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*Caladenia alata*  
at Rainbow Mountain;  
photograph by Michael Pratt





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## “The orchid has the unfortunate character of being attractive to man” [1]

### 1: CITES, orchid thieves, and the Code

In 2002 Ernest Dobbs wrote a piece he called “The *Phragmipedium* from Peru” [2]. He compared the story to *Cinderella*: “The themes of passion, power, politics, self-indulgence, and colossal ambition for world recognition and credit are all present in the current account of the lady’s slipper, or more specifically, the *Phragmipedium* from Peru. It is not a very pretty depiction from the chronicles of orchid culture.... the subject here concerns a dark and disgraceful moment in the history of orchid culture. It is the ultimate disgrace of man that he will sacrifice law, honour and the actual earthly existence of another species, an orchid plant, for the unknown eventual price of a moment of passing glory.”

On 18 June 2002 Marie Selby Botanical Gardens in Sarasota, Florida issued a statement on the net announcing they were jubilant about a spectacular new species of Peruvian orchid – *Phragmipedium kovachii* – which they were the first to describe for the botanical world. This news should have encouraged praise and congratulations the like of which the orchid world had not witnessed in over a century. “In truth,” Dobbs wrote, “it has probably started an era of antagonism, which may wreck professional reputations”.

The discoverer Michael Kovach told *The Miami Herald* he had spotted the new species at a roadside stand at a crossroads called El Progreso, near Myombomba in northern Peru, a place that he called “the Holy Grail of orchids”. Kovach said he seen a small 500 plant colony of the rare orchid, but that the area had later been stripped of every plant,

including seedlings. He flew to Miami with the orchid in his luggage. There were rumours the orchid had already been smuggled into Florida and was selling for \$10,000. The orchid may by then have been very close to extinction in its natural habitat.

In July 2004, after a year long investigation, a Tampa grand jury indicted Michael Kovach on charges of smuggling and illegally possessing *Phragmipedium kovachii*. Kovach could have had five years in prison and a fine of \$250,000, but he got probation and a nominal fine of \$10,000.

A Peruvian orchid grower was sentenced in July to a year and nine months in federal prison for scheming to smuggle endangered tropical lady slipper orchids into the United States. Manuel Arias Silva, 70, shipped internationally protected wild orchids intermingled with nursery-raised flowers to a Texas dealer several times “to feed the desires of high-end hobbyists”. He admitted shipping 2,050 orchids, including the endangered *Phragmipedium* species, worth \$45,500 from Peru through Miami to suburban Houston. Co-defendant George W. Norris of Spring, Texas, also pleaded guilty to six related charges. He faces up to five years in prison for each of the seven counts, and for each count could also be fined twice what he gained from his conduct, twice what he caused others to lose, or \$250,000, whichever is greater.

There were fears the Kovach/Selby incident might demonstrate the ineffectiveness of laws and treaties enacted to protect endangered species. Some believed that in a materialist world the laws would be set aside when such colossal sums of money were to be made from the hybridisation and cloning of a new orchid. Many will now be relieved that the United

States government has enforced the regulations of the Convention on International Trade in Endangered Species (CITES). The U.S. signed the treaty in 1973, but many orchid growers had no faith it would be enforced.

*The New York Times* wrote “Mr Kovach said he wondered how he could have been expected to know he was violating an international treaty, because at that point neither he nor anyone else in the world had any idea what the plant was.” Yet *Phragmipedium*, *Paphiopedilum*, and all native lady slipper orchids are known and easily recognized by anyone involved with orchid culture. All *Phragmipedium* orchids are listed in Appendix 1 under CITES: it is forbidden to remove them from their natural habit, except for extraordinary scientific purposes.

Kovach had gone to Selby Gardens, left the live orchid and a dried flower and returned home to Virginia. Before leaving, he asked for one thing: *name the orchid for me*. The scientists did. Dr. Higgins: “We looked at it and said, ‘Wow, where did you get that?’” They set to work that very evening and worked all night as an illustrator drew and a colleague wrote the plant description.

*The New York Times* quoted Dr Wesley Higgins, director of systematics at the Marie Selby Botanical Gardens: “Some people question whether CITES always provides the best protection for ... endangered species.... This was for elephants, rhinos, zebras, that type of thing.... Plants are different. With one specimen, you can propagate it, or in a single seed capsule get two million to five million seeds. And in the laboratory, you can get a large number of those seeds to succeed.”

The orchid community in Florida knew that Dr Eric Christenson, a noted taxonomist, was in Sarasota finishing his own manuscript covering the same *Phragmipedium* for publication. Dr Christenson named the new species *Phragmipedium peruvianum*. He had worked from photographs and specific information passed to him from colleagues in

Peru. He had never possessed an actual plant.

Taxonomic rules require the name “peruvianum” to be rescinded in favour of the earlier “kovachii”. The net statement made by Selby Gardens was clearly intended to remind the public of the rules: “In the botanical world, the institution and author that describe a new species will have their names forever linked with that species. The discovery of a new species starts a scientific race to publication where the winner earns the right to name the species.” Who publishes first, names the plant. Christenson referred to Selby Gardens in *The Times* as “...a rogue institution involved in an illegal act.”

Dobbs remarked on the obvious intent of the Selby net statement. He concluded, “(Elsewhere) we have enacted a law whereby an individual may not profit in any way from a crime, including murder, that he or she may have committed, and publish a book or enter into any commercial venture containing the details of the event for the purposes of profit. Perhaps the time has come for more enforcement power to be put into the Convention on International Trade in Endangered Species (CITES). The time has come for us to consider the moral correctness in an illegal act being ignored so that the individual who broke a law, such as the importation of illegal plants, including orchids as discussed herein, be forbidden by law to either intangible benefits, such as naming a plant, or tangible results of a broken law, such as profits from the sale of the plant, or plants, in any manner whatsoever.”

One can only agree: the International Code of Botanical Nomenclature is out of step with the moral sentiments of our time: drug cheats should not keep their Olympic medals, and nomenclatural cheats should not keep their specific names.

#### References

1. <http://www.geocities.com/RainForest/Vines/9686/rare.htm>
2. <http://www.suite101.com/article.cfm/16779/94591>.

## 2: Telling, orchid thieves, & keeping quiet

There is only one natural site for the English lady's slipper, *Cypripedium calceolus*, a secret site "somewhere in Yorkshire", where this wonderful plant grows wild, but even there only about five specimens thrive. During the season local botany students take sleep and sentry shifts, their tents attached to electric tripwires around the caged plants. Seed from these plants has been propagated and seedlings planted out in several original sites.



The Lady's slipper, *Cypripedium calceolus*, from WH Fitch & WG Smith. *Illustrations of the British flora*, 1897.

There is another site, on a golf course near Silverdale, Lancaster, where an unknown Edwardian botanist planted a lady's slipper of European origin; it is the only place in Britain where the public can see the plant, and 900 people made the trek to see the nine flowers

this year. Then somebody stole it. Simply ripped off the above-ground parts, probably damaging the tubers in the process. "Orchid people take their plants very seriously and for some of them this was such a once-in-a-lifetime experience that they were in tears," a spokesman for English Nature said.

Meanwhile at Royal St George's golf links at Sandwich in Kent, plans were under way to protect Britain's biggest colony of lizard orchids (*Hymantoglossum hircinum*) from the expected 150,000 visitors to the British Open. Some areas of dune were roped off and flower marshals patrolled others. The course is a refuge for several other rare plants and birdies, and is proud of its natural heritage. Furthermore the lizard orchid is starting to make an appearance at other English golf courses, its light seeds apparently hitching a ride on the gear of visiting golfers.

Nearly every one of us can talk about pointing out a rare plant to a visiting garden club or similar group, only to come on members of the same group digging the plant up the next day – or more likely, finding the

*Phalaenopsis javanica* is known only from south of Garut, West Java, in forest from 700-1,000m. It is a rare and endemic plant, threatened in the wild by excessive exploitation by local people for sale to collectors. Who should be blamed if these plants finally become extinct? The villagers who cut down trees for charcoal? The villagers who gather the plants and sell to tourist or nurseryman? The nurseryman who makes his living out of exporting jungle gathered plants? The hobbyists on the other side of the world who create the demand in the first place? [1]



The lizard orchid, *Hymanoglossum hircinum*

holes whence the plants have disappeared.

In some commercial nurseries “nursery grown” plants may be wild-collected ones that have been in the nursery for only one growing season (a practice called “nursery-laundering”).

Although it is important to document new locations for rare species, all unnecessary collecting should be avoided, especially when only a few individual plants are found. Although collecting has little adverse effect on common orchid species, it can have a devastating effect on species already in peril. Alternatives to collecting, for purposes of scientific documentation, include photographs, sketches, measurements, and detailed notes.

In *Field guide to orchids of North America*, Roger Tory Peterson argues, “In today’s world few orchids can afford the attrition imposed by the vasculum and the plant press.”

There can be no hard and fast rules about divulging the whereabouts of a rare orchid site, and every request must be considered on its merits. In general though, do not take large groups, take only people you know you can trust, and tell them, honest and upfront: there will be no collecting.

### 3: Locations of rare plants are carefully guarded secrets

by Eugene Reimer, from the December 2001 NOCI newsletter <http://nativeorchid.com/news200112.htm>

Organizations, such as ours, frequently face a difficult issue: we wish to raise public awareness and appreciation of rare orchids in order to improve the chances of their continued existence; and yet we are reluctant to publish the precise locations of such rare orchids for fear that poachers will go dig them up.

Many botanists hold the view that locations of rare or endangered plants should be carefully guarded secrets, and should only be given out on a “need to know” basis - e.g. to fellow botanists doing research.

David Fleshler in an article for the *South Florida Sun-Sentinel* describes several unusual examples of the “protection through secrecy” approach. The following is an excerpt:

Few places have suffered more plant poaching than the Fakahatchee Strand State Preserve, a dark and swampy forest about 80 miles west of Fort Lauderdale. Guarded by snakes, alligators and clouds of mosquitoes, the preserve is home to the elusive ghost orchid, whose graceful white flowers bloom only in deep shade.

It was here that John Laroche ran the poaching operation depicted in the bestseller *The Orchid Thief*. Caught by the preserve's manager as he lugged garbage bags and pillow cases of orchids into a truck, Laroche paid the maximum fine of \$500 and agreed to stay out of the preserve for six months.

Today, staff biologist Mike Owen imposes security measures worthy of an intelligence service. When he takes visitors to see the preserve's remaining ghost orchids, he avoids the most direct route. He leads them in circles. He goes north. He goes south. By the time they arrive at the rare white flowers, visitors haven't the faintest idea where they are. That means they can't come back and snatch the orchids.

Owen is careful. He makes no maps, except during his time off, when he would argue that the document is not covered by the state's open-records law. When examining a rare plant near a road, he keeps an eye out for cars and stops working until the vehicle passes out of sight.

The book mentioned by Fleshler is *The orchid thief: a true story of beauty and obsession* by Susan Orlean, Random House, 1998. The book is now a movie called *Adaptation* which is said to be the first movie ever to deal with *orchidelirium* or the obsession with collecting rare orchids.

*Taxacom* is an on-line discussion group where taxonomists have been discussing similar issues for years. The liveliest discussion, in May of 1994, deals with the online publication of collection-records housed in natural history museums. The participants in this discussion present arguments on both sides of the issue. What I find interesting is that many who argue strongly in favour of open disclosure, add something like "except for rare orchids". Apparently even the strongest believers in the basic goodness of mankind, have doubts about orchid-fanatics.

A U.S. Fish and Wildlife Service article deals with the species Virginia Sneezeweed (isn't that a delightful common name). It

argues in favour of designating this species as threatened, but it goes on to argue against designating the twenty-five sites as critical habitat. The reason for this surprising argument: "the publication of precise maps, as required in a proposal for critical habitat, would make this plant vulnerable to incidents of collection". The same website contains other proposals making the same argument for other species and the sites where found.

