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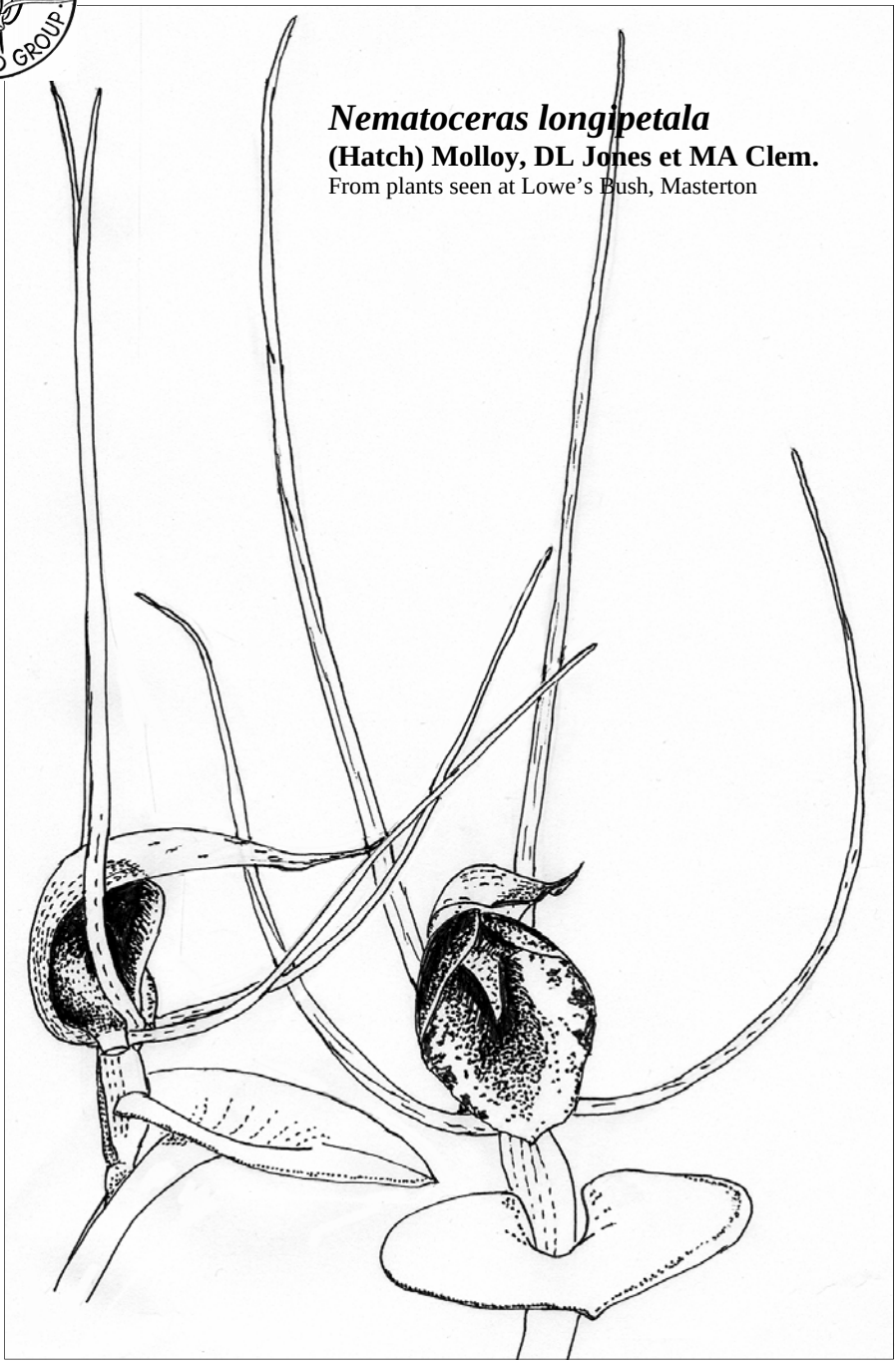


Nematoceras longipetala
(Hatch) Molloy, DL Jones et MA Clem.
From plants seen at Lowe's Bush, Masterton

Brian Molloy recognised in the new genus Molloybas

The recent proposal (see below) to name a new genus "...in honour of Brian Molloy (1930-), eminent New Zealand botanist who has carried out pioneering studies into many plant groups, including orchids" is a well-deserved recognition of the man who has contributed so much to New Zealand orchidology. Congratulations from all of us in the NZ Native Orchid Group, Brian.

Molloybas is a monotypic NZ genus: *Molloybas cryptanthus* (Hatch) DL Jones et MA Clem. is distinguished from species in the other genera of the Corybas alliance, including the reinstated genus Nematoceras (see below), in that plants are leafless, lack chlorophyll, the petals are longer than the lateral sepals, and the labellum has deeply laciniate margins.

More taxonmic changes

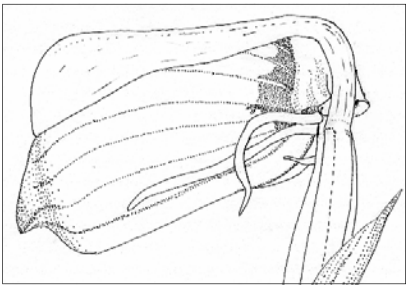
The Orchadian carried a further paper [Jones DL, Clements M, Sharma IK, Mackenzie AM, Molloy BPJ. Nomenclatural notes arising from studies into the Tribe Diurideae (Orchidaceae). *The Orchadian* 2002; 13 (10): 437-468] proposing further name changes to accommodate anomalies identified during analysis of nuclear DNA sequences and structural and biological studies. Some changes to other orchid names were also proposed.

These changes for the most part affect Australian, New Caledonian and New Zealand orchids. Here I will emphasise the proposed changes to New Zealand orchid names, but must necessarily touch on other changes.

The Acianthus alliance has three subtribes (Acianthinae, Townsoniinae, Spuriacianthinae) which include seven genera, two new. **Acianthus** is retained and includes *A. sinclairii.* The new genus Acianthopsis has 8 New Caledonian species, and the new genus Nemacianthus is a monotypic Australian genus (*Nemacianthus caudatus*). The other genera are Stigmatodactylus (Himalayas through SE Asia to New Guinea and the Solomons), Univiscidiatus (7 Australian and New Caledonian species). **Townsonia** and Spuriacianthus are retained. Thus no NZ changes (Cyrtostylis is unaffected).

The Corybas alliance has eight genera (see key, page 4). The Malesian plants are in Corybas, Calcearia and the new genus Gastrosiphon. The Australian and New Zealand plants are in

- **Anzybas** (new genus: type species *Corybas unguiculatus*) which has 6 Australian, and New Zealand species, including *A. carsei* and *A. rotundifolius.*



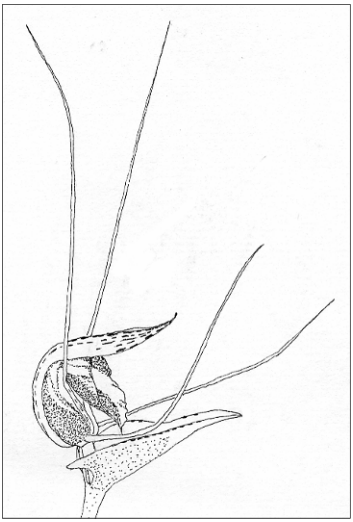
Anzybas rotundifolius

- **Corybas** (type species *Corybas aconitiflorus*) which has about 12 species from Indonesia, New Guinea, New Caladonia, Australia and New Zealand, including *C. cheesemanii.*
- Corysanthes (reinstated: type species *Corysanthes fimbriata*) which has 7 Australian species and one hybrid.
  Molloybas (new monotypic NZ genus)

Molloybas cryptanthus.

Molloybas cryptanthus

- **Nematoceras** (reinstated, type species *Nematoceras macrantha*), which has about 20 NZ species and one on Macquarie Island, including the new combinations *N. acuminata, N. hypogaea, N. iridescens, N. longipetala* (was *Corybas macranthus* var. *longipetalus*, or *Corybas* "Waiouru"), *N. orbiculata, N. pandurata, N. papa, N. papillosa, N. rivularis.* Hooker's *N. triloba* and *N. macrantha* are reinstated.



Nematoceras iridescens

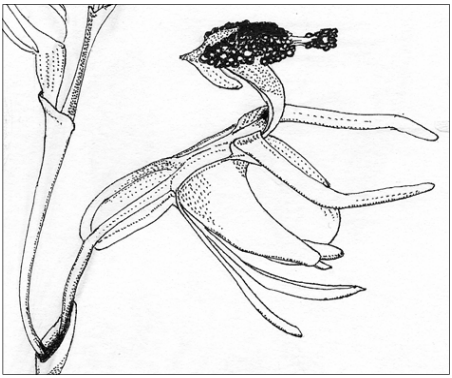
- **Singularybas** (new genus, type species *Corybas oblongus*) which has "two or three species (one named)" in NZ, including *Singularybas oblongus.*

Singularybas oblongus

The Adenochilidinae become a new monogeneric subtribe containing the genus Adenochilus, including *Adenochilus gracilis.*

The Caleana alliance contains about 10 species, only 4 described, in the genera

- Caleana (type sp. *Caleana major*), and
- Paracaleana, which has two subgenera
  - Tanychila (type sp. *Paracaleana nigrita*) and
  - **Paracaleana**, including *Paracaleana minor.*



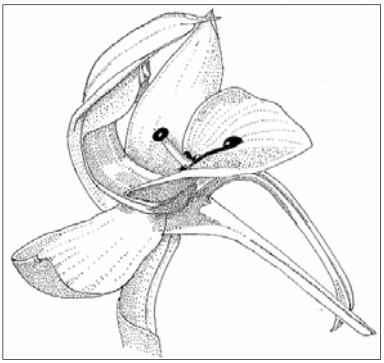
Paracaleana minor

A revised key to the Australian and New Zealand genera in the Corybas alliance, from Jones DL et al, *The Orchadian* 2002; 13 (10): 450

1. Plants leafless; labellum margins deeply laciniate	***Molloybas***
1: Plants with a leaf, if absent labellum margins not laciniate	**2**
2. Labellum tube with basal closed spurs	***Corybas***
2: Labellum tube with basal open-ended auricles	**3**
3. Base of labellum narrowly clawed; labellum tubular throughout, the upper margins fused; labellum with a medial ridge adorned with multiseriate acicular calli	***Anzybas***
3. Base of labellum subsessile or shortly tapered to a broad claw; labellum tubular at base only, the upper margins overlapping, not usually fused; labellum lacking a medial ridge and multiseriate acicular calli (ventral lamina often adorned with uniseriate papillae)	**4**
4. Lateral sepals and petals much shorter than the dorsal sepal, often almost vestigial	***Corysanthes***
4: Lateral sepals and petals as long as or longer than the dorsal sepal	**5**
5. Leaf coriaceous; labellum apex and anterior margins entire or denticulate; column straight, about as long as wide	***Nematoceras***
5: Leaf membranous; labellum apex with a projecting tusk-like apiculus; anterior margins deeply erose/laciniate; column incurved, much longer than wide	***Singularybas***

The Chiloglottis alliance contains two subgenera -

- **Chiloglottis** (type sp. *Chiloglottis diphylla*) including *C. trapeziformis.*
- **Simpliglottis** (type sp. *Chiloglottis valida*) including *Chiloglottis valida* and *C. cornuta.*



Chiloglottis valida

The Prasophyllum alliance.

