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Hymenochilus tanypodus

Queenstown Hill,
New Year's Day, 1987

The essence of science: ask an impertinent question and you are on the way to a pertinent answer: Jacob Bronowski 1908-74.

editorial—Ian St George

1. Where your money goes….

A hundred and forty-four sub-paying members provide a reliable income from subs of 144 x $20 = $2880. There is some additional income from late payers. Expenditure on printing and postage in 2002 was $2847.56. As a recent example the costs for Journal 85 comprised—

4 colour pages	$362
32 printed pages	$158
4 page cover	$28
file transfer fees	$66
Postage	$177

That makes around $900 with incidentals for J85. We have a little in the bank from book sales, so the sub stays the same for 2003, but it's a pretty close-run thing. Colour pages are the big expense, so have to be crowded and kept to a minimum.

2. A cold light

You settle down at the microscope to draw a nice specimen of a native orchid, set up the bright lights, spend some time placing the flower to show its best side, look at the orchid under magnification—and find it is already wilting under the heat of the lights. Annoyed? Here is an affordable cold light source that may address your problem.

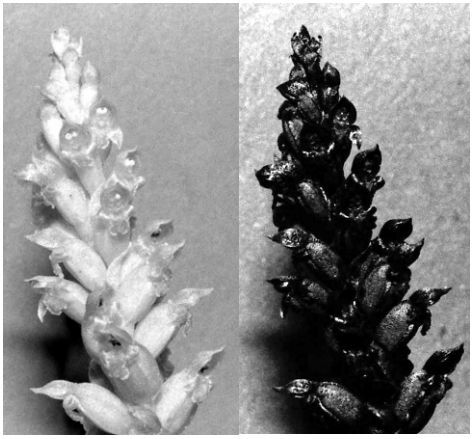
Get a length of fibreoptic cable (mine's an old endoscope: don't ask where it has been), a magnifying glass, a halogen light and reflector unit (e.g. Lohuis EXN, 12v 50w), and a ventilated box about 300 x 60 x 60 mm. Fix the light in one end (you need a 12 volt 50 watt DC transformer: go to the Warehouse and buy a cheap set of 12V garden lights), and fix the end of the fibreoptic cable into the middle of the other end of the box.

The lens has to be placed so the light is focussed into a point right at the end of the cable. This concentrated light is conducted, without heat, to the other end of the cable, and thus as cold light onto your flower.

Wow. Look Mum, no more wilting.

3. Some more UV images

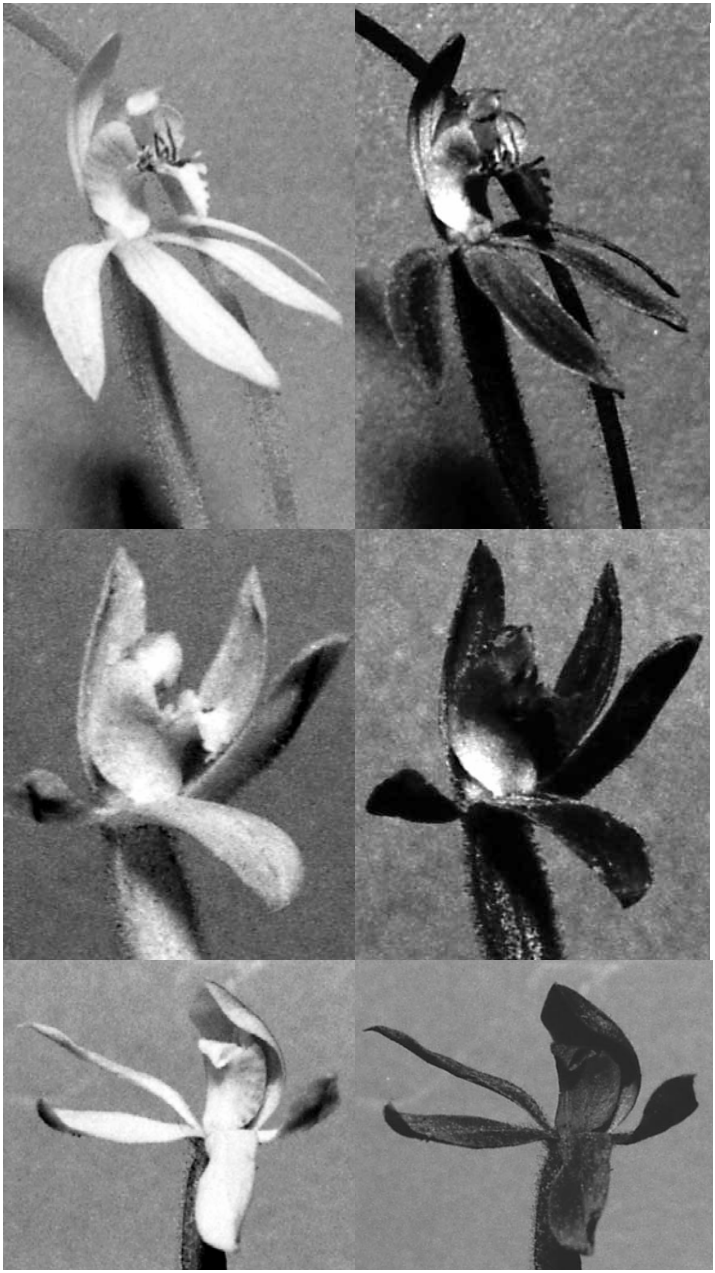
I showed a few first attempts at UV reflectance photography of orchid flowers in the last issue. Here are a few more, white-lit on the left, ultraviolet-lit on the right….



Microtis unifolia flowers reflect little UV—perhaps some from their pollinia.

Pterostylis irsoniana

Pterostylis australis reflects little UV.



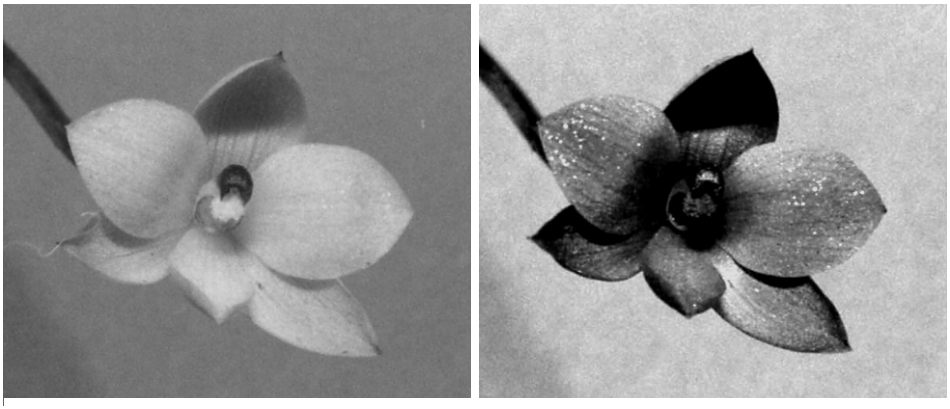
Petalochilus chlorostylus flower parts reflect little UV, except the lateral lobes of the labellum and the column which appears bright, and the hairs on the stems

Petalochilus variegatus reflects UV only from the base of the labellum and the hairs on its ovary.

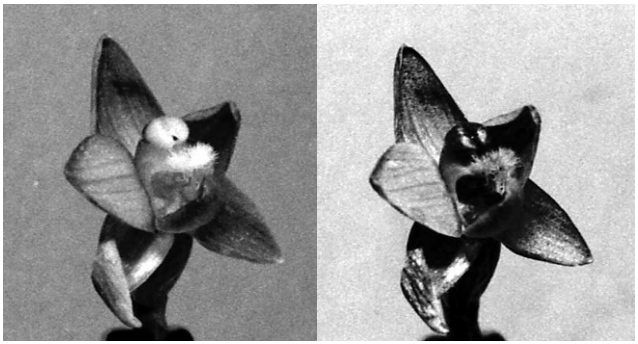
Stegostyla lyallii reflects little UV except from the hairs on its stem and ovary.

It appears . NZ orchid flowers vary in their use of UV reflected guides to attract insects.

Thelymitra nervosa , white-lit at left, ultraviolet-lit at right. As with some other thelymitras, this is probably pollinated by the native bee, and it is well-recognised honey-bees have ultraviolet vision. Here, under ultraviolet illumination, the outer two-thirds of the tepals are bright (and "nerved"), but the column and inner third of the tepals are dark, providing a "target" effect. Just like a "Black-eyed Susan".

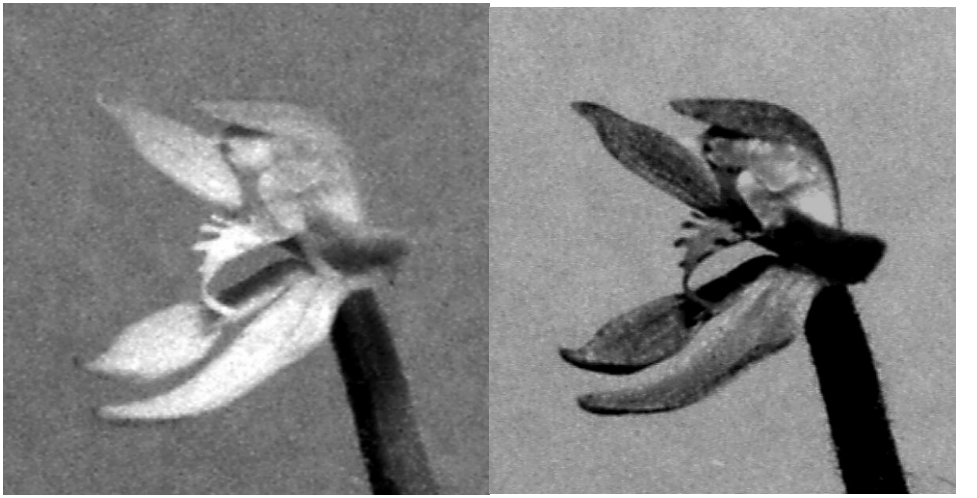


The self-pollinating *Thelymitra longifolia still has a dark centre under ultraviolet, but the target effect is diminished by darkish tepals as well.*



Again, the centre of *Thelymitra* aff. *pauciflora* is dark compared with lighter tepals.

Winika cunninghamii shows vivid contrasts under ultraviolet—a dark column, bright heavily veined labellum and lateral sepals against dark leaves, darker central parts of dorsal sepal and petals with dark veins acting as pollen guides.



Petalochilus nothofageti shows pallor of the base of the labellum under ultraviolet (as in the other Petalochilus species), as well as a curious contrast between the very dark labellar midlobe calli and the lighter midlobe itself. Quite different from *P. chlorostylus.*

Most of these photographs have been taken with a modification of the technique described in J85. Here I used Kodak Tmax P3200 film exposed at ASA25, the light shots via combined ND4, ND8 and UV-blocking filters at f32, the ultraviolet shots via the B&W403 UV-pass filter at f16. The film was developed at ASA1600.

The black-and-white negatives were scanned to a positive image at 300dpi using the Epson Perfection 1240U scanner's slide-copying attachment, and the images manipulated in Photoshop 4.0. I am grateful to the Wellington Botanical Society for its Jubilee Award which funded this research.

4. Pterostylis reviewed (and see Key, pp38-39 this issue)

Volume 4 of *Australian Orchid Research* has just been published; it is a *Review of Pterostylis* by David Jones, Mark Clements and Brian Molloy, containing a reassessment of the genus, a new classification based on DNA analysis and structure, and a synopsis of the Subtribe Pterostylidinae. All recognised taxa are dealt with, though there are no new descriptions of any of the unnamed NZ taxa. There are colour and pencil illustrations, and some stunning monochrome microphotography of flower parts.

Pterostylis is split into 17 new genera, one of them hybrid. Those seeking details of the new genera should consult the work, but suffice it here to say that, if these changes are accepted, these are the new genera (NZ species, underlined, follow each generic name).

Bunochilus DL Jones & MA Clem. (Type: *P. longifolia.* About 15 spp. in eastern Australia)

Crangonorchis DL Jones & MA Clem. (Type: *P. pedoglossa.* Two spp. in eastern Australia)

Diplodium Sw. (Type: *D. australe.* About 60 spp. in Australia & NZ, incl. *D. alobulum, D. alveatum, D. brumalis, D. trullifolium*)

Eremorchis DL Jones & MA Clem. (Type; *P. allantoidea.* One sp. in SW Western Australia)

Hymenochilus DL Jones & MA Clem. (Type *P. mutica.* About 12 spp. in southern Australia & NZ, incl. *H. tanypodus, H. tristis*)

Linguella DL Jones & MA Clem. (Type *P. nana.* About 30 spp. in southern Australia, with one in NZ: *L. puberula*)

Oligochaetochilus DL Szlachetko. (Type *O. rufus.* About 60 spp. in subtropical and southern Australia)

Petrorchis DL Jones & MA Clem. (Type *P. bicornis.* One sp. in eastern Australia)

Pharochilum DL Jones & MA Clem. (Type *P. daintreana.* One sp. in eastern Australia)

Plumatichilos DL Szlachetko. (Type *P. barbatum.* About 15 spp. in temperate Australia & one in NZ: *P. tasmanicum*)

Pterostylis R.Br. (Type *P. curta.* About 40 spp. in Australia and surrounding countries)

Subgenus *Pterostylis* (incl. *P. nutans*)

Subgenus *Cucullatae* (incl. *P. foliata, P. humilis, P micromega, P. oliveri, P. paludosa, P porrecta, P. venosa*)

Subgenus *Graminifoliae* (all are NZ spp: *P. agathicola, P. areolata, P. auriculata, P. australis, P. banksii, P. cardiostigma, P. cernua, P. graminea, P. irsoniana, P. irwinii, P. montana, P. patens, P. silvicultrix*)

Ranorchis DL Jones & MA Clem. (Type *P. sargentii.* One sp. in SW Western Australia)

Speculantha DL Jones & MA Clem. (Type *P. parviflora.* About 15 spp. in eastern Australia)

Stamnorchis DL Jones & MA Clem. (Type *P. recurva.* One sp. in SW Western Australia)

Taurantha DL Jones & MA Clem. (Type *P. ophioglossa.* About 7 spp. in eastern Australia & New Caledonia)

Urochilus DL Jones & MA Clem. Type *P. vittata.* About 6 spp. in southern Australia)

X *Taurodium* DL Jones & MA Clem. (Two taxa in a hybrid genus between spp. of *Diplodium* and *Taurantha*)

Notes

Pterostylis silvicultrix (F.Muell.) Molloy, DL Jones & MA Clem is a new species status for the plant known as *P. banksii* var. *silvicultrix.*

Pterostylis auriculata Colenso is the identity of *P.* "Catlins", as was always suspected (B. Molloy, *pers.comm.).* Colenso described a plant from open fern land at Fortrose, near Invercargill (see Historical Reprint p21).