Many writers advocate some "fuzziness" when publishing the locations of rare species. Bob Makinson of the Australian National Botanic Gardens mentions "fuzzed geocode data for 0.5 grid cells"; he also mentions "6 km grid cells". Another *Taxacom* article mentions 7.5' or 0.125 precision. Others want nothing more precise than mentioning the county (and this leads to a discussion about whether Texas counties are bigger than New Mexico counties).

The best argument against all this secrecy, is that secrecy leads to exactly the sort of habitat-destruction that it seeks to prevent. An example happened right here in Manitoba in September 1999, near Kleefeld, where hundreds of the endangered Small White Lady-Slippers were destroyed when a farmer scraped their ditch habitat with a large machine during a fence-building project. The provincial botanists had never notified the municipality, the utilities or the residents, even though they had known about the site and had been monitoring it for fourteen years! This disaster could have been prevented by telling people about the very special attributes of that site.

### Websites and webpages

1. [groups.yahoo.com/group/floridaleft/message/5493](http://groups.yahoo.com/group/floridaleft/message/5493)
2. [63.147.65.175/books/chap240.htm](http://63.147.65.175/books/chap240.htm)
3. [usobi.org/archives/taxacom.html](http://usobi.org/archives/taxacom.html)
4. [www.epa.gov/docs/fedgrstr/EPA-SPECIES/1994/October/Day-04/pr-1.html](http://www.epa.gov/docs/fedgrstr/EPA-SPECIES/1994/October/Day-04/pr-1.html)
5. [www.cws-scf.ec.gc.ca/es/recovery/oct99/eng/punter.html](http://www.cws-scf.ec.gc.ca/es/recovery/oct99/eng/punter.html)



## 4: Reflections on hybrids

*The existence of natural hybrids was formerly thought by some naturalists to be highly improbable, if not actually impossible. But now, when absolute facsimiles of supposed natural hybrids have been raised by hand in gardens, from the same two species among which they grow, they can no longer be regarded as pious speculations, but are indeed accomplished facts. The number of proved hybrids in orchids alone is now very considerable, with the result that many intermediate and doubtful forms, hitherto classed as distinct species, are now placed in their proper position as natural hybrids. Mr. R. A. Rolfe, of Kew, has done yeoman service in reducing the chaos of natural hybrid orchids to something like order. And so it has come to pass that artificial hybridisation, which it was supposed would lead systematic botany into the direst confusion, by the irony of fate, seems destined to be the only trustworthy means of saving systematic botany from its own confusion; and the systematist, however orthodox he may be, can no longer afford to ignore artificial hybrids.*

— C. C. Hurst. *Curiosities of Orchid Breeding. Nature vol 59, 1898* [1]

“A species is a species; it can reproduce itself but it does not hybridise with other species. During evolution species become more and more isolated from each other, and so different genotypes prevent hybridization” [2].

### Orchid hybrids

But orchids are evolutionarily a young family. Many orchid species, even genera, are so similar in genotype that natural or artificial crossings are possible. The resulting seeds can grow to be hybrids. Most orchids you buy from florists are hybrids, created and reproduced by people. In nature hybrids are much less common, and in many cases sterile and not able to reproduce. But sometimes fertile hybrids do occur. When such fertile

hybrids find a suitable habitat, over time their populations grow. So, some say, a new species is born.

This does happen with wild orchids. Examples in New Zealand are *Thelymitra pulchella* (= *T. cyanea* × *T. longifolia* s.l.); *T. hatchii* (= *T. formosa* × *T. longifolia* s.l.), *T. tholiformis* (= *T. aemula* × *T. pauciflora* s.l.) and *T. decora* (≡ *T. nervosa*) (= *T. aff. ixioides* × *T. longifolia* s.l.) [3]. Natural hybrids between *Nematoceras* species may also occur in the wild – putative *N. macrantha* × *N. “Trotters”*, *N. hypogaea* × *N. longipetala* and *N. iridescens* × *N. triloba* hybrids have for instance been illustrated in recent issues of this journal. Within-species variation may of course be as great as between-species variation, so we should not claim a hybrid from every morphological peculiarity. We are a long way from proving intermediate forms of *Pterostylis* are actually hybrids.

Some natural hybrids are not very variable, so they are easy to identify - for example *T. hatchii* (though even that has different colour forms). Others may be hard to distinguish from their parents, especially when the parents resemble each other, or when one of the parents is itself variable. One parent may be easy to identify, but the other may be open to question (exactly the case with the different forms of *T. longifolia*, one or more of which might be a parent).

Moreover in most cases the structural characters of the hybrid are not exactly intermediate between those of the parents. Depending on the distribution of the chromosomes, the hybrid may resemble one parent more than the other. Thus there can be wide variation in the form of hybrids from the same parents. For a good example look at the different plants once thought to be distinct from *Thelymitra pulchella* (= *T. cyanea* × *T. longifolia* s.l.), but now regarded as synonyms – *T. caesia*, *T. pachyphylla*, *T. concinna*, *T. fimbriata*. (The hybrids must of course result from cross-pollination, which assumes insect pollination, which in turn assumes one of the *T. aff. longifolia* taxa rather than *T. longifolia*

s.s. – though even that self-pollinator may be visited by an insect on a sunny day). It is still possible of course that those different forms of *T. pulchella* result from *T. cyanea* crossing with different, undescribed, forms of *T. aff. longifolia*. Both Catherine Beard and I have commented on the different forms of *T. cyanea* in this journal. A dozen forms of the hybrid between the European *Ophrys holoserica* and *Ophrys insectifera* can be viewed via the website [www.orchis.de/orchis/docs/e004.htm](http://www.orchis.de/orchis/docs/e004.htm).

Between-species (interspecific) hybrids are distinguished from between-genera (intergeneric) hybrids. The former means hybrids between species of the same genus (*Nematoceras* for example), and they are likely to be relatively more frequent than hybrids between species of different genera. In Europe *Ophrys*, *Orchis* and *Dactylorhiza* have a greater tendency to hybridization than others. In New Zealand, *Thelymitra* has the stable hybrids mentioned above, but there are others – undescribed plants from the Far North, and the sterile *Thelymitra* “Comet” are examples. Hybrids between species of different genera can be relatively common; in Europe combinations of *Aceras anthropophorum* and species of the genus *Orchis* are relatively frequent, but absolutely very rare. In New Zealand I know of no naturally occurring intergeneric hybrids, though the handmade hybrid *Calomitra* (*Calochilus* x *Thelymitra*) has been created in New Zealand (Doug McCrae) and Australia (Heinrich Herberle), and that between *Sarcochilus* and *Drymoanthus* (*Sarcoanthus*) in New Zealand (Malcolm Campbell) [4].

### Is it a hybrid?

How do we prove an orchid is a hybrid? Lets look at the examples in J93 pages 26 and 39. A structure intermediate between putative parents makes a hybrid more likely (but the opposite is not true – the characters of a hybrid may not resemble those of its parents). A site close to the putative parents makes a hybrid more likely (but the opposite

is not true - as orchid seeds are light, hybrid seeds may germinate and grow at a distance from the parent species). An example is the naturally occurring hybrid *Thelymitra carnea* (= *T. flexuosa* x *T. pauciflora*) which clearly originated in Australia, but is present in New Zealand in the absence of its parents. On the contrary it is not legitimate to determine a hybrid solely by the presence of two possible parents growing beside it. Proof depends on the manmade reconstruction of the hybrid by artificial cross-pollination between the parents, as Doug McCrae and Brian Molloy demonstrated for the natural hybrid *Thelymitra xdentata* [5]. Now the examination of sequence data from the nuclear ribosomal DNA spacer region (ITS1, ITS2, and 5.8S gene), which Jones, Clements and Molloy have used to separate genera and species, appears to be useful for detecting hybrids.

### Ploidy

Almost every cell in every plant or animal contains two of each kind of chromosome. I have 23 pairs of chromosomes (i.e. 46) in each of my body cells. So do you. Our gametes (egg and sperm cells) each have a single set of 23, so when they combine to form a zygote (which will become an embryo), the two different parental lots of 23 combine to form our child's own 46 [6]

Thus the normal state of a human gamete is 23, the “haploid” state (1N), and the normal count of a human body cell is 46, the double, or “diploid” state (2N).  $1N + 1N = 2N$ . Easy as ABC.

It's the same for hybrids; even if they have different chromosome numbers, each contributes half its number to the zygote (offspring). For example

*T. longifolia* (2N=26; N=13) x *T. pulchella* (2N=66; N=33) = *T. xdentata* (2N=13 + 33=46).

Polyploidy simply means a multiple of diploidy or 2N. Thus 3N, 4N, 5N, 6N are polyploids.

With chemicals such as colchicine we can double the chromosome number of plant cells to form tetraploid cells (tetra = four, or 4N), or octaploid cells (octo = eight, or 8N). In nature, autotetraploidy sometimes happens, presumably as a result of chemical or solar mutation; *Drymoanthus adversus* (4N=76) is an autotetraploid of *D. flavus* (2N=38). The Eurosiberian *Dactylorrhiza maculata* appears to be a stable autotetraploid of *D. fuchsii*. I have wondered if the large, double-flowered *Singularibas oblongus* found in small colonies around New Zealand is simply a habitat variation, or is an autotetraploid.

Chromosomal instability may follow hybridisation, so the first generation offspring later experience a spontaneous doubling of chromosomes. This is similar to autotetraploidy but because the parents may have different chromosome numbers it is known as amphidiploidy; it appears to have happened to several *Thelymitra* hybrids in New Zealand. Thus

*T. aemula* (2N=40) × *T. aff. pauciflora* (2N=26) = *T. tholiformis* (2N=66) amphidiploid;

*T. aff. ixioides* (2N=28) × *T. longifolia s.l.* (2N=26) = *T. decora* (*T. nervosa*) (2N=54) amphidiploid;

*T. cyanea* (2N=40) × *T. longifolia s.l.* (2N=26) = *Thelymitra pulchella* (2N=66) amphidiploid;

*T. formosa* (2N=40) × *T. longifolia s.l.* (2N=26) = *T. hatchii* (2N=66) amphidiploid.

An amphidiploid is defined as a hybrid of two different species which has two sets of chromosomes from each of the parent species. It is thus an alloautotetraploid; a tetraploid formed from the union of two different chromosome sets and their subsequent spontaneous doubling.

No simple diploids of these hybrids are known, so the assumption is that the first generation (diploid) hybrid was sterile, but

regained its fertility when amphidiploidy took place; so that had to be early.

### Naming hybrids

What are we to call orchid hybrids? Usually they are not named, although it is possible to describe them formally. Appendix 1 of the Code guides us [7].

A hybrid is indicated by the use of the multiplication sign X or by the addition of the prefix "notho-" to the term denoting the rank of the taxon. Thus *Thelymitra xdentata* is a nothospecies.

A nothotaxon cannot be designated unless at least one parent is known or can be postulated.

A hybrid between named taxa may be indicated by placing the multiplication sign between the names of the taxa; the whole expression is then called a hybrid formula. It is preferable to place the names in a formula in alphabetical order. Thus *Thelymitra xdentata* = *T. longifolia s.l.* × *T. pulchella*.

A nothotaxon is circumscribed so that it includes all individuals derived from the crossing of the parent taxa (i.e. not only the first but subsequent generations and back-crosses and combinations of these). There can thus be only one correct name corresponding to a particular hybrid formula; this is the earliest legitimate name in the appropriate rank, and other names to which the same hybrid formula applies are synonyms of it. This applies to the various names given to *Thelymitra pulchella* (see above).

The nothogeneric name of a bigeneric hybrid is a condensed formula in which the names adopted for the parental genera are combined into a single word, using the first part or the whole of one, the last part or the whole of the other (but not the whole of both) and, optionally, a connecting vowel. Thus *Sarcooanthus* for Malcolm Campbell's intergeneric hybrid between *Sarcochilus* and *Drymoanthus*.

When contemplating the publication of new names for hybrids between named taxa, authors should carefully consider whether

they are really needed, bearing in mind that formulae, though more cumbersome, are more informative. Thus it is actually more useful to identify the putative hybrid Bruce Irwin drew on page 26 of J93 as *Nematoceras iridescens* x *N. triloba* than it would be to give it a new name.