- Genoplesium (type sp. *Genoplesium* baueri) is now regarded as a monotypic genus.
- **Corunastylis** (new genus: type sp. *Corunastylis apostasioides*) has about 60 species in Australia, New Zealand and New Caledonia, including *C. nuda, C. pumila.*

The Microtis alliance. Here two new monotylic Australian genera have been created -

- Hydrorchis (type sp. *Microtis orbicularis*),
- Microtidium (type sp. *Microtis atrata*).
- **Microtis** has about 20 species, including all the NZ species.

The authors proposed a number of other changes. Their new classification is tabulated on the next page....

Proposed new classification of the Orchidaceae, in particular subfamily Orchidoideae, tribes Cranichideae and Diurideae—from Jones *et al*, *The Orchadian* 2002; 13 (10): 464

Family: Orchidaceae
- Subfamily: Apostasioideae. *Apostasia*
- Subfamily: Cypripedioideae. *Cypripedium*
- Subfamily: Vanillioideae. *Vanilla*
- Subfamily: Codonorchidoideae. *Codonorchis*
- Subfamily: Epidendroideae
  - Tribe: Coilochilideae. *Coilochilus*
  - Tribe: Epidendreae. *Epidendrum*
- Subfamily: Orchidoideae
  - Tribe: Orchideae (including Diseae).
    - Subtribe: Disperisinae. *Disperis*
    - Subtribe: Orchidinae. *Cooktownia, Cynorkis, Disa, Habenaria, Hemiphilia, Herschelianthe, Satyrium, Serapias,Stenoglottis*
  - Tribe: Cranichideae
    - Subtribe: Achlydosinae. *Achlydosa*
    - Subtribe: Chloraeinae. *Chloraea, Gavilea*
    - Subtribe: Cranichidinae. *Cranichis, Stenoptera*
    - Subtribe: Goodyerinae. *Lepidogyne, Zeoxine*
    - Subtribe: Pachyplectroniinae. *Pachyplectron*
    - Subtribe: Pterostylidinae. *Pterostylis.*
    - Subtribe: Spiranthinae. *Odontorhynchus, Spiranthes*
  - Tribe: Diurideae
    - Subtribe: Acianthinae. *Acianthus, Acianthopsis, Anzybas, Calcearia, Corybas, Corysanthes, Cyrtostylis, Gastrosiphon, Molloybas, Nemacianthus, Nematoceras, Singularybas, Stigmatodactylus, Univiscidiatus*
    - Subtribe: Adenochilidinae. *Adenochilus*
    - Subtribe: Caladeniinae. *Arachnorchis, Caladenia, Calonema, Cyanicula, Drakonorchis, Elythranthera, Glossodia, Glycorchis, Leptoceras, Petalochilus, Pheladenia, Praecoxanthos, Stegostyla.*
    - Subtribe: Cryptostylidinae. *Cryptostylis*
    - Subtribe: Diuridinae. *Diuris, Orthoceras*
    - Subtribe: Drakaeinae. *Arthrochilus, Caleana, Chiloglottis, Drakaea, Paracaleana, Phoringopsis, Spiculaea, Thynninorchis*
    - Subtribe: Eriochilidinae. *Eriochilus*
    - Subtribe: Megastylidinae. *Aporostylis, Burnettia, Leporella, Lyperanthus, Megastylis, Pyrorchis, Rimacola, Waireia*
    - Subtribe: Rhizanthellinae. *Rhizanthella*
    - Subtribe: Prasophyllinae. *Corynastylis, Genoplesium, Hydrorchis, Microtidium, Microtis, Prasophyllum.*
    - Subtribe: Spuriacianthinae. *Spuriacianthus*
    - Subtribe: Thelymitrinae. *Calochilus, Epiblema, Thelymitra*
    - Subtribe: Townsoniinae. *Townsonia*

Yet to come?

- The authors thus acknowledge there is more than one taxon currently seen as *Singularybas oblongus.* Several NOG photographers have, over the years, noted differences in the shape of the flowers and in the mat of hairs in the labellum.
- They give the name *Nematoceras longipetala* to "Corybas Waiouru" (Hatch's *Corybas macranthus* var. *longipetalus*). See cover.
- They use the names *Nematoceras hypogaea, N. papillosa* and *N. pandurata.*
- I traversed the *N. hypogaea* story in J77 (it is part of the *N. triloba* complex).
- *N. papillosa* was discussed in J49 and J50 (it appeared to be either identical with, or a part of, *N. macrantha*).
- The new combination *Nematoceras pandurata* provides species rank for Cheeseman's *Corysanthes rotundifolia* var. *pandurata* (see Historical Series, this issue), and to explain that we should look again at the whole messy misapplication of names begun by North Island botanists around 100 years ago. The genera have been called Acianthus, Nematoceras, Corysanthes and Corybas over the years, but let's just use the specific names here. Suffice it to say that the group allied to Cunningham's *rivularis* were lumped and wrongly called *orbiculatus/a* or *rotundifolius/a* until recently, and the name *rivularis* was misapplied to what was recently named *acuminatus.* Thus when Cheeseman described *Corysanthes rotundifolia* var. *pandurata* (in the 2nd edition of his *Manual,* 1925) he was postulating a variety of what we now call *Nematoceras rivularis.* The elevation of *N. pandurata* to species rank suggests the imminent naming of another Northland member of the *N. rivularis* group. Cheeseman's plant was sent by RH Matthews from Kaitaia.

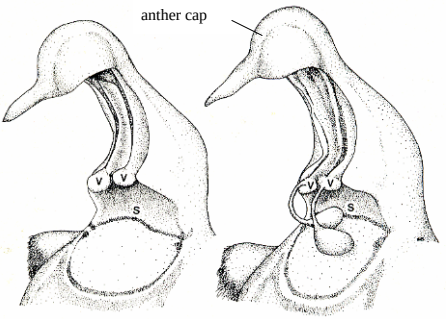
Does Prasophyllum aff. patens self-pollinate as Ophrys apifera does?

I have gone on record as saying *Prasophyllum* aff. *patens* is insect pollinated; after all it has a strong scent, and in the evening is visited by insects and spiders. Beetles have been observed exploring the flowers [J54 p 5], and even with pollinia stuck to their heads [J82 p14]. I took as a further sign of insect-pollination the observation that in several flowers I have examined the pollinia have become dislodged from the anther cap and have been seen projecting forward from the rostellum still attached by the sticky viscidia.

Ophrys apifera, the European bee orchid, is pollinated in its Mediterranean range by bees of the genus *Eucera*, which are absent from Britain. Other bees do not visit bee orchids in Britain, because they see the labellum and assume another bee is already there. They move on and seek a flower of thyme, thistle or valerian. Having no *Eucera* to pollinate it, the British bee orchid is at a double disadvantage—the appearance originally designed to attract its bee now deters other bees from visiting.

The bee orchid has developed a self-pollinating fall-back mechanism. If the flower remains unpollinated it eventually pollinates itself: the pollinia remain attached to their viscidia, but simply bend forward until they come into contact with the stigmatic surface.

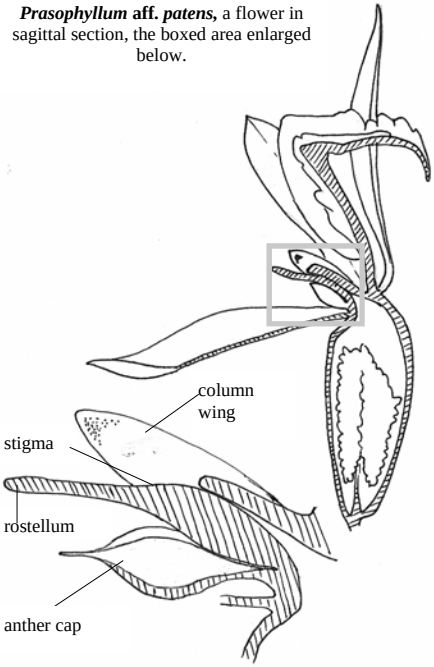
Is this the mechanism for *Prasophyllum* aff. *patens*? Certainly we often see the pollinia, their viscidia still attached to the rostellar shelf, projecting outward from the flower—but do they later bend to meet the stigma? Prasophyllum, unlike Ophrys, is nonresupinate, i.e. labellum upwards; gravity assists the bee orchid, but in order to self-pollinate the Prasophyllum pollinia would have to overcome gravity and bend upwards. Unlikely? I wonder.



Bee orchid self-pollination. Soon after the flowers open the pollinia are still enclosed in pouch-like folds, the sticky viscidia (V) are exposed and cross pollination may take place (left). Later (right) the pollinia fall forward, their viscidia remain in place and the pollen masses contact the stigma (S).
Figure from "Bee orchids" by Stephen Blackmore, Shire Natural History, Haverfordwest, 1985.

Prasophyllum* aff. *patens, its pollinia dislodged and sticking to the end of the rostellar shelf. Will they bend up further and contact the stigmatic surface, and thus effect self-pollination?

Prasophyllum* aff. *patens, a flower in sagittal section, the boxed area enlarged below.



Chatham Islands orchid list

In January the Department of Conservation in Wellington (PO Box 5086) published Brian Molloy's *Orchids of the Chatham Islands—species checklist and habitat descriptions.*

Thirty taxa were confirmed from voucher specimens or field observations—

Acianthus sinclairii
Adenochilus gracilis
Aporostylis bifolia
Chiloglottis cornuta
Corunastylis nuda
Corybas cheesemanii
Drymoanthus adversus
Earina aff. *aestivalis*
Earina mucronata
Gastrodia cunninghamii
Microtis oligantha

Microtis unifolia
Nematoceras aff. *triloba*
Nematoceras orbiculata
Petalochilus chlorostylus
Petalochilus variegatus
Prasophyllum aff. *patens*
Prasophyllum colensoi
Pterostylis aff. *graminea*
Pterostylis banksii
Pterostylis banksii var. *silvicultrix*
Pterostylis micromega
Singularybas oblongus
Spiranthes novae-zelandiae
Thelymitra aff. *pauciflora*
Thelymitra cyanea
Thelymitra longifolia
Thelymitra nervosa
Thelymitra pulchella
Winika cunninghamii

Several more have been mentioned in plant records, of which *Earina autumnalis, Nematoceras macrantha, Pterostylis venosa, Stegastyla lyallii, Thelymitra formosa* seem quite possible.

A number need further assessment—

- *Corybas* aff. *trilobus* (a large tetraploid which will be named and described);
- *Earina* aff. *aestivalis*;
- *Pterostylis banksii* var. *silvicultrix* (a distinct species endemic to the Chathams);
- *Pterostylis* aff. *graminea* (a plant close to *P. graminea* which needs further study);
- *Pterostylis* aff. *patens* (possibly two taxa in NZ, and if so, one endemic to the Chathams—an older name and a brief diagnosis are available for one or both and "resolution of this issue is imminent", so watch out for "Prasophyllum hectori" at least); *Thelymitra* aff. *pauciflora* (plants similar to the Chathams taxon also occur on the mainland).

April in Italy—orchid spotting from the car in Tuscany

Winter has been cold and dry in northern Italy, so in April the vines are just in bud and the oaks still bare: I see only the earliest spring orchids, but they are so common at roadsides that the only conclusion possible is the seed is spread by motorcar.

