The New Zealand Native orchid journal

Feb06
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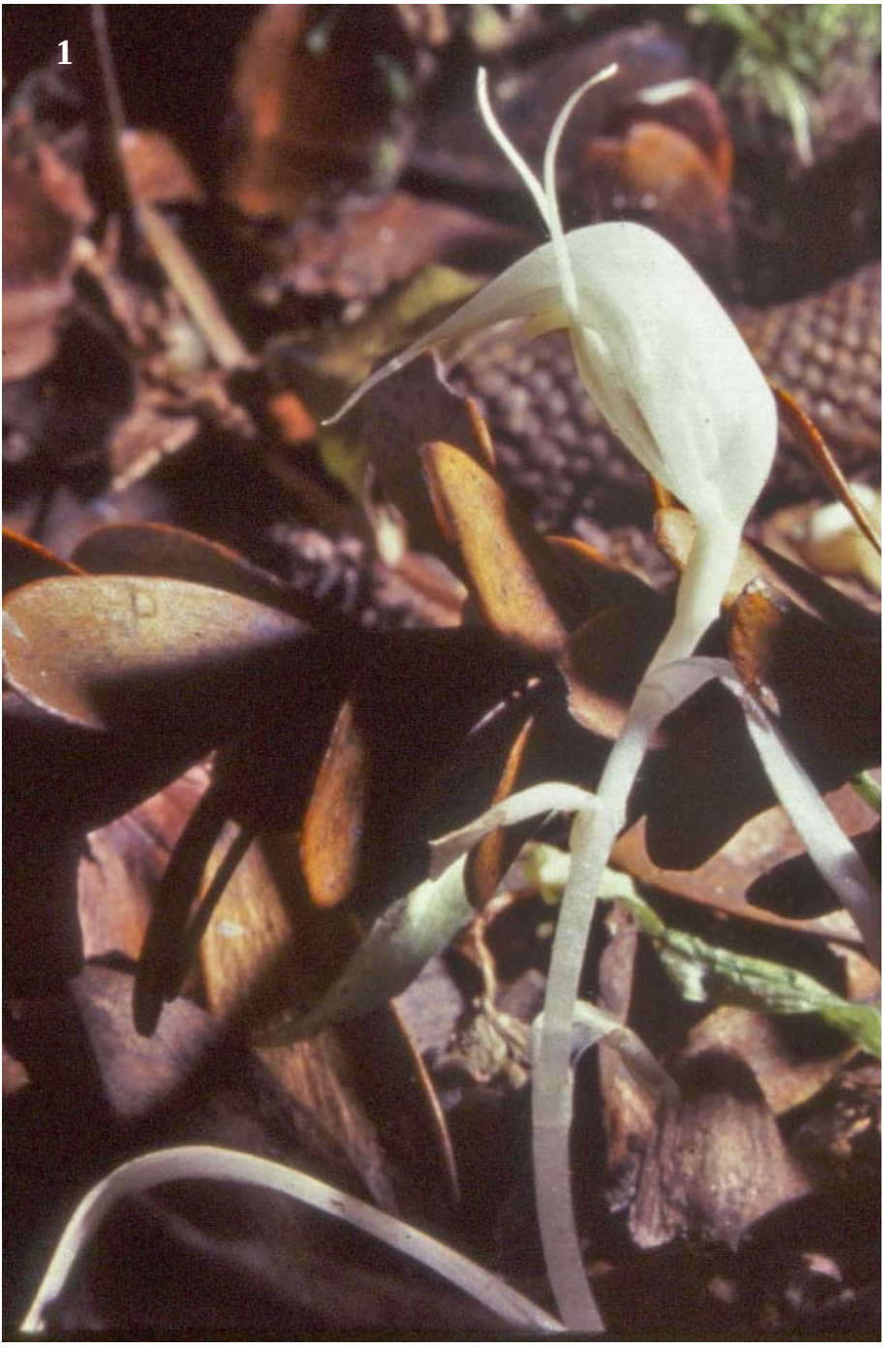

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Cover
Nematoceras “restarea” near Wellington (see p.8).

Inside front cover
Albino *Pterostylis agathicola,* photo Eric Scanlen.

Editorial

Notes, letters, questions, comments

Original papers

Elementary 7—ED Hatch

Mapping—Gordon Sylvester

Close relations: orchids like ours

Historical reprint

The column—Eric Scanlen

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editorialianstgeorge

1. Are the NZ orchids heading south? are they "tracking a moving climate envelope?"

I started looking at orchids in Otago in the early 1980s.

The history of Otago orchidologists is not extensive: early visitors making the odd discovery (Lyall's Caladenia for instance), with careful and methodical locals completing the picture. John Buchanan's notebooks show he was a keen orchidologist on his journeys around Otago; they contain his own sketches of orchids he found, and – presumably for the purpose of identification – one of his notebooks has tracings of the orchid illustrations from *Flora novae-zelandiae,* the only reference work then available. George Thompson wrote extensively about them in the 1890s – in his local newspaper column and in the *Transactions*. He was a schoolmaster, and his pupils collected for him, so he would be unlikely to have missed anything obvious. Others reported their southern orchid finds too. Then in 1937 the Otago Girls High School teacher, Miss Helen Dalrymple wrote her celebrated *Orchid hunting in Otago, New Zealand,* with an account of all the orchids she had seen.

None of them mentioned *Thelymitra pauciflora* or *T. formosa,* yet I found both quite early in my wanderings. What we now know as *T. intermedia* (it was then included in *T. pauciflora*) is common around Dunedin, and was later found at "The Wilderness" near Manapouri too. I found a single plant of *T. formosa* in the Twelve Mile valley near Queenstown, and trumpeted the find proudly, only to read of a German tourist, Dorothy Cooper's book in hand, finding it on the Routeburn track in plenty a few weeks later.

Gordon Sylvester has recently updated the NZ Native Orchid Group's mapping scheme, with reports of orchids new to several ecological regions. What is striking, as one updates the maps themselves, is that a number of these new finds extend the known southern ranges of the orchids – for instance *Nematoceras* "whiskers", *N. papa* and *Acianthus sinclairii* on the West Coast.

"Climate change threats to plant diversity in Europe" by Thuiller et al. appeared in the 7 June 2005 issue of *Proceedings of the National Academy of Sciences of the United States of America.* The Climate Change Task Force and the Red List Programme of the IUCN Species Survival Commission prepared a commentary on the article in response to several inquires. Although they were critical of the detail of Thuiller et al's model, much of what they had to say is interesting….

Results of modelling exercises usually agree with changes observed over the last century. Throughout the world, a large number of wild species have been shifting their ranges polewards and upwards in elevation, at the same time as regional climate warming trends. Warming over the last 30 years has been caused primarily by increases in atmospheric greenhouse gases.

Modelling exercises indicate that movements of species' distributions upward in latitude and altitude will continue and even accelerate. The agreement between modelling and observational studies provides a very strong, well-supported qualitative conclusion that biodiversity is seriously threatened by continuing global warming.

Furthermore that agreement gives a clear indication that the current network of nature reserves is ill equipped to protect the very species it was designed for. Climate change is rapidly joining habitat destruction as a major conservation problem. The results of Thuiller et al support previous studies in Europe, Mexico, South Africa and Australia – all of which conclude that small, fixed reserves are poorly suited to protect species which are

dynamically shifting their global distributions in attempts to track a moving climate envelope.

Through a long consultative process with scientists, managers and local naturalists, IUCN is studying ways in which climate change impacts might be incorporated into the IUCN Red List (quantitative) Criteria for assessing extinction risk for individual species. The trouble is, there is no consensus on how to assess the risk for any individual species - understanding the responses of a species to future climate change is not yet sufficiently robust, with little certainty about future emissions, sensitivity of the global climate to particular CO_2 levels, variation among climate models, variation among biological models, and poor understanding of the mechanics and distribution data for many species.

So, are our NZ orchids moving south and up? Or is there another explanation?

Perhaps more of us are looking for orchids in NZ, and perhaps we are more observant, or more knowledgeable than our forebears – since Dorothy Cooper's description in 1983, *Pterostylis cardiostigma* has been found further and further north. Perhaps there are more roads in the south than there were, giving access to enthusiastic northerners; and so it follows there is a better chance that isolated colonies will be discovered further south than hitherto.

Perhaps. But I think global warming is shifting the New Zealand orchids southward too.

2. In the Coromandel…

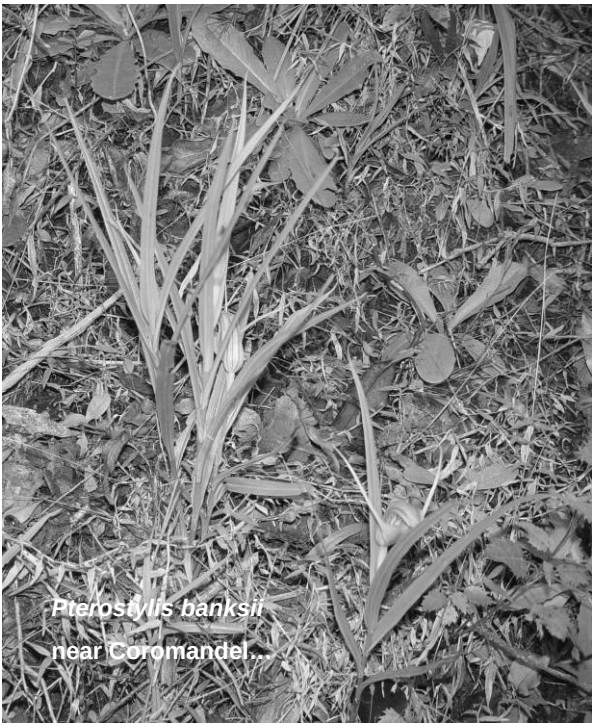
I was doing a locum in Coromandel in late September, so took time to look along some of the local tracks. *Pterostylis agathicola* was in full bloom under kauri, alongside *P. trullifolia* and *Cyrtostylis oblonga,* both almost finished. *P. banksii* with very upright spiky leaves flowered along the roadsides, and (near a waterfall of course), the local member of the *Nematoceras rivularis* complex; I wasn't sure if it was *N.* "whiskers" (it had stubble on its labellum), or *N. rivularis* s.s., which it resembled in general shape. I sent a specimen to Bruce Irwin, who sketched one (p.7), and wrote some illuminating words on the members of the *N. rivularis* complex….

"These are 'Kaimai' to me but I understand why you suggested 'whiskers' and *N. rivularis* s.s. They do have short whiskers on the labellum and apart from the colour are very close to s.s. in structure.

"When I applied the tagnames it was because I felt that they warranted recognition, but not necessarily as separate species. I think it is safe to regard 'whiskers' and 'rest area' as good species, but I'm much less sure of 'sphagnum' and 'Kaimai', as well as 'Kaitarakihi', 'Veil' and 'aff. *dienema*'.

"When 'Pollok' showed up it appeared worthy of species status too, but we haven't seen enough of it. Like 'Kaimai' it shows a

Pterostylis agathicola



strong resemblance to *N. rivularis* s.s. structurally. The first few flowers sent to me had petals sweeping strongly forward and downward, appearing to be a good diagnostic character. The second lot had petals unwilling to adopt that stance (or any other pattern).

"'Kaimai' has puzzled me for a long time, because structurally it is extremely close to *N. rivularis* s.s. but its colour (and colour patterns) are so very different. For some years I have felt it may be a subspecies or a colour variety of *N. rivularis* s.s. Your tentative identification of the Coromandel flowers supports that belief.

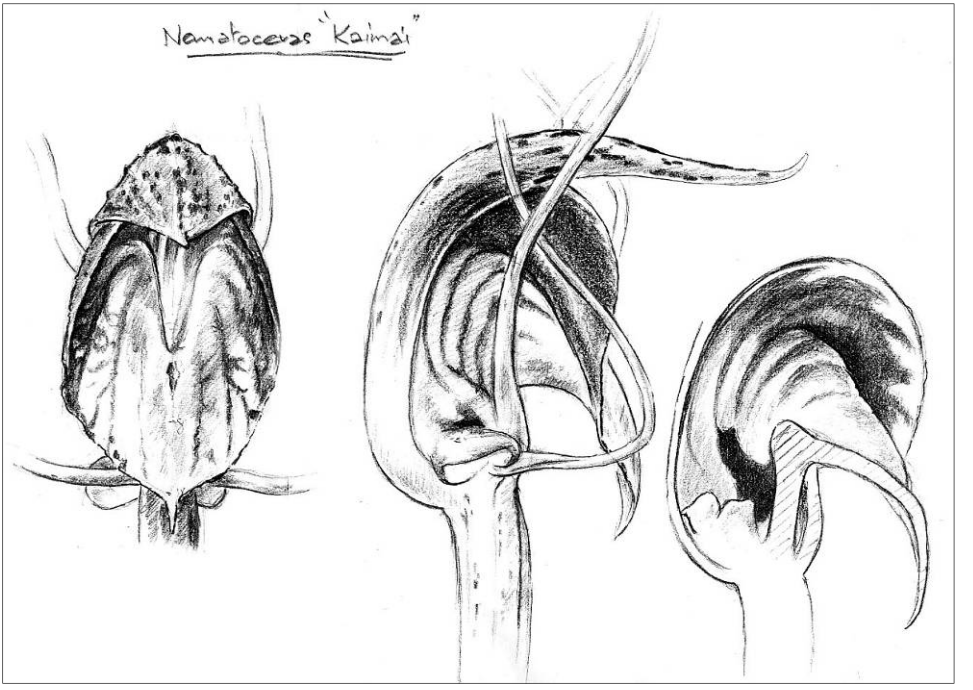
"As for the whiskers on those Coromandel flowers, they undermine the wisdom of tagging 'whiskers' by that particular name. Apart from its round appearance in side view and its enormous auricles, *N.* 'whiskers' shows a close resemblance to *N. papa*, particularly in colour. The actual whiskers are not prominent, and become obvious only when a strong light is reflected from them. On 'whiskers' they obscure the pattern of veining on the 'apron' of the labellum, so providing another clue to whether the flower is *N. papa* or *N.* 'whiskers'. One small problem is that I'm not certain that *N. papa* lacks whiskers. Certainly *N. iridescens* has them, but they are very dark so are less likely to reflect light.