Names published at the rank of nothomorph are treated as having been published as names of varieties. Thus *Thelymitra caesia* might be called *T. pulchella* var. *caesia*, *T. uniflora* might be called *T. cyanea* var. *uniflora*.

## References

1. [www.bulbnrose.com/Hereditiy/H\\_ORCHID.htm](http://www.bulbnrose.com/Hereditiy/H_ORCHID.htm)
2. Much of the above is based on material at [www.orchis.de/orchis/docs/e004.htm](http://www.orchis.de/orchis/docs/e004.htm), modified and enhanced with NZ references.
3. Molloy BPJ, Dawson MI. 1998: Speciation in *Thelymitra* (Orchidaceae) by natural hybridism and amphidiploidy. In: Ecosystems, entomology and plants: proceedings of a symposium held at Lincoln University to mark the retirement of Bryony Macmillan, John Dugdale, Peter Wardle, 1 September 1995 *Miscellaneous series / Royal Society of New Zealand* 48. Wellington, Royal Society of New Zealand. Pp. 103-113.
4. Campbell M. Australasian hybrids. 1996. *NZNOGJ* 60: 13.
5. McCrae DP, Molloy BPJ. The artificial reconstruction of the natural NZ hybrid *Thelymitra xdentata* (Orchidaceae). In: Ecosystems, entomology and plants: proceedings of a symposium held at Lincoln University to mark the retirement of Bryony Macmillan, John Dugdale, Peter Wardle, 1 September 1995 *Miscellaneous series / Royal Society of New Zealand* 48. Wellington, Royal Society of New Zealand. Pp. 121-126.
6. The ploidy text is based on material at <http://www.bedfordorchids.com/ploidy.htm>, modified and enhanced with NZ references.
7. <http://www.bgbm.fu-berlin.de/iapt/nomenclature/code/SaintLouis/0000St.Luistitle.htm>

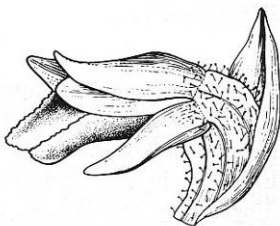
## 5. Jeffrey Jeanes and Australian plants in the *Thelymitra pauciflora* complex<sup>1</sup>

Jeffrey Jeanes has revised the *Thelymitra pauciflora* complex in Australia. This paper has other important lessons for us.

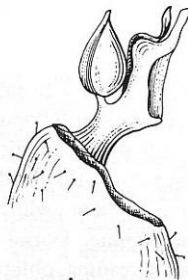
1. The *T. longifolia* complex is divided artificially into the *T. nuda* complex (large flowers open readily, fragrant, bee-pollinated—what we would call *T. aff. longifolia*), and the *T. pauciflora* complex (small unscented flowers, usually self-pollinating).
2. Although the column remains the important distinguishing feature, the leaf structure, sterile bracts, flower colour, colour of parts of the column, habitat preference and flowering time may also be important.
3. Jeanes provides a useful explanation of the terms to describe parts of the column.
4. Before we describe NZ plants in the *T. pauciflora* complex, we need to check if any have already been listed in this paper.
5. *T. pauciflora* s.s. grows in NZ. The only other member of the complex recorded from NZ is *T. malvina*.
6. *T. brevifolia* is newly described: it is very like the orange-column *T. aff. pauciflora* illustrated by Eric Scanlen in J92 p14. I think the latter should be called *T. aff. brevifolia* in the meantime.
7. Of the other new species described by Jeanes, two are more robust and appear to match robust plants in New Zealand: *T. bracteata* and *T. peniculata*.
8. Of previously recognised species, the following are common in eastern Australia: *T. angustifolia*, *T. arenaria*, *T. mucida*, *T. holmesii*. Others have restricted distributions (some only in western Australia) and seem unlikely to be here.

## Reference

1. Jeanes J. A revision of the *Thelymitra pauciflora* R.Br. (Orchidaceae) complex in Australia. *Muelleria* 2004. 19: 19-79.



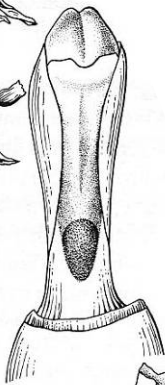
I



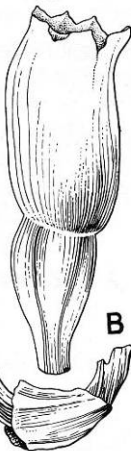
J

***Gastrodia orobanchoides***

A: plant;  
B: flower;  
C: column, ventral view



C



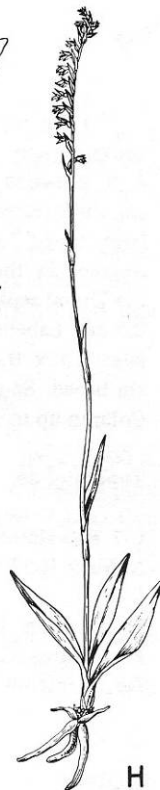
B

\*

A

***Spiranthes sinensis***

H: plant;  
I: flower;  
J: column, side view with  
pollinia removed.



H

From *Flora of Pakistan: No. 164 Orchidaceae* (E. Nasir and SI Ali eds). Renz, Basel, 1984. Drawings by S Hameed.

*Gastrodia orobanchoides* in Pakistan is a robust, to 1m plant with a long column, from Western Himalaya, at elevation 2000-3000m, flowering July-August.

*Spiranthes sinensis* is widely distributed in the Himalaya, from the foothills to 3700m, flowering May-September.

S. Hameed

# elementaryedhatch

## 2: Grass leaved greenhoods 1

—drawings by Ian St George

The majority of the NZ greenhoods belong to the grass leaved group, which does not occur in Australia, but has relatives in the mountains of New Guinea. I will only give a selection here – many of them I have never seen.

1: *Pterostylis agathicola* (living with kauri)

The 3-4 leaves are usually spreading, sometimes horizontal, and the labellum tip is unevenly constricted. Like *brumalis* (q.v.) it has a mycorrhizal association with the kauri and is seldom found away from it

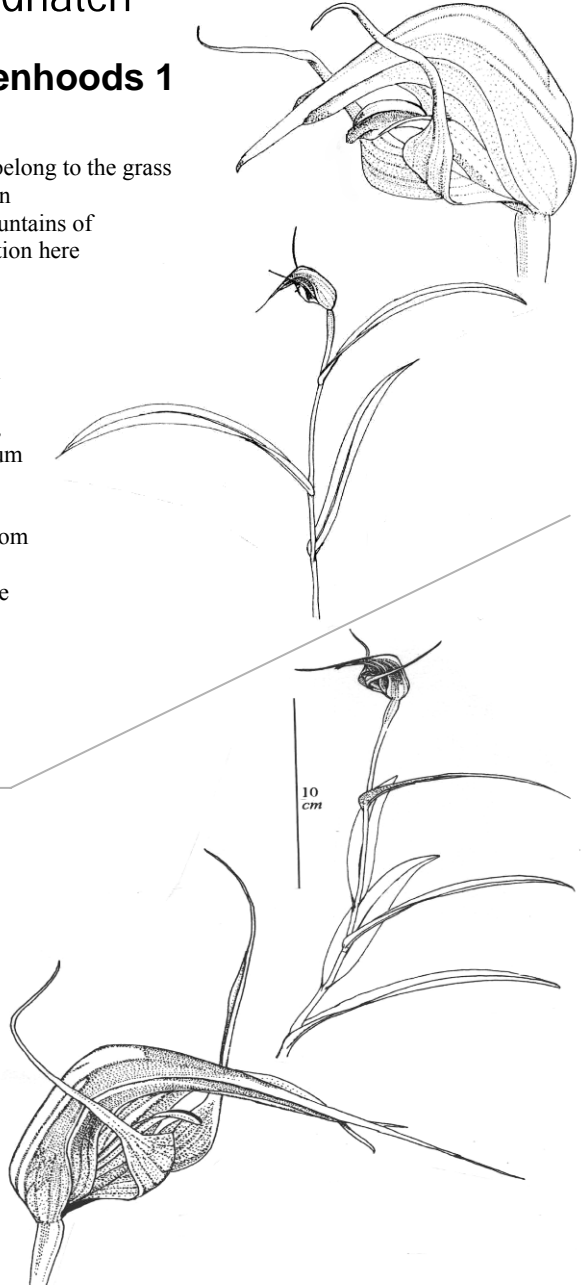
**Distribution** – endemic – literally the range of the kauri – from the North Cape south to the Kaimai Ranges above Te Puke.

**Flowers** – August-September – insect pollinated.

2: *Pterostylis banksii* (Joseph Banks, who with Solander, found it at Whitianga on 8 November 1769, during Cook's first voyage). Possibly the largest species in the genus, certainly the largest in NZ. Lateral sepals with long, spreading cauda. Dorsal cauda ± horizontal. Labellum tip flat.

**Distribution** – endemic – recorded from lowland forest in the North and South Is.

**Flowers** – October-November – insect pollinated

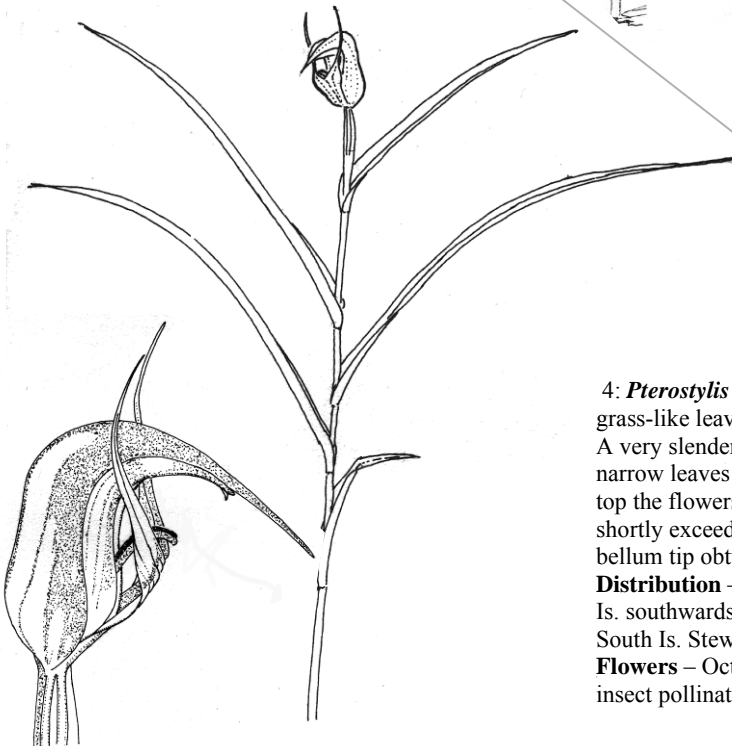
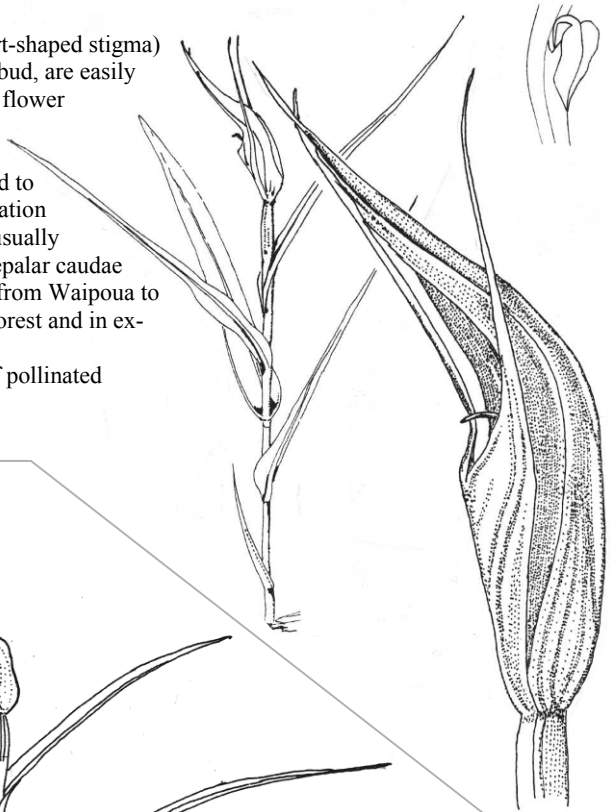


3: *Pterostylis cardiostigma* (the heart-shaped stigma)  
 Flowerless plants, or plants in early bud, are easily confused with *banksii*, but when the flower is open there is no mistaking it.