"Nuova Zelande!" our waiter exclaims, "It is Italy but upside-down—very beautiful". There are geographic similarities certainly, and a huge empathy with each others' culture, but there are stunning differences too. Fields dotted with olives or striped with vines lead the eye to hilltop farm buildings of honeyed stone walls and terracotta roofs, tall dark cypresses and soft round umbrella pines contrasting icons in the haze.

The dark cones of the Lady orchid *Orchis purpurea* along with white, purple or pink *Orchis morio* (the Green-winged Orchid) are everywhere. Spikes of one of the *Ophrys sphegodes* group (the Early Spider Orchid) are tall and carry up to 15 flowers—a very different habitus from the tiny plants I have seen in England.

We are surprised to see wild piglets, but also pheasants, partridges, jays, finches, tits—many of the birds from my father's book of British birds.

Medieval hilltop towns topped with towers and spires are picturesque but driving their narrow winding sunless streets is precision work. Mind you even in the country, driving narrow roads on the right side of the road, at breakneck speed, spotting orchids, and then looking for a place to stop, is not for the faint-hearted.

(Worse was to come: at the end of our stay mine host at the Rome hotel offered transport to the airport. Great, we said, not realising the driver was to be his grandmother. She was a pert little lady, it was Sunday and the car radio broadcast Mass in Italian. Pretty peaceful you'd have thought. Then she changed stations to Alanis Morrisette, and as if fired by the music, put her foot down. I mean, this little lady reached 170km/h, camped in the fast lane, the passing indicator constantly on, all other vehicles giving way before us, her hands as unsteady on the wheel as her foot on the

accelerator, giving a total effect of swerving in a speedboat on a choppy sea. Mama mia.)

The Ophrys were late so we headed south to Monte Argentario, a limestone peninsula in southern Tuscany. From the Panoramic road you look down over the mansions and swimming pools of the very rich to the blue Tyrrhenian Sea.

Orchis italica is scattered along the roadside, and here and there are spikes of *O. papilonacea.* Near the top are Ophrys—*O. tyrrhenia* and *O. morissii* perhaps.

I came looking especially for Ophrys, and they were everything I had expected. Those labella are extraordinary. They are weird creatures, seemingly somewhere between plant and insect. "Eye of newt and toe of frog"—there is witchcraft at work here. Evolution alone seems an insufficient explanation. (One loopy theory suggests male bees have transferred genetic material to the plant via sexually transmitted viruses during pseudocopulation, and that is why the labellum looks so much like a bee. But hang on, if this happened *before* the labellum began to look like a bee, what attracted the bee to copulate with the flower in the first place?)

On our last day in Tuscany we visit Castellina-in-Chianti. Lucia has a shop selling her work—fine botanical art on crockery—and I ask her if she ever paints flowers. Her English is better than my Italian (which isn't saying much), so it is a slow conversation, but yes, she does. Orchids? A broad smile and a nod. Wild orchids? Si, si! In fact it is her ambition to paint all 50 of the wild orchids of the Chianti region; she has been helped in this by a local botanical photographer, who she says is so keen he stays up at night to photograph night-flying pollinators. Alas, we don't have more time to meet him.

Illustrations p22. Want to see more Italian orchids? Go in late April to early May. Look at http://astri17pi.difi.unipi.it/Orchids.

The Lady Orchid, *Orchis purpurea,* at a Chianti roadside, 19 April 2002

1. *Cheeseman's Corysanthes rotundifolia var. pandurata - from Manual of the New Zealand flora, 1925, p366.*

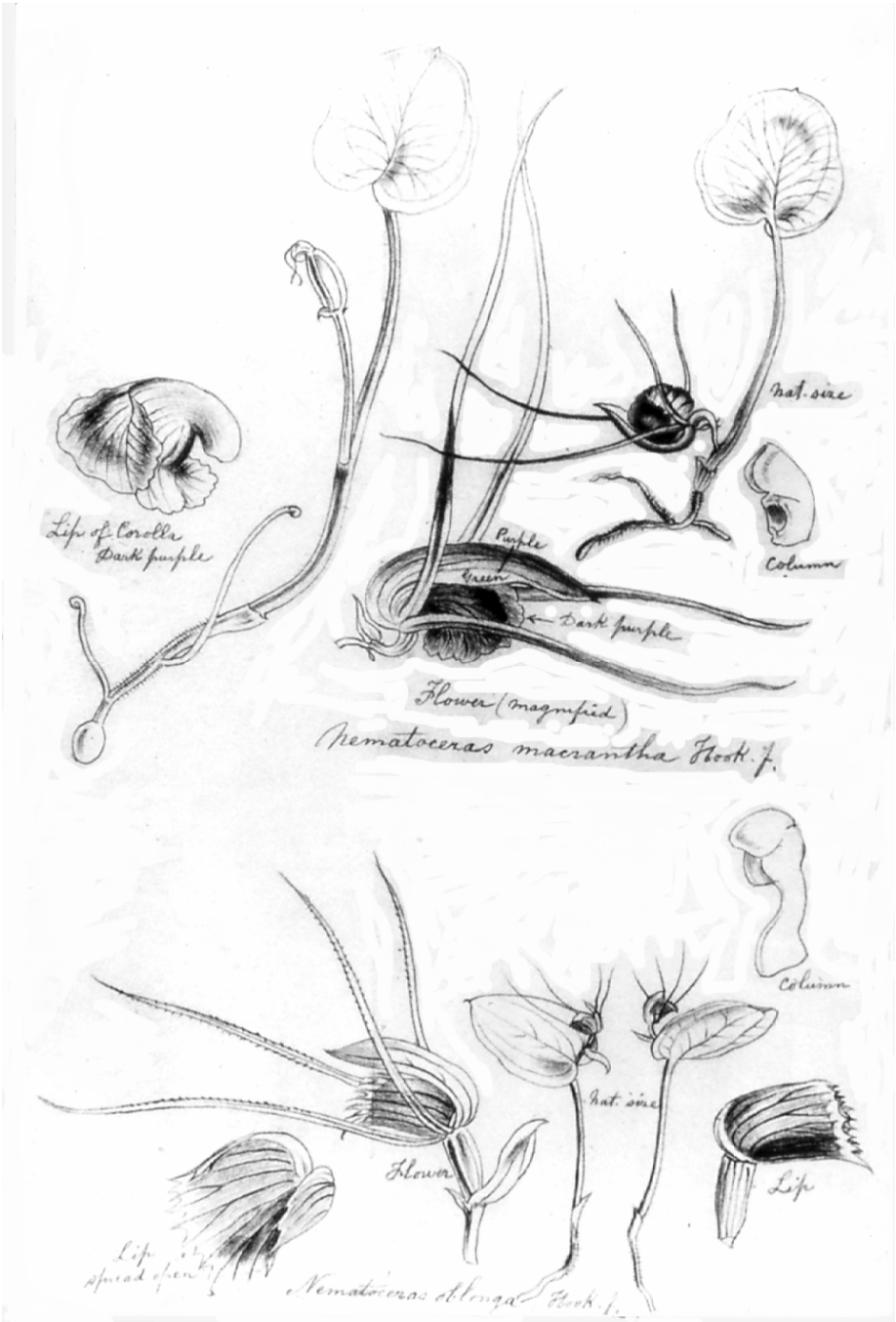
Corysanthes rotundifolia *Hook. f. Handb. N.Z. Fl.* (1864) 266.—Variable in size, ½-2in. high. Leaf sessile or shortly petiolate, ½-1¼ in. long, broadly oblong or orbicular, tip rounded and apiculate, deeply cordate or 2-lobed at the base, rather fleshy, membranous when dry, veins reticulated. Peduncle at first very short, but elongating as the flower withers. Flower ½in. long, dull-purple or purplish-green; bract short. Upper sepal narrow, concave, arched over the lip, acuminate. Lateral sepals and petals filiform, 1-1½ in. long. Lip tubular below, the margins meeting behind the column and enclosing it, base with a rounded auricle on each side; upper part abruptly recurved and expanded, tip acute, margins very minutely denticulate. Column short, stout, bent backwards. *Cheesem. Man. N.Z. Fl.* (1906) 695. C. orbiculata *Col. in Trans. N.Z. Inst.* xxiii (1891) 389. Nematoceras rotundifolia *Hook. f. Fl. Nov. Zel.* i (1853) 251.

Var. **pandurata** Cheesem. Leaves deeply lobed on each side, so as to be almost panduriform. Other characters precisely as in the type.

NORTH AND SOUTH ISLANDS, STEWART ISLAND, AUCKLAND AND CAMPBELL ISLANDS: moist wooded ravines throughout, but often local. Sea-level to 2000 ft. Septemher-December. Var. *pandurata:* Kaitaia (Mongonui County; *R.H. Matthews!*

This mav not be the *C. rotundifolia* of the Handbook, which is described as having a truncate lip. It differs from *C. rivularis* (*i.e. acuminata—Ed.*) in the more coriaceous leaf, with a rounded tip, in the upper sepal not being produced into a filiform point, and in the broader reflexed portion of the lip. From small forms of *C. macranthus* it is best distinguished by the almost sessile leaf and much smaller lip with an acute or

2. *Hooker's Nematoceras macrantha and N. oblonga. Pencil drawing by John Buchanan (1819-1898). From a sketchbook (E208 p77) now in the Hocken Library Dunedin.* *Buchanan copied this from WH Fitch's lithograph in JD Hooker's Flora Novae Zelandiae. Nematoceras macrantha* is now reinstated; *N. oblonga* becomes *Singularybas oblongus* (see page 3).


Nat. size
Lip of Corolla
Dark purple
Purple
Green
Dark purple
Column
Flower (magnified)
Nematoceras macrantha Hook. f.
Column
Nat. size
Flower
Lip
Lip
spread open
Nematoceras oblonga Hook. f.

The underground phase: a special challenge in studies of terrestrial orchid populations. *From* Rasmussen HN.

In Orchid population biology: conservation and challenges. *Ed.* S. Waite. *Botanical Journal of the Linnean Society* 1998. 126: 49-64.

"Considering the large surplus of seed that is being produced in most orchid populations, a slight change in the survival curve of the underground stages could dramatically affect above-ground recruitment. Hence, a better understanding of the underground phase would provide a powerful tool with which to control the size and proliferation of orchid populations (Rasmussen, 1998)."

The first seedling stages of terrestrial species are hidden underground, so little is known about the early life history, and the survival rates, of seedlings.

Earlier studies showed *Goodyera pubescens* and *Corallorhiza odontorhiza* needed 24-30 weeks in the soil before even germinating. Infection and protocorm development occurred after about a year in *Epipactis.* On the other hand *Microtis* has been reported to germinate after 12 weeks and *Spiranthes* after 8.

Estimates of the length of time between seed sowing and appearance above the ground have varied from 2-4 years. The phase between seed sowing and the appearance of seedlings above the ground is thus a considerable part of the orchid's life.

Rasmussen used a field sowing technique which made it possible to study the length of time seeds stayed as seeds, the phenomena of seed germination and its nutritional requirements, the need or otherwise for fungi, and (among other things) the growth rate of seedlings. She has studied many European terrestrials.

She sowed packets of seed of various orchids, with the seed between two layers of fine mesh mounted in plastic photographic slide frames; fungi were later isolated from the orchids.

The results showed a range of strategies and requirements for germination and seedling growth.