"Another doubtful species is *N.* 'sphagnum'. It seems to be different from *N. iridescens* (and *N. longipetala*). It appears intermediate between those two species, though close to *N. iridescens. N.* 'sphagnum' is common in the wet areas of Rangataua, while *N. iridescens* appears to be absent. Why is that? I know that in sour soil *N. iridescens* becomes difficult to identify as such. The rounded 'bead' at the entrance to the column cavity becomes barely evident, and the whole flower appears shrunken in shape. Perhaps *N.* 'sphagnum' and *N. iridescens* are genetically identical. *N.* 'Kaitarakihi' may also prove to be *N. iridescens* modified. *N.* 'Mangahuia' also.

"*N.* 'Veil' too, appears similar to *N. longipetala* except that it seems rather later flowering.

"Your *N.* 'Kaimai' flowers show no real differences from the many earlier drawings I have made of *N.* 'Kaimai', except that one drawing carries a note: *'Now that Corybas "whiskers" has been found from National Park, Wanganui, Arapuni and Waitomo, the similarity to C. "Kaimai" becomes very obvious. BUT although the length of stubble varies on "whiskers", C. "Kaimai" apparently shows no sign of stubble".*"

"You have proved me wrong!"



To mark the New Zealand Native Orchid Group's

25th anniversary,

and the

NZ Native Orchid Journal's

100th edition

The editor invites you to send in your best photographs or paintings of a native orchid for inclusion in a special colour edition

The main 25th anniversary project is to be a colour CD of described species and undescribed taxa. We are keen to include as many contributors as possible, and welcome photographs, drawings, or observations.

notesetc

See nice examples of **Eric Scanlen's 3D orchid photography** on http://nzphoto.tripod.com/orchids/.

A few years ago now Pat Enright and Olaf John discovered a tiny colony of the undescribed ***Nematoceras* "rest area"** (so named by its discoverer Bruce Irwin because he found it by a stream alongside a highway rest area south of Taupo). Pat and Olaf's discovery was important, because it was near Wellington (Puffer track, Kaitoke), so the wide separation gave credence to Bruce's claim that it is distinct. I saw it there again on 9 October 2005, a 25cm diameter colony under fern beside a trackside trickle, several flowers spent, but one in full glory—see **cover photograph**. I think "*Nematoceras restarea"* would be a good name for it—celebrating its first discovery by a stream near a highway rest area on the Central Volcanic Plateau, celebrating Bruce Irwin's puckish sense of humour in tagging it thus, and celebrating its survival after burial in volcanic ash from the big Ruapehu eruption of a few years ago (Latin *restare* = to be left behind, to survive; *restarea* = survivor?). Nice pun I think.

Jan Kelly wrote (26 October), "***Hymenochilus tanypodus.*** My husband Errol Kelly found these orchids (**Fig.2**, p.9) in the Tekapo basin Sunday 23rd (Labour weekend); they seem to be early? There were 50 or so, singly and in big groups, just poking out of the *Hieracium* but clearly well into their flowering season. This is the first time we have seen this wee orchid. It was on the road to Round Hill Ski Area. We looked downhill of the site, nearer the lake, and found none, so it may only be on the terraces. Not knowing who to tell about it I phoned Mt Gerald Station and told Mr. Burtscher, he was absolutely delighted. The owner of Richmond Station is away at the moment. I thought that if they knew the orchids were there they would take care of that small environment, which it seems they will."

Ian Reid sent photographs he had taken in the late 1980s of a *Prasophyllym:* "Recent journals and even earlier, back to No 75, highlighted ***Prasophyllum* aff. *patens*,** and alerted me to old photo records made in the 1980s to 1990 in north Waikato – from (a named) swamp (**Fig.3**, p.9). In the late 1980s Peter de Lange introduced me to the dome of this swamp, where many rare orchids – *Thelymitra* sp. and *Pterostylis* – flower in November/December. I showed photos at an earlier Iwitahi meet, of a *Prasophyllum* I chanced to pull up from a watery bog; that is, I raised the long green flowering stem – like a piece of hose wallowing in the wet – covered with flowers. No-one with me saw the plant as I photographed it – we were scouting separately on the dome. After seeing my photos, I realised further study was calling, but on subsequent trips to the dome I never found the plant again."
*—It looks like **Prasophyllum hectori (or should that be hectorii?)** to my untutored eye, albeit one lacking anthocyanin, so simply green and white—Ed.*

Helen Richards wrote, "***Thelymitra* Kay Nesbitt** (**Fig.4,** p.9) is a hybrid which Les Nesbitt made, then registered in 1992, naming it after his wife Kay, who died shortly afterwards from cancer. She didn't quite make 50. Kay was a friend of mine and that is the reason I grow it, and I was given the tubers by Les. I am a species person, so it is the only man-made hybrid I have in my (extensive) Australian native collection. *T.* Kay Nesbitt is *T. antennifera* X *rubra*. Les gave me several tubers, and their colours vary. I have separated out the 'rusty-red' ones (in the *Bulletin*) and there is also a 'lolly-pink' colour. There was one honey-coloured flower last year which I separated out, but unfortunately it didn't come up this year. Les told me that he had noticed that some of them multiply and some don't, so I am checking that out also at repotting time.

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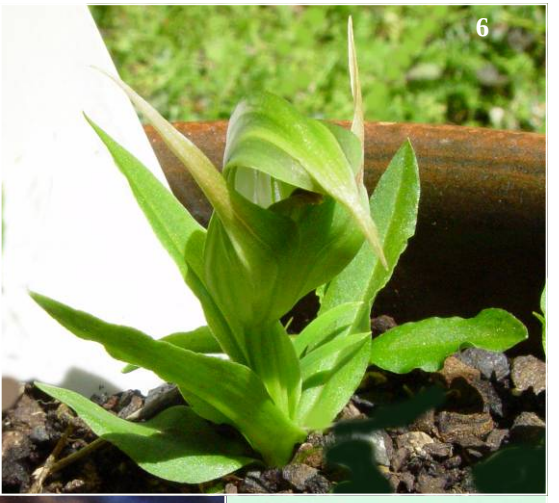

Fig. 9

the

Certainly most seem to, which is what you would expect from the parentage. They do make a lovely show every year, and as they multiply, I am sharing them around." The stunning photograph on p.9 is by Monty Wild, and first appeared in the Australasian Native Orchid Society (Victorian Group)'s *Bulletin,* November 2005; the plant won "Best Cultivated Terrestrial Orchid" at the Group's Spring Show.

Do Pterostylises become dwarfed in the pot? Certainly some do, as Dan Hatch has pointed out in regard to *P. humilis.* But a Pterostylis with upright tepals from the Hokonuis (**Fig.6,** p.10), and the prolific one with the reflexed sepals from Corner Creek (at foot of page), southern Wairarapa, were dwarfs when Pat Enright found them, and have remained so over several years in pot cultivation by Arnold Dench, that genius among native plant growers, in Wellington.

The **Waikaremoana field trip** turned out to be something of a disaster, with torrential rain turning to horizontal sleet as the southerlies hammered the unhappy participants. Of some consolation were excellent slide presentations in the DOC centre from Brian Tyler and Graeme Jane. We added two orchids to the local list—*Nematoceras* "Trotters" and *Pterostylis* aff. *montana.* I was interested in the local version of *Thelymitra nervosa,* which has the expected spotted petals and white cilia, but lacks the tuberculate back to the post-anther lobe, and has the upright leaf and deeply cleft post-anther lobe of *T. hatchii* (**Fig.8**, p.10).

Margaret Menzies photographed a **double-flowered *Nematoceras iridescens*** at Waitere (**Fig.7**, p.10). I've seen plenty of double *Singularybas,* but never a double *Nematoceras* before this: does anyone else have photographs?

A dwarf *Pterostylis* from Corner Creek, southern Wairarapa

Mark Moorhouse sent **excerpts from "On the Flowering Plants of Stewart Island"** by T. Kirk, F.L.S. [T.N.Z.I. Vol XVII, 1884, Article XXIV. Pp. 217, 224. Read to Southland Institute 9 Dec 1884]: "Amongst the shrubs the soil is often carpeted with a compact growth of the charming liliaceous plant, *Callixene parviflora,* with its elegant drooping flowers, mixed with numerous ferns, orchids, and mosses. The orchids form a marked feature in some parts of the forest. *Corysanthes oblonga, C. rivularis,* and others produce their attractive flowers literally by the thousands; in no other locality have I seen these interesting plants in such vast profusion. *Gastrodia cunninghamii* is rare, having been observed only on the small island of Ulva. *Caladenia bifolia* is frequent, one of its forms making a close approach to *C. lyallii. Chiloglottis cornuta* occurs on Ulva, the glands on the labellum vary considerably in their shape and arrangement. In the majority of cases there are five depressed coloured glands arranged in a symmetrical manner, in a few specimens they were reduced to three, and in a solitary plant numerous stalked glands were arranged in a double row down the middle of the labellum exactly as in the Tasmanian *C. gunnii*, which is probably a state of the New Zealand plant. The dwarf variety of *Pterostylis banksii,* with abbreviated sepals, is common in open places in the forest.

"In addition to the terrestrial forms, the epiphytic forms are well represented, with the exception of *Sarcochilus,* which appears to be rare, and *Bolbophyllum*, which has not been observed on the island…. Two specimens of a small epiphytic orchid were obtained on the descent from Mt Anglem. It seems probable that they will form the type of a new genus closely allied to *Burnettia* and *Chiloglottis.*"

Mark commented, "The unnamed species of orchid found on the side of Mt Anglem, on Stewart Island, sounds like a nonflowering specimen of Pterostylis venosa or humilis. I have pictures of just such two-leaved plants from up behind the Mt Rochfort TV translator above Westport." And was this the first report of Chiloglottis valida in New Zealand? And what about those dwarf Pterostylis banksii? (see p.11)—Ed.

Brian Tyler wrote, "To add minor but maybe significant observations to Bruce's article on **winter chilling** in Journal 97: the *Nematoceras longipetala* from around the Levin area were in full flower early July this year, while plants from the same roadside locations now growing in the glasshouse started flowering at least two weeks later, even into August for some. Frosts were a feature of early winter this year followed by relatively mild weather until September.

"During Labour weekend we found *Pterostylis banksii* flowering beside the Ohinetonga loop track on the bank of the Whakapapa river at Owhango. Yesterday (9 November) a walk up Grays Road had large numbers of plants but no flowers, some in bud but mostly not that far advanced. I guess the winter would have been colder in the Central High Country than around here.

"Conversely I had a *Thelymitra longifolia* flower in the glasshouse on 27/28 October whereas those in the open have not yet flowered. Perhaps they prefer a warmer winter and dont need any chilling. The glasshouse air temperature falls to about 5 deg. C on a typical frosty morning, so the ground temperature is probably several degrees warmer than roadside banks in the mountains.

"Should we ask the group to report first flowering dates of some selected species from around the country?"

Ontogeny follows phylogeny is a dictum I learned at medical school. Ontogeny is the *individual* development of an organism throughout its life (life lasts, I

am told by bawdy friends, not from the cradle to the grave, but from the sperm to the worm—the conception to the resurrection). Phylogeny is the *evolutionary* development of a species or higher taxonomic group of organisms.

We humans start life individually as a single amoeba-like cell and develop through stages that look in turn like a fish, a reptile, a monkey and finally a human. And we humans, as a species, developed evolutionarily in a similar fashion. Ontogeny follows phylogeny: it's a simplistic notion, but it can be a useful one.

I haven't seen the dictum applied to plants, but why shouldn't it be? An evolutionarily advanced *Nematoceras* like *N. longipetala* emerges from the ground, its bud cupped in the concave leaf, its tepals curled above and around the bud. The tepals straighten as the bud grows upward; the labellum openings form and the edges flare; the tepals elongate and become more delicate. If you stop this process at midpoint, you get a short, upright flower, its labellum not fully open, its tepals upright and stout.

And it looks a little like *N. dienema*, from which, indeed, it may have evolved – or the other way around.

Have you ever wondered why only one northern hemisphere species of orchid can be found in New Zealand in the wild? asked Mark Moorhouse. ***Spiranthes sinensis* is found in Chinese herbal dictionaries,** and is used as an anti-inflammatory. To explore this further, visit www.nricm.edu.tw/jcm/011/11-2-04.pdf, or search 'Spiranthes Chinese herb' in Google.

"Did the Chinese bring *Spiranthes sinensis* to New Zealand before the Maori arrived?" Mark had been reading *1421: The year China discovered America* (ISBN:0965731286) by Gavin Menzies, published in 2002.