Very erect and compact, not unlike a swamp bittern with its beak pointed to the sky. The main points of identification are the lobed, heart-shaped stigma, usually smothered in pollen, and the short sepalor caudae

**Distribution** – endemic – North Is. from Waipoua to Wellington, frequently in montane forest and in exposed places

**Flowers** – October-November – self pollinated



4: *Pterostylis graminea* (the grass-like leaves)

A very slender species with long narrow leaves which usually overtop the flowers. Sepalar caudae shortly exceeding the galea. Labellum tip obtuse, flat

**Distribution** – endemic – North Is. southwards from Whangarei. South Is. Stewart Is.

**Flowers** – October-November – insect pollinated

# originalpapers

## Rogers got it right – *Prasophylla* are difficult

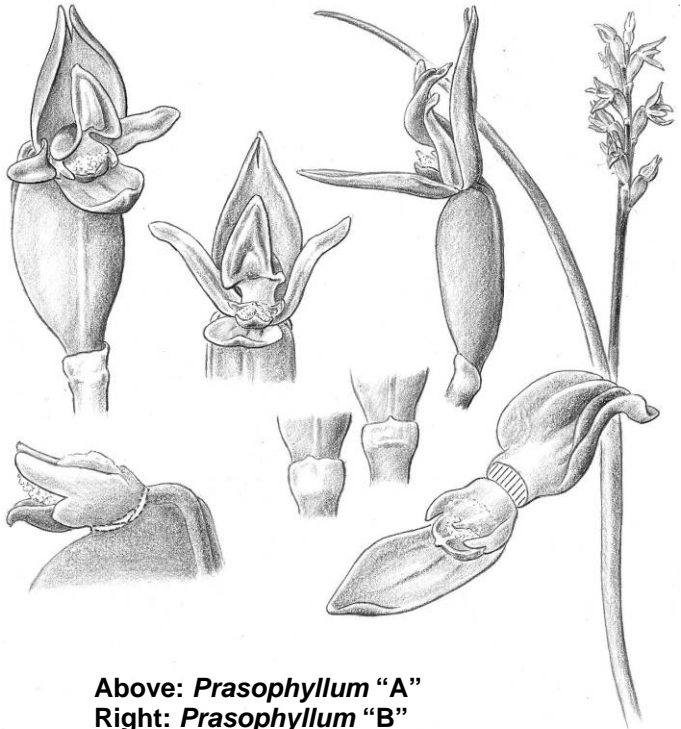
By J Bruce Irwin

My first encounter with *Prasophylla* was on Mount Egmont. I remember them as rather nondescript plants, all parts of which were an almost unvarying yellowish or reddish green. A knowledgeable amateur botanist informed me that they were *Prasophyllum colensoi*. I didn't doubt his identification. I still don't. Later in other areas I found similar plants, all of which I regarded as *P. colensoi*. My first careful drawing, made on Christmas Day 1952, included enlarged details of the column, showing that the column wings were much shorter than the anther.

That plant was from the Tararua Range. Then about 1968, Dr Lucy Moore asked me to draw flowers of *Prasophyllum colensoi*, held in the Botany Division of DSIR at Lincoln. The drawing, published in *Flora NZ II*, p149, matches the Tararua drawings precisely. An undated drawing of a plant from Dansey Pass, Otago, clearly the same taxon, also shows the column wings much shorter than the anther. The fact that Matilda Smith's drawing, Plate 193 of Cheeseman's *Illustrations of the New Zealand Flora Vol.II*, matches very closely my own drawings is comforting. My concept of *P. colensoi* must surely be correct.

It was something of a

shock to read in 1996 "Resolution of the *Prasophyllum alpinum* R.Br. (*Orchidaceae*) complex in mainland south-eastern Australia, Tasmania and New Zealand" [1] in which David Jones stated that *Prasophyllum alpinum* had column wings about half as long as the anther, whereas the other three species discussed, (*P. colensoi*, *P. tadgellianum* and *P. sphacelatum*), all had column wings as long as or longer than the anther. Could this be so? It is conceivable that the specimens lodged by J.D.Hooker in support of his descriptions of



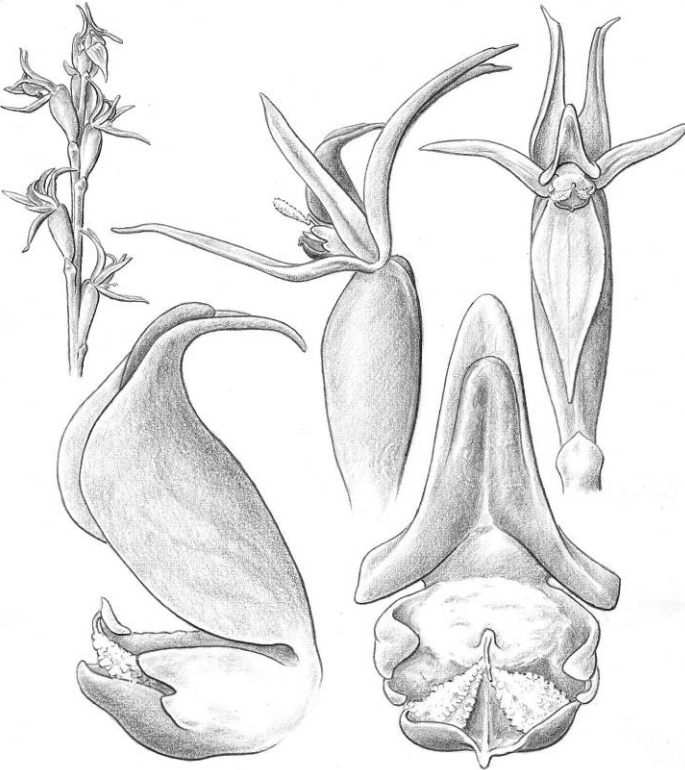
**Above: *Prasophyllum* "A"**  
**Right: *Prasophyllum* "B"**



*Prasophyllum colensoi* [2] do in fact have column wings as long as or longer than the anther. Those specimens should supply the answer, but unfortunately no one specimen is designated the “type”. Also it is conceivable that the Hooker specimens represent more than one taxon. Some may have column wings shorter than the anther; some may be as long as or longer. Jones wrote that the species would be lectotypified in a forthcoming publication. To do so would surely entail a critical examination of all eligible specimens. As they are now more than 150 years old, to do so would risk serious damage. The flowers are small and the columns would not normally be exposed. If a lectotype is selected, it must agree (at least as well as all the other specimens) with Hooker’s original description, which states rather vaguely “column very short, with very low two-lobed lateral pieces”. It would seem irrational to interpret that as column wings as

long as or longer than the anther. I don’t think I shall have to alter my concept of *Prasophyllum colensoi* Hook.f.

I think it likely, that from the specimens available to Jones to draw, (and to influence his description of *P. colensoi*), he selected a plant which outwardly resembled *P. colensoi*, but which had column wings about as tall as the anther. With almost any genus other than *Prasophyllum*, that difference might seem of little importance. However in 1909, Dr R.S.Rogers, reviewing *Prasophyllum* in Australia, said – “The genus *Prasophyllum* is admittedly the most difficult and perplexing one in the whole of the *Orchidaceae*. Not only are the flowers frequently of very small size, but there are so many intermediate forms, that almost every species may be said to blend insensibly into another” [3].



Since reading Jones’ paper, I have examined many flowers (mainly on the Volcanic Plateau) always finding that plants considered to be *P. colensoi* had column wings clearly shorter than the anther, until Anne Fraser drew my attention to slender plants with dark-purple stems, close to the lower end of the old Blyth Track, off Turoa Road above Ohakune. These had column wings nearly as long as the anther, on less uniformly coloured flowers. We tagged them *Prasophyllum* “A” [see *Journals* 75: pp 13-15: 79: pp8-10]. In subsequent seasons this *P. colensoi* look-alike adopted more varied colour patterns and

seemed far more plentiful than *P. colensoi* s.s. I presumed that this plant or something very like it, might be the subject for Jones' drawing of *P. colensoi*.

A taller, slender-tepalled form, often growing in shallow water, also has column wings approaching the anther in length, but is more clearly a separate taxon, because it has ovate floral bracts with sub-acute apices, whereas the floral bracts of *P. colensoi* are very blunt or truncated. We tag-named this form *Prasophyllum* "B". [see *Journal* 79: pp 8-10].

I now think this form, rather than *Prasophyllum* "A" is the reason for Jones' misidentification. Its tepal lengths match more closely those given in his description of *P. colensoi*. This description [1], also includes characters which suggest *Prasophyllum* "B", but which were not mentioned in Hooker's original description [2], such as: "floral bracts ovate. . . closely sheathing, sub-acute to obtuse or emarginate". Also of the lateral sepals Hooker's description stated "joined at the base", whereas Jones wrote "free or connate at the base". Again this suggests *Prasophyllum* "B". The lateral sepals of *P. colensoi* s.s. are probably never free, but are often connate for most of their length, occasionally almost to their apices.

Although I no longer suspect *Prasophyllum* "A" of being the cause of the confusion, I still regard it as a separate taxon from *P. colensoi* s.s., perhaps a sub-species or variety. The diagnostic characters separating them seem very minor. The only rather obvious difference is the very wide range of colours exhibited by *Prasophyllum* "A".

Forms "A" and "B" may not be the only ones at present included under *P. colensoi*. The col-



**Presumed *Prasophyllum colensoi* s.s.**

umn shown by Dorothy Cooper on p70 of her *Field Guide to New Zealand Native Orchids* shows the column wings clearly shorter than the anther, which equals the rostellum. The pickled plant from Paranui collected by Doug McCrae [see *Journal* 89: p43] has column wings and anther equal in length. Whether they also equal the rostellum is unclear. This may of course be *P. rogersii* Rupp. What other forms (particularly in the South Island) await discovery?

**References**

- 1: Jones D. Resolution of the *Prasophyllum alpinum* R.Br. (Orchidaceae) complex in mainland south-eastern Australia, Tasmania and New Zealand. *Muelleria* 9: pp51-62 (1996)
- 2: Hooker J.D. *Flora novae-zelandiae* 1: p241 (1853)
- 3: Rogers R.S. A critical review of South Australian Prasophylla. *Trans. Royal Society South Australia* pp 197-222 (1909)

# Armillaria and Gastrodia in pine forests

Ian Hood, Forest Research

- Adapted by the author from an article in *Forest Health News*, November 2004.

Visitors to pine plantations during summer may sometimes recognise the flowering stalks of native *Gastrodia* orchids scattered generally across the forest floor. Although common and standing anywhere from 50 cm to 1 m tall, they lack green leaves and tend to be rather unobtrusive. Both *G. cunninghamii* and *G. aff. sesamoides* occur beneath pine trees in the central North Island.

During our studies on *Armillaria* root disease in some forests we regularly encounter the tuber-like rhizomes of these orchids among the root systems of young radiata pine trees infected by *Armillaria novae-zelandiae*. For instance, unexpectedly large numbers were unearthed when we carefully excavated the root system of one infected tree in a large central North Island pine forest. The tubers were vertically orientated and had grown upwards one from another, rising in a series of layers or tiers from horizontal tubers at least 40 cm below the soil surface.

Such a rhizome system was described four decades ago by the late Ella Campbell for *Gastrodia cunninghamii* in beech forest (*Nothofagus* species) in parts of Fiordland [1]. She found that some of the basal tubers were infected with *Armillaria* by means of rhizomorphs connected to the root of a nearby beech tree, and recognised a symbiotic relationship analogous to that for *G. elata* in Japan. The Japanese worker S. Kusano concluded nearly 100 years ago that only tubers of *G. elata* invaded by *Armillaria* are able to produce flower heads, presumably by means of nourishment derived ultimately from the tree host which is directly parasitised by the fungus [2].