The seeds of *Goodyera pubescens* can germinate without fungal infection (asymbiotically). In *Epipactis helleborine* there was also a delay between rupture of the seed capsule and fungal infection; germination occurred 9 months after sowing; seedlings could establish their mycorrhiza with local fungi—they were not fussy. *G. pubescens* does need sugar and organic compounds for subsequent development, though, and since growth rate is then highly dependent on the right fungus, a high mortality can be expected (and was observed) at this stage. In nature therefore, mortality is high in the autumn.

Corallorhiza odontorhiza does need a very specific fungus for germination, and even when it is present, overall germination rate is low, suggesting other complex factors are important. Once the right fungus has infected the seedlings and they have become established, the survival rate is good.

The situation with *Liparis lilifolia* is somewhat between the other two: symbiosis with fungi becomes increasingly specific as the seeds germinate and begin to grow. Germination may be achieved with a range of incompletely compatible fungi, but with the requirement for a specific fungus increasing with age, a gradual reduction in seedling numbers can be expected.

Thus in each species and population there may be a different bottleneck stage in the life history. If cultivation from seed of a threatened orchid for re-introduction into the wild is to be a reality, its bottleneck must be identified and dealt with.

1. Growing orchids from seed *From the newsletter of the Far North Coast Group of the Australian Plants Society (NSW), October 1999.*

Growing orchids from seed is often regarded as being beyond the capability of the average, amateur grower. John Moye wants to dispel that myth!

For those of you who like to try out different techniques of plant propagation, and have access to orchid seed, the following method of growing orchids from seed, might be appealing. Some of the spring flowering orchids, especially the epiphytic species, might be pollinated by visiting insects and go on to produce seeds. Others can be induced to produce seeds by transferring the pollen from one flower and depositing it on the stigmatic surface of another, using a tooth pick or something similar. Once pollinated, most flowers produce pods in due course, most containing many hundreds (or thousands) of seeds. Collect these as the capsules commence dehiscing (releasing the seed). Then try the following technique.

1. Line the inside walls of a new, or clean, plastic pot about three parts of the way up with cloth (cotton tea towel or old singlet). This cloth is to act as a water wick. Use 10 to 15 cm. diameter squat pots.
2. Fill the pot to almost the top of the cloth with washed crushed metal or stones (up to 1 cm in size).
3. Boil about a cupful of sphagnum moss and place sparsely over the stones (use green sphagnum if available). The boiling of the moss is to kill it, otherwise it will grow and choke the small orchid seedlings. Pour a jug of boiling water over the moss, metal and pot and allow to cool.
4. Place a few small pieces of live roots (about 4 cm in length), for preference from the pod parent, towards one side of the pot, then sow the seed - place a little seed on a creased piece of paper and spread as you would salt on your food.
5. Cover the pot with clear plastic and tie by using soft copper wire or perhaps an elastic garter. Then cover this with a black plastic and tie in a similar fashion.
6. After about 14 days, remove the black plastic. Then carefully lift the side of the clear plastic to remove the roots (use tweezers or similar). Visible germination should occur in about four to six weeks from sowing, but will vary depending on the seed sown and the time of the year.
7. Watering is done by standing the pot in an ice cream container filled with water (rain water preferred) up to about 2 cm from the top of the cloth for a short time. Try to avoid letting the sphagnum dry out too much, but don't over water either.
8. Pots should be left covered with the clear plastic until the seedlings have reached 1-2 cm in height. They can then be removed and put into small orchid pots filled with a suitable orchid potting mix and treated as small plants until ready to transfer into larger pots, or onto trees or rocks.

For best results, keep pots out of direct sunlight at all times. 1 have found that by placing pots under top benches in a shade house is ideal, although many others keep pots in a well-lit room indoors. Also, try to place pots in an area experiencing fairly uniform temperature conditions, at least during the early growth stages. Lastly, avoid lifting the plastic to see how things are going. By so doing, the potential for unwanted bacteria, spores, etc. contaminating the developing plants is increased. While this technique, at first appears messy, it really is quite simple and straightforward and the results certainly justify the effort made.

Good Luck.

Something to try with Earina and Winika pods—DMcC.

2. Another weed orchid in Australia

"NEW WEED THREATENS NATIVE SPECIES IN AUSTRALIA'S NORTH" boomed Radio Australia on 3 January 2002.

"Australian environmental authorities fear an aggressive weed found in the Northern Territory capital Darwin may destroy native species. The Territory's Parks and Wildlife Commission says the orchid weed, *Eulophia graminea*, came from South East Asia and has probably been introduced by accident.

"The Commission's Colin Wilson says the weed can push through concrete and it's not yet known if it can harm animals if it's eaten. 'We don't really know if it's toxic to animals or anything like that but something like this, it's a ground orchid, it grows as a fairly large bulb under the ground and then it puts out leaves that are a little bit like grass and then it puts out a flower spike. It could quite easily form very dense infestations that would crowd out all other native plants.'"

The Illawarra Native Orchid Society's *Bulletin* (February 02) carried more news, "It is known as a weed in Singapore and Java, where it has reportedly forced its way through newly-laid asphalt…. In Darwin it has been found in gardens over a wide area from the city to the northern suburbs, particularly in wood-mulched gardens…. educated opinion suggests it must have been growing here for at least two years…. could become a threat in rainforest or wetter areas….(and) for commercial vegetable growers or in agri-forestry."

A Singapore website was less critical: "The petite and cute petals make the orchid look delicate and sweet. It is a terrestrial orchid that grows in the secondary forest areas or even parks. They can also be seen in cultivated lawns, reclaimed land areas and even at the high-water marks of sandy beaches. It is a hardy plant that can be potted in well-drained soil and charcoal chips. Its strong tolerance allows it to grow and flourish. Hence, it is a good choice for ornamental use. The plant is sympodial in growth and produces a few, grass-like, greyish-green leaves at the tip. The flower is about 1.5cm in length and 1.5 cm in width. The sepals and lateral petals are pale green with dense network of reddish brown veins. The lip has a white to pinkish midlobe, which bears reddish purple ridges above. The brown veins give it a bronze look and seemed to immortalize the flower. A single plant can bear up to 30 flowers or more. This adorable flower would make a nice centerpiece on the dining table and impress your guests with its elegance."

A Hong Kong site reported a rescue of native orchids: "In July 1997… two species of orchids had been found at a landfill site in Lam Tin, Kowloon. Subsequently, Gloria Siu accompanied Dr. Hu to the landfill. She confirmed the identity of the orchids as *Eulophia graminea* and *Habenaria linguella*. She also discovered a third orchid species, *Spiranthes sinensis*. All three species are native to Hong Kong. Part of the original landfill had been developed as public tennis courts already. Works were about to start on the rest of the landfill. Therefore, in August 1997 a team of workers from KFBG dug up all the orchids and transplanted them to KFBG for ex-situ conservation. The orchids grew well and flowered in 1998."

E. graminea is also listed from China, Japan, and West Java (Indonesia - Krakatau, Ujung Kulon, Gn. Salak, Bogor).

Key to plates opposite ➔

1, 2: *Eulophia graminea* from http://www.mdsesd.com.tw/~kinmatsu/orchid/native/eul.graminea.html.

3: *Calochilus paludosus* from Torehape, Hauraki Plains; photograph by Bev Woolley, 1987.

4, 5: Two colour forms of *Thelymitra nervosa*, Haurangi SFP, 2 Dec 2001, photo Wolfgang Rysy.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Some orchid puzzles by Bruce Irwin, Tauranga

1. Caladenia aff. *chlorostyla*

I am not convinced that *Caladenia chlorostyla* is a synonym of *C. minor* Hook. f. Of course to assert that *C. chlorostyla* is a synonym you must be confident that you know exactly which plant bears that name.

There is a *Caladenia*, widespread in New Zealand, which bears a superficial resemblance to *C. chlorostyla*, but its somewhat smaller flower is white or pale cream and is born on a shorter stem, clad with prominent reddish to blackish purple, gland tipped hairs. This taxon often grows in association with *C. chlorostyla*, but begins flowering a few weeks later.

The flowers of this *Caladenia* aff. *chlorostyla* have dark sessile glands on outer surfaces of the tepals, quite unlike the pale stalked glands of *C. chlorostyla* and are differently distributed. At Lowlevel Road, Iwitahi, both taxa formed large colonies, instantly recognisable from each other. I have not seen intermediates between them.

Incessant rain prevented me from pointing out differences between the two taxa at the Iwitahi weekend 2001. In some areas such as the Waitonga Falls track on the southern slopes of Mt Ruapehu, *Caladenia* aff. *chlorostyla* carries gland tipped hairs almost lacking red or purple pigments, so is more easily mistaken for *C. chlorostyla*. However the dark sessile glands are still obvious and impart a greyish appearance to the sepal tips, quite unlike *C. chlorostyla*. The essential differences remain constant.

← Key to plates opposite

1: *Caladenia* aff. *chlorostyla:* near petal removed. This form almost lacks dark glands on hairs of scape. But note dark sessile glands on outer surface dorsal sepal. Near start of Waitonga Falls track, Ruapehu.
2: *Caladenia* aff. *chlorostyla:* Dark sessile glands on outer surfaces of tepals. Blue Rata Reserve Taranaki.
3: *Prasophyllum* "B": tepals long, slender. Near Tauranga.
4: *Prasophyllum* "A": Note purple scape (not universal). Turoa Rd, near 8km peg.
5: *Thelymitra* "Whakapapa".
6: *Corybas* aff. *iridescens:* Note extra red markings on lip. Leaf slightly petiolate. Makatote. Presumed hybrid.
7: *Corybas* aff. *iridescens:* Note very long apiculus on tapered labellum Makatote. Presumed hybrid.
8: *Corybas iridescens:* Note very broad labellum.

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2. Prasophyllum

This season I had intended to search for *Prasophyllum* north of Tauranga hoping to find clues to the identity of plants collected near Kaitaia and regarded by Rüpp as his species *P. rogersii*. Could it be one of the two taxa Anne Fraser and I had observed at Ruapehu and which we considered distinct from *P. colensoi*? [J79 p8]. My good intentions came to nought, but while sorting slides for Iwitahi 2001, I came across a slide by Bob Goodger apparently of *Prasophyllum* "B" previously recorded at Ruapehu and Pureora. Bob's photograph was of a plant at Whakamarama close to Tauranga, extending the distribution of that taxon northward. Could *Prasophyllum* "B" extend as far north as Kaitaia? As *Flora II* states, *Prasophyllum* are rare north of Lake Taupo. Perhaps a NOG member from the far north can help me by supplying a flowering specimen next season.

Anne and I searched for *Prasophyllum* on the southern slopes of Ruapehu on 20 January 2002. *Prasophyllym* "A" seemed less common than last season, even absent from the original site at the junction of Turoa Road with the

lower end of the Old Blyth Track. At that original site the dark purplish flower spike of *Prasophyllum* "A" had contrasted with the green leaf, but that useful character was often absent in other colonies. The column wings however were consistently about as long as the anther. At some other sites *Prasophyllum* "A" adopted a surprisingly wide colour range, from yellowish through reddish and purplish green, almost to black. Unless all structures (leaf, spike and flowers) were ± a uniform yellowish or reddish green, their identity as *Prasophyllum* "A" was seldom in doubt. Where doubt existed, if the column wings were about as long as the anther they were confirmed as *Prasophyllum* "A". If much shorter they were *P. colensoi*.