Seasons in the life of some Canadian orchids Part 2 - Summer: time of the Helleborine

An alien, a colonist, a foreigner, a weed! To Canadian gardeners who pride themselves on their carefully manicured lawns and orderly vegetable plots, the Helleborine orchid (*Epipactis helleborine*) is something to be torn out and flung away in disgust the moment it is discovered. You see, the Helleborine is not a native orchid of North America. From the summer day in 1958 when I first discovered the plant in our Canadian garden, I wanted to find out more about the intriguing stranger. What was the mysterious visitor, how did it arrive in our garden, and why could it grow where no native orchid could become established? My quest continues today in the form of a long term study of a naturally occurring population in Gatineau Park, Québec. Over the years, I have examined the phenology, pollination biology and pollen germination, seed germination and patterns of appearance. The quest has taken my husband Michael and me on an animated journey through the writings of Theophrastus, Pliny and Dioscorides with words like *elleborine* dancing on the tongue.

The Helleborine clearly is a traveller. Its natural range extends from the Himalayas westward through Europe. The orchid was first discovered in North America in New York State, USA, in 1879, and shortly thereafter in Toronto and Montréal, Canada. Some have suggested that it was introduced via herbal gardens as a medicinal plant for the treatment of gout but our examination of ancient writings and pharmacopoeias revealed that the name, Helleborine, and the generic epithet, *Epipactis*, assigned by Crantz in 1769, were names of other quite different plants of reputed medicinal value. The White Hellebore, *Veratrum album* (Liliaceae), which the orchid only vegetatively resembles, was once used to treat gout. If deliberate introduction was not involved then how did this European orchid come to be established in North America? I speculate that seeds, plants or both arrived accidentally with the thousands of continental European immigrants. Just over 50 years before the orchid discovery, the Erie Canal, 'gateway to the interior', was hand dug starting in New York City, following the Mohawk River valley through New York State toward Lake Erie, one of the Great Lakes chain, and it was by this route that many travellers made their way inland. The Canal passed through suitable habitat where *E. helleborine* could grow. Soil was disturbed during construction and regularly thereafter as mules drew barges along the canal. Somewhere seeds germinated, plants grew, reproduced, then spread their seeds with the wind. Whether this was indeed the manner of introduction will never be known for certain but other questions regarding the success of this orchid colonist may be more easily addressed.

Epipactis helleborine is a self-compatible orchid. Plants in dry sites bear up to 25 flowers while those growing in seasonally damp places can produce up to 100 blooms (Fig. 1, p9). The pale green, olive and pink flowers vary from 1 to 2 cm in diameter. Some of the largest and most colourful blooms can be found with the smaller plants in drier sites. The success of the Helleborine as a colonizer has variably been attributed to its being self-compatible and non-specific in terms of pollinator, which can be various species of wasp or even beetles or ants, but is this the only reason for its success? While only a few colonizing orchid species have been studied in detail, their success has been attributed not only to the reproductive assurance of pollinator-independent mating systems and flexibility with respect to pollinators but also to high levels of phenotypic plasticity. Such orchids can be exceptionally adaptable to a variety of

situations.

Given that the Helleborine seemed so ready to establish in gardens, I believed that it would also be easy to germinate the seeds from any plant (Fig. 2). After nine years of unsuccessful experiment, I learned that one of the many secrets of this orchid is its capacity to produce seeds of variable germination potential according to the existing environmental conditions at the time of seed development. Similar seed germination behaviour (germination polymorphism) is known with other plants but had not been previously described for orchids. Seeds produced under favourable conditions germinate more quickly. Furthermore, there is some evidence that these seedlings grow more vigorously perhaps to be better able to exploit bountiful growing conditions. So seems to be the case with the Helleborine orchid. Under conditions of plentiful moisture, certain plants produce some seeds which can germinate very quickly (9 days *in vitro*) (Fig. 3). Furthermore, these seedlings seem to grow more quickly than those of seeds that germinate only after chilling. The quick-to-germinate seeds are found only in small numbers and only in the lower fruits of an inflorescence together with seeds which I have never been able to germinate *in vitro*. Fortunately, I had been keeping records of which fruit (in terms of inflorescence position) of which plant was being used for experiment and so when germination happened, I could begin to unravel the mystery. I discovered that the Helleborine produces three types of seeds including the quick-to-germinate seed class. The vast majority of seeds never seem to germinate at least during my studies but certain plants under average climatic conditions produce some seeds that will germinate after a cold period. I speculate that the quick-to-germinate seeds produce plants that are more quickly able to exploit favourable growing conditions in a new environment and this reinforces their ease of establishment in a new place.

Does germination polymorphism alone explain the success of this remarkable orchid colonist? My long term studies indicate that a majority of Helleborine orchids in drier sites are short-lived, flowering once only during their lifetime. In drier habitats, many plants never bloom during their entire lifetime. Flowering success follows high rainfall during the months of August and September summed in the year previous. While seeds of orchids in dry sites rarely if ever germinate, synchronized flowering increases the opportunity for pollen exchange with other populations growing nearby in more favourable conditions for germinable seed production (Fig. 4). Dry site populations may be entirely dependent upon the import of seeds from distant germinable seed-producing colonies for their continued existence. In wetter habitats, the orchid can emerge and flower annually, potentially producing seeds of all three germination classes within the population Certainly, the success of this orchid lies in its flexibility as a population.

Each time I re-visit the Helleborine, I contemplate on how much less we would now know if I had succumbed to the temptation to focus only on rare taxa and to disregard the ordinary.

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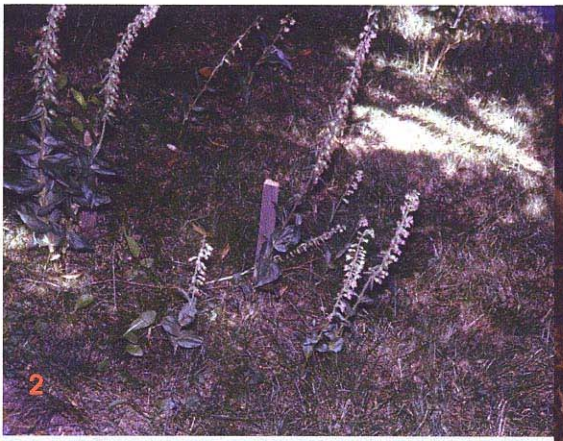
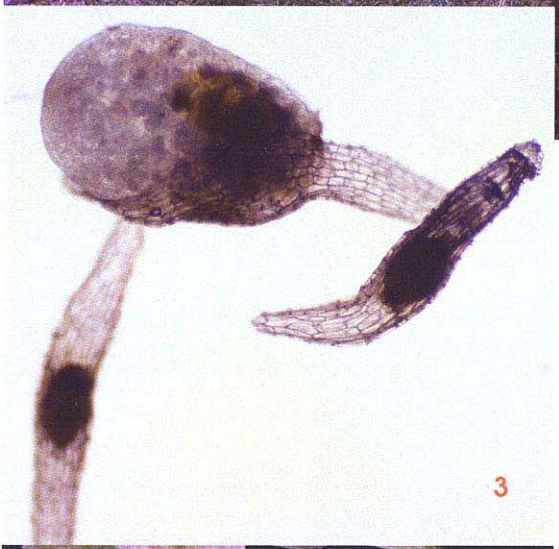




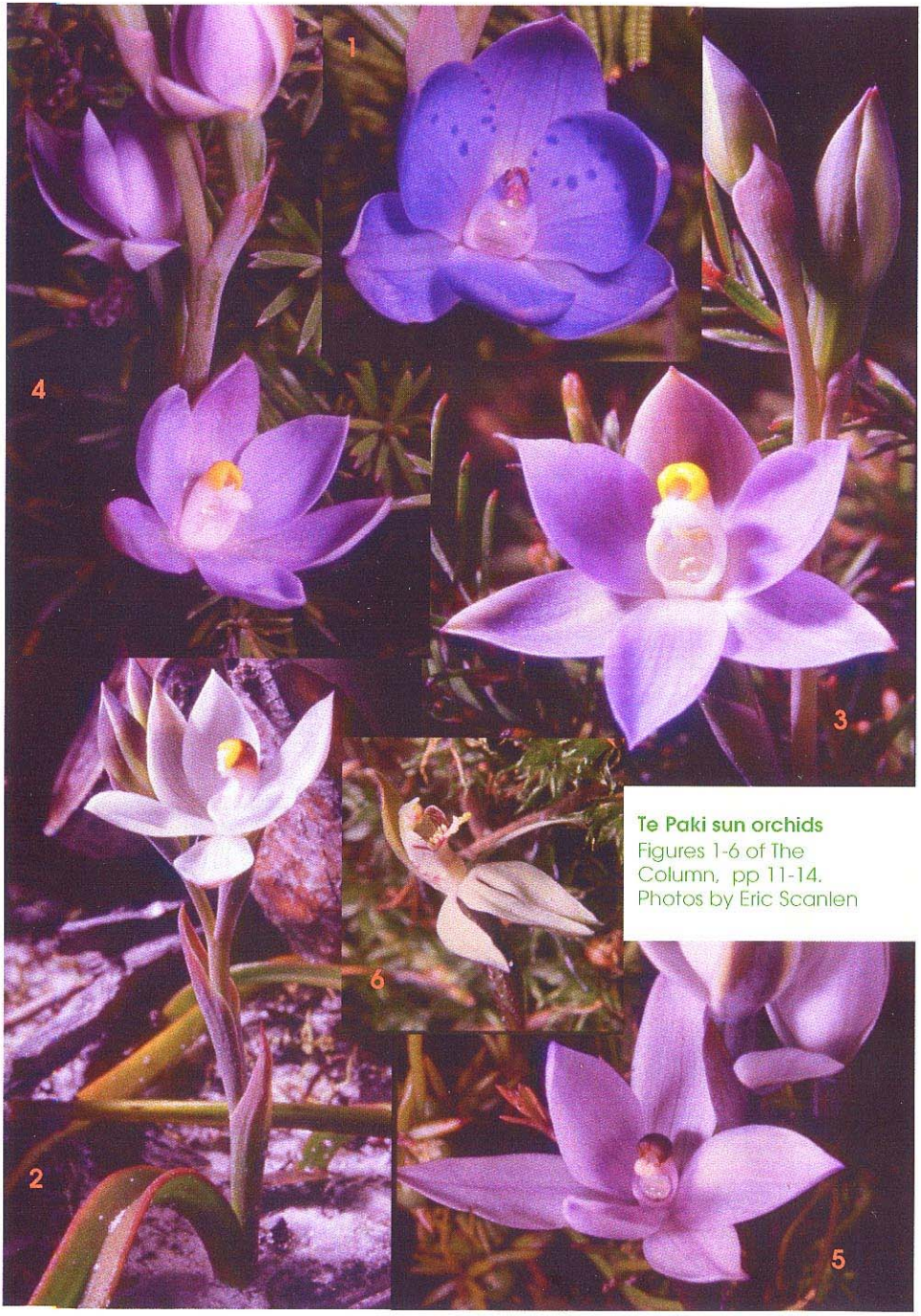
Summer: Time of the Helleborine (pp7-8)

Figure 1 - Large clump of *E. helleborine* growing beside a stream where it has emerged and flowered annually for the past 18 years.
photo Michael MacConaill

Figure 2 - A group of *E. helleborine* blooming happily in July beneath a garden tree (*Ostrya virginiana*).
photo Michael MacConaill

Figure 3 - Seed of *E. helleborine* germinating 9 days after sowing.
photo Marilyn Light

Figure 4 - A flower of *E. helleborine* showing dyed pollen used to track pollinator movement between flowers and plants.
photo Michael MacConaill



Te Paki sun orchids
Figures 1-6 of The Column, pp 11-14.
Photos by Eric Scanlen

1. Te Paki sun orchids

Jos Laaper e-mailed from the Netherlands that he would like to see New Zealand orchids. What better place than the very top? So a field trip was on but at too short a notice for most so only 5 out of 33 invited could make it. Hughie delivered some fine, hot days with open Thelymitra for a much appreciated change.

9 October at Waiwhiu, north of Warkworth, accent was on plentiful *Nematoceras* "whiskers" which HB Matthews described back in 1928 as *Corysanthes* "viridis". *Singularibas oblongus* also came under scrutiny. Did it have a bed of prickles on the disc? The flowers can be tilted back unharmed and checked for silhouettes of the dark prickles against the white column. None examined by the Column had them although one or two prickles sprouted from the inner sides of the labellum. Near enough to comply with Hooker's original description and drawing of prickleless *S. oblongus.* Allan Ducker's inspections on other flowers which had the same oval mouthed form, showed prickles! Hybrids no doubt with HB Matthew's *S.* "aestivalis"[1,2]. Open *Pterostylis graminea* and *P. banksii* were noted too.

At Hewetts Reserve, near Whangarei, eagle-eyed-Ernie Corbett (EEE) spotted spotted *T.* aff. *ixioides*, (**Fig. 1**) blue, above low scrub, high on a ridge, followed by much clicking of cameras and whirring of digi videos, on a subject rarely seen wide-open. On the ridge track, some 12 or so elusive little *Petalochilus bartlettii* with their rounded sepals were eventually noticed. One mutant was deficient in all calli but the others had the regulation 6 pairs of disc calli, with 5 biggies grouped below, and two marginal calli each side of the midlobe. Two *Thelymitra* aff. *longifolia* (Graeme Jane's plonkers) in pale pink and white, adorning a corner of the track, had Brian Tyler from Levin, videoing their multi blooms, all open at once. Perfume was undetectable to all; is it really scented? or was the dappled shade keeping them scentless? Too early for *Nematoceras rivularis* in the Maungataniwhas except for one lone, opening flower which received exaggerated attention from the queued camera buffs in a last orchid stop en route to Waitiki Landing.