Five species of *Armillaria* have now been identified that are able to infect *G. elata* naturally. The association is, in fact, mycorrhizal, but very different in nature to that found in the small roots of tree hosts such as radiata pine, which are beneficially infected by certain introduced basidiomycete fungi such as the fly agaric toadstool, *Amanita muscaria*, or the under-

ground species *Rhizopogon rubescens*. In the case of the orchid, the tuber in some way keeps the pathogen at bay while making use of the relationship to its own advantage.

*Armillaria* apparently gains nothing for itself by infecting the orchid tuber, although a recent Chinese study has suggested that carbohydrate is able to move back into the fungus. Tubers of *G. elata* are valued for their medicinal and pharmacological properties in parts of Asia, and in Korea they are grown commercially by inoculating with *Armillaria* cultivated on segments of wood. They also appear nutritious, and in our studies tubers left exposed overnight were partly eaten, presumably by introduced possums (*Trichosaurus vulpeca*).

So far there has been little evidence of infection by *Armillaria* of the *Gastrodia* tubers taken from under radiata pine. Attempts at isolating it were unsuccessful, and characteristic fungal hyphae were not seen during microscopic examination of some tuber cells. However, in *Nothofagus* forest sustained infection was reported only in the basal tubers, few of which were examined from beneath pine trees. We occasionally observed *Armillaria* rhizomorphs connected to the surface of tubers, which contained hyphae within some cells (see Figure). In the absence of green leaves an association with *Armillaria* seems the only plausible explanation for the plentiful quantity of orchid tubers encountered under just one tree. This indicates that an indigenous symbiotic relationship between *Gastrodia* and *A. novae-zelandiae* has become adapted at the expense of an exotic host, radiata pine. Current research is investigating if and to what extent *A. novae-zelandiae* may be spreading into pine plantations by means of basidiospores [3]. This begs the question as to whether the planting of pine plantations may have fostered the spread of the native orchid

by creating an environment suitable for the pathogen. *Gastrodia* species are found in forests or scrubland throughout the country, but also occur in gardens and waste areas. *Armillaria* can be found in all these habitats, wherever there is wood available to serve as a nutrient substrate. *Gastrodia cunninghamii* has also been reported beneath willow (*Salix*), which may be another indirect exotic host. Riparian and shelter-belt willows are known to be particularly susceptible to attack by *A. novae-zelandiae*.



**Reference**

1. Campbell, E.O. (1962). *Transactions of the Royal Society of New Zealand. Botany* 1 (24): 289-296.
2. Kusano, S. (1911). *Journal of the College of Agriculture, Imperial University of Tokyo* 4: 1-65.
3. Hood, L., Gardner, J. (2004). *Forest Health News* 142: 1 (New Zealand Forest Research Institute).



↑ Upper tier of *Gastrodia* tubers among the root system of a *Pinus radiata* tree. Zones of infection by *Armillaria novae-zelandiae* are indicated by dried resin at the root collar and on a major root.

↗ *Armillaria* rhizomorphs connected to a *Gastrodia* tuber taken from a central North Island *Pinus radiata* plantation.

→ Flower stalk of *Gastrodia cunninghamii* rising from a tuber in a central North Island radiata pine forest (identification confirmed by Chris Ecroyd, Forest Research).



# historical reprint

“My dear Sir William,” William Colenso wrote to Hooker the elder at Kew on 20 July 1841, “I cannot tell you how happy I am in the receipt of your very frank and welcome Letter of Aug. 6 and 10th/40. It was a long while in coming hither, and I had almost concluded that the few specimens I had forwarded must have gone to the bottom of the Sea, when yours arrived, dispelled my fears, and assured me of their safety. The valuable parcel of Books too, came to hand last week all in good condition, for which I will not attempt to describe my thankfulness. Allow me, my dear Sir William, to assure you that every specimen I can possibly lay hands on — which I may consider as worth your acceptance — shall, with as little delay as possible, be transmitted to you; I trust thus to endeavour at least to make a step towards the shadow of a return. I should have answered yours ere this, only I have been waiting, first for some opportunity direct for England, and, Second for the approaching season, in hope of getting a few new Orchideae but, on second thoughts I have determined to wait no longer but to send you forthwith what few things I may have by me.

“Since my last, I have been a journey of about 4 weeks to Wangarei Bay & neighbourhood, returning by a circuitous route, via the interior. My primary object was (as it always necessarily must be) to visit the Natives residing in those parts, but I always endeavour to enlarge my acquaintance with the Botany of this interesting Island in those Journies, and so make as much use of such opportunities as possible. I trust that in the Box now sent you will find something both new and interesting. One new pine and two new orchideae (not to mention several other plants, as far as I am aware, both new and undescribed,) have amply repaid me for any exertion I may have made on that journey. The greater part however of the specimens now forwarded are of plants which are known and described. I have hazarded in some Species, the burdening you with Triplicates, although I cannot say much for their perfectness or beauty. I have gone however regularly through my Herbaria and have sent you such as I had, and hope, my dear Sir William, that they will give you as much pleasure in the receipt as they did me, in the gathering & packing them up for you....

“28. An orchis, n.sp.;— this plant I had casually seen in the woods from time to time, but never in flower. Although I had marked the places where it grew, and often visited the plants so marked but only to be disappointed. However, in April last, I found it splendidly in flower, and filling the air with its strong perfume. It is, as you will see, Epiphytcal, and to me it seems to have the habit, &c, of Earina mucronata. I send you also, a sp. in acid. From dense forests in the interior.

“84. A n.sp., of Microtis found on the high and barren hills near Wangarei. Differing from M. Banksii not only in appearance, but in its time of flowering, this coming out in the autumn, that in the spring. This is also smaller and its flowers are beautifully & delicately coloured with crimson and purple; whilst those of M. Banksii are green, or greenish yellow. Its sheathing fistulous scape, too, is not so long as its spike of Inflorescence, while in M. Banksii it is a very great deal longer. The flowers of this n.sp., are often coalesced together, and are not so numerous as in M. Banksii. I subsequently found this, (on returning) on the high table land near Owae. The dry specimens are from the former, those in acid from the latter place.”

*Colenso had sent Earina autumnalis, already described by Forster in 1786; and Corunastylis nuda, which JD Hooker described as Prasophyllum nudum in Fl.NZ in 1853, from other Colenso specimens from “Port Nicholson and Taupo Lake”. Microtis banksii was Cunningham’s name for M. unifolia – Ed.*

# notes etc

Discovery consists of seeing what everybody has seen, and thinking what nobody has thought:  
Albert von Szent-Gyorgyi 1893-1986.

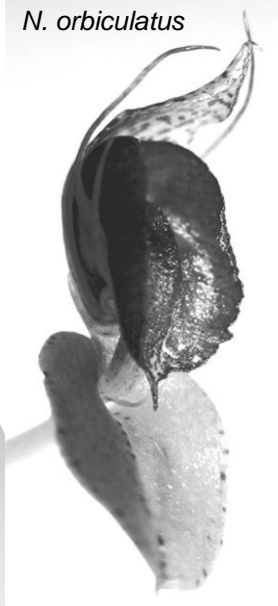
Neil Fitzgerald wrote, “I noticed on the NZ Orchids web site that *Drymoanthus flavus* is listed as chronically threatened and as such DOC or someone behind the website should be notified of sightings. I knew it was uncommon but didn't realise it was classed as being so rare. While working at Whirinaki (ER 5) a couple of years ago I found a few plants which I believe are *D. flavus* ... growing on kamahi 2-3 m above ground.... I also notice this is outside the range indicated in your books”.

*See Neil's photograph, page 2—quite the best shot of this species I have seen—but why the camouflage? did moa find them palatable?—Ed*

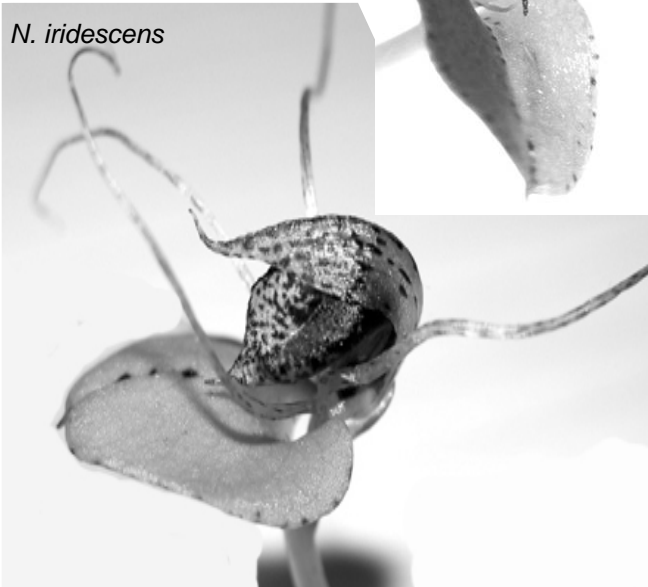
The two *Nematoceras* images herewith came from **Whakapunake**, which is a 900m high limestone peak 40 km eastsoutheast of Gisborne. The specimens were collected by Shannel Courtney on 15 September 2004, and the photos were sent by Andrew Townsend. This extends the range of both orchids.

We rarely hear of orchids in the Gisborne/East Coast region: who knows what else may be there?

*N. orbiculatus*



*N. iridescens*



Phil Tomlinson emailed (10 October), “I am writing in response to your comment ‘**What's in a name?**’ in Journal 92. Changing nomenclature is an issue that has been around since formal naming started, but certainly for us has been much more prevalent recently. We need some standardisation of naming, but with modern techniques many older concepts will now often be found to be inappropriate. We all get used to using a certain name for plants, and to have it change, especially when there are many changes, gives rise to confusion and uncertainty. I was editor of a local nationally recognised orchid Journal for 10 years, and editor of the national orchid magazine, *Orchids in NZ*, for seven. During that period a number of name changes for commonly cultivated orchids occurred, and

many of the opinions currently being expressed were also voiced then. Taxonomy must be based on a scientific approach, but still involves a significant measure of judgement. We have all read of the 'splitters' and 'lumpers' and this variance in approach underlies much of the doubt regarding changes. There have been occasions when name revisions have been proposed by certain workers, only to have these reversed some time later when other taxonomists rejected the proposals. "With this in mind I adopted the following approach during many years as editor.

1. When a name change was proposed, I would first look at the reputation of the person making the suggested change. If the proposal appeared to have authority, I would note this, but would not actually make the change in published material (although I would include a note that there was a proposal for a name change) at that stage.

2. I would watch the relevant literature to see if the proposed name change was accepted by at least one or preferably two or more other authorities from different organisations (and from different countries). If several recognised authorities accepted the name change proposal and there were no significant dissenting opinions, then I would adopt the change. This was a conservative approach, but did give time for the change to be fully considered, and not only by the experts! This approach generally appeared to work, and is an approach I would still follow.

"For an editor it is a difficult issue, and I would not criticise anyone for taking a different approach. I do, however, make these comments in response to the request for them, in the hope that it may assist in setting an approach for this thorny problem in the future. We can rest assured that we have not seen the last of changes amongst our favorite plants. The *Journal* sets a fantastic standard, and with Michael Pratt's comprehensive web site (<http://www.nativeorchids.co.nz/>) we are very well served for information in this country."