The identity of *Prasophyllum* "B" is more easily established. The plant generally grows in very wet sites, even in shallow water, is rather taller than *Prasophyllum* "A" and *P. colensoi*, and has much more slender tepals streaked with dark purplish brown. Strangely the column wings vary much more in length than the other taxa; sometimes much shorter than the anther, sometimes about equalling the anther.

This being another case where no type specimen has been designated, I have assumed that *Prasophyllum colensoi* is the ± uniformly yellow green or reddish green plant with column wings shorter than the anther.

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3. Thelymitra "Wkakapapa" (Master of Disguise)

When I first became aware of *Thelymitra* "Whakapapa", it had evaded detection by the many botanists who must have stayed at the Chateau, by exercising its extraordinary talents of disguise. However in 1994 it relaxed its guard. The flowers assumed their natural bright pink colour and the triangular spurs on the column arms were well developed. They even flaunted their distinctness from *Thelymitra longifolia* by remaining wide open at 3 pm on a warm but overcast afternoon in late January. Few satisfactory photographs were made before the plants realised they had blown their cover.

Weeks later healthy populations were located on the southern slopes of Ruapehu. Plants carried the expected bright pink flowers, but on many the column arm spurs were less obvious and on some plants apparently absent.

The Mangatepopo Valley seemed a suitable habitat, but almost all plants examined had white flowers and apparently no spurs. Only one plant was clearly *T. "Whakapapa*".

Some time ago, Alan Ducker told me he had seen apparently identical plants near the start of the up-mountain track at North Egmont. On 13 January 2002, I spent all of 20 minutes searching that area. I found small white flowered *Thelymitra* with narrow arching leaves and dark purplish flower spikes, but no sign of spurs on the two columns examined. Not knowing the form of disguise current on Mt Egmont, my identification of the plants as *Thelymitra "Whakapapa*" must be regarded as tentative,

First impressions were that *Thelymitra "Whakapapa*" might in fact be Colenso's *T.purpureo-fusca*, but certain points in Colenso's description seemed at variance. Perhaps these points of difference were other forms of disguise, no longer practiced by the plant.

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4. Hybridism in *Corybas*

You may be puzzled by the number of taxa now generally recognised as distinct from *Corybas rivularis.* I too, have been puzzled for many years, but now suspect *Corybas iridescens* of promiscuous behaviour.

In 1987, I set out to map distributions of the two variants I was aware of *(C. iridescens* and *C. papa).* Soon I began finding forms which could not reasonably be included in those two species. Several proved to be widely distributed and their distinctive characters remained constant. Occasionally though, I found flowers showing affinities with *C. iridescens*, but lacking some of its diagnostic

characters and showing considerable differences from each other. Because the longitudinal section of these aberrant flowers often resembled that of *C.* "Waiouru" (*C. macranthus* var. *longipetalus*, now *Nematoceras longipetala*) I regarded them as possible hybrids between these two taxa. I also suspected that *C.* "Waiouru" itself could have originated as a hybrid between *C. iridescens* and *C. papa* as it seems ± intermediate between those species. Gradually my suspicions faded as the number of recognised taxa increased, until November 1997, when with other NOG members I found at Makatote, Corybas colonies, some of which agreed reasonably closely with *C. iridescens*, but the majority diverged alarmingly. I was chided for not making a positive identification and for suggesting that an application of "Roundup" might be the only way to deal with the problem.

Anne Fraser and I returned to the site on 8 October 2000. This time we found a curious colony of *Corybas* with virtually circular leaves. Unlike the *C.* aff. *iridescens* also present, the plants had already finished flowering. The surprisingly short capsules seemed to sit straight on the leaf surface. Perhaps next season, flowers on this colony would provide a clue as to which species had hybridised with *C. iridescens*.

7 September 2001 saw us back at Makatote. Leaves on the very early flowering colony were very small and less rounded than previously, but the small flowers were fully open. It seems that leaves will enlarge and become more circular as they mature. The internal colour pattern of the labellum strengthened the belief that *C. iridescens* must be one parent, but the sessile leaf precluded *C.* "Waiouru" as the other. Surely two petiolate-leaved species would produce petiolate offspring? About five metres from the short ovaried flowers a separate colony did provide a clue. The flowers were even less like *C. iridescens*; in fact they were so small and so green that I mistook them for *C. papa*. Closer inspection of one flower revealed a very short petiole and an interior colour pattern rather like that of *C. iridescens*.

Several weeks later Gael Donaghy and Graeme Jane inspected the colonies. They reported a bewildering array of forms all the way from *C. iridescens* to *C. papa* – if you can accept as *C. papa* a completely red flower above a shortly petiolate leaf.

18 October 2001. Anne and I returned to Makatote. A count of spent flowers plus a few fresh ones gave a total of 30 flowers on the colony with very short ovaries. The small colony of *C.* aff. *papa*, 5 metres upstream had finished flowering. Their site was occupied by *C.* aff. *iridescens* at peak of flowering, but just below these were a few very small flowers indistinguishable from true *C. papa*.

It seems likely that *Corybas papa* was the other parent involved with *C. iridescens* in producing the hybrid swarm at Makatote, some forms of which approach alarmingly close to taxa which have puzzled me in the past. Long ago similar hybrid swarms may have produced such plants as *Corybas* "sphagnum" at Rangataua, *C.* "Mangahuia" at Mangahuia, *C.* "Kaitarakihi" from the Waitakere Range, and *C.* "Motutangi" from the far north.

Possibly as a result of unfavourable weather, only one plant carried a capsule when we checked the colony on 25 November 2001. Our latest check on 21 January 2002 noted that this remaining capsule had been raised 15cm above the leaf and was close to dehiscing.

In late October 2001, another puzzling *Corybas* was found by Eric Scanlen. It had been thought that *Corybas rivularis* s.s. might occur between Wellsford and Warkworth, so on the way to Te Paki, several NOG members checked colonies in the area. All but one were clearly *C.* "whiskers" at peak of flowering. However a colony found by Eric was long past flowering so most unlikely to be *Corybas* "whiskers" and even less likely to be *C.rivularis* s.s. It seems unlikely to be one of the presently known taxa. Could it be another hybrid?

Danhatchia

1 January 02 After a fortnight of rain and other delays, a pearly fine day at Matakawau had 'Tricia, Stella and the Column, trying in turn, to tie back tepals with invisible thread, on a rare, open, *Danhatchia australis*, in order to photograph the pollinia and stigma. The 5 open flowers last year had surprisingly not set seed [J79:13] so the idea was to capture on film just why open flowers don't pollinate. The flowers had to be disturbed as little as possible to let them develop and confirm that seed wouldn't set. What a performance! The Column's cunningly devised plastic disks with 6 loops of thread for holding back the tepals, got dumped; they looked like roped up barrel tops beside the tiny *D. australis* flowers. But tying knots in the invisible thread made fingers seem like a bunch of salamis. Stella eventually triumphed — superior dexterity and vision plus some reflected sunlight — twitching back all 5 tepals to an erect twig and tying down the labellum to a 10mm "log" below. Revealed were two pollinia like pinpoints stuck out from a winged column and capped by a reddish anther. The 3-D pics (**Fig 1 & 2**) show a bi-lobed, shining stigma, a non-shiny mere bump of a rostellum between the lobes with coherent pollinia ahead of the rostellum and underlain by a clear film; I think. Lucy Moore aptly wrote [1, p163] "... the precise limits of stigmatic surfaces and column wings are not clearly established." 'Tricia's notes say that this flower had been open at least 5 days from 27 Dec. With its column lying flat on the internally ridged labellum, the *D. australis* stigma seemed safe from self pollination, provided the pollinia stayed coherent and the underlying film stayed intact.

How then ***do*** closed flowers self pollinate? Two attempts to uncover the column in closed flowers, ended in disarray. The first flower tried had obviously wilted with the ovary already swelling. Danhatchia had an early season. Delicate attempts with a safety razor blade left a vision of a chewed-end-of-string under the 20x lens. The second trial, on a minuscule bud with a slender ovary, revealed pollinia with a surface of incoherent pollen but the Column's most delicate attempts to tidy this other chewed-end-of-string resulted in only a tidy stump! Short of ants trained as surgeons and a dissecting microscope, what can one do? The 3 enthusiasts laid off rather than ruin more seed production but determined to return earlier next season, better equipped, if time permitted.

Bruce Irwin, when quizzed at Whakapapa on 4 Jan and later by mail, recalled that during microscopic dissections of *D. australis* for Dr Lucy Moore, he observed an opaque white film surrounding pollinia and stigma. The film, like a mushroom's skirt, cracked open at

Key to plates opposite ➔

1 & 2 View these with a pair of lenses and/or a card standing between them. When it clicks, you will see an ant's eyes view, in depth, of the column and labellum of *Danhatchia australis*. Note the clear film under the pollinia and the "invisible" thread, like shark trace in this enlargement.

3 & 4 Doreen Abraham's *Pterostylis micromega* from Paramanawera bog, 3-D pair. Use some strong spectacles or free view with a card between the views so that each eye sees only one view. The two will float together in your minds eye to give a complete 3-D picture.

5 *Prasophyllum* "B" from a Sphagnum floating island, Karioi B Fen. Note pale column arm just shorter than the contorted anther, tall and separate lateral sepals.

6. *Calochilus robertsonii* with double labellum, Iwitahi, photo Wolfgang Rysy.

7. *Pterostylis irsoniana* at Cape Palliser, photo by Wolfgang Rysy.


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an early stage allowing pollination to take place but exactly how, was never clear. Bruce suggested that only buds which failed to self pollinate bothered to open. Why else *would* they open?

Bruce sent drawings of columns from both an open flower and an unopened bud at Hoteo River, 29 Dec 86, showing clear differences; where the photographer has so far failed! The pollinia in the open flower are completely covered by what Bruce notes as, "thin upper margin of (stigma?)". Undoubtedly, this thin film, is involved in non-pollination of open flowers but exactly how is still a mystery.

'Tricia's e-mail of 22 Jan threw a " hammer in the works!" Out of 20 fully opened flowers on 16 stems, 4 or 20% had pollinated including the lower one on the stem of the tie-back experiment but not the tied back one at the top. [Bruce suggested re the 20% that "the effort involved in opening fully may pay dividends."] There were fewer part-opened ones this year but, as for last year, these all pollinated. 'Tricia later wrote that the last flower had closed (1 Feb) & had not been pollinated. Out of the 146 stems that survived the full reproductive cycle, there was a range of 2-5 buds per stem & of all buds, 136 of them, including 4 of the open flowers, pollinated & produced seed. 12 stems had one open flower and 8 had two. That 1999, 5 bud stem where the 4 top flowers eventually opened at once [J74 p21 & Fig.23] was apparently quite an exception.

It seems that the paltry 5 which opened at this site last year, [J79 p13 & 2] all failing to pollinate, were too small a statistical sample. Now that 20% of the open ones did get pollinated, was it by insect, wind, selfing or what? It wasn't fumbling experimenters either because the tied back flower didn't fertilise.

In summary;

1. A large proportion of the non-opening, healthy flowers, self fertilised as expected.
2. A non-opening flowers had incoherent pollinia.
3. 20% of open flowers were fertilised; either selfed or cross pollinated.
4. A flower open for 5+ days had coherent pollinia and an intact, clear film deterring self pollination.
5. Bruce's drawings confirm the film-over-pollinia in a more encapsulating form from Hoteo River.
6. As usual in thorough(?) research, our knowledge has been advanced but more tantalising questions have emerged than answers.