10 October broke fine, and the race was on up Ninety Mile Beach to Scott Point where calm days are a treasure on that exposed headland. Bruce Irwin's (J65:14) *Petalochilus saccatus* site was sought, sort of hopelessly because nought has been seen there these past 5 years. But EEE soon spotted 3 Petalochilus buds peeping out of a porthole in an island of gale-flattened scrub amidst the barren iron-pan and right by Bruce's site! Pipi midden shells were gathered to mark the spot for the 4 November field party — but they couldn't make it to Scott Point!! This could have been it. What would the taxonomists call the 4 fingered Petalochilus if the originals with 5 fingers had turned up again? Further north, the sheltered hollow of Caladenia Alley (Petalochilus Alley? not today) delivered a

Te Paki illustrations (opposite, p10)

Fig. 1. *Thelymitra* aff. *ixioides* with 2n=28 chromosomes; a putative parent of the amphidiploid hybrid T. nervosa with 2n=54 according to Brian Molloy and M.I. Dawson.
Fig. 2. "Stunted" *Thelymitra* aff. *longifolia* abounds on sandy track sides at Scott Point. Note curled leaves and *Hakea sericea* nuts B/G.
Fig. 3. *Thelymitra* "sky" quite mauve but note the abruptly acuminate floral bract which, along with colour variation and the smooth leaf, separate it from *T.* "rough leaf".
Fig. 4. *Thelymitra* "rough leaf" self opened on a hot 11 Oct. Note longer acuminate floral bract than on *T.* "sky".
Fig. 5. *Thelymitra* "tholinigra". A handsome 38mm wide bloom showing the blue halo seen in some *T.* aff. longifolia.
Fig. 6. *Petalochilus* aff. *chlorostylus* but with red stem and "green gores" on the ovary.

bunch of *P.* aff. *fuscatus/bartlettii* hybrids with aff. *fuscatus* pointed sepals and 3 marginal calli to the midlobe BUT *bartlettii* hairy leaves chute-like midlobes and no dark red stripe on the back of the tepals. Nowhere could we find the clearly defined species of last season. (J82:5-9). Even the *P. bartlettii* with regulation rounded sepals and chute-like midlobes mostly had only 1 marginal callus, not the usual 2. Jos, for whom all the species were new, was quite bemused by the baffled discussions that ensued.

By 11am, in unseasonable heat, all those "stunted" *T.* aff. *longifolia* which had fooled previous *T. matthewsii* hunters because of the curled leaves in desert-like sandy habitats, now started opening healthy, well formed flowers (**Fig. 2**). This looks like another taxon evolving to cope with the harsh terrain. *T.* "rough leaf" was found in bud at the usual places and measured for leaf and bract traits which don't often feature in the pics. Allan Ducker pointed out his pet *T.* aff. *longifolia* with green buds instead of the usual purple-maroon. Albinos perhaps? A protracted hunt for *T. matthewsii* drew the usual puzzling blank for Scott Point despite abundant suitable habitat and colonies of it in Te Paki sites all around. When the tide had ebbed for 2 hours, the return down the beach and up Te Paki Stream was enjoyed prior to a scratch dinner, cooked by men only. Most of the provisions were still in a box at home by the Column's workbench! Allan played back the days finds on video sparking voluble debate on which Petalochilus taxa were hybrids and which were parent plants.

11 October Papawiri Hill. No *Orthoceras strictum* (J78:37) this year, but *O. novae-zeelandiae* was in early bud, no sign of the expected *Thelymitra sanscilia* (J70:34) or *T.* "rough leaf" but a *Petalochilus bartlettii* with 3 marginal calli confused the issue once again.

Later, at the Shenstone Block, a *Corybas cheesemanii* scape, adorned with 20 or 30 colourless bract-like scales, measured in at 185mm tall. Not bad for a tiny sessile flower. Allans Track up a spur of isolated iron-pan areas, delivered to EEE, on iron-pan 2, two black *T. matthewsii* seed stalks which were then marked with the traditional square of sticks. Meanwhile the shutter bugs were capturing a wide open *Calochilus herbaceus* on a step in the track. This Shenstone taxon has a purple-maroon disc, not the normal violet shade. On iron pan 3, Allan dropped on a wide open and mauvish *T.* "sky" (**Fig. 3**) not a metre from Anne Fraser's site 11, going by the numerous markers by tiny black corkscrew seedlings of *T. matt.* Add an open *T. aemula* (so early!) peeping out of the tea-tree for more shutter bug delays on these unexpected bonuses. Pink Track disappointed with the lack of *Petalochilus* "speckles" (too early) but triumphed with side by side spikes of wide open white plonkers in dappled shade which may explain its unusually long pedicels. With 16 blooms open in the heat, the Column at last detected a faint musky-sweet perfume. A crowd of about 20 *T. imberbis* (yellow *T. carnea*) with deflexed sepals and petals open flat, was a sight for sore eyes back on the Shenstone track, right at the expected site. None of the numerous salmon-pink forms were seen wide open like these sporadic yellows which have only shown twice in 6 years. *Plumatochilos tasmanicus* was spent on Allans Track but some by Fri 2 Track, drew some gleeful clicks and whirrs from Brian despite the enveloping gorse. Brian was scoring 4 new species for his photo' record, every day. Fri 2 Track, known for bluest *T.* "sky" and *T.* aff. *ixioides* now turned on an orchid pink *T.* "rough-leaf" (**Fig. 4**), unusually early and wide open; the first any of us had seen thus. Someone, who shall remain anonymous, announced it as *T.* aff. *pauciflora*; worse, the Column and EEE fell for it. Whatever next! Everyone knows that *T.* aff. *pauciflora* is blue in these parts and rare. In anon.'s defence, the top of this yellow post-anther lobe, although not split, was slightly emarginate but it had no dark saddle, only the typical speckled amber saddle of *T.* "rough-leaf". Its normal 2 teeth in the column base were mounted atop a triangular blade, a feature not uncommon in several Thelymitra. A closed *T.* "darkie" had its specification

taken. Not only 3 green bracts on a purplish stem but also a green leaf grading down to a red base. Our first *Petalochilus minor*, a twin flowered specimen, showed up too. This species had surprisingly few stems in evidence this season. EEE also spotted, mid-Fri 2 Track, two little pink dots of *P.* aff. *bartlettii* (J78:20,26,33,36) specimens, just 8mm across and 56mm tall. Returning via the long way, around the Shenstone loop, meant a brief stop at the sand crater in Fri 1 where EEE found 2 more *T. matthewsii* for Anne. HB Matthews' *Petalochilus* "chloroleuca" which was absent from the earlier site (J72:27) showed up in a new colony on the flat near the cross-roads. The labellum's midlobe had Henry's "3 long calli on each side with a glandular fringe to the point" plus "The lateral lobes and column wings broadly livid purple-pink" but the stem hairs were red-glanded, not Henry's dense grey-white that we had seen before. The Column's pics have the inner column blocked by a still opening labellum, unseen in the view-finder in the dim light and ruining the effect!

The site of the white and blue *Thelymitra* "sky" showed drastically diminishing plant numbers, none open of course, in the gloom under spreading kanuka. A request to Rodger Cawte to have the kanuka thinned will be made with the aim of conserving the only white *T.* "sky" ever reported.

No one had thought to take our meat out of the freezer that morning so the restaurant saw five happy guys enjoying a properly cooked meal donated by Jos, thank you kindly, after a sensational orchid day.

Sat. 12 October at Rubbish Dump Hill (RDH), after a tourist trip to Cape Reinga for Jos, first up was a be—eautiful *Thelymitra* "tholinigra" (**Fig. 5**) unmistakable in its purple-brown livery with sepal outers edged in off-white. The Column was overjoyed — and the team were sure he had finally flipped. A little warm breath opened the 38mm diam. bottom flower of 12 but the next two were soon opening unassisted in the warmth. Journal 85, p15 shows the characteristic blackish, finely tuberculated dome of the post-anther lobe. A rostellum like a jug spout separates this taxon from those with the normal white, bead-like affair. A fine pink plonker down the old fence line had many portraits made and the *T. matthewsii* sites were studied. Ernie's "island" on an eroded slope, was well staked with Anne's markers, all part of her master's thesis. Ian's plot 200m away had but two seedlings, lying on the surface, tubers and all, spotted of course by EEE who replanted them where the birds(?) had scratched them out. Why hadn't the birds eaten those exposed little tubers? *Calochilus herbaceus* and *Petalochilus* aff. *fuscatus* were taking a year off but *P. bartletti* had 5 fine open flowers on the clay vehicle track.

Rodger Cawte, DoC's Programme Manager, Bio-diversity Assets, had specifically asked for no track maintenance or specimen taking from the park so the team moved off to Te Hapua Road batters where a kilometre of site revealed one only *P. bartlettii* in flower. However, numerous in-bud Petalochilus specimens were in evidence so 6 were rescued from this unstable site for flowering-on and delivery by Allan to Dr. Brian Molloy for his DNA analysis and perhaps elucidation of the Petalochilus debate. The Earth Wall tramp had to be abandoned in the face of a cold front with driving rain so it was back to camp for more video action replays from Allan and Brian.

Sunday 13 October Ernie and Allan took their leave as working folk must. The three stayers did Radar Bush the hard way; stepping into the forest at the top end of the gully following the stream down to meet the track end. Orchids were scarce in the gloom. *Drymoanthus adversus* in bud, was an exception on a leaning kohekohe close to the topmost *Metrosideros bartlettii.* At the known plot of *Nematoceras triloba,* (rare in the far north) flowering had finished but the sheathing bract near the tuber had the bird-beak apiculus aiming back at the stem which is common to several taxa. Brian was happy to get *P. agathicola* and *P. trullifolia* still in flower. Back at the Shenstone Block, he was dubious about Matthews' *Singularibas* (was Corybas) "aestivalis" and asked, "If there are two different

Singularibas taxa, shouldn't it be *Pluralaribas* 'aestivalis'?" No takers with that one; too hard to pronounce! But he dutifully photographed it in flower at the stream side to compare with his Waiwhiu taxon. Meanwhile, on nearby Shenstone Track, *Petalochilus bartlettii* was hunted out in a known site where a 'dozer had started a wide fire-break over a year ago. The orchid had amazingly survived this major disturbance with two fine blooms to prove it. A trip up Cheeseman's Track, overgrown with *Hakea sericea*, brought us to Prime Site in a half gale to find the best *T. matthewsii* sites (away from the drifting sand), barren of plants. This was disturbing, suggesting either that seed propagation had failed or tubers had taken a year off. Returning on Cheesemans Track, one highlight was a *Petalochilus* aff. *chlorostylus* (J79:6,7, J83:17) complete with hairless red glands on its sepals (**Fig. 6**). This was the red stemmed taxon with "green gores" around the ovary, previously sighted at Albany Scenic Reserve, the Coromandel Pinnacles and below Mangatangi Dam, now overgrown with tea-tree on the Kauri Haul Road.

14 October. The homeward trek took us to the Kaeo Quarry for a few properly open *Nematoceras rivularis* s.s. down by the stream and awkward for photographers but Brian was undaunted. A search 200m upstream revealed one only struggling colony on an oft flooded rock. This last look at an orchid drew the curtain on another rewarding, question packed expedition to the far north.

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1. Hooker, JD *Flora Novae Zelandiae, Part I,* 1853 Illustrations by W. Fitch, p250
2. St George, I, *The Hookers on the NZ Orchids* No. 7 of NZNOG's Historical series, pp 29, 30

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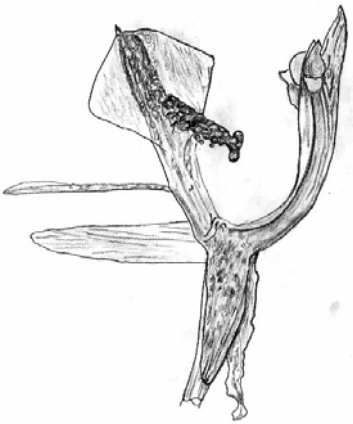
2. Chiloglottis round up

The nitty gritty

1. Henry Matthews did find *Chiloglottis formicifera*, not *C. trapeziformis*, in 1902 at Kaitaia,
2. Thomas Cheeseman identified it correctly,
3. Allan Wallis' mystery orchid of 1990 in Masterton is confirmed as *C. formicifera,*
4. *C. valida* from Hanmer Forest, differs from both clones "A" and clone "B" at Iwitahi,
5. the Austrian variety of *Pinus nigra* at Hanmer Springs hosts more orchids than the Corsican variety which is so successful at Iwitahi and
6. rescue transplants of *C. trapeziformis* from the Waitarere Beach forest, are thriving at Iwitahi thanks to Trevor Nicholls' and others care and dedication. Allan Ducker's videos show a reddish taxon with a calli pile like extruded liquorice; flowering in early December.

Allan Herbarium (CHR) at Lincoln has most of the important orchid specimens there at the moment including many on loan from AK and WELT. Aaron Wilton, Curator, kindly allowed the Column to select some AK specimens for study on 10 December 02 (with permission from Ewen Cameron, AK). Among them were HB Matthews' specimens of *C. formicifera* dated 23 August 02 (**Fig. 1**). The drawing, faithfully traced from a projected image, shows the all-important calli extending out to the labellum margin — as it does in *C. formicifera* — unheard of in *C. trapeziformis* [J81 pp1,3,4, J82 pl.1]. The ant-like shape of the calli on *C. formicifera* is well depicted in *Native Orchids of Australia,* Reed, 1988, p147 by David Jones. So, thoughts expressed in recent articles that Henry had possibly found *C. trapeziformis* can now be dismissed. How could we ever have doubted the expertise of TF Cheeseman who first identified it?

In Nelson, Gordon Sylvester showed the Column a 25 September 90 letter and photo (**Fig. 2**) from Allan Wallis of that mystery orchid which turned up in his dried out pot of pine-needle mulch and dead West Coast ferns, at Masterton in 1990 [J39 p12, J82 p11]. It is indubitably *C. formicifera* as you can see: just like Henry's which undoubtedly blew in as seed from Queensland. Do keep your eyes peeled from late August in the north to November in the south, for colonies of *C. formicifera,* probably in mature exotic pines.



↑ **Fig.1** *Chiloglottis formicifera.* HB Matthews' 23 August 02 specimen with ant-like calli out to the margin.

Any colonies could easily have escaped detection.

At Hanmer Springs on 15 December 03, Gloria and the Column went straight to the celebrated colony of *C. valida* by Phillips Lane, as expertly directed. The 4m^2 colony had been meticulously cleared of the usual sticks and debris in a mature forest; so the rabbits and/or 'possums had had a field day! Most flowers were bitten off but were still lying around; some few still attached, had no labella (?) but one alone still had a folded labellum with a callus layout differing from clones "A" & "B" at Iwitahi (**Fig. 3**). Note that "A"s can have 2 small stray calli appear by each lateral and "B"s can have 3 sessile calli forward on the mid-rib according to the Column's slides. Tim Park's Te Anau colony [J81 p42] appear to be clone "B" and the Column has no info on the Richmond Range colony [J70 p29].