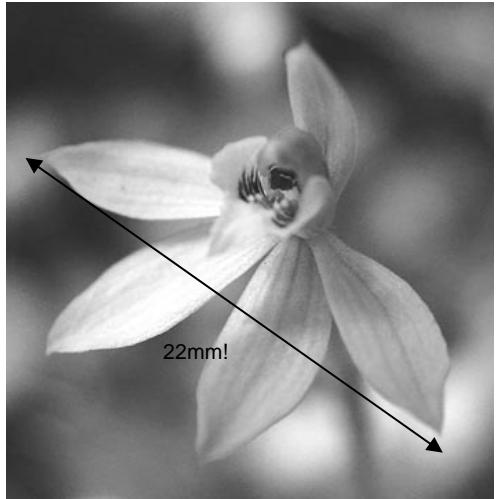
(<http://www.albanygateway.com.au/town/albany/wildflowers/default.asp?sw=1004&>): When we come across a terrestrial orchid beside a track, our natural reaction is to kneel down, steady it with our hand and have a closer look. But ... STOP! According to David Jones at the National Herbarium in Canberra, and other orchidologists, research has shown that those orchids which have been handled by humans are more likely to be eaten by native animals. Obviously, some animals have very keen noses and delicate appetites and unknowingly, we are leaving our scent behind! I have learnt the hard way, of course. Recently I examined an area containing many flowering Midge Orchids, and decided I needed to return the next day to take more photos. Where there had been approximately 20 Orchids in flower, all I found were 19 flowerless stems. One had survived because it was in the middle of a prickly shrub. I now hold a small twig in my hand and use it to steady terrestrial orchids when I want to admire or examine them more closely. Perhaps by not touching flowering orchids we may help to prevent the loss of a full season's seed dispersal." *Reprinted from the ASGAP Indigenous Orchid Study Group, Newsletter, September 2003.*

A magic moment, Les Nesbitt wrote in *NOSSA's Journal* [2004; 28 (10): 101]: "The 22 October is a warm spring day in the Adelaide Hills and the sun orchids have opened beautifully. *Calochilus robertsonii* is flowering on a temporary bench outside—but in the shade of my shadehouse. I am standing in the shade resting from my exertions on the shadehouse extension to house some recently rescued plants that include the bearded orchid. Along comes a large black wasp with a yellow head. After some buzzing around, **the wasp alights on a *C. robertsonii* flower** and pushes its head deep into the flower. I move closer and observe that the yellow head is actually pollen stuck to the front of the insect's head just below its eyes. The wasp stays in the flower for 30 seconds trying to mate with the hairy labellum. It takes no notice of me stand-

ing less than a metre away. The wasp is totally black except for a yellow dot on each side of its abdomen. It is large, about 20mm long (the same length as the labellum), with rather narrow wings when resting. It has two long black antennae held with an included angle of about 90 degrees. While I watch spellbound, it visits 2 more flowers before flying away. Then I realise that the moment has passed and I may never see such a sight again.”

**S**een by your editor on a walk near Rarangi Beach, Marlborough, 14 November with Phil Norton and others. In bud: *Gastrodia* sp. In flower: *Caladenia variegata*, *chlorostyla*, *bartlettii*, *Pterostylis banksii*, *foliata*, *graminea*, *irsoniana*, *Thelymitra longifolia*, aff *pauciflora*, *intermedia*, *Nematoceras macrantha*, *Microtis unifolia*. In seed: *Pterostylis trullifolia*, *Cyrtostylis reniformis*, *Acianthus sinclairii*, *Corybas cheesemani*.

**7** November Pat Enright, Olaf John and I were in the limestone bluffs of the lower reaches of the Ruakokopatuna in the southern Wairarapa; under the beech were plentiful *Caladenia variegata*, easily the largest of the *Petalochilus* forms of *Caladenia* in NZ: these were 22mm from petal tip to tip (see photos). Also present were *Nematoceras macrantha*, *Pterostylis banksii* and *P foliata* in flower, and *N. triloba* with long, dehisced seed capsule.





**M**ichael Pratt wrote “I photographed this *Caladenia* on Rainbow Mountain last Thursday 4 November. It's a very dainty orchid, the flower is no more than 1cm across, and the whole plant measured only 8-10cm in height with a stem of about 1mm in width. There was a colony of about 8 plants. I'm wondering if it may be *C. alata* (which I haven't seen before), although it seems to lack the 2 large marginal calli on the labellar midlobe. Otherwise the illustration of *C. alata* in the *Field guide* matches it perfectly.”

“...Also had a look at the *Calochilus* aff. *herbaceus* site at Albany, Auckland on Wednesday. The original site where I found them back in 1992 has become a bit overgrown with Manuka and I couldn't locate any there. However, there was a new group of 4 flowering plants (mostly in bud) beside the track approximately 20 metres from the original site, so they are obviously still spreading by seed.” *That is C. alata in my book – I am not persuaded that small differences in the number of calli on the edge of the labellar midlobe are especially important diagnostically. Good news about the Calochilus. Both of these finds represent the southernmost records of the two species – Ed.*

See cover photo and below...



**A** serious **infestation of thrips** destroyed millions of native orchid and lily flowers over thousands of square km of bush in South Australia in October 2004, according to NOSSAJ, ... not only have weeds, rabbits, stock, land clearance, erosion, loss of pollinators etc caused destruction of so many orchids recently but now they have a new and potentially final blow... minute flower thrips in plague proportion... in some areas from the west coast to the Southeast hardly an intact flower could be found.

**M**ontgomery Wild of Melbourne took this photograph of an **artificial hybrid created by Dick Thomson between *Pterostylis banksii* and *P. irsoniana*.**



**G**ordon Sylvester wrote (29 Dec 04) about his **Kumara Specials**: “An interesting couple of weeks orchidwise. Spent a day with Phil Knightbridge surveying some *Pterostylis cernua* and looking at a possible relocation scenario for the type locality which is about to be drastically altered. A couple of ideas were floated and may well be adopted. One was to relocate a small population elsewhere until after all roadworks were completed then relo-

cate them back. But looking at the overall picture this may not be needed.

“Looking about the estate over the last couple of days has revealed some new records for the coast. On Leicester Kyle's property at Millerton he has what has been identified by Brian Molloy as *Corybas papa*. Leicester said it was collected from the Karamea Bluffs area from a papa cliff face. We need to confirm this as soon as possible.

“With Phil Knightbridge on S.H. 73 at Stoney Creek we noted *Prasophyllum colensoi* in flower growing on the roadside batter, while on the roadside closer to Kumara there was *Pterostylis montana* agg. and *P. irsoniana* intermixed in the grass both in flower together. Across the road was of course *P. cernua*. At another location we noted *Aporostylis bifolia* in flower and bud, and also *Thelymitra* aff *pau-ciflora* in bud.

“On 26 Dec. I noted a *Caladenia* on my property pale green and in the same area a red stemmed *Caladenia*. I photographed them on location. The other side of the property disclosed *Microtis* aff *unifolia* with the distinctive rolled labellum edge, in full flower: 8-9 plants.

“I was looking in another part of the scrub for more *Caladenia* and noted several *Pterostylis* showing signs of being fertilised. A return a little later to mark the site for next season located some plants still in flower. A comparison with *P. cernua* quickly showed a different species. On dissecting the flower my little friend *P. 'peninsula'* was quickly disclosed, a major extension to its range; interestingly a change of soil type also noted; several photos were taken for reference purposes.

“New records for E.R. 50: *P. 'peninsula'*, *Caladenia minor*, *Calade-*

*nia nothofagei*; not too bad for a couple of hours' casual looking about.

“As for the **mapping scheme**, data entry into the database is proceeding slowly and extraction of records from the journal is also proceeding. I have received lists from a couple of members for inclusion in the records. One list has created several new re-

**T**he Australasian Native Orchid Society's Warringah Group *Bulletin* November 2004 carried this image ... yet according to most authorities, it is *C. formicifera* that carries the labellar calli to the tip of the labellum. The **calli of *C. trapeziformis*** are, in contrast, restricted to the disc of the labellum. This is important in the identification of *Chiloglottis* vagrants found in northern NZ in the past—were they *C. formicifera* or *C. trapeziformis*?



**L**etter to the editor: Who wants our esteemed *NZNO Journal* to concentrate on foreign orchids? Residing under Editorial 3, *Corybas variations*, in Journal 93, is one side of a debate with “one member” or “critic”, Omoc for short, who is said to have taken the Editor “severely to task for publishing too much stuff on foreign orchids.”

Omoc, in injured reply, admits to mildly chiding the Editor for over supplying our few colour pages with unrelated foreign orchids whilst some members' cherished shots of new and unusual New Zealand orchids get reduced to miniscule size or

printed in B&W.

However, an honorary Editor does have the inalienable right to edit incoming copy as he sees fit, especially when members' contributions often fall perilously low. Members wishing to see more on NZ orchids in the Journal, please set an example and send in your own contributions, the life blood as it were of the Journal, no matter how modest or elaborate it may be. Stories of your own finds are bound to rouse interest, or better still, controversy, in dedicated Journal readers who are thirsting for inspiration, innovation or enlightenment on NZ native orchids. Then the Editor need not step outside the wishes of members with his hard-won fillers of foreign orchids.

We all, I feel sure, applaud the Editor for his continual quest from foreign correspondents for appropriate copy to fill the void but, if one leafs through back copies starting with Newsletter 2, Dot Cooper's summary of 80 new member's wishes included only NZ orchids. Issue 10 p1 with notes from Rhode Island, Western Australia and Tasmania did patronisingly suggest furthering an interest in WA orchids but the emphasis in all other articles on NZNOG aims, has been on native orchids exclusively. Journal 37 has 4 pages of readers' suggestions; none on foreign orchids, none either in the J63:19, further suggestions. The J82:2 summary of members opinions had the foreign orchid articles trailing the field. NZNOG Objects in the J88:2 Rules were all dedicated to NZ orchids but, where is the Editor to get suitable copy if members abstain? Do get those word processors clacking and in particular, get your close-up digi cameras and drawing pencils to work to stimulate further interest.

Omoc, who must remain anonymous, sees sense in keeping pace with related genera from territory to the west and north because these are tied closely to our own orchid genealogy. Some of these foreign species show up occasionally and tantalisingly on our own shores, perhaps drifting in on the jet stream from Australia so it pays to have

texts on hand if and when these happenings occur. Then put them in the Journal.

However, issue must be taken with that "bee orchid" example of the Editor's. It does accent some English taxonomist's practice of ascribing varietal status to similar taxa. Varieties are a writer's unnecessary pain because of the lengthy titles thus bestowed, such as *Ophrys apifera* var. *friburgensis*. If one includes the necessary citations, these treble banger titles become a positive tedium. Preferable is the recent Australasian convention of using binomial titles such as *Anzybas carsei* (was *Corybas carsei*) which does give us pause on how behind-the-times other countries can be.

The Editor's sentiments, re members writing in with pics of their valued finds (J93:8), are echoed by Omoc as above provided sufficient detail of habitat, flowering time etc are included. The Editor himself started the "NZ scramble to find a new *Corybas* on every 'high ridge and peak'" in J54:9 but rather more than bare pictures by email, are important if new taxa are to be established otherwise disappointment can be expected as a few dedicated souls have found. Shots from several angles with dimensions and details of column and other inner details always help. Fairly widespread taxa with distinctive and fairly constant characters will get priority attention. There seem still to be plenty out there! Specimen taking, strictly with permission, is still preferable to pictures alone. Send them to obliging people with drafting and descriptive skills. The Editor will of course be only too pleased to print such submissions and may thus be able to limit his need to print more "stuff on foreign orchids".

—*The Editor regards material on "alien orchids" in a positive light, not simply as space fillers, but to illustrate issues, relevant to NZ orchidology, that have not been aired by local writers.*

## Hello to all the “Friends of Iwitahi”

And a big thankyou, everyone, for your support in making this year’s camp such a successful one! It was very gratifying to have such a good turnout of interested people, both “old” and new and everyone seemed to have a good time, despite the unseasonable weather.

It was great to have a visit from Henry Samson, the Environment Bay of Plenty Pest Animal Officer, who was impressed with the progress and support he observed for the Iwitahi Native Orchid Protection Area.

The evening presentations were a highlight of the camp. We enjoyed the company of Jean, our visitor from the USA, brought by Joy Wray. It was fascinating to see the different orchids and their natural habitat in the USA and Canada. Eric’s awesome 3D slide show was mind-blowing as always—even if you are only watching the audience! It was bad luck he had such a rotten dose of the flu: in fact when we arrived back at camp to see his car being towed away, I thought, “I didn’t know he was THAT sick,” but luckily only his car was! Thanks, too, to Ian for his quality presentation: both informative and entertaining as always. As for the mysterious Nick, his powerpoint presentation and Sunday morning plant-caging programme both remain a mystery to us at this stage!!!