"Imagine," the Amazon.com blurb for the book suggests, "great flotillas of massive Chinese junks, carrying thousands of sailors, craftsmen, and concubines and traveling the world's oceans. Mapping as they went, they planted crops and left stone structures and colonies all around the Pacific Rim, along the West Indies, and even the eastern coast of the Americas, as well as charting Greenland, parts of Antarctica, and the Azores. All of this happened, according to Gavin Menzies, decades before Columbus crossed the Atlantic. In fact, reports of noneuropean human remains and woodcarvings washed ashore on the Azores were part of what convinced Columbus that the newly discovered islands pointed the route to Cathay. Menzies provides point after point of credible evidence, from shipwrecks in California and Chinese chickens in Central America to the underwater stones of the mysterious Bimini Road, and argues that the mysterious stone tower of Newport, Rhode Island, closely matches a lighthouse in Song dynasty China. Sent out by Emperor Zhu Di in 1421 to find the ends of the earth and collect tribute from the barbarians beyond the sea, the voyagers returned to find their emperor fallen and China in chaos. The ships were left to rot and their records destroyed. Still, the stories of exploration were preserved among Chinese historians. Menzies seeks to bring this information to a reluctant West, which has too long favored Columbus's America and Cook's Australia."

On the other hand currently accepted western (europocentric?) theories have it that the Austronesian forebears of Maori left Taiwan around 1600 BC, because migrant Chinese were squeezing them out. Could it be that Hawaiiki, the mythical Maori homeland, is a misty memory in the valleys of Taiwan? Bunun, Amis and Yami are three southern Taiwanese indigenous tribes whose language is part of the Austronesian group. DNA sequencing links them with Maori, in particular the Amis people from the east coast of Taiwan.

James Ihaka reported on the visit of Taiwanese writer Evelyn Ma to

New Zealand on a Taiwanese government-sponsored visit to research Maori customary practices and traditions. Mrs Ma said she was "fascinated" by the Maori custom of rahui (prohibition/conservation). All native people of Taiwan still practised some form of rahui over their own ancestral lands or fishing grounds, she said. The Taiwanese natives have an oral tradition, practise tree-cutting rites and ceremonies for building canoes, tattoo the faces of people of noble birth and have several deities for natural phenomena. Mrs Ma said she was also finding things of real interest in the legends of Maui: "There are stories in Taiwan where a man and his son set off to conquer the sun to make its appearance more regular," she said.

The archeology suggests the Austronesians did not reach NZ until after the Tarawera eruption of 1150 AD. DNA evidence suggests 190 women were in that last push to New Zealand. And there were probably more men, so perhaps more than the traditional seven waka were used. They brought plants and animals with them. Perhaps some of the plants were medicinal; perhaps one was *Spiranthes*.

Gavin Menzies writes that, according to Maori folklore, when they arrived in New Zealand they had to defeat a tribe of people who were already well established in the South Island. Until now we have called them the Moriori. After killing the males, the North Island East Coast Maori tribes took the females captive as brides and slaves. This explains the pool of Chinese genetics that can be found in the Maori inhabitants of that area today (Ngati Porou, Ngati Kohungungu). Even their physical appearance suggests Chinese.

Did these Chinese emissaries of Emperor Zhu Di in 1421 introduce *Spiranthes sinensis* into New Zealand among their genes and their medicinal herbs? It seems implausible – while we don't know the exact date of Austronesian/Maori arrival, 1421 is almost 300 years after Tarawera, and by then these seafaring explorers should have been pretty familiar with the South Island. But it's an intriguing thought.

Among my father's papers I recently found ***Te Aroha and the fortunate valley—pioneering in the Thames Valley*** *1867-1930,* a little book produced to mark the 50th anniversary of Te Aroha in 1930. One of the chapters is "Some botanical notes" by Marguerite Crookes. In it she wrote,

"Of the Orchids of the Te Aroha district, I could write much.

"The native Dendrobium (Dendrobium Cunninghamii) with its white or pink flowers (December to February), and its stems jointed like miniature bamboos is common perching on trees.

"The Earinas both perch, one (E. Mucronata flowering in spring, and the other (E. Autumnalis) jutting forth its deliciously scented sprays in autumn. Species of the lovely Thelymitra are found on the flat while the fascinating Orthoceras strictum, whose flowers look for all the world like beetles climbing up a stick, flourishes on the forest outskirts. There are four species of that quaint little plant Corysanthes, which looks so much like a red spider sitting on a leaf. These are particularly common in the Waiorongomai Gorge.

"We must not forget the species of Pterostylis with its big, green, hooded flowers, or the Maori onion (Microtis longifolia) which flourishes in the open.

"The little winter flowering orchid (Acianthus Sinclairii), with its spike of little green, pointed flowers rising from the centre of a heart-shapcd leaf, and the tiny fragile, pink Cyrtostylis oblonga, will be seen when there is little else flowering.

"Two species of the parasitic orchid (Gastrodia) are found in the Ohinemuri County."

Observations on the Nelson *Corybas* alliance

by Mark Moorhouse

Corybas (Nematoceras) trilobus

Something that has interested me for a number of years is the variation one can observe in colonies of *Corybas trilobus.* It's not surprising to find variation, after all it has long been known as "a variable species" with various textbooks commenting on "different forms", or "containing several taxa".

What has been more enigmatic, at least to me, is why? Recent observations and some enlightening discussions with Dr Graeme Jane, have shed some light on this matter.

To understand the Why? one must look carefully at the How? That is, how the plant reproduces itself. A high percentage of *C. trilobus* colonies that one observes have sourced from a single seed striking favorable ground, in some cases centuries back. After the original seed grew the chief form of reproduction became vegetative propagation, through its tubers, effectively producing perfect clones of its original genetic makeup. So, zero variation within a single colony would be what one could expect to find and usually this is the case. Because each colony sources from a single seed strike, often decades or even centuries apart and thus likely from varying parent colonies, variation could be expected from colony to colony, but this is not always the case. Often flowers are self pollinating or a pollinator enters one clone plant and fertilises another in the same colony. The result of a clone "selfing" or crossing with a clone has still got to be the same clone as no new genetic material has been introduced.

Things become interesting, however, when one locates a patch of favorable ground harbouring two intermingled, but separate, clone colonies. This season, in company with Georgina Upson and Dr Jane, I was fortunate enough to spend a little time observing a classic example of this, in the Clarke Valley. Here were two colonies, one with the so called subalpine green form of *C. trilobus*, the other with a dark red-black flower very closely approaching *C.* "darkie" of Dip Flat, both colonies flowering simultaneously and quite intermixed. No obvious differences in the leaves presented themselves, though both demonstrated the straight-side leaf syndrome on flowering plants. After a careful search of the entire patch, during which we discussed the likelihood of "halfway house" flowers, we came up empty handed. There were none, but it was mooted that we should be likely to find such a colony in the near vicinity and sure enough, less than 80 metres away, Dr Jane located just such a colony. These plants showed some characteristics of both the original colonies, and had flowers approaching what I understand to be *C.* "Trotters" in coloration. Other colonies in the near vicinity will no doubt show other variations we have become accustomed to seeing because each sources from a separate seed, either from inter-colony crosses or intra-colony clones. The argument was beginning to gain some credibility. Nearby the stream banks abound with *C.* "whiskers", and *C. acuminatus* also still in flower.

Further extrapolation of this concept raises some other interesting possibilities. If one could somehow produce a figure which represents the rate of vegetative cloning, one might be able to calculate the age of a colony within a decade or two by doing a head count over a few seasons. Do huge colonies actually represent a single seed that struck, say, one century ago? 500 yrs ago? 1 or 2 thousand years ago? Still a perfect clone of the original, whilst on a ridge a few hundred metres away where fungus gnats abound, a colony of just five plants

might represent the result of 50 cross pollinations during the same time period. Two colonies close together, one with unchanged genetics for 2 millennia, the other modified every couple of decades, both *C. trilobus.*

This raises a new concept.

A 2000 yr old *Corybas*—is it possible?

The simple answer is yes, and probably not too uncommon. But you might argue, they grow, flower and die each year, how can you suggest they are actually 2000 years old, only a few trees like our Kauri live to this sort of age.

Briefly consider a deciduous tree, an oak for example, would you say it dies each year when the leaves fall off in winter? Of course not, it's just dormant. So too is the *Corybas* when it dies down. It is quite alive down in the ground in the form of a dormant tuber. But the new tuber is a new plant you may argue. Is it? The genetic makeup has not altered. Reconsider the oak. Are you suggesting that if we cut off all the limbs whilst it is dormant, the new sprout it grows from the trunk in spring is a new plant? No-one would argue this way.

So having established that *Corybas* do not die each year consider this. It should be possible to walk out into the forest and locate a colony of say *Corybas trilobus* perhaps a large one, and quite correctly conclude that you are looking at a plant which through vegetative propagation has remained alive and genetically unchanged for maybe 2000 years.

It would be true to say that likely, the colony's flowers have been pollinated, cross-pollinated and/or selfed almost every season, and literally billions of seeds have been dispersed from the resulting capsules, but this did not affect the genetic makeup of the original plant, did it? It only affected the offspring that grew from its seeds when they found favorable ground.

In light of this, it is not difficult to perceive how the observer might be persuaded to conclude that two colonies, looking a bit different from each other, are two separate species, or at least vars, and no doubt, given enough points of difference, it might convince the taxonomists too, and yet they are in fact the same species. A variable one. After all a five year old child and a centenarian probably demonstrate enough points of difference to warrant being called different species to the not so astute observer don't you think?

***Corybas* "Trotters"**

Something which I have personally observed in connection with *C.* "Trotters" in the Nelson area is that it only occurs locally where one of the *C. rivularis* alliance is present in company with *C. trilobus*. Almost always, it is *C.* "Whiskers" and I can cite a number of instances where I have found *C.* "Trotters" and *C. trilobus* in an area and later discovered, or purposely searched successfully for, *C.* "Whiskers", or conversely, found both *C. trilobus* and *C.* "Whiskers" and successfully searched to find *C.* "Trotters".

In the light of recent articles published on the hybridising habits of various *Corybas* species and clear documentation of hybrid *Corybas* swarms by Bruce Irwin, and Dr Graeme Jane [pers. com.] the above association of species may suggest parents for *C.* "Trotters".

The writer would very much appreciate feed back on this observation, preferably printed in the pages of this magazine so that all can share it. Perhaps it is only a local phenomenon.

Corybas cheesemanii

On 22 October, my daughter Kendyll Levy emailed me saying she had *C. cheesemanii* in flower. Of course I raised my eyebrows, it was two months out of season, and I requested a photo. She sent several showing a normal looking flower, but I noted that it showed no signs of the vestigial tepals above the horns a variation worth jotting down. It also demonstrated to me the need to check those seed heads when identifying *C. cheesemanii* from the scarcer *Molloybas cryptanthus,* especially when using the time of seeding as the identifying factor. I confess to having been caught out myself.

Molloybas cryptanthus

Thanks to just such careful observation alluded to above, and subsequent vigilant inspections by Georgina Upson, she was able to show Dr Jane and myself some *Molloybas* in flower on 22 October on her property in the Baton Valley, Nelson. A first record for the E.R. [46.07] I believe. Interestingly, although the plants were clearly *M. cryptanthus* some aspects were notably at variance with written descriptions, particularly the length of the dorsal sepal, which was linear [parallel sided] and acute, exceeding the fimbriate labellum in length by almost 10 mm on one plant. The colony was in pure *Nothofagus* leaf litter only a few metres from the forest fringe.

This discovery and the new additions of *Stegostyla atradenia, Caladenia bartlettii, and Corybas macranthus* now brings the total species found on the Upson's property to over 40, a veritable orchid lover's paradise.

Caladenia alata at Rainbow Mountain —dispelling a myth

by Graeme Jane, Tauranga

Michael Pratt's photo of *Caladenia alata* prompted me to visit the area on 2 Nov 05 to seek it out with some success. I noted several plants in flower, including one brilliant pink and several whites adjacent. This started thoughts about why?

Then in the latest issue of the *Journal* the article by Eric Scanlen prompted further response, especially his surprise at records from south of the Bombay Hills (end of the earth??). This he dismisses without further comment.

C. alata is by no means the only outlier present on Rainbow Mountain. Other "unexpected" plants found there are several kauri associates including the shrub: *Corokia buddleioides,* and the fern: *Schizaea dichotoma.* Also there from the Far North is the fern *Dicranopteris linearis*. Then from the coastal areas there is warmth loving and very primitive land plant *Psilotum nudum*. *Calochilus robertsonii* is also seen there, but this is not so extraordinary as it seems, since it occurs also at several localities around Golden Bay and Nelson (but that is another story).

The explanation for these "anomalies" is quite simple. These are remnants from warmer climatic times when kauri and similar plants grew this far south. There are in fact quite a number of species, especially ferns and their allies that occur in or near thermal areas around the Rotorua-Taupo area that only occur in the Far North. Rainbow Mountain perhaps hosts more of these species because it has some residual forest protected from recent volcanic eruptions and settler "improvements". These species can perhaps be regarded as refugees awaiting more favourable climatic changes in the surrounding landscape, maybe arriving in the next 1000 years or two.