What do you think? Who has some inspiration on how to find out why 80% of open flowers do not fertilise and how 20% do? Who has the time to camp on site and do the work? Tricia, Stella and the Column are keen to get some progress but are short on time.

References

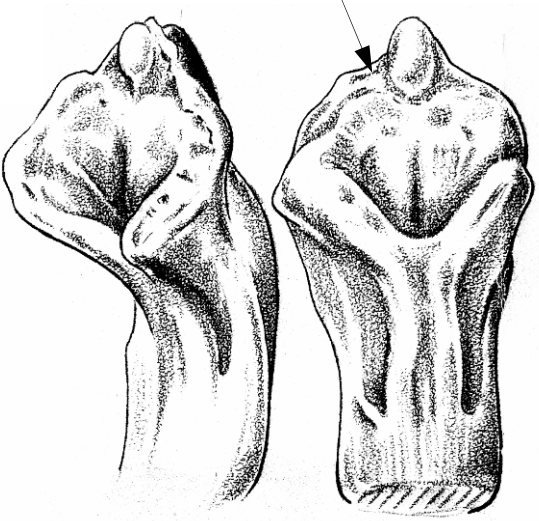
1. Moore, LB & Edgar, E *Flora of New Zealand* Vol. II 1970
2. Aspin, Patricia, *Danhatchia at Matakawau* Feb. 2001, an unpublished thesis for NZNOG, held at Ak, Auckland Institute and Museum.

← Key to Tuscan orchids opposite (see editorial page 8)

1. *Ophrys sphegodes*, the Early Spider Orchid, Chianti. As common as Microtis along damp sheltered banks.
2. A hypochromic form of *Ophrys sphegodes*, Chianti. This was the only plant I saw which lacked the red-blue pigment.
3. *Ophrys tyrrhena* (?), Colline Metallifera. Growing along with *Orchis morio* on a sunny grassed verge.
4. *Ophrys morissii* (?), Monte Argentario.
5. *Ophrys tyrrhena*, Monte Argentario.
6. *Orchis italica*, Monte Argentario.
7. *Orchis papilionacea*, Galgano. These very attractive large-flowered plants were common on Monte Argentario too.
8. *Orchis morio*, the Green-winged orchid—white form, Colline Metallifera. A roadside weed in all its three colour-forms in Italy: rare in England.

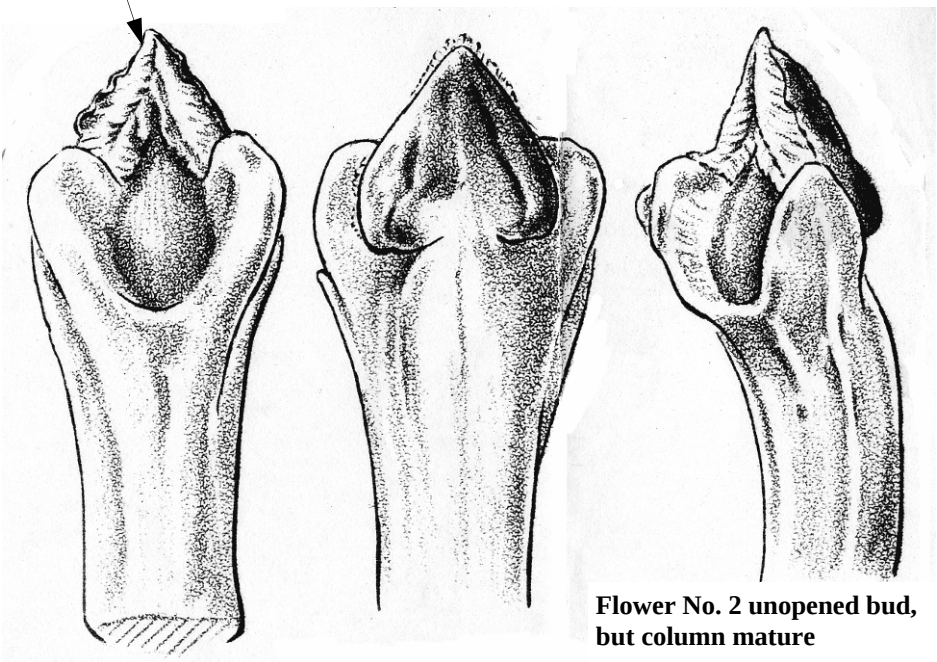
Danhatchia australis
Hoteo River 29 Dec. 1986.
Drawings by Bruce Irwin.

Thin upper margins of (stigma?) completely covering anther



Flower No. 1 Newly opened, Anther still hidden by stigma

Stigma & rostellum appear to have shrunk allowing pollinia to encroach over upper stigmatic margins



Flower No. 2 unopened bud, but column mature

2. Pterostylis micromega SPLOSH (Swamp Pterostylis Location & Other Species Hunt)

Saturday 5 January 2002 "Doreen's got a Pterostylis paludosa in flower!" went the shout by a caller who shall remain anonymous because, when the Column sploshed through the tea-tree of the Paramanawera bog (was Rangataua swamp) to look, it was an exquisite and "Nationally critical" *P. micromega* (**Fig. 3 & 4**)! This and the "nationally vulnerable" *Prasophyllum* aff. *patens* were Nick Singers' target species in this year's DoC survey around his Tongariro Conservancy. Nick had enrolled the NZ Native Orchid Group (NZNOG) to pattern-search accessible (if tiresome!) swamps around the Volcanic Plateau for these raries: but this year, without the expensive helicopter [J80 p15]. Cathy Jones had reported *P. micromega* from this Nematoceras site of Bruce Irwin's from several years back when the pair and others had no way of determining its position in this huge wetland. David Rothschild's and Nick's GPS finders ensured accurate siting this time. So 3 parties of 5 headed in different directions. Doreen Abraham's find was followed by others from Anne Fraser, Margaret Menzies, John Groom, Robbie Graham, and even the Column. One plant usually signalled a small colony but John's, on a swampy stream bank, took the cake. A deer cropped and silt-filled ox-bow, just upstream, sported some 17 *P. micromega* flowers to the huge delight of all. Margaret's younger sister, Claire Pullman and Don Isles spooked a deer, if proof were needed that red deer were about. Controversially, moderate deer browsing has left suitable habitat and fertiliser for the orchids! Field party disturbance alone would never take the place of moa in keeping the swamp growth sufficiently in check. Only one late *P. paludosus* flower (dark, ridged labellum, capsules ±50mm above the floral bracts) was spotted by Anne as we stood for lunch in the bog and the rain. Most were in seed, often in clusters of 10-20 plants. *Nematoceras* "Sphagnum" leaves were in abundance and couldn't be separated from the rarer *N.* "rest area" at this time of year. Known *N. macranthus* with bigger leaves were there too. *Pterostylis* aff. *montana* and *Thelymitra pulchella* showed occasionally and *T. cyanea* were plentiful — but half closed in the rain. In this richest site of the whole survey, some 50 *P. micromega* (floral bracts clasping ovaries; green arching labella) were spotted in the survey area; a semicircle of 500m radius in difficult bogs to treacherous fens. John and the Column had minor embarrassments in the worst fen dubbed the slough of despair. Here a thin carpet of sedges, surmounting the ooze, almost supports ones weight. One of Anne's finds was on the east edge of it. On Dave's GPS exit course, we ran foul of the fen's north end where first Anne went down but struggled clear followed by Bruce whose floundering strides belied his 80 years but soon gained him a safe bank — where he sat in "it" whilst emptying his gumboots. Such, oh gentle reader, is what orchid hunters go through for your reading pleasure. Gary Penniall and Robbie needed photos of a good *P. micromega* so took a quick lesson on GPS from Nick and landed within 3m of Doreen's first find. The Column, trying to outdo the GPS, (forget it) led the way back but got howled down for missing a new and prominent flower only 20m from the road — where the waiting multitude wondered at the fuss. Despite the discomfit, near disasters, sopping brown gear and scratched legs, everyone bubbled with enthusiasm and wolfed down an expertly cooked dinner that evening, thanks to the volunteer chefs. Rinsed socks and long-johns (true!) dried in front of Don's fire whilst Bruce, none the worse for a hard day, was sought by many for counsel on a number of orchid conundrums connundra, whatever.

On our shake-down survey of **Friday 4 January** pm, the lahar mounds area by Bruce Road had plenty of scratchy heather for those incorrigibles in shorts and sneakers, sandals or Warehouse slip-ons but only a few *P. micromega* rosettes of spathulate-elliptic leaves (some with wavy edges, some few with fine serrations) were seen where Robbie had found buds last year [J80 p15]. The Column saw none but took a ticking off for treading on them! We assumed that the several other plants found here last January were now dormant. How many orchid species take years off like this? and "dormant" here means, "thriving on mycorrhizal fungus whilst building reserves for seeding." Finished and sparse *P. paludosus*, half closed *Thelymitra cyanea* (baby pink to mauvy blue), *T. pulchella, Aporostylis bifolia, Singularybas oblongus* and *Chiloglottis cornuta* were also in evidence. In the drain by Bruce Road, a large colony of *T. cyanea* in early bud caused some puzzled looks but the columns seemed no different from the regulars now in flower.

Sunday 6 January Rotopounamu's land-locked shore had an old record of *P. micromega* but it was not in evidence to the divided field party searching the reed-beds in opposing circuits of the lake. Water level may have been too high from the wet Christmas. The untouched wilderness feeling, at the meeting point beach, was marred just a little when 2 grey ducks swept in for hand-outs from our lunches. *Earina aestivalis/mucronata* (with characters from both [J75 p17]) hung from the trees nearby. Late flowering (aes.) but at 720m altitude (maybe muc.), scented to some noses (aes.) but not the Column's (muc.), long flexible leaves (muc.) but prominent columns in large flowers (aes.) and sepals not reflexed (muc.). Hybrids maybe? *Thelymitra cyanea* and in-seed *T. longifolia*, turned up in a back-of-the-beach wetland at the north shore but the highlight was *Spiranthes novae-zelandiae*, in bud at Ten Minute Beach as documented. Rain then caused a hasty exit, first to the cars then, as it eased, to nearby Te Ponanga Saddle wetland. A shout soon went up (by that same anonymous caller) that *Pterostylis micromega* had been found; but her younger sister wasn't so sure. It was only in leaf, in several places and always with in-seed *P. paludosa.* The rosettes are not easy to tell apart. The big finds here were a kaka squawking overhead and four separate green geckos with several paired, small gold spots (*Naultinus* sp.) coming out to dry after the rain, according to Nick.

Off to Sir Edmund Hillary's OPC (outdoor pursuits centre, not ordinary Portland cement!) to "do" Taurewa, a long, reed-choked stream. *Prasophyllum* "B" [J79 p9] was in reddish flower with elegant tall stems and long, separated, lateral sepals. (**Fig. 5**) An in-bud *P.* aff. *patens* (confirmed later in flower by Nick and Robbie) caused a suitable stir but *Thelymitra cyanea* was the only other orchid in evidence. After struggling out to the track through flax (*Phormium tenax*) riven with *Rubus laciniatum* (blackberry with deeply serrated leaves and normal lacerating thorns), Nick showed us some of his prized *Dactylanthus taylori* in nearby bush before the return to Whakapapa, dinner by the fire, rousing orchid debates and a good night's sleep.

