nee Bartlett) painting J78:33 & colour page 4. Both Lydia and Jean painted from the now uncommon green stemmed form [J78:37] but Jean’s was some 49 years later when her father, Frank Bartlett, pointed this species out to Dan Hatch and the botanic world started to take notice.

Interestingly, Doug McCrae [J78:34], the Editor [J53:7] and Henry B. Matthews, all referred to *Caladenia bartlettii*, as *C. minor*. Henry, in a letter to T.F. Cheeseman of 14 Oct 1912, says in part, “the centre petals (lateral sepals) of *C. minor* are rounded”. In a way, Henry & Doug were right for their times because it seems that JD Hooker’s 1853 *Flora* lumped all the northern *Caladenia* into his description of *C. minor* [J72:23]. M.Clements, in *Australian Orchid Research* Vol. 1, 1989, remedied this by designating Hooker’s one specimen with the toothed midlobe as the isolectotype for *C. minor*. Only *C. bartlettii* plus two disputed and rare taxa have rounded lateral sepals; the 2 are *C. aff. bartlettii* [J78:colour page 3] and, with narrowly rounded sepals, *C. aff. pusilla* [J92:13].

Getting back to the paintings, the other orchid in Lydia’s painting is indubitably *C. “nitida rosea”* which can be white or pink. But its larger size (than *C. bartlettii*) red mid-ribs to the outer side of the tepals, (which Henry missed in his Ms description) reddish stem and the floral bract partly sheathing the ovary, are characters of only *C. “nitida rosea”*. Eleonore seems to have painted from the same flower (both included the red lower bract whereas this bract is often green) but from a different angle, albeit with the lateral sepals tipped down, possibly with artists’ licence.



B: *Caladenia* “nitida rosea” by Eleonore Blumhardt; possibly the earliest painting of this taxon which is still unclassified after 95 years.

These are the first known records of *C. “nitida rosea”* but Eleonore missed the *C. bartlettii* and Claire painted no *Caladenias* at all. The artists made no attempt to name the orchids. Perhaps they had read Hooker’s *Flora*, noticed that neither of them matched Fitch’s drawing of *Caladenia minor* so declined to risk any name. What do you think?

The *C. bartlettii* painting was done some 42 years before Dan Hatch classified it (as *Caladenia carnea* var. *bartlettii* [1]) and *C. “nitida rosea”* was painted 21 years before Henry described it as such in manuscript. It remains unclassified to this day, some 95 years later.

Acknowledgements

Many thanks to Ewen Cameron, Curator of the AK Herbarium for permission to publish these paintings; to Bruce Ralston, Librarian at the Auckland Museum and his staff for access to HB Matthews’s letters to TF Cheeseman from their archives; to Anthony Wright, Director, Canterbury Museum for information; to Dan Hatch for lending transcripts from H.B. Matthews manuscripts and to Ian St George for doing the OCR scans of them.

Any member knowing the whereabouts of T.F. Cheeseman’s replies to RH & HB Matthews’ letters would also get grateful acknowledgement for that information.

Reference

1. Hatch, E. Dan, *Petalochilus* Rog. and the New Zealand forms of *Caladenia* R.Br. *Trans.Roy.Soc.N.Z.* 1949. 77:398-402

***Gastrodia* “long column black”**

Pat Enright spotted some very dark *Gastrodia* in the eastern Wairarapa last year so took a day off on 13 Jan 05 to visit the site (see his report p. 25 of this journal). Brian Molloy thought they could be the same as illustrated in Dorothy Cooper’s book [1] Plate 7, as *G. sesamoides* (Fig. 31).