Hence one can assume that the three or more taxa have originated from separate seeds blown in from Oz. And do remember to leave dead brushwood undisturbed over any orchid colonies you find. The spiky brushwood is most effective protection from casual browsers.

C. cornuta and several other orchid species at Hanmer Springs, favoured as hosts, *Pinus nigra* var. *austriaca* (Austrian pine) but were sparse to absent under *P. radiata*, Norway spruce, Douglas fir and strangely, Corsican pine (*Pinus nigra* var. *lariaco* {was *maratima*}) which hosts such an abundance of species at Iwitahi Trust Reserve.

← **Fig.2.** *Chiloglottis formicifera* flowered from tubers Allan Wallis found in a pot of dead ferns and pine-needle mulch, Masterton 1990.

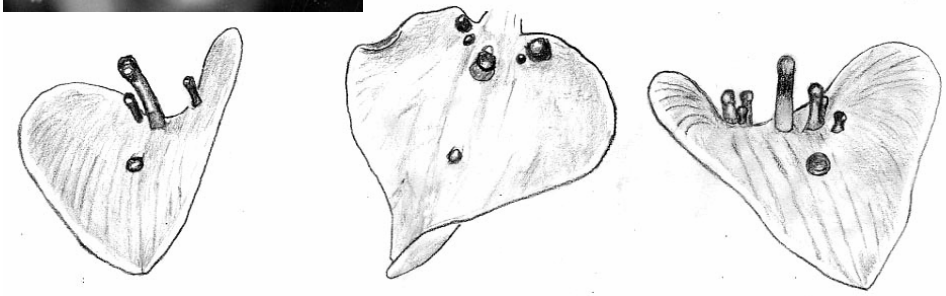


Fig.3. *Chiloglottis valida* normal taxa; Iwitahi clone "A" left with solitary lateral callus; Hanmer taxon centre with twin lateral calli; Iwitahi clone "B" and Te Anau right with treble lateral calli.

Updating the Nematoceras (Corybas) rivularis imbroglio

By Bruce Irwin, Tauranga.

Ian St George has told me he sometimes has difficulty deciding which tagname best fits a *Nematoceras* flower he has found. If Ian has trouble, no doubt others do too.

If I believe there are eight taxa within the *N. rivularis* aggregate, why do I sometimes hesitate to say which taxon a particular specimen is? Well, we must accept that no two flowers within a species are precisely the same; but what degree of variation should be considered reasonable? Let me repeat my personal definition of a species [J68 p14].

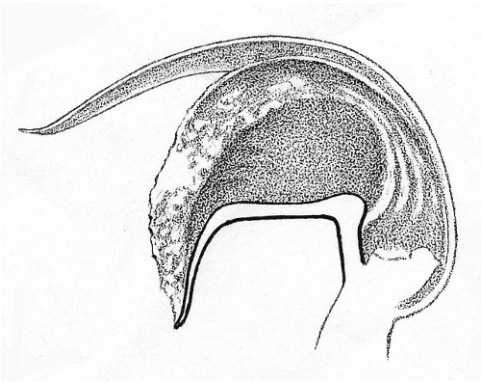
"A species is a group of individuals which may show minor variations among themselves. There may be quite considerable variation between their extremes, but individuals within the group exhibit a more or less smooth transition between those extremes. There should be a distinct gap between the group and members of any other species within the genus."

One difficulty when interpreting a botanical description is that every part of the plant is described in detail. Much that is written will apply equally to several species within the genus. After all if they didn't share similarities they would not be in the same genus. Presently I am trying to find and emphasise key characters which distinguish a particular species from all others in the genus. In the following notes only helpful characters will be mentioned and key ones will be in bold type.

At present eight forms once within *N. rivularis* stand clearly apart. Three of them bear old names revived and two were described in 1996 [1], leaving three known only by tagnames. Other puzzling forms showing affinities with the Makatote hybrids [2] are consigned to the "too hard basket".

Nematoceras rivularis

Cunningham's Latin description is brief and has been translated by Hatch as follows, "Scape with 2 bracts and a single flower. Perianth segments – 4 equal in length on both sides, linear, very long, filiform. Labellum – cordate, acuminate, with corrugated veins, the margins very thin and crenulated".

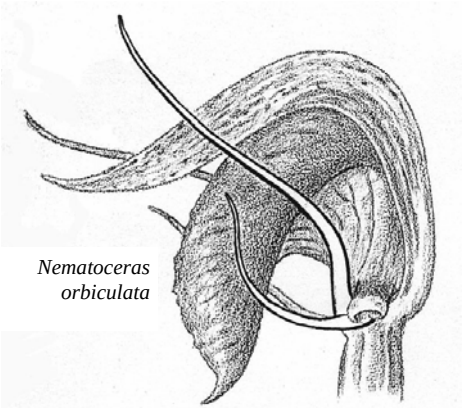


Nematoceras rivularis in longitudinal section

Of the eight forms once included under the name *Corybas (Acianthus) rivularis*, *C.* "rest area", *C.* "Kaimai" and *C.* "Kerikeri" could be regarded as having cordate, acuminate labella, but since the first two seem to be absent from the type locality at Whangaroa, *C.* "Kerikeri" is regarded as Cunningham's *Acianthus rivularis* [1]. It can be distinguished by the labellum jutting forward, well clear of the ovary, its **floor between flexures as long as from the outer flexure to the apex.**

Nematoceras orbiculata *(Corybas* "short tepals")

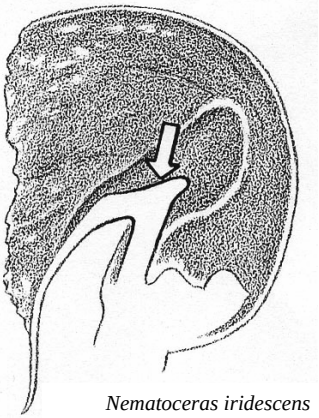
Molloy identified *C.* "short tepals" as Colenso's species *Corysanthes (Corybas) orbiculata* [1]. It is recognised by the leaf being shortly petiolate, labellum trough shaped, **lateral sepals and petals less than twice labellum length** and is self-pollinated.



Nematoceras orbiculata

Nematoceras iridescens *(Corybas* "A"*)*

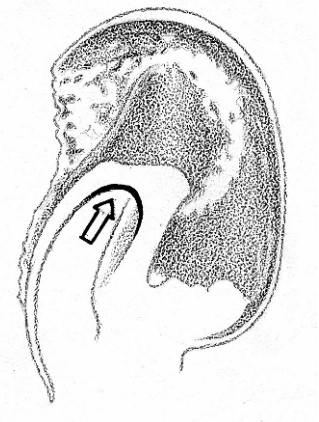
Often mistaken for *Nematoceras macrantha* but easily distinguished from that species by its lateral petals being only a little shorter than lateral sepals. From taxa previously included in *Corybas rivularis*, its shortly petiolate leaf and wide, blackish-red flower with long labellum apiculus set it apart, but the key character is the extremely **sharp inner flexure of the labellum.** The outer flexure is so close to the inner and so shallow that it is barely noticeable. A bead-like gland constricts entry immediately above the column cavity. Often a narrow white band arches upward and inward from the outer flexure, then downward to a point just below the inner flexure. Sometimes this white band is absent, but a change of surface textures inside the labellum indicates where it should be. Occasionally flowers apparently intermediate between *N. iridescens* and *N. longipetala* are found. I suspect they are of hybrid origin. Such flowers occur near Makatote Viaduct but these appear to be hybrids within *N. papa* rather than *N. longipetala,* suggesting that *N. longipetala* itself may have originated as a hybrid.



Nematoceras iridescens in longitudinal section

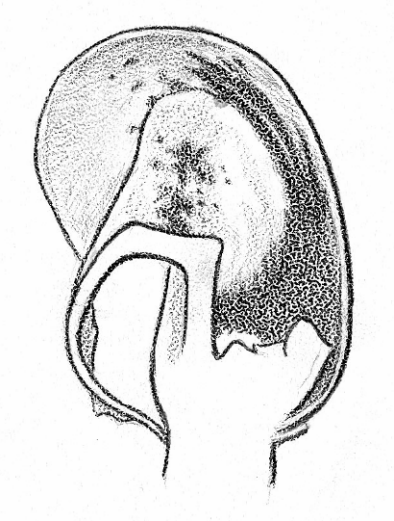
Nematoceras longipetala [3] *(Corybas macranthus* var. *longipetalus, C.* "Waiouru")

N. longipetala has a shortly petiolate leaf similar to *N. iridescens,* but the flower is smaller, narrower and greener. The lateral petals usually arch forward and upward, almost parallel to the lateral sepals, rather than outwards as in other taxa. When the labellum is sectioned longitudinally there is a short flat floor between flexures but below this **the keel of the labellum forms a continuous curve between flexures.** The colour pattern internally is similar to that of *N. iridescens* though showing more green and the curved white band (as described for *N. iridescens*) is always much wider and more ragged.



Nematoceras longipetala

The first three taxa listed above all have predominantly red flowers. N. longipetala flowers are usually mainly green but red forms do occur. The following taxa are all mainly green flowered and leaves appear sessile.

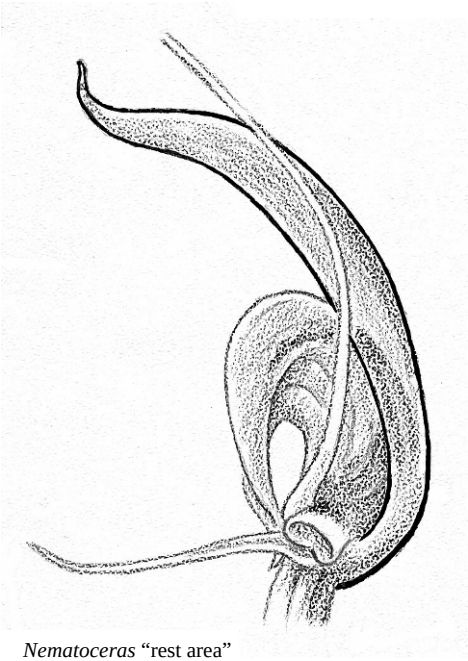


Nematoceras papa

Nematoceras papa [1] *(Corybas* "Mt Messenger"*)*

Particularly common in high rainfall areas of Taranaki. The flower is compressed from front to rear, a character shared with *N. longipetala* which it resembles in general appearance; however lateral petals arch outward rather than forward. When sectioned longitudinally **the labellum reveals a very different colour pattern.** Unlike *N. longipetala,* the leaf is always strictly sessile.

In September 2001 Anne Fraser and I found evidence of hybrid swarms of *N. iridescens* with *N. papa.* Some hybrids showed affinities with *N. papa* but most resembled the dominant (?) parent, *N. iridescens.*



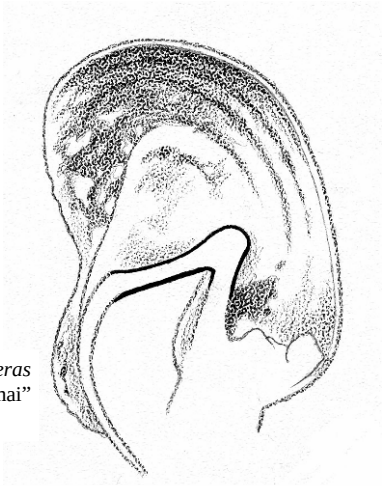
Nematoceras "rest area"

Nematoceras **"rest area"**

Known so far from only two localities on the lower slopes of Mt Ruapehu and from a specimen presumed to be this taxon collected in the southern Rimutakas by Pat Enright, this orchid favours very wet sites in subalpine wetlands. It is similar in appearance to *N. papa,* even to the colour pattern within the labellum; nevertheless it is clearly a distinct taxon. **Almost every flower sets a seed capsule indicating self-pollination** (a character it shares with *N. orbiculata*). I have never observed a viscid disc on the rostellum, perhaps explaining why *N.* "rest area" is self-pollinated. Incidentally, few flowers of *N. orbiculata* possess a viscid disc. **Some flowers of *N.* "rest area" carry the dorsal sepal arched high above the labellum;** on other flowers the dorsal sepal lies horizontally atop the labellum increasing the resemblance to *N. papa.* Although the leaf appears sessile, there is a very short but distinct petiole immediately above where the flower stem emerges.

***Nematoceras* "Kaimai"**

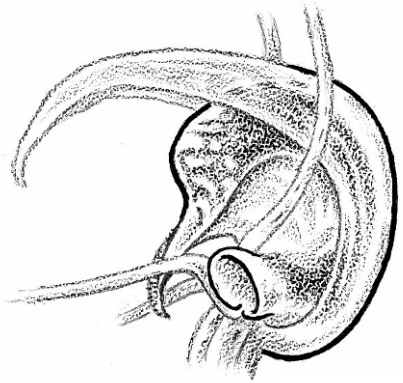
Except for the small apiculus, the labellum tapers very evenly, presenting a longish heart shape from in front. The entrance to the interior is particularly acute. **The labellum floor is deflexed through 130 degrees at the anterior flexure, so slopes distinctly downward to the exterior.** The ventral surface of the labellum between flexures forms a straight line.



Nematoceras "Kaimai"

***Nematoceras* "whiskers"**

Another taxon which appears similar to *N. papa* but distinguished by the very much **more rounded flower as seen from the side** and by its comparatively enormous, flaring, forward facing auricles. Though difficult to see without a strong lens, short, colourless hairs on the "apron" of the labellum obscure the pattern of veins. Compared with other taxa, *N.* "whiskers" can tolerate surprisingly dry sites. The flowers are strongly scented (probably particularly at night).



Nematoceras "whiskers"

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1. Molloy JPB, Irwin JB. Two new species of *Corybas* (Orchidaceae) from New Zealand, and taxonomic notes on *C. rivularis* and *C. orbiculatus. NZ J Bot* 1996; 34: 1-10.
2. Irwin JB. Hybridism in *Corybas. NZNOG J* 2002; 82: 18.
3. St George IM. Editorial. *NZNOG J* 2002; 83: 3.

The sense of smell and the science of scents

Pat Enright has reported a *Gastrodia cunninghamii* that smells of jasmine.
Peter de Lange has reported a *Gastrodia* "long column" that smells of freesias.
Earina autumnalis smells to some people of soap, and to others, of urine.
Eric Scanlen cannot smell the strong perfume of *Prasophyllum* aff. *patens*.
Bruce Irwin says (above) *Nematoceras* "whiskers" is "strongly scented".
How can we communicate objectively with each other about fragrance? Can we develop a colour chart or a tuning fork or a yard stick for our observations?
Starting in our next issue, a new series will explore this subject.