Monday 7 January Sunday's lack of confirmed sightings of *P. micromega* served to spur the determination of the field party; except for the mandatory stop at the Ohakune chocolate eclair shop, where Margaret expounded to Claire on the benefits of these survey trips such as "getting to know new swamps." Quote of the trip. Nick's Tangiwai A wetland by Route 49, had a fence around a 1999 site of numerous *Prasophyllum* aff. *patens* which were dormant now. Robbie immediately spotted *P. micromega*, not seen here since 1993 and Anne, still with cream on her chin, spotted another outside the wire. Chocolate

eclairs do wonders for ones eyesight. Doreen got *Prasophyllum* "B", David McConachie got *P. australis* (the Column's ID; Bruce thought it was an immature *P. patens*), Bruce's *Nematoceras* "whiskers" and *Microtis unifolia* were here too.

Nick has found the fence to be a twin edged sword: keeping the stock out but demanding scrub and weed clearing in the off season. Fencing off threatened orchids, is reported in J21:2; J26:7,8; J35:5 and J81:38, often with similar problems.

Keith Wood and Rebecca from Winstone's Karioi State Forest HQ, joined us now for a search of the extensive Tangiwai B wetland amidst their *Pinus radiata*. A large fen here had a better carpet of roots than the slough of despair at Paramanawera Bog. Nick had collected a tall, dry, Prasophyllum stem here whilst the fen was frozen over. He went straight to the spot on the edge of a floating island of Sphagnum moss, flax and shrubs and found *P.* "B" [**Fig. 5**] with the Column already photographing it. However, Anne and DoC's Deirdre pulled rabbits out of hats with separate *P.* aff. *patens* finds, only ±250mm tall but in flower; in a fen? But *P.* aff. *patens* prefers flowing water between its sedges [J54 p2]. Open water elsewhere in the fen had a characteristic thin and brittle violet film but in centre fen, the imperceptible flow kept the film at bay and suited *P.* aff. *patens* it would seem. Claire added to the moment with an unexpected *Pterostylis micromega,* also out of preferred habitat and somewhat unhappy in mid fen. Across the wetland, in mature *Pinus radiata,* Nick showed us *Gastrodia minor* plus numerous green-form, *G. cunninghamii* with palest labella, but still with the dark tips, which got the cameras clicking again. One fine patch had 47 stems in one square metre. Lunch in the blazing sun by the pines soon had sensitive souls seeking shade but relishing the change in the weather.

Next stop, through Winstone's Tangiwai HQ some 6km into Compartment 63 of their *Pinus nigra* with anticipation high. Nick had kept this non-swamp, stroll-in-a-pine-forest for last as his carrot-on-a-stick. Winstones have a line on the map around a block verging on a sizeable wetland, as a possible orchid reserve. But although the ±780m altitude was close to that of the Iwitahi reserve, 96km to the NW, the species range could not compete in the portion we surveyed. Species here, with one notable exception all occur at Iwitahi. *Nematoceras trilobus* and *Gastrodia minor* abounded, *G. cunninghamii* and *Chiloglottis cornuta* (green calli taxon) were common enough, *Pterostylis* aff. *montana* and *P. patens* were present. *Aporostylis bifolia, Petalochilus minor* and *Adenochilus gracilis* were sparse and some few curious *Thelymitra longifolia* with linear, strap-like leaves, were still in bud; so late! Rotopounamu specimens were near to casting seed. Whilst the Column and DoC's Petra were investigating numerous open *T. cyanea,* in stunning violet, on a swamp edge, (National Park taxon, white column arms, unstriped labellum [J80 pp16,18]), huge shouts went up from David McConachie. He and Graham Marshall had topped us all, again, and spotted a large colony of *Townsonia deflexa* (was *Acianthus viridis*) in *Pinus nigra* litter — of all things — and not a *Nothofagus solandri* var. *cliffortioides* within miles. Such was the excitement, people were seen running through the pines, either to catch a glimpse or to save Dave, they didn't say.

Should we transplant some of the unlikely *T. deflexa* to Iwitahi or talk to Winstones about a new orchid reserve? We saw none of Iwitahi's 6 or 8 taxa in the *Stegostyla lyallii* agg., no *Petalochilus variegatus* or *Chiloglottis valida,* no *Nematoceras macranthus, Corybas cheesemanii, Thelymitra decora, T. formosa* or *Gastrodia* aff. *sesamoides*.

Opinion to date favours the transplant option rather than the maintenance obligations of another *Pinus nigra* reserve unless DoC wish to intervene but what do you think? Any heart-felt submissions to the Editor, please.

Kyle Arvin of Indiana, USA, sent this picture, asking if it was ***Waireia stenopetala.*** He wrote, "The picture was taken January 28, 2002 on Campbell Island

Waireia stenopetala Campbell Island, photo Kyle Arvin.

along the boardwalk to Col Lyall Saddle. I noted about 15 to 20 plants without looking really hard for them which were within a meter of the boardwalk. They were along the flattish area of the boardwalk after it winds around Beeman Hill, the intrusive rock hill behind the Met Station & Camp in Perseverance Harbour."

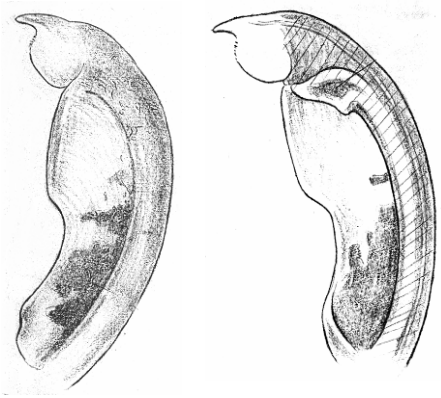
Certainly it is Waireia stenopetala. Well almost certainly—Hooker found his Thelymitra stenopetala nearby on the Auckland Islands. But is it our one? those floral bracts look much broader and shorter than those of South Island plants I have seen, and that is regarded as an important differentiator in (for example) Orthoceras. The dorsal sepal looks broader too—Ed.

Waireia stenopetala Flagstaff, Otago

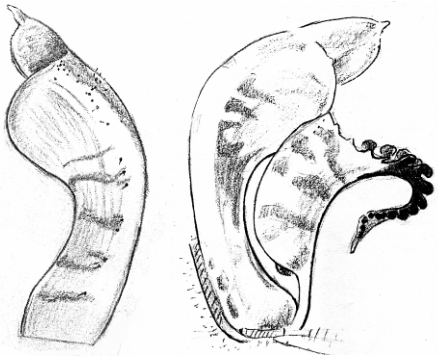
Leicester Kyle wrote, "In your book you refer to ***Thelymitra* aff. *longifolia***; when I was living in the Bay of Islands I found a fine specimen of this on a rocky islet at Mahinepua Bay, near Whangaroa Harbour. It had a strong carnation scent, and I was much puzzled by it".

After he got home to Germany **Wolfgang Rysy** kindly sent some prints of his excellent photographs (see colour pages for ***Thelymitra nervosa***). He wrote, "...the determination of the orchids is relatively easy with one exception: with the genus Pterostylis I have problems". Well, actually Wolfgang, so do we all. You would be genius indeed if you could understand Pterostylis after a single visit to NZ. Most of us remain puzzled after a lifetime of studying them. Nonetheless he sent a photograph of what must be the first record of *Pterostylis irsoniana* from Cape Palliser. He went on, " The ***Calochilus robertsonii*** is from Iwitahi, of course, but one flower has a double-lip (*see colour page*), which is a rare deformity, or not? I know this effect also from European orchids."

Bruce Irwin wrote, "In J82 you commented on the shape of **Petalochilus columns**. I'm sure column shapes can be important in identification but as with all structures of a flower they are liable to variation within a species, including abnormalities…. I think the one flower of *P. variegatus* you examined was atypical if it resulted in the dissections on the front cover of J82…. My drawings of the column of *P. variegatus* resemble those of *P. alata* to a remarkable degree. From the side the outline of the wings has a well defined "step" down from the inflated top 2/5 of the column wings. As seen from the front the outline is generally oval, not pinched in somewhat as on some other taxa such as *P. chlorostyla* and *Stegostyla atradenia*…. Colenso was correct in saying that the column of *P. variegatus* was "winged throughout". All species are winged throughout, but generally wings are distinctly wider towards the apex when viewed from the side. The shapes of outline from the side may be diagnostic. Some are smoothly curved, others a combination of gentle and quite sharp curves. What we really need is an illustration which slowly rotates through 360^0 perhaps pausing for a few seconds when full frontal, and every 90^0 thereafter."



Columns of *Petalochilus variegatus,*
Sketches by Bruce Irwin



Left: column of *Petalochilus alata;*
Right: column and labellum of Stegostyla atradenia (sketches by Bruce Irwin).

Vallance, T. G., et al, editors. ***Nature's investigator: the diary of Robert Brown in Australia 1801 - 1805.*** Canberra: 2001. Small quarto, 666 pp., colour plates, maps. AU$85.00 Robert Brown is one of the greatest figures in the history of botany. He was one of the first professional botanists to visit Australia and accompanied Flinders on his official circumnavigation of Australia in the Investigator. This book provides the first complete transcript of his diary, a key Australian historical and scientific document.

STOP PRESS

The April 2002 *Orchadian* carried further papers by Clements & Jones on nomenclatural changes in the Australasian Dendrobieae, Bulbophyllinae and Eriinae. Dendrobieae now has 22 genera and one hybrid genus: Australia has only one true dendrobium (*D. stuartii*). New Zealand species affected are *Bulbophyllum tuberculatum* which becomes *Adelopetalum tuberculatum* (Col.) DL Jones, MA Clem & Molloy, and *B. pygmaeum* which becomes *Ichthyostomum pygmaeum* (Sm.) DL Jones, MA Clem & Molloy

Brian Tyler wrote (13 March), "Judith and I walked up to the plantation this afternoon 13 March 2002 to check the *C.trapeziformis* which is now making the new seasons growth in all of the early flowering patches. at this stage the leaves look identical to young *C. cornuta.* It appears the patches will be larger than last year but we will need to see them in coming months to be sure. A photo of one of last seasons seed capsule herewith."

Brian reports there were nine capsules on 12 December—six in the largest colony and three scattered elsewhere. Was this a chance insect visitor? Or evidence of self-pollination as a fall-back position for this species?

Chiloglottis trapeziformis **does** set seed in New Zealand! Photo by Brian Tyler of one of nine capsules from many flowers.

Interested in **Wellington botany**? Look at http://wellingtonbotsoc.wellington.net.nz/.

Interested in **Finnish orchids**? Look at kammekat.tripod.com.

A contribution to ***The lateral thinker's guide to pantyhose*** (i.e. as well as fanbelt replacement, ties for climbing plants, sieves for crabapple jelly, and antiabrasion leggings for rugby players): the "Bonds" brand comes in a fine fabric net bag which, attached to a handle made of coathanger wire, makes a perfect net for capturing wild orchid pollinators.