Pat’s emails had the Column sitting up and taking notice. Regular *G. “long column” s.s.* usually have olive green flowers with golden knobs on (tubercles) [J91 pp16,21,22] but Dot’s “dark green-black specimens with a long column as in *G. sesamoides*” which she found on the Puffer Track on 15 Jan 83 [Newsletter 5 p1] are in the Column’s index as *G. “long column black”* pending closer examination. Notice Dot no longer said there that it was *G. sesamoides*. Some of the *G. “long column” s.s.*, in deep shade at Anderson Park Invercargill [J91:17], were more of a dark brown but still had the same internal flower structure as the widespread olive/golds. Dot didn’t publish drawings of her Plate 7 [1] internal flower struc-

ture so the Column was in a lather for info. and speedily replied to see if Pat could check this out on his dark flowered plants. Pat emailed after his day off,

“The specimens I found could have been mistaken for *G. cunninghamii* from the colour. The flowers developed from the bottom and were hanging out and down. . . Not big plants, about 2ft high with approx 30 flowers. They grew under tall kanuka in good light” (Fig. 29).

On 22 Jan 05 Pat collected a few florets. The dark flowered specimen was growing up near the top of the slope in a much hotter and drier area than one down in the gully (Fig. 30) just above the stream which Ian reckons is the same as the Bartons Bush taxon (i.e. *G. “long column” s.s.*).

Olaf John’s excellent photos, from which Fig. 29 & 30 were taken, arrived on 25 Jan 05, thank you Olaf and Ian.

Florets arrived, thank you Pat, and were photographed 27 Jan 05 but they had not travelled well. However, tantalising evidence emerged in the form of unjoined twin ridges of pseudo-pollen—probably yellow originally but brown by photo time—under the labellum of purported *G. “long column black”* (Fig. 28), similar to *G. minor* [2, p. 63, left form of labellum] not forming the usual wishbone shape of *G. cunninghamii*, *G. sesamoides* and *G. “long column” s.s.* (Fig. 27). The dark one’s twin ridges hang straight down as in *G. minor* and in *G. “long column” s.s.* The ridges are not sloping evenly to the centreline as in the otherwise similar ridges under the labellum in Bruce Irwin’s drawing of atypical *G. cunninghamii* [J38:7; 91:27 which the Column wanted to call *G. leucopetala* Col.].

Perhaps *G. “long column black”* is an hybrid between *G. minor* and *G. “long column” s.s.*? That would explain the enlarged *G. minor* type labellum on a darkened but otherwise *G. “long column” s.s.* How about *G. leucopetala* Col. being an hybrid between *G. minor* and *G. cunninghamii*? That would explain the nonwishbone pseudopollen ridges on an otherwise *G. cunninghamii* plant.

What are your best guesses? Do please have a look, oh gentle reader, to see if you have any *G. “long column black”* flowering near you, early in January and *G. leucopetala* Col. in early December near Rotorua and let the Editor know without delay.

Acknowledgements

Many thanks to Pat Enright, Ian St George and Olaf John for forwarding material for this write-up. Thanks also Brian Molloy for commenting on the orchid taxa and to Bruce Irwin for his incomparable drawings.

References

1. Cooper, Dorothy *A Field Guide to NZ Native Orchids* Price Milburn, 1981.
2. St George, I, Irwin, J.B., Hatch, E.D., Scanlen, E.A. *Field guide to the NZ orchids* 2001.

Inside back cover

Figs.23-26: *Stegostyla “minor”*: photographs by Mark Moorhouse (see p.14). Anticlockwise from top: Flower, labellum, column, comparison with *Caladenia* aff. *chlorostyla*.

Fig.27: Underside of a fresh labellum of *Gastrodia “long column” s.s.* from Bartons Bush, Hutt valley on 11 Jan 04 showing typical wishbone shape of the pseudo-pollen ridges.

Fig.28: Underside of Olaf John’s *G. “long column black”*. Yellow twin ridges of pseudo-pollen have withered to brown during transit but they remain separated to the tip.

Outside back cover

Fig.29: Olaf John’s shot of *G. “long column black”* from eastern Wairarapa taken on 25 Jan 05, 10 days later in the season than Dot’s and lower flowers have already faded.

Fig.30: Olaf John’s shot of *Gastrodia “long column” s.s.* from the darker, damper gully below the Fig. 29 plant. taken on 25 Jan 05. Sunlight has burnt out a part of the print.

Fig.31: Dot Cooper’s *Gastrodia “long column black”* [1, Plate 7] taken to be a black *G. sesamoides* at the time. Shot on 15 Jan 83 when only lower florets had opened.



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