Interestingly, the presence of *Paracaleana minor*—an Australian vagrant recorded from only one site near Rotorua over a very long period, probably has another more mundane explanation. It could have arrived during one of those periodic severe bushfire seasons in eastern Australia when smoke, ash and apparently orchid seed and insects are carried high into the atmosphere and brought eastwards in the jet stream in a few hours. More likely though (since it has occurred nowhere else), it arrived in soil on the shoes of a visitor to the thermal wonderland.

Lucy Moore – New Zealand botanical artist

By J.B. Irwin, Tauranga.

I was privileged to be associated with Lucy Moore over a long period – perhaps more than 25 years, long enough to realise that she was a truly remarkable person. Her reputation as a botanist was recognised worldwide, so you might expect that botany would be her sole interest. Not so, Lucy was intensely interested in people from all walks of life. She had an amazing ability to sense the strengths and weaknesses of those she became involved with, as I found out. For years after Lucy had invited me to coauthor *The Oxford Book of New Zealand Plants*, I wondered why I of all people had been chosen for that task. Finally I was unwise enough to ask her why? Her reply was hesitant and avoided a direct explanation, so I had to offer my own. I postulated that Lucy felt that I had the potential to produce good botanical drawings, but lacked the drive to reach that potential, someone had to push me along. I asked her if that was the reason. From her evasive response I knew that I had scored a bullseye. Clearly Lucy understood me, though I didn't as yet understand Lucy. That out of the way, we continued our joint task until one day the New Zealand editor for the Oxford Press informed me that I would receive a copy of the new contract in the next day or two. I said I understood that the Oxford Press was prepared to honour the original contract, although it was already about 8 years past the completion date specified. The editor was clearly surprised that I had no knowledge of the new contract, but didn't discuss its contents.

When that contract arrived it stated that the authors had agreed that all royalties were to be paid to J.B. Irwin. I phoned Lucy in Lincoln and said that the authors had agreed to no such thing. It was a long phone call during which Lucy said – "Well that is the way it has to be" – over and over until I finally meekly signed the contract. At that time Lucy's eyes troubled her greatly. She needed cataracts removed from both eyes but wouldn't agree to surgery until the book was published. It was a further year before she completed her text.

After publication, Lucy rang me to tell me that the Oxford Press had very generously given her twice as many free copies of the book as stated in the contract. Before she could ask me how many books I received, I lied (convincingly I hope) that I too had been surprised by the publishers' generosity. I'll never know whether Lucy deduced what really happened, but my guess is that she did.

In publishing the above I am breaking a promise not to reveal that Lucy had spent almost every moment of her spare time over a period of 11 years, preparing a book for which she received not a single cent. She was concerned that her family might not understand. However with the passage of time I feel that her nieces and nephews are entitled to know how particularly special their aunt was. Surely there can be no ill feeling.

Lucy was particularly interested in encouraging amateur botanists to contribute their snippets of knowledge toward a better understanding of our flora. She placed great value on the accumulated knowledge of her many willing disciples. Maureen Young, NOG member of Warkworth, was one of them. I am sure that Maureen's opinion of Lucy would match my own.

Yes, certainly Lucy Moore was a remarkable person, but was she really a botanical artist? Well she didn't make drawings for publication, but the many drawings she did make had a most important purpose. They were a vital training tool in developing her own skills as a taxonomist. Lucy believed that taxonomic decisions must be based on detailed and accurate observations. Also she was convinced that drawing the subject was the best way (perhaps the only way) to ensure that the observations were accurate and complete. Can anyone accurately draw a plant unless they see

it clearly and understand its every detail? If you have doubts, try drawing a cat without first studying it carefully. Once completed Lucy's shorthand sketches provided a permanent record of minutiae which even her remarkable memory might otherwise forget.

One of the limitations of a botanical illustration is that is virtually impossible to include the infinite possible variations within a species. Lucy had a way round that problem. For instance when drawing for *The Oxford Book of New Zealand Plants*, I occasionally illustrated an atypical form of a species. I felt apologetic, but Lucy regarded such apparent faults as advantages. They gave her an opportunity to explain that such variations must be expected within any species of plant. Lucy illustrated that very important truth, not with a sketch, but even more completely with a few well chosen words. Often an illustration reveals more than a lengthy description, but there are times when lucid, concise prose is far more effective. The two arts are truly complementary. Yes in a very real sense, Lucy Moore was a botanical artist – and a very successful one.

Plant names

By Graeme Jane, Tauranga

During my recent visit to Nelson I had some rigorous discussions with Mark Moorhouse over the lack of stability in plant names, the concepts of species and genera. Then, when I arrived home, I was confronted by an article by the Column impugning the names and abilities of early taxonomists in his article on *C. alata*.

There are perhaps two issues: the concept of species and genera, and the rules governing acceptance of names. The second is the most straightforward and easiest to deal with. Internationally recognised rules were established in 1935 as the *International Code of Botanical Nomenclature*. This sets out the requirements for defining a name, including the identification of a type, requirement for a Latin description and rules for deciding publication dates.

The basic unit of taxonomy is the species. Lower ranks tend to be used sparingly. Subspecies is used for taxa which are usually geographically separated and often have a different chromosome number. They are regarded as incipient species. Varieties are less commonly used and are regarded as minor variations which can readily interbreed with the main population. Forms are even less distinct and often represent only a single morphological difference.

At a higher level genera are regarded as groups of species which can be linked to a single ancestor (monophyletic). Some recent generic changes hinge on the point at which the common ancestor is recognised (often as represented in "tree form"). The question is sometimes whether one large genus is recognised or many smaller ones. The difficulty is usually that there is a core of very similar species and then a large number of smaller groups. *Caladenia* (in the broad sense) has over 250 species which can be subdivided into 13 genera, one of 150 species, one of 40, one of 20 and the largest of the rest is 9; or into 6 genera with 6 subgenera but still leaving several small genera.

The role of a flora, or a monograph on a genus or family, is to summarise the state of knowledge and to provide a uniform brush over disparate treatments within genera or families. The *Index Kewensis* or the Landcare plant names database (http.nzflora.landcareresearch.co.nz) also provide similar regularly updated, authoritative references. The orchid list published regularly in this journal and similar items also help to keep in touch with name changes arising from recent papers.

The rule book

The *International Code of Botanical Nomenclature* states

The only proper reasons for changing a name are either a more profound knowledge of the facts resulting from adequate taxonomic study or the necessity of giving up a

nomenclature that is contrary to the rules.

Some recent name changes have arisen because it was found that the name had been previously used for another species (so a new name was needed) or the species was described earlier under another name (*Polystichum richardii* now *P. neozelandicum*). This normally arises because of accessibility of original descriptions (few copies printed or in languages other than English), the way in which regional floras were compiled (some early NZ. explorers were French or German), and difficulties of communication and transport in the past.

Another key issue is that people such as Hooker and Cheeseman often did not identify a single type specimen and frequently provided several sheets which illustrated their concepts of the species by showing the range of variation. This becomes a significant issue when the concept of the species is changed and narrowed. In these cases a type may need to be chosen from several specimens to best represent what the original author of the name intended in his description eg. the type sheets of *Coprosma parviflora* var *dumosa* contain material of three species recognised today.

Occasionally the specimen identified as the type is shown to be a hybrid and so a long used name is replaced by a new one (*Olearia capillaris* now *O. quinquevulnera*). All these circumstances are covered by the rules.

Species concept

What constitutes as species? When do we know we have a different genus, species, subspecies, variety or forma? Some of these questions were explored by Ian St George and Oliver Sparrow (courtesy of David McConachie) in issue 93 of the Journal. Ian set out the techniques used to investigate plant populations and explore variation while Sparrow, some of the analytical processes involved building the concept of a species/taxon.

Another recent source of material for the discussion is that of Hopper and Brown (2001). They make several key statements:
Thus taxonomic works should aim for stability, using validly published names consistent with scientific understanding wherever possible. To do otherwise is to indulge in the 'useless creation of names', which the ICBN specifically seeks to avoid.

In relation to the *Caladenia* debate they state
With independent agreement reached on pertinent phylogenetic relationships by leading contemporary workers, this issue of rank is no longer a scientific question. Rather, it is one for informed choice after careful assessment of relevant evidence and argument
and
Indeed, arguably the plethora of new generic names would obscure relationships, leading to a less predictive classification in the hands of most nonspecialists. In such circumstances, in our view, nomenclatural stability emerges as a most important consideration
and
history will be the final arbiter on such vexing questions of rank…. The acid test of acceptability to the wider botanical community has not occurred.

What they are saying in effect is that no matter what the science involved shows, the ultimate test of changes to generic or specific names is what the wider community is willing to accept and adopt and this can change over time as techniques change and methods of investigation evolve.

Caladenia alata

Getting back to *Caladenia alata*, many of Scanlen's assumptions are at best provocative. There is a wide difference in species concept between Colenso, who regarded minor plant variations as species, and contemporaries such as Hooker and Cheeseman who often adopted broader concepts of species. In his lifetime, Colenso described a large number of species many of which were not accepted by later authors, not even today. On the other hand recent authors have examined some Hooker or Cheeseman species and defined several new species. One of these is *C. minor*.

In the 19th century there were no firm rules

on names, or procedures for describing species. Acceptance of names depended on reputation and ability to communicate through dispersal of journals and personal contacts. A name is often cited with a name (or initials) following and sometimes a date to signify whose concept is being followed. Hence *C. alata* Hook. f. 1853 is different from *C. alata* R.Br 1810. The first is that described by Hooker in the Flora of Tasmania, the latter that described by Robert Brown in his *Prodromus*. The first is illegitimate as the latter has precedence but can still be used when talking about the two descriptions. In these cases "*C. alata* Hook.f. 1853 non R.Br. 1810" may be used to identify what Hooker described from Tasmania.

Caladenia minor is based on 22 specimens and a drawing, possibly derived from a spirit specimen that was dissected. The earliest compiled sheet has 4 specimens three of which are *C. alata*. Hooker in his type description emphasises that *C. minor* is pink. Examination of the type specimens by Clements in 1987 showed that the open flowers are assignable to *C. alata*, the remaining buds are probably indeterminate. No specimens matched the Fitch drawing. No widespread plants have a pink flower like that of Fitch's drawing although Colenso's *C. variegata* may approach it. As Ian St George in 2002 states, *C. minor* may merely be a later name for *C. alata* (or an earlier one for *C. exigua?*).

Caladenia alata is based on plants collected in Sydney. The type description makes no reference to colour, although it emphasises the pointed tepals and few lateral calli. Hooker in preparing his flora of Tasmania (1855) used the name *C. alata* but was unsure whether it sufficiently fitted Brown's description. Fitch's drawing was not of *C. alata* as we now know it. By 1902 Curtis, in revising the Tasmania Flora, had assigned *C. alata* to *C. carnea*. Until 1987 (and even now) *C. carnea* was regarded as a very variable species encompassing many varieties with var. *alata* as but one.

The key to the long history in establishing the name *C. alata* was identifying the specimen that Brown had used to describe his *C. alata* and describing it in detail. Until 1935 there was no requirement to define or identify a single type specimen. It was only detailed detective work by Jones and Clements in 1984-87 that identified and typified *C. alata* and *C. minor*. With this in mind Scanlen's observations provoke comment.

Hooker obviously adopted a broad definition for his *Caladenia minor* such that it included *C. alata*. Hence Hooker's description of *C. minor* was not "erroneous" but reflected a different, broader species concept as applied to New Zealand specimens.

Cheeseman did not "miss the Robert Brown connection". He was describing plants, from New Zealand, as *C. minor* var. *exigua* that fitted Hooker's pink *C. minor* but had acute tepals. The Australians had already subsumed *C. alata* into *C. carnea*. Also, Brown's description of *C. alata* was inadequate to distinguish the species from similar small caladenias in Australia, such as *C. aurantiaca* and, the types were lost in the vast collections at the British Museum (as they often are at Kew) at a time when travel was difficult. And perhaps thirdly he may have assumed that the Tasman sea was a barrier to species dispersal, as many later authors did till the 1940s.

Domin's 1915 inclusion of *C. alata* in *C. carnea* was not "a misclassification" - it again was application of a particular species concept to the two taxa, following earlier authors. He did not "miss the *C. alata* connection" he chose to follow earlier authors and adopt a broad species concept.

Hatch 1945 was not uneasy with the Rüpp/Domin arrangement he was merely stating that the current state of knowledge was inadequate to assign the varieties in *C. carnea* into separate species. Brown did not "at least get into the citation"; Hatch was using the proper attribution of the name *C. carnea*.

Rüpp's description of *C. holmesii* merely reflected the poor understanding of *C. alata* at the time not a mistake on Hooker's part. He was not classifying *C. alata* as *C. holmseii*, he

was describing plants from Wyong (near Sydney).

Moore and Edgar 1970 followed Rüpp and adopted a wider definition but acknowledged the state of knowledge at the time, specifically by stating (as the floras often do) "no critical description of the type of the species (*C. carnea*) has been seen". It was not "misclassified," as *C. carnea*, the authors merely provided the best knowledge available at the time.

Curtis (1979) did not just 'state a "comb nov.",' she had a different concept of the caladenias in Australia and transferred the New Zealand species (as varieties) to *C. catenata*. Brown was not cut out of the game - the name, *C. alata* R.Br. was not being affected here. It was the New Zealand *C. exigua* that was relegated to variety, consistent with the state of knowledge at the time.