1: 1842: Colenso finds Spiranthes novae-zelandiae near Te Awamutu

William Colenso, printer, preacher, politician, botanist, began a three-month tour on 19 November 1841, shipping from Paihia to the East Coast, by foot to Waikaremoana, through the Urewera to Tauranga, over the Kaimais to the Waikato, down river to the coast, and by foot and canoe to Northland again.

Three weeks into the new year he and his companions left Matamata, and near Te Awamutu on 24 January 1842, he noted, "Leaving the swamp and entering the plain beyond it, I discovered a new elegant plant of the Orchideae family and genus Microtis, possessing a beautiful carmine-coloured perianth, with pubescent scape and spike. It was, however, very scarce, and only grew on one low spot by the path-side. Most of the plants had flowered; but I was fortunate enough to procure two specimens that were still in blossom" [1].

He sent specimens to JD Hooker, who in 1853 described *Spiranthes novae-zelandiae* [2]. In 1860 Hooker described Tasmanian plants as *Spiranthes australis* [3], and in 1864 changed his mind from 1853 and transferred the New Zealand plants to that species [4].

By 1868 Colenso had apparently seen no more Spiranthes, for he wrote, "… there are some, both genera and species, which, as far as is known, are peculiarly local…. *Spiranthes australis* (Upper Waikato) and *Adenochilus gracilis* near Lake Waikare" [5].

Since then our species has enjoyed a range of names [6] though recently it has again been assigned to *S. novae-zeelandiae* [7]. It remains local and elusive.

Here then is Joseph Dalton Hooker's account of *Spiranthes,* and his description of *S. novae-zelandiae,* from his *Flora of New Zealand* 1853.

SPIRANTHES, *L. Rich.*

A large genus of *Orchideae,* one of the few found in most quarters of the globe. The New Zealand species is a small erect herb, a foot high. *Root* of thick fibres. Radical leaves 2 inches long, narrow linear-lanceolate, acuminate, narrowed into a long petiole. *Stem* covered loosely with acute sheathing bracts. *Spike* 1-3 inches long, spirally twisted. *Bracts* ovate, acuminate, nearly as long as the flowers. *Ovary* glandular-pubescent, broadly ovate, gibbous. *Perianth* small; *sepals* puberulous, two lower placed under the labellum, rather saccate below, linear-oblong, blunt; upper ovate, sharp; *petals* linear-oblong, blunt, forming a hood from conniving with the upper sepal. *Lip* oblong, waved and crisped, with two glands at the base, its margins enclosing the short column, which has no staminodia, and a broad two-lobed blunt anther, placed behind the stigma.—This species differs from the *S. australis* of Port Jackson in the narrow labellum.

1. Spiranthes *Novae-Zelandiae* Hook.fil.; radice fibrosa, foliis anguste lineari-lanceolatis petiolatis, caule vaginato, bracteis acuminates folio subaequilongis, ovario brevi glanduloso-pubescente, sepalis puberulis inferioribus obtusis superiore ovato acuto, petalis lineari-oblongis obtusis, labello oblongo obtuso crispato basi 2-glanduloso.

HAB. Northern Island, *Colenso.*

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2. 1890: Colenso describes Pterostylis auriculata from E. Southland

Pterostylis auriculata: from *Transactions of the New Zealand Institute* 1890. 22: p489.

Plant erect, glabrous, shining, 10in.- 12in. high; stems bright-red. Leaves: basal 0; cauline 4, lanceolate very acuminate, 5in.-7in. long, ½ in. wide, sheathing at base, pale-green, midrib reddish. Perianth l ½ in. long, narrow, graceful, green with a reddish tint. Dorsal sepal and lateral petals narrow, sub-ovate, sharply acuminate, not tailed, lateral sepals erect, connate, sinus large, lobes narrow, long, spreading, tailed - tails nearly 1in. long; tongue dark-red, linear-oblong, sub 1in. long, 2 lines wide, middle nerve stout, flexuous, with 4 flexuous longitudinal veins on each side, the tip truncate and slightly bifid; appendage wide, shortly curved, coarsely fimbriate. Column long, slender, wings produced upwards in subulate tips nearly 1 line long, with very long and narrow auricles 2 ½ lines long, their tips closely and finely fringed. Ovary slender, somewhat linear, 1in. long, reddish.

Hab. Open fern land, Fortrose, Invercargill; 1889.

***Pterostylis auriculata* (aka *P.* "Catlins")**

Tautuku Nature Walk, Catlins, SE Otago (45km from Fortrose), photographed 1 November 1987.

3: 1853: Hooker describes Nematoceras macrantha from specimens Colenso and Lyall sent him

—from his Flora Novae Zelandiae 1853

HAB. Northern and Middle Islands; wet woods, bogs, etc. East Coast, *Colenso.* Port William, *Lyall.*

Stem very short. *Leaf* petioled, orbicular, cordate, deeply two-lobed, 1-1½ inch long. *Flower* on a short scape, very large, with filiform lateral sepals two to three times its own length, and very long, slender, erect petals. *Bractea* very small. *Ovarium* short, curved. *Upper sepal* horizontal, lanceolate, acuminate, larger than the lip, which is very much broader than long, ½ inch long, recurved, deep red-purple, with undulate recurved edges.—PLATE LVII. *A.* Fig.1, flower; 2, lip; 3, column: - *all magnified. (see next page for WH Fitch's lithograph—Ed.)*

4: 1884: Colenso describes Corysanthes papillosa, thinking it different from the N. macrantha he sent to Hooker

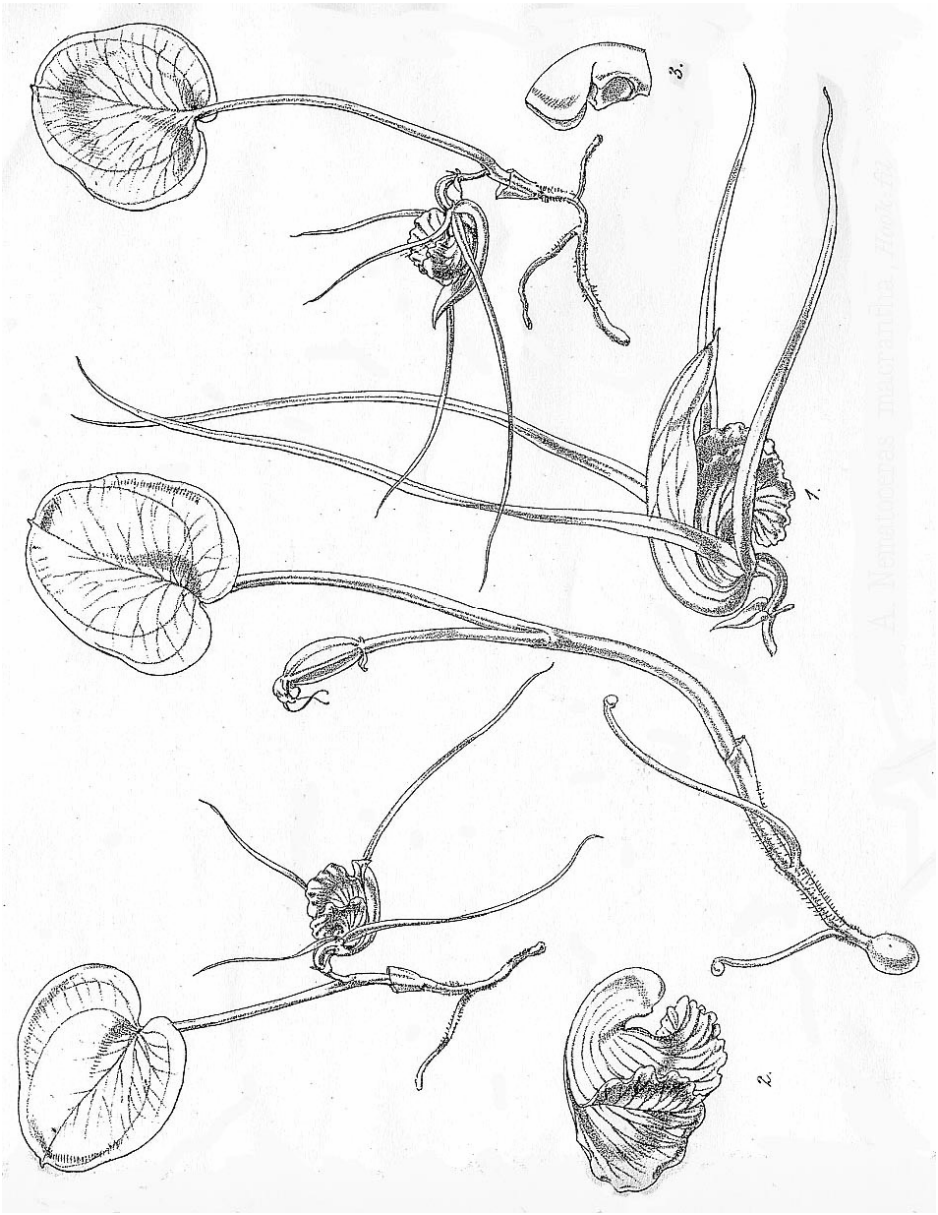
—from Trans. N.Z. I. 1884; 16: 337-8.

Corysanthes papillosa, sp. nov.

Plant small, 2-3½ inches high. *Leaf* ¾-1¼ inches diameter, membranous, finely and regularly papillose on upper surface, orbicular-cordate; *auricles* broad and largely rounded overlapping petiole, slightly retuse and apiculate at tip, much veined; *veins* anastomosing with an intramarginal vein running all round, light-green with (sometimes) a purple midrib and spots near margin; *petiole* ½-2 inches long; *peduncle* short, 3-4 lines long, variously situated—springing from near base of long petiole—from the middle—and from the top near leaf, purple spotted, bibracteate at base of ovarium; *bracts* small, unequal, the front one very minute, white, the back one much larger, ovate-acuminate, green. *Flower* ½ inch diameter, upper sepal suboblong-lanceolate, 2½ lines broad, acuminate, acute, projecting far beyond the lip (sometimes 2½ lines), recurved at tip, very thin, 5-nerved longitudinally, greenish-white spotted with purple-red; *lateral sepals* very filiform, 6-9 lines long, acute, whitish; *lateral petals* about 2 inches long, somewhat filiform but stoutish, obtuse, cylindrical, twisted, minutely spotted and coloured purple-red above for half of their length, white below; *lip* large orbicular, ½ inch (or more) in diameter, deeply bilobed above, spreading, plain, neither recurved nor involute, margins rounded entire above with a single slight notch at top on each lobe, very minutely undulate or finely and slightly toothed, retuse and apiculate below, papillose within, transparent, much veined; *colour*, dark purple-red above, whitish spotted with purple-red below; *ovarium* subangular, sulcated, purple striped.

Hab. In various parts of Hawke's Bay, among mosses in ravines, shaded woods in the interior, 1850-1880: *W.C.* Glenross, near Napier, 1883: *Mr. D. P. Balfour.*

Obs.—A fine species closely allied to *C. macrantha*, Hook. fil., but very distinct. Also, having affinity with C. *fimbriata*, Lindl., an Australian and Tasmanian species.



Nematoceras macrantha: Walter Hood Fitch's lithograph from Joseph Dalton Hooker's *Flora Novae Zelandiae*, 1853.

Want to whet your historical appetite? **Andrew Isles Bookshop** has these:

Bennett, John G., editor. The miscellaneous botanical works of **Robert Brown**. London: 1866-1867-1868. TEXT: Octavo, two volumes, 1398 pp. Publisher's cloth, some wear, rebacked with modern leather spine, new endpapers. ATLAS: Small folio, 15 pp., 28 uncoloured plates, some folding. Modern quarter morocco, the plates clean. AU$2650.

Duyker, Edward and Per Tingbrand. **Daniel Solander**, collected correspondence 1753-1782. Melbourne: 1995. Dustwrapper, 466 pp., colour illustrations. AU$77.

Duyker, Edward. Nature's Argonaut: **Daniel Solander** 1733-1782. Melbourne: 1997. 380 pp., maps, illustrations. AU$55.

Mabberley, David. **Ferdinand Bauer**: The nature of discovery. London: 1999. Quarto, dustwrapper, 128 pp., colour plates, other illustrations. AU$108.

Vallance, T. G., et al. Nature's investigator: the diary of **Robert Brown** in Australia 1801 - 1805. Canberra: 2001. Small quarto, laminated boards, 666 pp, colour photographs, maps. AU$75.

From a Canadian newspaper: **Rare orchids alter airport runway.** The flower is called a southern twayblade. The expansion of the runway at the Halifax Airport is being cut short because of a flower. A rare and delicate orchid is growing alongside the tarmac. Only three or four other patches grow in Nova Scotia. Mark Elderkin is with the Department of Natural Resources. He says the flowers will be protected at the expense of an addition to the runway. It comes at a cost of almost 100-thousand dollars. Airport officials say that's what is will take to divert the runway around the flowers.

Try **wanativeorchidsociety.net** for West Australian orchids.

A **Russian person called Vitaly** (vit@vol.les.lipetsk.ru) emailed, "Dear Sirs! I interest to grow some orchids species from seeds. Can you send me little one, which do not demanding the high requirements to condition of grows? With best regards and hope, Vitaly."
If you can help Vitaly, please do—Ed.

A correspondent to the discussion group NativeOrchids@yahoogroups.com wrote, "As far as I know **Europe is the continent with fewest orchid species** and all are terrestrials. We have no epiphytic. The number of species is depending on how you define 'species'. In literature you can find number from 200 to >400 species. So for an amateur the confusion is total in the beginning. Below you can see the number of species for some European areas. As you can see the numbers are decreasing as further north you go. Greece 130 species; Crete 70; Italy 125 (Gargano - part of Italy 61); Central-Europe 60; Sweden 51; Finland 30; Island 8; Faeroe Islands 5. Below you find links to some useful sites.
http://ophrys.free.fr/
http://www.orchids.org/ooc/eu_orchids/eu_orchids_java.shtml
http://www.orchis.de
http://ibelgique.ifrance.com/ophrys/
http://astro.df.unipi.it/ORCHIDS/
http://www.pharmanatur.com/orchidliste.htm
http://www.rninet.de/bguenter/Orchids/Main.html
There is a book on the orchids of the French Alps. It is called ´Les orchidees de France, Belgique et Luxemburg`, a collective achievement by members of the ´Societe Francaise d´Orchidiphilie´, published in Paris in 1998 by Collection Parthenope. ISBN 2-9510379-1-0. It covers all the orchid species of France, Belgium and Luxemburg. It is in French, so a basic understanding of that language helps.