Elisabeth Sommerkamp of Grupo Orquideófilo Canarias emailed nativeorchids@egroups.com, "I want to inform you, that a few days ago about 25 *Barlia metlesicsiana* have been substracted from their habitat in the south of Tenerife, **Canary Islands.** This species is in extreme danger of extinction and there are only about 500 plants left." *Canaries really—Ed.*

Dan Hatch wrote, "**Nematoceras is Neuter.** Back in 1990, in *NZ Orchids: Natural History etc*. p22, I commented on the fact that J.D.Hooker was mistaken in making *Nematoceras* feminine, with '*a*' '*is*' endings. *Nematoceras* is in fact neuter and the endings should be '*um*' '*e*', with *iridescens* remaining as it is. While the genus remained in synonymy its gender didn't matter – perhaps it still doesn't. For confirmation see W.T. Stearn, *Botanical Latin* p264 (1973) – '*...ceras*, a horn, is neuter...and its compounds [e.g. *Nematoceras*] are accordingly treated as neuter.'" Brian Molloy replied, "Dan is correct in stating the correct gender of *Nematoceras* is neuter. An example of correct usage of course is *Orthoceras strictum* R.Br. Why Hooker chose to use the feminine gender we will never know, but he,

like others of his time, were much better at languages than we are today! In any case, Dan's point is not really relevant. The St Louis Code (ICBN 2000) is quite clear on this matter: Article 62.1, p100: 'A generic name retains the gender assigned by botanical tradition, irrespective of classical usage or the author's original usage. A generic name without a botanical tradition retains the gender assigned by the author.' *Nematoceras*, which lacks a botanical tradition, retains the feminine gender assigned by its author, JD Hooker. As we are obliged to adhere to the Articles of the Code, we have followed Hooker's treatment."

Leicester Kyle, Ngakawau, Buller, wrote on *Orchids of the Buller Coal Plateau:*

The Buller Coal Plateau provides a soil that is in all its parts highly acidic, and the coal mining widespread upon it creates the crisis territories beloved by some of our orchids: abandoned coal mines, old tracks, shale heaps, slips and slides, quarry faces, and large tracts of re-vegetating areas.

For example, the abandoned Mt. William mine, at about 800rn above sea level, is losing itself to an advancing tide of montane scrub. In the darker places *Corybas (Singularybas) oblongus* grows - it's the dominant *Corybas* here, and has several forms. On better-lit messy seepages *P. venosa* grows, and *P. foliata* in the scrub. On rock ledges *Winika cunninghamii* and the two Earinas grow; *Adenochilus gracilis* is in the shadier places, and *Aporostylis* on old mossed-over trunks and in beech coppices, often near *Chiloglottis cornuta*.

Various species of *Thelymitra* abound, especially *T. cyanea*, which favours flat thin soils where water may lie in rain; here it grows in troops, each perfect flower presented to the sun. *T. hatchii* favours small heaps of shale at the side of tracks; these are common around old mines, and in them it is extraordinarily robust.

At lower levels, on the pakihi, the other Thelymitras grow at their best. There is a fine pink form of *T. cyanea*, which flowers later than the blue, and grows in clumps apart from the other. *T.* (aff.) *pauciflora* is common amongst the grass and rushes, while *T. pulchella* favours mossy banks. The yellow form of *T. carnea* is not uncommon and is the first to flower; this species likes to grow in gravel at the side of old roads, and also on flat damp sparsely-grassed sites. *T. longifolia* is scattered about, often on unusual sites such as to perch on punga trunks.

Calochilus paludosus grows thinly scattered over the pakihi; *Orthoceras novae-zeelandiae* may very rarely be found, and *Genoplesium nudum (Corunastylis nuda)* on bare gravel-and-clay slopes.

The plateau is cut by canyons so deep they've worn through the coal and sandstones to the granite base. In these are scraps of old Podocarp forest which give shelter to most of our epiphytes, and to ground orchids such as *Corybas acuminatus (Nematoceras acuminata)* and *C. trilobus (N. triloba), Caladenia chlorostyla (Petalochilus chlorostylus), Gastrodia cunninghamii, Pterostylis cernua, irsoniana, banksii,* and *graminea*, as well as several others I'm still unsure of. The area is too remote to have ever been attentively botanised. On coastal limestone cliffs *Corybas (Nematoceras) papa* has been recently discovered; other interesting finds are most likely.

Help desperately needed. The **N. Z. Native Orchid Seed Bank** needs your help! Due to the lack of response, there is very little seed in the bank, only what I have donated. This will not deter me from fulfilling the aims of this bank – **Conservation through Accessibility**. I am therefore looking for donations of plants, to use as 'stock plants' for seed collection. Any terrestrials (which is where my expertise

lies) would be very much appreciated. Epiphytes will also be accepted. Seed, as always, is appreciated. Come on, lets get the bank up and running for the benefit of the orchids and the 'orchid lovers'. It would only take 5 or 10 plants from each of you to give us a good base of plants to work from. David Shaw, N. Z. Native Orchid Seed Bank, P. O. Box 491, Ashburton, Baireburn@xtra.co.nz, seed_bank@msn.com.

Pat Enright wrote on **orchids of the Tinui taipos**, "Some of the Pterostylis banksii specimens may turn out to be something else but they were a bit past when I collected them.

Acianthus sinclairii
n *Chiloglottis cornuta* (unc)
Corybas macranthus
n *Corybas rivularis* agg. "Waiouru" (unc)
n *Corybas trilobus* agg.
n *Corybas macranthus* x *C. trilobus* agg. ?
Cyrtostylis reniformis
* *Caladenia minor*
Earina autumnalis
Earina mucronata
n Gastrodia cunninghamii (?) - in seed, about a metre high
* *Genoplesium nudum*
n *Microtis unifolia*
Orthoceras novae-zeelandiae
Pterostylis alobula
Pterostylis banksii
n *Pterostylis graminea*
n *Pterostylis montana* agg. (unc)
* *Pterostylis trullifolia*
n *Thelymitra formosa* (unc) ?
n *Thelymitra hatchii*
Thelymitra longifolia agg.
n *Thelymitra nervosa*
Winika cunninghamii

"The species with the asterisk are Tony Druce records that I have not been able to locate again."

A symposium on **Orchid Biology and Conservation** on 1-3 December 2002 at Queen Sirikit Botanic Garden, Chiang Mai, Thailand will commemorate Dr.Gunnar Seidenfaden who passed away last year shortly before his 93rd birthday. Contact: QSBG Secretary Office Tel.: (66-53) 298-177 Fax: (66-53) 298-177 E-mail: qbg@chmai.loxinfo.co.th or weeach@chmai2.loxinfo.co.th

Tanzania's new national park protects edible orchids. The Tanzanian government has announced plans to create a new 52 square mile park that will be added to the country's 12 existing national parks. It will be the first area in tropical Africa protected primarily for its floral significance. Many rare orchid species are found on Matamba Ridge, on the northern rim of the Kitulo Plateau. Tanzanian orchids with large tubers have been dug and exported as food.

Known as the "Garden of God" by the region's local people, this remote grassland is covered for six months of the year in wildflowers - balsams, honey-peas, bellflowers, irises, lilies, and scores of terrestrial orchids. Unique chameleons, skinks, frogs and one of the world's rarest butterflies inhabit the area. Twelve globally significant bird species are found there, including breeding colonies of blue swallows, mountain marsh widowbirds, and Denholm's bustards.

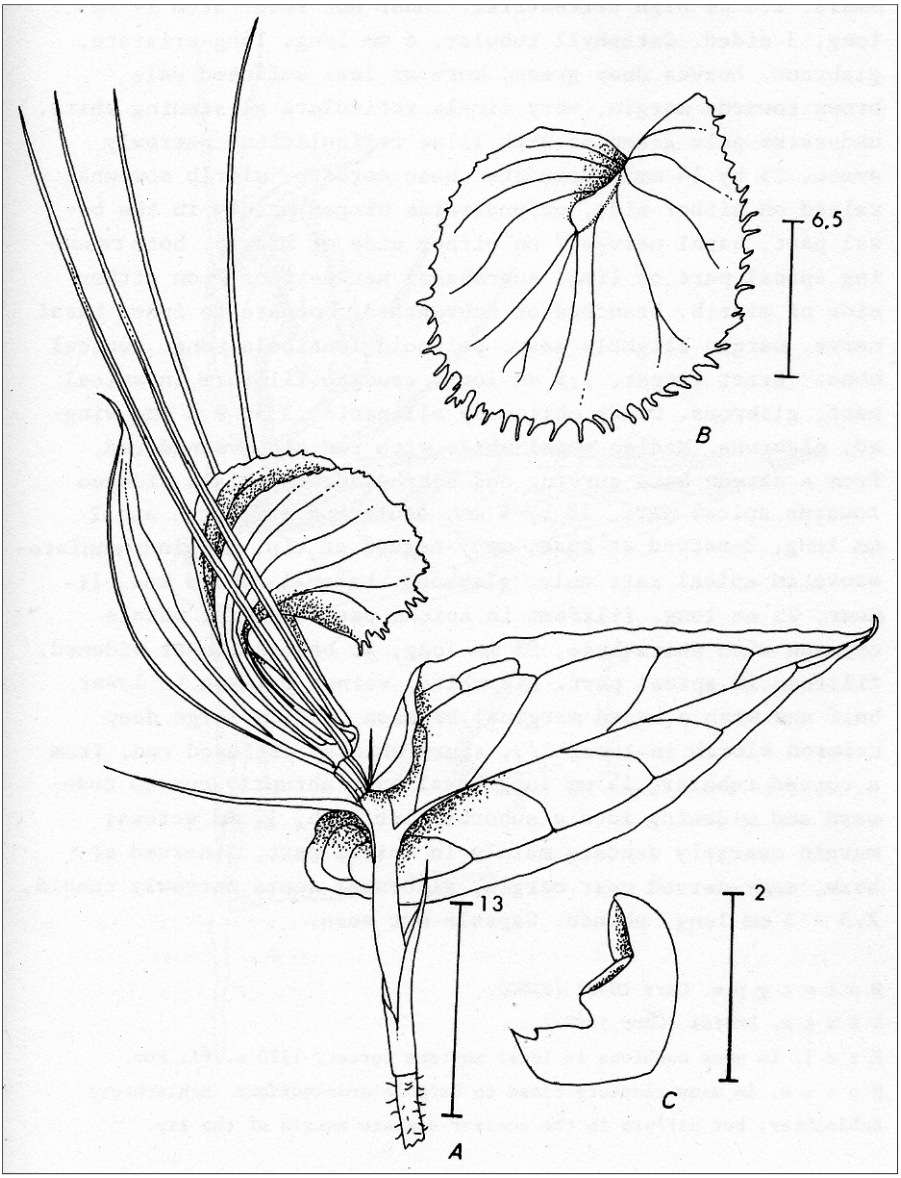
Local people export the plants into neighbouring Zambia, where they are eaten as a delicacy. Up to 85 orchid species are being harvested for use in chikanda or kinaka, a delicacy in which the root or tuber of terrestrial orchids is the key ingredient in a type of meatless sausage. Some orchid species could be wiped out in a few years without conservation management. Scant knowledge of the trade's existence, and a subsequent lack of enforcement of CITES rules, has led to truckloads of uncertified plants entering Zambia each day.

Though rural Africans have consumed orchids for hundreds of years, the recent popularity of eating the plants in Zambia, especially in urban centres, has caused a boom in the illegal trade.

Whoops! A couplet was left off Graeme Jane's key to Pterostylis [in J82 p24]:

15 Lateral sepals more or less straight 16

Calcearia longipetala* (Ridl.) MA Clem & DL Jones, From P van Royen, *The genus Corybas in its eastern areas



A. habit, B lip, oblique frontal view, C column with stigma and anther.

nznog: members 2002

Life members
Dorothy Cooper 26 Kapiti Rd Paraparaumu, Wellington.
ED Hatch 25 Tane Rd Laingholm, Auckland.
JB Irwin 192 Bellevue Rd Otumoetai, Tauranga.
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