The specific name to which the variety *exigua*, was attached (*C. catenata*) was established by Smith in 1804 under a different genus (*Arethusa*) which was later transferred to *Caladenia* by Druce - hence *C. catenata* (Sm) Druce (ie the definition of the species to be used is that of Smith,1804 and his type specimen applies).

C. exigua has not been dumped. At present the type specimen as identified and typified by Clements is regarded as being similar to that of *C. alata* R.Br 1910. non Hook.f. 1854, and since *C. alata* is an earlier name that takes precedence. If at some later date someone decides the differences are sufficient, the name *C. exigua* Hook.f, could be available for that taxon at a species, subspecies, variety or form level. However *C. minor* may also take precedence (St George 2002).

In summary we have two parallel paths, one in Australia for *C. alata* and, one in New Zealand for *C. minor* (that is well set out by Ian St George in 2002) that later become joined:

Australia	**New Zealand**
1810 Brown describes *C. alata*	
	1853 Hooker describes *C. minor*
1854 Hooker uses *C. alata* in his flora of Tasmania (erroneously)	
1902 Curtis using *C. carnea* (pink fingers) placing *C. alata* in synonymy	
	1906 Cheeseman segregates *C. minor* var *exigua*
1915 Domin recognises *C. alata* as a var. of *C. carnea*	
	1926 Cheeseman establishes *C. exigua*
	1944 Rüpp relegates *C. exigua* to a var of *C. carnea,* along with *C. minor* as another var.
	1979 Curtis assigns *C. minor* to *C. catenata* (white fingers) and applies NZ varietal names to Tasmanian plants including var. *exigua*.
1988 Clements and Jones segregate *C. alata* from *C. carnea*, *C. exigua* regarded as synonymous with (the same as) *C. alata*, *C. minor* currently indeterminate but possibly synonymous with *C. alata*.	

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St George I, 1999: NZOG Journal 84:2-7.

St George I, 2002: NZOG Journal 93:6-7

Scanlen E. 1999: NZOG Journal 72:22

Scanlen E. 2005: NZOG Journal 97:33-36

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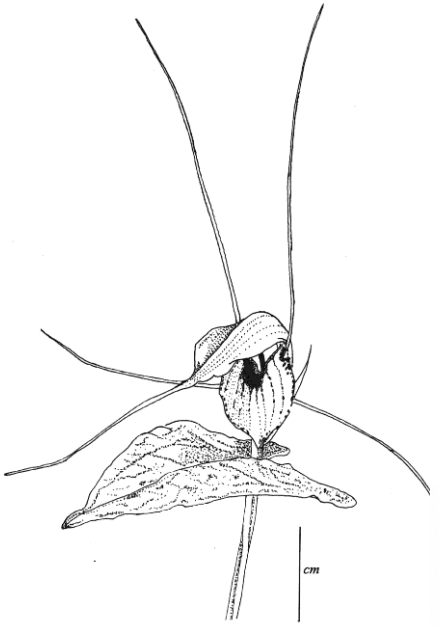
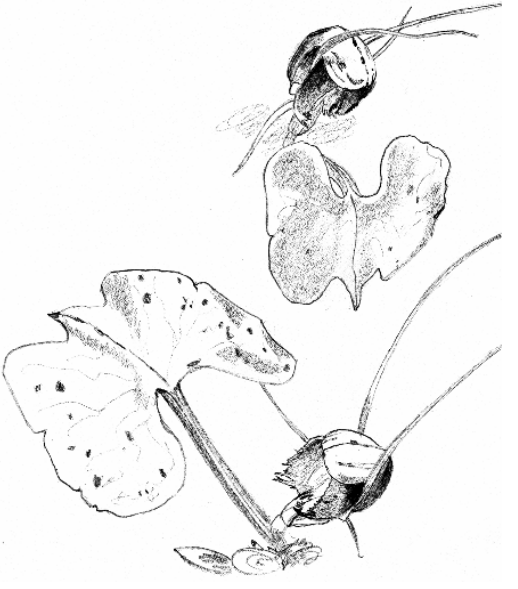
7: Nematoceras 1

Drawings by Bruce Irwin and Ian St George
(thread/horn – the long slender sepals and petals)

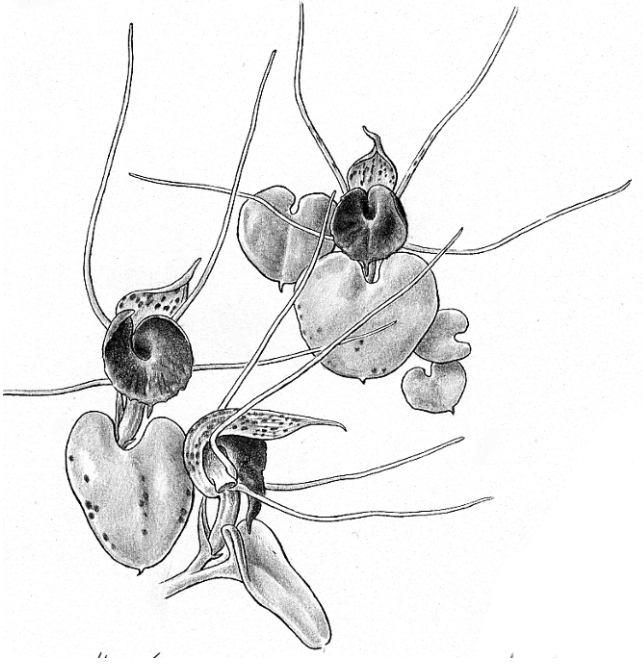
Dense mats sometimes a metre across. They share with *Corybas* and *Chiloglottis*, a tall peduncle which enables the seed to be spread over a wide area. One of the characteristics of these mats is the large number of barren plants compared with the few that flower and seed.



1. *Nematoceras acuminata* (the acuminate shape of the mature leaf)
A very distinct species, it has in its mature stage, an acuminate leaf with reddish veining on the under side, very long, filiform lateral sepals and petals, and a long filiform cauda to the dorsal sepal. Leaves of young plants lack the reddish markings, are reniform or broadly cordate, and have an apiculate tip which points the relationship to the round leaved species
Distribution – endemic – North, South, Stewart and Auckland Is.
Flowers – September-December – insect pollinated

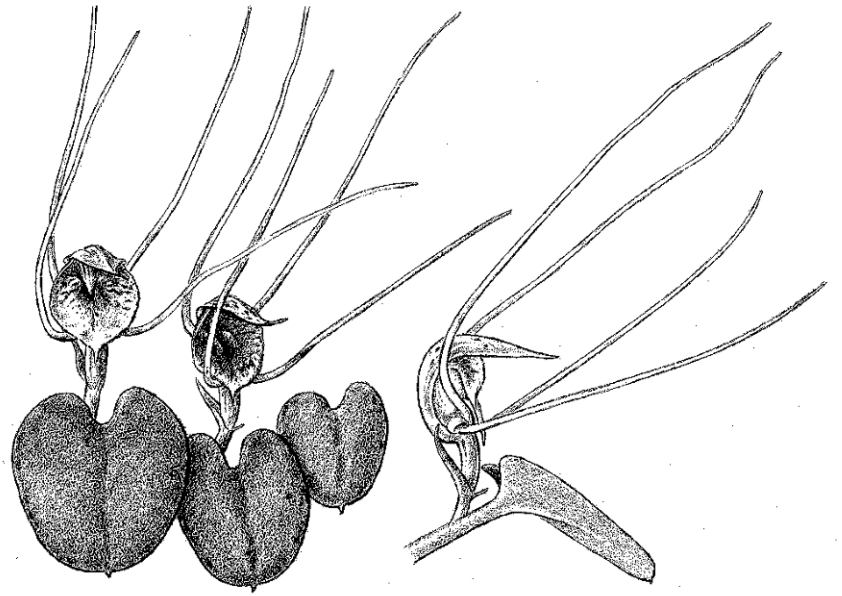


2. *Nematoceras hypogaea*
(underground, the flower buried in the moss and litter)
The trilobate leaf is above the flower – *cf macrantha*
Distribution – endemic – North Id: *Nothofagus* forest in the East Cape district
Flowers – September-October – insect pollinated



3. *Nematoceras iridescens* (the iridescent labellum, particularly when wet)
The general structure of the plant is similar to that of *N.rivularis s.l. q.v.*
Distribution – endemic – North Id: inland Taranaki and Wanganui
Flowers – August-October – insect pollinated

4. *Nematoceras longipetala* (the long petals – which are as long as the sepals)
cf N.rivularis s.l. q.v.
Distribution – endemic – North Id. Volcanic Plateau
Flowers – September – insect pollinated



the

mappinggordonsylvester

2006 update

The task of updating the distributions of our orchids by region has been completed and all references include journal number 95. The last time such a list was published was in journal 70. I took the liberty of going back to journal number 65 to ensure that all records would be included.

As in the past I have made the new entries bold and underlined them. There a couple of entries with a question mark. This is because the evidence for inclusion is a little vague and needs to be checked on the ground.

There is a cadre of members who regularly record sighting; there are a lot more members who feel that by recording a site it will open it to abuse. The manner in which the records are maintained is such, that an individual site cannot be defined - unless of course it has been disclosed through the pages of our journal.

The Department of Conservation would like us to record any find with a Global Positioning System reference. It is up to an individual to make that decision, not up to our Group. Quite a few of our records come from private land and as such are subject to the land owner's privacy.

All records in the database show only the person recording the sighting and the district/region. This can be subject to error as the location of the sighting has to be deduced from the written notes sometimes using local landmarks or local names for roads, frequently old names. Occasionally it is possible to get a location using the members list as a guide to the residence of the recorder. This method will of course create some errors. But these can be corrected over time.

Hopefully the list will be updated at regular intervals as new records come to light. I envisage every six months or so dependent on the editor's requirements.

Finally if you do have any corrections please let either the editor or me know so we can maintain the integrity of our data.

Acianthus sinclairii – 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 19, 20, 21, 22, 23, 24, 25, 29, **31,** 35, 36, 37, 38, 39, 40, 46, 47, **48,** 79, 80.

Adelopetalum tuberculatum – 5, 6, 9, **10,** 12, 13, **14,** 19, 31, 46.

Adenochilus gracilis – 16, 18, 19, 20, 21, 25, 29, 40, 43, 46, 47, 48, 49, 50, 51, 54, 59, 66, 68, 69, 70, 72, 73, 74, 77, 79.80.

Anzybas carsei – 11.

Anzybas rotundifolius – **3, 6, 9.**

Aporostylis bifolia – 10, 13, 15, 17, 18, 19, 20, 21, 23, 25, 26, 27, 28, 29, 38, 39, 40, 43, 46, 47, 48, 49, 50, 51, 53, 54, 59, 61, 63, 65, 66, 67, 68, 69, 70, 72, 73, 74, 77, 78, 79, 80, **82,** 83, 84.

Caladenia alata – 3, 4, 5, 6, **16, 24, 46, 47**.

Caladenia atradenia – 5, 6, 9, 10, 12, 13, 16, 17, 18, 28, 38, 39, 40, 46, 47, **49.**

Caladenia bartlettii – 3, 4, 5, 6, 7, 8, 9, **10, 20, 37, 39, 47.**

Caladenia chlorostyla – 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 20, 21, 22, **23,** 24, 31, 35, 37, 39, 46, 47, 48, 50, 57, 70, 72, 73, 77, 80.

Caladenia nothofageti – **12, 36,** 38, **39,** 40, **46, 47, 48, 49, 50,** 56, **72, 73**.

Caladenia aff. *pusilla* – **10, 25, 46.**

Caladenia variegata – **25, 35, 37, 39, 46.**

Caladenia ***lyallii*** agg. – 16, 17, 18, 24, 25, 26, 38, 39, 40, **43, 46, 47, 48, 49, 50,** 53, 54, 55, 56, 57, 58, **59,** 60, 61, 64, 65, 66, 67, 68, 69, 70, 72, 73, 74, 77, 79.

Caladenia aff. *alpina* – **46, 49, 53, 72.**

Caladenia aff. *fuscata* – **3.**

Caladenia "speckles" – 3.

Calochilus aff. *herbaceus*– 3, 4, 5, 9.

Calochilus paludosus – 5, 6, 10, 11, 13, 46, 47, **48.**

Calochilus robertsonii – 11, 13, 15, 16, 17.