Oops! Figs 21 & 27 for Mark Moorhouse's "Gordon's Pyramid treeline green" with the purple blush and the "Hairy Montane green" were reversed in J85. Mark wrote further, "Having now had a bit of time to correlate this years findings & photos and Eric Scanlen's photos I have decided that Roding C [J85 plate 8 which is a fully mature flower] is closer to your 'Rimutaka' than to *Nematoceras hypogaea*, having the 'pointed' dorsal and when not fully open and the distinctive narrow oval look. The leggier version with the longer petiole is present here also only a few valleys away from the Roding Valley [in the Lee Valley]. Plates 1 & 23 are also likely to be closer to 'Rimutaka' but lack the pointed dorsal sepal which I feel is perhaps the pivotal criterion for 'Rimutaka'. Everything else fits. Perhaps 'aff 'Rimutaka'' may be more appropriate for these [Eves Valley and Top of Whangamoas] colonies." He wrote again, "Pat Enright's *N.* aff. *triloba* pix [J85p15] are almost certainly synonymous with my "tri-wan" - what beauties!"

Rob Charnock (2/1037 Koonwarra St, North Albury, NSW 2641, Australia) is interested in **sources of seed and plants** of NZ orchid species, either side of the Tasman, and in corresponding and trading plants; his collection is held at Albury Botanic Gardens.

Gordon Sylvester wrote on **Environments and musings**: "One thing about New Zealand orchids they don't get boring. Like a lot of enthusiasts looking in crannies and weird places for something different or new is just as challenging now as it was in the early eighties when *NZNOJ* was in its infancy.

"Sure we had Dan Hatch and Bruce Irwin poking about. Both of these gentle persons represented the specialist knowledge (published) at that time. What we needed were accurate illustrations of various plants and Dan's *TRNZI* monographs fulfilled some of that function, if you had access to this publication. Otherwise Cheeseman's *Illustrated Flora* was available from libraries. Mostly we had to rely on written descriptions or handed down verbal descriptions from some one else garnered from a variety of sources written by a variety of people from different eras. Trying to translate 3 'lines' into a modern measurement was mind numbing but we did try.

"Today the modern orchidist has access to digital cameras, the Internet, and of course computers and a large base of fellow enthusiasts to compare notes, argue with, and best of all toss ideas about. Accompanying this of course were line drawings and photos both colour and black and white in our journal.

"It is interesting to note the amount of discussion associated with *Corybas* oops *Nematoceras* and its related genera. And the subsequent expansion from the eight species in the *Flora Vol.2* to the huge list now acknowledged. To be fair a lot of these were recognised much earlier but were "lumped" by later commentators, possibly because of a lack of peer support and the lack of a range of comparative material available in New Zealand. I guess some of it could have been made available, but travelling by ship certainly was not a preferred option.

"When I arrived at my current locality (Sherry River), I made a mistake in presuming that a similar range of orchids would be available. But how wrong can you get? Factors like air temperature, frost severity, rainfall, light intensity, soil types, underlying rock type, pollinators or lack of, daylight length, hours of sunshine, the list could on and on. But most importantly the lack of people interested in observing and recording the sites and plants. Contact was made with others and eventually some sort of pattern was established.

"A recent expedition with two like minded souls covered a lot of territory and found quite a few varieties new to me. We just need to look at the amount of material written about *Pterostylis montana*. In my humble opinion it appears that where the

token material i.e. that first described came from is or should be the type material for that genus/species. The Puffer track is cited for a huge amount of material, and of course, over the hills and further away we have different populations and variations different from the type locality. Our editor has himself over the years expressed his frustration at the variation between his Dunedin varieties and those he has now found further north. I can say the same for my pool of knowledge from Wellington and the Central North Island. I recall a conversation with Bruce Irwin in the middle of a patch of Kauri forest close to Tauranga and looking at "P. rubricaulis" and wondering out aloud why it wasn't a separate species rather than a variety as established in *Flora Vol.2*. I'm glad to see it has now been accorded its own name (*P. agathicola*). All I can say is may the knowledge and varieties continue to grow - and that the people who write the formal material use illustrations and descriptions of the type of land they are found on."

The IUCN Council has announced its decision to hold the next **World Conservation Congress** in Bangkok, Thailand in November 2004. The venue chosen is the Queen Sirikit National Convention Centre, conveniently located close to the city centre, with sufficient surrounding hotels, some even in walking distance. *Interested? keep an eye on http://www.iucn.org/themes/ssc/plants/calendar.htm for updates—Ed.*

FIRST **INTERNATIONAL CONFERENCE OF NEOTROPICAL ORCHIDOLOGY** SAN JOSÉ, COSTA RICA May 21-24, 2003.

Sadly **"No Caleana flowers this year,"** wrote Chris Ecroyd of NZ's only known colony of *Paracaleana minor* at Rotorua, "The only flower stalk was damaged by insects just before the first flower opened."

Kristy McDonald ('er indoors), trailing behind yours truly on the steep bit of the track out of Craigie Lea, called, "Is this something interesting?" I wearily turned back to what I had just walked past, and there was ***Petalochilus nothofageti;*** *the first record of this species from the Wairarapa—Ed.*

Abstracts from a symposium: MUTUAL GAINS: **Co-operative Orchid Conservation in South-eastern Australia** 16-18 October, 2002, Mueller Hall, Royal Botanic Gardens Melbourne are now accessible through the conference website http://www.rbg.vic.gov.au/mutualgains/. *Interesting stuff—Ed.*

Pat Enright reported a ***Gastrodia cunninghamii*** **heavily scented** with a jasmine fragrance, near Featherston, early December. Certainly *G. cunninghamii* (with the very short column); *he scoffed when I suggested it might be the freesia-scented G. "long column" also in the Wairarapa– Ed.*

Jeffrey Jeanes (*Muelleria* 2002. 16: 81-2) has accepted Szlachetko's splitting of *Chiloglottis* into *Chiloglottis* and *Simpliglottis* and rejected Jones and others' recognition of *Simpliglottis* only as a subgenus of *Chiloglottis*. If Jeanes's arguments are accepted, *Chiloglottis valida* becomes *Simpliglottis valida.* Jeanes described a new intergeneric hybrid as **×***Chilosimpliglottis* Jeanes, and the hybrid between *Chiloglottis trapeziformis* and *Simpliglottis valida* as *Chilosimpliglottis* **×***pescottiana* (RS Rogers) Jeanes. *While both parents of the hybrid occur in NZ, their distributions do not overlap, and their pollinator is absent, so we are unlikely to see this natural hybrid here—Ed.*

The *Australian Orchid Foundation* has two new interesting publications for sale: Riley and Banks's *Orchids of Australia* at AUD98, and volume 4 of *Australian Orchid Research:* David Jones and Mark Clements' complete monographic treatment of Pterostylis

at AU$25—a reassessment of Pterostylis; a new classification of Pterostylis; a synopsis of the subtribe Pterostylidinae; an index with cross-referencing of all taxa in the group. 107 Roberts St, Essendon, VIC 3040. The Foundation has recently made a substantial grant to Drs Andrew Batty, Kingsley Dixon and David Merritt of Perth for the development of methods for national guidelines on seedbanking of Australian orchids.

Neville Hewinson wrote (17 December), "… found ***Gastrodia* aff. *sesamoides*** in our front lawn today." *(Kamo—Ed.)*

Vic Vercoe sent photographs of ***Pterostylis irsoniana*** flowering at Kawhatau Road end, Ruahine Ranges, 28 November 2002. This is a new record for the Ruahines. *See Vic's photograph below—Ed.*

Cathy Jones found ***Nematoceras* "Trotters" at Mt Robert,** St Arnaud, flowering 15 December 2002 — "Most odd, I thought, to find *Corybas trilobus* in flower at this time of year… many flowers, all under leaves… at 900m". *This is a new record for the region, and perhaps the latest record of flowering for one of the Nematoceras aff. triloba aggregate. I have seen them flowering in midnovember at sea level at Trotters Gorge—Ed.*

I was musing in the emails on different flowering times for the same taxon, and wondered if we could arrive at a formula something like

Flowering week = (flowering week in Wellington at sea level ± a × degrees latitude distant from Wellington) – (b × altitude) **(where a and b are constants).**

Mark Moorhouse responded: "I think you have come up with a very important concept in making a key to correlate latitude & elevation with the growth progress of orchids. The reason it has become necessary is because we are starting to look more closely at families like *Nematoceras triloba* and *Petalochilus* etc, and northern based researchers are tag-naming plants as different simply because they flower earlier than the same plant in the south. I have just completed a list of orchids by sub region for ER 39-50 with flowering times and site locations. From this and journal records it seems to work if you use this formula:

3 degrees of latitude = 1 month.
700m altitude = 1 month.

Of course this is only a rule of thumb because you get plants like *P. alobula* that are dependent on the first decent rain of the season and can vary by 2-3 months. So using my rule eg. Plant 'A' is at 1050m latitude 46 deg. Plant 'B' same species is at 700m latitude 43 deg. 'B' will flower *c*. 6 weeks earlier that 'A'. But if plant 'A' was at 43 deg and plant 'B' at 46 deg the difference 'A' would only be a fortnight earlier. Seasonal variations can affect it up to a fortnight in our region."

The **Medicinal Plant** Specialist Group of the IUCN Species Survival Commission now has a website: http://mpsg.org.

Oops 2! Leo Cady pointed out that the illustration of the Australian plant on p22 of J85 is *Pterostylis falcata*, not *P. furcata* as I (and Collin Woolcock) labelled it. David Jones correctly illustrated both species on pp225 and 227 of the recent *Orchids of Tasmania.*

Joyce M. Reddoch (Quebec) wrote **notes on monitoring orchid colonies** at your editor's request:
"Little is known about long term changes in most of the world's orchid colonies. And this knowledge is essential for understanding orchids and planning for their protection. For conservation purposes it is important to have some idea of the longevity of colonies and of individual plants, and the factors that affect their overall health.

"The simplest and easiest type of monitoring is the once a year visit, usually at flowering time, to check that the colony is still there. The 'yes, it's still there' approach works especially well for orchids growing in fragile habitats that would be damaged by the tramping of human feet. Make careful notes on the state of the habitat: how much light it receives, how moist it is and what other plants are present so that you can detect changes during the course of your study. Photographs are useful for documenting the site. In suitable habitats, why not count the flowering and nonflowering plants while you are there. Changes in the total number of plants and in the ratio of flowering to nonflowering plants over the years may tell you about the effects of climate, changes in the habitat and the overall wellbeing of the colony.

"If you have the time and inclination, you can expand your study by following the progress of individual plants. Then you would map or mark the plants and record various characters such as the number of flowers, number and sizes of leaves, and number of seed capsules to see how (or whether) they change with time and changing conditions. Before you choose to make your study more intensive, though, you should realize that working up the data requires the application of numerical and statistical methods. Papers on population studies in the orchid literature may give you further ideas on what to measure and how to handle the data.

"The bottom line is to choose a project that is easy and interesting. Start with a common species with colonies that are easy to get to. (By the time you have been doing this for a decade or more, you will be glad you did.) And it is at least as important to learn about the common species as about the rare ones.

"One further note. It is a good idea to find out what the yearly cycle of the species you are studying is so that you know what to expect. For example, some North American *Spiranthes* species send up leaves in the spring that die down and disappear by mid summer. Plants that do not flower in late summer with the rest leave no above-ground evidence of their existence, leading some people who visit colonies only then to think that these nonflowering plants have disappeared. They are even more confused when the plants 'reappear' (that is, flower again) a year or so later.

"Finally, in all your work put the welfare of the orchids and their habitats first. Tread carefully in the vicinity of terrestrial colonies to avoid compacting soil and crushing roots; watch out especially for shoots and seedlings.

"Be sure to publish your results; everything you learn is new knowledge. Even five years of careful observations are valuable."

David McConachie suggested these links about cladistics, followed by a good cautionary paper: **What is Cladistics**? http://www.fossilnews.com/1996/cladistics.html. **Journey into the World of Cladistics** http://www.ucmp.berkeley.edu/clad/clad4.html. **Deconstructing Reconstruction** http://www.sciencebuff.org/BOTANYDECON/moweb.htm.

Gordon Sylvester wrote (16 December), "**Brief notes on a small Pterostylis**: Plant 5cm tall. Four grass like leaves up stem with the two centre leaves the largest 5cm long by 5mm wide. All four leaves at different quadrants. Brown scarious bract at base of plant. Length of dorsal sepal from rear of flower 13mm. Height of flower 13mm. Labellum thin, flat, with a dark brown line down rib and around margin. A basal callus is apparent above the hairy process. Stigma in two lobes about 3mm long oval. Found at the base of a bank growing in the water line and in moss. Soil type is glacial moraine debris. My tag name Pt. 'Peninsula'. This is a very small plant at flowering size and very attractive green. Looks like a very immature *P. graminea.* Flowers Dec. at Lake Rotoiti, Nelson Lakes."

Mark Moorhouse added, "I named my files '*P. graminea* var *nana*', but after Gordon mentioned the callus on the lower lip I realised that it is more likely to be associated with *P. irsoniana*. In the immediate vicinity there were fairly normal size plants of the *P. graminea/montana* complex agg. (neither is well defined around Lake Rotoiti and require careful study). This area also boasts the tiniest *P. irsoniana* I have found in the Nelson region, commonly standing about 5cm high at the tips of the filaments. It had crossed my mind that *P.* 'peninsula' may be a hybrid X as the labellum is *graminea* but with *irsoniana* callus. The season around the lake this year has been one of harsh cold with many late snowfalls. Whether this has had any influence in producing 'nana-form' plants could be a point to debate too." (see p.31).

Mark Moorhouse wrote, "I have been of late reviewing **Colenso's description of *Nematoceras papillosa*** ***(see Historical Reprints, p22—Ed.)*** and couldn't help noticing the neat patterns of pimples on our local *N. macrantha* leaves, especially those in the Miner Valley (tributary of Hackett River) and the millions of plants growing in the marble karst country on the Takaka Hill. These plants also display the long recurved dorsal sepal and the variably positioned flower that Colenso described. L.B. Moore wrote in *Flora of N.Z. Vol.II* that the s.s. *Corybas macranthus* has 'Dorsal sepal mostly shorter than labellum, narrow lanceolate, acute to shortly acuminate, ARCHING over tubular part of the labellum'; Did arching mean 'recurved'? I think not, rather quite the opposite. Of the hundreds of *Nematoceras macrantha* I observed this season flowering here in Nelson, I failed to find a single plant with the dorsal sepal as short as the labellum wings. Also probably 80% demonstrated the recurved feature of the dorsal (some even to the point of pointing backwards at the tip), whilst the rest were either straight or arching. Some questions arise. Are the North Island plants strongly papillose on the leaf surface? How commonly do they recurve on the dorsal sepal? Did Colenso discover the southern version of this plant at its most northerly range on the East Coast of the North Island and recognize that it was, as he wrote, 'very distinct' and thus described it as a new sp. *Corysanthes papillosa*? Why did Lucy Moore write 'The differences are not clear from this description' (Colenso's description of *Corysanthes papillosa*) when there are several glaring differences between her description of *Corybas macranthus* and that of Colenso's *N. papillosa*? Some more comparitive investigation may just prove that there are in fact two separate species, *N. macrantha* & *N. papillosa.* Attached are a couple of pics of typical Nelson colonies. The dished, almost sessile leaf is common in the exposed sites on Takaka Hill." (see p. 31).