Due to a late flowering season, unfortunately we did not see a huge range of orchids in flower and the weather was not conducive for thelymitras to open. Even so, it was good to see the areas of *Chiloglottis valida* increasing in size.

Thanks to such a great turnout of helpers, we achieved the task of banding all the grid corner trees. Monitoring will be a much easier job now and it also makes it easier for our weed clearance contractor to find the grids. Nearly all the blocks are now surveyed for orchids: a job only made possible by your much appreciated efforts at the last two camps, everyone! I am still in the process of correlating all the information.

Thanks for the offers of help from keen NZNOGGERS. All the best for 2005.

Regards from

*Robbie & Sue Graham*, on behalf of Iwitahi HPA Management Committee



A day in the bush looking at a good patch of *Chiloglottis valida*



Eric's 3D slide show

## *Caladenia* surprises

### Part 1: Te Paki unclassified taxa collection

The two year saga of collecting unnamed orchids from Te Paki, came to near fulfilment on 2 Nov 04. Ngati Kuri had approved—too late last year—for specimens to go to Canberra for DNA analysis provided they were all returned. The principle of not exporting native plants, to our loss and other's advantage, was all important.

**27 Oct 04** Leita Chrystal, Ian Townsend and Brian Tyler from Levin, came via the *Nematoceras* (*Corybas*) “viridis” (whiskers) site at Horopito to the Column's Papakura place for the night.

**28 Oct 04** All rendezvoused with Ernie Corbett and Bev Woolley at Allan & Colleen Ducker's, Silverdale. A stop for coffee and an orchid hunt at Top-o-the-Dome, caught some late *Pterostylis graminea* still in full bloom; so late! *P. banksii* was only in bud amongst legions of *Acianthus sinclairii* in seed. Picking up Al Blumhardt at Whangarei and Graeme Jane catching us up in his new 4WD Suzuki in the Maungataniwhas—at the *Nematoceras* (*Corybas*) *rivularis* site—completed the NZNOG field party.

The *N. rivularis* s.s. main crop had moved downstream and spread, after floods had modified this tributary of the Tapapa Stream in the Mangamuka Gorge. This is the originally described, northernmost, and latest flowering species of the aggregate of ±15 taxa. Several digi cameras and the Column's Nikon caught some in full flower. A call at DoC HQ, Kaitaia followed, to collect the keys and a signed copy of Brian Molloy's permit-to-collect from Janeen Collings, DoC's Threatened Plant Ranger.

Sweetwater, where Doug McCrae had first

found *Caladenia* aff. *bartlettii* [J78:20,26<sup>3</sup>] in the 1980s, turned on the rain as the party surveyed the unlikely present landscape for this taxon, of lush pasture grass with pampas and wattle on some road berms. On to Waitiki Landing for takeaway fish-'n-chips and our pre-ordered groceries, before bedding down to the call of moreporks, at DoC's shearer's quarters, after a long day.

**29 Oct 04** Ed Smith, DoC's Field Officer at Te Paki Office, was our minder for Cape Reinga's one-time Rubbish Dump where three specimens of the fairly prevalent *Microtis arenaria* were collected from Gael Donaghy's find [J77:22,27] after suitable photography in situ. One pale and only half open *Caladenia* “nitida rosea” (*Petalochilus* aff. *fuscatus*) showed promise of more to come and got the cameras clicking. A determined hunt for *Thelymitra* “tholinigra” [J85:10,15] at its site of two years ago, drew a blank. None of the putative hybrids showed this year either, although numerous other *T.* aff. *longifolia* were opening in the warm overcast. The irksome here-one-year-gone-for-several syndrome, could explain why the likes of this orchid, *T.* “bee” and other rarities are so difficult to track down. Probably they are hibernating as tubers awaiting conditions more suitable to their liking. What did show up was a tall and late flowering *Caladenia* (*Petalochilus*) *bartlettii*, lying down a bank by fresh rabbit scratchings with its tuber bitten off and gone for lunch.

Later, the Shenstone Block yielded 3 specimens from its large colony of HB Matthews' *Singularybas* (*Corybas*) “aestivalis” from Margaret Menzies' find. Two were in seed capsule. They are delightfully unsullied here by any hybridism with *S. oblongus*. [J90:12,16]. The Column hurried the day's collection of 6 specimens (2 taxa) to Brian via the Waitiki Landing's post-box before 3:30pm as the rain descended and kept all the *Thelymitra* shut for the day. Allen and Al displayed

their cooking prowess to everyone's hearty appreciation that night.

**30 Oct 04** All headed to the *Caladenia* "speckles" site in the Shenstone Block via Allan's Track and Pink Track but found only a few leaves. However, *C. "nitida rosea"* across the track had a plentiful colony with several fat buds showing at 10 am cuppa time. The yellow flowered *Thelymitra imberbis (carnea)* site, mid Shenstone Track, had flowered again this year but was finished. Under the gorse at Fri 2 track junction, were a few finished *Plumatochilos (Pterostylis) tasmanicum* but on Allan's Track, only juvenile leaf rosettes had shown up in the gorse there. In these old sand hills, *P. tasmanicum* is only found under gorse; which orchids usually avoid. Bev spotted 4 spent, black, *Thelymitra matthewsii* in a new area at the eastern extreme of Sat 1 iron pan but the lunch site at Sat 2 had no *T. matthewsii* visible, as Anne Fraser had warned. This extensive ridge of iron pan (naturally cemented sand crust) had previously had many specimens scattered around the *Hakea sericea* fringes. What a strange disappearance? Incidentally, *T. matthewsii* was declared extinct for about 70 years but Northland Conservancy no longer list it as endangered, due no doubt to the hundreds of plants ferreted out by Anne and other NZNOG members in the unlikely looking desert-like, iron-pan areas. *Calochilus* aff. *herbaceus* were in all the usual sites, i.e. dappled shade at hollows in the track. One or two opening flowers got the cameras clicking as did one or two plonkers, as Graeme referred to white and pink *Thelymitra* aff. *longifolia*.

The homeward trek was via Anne's *T. matthewsii* white markers, like a mini graveyard at Fri 1, in the tumbled blocks of iron pan on the north facing, sand-crater wall. There were also scores of plant markers at Fri 2 crater due, Anne thinks, to disturbance afforded by her moving around the site taking measurements etc. Could this disturbance be merely compressing damp sand grains around the virtually invisible seeds and thus helping them to germinate?

*Caladenia "chloroleuca"* [J72:27] in a new site amongst the kanuka, finally displayed a three flowered specimen (Fig. 2) where the top bud had the peduncle curled right around the second and open flower's pedicel. The open flower's midlobe had HB Matthews' distinctive "3 long, linear calli on each side and a glandular fringe to the tip. . . lateral lobes and column broadly barred pink-purple." The lower floret was spent. Just a mutant, thought the Column so it had its portrait made after the offending peduncle had been uncoiled but was never collected. There were plenty of similar twin flowered ones which Brian later chose to deposit in CHR Herbarium. Possibly too close, for DNA check, to its relative, greenish white *C. minor (chlorostyla)* which were the most abundant orchid of the day.

The one-time large clump of *Thelymitra* "sky" was now reduced to three plants due no doubt to shade-out by the maturing kanuka. One floret on a swelling ovary, had pale grey-blue tepals where blues and whites have been seen before [J78:35]. DoC Kaitaia have been requested, in writing, to thin the kanuka in the vicinity to let more dappled sunlight onto this beleaguered colony of unique, if undescribed orchids.

Several *Corybas cheesemanii* with white scapes to 212mm long, vied with three *Anzybas (Corybas) rotundifolius*, one with the champion 280mm scape; from such a tiny orchid!

The 10.5km hike around every track in the Shenstone Block except Cheeseman's, with Ian turning every log for bugs and a peripitus, found some of the aging field party weary at the Kanuka Restaurant that night. But the staff especially upgraded service to à la carte for the occasion. Allan's orchid videos that evening gave us a wide range of open flowers, close up and slowly turning, to make up for a day of too many disappointments.

**31 Oct 04** Ed was on time at 8am for the Scott Point trip, via paddocks and unlocked gates this time, saving both the Ninety Mile Beach trip and climbing Jacobs Ladder. Warm sun

had the plonkers opening at 9am to the clicking of shutters at last. In *Caladenia* Alley, Leita turned up a solitary, and tiny *Caladenia* “speckles” (Fig. 3) which had a bug-eaten midlobe visible in the viewfinder so the Column turned to Allan who had spotted a sizeable colony nearby, on a dry bank to the NZ Walkway. Two beautiful flowers stood back to back in a most awkward place under stunted tea-tree but the photographers managed their contortions without trampling the other plants. Fig. 4 is a rarely seen rear view. Then the Column cut them off flush with the ground and placed them in his Watties sauce bottle full of water. This was Bruce Irwin’s solution to *Caladenia*-collapse, sometimes suffered in transport. It felt like beheading two adored pets but this was the whole *raison d’être* for the trip. That first specimen in *Caladenia* Alley had by now vanished despite the whole field party scouring the place for it but, three specimens were the bare minimum for species ID; one for the herbarium, one for DNA check and one for dissection for inner detailed drawings. Fortunately another showed itself by the Te Hapua Road that evening, 20mm from the grader cut, to make up the necessary three.

*Caladenia (Petalochilus) bartlettii* were the commonest pinks this season; about 3 weeks late! The trip had been timed late especially to miss them and the many putative hybrids with *C. “nitida rosea”* which had upset the 2002 field trip. Not one hybrid showed this time! Nothing is certain with orchid trip planning. Three glorious orchid pink plonkers caught the photographers’ eyes. One made a picture (Fig. 5) in a dry ridge-top site. *Thelymitra* aff. *longifolia* “stunted” [J86:10 fig. 2] with stiff, V section leaves coiled and twisted, were in full healthy flower in the sandy track-side. Three got into the Watties bottle. Some similar but taller specimens, also with V section leaves but untwisted, gave pause. Possibly this taxon sizes itself to suit the conditions?

One looked suitable for Max Gibbs’ requested glam orchid shot, for a NZ Geographic article, but not with picked flowers! So Bev obligingly lay in the sand gazing at the

little white orchid whilst the Column rigged his camera and flash. Great, except the shot later showed up too many personal blemishes for Bev’s liking and Max thought the model should have been more blurred for effect. Oh bother!

Lunch was taken especially at the 133m Scott Point top spot where Bruce had spotted the bud of *Petalochilus saccatus* Rogers on 29 Sep 97 [J65:14]. Ernie had seen *Caladenia* buds on 10 Oct 02 [J86:11] through a port-hole in the gale flattened tea-tree so this had to be the time. But no one could see a sign of *Caladenia* on this gale blasted landscape until eagle eyed Ernie came to the rescue again, and spotted some in the wind-furrows of the tea-tree cushions. The party took new heart and started finding *Caladenia* buds sheltering in like sites all around. The Column opened one advanced bud with bated breath — it was only dratted *Caladenia* “nitida rosea”! Finding no *Petalochilus saccatus* or *P. calyciformis* was a disappointment but those many unopened buds could still bring forth specimens. Another year perhaps. Bev found two tall double header *C. “nitida rosea”* in seed, in a sheltered hollow. The double headers found on this trip were *all tall and in seed*; single flowered specimens were shorter and just starting to open. No three headers were seen but two [J77:25; 82:7] have been recorded previously.

Note that the similar *C. “speckles”* has only 1 flower, and 1 basal marginal callus, not 3 or 4. Plants are always smaller than *C. “nitida rosea”* and it hasn’t been reported south of Kaimaumu. Otherwise they are quite similar.

On the return trek, Allan spotted two *Caladenia* aff. *bartlettii* (Fig. 6) flowering in quite separate sites, both on dry banks by the NZ Walkway. This has the obtuse sepals of *C. bartlettii* but, the lateral sepals turn under and the more triangular midlobe has only one marginal callus per side. Those few reported to date comprise; Doug McCrae’s from Sweetwater, (pers. comm. Brian Molloy) Doreen Abraham’s from *Caladenia* Track, Shenstone Block [J78:20,26<sup>3</sup> never seen there since] and two ultra tiny and deformed from Fri 1 track.