Chiloglottis cornuta – 3, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, **31,** 35, 37, 38, 39, 40, 43, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57, 59, 61, 63, 65, 66, 68, 69, 70, 72, 73, 74, 77, 78,

55, 61, 65, 69, 79, 80.
Thelymitra hatchii – 9, 13, 16, 18, 20, 21, 24, 25, 26, **28,** 29, 35, 38, 39, 40, 46, 47, **48,** 49, 53, 55, 56, 57, 58, 61, 65, 66, 69, 70, 73, 77, 78, 79.
Thelymitra intermedia – 4, 5, 6, 9, 10, 11, 12, 16, **20,** 38, **39, 46,** 66, 69, 73, 76.
Thelymitra aff. *ixioides* – 3, 4, 5, 6, 8, 9, 10, 12, 13, 16, 18, 38, 39, 46, **48**.
Thelymitra longifolia – 2, 3, 4, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 35, 36, 37, 38, 39, 40, 43, 46, 47, 48, 49, 50, 51, 54, 55, 56, 57, 58, 61, **62,** 63, 64, 65, 66, 67, 69, 70, 72, 73, **74,** 77, 78, 79, 80, 83.
Thelymitra aff. *longifolia* agg. – **35, 39, 40, 41, 43, 46, 47, 48, 49, 74.**
Thelymitra malvina – 3, 4, 5.
Thelymitra matthewsii – 3.
Thelymitra nervosa – 13, 15, 16, 17, 18, 20, 23, 26, 29, 35, **37, 38,** 39, 40, 46, 47, **48,** 57, 65, **80**.
Thelymitra aff. *pauciflora* agg. – 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 23, 24, 25, 28, 35, 37, 38, 39, 40, 46, 47, 48, 49, 55, 56, 57, 61, 63, 65.
Thelymitra pulchella – 3, 4, 5, 6, 9, 10, 17**?**, 18, 38, 39, 46, 48, 49, 51, 55, 65, 66, 69, 70, **72,** 73, 77, 78, 79, 80.
Thelymitra purpureo-fusca – **37, 39.**
Thelymitra sanscilia – 3, 4, 6.
Thelymitra tholiformis – 3, 5, 8, 9, 10, 11.
Thelymitra "Ahipara" – 4.
Thelymitra "Comet" – **34**
Thelymitra "darkie" – 3, 4, 5,
Thelymitra "rough leaf" – 2, 3, 4, 5,
Thelymitra "sky" – **3.**
Townsonia deflexa – **10,** 18, 38, 39, 46, 49, **51,** 53, 73, 77, 79, 83.
Waireia stenopetala – 18, 38, **43,** 46, **48,** 50, 51, 53, 66, 67, 68, 69, 70, 72, 74, 77, 79, 83, 84.
Winikia cunninghamii – 3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 19, 20, 21, 22, 23, 24, 25, 28, **31,** 33, **35,** 36, 38, 39, 40, 41, 46, 47, 48, 49, 50, 69, 70, 72, 77, 79, **80**.

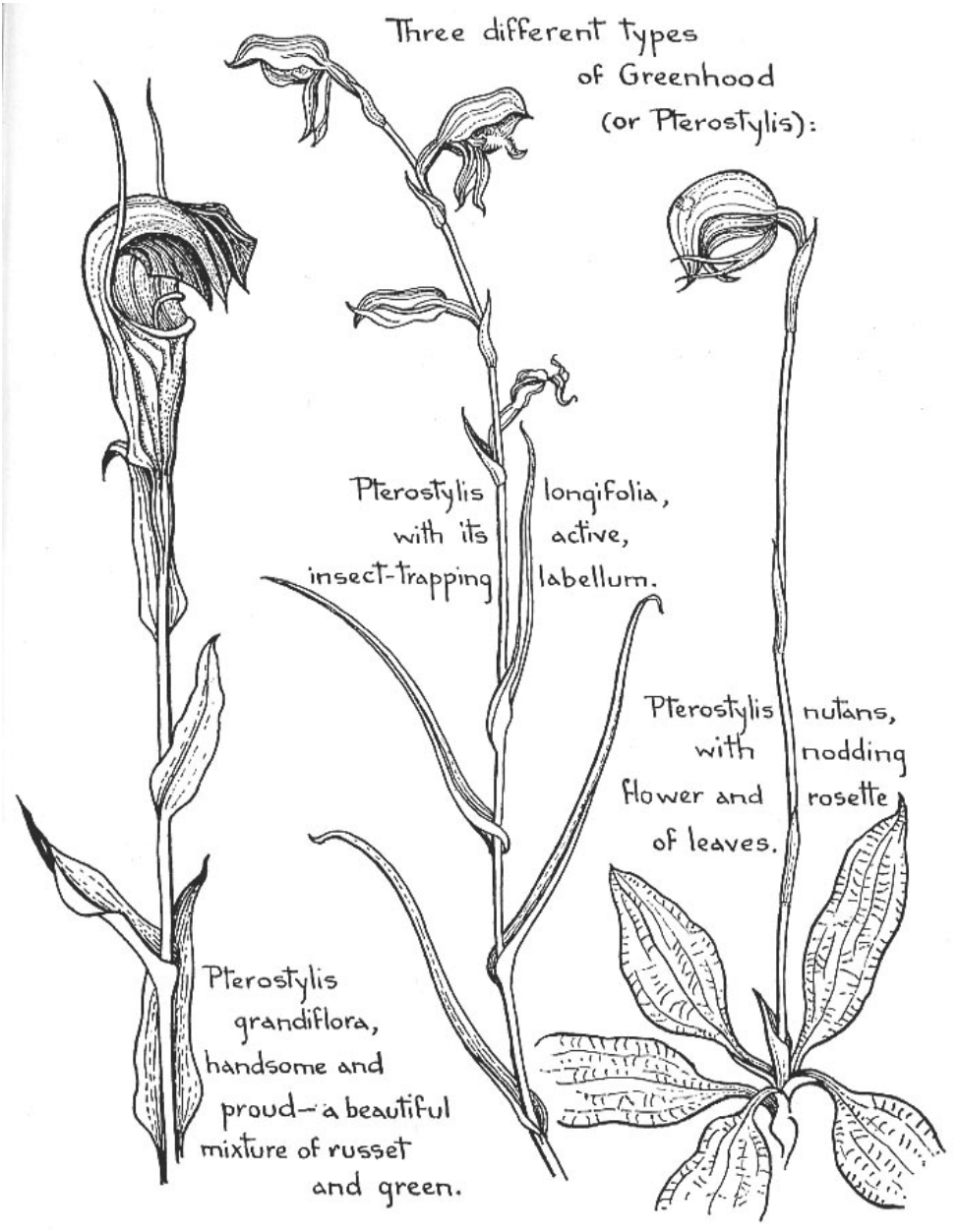
Field trip to Te Paki midoctober

Ruahines late November Don Isles

Iwitahi dates for 2006

close relations

- from Nuri Mass. *Australian wildflower magic, illustrated by the author.* The Writers' Press, Summer Hill, 1967.



— from TF Cheeseman's *Illustrations of the New Zealand Flora*, Vol.II, Government Printer, 1914. Drawings by Miss Matilda Smith, engraved by John Nugent Fitch.

THELYMITRA LONGIFOLIA AND THELYMITRA PULCHELLA.

FAMILY OIRCHIDACEÆ.] [GENUS THELYMITRA, FORST.

Thelymitra longifolia, *Forst. Char. Gen.* 98, t. 49; *Hook. f. Handb. N.Z. Fl.* 270; *Cheesem. Man. N.Z. Fl.* 669.

Thelymitra pulchella, *Hook. f. Fl. Nov. Zel.* i, 244; *Cheesem. Man. N.Z. Fl.* 670.

For the first discovery of *Thelymitra longifolia* we have to go as far back as October, 1769, when it was gathered at Tolaga Bay by Banks and Solander during Cook's first voyage. Solander, in his manuscript "Primitiæ Floræ Novæ Zelandiæ" described it under the name of *Serapias regularis*; but as this work was never actually published his names have no standing in botanical literature. It was also collected by the two Forsters in Cook's second voyage, but in what locality is not stated, although it must have been either in Queen Charlotte Sound or Dusky Bay. After their return it was published in their "Characteres Generum Plantarum" under the name it bears at the present time. It has been observed by almost all subsequent botanists, and is now known to range from the Three Kings Islands and the North Cape southwards to Stewart Island and the Auckland Islands. It is common at sea-level, and ascends the mountains to a height of over 4,000 ft. Although mainly a heath-plant, and nowhere more abundant than on the *Leptospermum*-clad hills that form such a large percentage of the northern part of the North Island, it is really found in all soils and situations, with the exception that it does not occur in dense forests, although occasionally seen in light bush. When it is mentioned that in addition to lowland heaths it is also plentiful on sand-dunes, ledges on seacliffs, the margins of swamps, subalpine meadows, &c., it will be seen that its range of habitats is remarkably wide. It is said to have an extensive range in Australia; but the specimens I have seen from thence hardly match those from New Zealand, and if really belonging to the same species should be treated as a different variety. It has also been recorded from New Caledonia.

T. longifolia falls into a section of the genus known as *Cucullaria*, in which the column-wing is produced behind the anther, and overtops it in the form of a hood-shaped projection furnished with lateral lobes. It is distinguished from the other species of the section by the very large middle lobe of the column-wing, which forms a smooth rounded hood projecting over the anther, and which considerably overtops the lateral lobes, which are closely and densely ciliate at their tips. In the allied species of the section the lateral lobes are longer than the middle lobe, which does not form such a

A. THELYMITRA LONGIFOLIA, *Forst.*
B. THELYMITRA PULCHELLA, *Hook. f.*

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prominent hood. It is very variable in size, stoutness, and number of flowers, varying from less than 6 in. in height, with a single small flower, to 18 in. or 20 in., with twelve to fifteen large flowers. The colour of the flowers is mainly white, with a greenish-purple tinge on the back of the three outer perianth-segments; but some varieties have blue flowers, and others pinkish-red. For an account of the fertilization, see a paper by myself in the "Transactions of the New Zealand Institute" (vol. xiii (1881) 291).

Thelymitra pulchella was originally discovered by Mr. Colenso in the North Island, but I am ignorant of the exact locality. It was first published by Sir J. D. Hooker in the "Flora Novæ Zelandiæ"; but Hooker bracketed with Colenso's plant some specimens collected by Lyall in Otago; and in the "Handbook" he also included a plant gathered by Sir D. Monro in the Nelson Provincial District. But although I have examined a great number of *Thelymitræ* from the South Island I have found none with the characters of *T. pulchella*, and am inclined to doubt the occurrence of the species to the south of Cook Strait. In fact, I have not seen undoubted specimens of *T. pulchella* from the south of the Waikato River. North of Auckland it is common on *Leptospermum*-clad hills, often associated with *T. longifolia*, and is particularly abundant between the Bay of Islands and the North Cape. I have not seen it at a greater elevation than 800 ft.

T. pulchella belongs to the section *Macdonaldia*, in which the column wing extends behind the anther, but is shorter than it, and is not hood-shaped; and the lateral lobes, though often toothed or fimbriate, do not possess the dense tufts of cilia so obvious in the section *Cucullaria* (compare figs. 1 and 9 of the accompanying plate). It is one of the handsomest of the New Zealand species, from the large size of the blue-purple flowers, which are often an inch in diameter or even more.

The centre of distribution of the genus *Thelymitra* is in Australia, from whence thirty species are known. New Zealand contains eleven, and additional species will be recorded. As already stated, the New Zealand and Australian *T. longifolia* (or an allied form) occurs in New Caledonia, and there is an outlying species (*T. javannica*, Blume) in Java.

PLATE 192A. *Thelymitra longifolia*, drawn from specimens collected in the vicinity of Auckland. Fig. 1, side view of column; 2 and 3, front views of same; 4, lateral lobe of column, terminated by a dense mass of cilia; 5, some of the cilia; 6, dehisced anther. (All magnified.)

PLATE 192B. *Thelymitra pulchella*, drawn from specimens collected near Mongonui Harbour. Fig. 7, front view of column; 8, back view of same; 9, side view of same; 10, dehisced anther. (All enlarged.)

Notes: *The column illustrated by Ms Smith should be compared with that photographed by Eric Scanlen, Fig.18 of this issue. We did not know where the Forsters collected Thelymitra longifolia until the publication in English translation (by Michael Horne) of JR Forster's diaries in 1982. The entry for 14 November 1773 reads, in part, "The next morning we went over to Long-Island and mounted the hill…. We returned to dinner having found a new Orch (Microtis unifolia) & another plant nearly related to the Class of Orches, but of a very singular structure & making absolutely a new genus." That was T. longifolia, Long Is, Queen Charlotte Sound, 14Nov73—Ed.*

thecolumnericscanlen

1. Flies' eggs in *Nematoceras triloba* agg.

Tricia Aspin rang on 20 July 05 saying that they were out in numbers, at Craig's place, so the Column got over to Pollok smartly. "They", were *Nematoceras* "tricraig", the fourth form of *N. triloba* spotted by Tricia on the Awhitu Peninsula. You may have heard about the other three, *N.* "pygmy" form 1, *N.* "trijuly" and *N.* "tridodd" [J89:23]. But this extensive *N.* "tricraig" colony is in scrubby bush where cattle have access, about 20m horizontally and 30m up from Tricia's original *N.* "Pollok" colony. Last year the one remaining withered *N.* "tricraig" on 19 July 04, was disappointing in the pix so they had their portraits made this year, inside and out (**Fig. 10**). Weeks later on 15 Aug 05, there were more and slightly bigger flowers on intermingled colonies. Why so late in 2005? or perhaps early in 2004?

This taxon is the same as the Aug/Sep. flowering *N.* "tribrive" [J89:23] from the Bridal Veil Falls, Te Mata, only different. It makes one wonder just how many forms of *N. triloba* there are. *N.* "tricraig" is possibly an hybrid *N.* "tribrive" x *N.* "tridodd" going by the slightly different forms flowering nearly a month apart in adjacent colonies but its earlier start to flowering than either putative parent, means more study is needed to sort it out.

Anyway, the Column sectioned one flower along its midribs on 20 July 05, for internal photography. What wasn't seen at the time but what showed up in the slides, were 3 minuscule flies eggs (**Fig. 11**) tucked neatly into that typical labellum pocket, of *N. triloba* and *N. macrantha*, at the base of the cleft. Why would any fly do such a thing? There is nothing there for emerging larvae to eat.

Slides of another *N. triloba* agg. from Moki Road, Uruti from 18 Sep 93, also showed flies eggs (**Fig. 12**) 3 in the side of the labellum, two in the cleft, and how many in the cleft pocket out of sight underneath?