Barbara McGann wrote (17 December) from Oamaru, "After a two-year break, I now, with special permission, have access by car into **Herbert Forest,** now in private hands. I spent time in the Govt. Hill area yesterday—

nine species found, but mainly just a few of each in odd spots. Some species, *Thelymitra* aff. *pauciflora*, *Prasophyllum colensoi* and *T. pulchella* haven't appeared in their usual habitats—no sign of them—others have been smothered with pine trimmings and native growth. Several pink *T. pulchella* plants had courageously pushed their way up through a large rotting pine log. *T. hatchii* had increased in number in clay, out in the open. Six very small *Gastrodia minor* in roadside clay were an unexpected find".

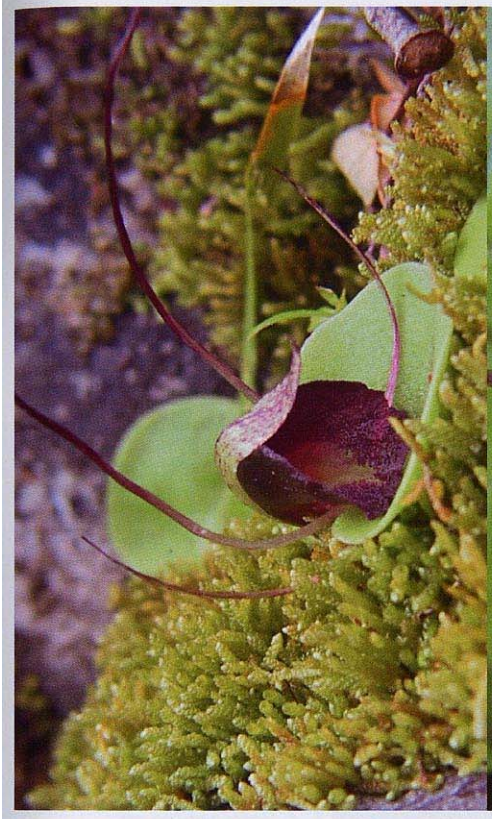
Ian Townsend wrote on **more records of orchids from the Levin area**: Just east of Levin in the first fold of the Tararua mountains is the track to Arapaepae Trig. Still only foothills of course, the top is a mere 377 metres. However this track is particularly good for orchids.

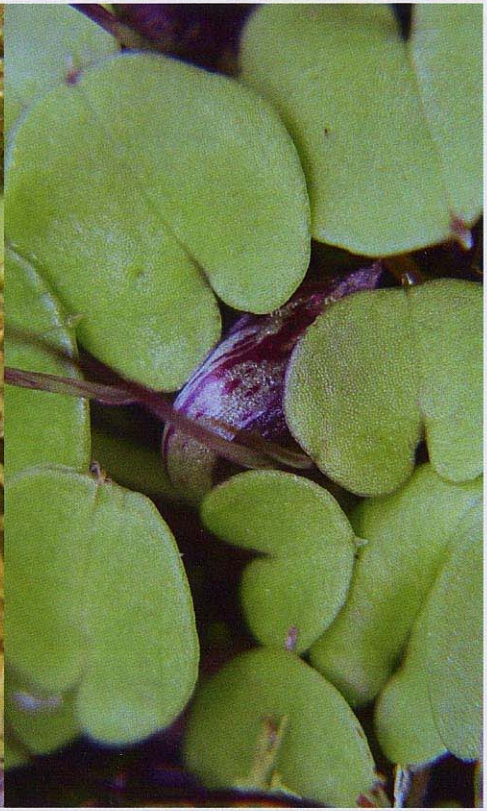
On 3 January 2002 some members of the Levin Native Flora Club did a trip to the area, looking at plants in general. We were too late for many of the orchids, but there were still a few *Pterostylis* in flower and a brilliant mauve *Thelymitra* which caused a lot of discussion but no conclusion about its identity. I made a mental note to return earlier next season.

December soon arrived and on the 9th I made another foray. This time there were many more orchids to see. At the lower bend a lot of *Petalochilus chlorostylus* were in flower, many with twin heads. Most of the *Singularybas oblongus* were already in seed, but one had a nice flower in particularly good condition which warranted a video. Both these species were growing in moist mosses on a lightly shaded rocky bank. There were at least two different *Thelymitra* species, not yet in flower. Some were pretty definitely *T. longifolia*, but there was also a tall growing species with numerous flowers which were starting to show their blue colour. Then came the boring part of the track where gradient increases and sightings of orchids decrease. But 130 metres (vertical) up from the corner the first flowering patches of *Pterostylis banksii* appeared, some flowers larger than others depending on moisture or nutrients etc. Amongst them, just here and there were several *P. montana.* Then in a large drift of *P. banksii* beside the east side of the track I found another stranger, *Pterostylis irsoniana*, recognised by the pale mid-rib on the leaves and the curled labellum with little black knob. I had seen them only on Mt. Egmont before, and this was a new record for the Levin area. I also saw a couple of plants that looked like *Pterostylis cardiostigma* but on detailed examination of a spent flower it revealed a perfectly "normal" linear stigma - fooled again (it wasn't the first time I've been caught out like this), it was just an old *P. banksii.*

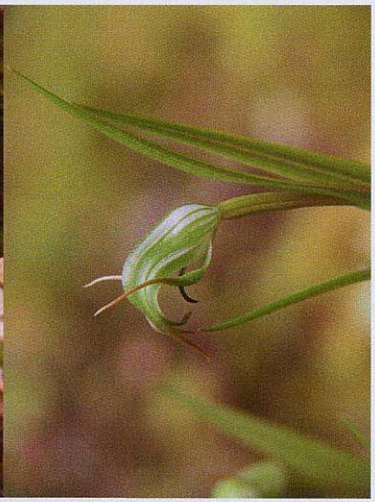
But I was sure of my hunch that *P.cardiostigma* would be up there somewhere. Who could I tum to? most of the local "orchid nuts" were away basking in the sun on Lord Howe Island! Why not go straight to the top and ask the expert who described it? ....and so I met Dorothy Cooper. She didn't need too much coaxing to come and see our local orchids. On 15 December I took her up the Arapaepae track. It was a nice sunny afternoon when we set off so I had hopes of the *Thelymitra* at the bend being open. But no, they were still stubbornly the same as last week. We could recognise *T. longifolia* by forcing a flower open, and Dot thought the robust growing ones would be *pulchella*. She also pointed out a more slender growing one with very narrow leaf and buds that looked as though they would open to be mauve or pink (five days later these proved to be *T.* aff. *pauciflora*). There were still plenty of twin flowered *Petalochilus chlorostylus*, mostly in seed now. And talking of doubles, we found a colony of *Singularybas oblongus* in seed most of which had two per leaf. The late flower I saw last week was still OK, and there was a single flower of *Microtis unifolia.*

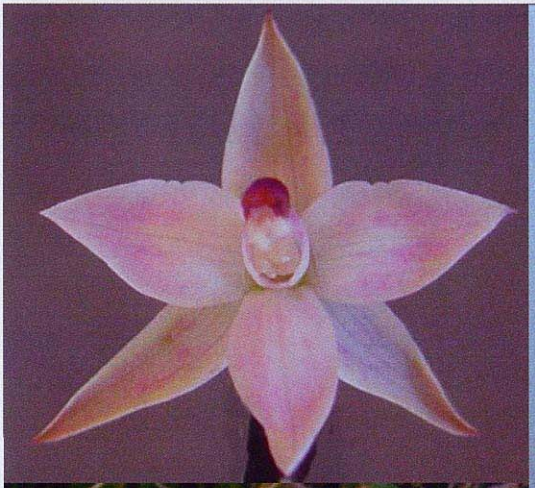
Then came the boring bit of track, the steep climb with no orchids to make an excuse for stopping. Once we gained the ridge top and the grade eased off we found the drifts of *Pterostylis banksii* and the sparsely scattered *P. montana* amongst them. Then Dot. said,





Photographs by Mark Moorhouse: ↑ *Nematoceras macrantha,* or is it *N. papillosa?* (p 29)
↓ *Pterostylis* "peninsula" (see p 29) ↓ *Pterostylis graminea*





Treasures of the Tararuas
(see p 33)

1: a heavily scented *Thelymitra* aff. *longifolia* with a red column.
2: *Pterostylis australis*—one Wairarapa form with bent over dorsal and bent back lateral sepals.
3, 4: *Petalochilus* aff. *chlorostylus* with its red calli on the dorsal sepal.

"Look, this one is different!" Amongst the *P. banksii* was just one that stood out because of its upright growth, peachy-coloured stem and mid-ribs, with terete leaves which tapered evenly from the base to their tip. The spent flowerhead was still above the developing seed capsule. Dot. pounced on it and managed to tease it apart and there was a large heart-shaped stigma—no doubt about it! But it was the only *P. cardiostigma* we could find. Dot. found a *P. irsoniana* for herself, on the opposite side of the track to the one I found the previous week. My best find for the day was a double headed *P. banksii* which again brought the video camera into action. Also up near the top were several large dumps of *Nematoceras macrantha* - large round leaves with silvery underside, and with just the tiniest start of a flower forming below the leaf.

We carried on up to the repeater station to get a view over Levin, but the pines have grown up to obscure most of the panorama. However it was a very successful trip bringing our total of *Pterostylis* species up to four for the area.

December 28 found your editor walking the **Mt Holdsworth track looking for treasures in the Tararuas**, where *Thelymitra longifolia* was flowering, as was a heavily scented *T.* aff. *longifolia* with a red column (see p.32); *T. pauciflora* (the dark mauve colour form common down this way) was over , *T. hatchii* still in bud, and *T.* "Whakapapa" (unmistakeable) in late bud. *Pterostylis banksii* was over, but *P. australis* (similar to many plants in the southern Wairarapa's Haurangi SFP, with down-pointing dorsal and back-pointing lateral sepals, like a short-sepalled *P. patens*—see p.32) was blooming above the treeline. *Winika* was flowering, both Earinas were present, *Aporostylis bifolia* and *Adenochilus gracilis* were flowering, and a *Gastrodia* sp. was in early bud, as was *Prasophyllum colensoi. Singularybas oblongus* was in fruit, and a *Nematoceras* aff. *triloba* was well over. We saw a few nonflowering *Chiloglottis cornuta* and early *Orthoceras. Petalochilus chlorostylus* was over, but in damp areas, and in wet sphagnum at one site, there were plenty of *P.* aff. *chlorostylus* with its red stems and the mass of red calli on the dorsal sepal (see p.32).

Anne Fraser wrote (16 December), "The **first sighting of *Adenochilus gracilis* is recorded for this area,** adjacent to Ongarue – Ngakonui Road, east of Ongarue, northeast of Taumarunui, on 9 December. I have not seen it here before, though suspect I might have seen the leaves and thought they were *Chiloglottis* species. Several plants in flower were found. The wet spring might have helped: I have not seen so many *Thelymitra longifolia* flowering stems for many years, and certainly the cold temperatures have held up the earlier flowering species. I have two groups of *T. longifolia* plants in pots rescued from the roadside where the pumice banks had fallen down. Placed in pots in the pumice they grew in and hung on the fence in similar orientation to their recent habitat, one pot produced four stems and the other eleven. There was no sign of the flowering stems when I rescued them. The resource would have been in the tubers of course but they must be happy with conditions to have continued growth to flower production, and they survived some severe late season frost.

"Several flowers opened in the brief – sunny – warm early December (temperatures in several areas, including the King Country, were reported as being two degrees cooler than normal through spring), but rain has kept them closed since. Flowering stems of *T. longifolia* appeared all along the road banks, some with pink flowers seemed to be the earliest ones (above the mowed and sprayed line). Several stems of *T. nervosa* also flowered (until nipped off by animals). The trials of orchid enthusiasts!

"The small patch of habitat where *A. gracilis* was discovered, composed of emergent *Phyllocladus* (tanekaha) lancewood, manuka, *Cyathodes* (mingimingi), together

with a carpet of mosses where weeds and grasses haven't infiltrated, is much reminiscent of habitat that was common here years ago, and yielded a surprising number of orchids. Three species (previously *Corybas*), *Singularybas oblongus*, the narrow flowered long-petioled species seen here; a healthy patch of *Nematoceras macrantha* with short seedpods still under the leaves, on a dry pumice ridge (seems a bit odd for *N. macrantha* though over-topped by the tanekaha), and an atypical (for here anyway) large thinnish, red-mottled leaved *N. triloba* group taxon, very similar to leaves of this group pictured by M. Moorhouse [J85, pp25-26] on Nelson *Nematoceras.*

"Four *Pterostylis* species, a late pale coloured *P. banksii*; two *montana* group plants, one with slender leaves and spent flowers and the other the squat robust flower with the curled lateral sepals and short dorsal (*aff.* or true *P. montana*?); and the tall robust species with red stems and leaf veins, the classification of which I am unsure (*P. cardiostigma*?) Many of the *Pterostylis* are nipped off by goats which doesn't help.

"The 'Caladenias', *Petalochilus* aff. *chlorostylus* and *P. chlorostylus*, with pale green stems and greenish flower and the other with glandular hairs, dark reddish stem and creamier flowers were both open. The two pink flowered plants are finished and occurred more commonly lower down the ridge, where several *Stegostyla atradenia* had flowered.