[J86:13] This taxon wasn't on the collection list and there were too few to collect anyway.

**1 Nov 04** Janeen got from Kaitaia to Te Pahi by 8 am to let Ed go on leave, then went with the Rubbish Dump Hill party, despite the Column having washed the Carona, especially! Never mind, 3 *Caladenia* "nitida rosea" got bottled from the Shenstone Track and the speckles site on pink track; so did *Caladenia* "chloroleuca" with Allan's help later in the day. Al, Brian and the Column met the others at Pandora Gate at 11:30 and drove up to the Radar Bush Track for a scattered few, spectacular—to orchid buffs—*Thelymitra* spp. *T.* "rough leaf" (Fig. 7) was open on a side spur, the same orchid pink as the 3 plonkers of yesterday (cf Fig. 5) but with their distinct columns and chromosome count of  $6n=84$  (pers. comm. Dan Hatch) not the  $2n=26$  of *T. longifolia*. Also open were *T. aemula*, a showy white plonker lying on the moss, unable to hold its mass of white flowers up in the shade; another "tired one" perhaps? and a fine pink plonker nearby. *Pterostylis agathicola* still had a few open flowers in the kauri but *Singularitybas oblongus* couldn't be found; scoured off the stream banks in recent floods it seems.

**Tues. 2 Nov 04** Home time already. The specimens in the well taped down Watties bottle of water, posted in Kaitaia, were received by Brian in good nick a couple of days later although some had lost a little water-soluble colour, he declared.

Alec Kennedy from Kohukohu, another 3-D orchid enthusiast, had us touring his pieces of trust forest before the dust of our arrival had settled. A huge *Microtis unifolia*, like those at the Spirits Bay cannon [J65:18,19], with a clump of deeply coloured but closed, *Thelymitra* aff *pauciflora*, set the stage. A beautiful *Drymoanthus adversus*, open and at camera height caused a photographic queue. Leaves were minutely burgundy speckled, unlike the large burgundy spots of *D. flavus* [J91:21]. Flowers were greenish with tiny burgundy speckles, a burgundy back to the column and comparatively large burgundy blobs inside the

ends of the lateral petals only. The earliest flower had faded to pink, as they do. Seven dry stems spoke of 8 years' flowering on a modest 3 leaved plant. Some *Singularitybas* (*Corybas*) *oblongus* were still open (so late!) and some rounded leaved, unflowered specimens looked very much like *S.* "aestivalis". Swathes of *Earina mucronata* (spent) and *E. aestivalis* (in bud) led us to Ernie's find, new to Alec's bush, of *Chiloglottis cornuta*, rare in the north if not at Iwitahi. Ernie and Alec had been at school together at Waitara, 50 years ago. Is this a small world or is it?

Cutting to the last orchid part of the trip, Allan stopped us at a mown berm between Okaihau and Ohaeawai to see his closed and tiny, applicants for *Thelymitra colensoi*. Numerous specimens still had immature buds which have never been reported open. Rose pink columns and split yellow post anther lobes were similar to those at Forestry Research, Whakarewarewa [J92:15]. Albert had another look a month later, and reported that buds still appeared to be immature and columns varied somewhat. In all probability, this taxon gets no attention because it is insignificant and the flowers rarely open. More information please.

## Part 2: DoC Waikuku Lodge

with the southern tip of the North Island only 25 km further south, proved to the advance party on Friday **26 Nov 04** pm, just how close to the pole it was. Temperature 2°C, intermittent sleet showers on a booming southerly. At the Lodge gate, a reef of hardy southern *Nematoceras* (*Corybas*) *macrantha* with very dark flowers both above and below the leaves adorned a seeping road batter. In the Column's files, this is *N.* "mactremolite" from Tremolite Cnr, Canaan Rd, Takaka Hill, see J70:38 & *Field Guide* 2, p38. John Dodunski, undeterred by the sleet, had spotted *Pterostylis Montana*, *P. graminea* and *P. alobula* behind the Lodge and Allan Ducker had, believe it or not, *Caladenia* "nitida rosea" (Fig. 8) further north, above the road. Until Gary Penniall



spotted *C. "nitida rosea"* at Moki Rd [J92:14] HB Matthews had it only for, "Northern Counties in vicinity of Kauri trees" in his 1928 manuscript. Tricia Aspin had it in bud at Awhitu on 12 Oct 04 as Allan and the Column will bear witness, but what was it doing as far south as Waikuku Lodge? and is it the real thing? Those 3 basal marginal calli to the mid-lobe are a bit short, and the side lobes to the labellum aren't supposed to be crumpled up like that although this could be due to compression in the bud. Otherwise it has all the physical attributes of *C. "nitida rosea"* even if the pink colour is somewhat lacking.

Ian St George opened the gate at 6 pm allowing access to the Lodge where a roaring fire and a hot dinner were soon in the offing thanks to some frenzied activity by shivering participants. Orchid debates waxed and waned late into the night as members from far and wide renewed old friendships before retiring onto those hard platforms and thin mattresses.

**27 Nov 04** with sleet showers dwindling, unlike the southerly half gale, the main party headed up Mill Track along a westerly ridge where *Thelymitra nervosa (decora)* masquerading as *T. hatchii* but with give-away white cilia, *T. aff. pauciflora* and *T. longifolia* were all sensibly locked in bud. But a colony of *Stegostyla "subalpine"* (was *Caladenia "subalpine"*) [J88:18; J78 top of colour p3] were braving the elements with single, double and one treble flowered specimen (Fig. 9). Whoever has seen a 3 flowered one before? All the specimens had the 4 rows of disc calli (Fig. 10, not the 2 rows of Hooker's *Caladenia lyallii*), all had basal marginal calli to the midlobe, qualifying them for the Column's tentative tag, from Iwitahi, of *S. "subalpine"*. David Jones' reassessment [Ref. 1 & J63:4] where such calli were not included in *S. lyallii*, does give these some affinity with his *S. alpina* which does have basal marginal calli. Note the prominent red bars inside the labellum and column; most of the Column's shots from Iwitahi had no red bars yet had red stems and red glands on the dorsal sepal. Some of

these specimens had the leading edges of the column wings folded across at right angles but the Column's photos were a flop! *S. "lytuck"* (was *Caladenia "lytuck"*) from Iwitahi [J78:26<sup>3</sup> Plate 10] had this trait but had only 4 rows of calli atop the midlobe, not the 6-8 on *S. "subalpine"* but little else differed. In the meantime, they are still being kept separate in the Column's files. More observations please.

Struggling further up the track in poncho, windbreaker, jumper, longs and leggings, the Column was pleased to be shown an uncomplicated *Caladenia aff. variegata* (Fig. 11) with its 2 clear rows of disc calli, no calli atop the labellum midlobe and probably  $2n=38$  chromosomes. Note that *Stegostyla* spp [2] have a hooded dorsal sepal, calli all down the length of the midlobe, 2-6 rows of disc calli and  $2n=48$  chromosomes, supposing all taxa comply. These chromosome counts would virtually prohibit natural hybridism so the Column is happy to keep them as separate genera in the interim.

Allan and the Column then took a detour, in rising temperatures, down a leading spur towards Southerland Track in the valley below. The forest here had long since been milled over, then grassed and was now regenerating to scrub/forest again in the Haurangi State Forest Park. One bare patch, still in evidence, had 2 *Caladenia variegata* s.s. (Fig. 12). Those outer 2 "rows" are asymmetrical and other stray calli are in evidence so it complies fairly closely to Colenso's description except that *disc calli are straying onto the base of the midlobe which is forbidden*.

Several patches of *Nematoceras (Corybas) triloba* in the bushy places had no flowers and could do with follow up. Down on Southerland Tk. were Neville and Cath Henderson, over from UK for the NZ summer(?). *Orthoceras novae-zelandiae* were in bud and a *Caladenia variegata* flowered at the edge with crowded disc calli, some also advancing onto the midlobe (Fig. 13). This species, originally described for the mutant form, never has two patterns of disc calli the same, it would seem.

Allan and the Hendersons had meanwhile come across legions of *Pterostylis* aff. *patens* for want of a better handle, numerous on a grassy bank and along the road batter below. Ian St George had asked us specifically about this taxon [J70: cover]. Some of the party had seen it further down the track at stream side. It has numerous closely similar specimens, reasonably wide distribution and could well be considered for specific classification.

What else was around Waikuku Lodge? A bouffant bale of *Earina mucronata* in bud, hung on a limb behind the Lodge and Anne Fraser spotted several *Pterostylis foliata*.

Margaret Menzies and Glyn Wren saw to a magnificent dinner from Ian's generous stores and another affable evening by the fire made it all worthwhile.

**Sunday 28 Nov 04** Pat Enright had arranged a visit to a private trust bush at the Chasm nearer Martinborough which meant everyone had to paddle barefoot across the Ruakokopatuna River of melted sleet. *Nematoceras* "mactremolite" were clinging to the river bank, leaves flat to the ground and with those dark flowers and almost black dorsal sepals arching overhead. In the trust bush, *Pterostylis montana* sensu Moore [J76:40] was in flower but *Nematoceras* (*Corybas*) *triloba* and *Diplodium* (*Pterostylis*) *alobulum* were only in leaf, before time ran out and people had to head either for the long trek home—like Anne, Bruce and the Column—or to the next site and another day's fossicking.

As usual with orchid trips in new territory where critical observations are made, more questions arose than answers. Why else would we bother?

## References

1. Jones, D. *Muelleria* 1996; 9; 41-50
2. Jones, DL et al, A new classification of *Caladenia* R. Br. *Orchadian* Vol. 13; 9, Sept 2000, p411

## Key to figures

- Fig. 2** *Caladenia* "chloroleuca" with a rare 3<sup>rd</sup> bud unwound from the 2<sup>nd</sup> flower's pedicel. Shenstone Block.
- Fig. 3** *Caladenia* "speckles" Single marginal calli are 1.5 mm apart. Dorsal sepal is pointed, speckled inside.
- Fig. 4** C. "speckles" from behind. Note red glands down every tepal's midrib, red floral bract. Scott Point.
- Fig. 5** *Thelymitra* aff. *longifolia* unusually in orchid pink at Scott Point. Note typical column.
- Fig. 6** *Caladenia* aff. *bartlettii*. Single marginal calli are 0.64 mm apart. Sepals are obtuse, laterals are recurved.
- Fig. 7** *Thelymitra* "rough leaf" Orchid pink like Fig. 5 but column and chromosome count differ radically.
- Fig. 8** *Caladenia* "nitida rosea" Aorangis style. 3 short marginal calli, palest pink and crimped side-lobes. Maroon top to column.
- Fig. 9** *Stegostylis* "subalpine" with 3 flowers, from Mill Track, Aorangi Range.
- Fig. 10** S. "subalpine" with 4 rows of disc calli and basal marginal calli (max.3.1mm apart). Mill Track, open mossy ground.
- Fig. 11** *Caladenia* aff. *variegata* has no stray disc calli. Marginal calli 2.0 mm apart max. Bright green column back. Mill Track in beech forest.
- Fig. 12** C. *variegata* with stray disc calli but the double row extending onto the midlobe. Ridge off Mill Tk.
- Fig. 13** C. *variegata* crowded disc calli with a chevron of 7 extending onto the midlobe. Southerland Tk.

Bill Liddy has already discovered one new native orchid—a beautiful *Thelymitra* that proved to grow well in cultivation, but set no seed. He found it on a track off the Taihape-Napier road, and it was tagged *Thelymitra* "Comet". It is probably a sterile hybrid. At Iwitahi this year he showed photographs of another discovery from nearby: it is a 30cm *Pterostylis*, with a rosette of basal leaves, similar to *P. foliata*, but with longer lateral and dorsal sepals (see **Fig.1** page 35). It is hard to identify from a photograph, but it looks remarkably like *Pterostylis* (*Taurantha*) *ophioglossa*, a New South Wales plant. If so, it's the first of that subgenus in New Zealand.