The late Tony Bishop wrote in his 1996 *Field guide to orchids of NSW*, p166, "*Corybas* flowers may mimic small toadstools." Aha! He said that fungus gnat pollinators may be attracted by the orchid's fungus scent which could explain a lot. You may have seen how fungus gnat larvae ravage field mushrooms so it seemed possible that the gnats treat these mimics as fungi due not only to fungus scent but also the typically dome shaped dorsal sepal on our *N. triloba* agg. The handy central cleft in *N. triloba* agg. could mimic the space between mushroom gills (albeit upside down), placed so that pollination occurs at the same time as egg laying? It is typical of many sneaky orchids to dupe their pollinators without providing any reward to the long suffering bugs so this could well be another example. If emerging larvae perished because of the fungus absence, it would be no

Colour p.35

Fig. 10. *Nematoceras* "tricraig" at Pollok, 11 Aug 05, an unremarkable taxon of the *N. triloba* agg. with incurved labellum margin and node well above the sheathing bract.

Fig. 11. *N.*"tricraig" from Fig. A, sectioned to reveal sub millimetre flies eggs in the cleft pocket. It is possible that the pocket exists purely as an attractive egg receptacle for pollinating flies, duped into believing that this is either a toadstool or piece of dung.

Fig. 12. Different shaped flies eggs in the cleft and labellum wing of another *N. triloba* agg. specimen from Moki Road, Uruti, 18 Sep 93. Eggs, barely visible to the naked eye, were revealed in the photos and possibly occur more frequently but go unseen.

Fig. 13. *Sylvicola neozelandica* the "out-house-fly" in the Hunua Range, had claimed this *Corybas cheesemanii* as it was being photographed on the kitchen table in July 1961.

Fig. 14. Profile of Margaret's hybrid *Nematoceras iridescens* X *N. triloba* agg. with dorsal sepal of intermediate length. Waitiri Track, 3 Sept 05.

Fig. 15. Frontal view of hybrid *N. iridescens* X *N. triloba* agg. with ragged triloba bib on iridescens labellum.

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concern of the orchid, provided it were pollinated but the crawlers might drop out and feed on the orchid's mycorrhizal fungus.

George Fuller's fungus gnat (*Mycetophila diffusa* Tonnoir) J52:**20-21** shows pollinia stuck to its thorax after visiting *Nematoceras iridescens* at Pukekura Park. This orchid has a cleft labellum but no pocket therein and bears no resemblance to a toadstool. All the gnats that George observed were female; intent on egg laying? To get pollinia on its thorax, as photographed, she would have had to bend double in the base of the flower; just to lay her eggs? The mind boggles. But it could also explain why stigma and pollinia in *Nematoceras* are so close together. The fly wouldn't need to double up much more to pollinate the next flower she visited with the pollinia load on her thorax.

Ian St George's gnat, in J79:**4**, seems to have squeezed herself bodily into the cleft, head down by the pollinia, got stuck in tiny *N.* "craigielea" [J82:16 Fig. 4] before laying any eggs and perished in the attempt. The rounded, toadstool-like tops to these orchids in manuka debris, [J82:9] could fool more intelligent beings than this pin-brained fly.

In July 1961 Gloria Scanlen photographed a fly that the Column thought to be a fungus gnat. It had claimed a *Corybas cheesemanii* [J59:**12**] on our kitchen table in the Hunua Ranges. Neither the 90 joule flash nor the people leering at it could shoo it away. What was the attraction of this flower with no cleft or pocket? Was the fly biding her time for some peace and quiet to lay eggs here? It had no ovipositor like Ian St George's gnat so the Column sent an enlargement, **Fig 13**, to Ian Townsend for identification. Ian consulted fellow entomologist Ian Andrew and they agreed that our 1961 fly was not a fungus gnat but an "out-house-fly" (*Sylvicola neozelandica*) which feeds on dung, would you believe? Could it be that our sole NZ *Corybas* smells like dung to this fly? Perhaps Tony Bishop's Aussie *Corybas* species smell like fungus and ours has adapted to another smell to attract another fly? The Aussies would appreciate that "Ours smell like mushrooms, yours smell like dung."

Who has ever detected that smell in *Corybas cheesemanii* or incidentally, in *Cyrtostylis oblonga*? *S. neozelandica* was also spotted in August 1998 by Geoff Stacey, [J71:24] wrecking and efficiently pollinating *C. oblonga* at Wharekawa. John Early at the Auckland Museum identified it from Geoff's specimen (**Fig. 16**) but possibly didn't like to disclose its dung propensities. How many other NZ orchids are pollinated by these "out-house-flies"?

Gnats have been caught several other times in or about NZ orchids. [i.e. J59:**14**; J91:**12**] The eggs in *N.* "tricraig" are about the right size for a tiny gnat, (be they fungus or dung species) at 0.9mm long and 0.3mm diameter, measured from the slides. Ian Townsend and Ian Andrews noticed that Fig. B & C eggs were different shapes so would be from different species of fly.

Can anyone throw further light on flies' eggs in *Nematoceras triloba*? One can easily check *N. triloba* clefts by stretching oneself out in the wet moss, compost mud or streambed with a x20 lens. It's not necessary to zap open the flowers, is it? If you do spot eggs, the thing to do is to take them home and, when they hatch, give them a choice of dung or

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Fig. 16. The "out-house-fly" in plan view, caught by Geoff Stacey, pollinating *Cyrtostylis oblonga* in August 1998 is here in body only, resting on a *Schizocentron* border flower.
Fig. 17. *Nematoceras rivularis* (L) and *N. pandurata* (R) with inserted fern background, showing the typical leaf forms. Possibly the pandurate (violin shaped) leaf is caused by constriction as the leaf expands. These are most likely one and the same species.
Fig. 18. The column on Kevin Matthews' unstriped *Thelymitra* "sansfimbria" showing no fimbria whatsoever on the column arms and the anther standing above the post anther lobe.
Fig. 19. By K. Matthews. Flower of one *Thelymitra* "sansfimbria" showing vestigial pulchella-like striping
Fig. 20. By K. Matthews. Several *Thelymitra* "sansfimbria" open at once in shade beneath manuka with no vestige of striping.

mushrooms to feast upon and see what species of fly emerges, according to Ian Townsend.

The Editor would be ever so pleased to hear more reports of flies' eggs or larvae etc. in *Corybas* alliance or any other orchids for that matter and especially if flies are seen stuck, coming or going from *N. triloba* or etc. with pollinia stuck on wherever part of their anatomy.

Acknowledgements. Thanks to Tricia Aspin, Ian Andrew, John Early, Ian and Pixie Craig, George Fuller, Ian St George, Ian Townsend and all those other contributors of related articles for their inspiration and assistance.

2. *Nematoceras pandurata* and blue *Thelymitra* —in R.H. Matthews' footsteps

Wayne Cribb was kind enough to invite the Column to stay at his place, one of two houses still extant at Okahu. The Column jumped at the opportunity. Okahu, which doesn't show on modern maps, is just 4 km due south of central Kaitaia where a derelict little church also marks the original village site. This is where Richard Henry Matthews started several field trips into the forest for orchid specimens to send to TF Cheeseman.

In RH Matthews' letters to Cheeseman, the most important finds up "the Okahu creek" (now Tarawhaturoa Stream) were RHM's "Okahu orchid" (*Nematoceras rivularis*) and "the lobed leafed one" (*N. pandurata*) which he found intermingled or in some places predominating, on the stream bank in view of the Okahu falls, visible from the Awanui Road. The Column thought that perhaps *N. pandurata* was nothing more than a pandurate leaved form of *N. rivularis* because most or all of the ±15 *N. rivularis* aggregate throw pandurate leaves at times so why wouldn't *N. rivularis* s.s.? Cheeseman had nevertheless seen fit to make "the lobe-leafed one" the variety, *Corysanthes rotundifolia* Var. *pandurata* as he called it, dutifully following Kirk [see Newsletter 17:4] who mistook a round leaved taxon at Big Omaha for Hooker's *Corysanthes* (*Anzybas*) *rotundifolia*. Hold it right there! Kirk's in-flower specimen (WELT 18877) from July 1864 complies only with *Nematoceras* "Pollok" except it is too far north. The earliest flowering *N.* "viridis" at nearby Sunnybrook Reserve was only in early bud on 2 Aug 2002. (there are photos!) But in December 1866 (pers. comm. Dan Hatch) Kirk found another flowering specimen (WELT 18879) at or near the same place which, it seems, must have been Cunningham's *Acianthus* (*Nematoceras*) *rivularis* because no other of the aggregate flower so late. An expedition to check for these taxa in the streams running south from Tamahunga in the Omaha Forest would seem to be a NOG urgency. The above is a simplification — truly — of the classification mix-ups involved. Readers can check the Editor's list, J97:11, for further intermediate nomenclature if they feel so inclined. Further to the above, as Dan also pointed out in N17:4, Cheeseman had long since labelled AK 3652, his own specimen of October 1873 from Titirangi, as *Corysanthes rotundifolia* Var. *pandurata*. He did not see fit to announce this in his 1906 Flora but gave the credit (or blame?) 52 years later to RH Matthews in the 1925 Flora for an undoubtedly a different taxon! AK 3652 will be either *Nematoceras* "viridis" (alias whiskers) or *N.* "Kaimai" which both flower in the Waitakeres in October. Confused? Read on, it gets better.

So 22 Oct 05 saw Wayne and the Column heading a little tentatively towards the high "Okahu falls" also visible from Okahu Road at the top of Wayne's drive. Why tentatively? Because RHM said it was 5 or 6 miles from the edge of the forest. *How far*? As it transpired, only about 1km from the Okahu forest edge, a huge colony of *N. rivularis* and *N. pandurata* combined (**Fig. 17**) appeared on the bank where a stream meander cut into original country. One tall but freakish *Pterostylis banksii* stood in the centre of the colony with twisted trident-form galea, breaking the monotony of the carpet. Pandurate leaves, far from predominating here, comprised about

1% of the ±3 square metre *N. rivularis* colony, many in flower with many more still in bud. Flowers from both leaf forms looked identical as Cheeseman had noted in his 1925 Flora. RHM's colonies would have been further upstream than this because he had had to negotiate a rock face where he came a cropper on one occasion whereas Wayne's colony was still on bush-clad flood plain with no view of a rock face or the waterfall. Quite possibly, these lower stream reaches would have been modified before 1899 by kauri hauling so that Wayne's colony might have recolonised and consolidated in the intervening 106 years. Just upstream, the flood-plain petered out leaving a torturous ravine and still no view of the falls to the daunted explorers with no rock climbing gear who returned whilst the going was good.

Brian Molloy has seen the photos and expects now that *N. pandurata* should be merged back into *N. rivularis.* (pers. comm.)

Later resort to the contour map showed that the falls were no more than 2km due south from Okahu. So, had RHM truly gone 5 or 6 miles thence, (letter 19 Sept. 1899) he would have gone right over the range, well into Diggers Valley. Perhaps it seemed like 5 or 6 miles in that rugged terrain?

RHM had indicated to Cheeseman that "The *Rotundifolia* (not Hooker's *Corysanthes rotundifolia* which Cheeseman had renamed *C. Matthewsii* in error) flowers here first week in September." (Letter 8 Oct. 1900) and "the Okahu [*Nematoceras rivularis*] are practically two months later." (letter 29 Oct. 1900). So the Column was disappointed in not finding "The *Rotundifolia*" which he had posited as either *N.* "viridis", *N.* "Kaimai", *N.* "Kaitarakihi" or *N.* "Pollok", none of which had been reported so far north and only *N.* "Pollok" flowers this early. Another remote possibility is the New Plymouth, disjunct colony of *N. rivularis* which the Column saw in full flower in a park there on 22 Sept. 1993 but didn't realise what he wasn't photographing at the time. John Dodunski has kindly sent his pix of it and, apart from having a shorter pedicel and ovary and perhaps narrower labellum, this could have come out of Wayne's colony but why the notably earlier flowering time in a more southerly location unless it is RHM's "The Rotundifolia"? Wayne spotted a small colony of rounded leaves 100m downstream of the big one on our way home but the flowers were unmistakably *N. rivularis* so the mystery remains.

Several times, RHM had mentioned an unusual blue *Thelymitra* to Cheeseman who forgot about it, had to be reminded but still seemed not to respond to RHM's query. Kevin Matthews, one of RHM's great great nephews, and friend of Wayne's, took the Column, on 22 Oct. 2005, to his Uncle Hackney's manuka (*Leptospermum scoparium*) wetland near Kaitaia Airport and pointed out some blue *Thelymitra* on tall, meandering and slender stems. They were tightly closed then but their columns (**Fig. 18**) looked quite *T. pulchella*-like although the tepals were unstriped. Kevin has since sent pix (**Figs. 19 & 20**) of some of these *Thelymitra* "sansfimbria" wide open and perfumed. Was this RH Matthews' blue *Thelymitra*? Who, among you dedicated readers will volunteer to track this one down?

Acknowledgements Many thanks to Wayne and Sue Cribb for their hospitality and willing help; to Kevin Matthews for his photos and for devoting a day he could ill afford from his farming duties; to his father Malcolm for checking this write-up in respect to Matthews history around Kaitaia; to John Dodunski for his photos and Dan Hatch for his invaluable information. Without them, the unravelling even this far, of the 106 year pandurata puzzle could not have been contemplated.