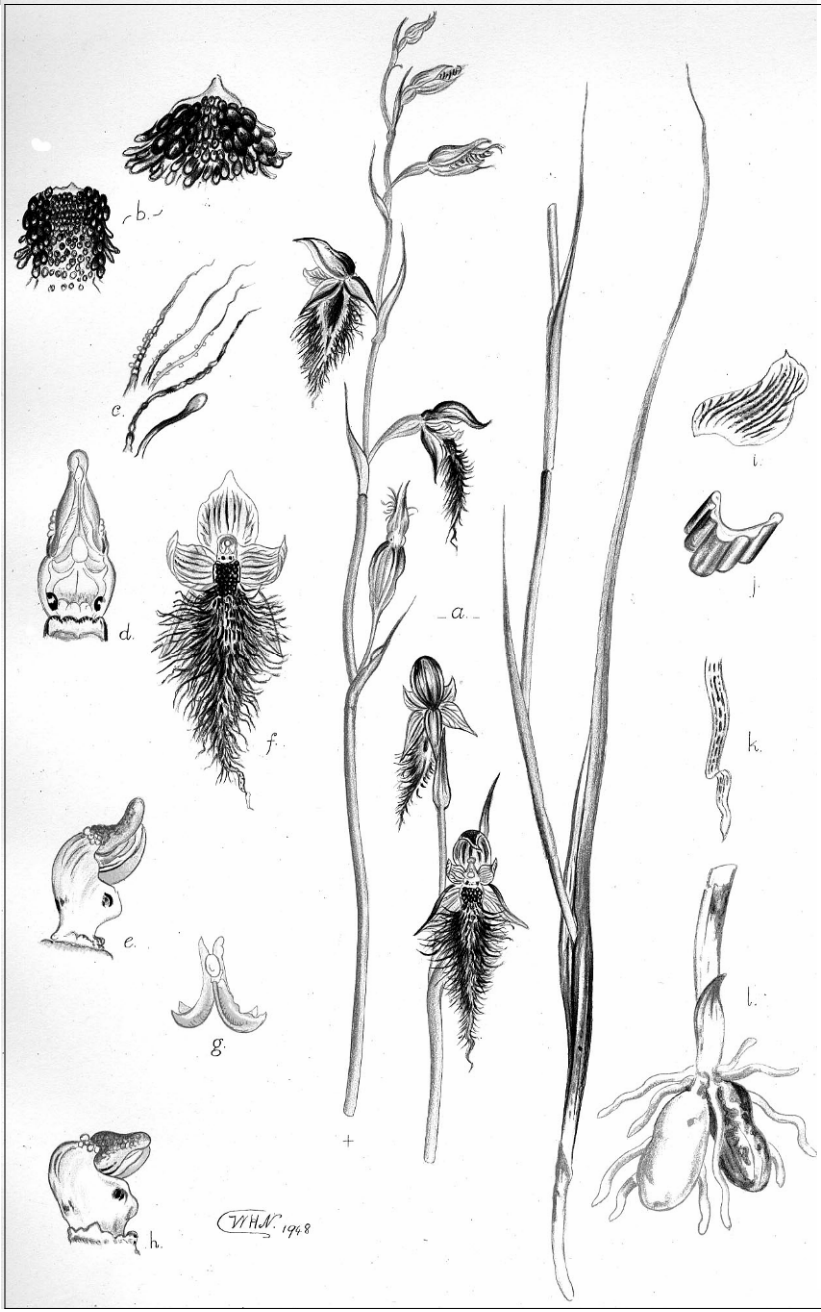
"Some *Chiloglottis cornuta* are still in flower, both dark and green calli on the labellum being seen. I had hoped to find *Aporostylis* – there was a small colony across the river lower down, several years ago and this habitat is reminiscent of 'Crash Palace' road where it is common. *Microtis* and *Thelymitra* species of course and *Orthoceras* plants in bud were seen on the road side, and surprisingly, growing on the ground above the road at the edge of the pumice bank, *Earina* - probably *E. mucronata* from where I was standing.

"It was a pleasure to find such a number of species, especially now suitable habitat is becoming so rare after the influx of weeds. Cotoneaster is especially bad in this area. Strange that a bush once grew in my mother's garden, probably planted by my grandmother *c.* 1925, and we never saw it anywhere else. Now it is all along the roadsides and prevalent in the remaining scrub land. What changed?

"*Post script:* I was thinking about this after I wrote it and it seems there is a logical explanation. Loss of their natural foods through escalated, and continuous clearing of native vegetation forced the birds to seek their food amongst introduced species, which were previously unfamiliar and less attractive, resulting in the abundance of seedlings seen today."

Reference

Moorhouse, M. 2002. Nelson *Nematoceras triloba* trials. *New Zealand Native Orchid Journal*. December, no 85.



***Caolchilus gracillimus* Rüpp,**
drawing by WH Nicholls, 1948; from his *Orchids of Australia*, Vol 1, parts 1-3, Georgian House, 1951.

Mt Cordeaux conquered

- from KALHARI "The Message Stick" of A.N.O.S. (QLD) Kabi Group Inc. *November 2002.*

In the middle of October Eddie and I drove to Cunningham's Gap to walk along one of the many tracks in the Main Range National Park. The one we chose was the one which led to Mt Cordeaux.

Before we had travelled two hundred metres from the car park we had encountered our first orchids in the rain forest of the gap itself – *Dendrobium speciosum, Dendrobium gracilicaule, Dendrobium aemulum* and *Dockrillia teretifolia.* We saw numerous plants of each of these species. High in the trees we often saw *speciosum, gracilicaule* and *aemulum* together with many crows nest ferns, elkhorns and staghorns. Ribbon ferns abounded along with various mosses and lichens. This is a moist place with a persistent breeze – an orchid hunter's paradise but all orchids were well out of reach.

Near the top of Mt Cordeaux we came upon the remains of several gold mines which were dug in the 1930s. This was remarkable but upon examination there were quartz veins running through the rock. Nearby were large spear lilies in flower – a brilliant red against the sky. These lilies were on the eastern face of Mt Cordeaux.

From the lookout, where we could see the eastern face of Mt Cordeaux, we could see many *speciosum* in flower. Just over the lip of a "very long way down" we could see other *speciosum* and *Dendrobium kingianum* in clumps. These *kingianum* were in flower. At this height we saw many blackboys bursting into flower. A truly grand sight.

We continued along the path until we came to the saddle on the northern side of Mt Cordeaux. Here we found many *Sarcochilus falcatus* – several in flower. Again this sight was moist with a strong cold wind blowing. On some trees we found *speciosum* growing in varying size clumps.

The surprise of the day was on a tree on the very edge of the bottomless void – one slip and you were flying. *Dendrobium pugioniforme* in very large clumps as well as small clumps were found all over this tree. The larger clumps were at least a metre long and some flowers were found. On another tree we found a *falcatus* in full flower. This was a glorious sight.

We walked a long way but enjoyed our finds. All that we found are still there for others to enjoy.

And from cyberspace...

Henry Somerset Orchid Conservation Area

http://www.latrobe.tas.gov.au/henrysom.htm (La Trobe Council, Tasmania Website)

Situated about five kilometres south of Latrobe township, on thirtyeight hectares of light sclerophyll (Eucalyptus) regrowth woodland, the Henry Somerset Orchid Reserve was officially opened on 27 November 1981 and is the only one in Australia, unique for the pure terrestrial study of orchids. The Henry Somerset Orchid Reserve was named after former engineer, deputy chairman and managing director of Associated Forest Holdings, a subsidiary of APPM (now North Forest Products) and avid naturalist, Sir Henry Somerset.

This natural area is set aside to provide all Tasmanians, as well as visitors to the State, with an interest in environmental management and natural history. It is known for its high diversity of native terrestrial orchids, some now listed as rare and endangered, with some not only endemic to

the island state of Tasmania but to the local area. Some 43 species have been recorded within the reserve, varying from the tall 60cm tall hyacinth orchid *Dipodium roseum*, a leafless saprophyte that appears annually in early summer, to the tiny 2cm winter helmet orchids *Corybas* species.

Recent taxonomic review into the genus *Caladenia* by the Centre for Plant Biodiversity, Australian National Botanical Gardens in Canberra, has resulted in the discovery of a new species, Robust Finger orchid, *Caladenia tonelli*, named after the reserve founder and Hon. Warden Peter Tonelli. Peter is the Latrobe Council manager for Parks and Reserves as well as a member of the Australian Orchid Foundation recognised after a 30 year interest in the field of orchidology. He is also a co-author of *The orchids of Tasmania* published by Melbourne University press.

Entrance to the 45 minute "Nature Walk" circuit is via the car park off the Railton Road. There are no public facilities or charges to visit the area. Public interpretation walks are occasionally conducted during the prime orchid flowering months of October to December by arrangement with the Warden.

Elythranthera orchids (pink & purple enamel orchids)

by Tony Watkinson
http://members.iinet.net.au/~emntee/Elyanthera_4.htm (Species Orchid Society of Western Australia, Inc. website)

The name *Elythranthera* is derived from the Greek "elutron" and "anthera" and refers to the column wing, which acts like a hood over the anther.

The two recognized species of Elythrantheras are easily spotted in the wild by the glossy sheen on the sepals and petals, which tend to shine and appear to be made of porcelain, hence the common name of "Enamel Orchids". This unusual feature causes Elythrantheras to be very attractive, when seen in the bush.

Elythrantheras are endemic to the Southwest of Western Australia where they are quite common and widespread. Fortunately, they are not endangered despite much land clearing in their range, which is from Kalbarri in the North, to East of Esperance on the South Coast.

They are terrestrial orchids that, after flowering, become dormant during the hot summer months while the tubers survive below ground. Their growth begins again with the winter rains and flowering commences during the spring. The solitary leaf, about 10cm long, appears at the base of the stem. The leaf, stem and the margins of the petals & sepals are covered in small, dark hairs.

Elythranthera brunonis, the Purple Enamel Orchid, is usually taller (to 30cm) than *E. emarginata* (12-15cm) but has a much smaller flower. *E. brunonis* can have up to three flowers per stem that are around 2-3cm across. *Elythranthera emarginata*, the Pink Enamel Orchid, has flowers up to 5cm across and often has more flowers per stem than *E. brunonis*. There are also differences between the two species, in the way the labellum (lip) bends. Even though *Elythranthera brunonis* are purple and *E. emarginata* are pink, there have been alba specimens of both species recorded, and also hybrids between the species.

As mentioned before, the front of the sepals and petals as well as the lip, have an enamel like finish; the backs, however, are quite different. The background colour on the rear of the flowers is much lighter with dark pink to purple spots all over.

Although both species have much the same range, *E. emarginata* can usually be found in wetter areas, and also tend to form clumps or colonies. *E. brunonis* on the other hand, can be found in many different soil types and plants are often found singly.

No. 7: Artificial key to the genera of Pterostylidineae

From Jones DL & Clements MA. A new classification of *Pterostylis* R.Br. (Orchidaceae). *Australian Orchid Research* 2003; 4: 88.

1	Galea with two openings; labellum lamina filiform, with a swollen apical knob; labellum margins with coarse moniliform yellow setae	***Plumatichilos***
1.	Galea with a single opening; labellum lamina never filiform; labellum margins entire, with clear siliceous trichomes or with white setae, never with coarse moniliform yellow setae	**2**
2	Lateral sepals erect or obliquely erect in front of the galea (rarely projecting forwards as in *P. porrecta);* labellum wholly or partially enclosed within the galea; labellum lamina with a linear, decurved penicillate basal appendage	**3**
2.	Lateral sepals obliquely deflexed to fully deflexed below the galea; labellum fully exposed or rarely the basal part hidden by the petals; labellum lamina without a basal appendage or, if present, the appendage never penicillate	**13**
3	Free points of lateral sepals sharply recurved in front of the synsepalum; dorsal sepal with ridged veins; petals with hooked apices	***Stamnorchis***
3.	Free points of lateral sepals erect or recurved behind the galea; dorsal sepal smooth; petals without hooked apices	**4**
4	Rosette 1-3 per plant, arising on a lateral growth from the base of the scape; free points of lateral sepals not, or hardly exceeding the galea. Flowers multiple (regularly 2 or more)	**5**
4.	Rosette solitary, scape-encircling or forming a separate sterile plant; free points of lateral sepals extending well past the galea. Flower solitary (rarely 2)	**6**
5	Petal apex with a terete horn-like extension; labellum apex swollen and knob-like	***Petrorchis***
5.	Petal apex entire, lacking any horn-like extension; labellum apex flat, not swollen and knob-like	***Speculantha***
6	Rosette not attached to the flowering plant but forming a separate sterile plant	**7**
6.	Rosette leaves encircling the scape, either in a tight basal rosette or loose spiral	**8**
7	Synsepalum with a ligulate flap on the upper surface	***Linguella***
7.	Upper surface of synsepalum entire, without a ligulate flap	***Diplodium***

8	Synsepalum with a ligulate flap on the upper surface	***Linguella***
8.	Upper surface of synsepalum entire, without a ligulate flap	**9**
9	Labellum thick and sausage-like	***Eremorchis***
9.	Labellum thin	**10**
10	Dorsal sepal with a long filiform extension	**11**
10.	Dorsal sepal entire	**12**
11	Rosette encircling the base of the scape	***Crangonorchis***
11.	Rosette on a separate growth	***Diplodium***
12	Labellum apex entire	***Pterostylis***
12.	Labellum apex narrowly or broadly emarginate	***Taurantha***
13	Lateral sepals fully deflexed; rosette solitary, scape-encircling or forming a separate sterile plant	**14**
13.	Lateral sepals obliquely deflexed; rosette 1-3 per plant, arising on a lateral growth from the base of the scape	***Pharochilum***
14	Leaves forming a rosette encircling the base of the scape; leaves on scape reduced to sheathing bracts	**15**
14.	Rosette a separate sterile plant never attached to the flowering plant; leaves on scape large and spreading	**17**
15	Petals with deeply serrate anterior margins; labellum strongly 3-lobed, each lateral lobe with a large, erect, hollow, basal appendage	***Ranorchis***
15.	Petals with entire or minutely denticulate anterior margins; labellum obscurely 3-lobed, the lateral lobes without any basal appendage	**16**
16	Basal part of lateral sepals scarcely united, forming a pouch about as long as wide; labellum lamina unlobed, membranous, lacking marginal setae; basal appendage present	***Hymenochilus***
16.	Basal part of lateral sepals firmly fused, flat or concave, if pouched then longer than wide; labellum lamina lobed, coriaceous, the margins with prominent white moniliform setae; basal appendage absent	***Oligochaetochilus***
17	Rosette leaves about as wide as long; lateral sepals as broad as long, with a shallow concavity beneath the labellum; labellum with a basal tail-like structure	***Urochilus***
17.	Rosette leaves much longer than wide; lateral sepals longer than wide, without a concavity beneath the labellum; labellum with a basal mound but no tail-like structure	***Bunochilus***

in this issue...

Cover

Hymenochilus tanypodus, Queenstown Hill, 1 Jan 87.

Editorial

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