3. *Molloybas cryptanthus* alba

Margaret Menzies had been searching for her *Molloybas* (*Corybas*) *cryptanthus* alba, ever more diligently and with ever more helpers for the 11 years since she first laid eyes on these "shimmering satin white flushed red in their throats" orchids doing "a botanical strip tease act." as she put it, in Journal 49:15 because all eight there, flowered on top of the moss and leaf mould, not under it, as their famous,

"normal" coloured brethren do. She especially organised the big field trip of 5-6 Aug 95 for it but "satin white" failed to show, to Margaret's expertly disguised disappointment. But at that time, she carefully unearthed some normal ones, pale mushroom coloured with tomato flecks, from the manuka leaf mould and most of the field party had been ecstatic to spot just these for the first time [J57:21].

In 2005 though, it happened. Three of those "satin whites" that had been dormant these 11 years — why should a rhizome flower and seed if it is perfectly contented feeding off its pet mycorrhizal fungus? — came up 2 or 3m from the previous spot, under a mingimingi bush (*Leucopogon fasciculata*). The moss had long since disappeared, so they flowered on top of the thin layer of leaf litter at Omoana. The Column, of course, had to answer Margaret's call and arrived at Mangamingi on 2 Sept 05, just in time to hold her horse's bridle for a few hours to calm the nervous animal whilst the delayed helicopter spread fertiliser all around for Duncan and Margaret. Well it is a farming family; what else could one expect?

3 Sept 05 however dawned fine so Duncan brought Roger and Barbara Watkins along to the Waitiri Track, Omoana. Roger needed specimens for his study of electron micrography of definitive orchid stomata which study has promise of tracking species purely from these microscopic breathing holes. Barbara was furthering her study on skinks and geckos. Garry Penniall and the Column came with Margaret and her sisters Glyn and Claire. What a hard case trio? Why all the mirth about Gloria refusing to stiffen the Column's floppy hat brim with starch? Down the Waitiri Track, numerous *N. iridescens* colonies inhabited every damp bank and one colony of short tepals, *N. orbiculata* showed up along with occasional *N. triloba.*

Margaret soon steered the field party to the three "satin white" *M. cryptanthus* alba except that the earlier two, entwined together, were already setting seed and Nº. 3 (**Fig. 21**) was in an awkward spot where no frontal photos were possible. However, the red flecking that says "this is no albino freak" is still visible on the in-turned labellum margin. Notice the petiole standing clear of the pearly white pedicel and the twin fingers on the dorsal sepal, reminiscent of the more elaborate fringe on the labellum margin. **Fig. 22** is a normally coloured plant from Te Paki for comparison. Note that the upstanding tepals are petals, much longer than the forward aiming sepals. *Nematoceras,* on the other hand, have their longer sepals curling back at the base to stand erect with petals forward and/or to the side. Note the *Corybas* style leaf; now lacking chlorophyll, just as a useless bract under the labellum. It feeds exclusively on fungus, so needs no chlorophyll, also it is self pollinating so why does it bother with a pollinator-attracting flower? One has to wonder.

Margaret had more wonders of the orchid world to show us at this site. There was her celebrated hybrid with very long sepals from J93:**26**, (**Fig. 14 & 15**) between putative parents, *N. triloba* agg. plants (**Fig. 23**) and *N. iridescens.* The Column is always sceptical about hybrids but this one was half way between the other two species and indubitably endowed with characters from both. Gary later happened upon another *N. triloba* taxon (**Fig. 24**) which definitely needs more study.

In a gully west of Mangamingi, Margaret had come across, a long tepalled *N. iridescens* (**Fig. 25**) where sepals, unable to stand erect due to their 80mm length, crossed and curled gracefully down either side whilst petals typically at 58mm, were perhaps twice the norm. Curious are the experiments that nature tries in the eternal quest for something more survivable. One has to wonder why long filamentous tepals have been so successful in *Nematoceras* and the related *Molloybas* with its tepals normally buried amongst the compost!

Acknowledgements Many thanks to Margaret and the team for the hospitality and camaraderie.

4. *Caladenia* aff. *bartlettii*

A rare taxon first found by Doug McCrae at Sweetwater north of Kaitaia circa 1982. Doug sent plants to Dr BPJ Molloy who flowered them in October 1989 at Lincoln. Bruce Irwin

saw a 3 flowered specimen at D. McCrae's old place at Paranui. Other finds as below.

Description *Plant* terrestrial, c.120mm tall. *Leaf* green, solitary, linear, V section, curving away from the reddish base, c.40 x 1.4mm, white hairs underneath. *Peduncle* green/brown but shading to red in the 2mm below the ovary, clothed in red glandular trichomes. *Floral bract*, 5mm long, tightly clasping, greenish with a red fringed upper margin, at the base of the ovary. *Mid stem bract* similar to floral bract. *Ovary* 4mm long, green with three raised, even width, red sepal ribs, white on the edges and red on the tops packed with red and white trichomes, all with red glands atop; between the ribs green, sprinkled with red glanded white trichomes. *Flowers* 1-3, 12mm high, 8mm wide, unmistakably *Caladenia*. *Sepals* obovate, 3 prominent parallel veins, 2 others less well defined near the margins, white at the base shading to maroon tips outside, cerise inside, outer mid ribs continuing the red lines from the ovary, shading to dark maroon at the tips, giving the buds a distinctive red and white striped appearance with a dark cap. Red glanded white trichomes numerous at the outer bases thinning towards the tips and only 8 or 10 inside at the bases. *Dorsal sepal* 6.2 x 1.7mm, erect, curls forward in maturity. *Lateral sepals* 5.4 x 2.0mm, drooping, overlapping, deflexed and concave backwards. *Lateral petals* 5.4 x 1.3mm, wide, lanceolate, falcate, drooping less than the sepals, 3 prominent, parallel veins, sparse red glanded white trichomes inside at the bases, cerise-pink outside with a darker midrib, cerise tips inside fading to white at the bases. *Labellum* 3.5 long x 4.1mm wide, 3 lobed, white with 4 or 5 dark cerise bars across inside including the lateral lobes and one under the disc; two parallel rows of c. 6 red calli down the disc with a cluster at the back, are topped with globular yellow glands; *lateral lobes* projecting forwards at the top and curved up to partially obscure the column; *midlobe* 1.5 long x 0.8mm wide, concave upwards at first then downwards some time later, margin undulate-sinuate, bright yellow, one basal marginal callus at each side, flat, obtuse and yellow. *Column* arched forward, translucent wings obscured by the labellum side-lobes; broad red bars adorn the lower two thirds, inside and out; a low green callus crosses above and behind the anther, with a tapering red area beyond; *anther* red above, white below, *pollinia* white, *connective* 0.4mm long, acicular, red to white at the tip.

Habitat Track-side, on sand hills iron-pan, favours leaf mould under mingimingi and *Hakea sericea*. More exposed plants in mid track were stunted with slightly deformed flowers.

Similar species

Caladenia bartlettii flowering 2-4 weeks earlier, has a deflexed midlobe with upturned margins bearing 2 basal, marginal calli each side; tepals are held straight out, coplanar not deflexed.

Caladenia aff. *pusilla* flowering 2-4 weeks earlier, has 3 marginal calli to the base of the deflexed midlobe, tepals are concave inwards, especially the lateral petals and the dorsal sepal which lies continually in contact with the column.

Refer NZNOG Journals 78:20,26 colour page **3**,33,36; 86:13; 89:23; 94:29,31,**35**; 9528; 96:**21**

Fl. dates	Specimen locations	NZMS 260	Altitude	Comments
26 Oct 89	Lincoln, ex Sweetwater ER4	O04 279851	Say 35m	D McCrae
5 Nov 00	Shenstone Blk Caladenia Tk.	N02 919423	80m	D Abrahams
11Oct 02	Shenstone Blk, Fri 2 Tk. ER3	N02 928422	105m	E Scanlen
31 Oct 04	Scott Point, Te Paki, ER3	N02 841428	70m	A Ducker

5. *Drymoanthus flavus* at Whirinaki forest

Neil Fitzgerald's great full page shot of *Drymoanthus flavus* at Whirinaki [J94:2] got the Column all excited about how this cool orchid had found its way in abundant health to the shores of the Hokianga Harbour, near the new power station? Wrong! It was Whirinaki

Forest near Minginui wasn't it? Even the *Field Guide* now has it in ER 5 Hokianga, in error. This orchid has not actually been recorded north of Chris Ecroyd's and Bruce Irwin's find in the Paeroa Range [J53:30] 25km south of Rotorua. The Column and Neil, emailing messages back and forth, still didn't wake up to the other's Whirinaki for several months. New Zealand bristles with duplicate to quadruplicate names.

Nonetheless Neil, who had organised a field trip from Murupara with DoC's Gareth Boyt and Paul Cashmore for Friday 11 November, was good enough to invite the Column, along with Chris Ecroyd and Graeme Jane. John Hobbs brought his camera too on a calm, fine day to a dry forest. What could be better? Neil led us about 1km from the forestry road, straight to the spot in high tawa/podocarp forest via his route of 3 years before, down a steep incline, across a stream and up onto a leading spur. Quite an achievement Neil, take a bow.

There were about four tiny *D. flavus* plants on the kamahi (*Weinmannia racemosa*) tree, mere shadows of Neil's J94:2 plant. The smallest, about 12mm across, had a truss of flower buds bigger than the minuscule leaf spread! Drooping cameras and ill concealed disappointment were in evidence all around but soon two more full sized and flowering plants were found nearby and the digital cameras were quickly whipped into action with raised arms giving the tallest guys a distinct advantage. A platform of fallen limbs by the best raceme finally allowed some dignified photography even with the Column's steam-age film camera and Chris standing by with the flash gun, thank you Chris. **Figs. 5 & 5a** of the best truss available, give a reasonable perspective on this, our rarest epiphyte. Flowers were a mere 4-5mm across but were a sight for the Column's sore eyes which have been seeking it for at least 12 years, back to when it was called "spotted leaf".

Curiously, diploid *D. flavus* (2n=38 chromosomes) has spotted leaves, plain greenish yellow flowers and thrives in the cool whereas its tetraploid relative, *D. adversus* (4n=76) has plain leaves, flowers greenish yellow with purple blotches and thrives in both cool and warmer climes from Stewart Id. to Te Paki. So the tetraploid would seem to be more robust, but why? Both need either copious rainfall or a perch over a stream as in **Fig. 9**, *D. adversus* at Langs Beach.

After all the photos possible had been taken several times over and after a celebratory luncheon of sandwiches and water, the Column took a tip from Neil and headed out straight up the spur, to avoid the stream and to not delay the party who assured him they would be following up very soon. This was a self imposed trap. "Very soon" wasn't that soon at all as the party went from find to ecstatic find finishing up with 42 *D. flavus* plants in all; a seriously good population. One was on hinau (*Eleocarpus dentatus*) and 41 were on kamahi. The Column meanwhile bore right, down a leading spur well marked with flags (for the possum trappers!) instead of bearing left along the main ridge. It's plain as a pike staff now, on Tumonz, but then, when unease set in and only the kakas cooed back to his coo-ees, he realised he had got geographically confused but definitely not lost. The hiker's compass helped, the aging legs complained at the uphill back-track but Gareth's yells up the track were the most welcome sound of the year. Moral: don't go off alone, especially in unfamiliar territory.

Colour inside back cover

Fig. 21. *Molloybas cryptanthus* alba with the pedicel standing atypically, back from the petiole. Red flecks on the labellum margin say it is not an albino. Waitiri Track, 3 Sept 05

Fig. 22. *Molloybas cryptanthus* s.s. with normal, pale mushroom colouring, tomato flecked. 4 Sept 98 Te Paki.

Fig. 23. Putative parent *Nematoceras triloba* agg. growing near the Fig. B hybrid. Waitiri Track, 3 Sept 05.

Fig. 24. *Nematoceras triloba* agg. from further down Waitiri Track, normal shaped leaf behind. 3 Sept 05

Fig. 25. *Nematoceras iridescens* long tepals. Note the 80mm sepal curled on right. Mangamingi 2 Sept 05

Outside back cover

Fig.26. *Caladenia* aff. *bartlettii*

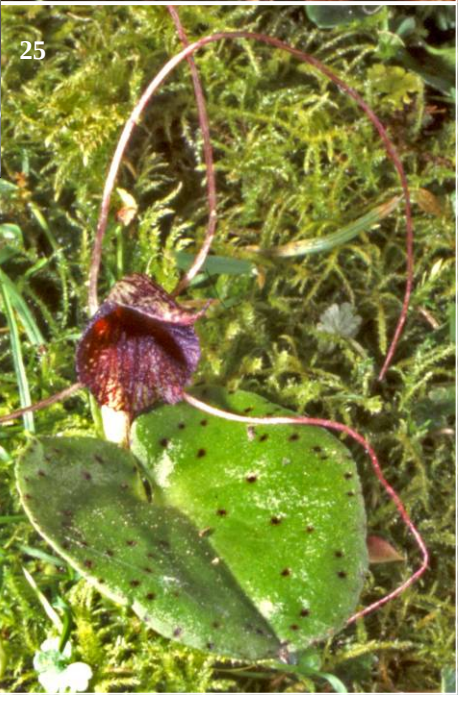

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Fig.26: ***Caladenia aff. bartlettii***
Photo Eric Scanlen

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