



The
New Zealand
Native Orchid Journal



The mirror orchid,
Ophrys speculum



The violet limadore,
Limodorum abortivum

Contents: No. 125

August 2012 ISSN 1177-4401

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Editorial: Ian St George

1. Bruce Irwin's dissecting microscope

Before he died Bruce wrote asking whether I might accept his microscope, with the idea that it should go to a person engaged in native orchid studies. It is a binocular Olympus with case, and continuous zoom, and (cleaned up somewhat) is in very good condition. It dates from Bruce's years as medical illustrator at Otago Medical School and no doubt is the instrument he used to dissect eyes for the illustrations in Professor John Parr's book on the human eye, and flora for Moore and Irwin's *Oxford book of New Zealand plants*, as well as for his extensive orchid dissection studies..

The microscope is now available for longterm loan. Apply to Ian St George, istge@yahoo.co.nz.



The New Zealand Native Orchid Journal

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2. A couple of interesting Iberian orchids

The mirror orchid

Look up “Orchids in Andalucia” and you find Tony Allen’s page. He writes, “Spain’s glorious display of spring wild flowers includes over fifty different species of Mediterranean orchid. They are easy to find if you know where and when to look.” Among them is *Ophrys speculum*, the Mirror Orchid: “Green or yellow sepals, dark purple petals. Lip three lobed with a shiny, metallic blue centre and yellow, brown fringed edge. Flowers March - May.”

In late April we were in Andalucia, in the Alpujarra villages of the Sierra Nevada, south of Granada, and we made time to look for this emblem of the region.

“The earliest Andalucian orchids to flower, such as the Fan-Lipped and Milky orchids, normally appear in early February, brilliant splashes of colour sparkling beneath a sheltering rock or shrub. Through March and April many others join the swelling tide of colour as the spectacular display spreads across the hillsides and roadside verges.” Purple prose indeed.

2012 has been a cold dry season. The Early purple and Milky orchids were still flowering at the end of April, and our first walks among the high villages not too far below the snowline showed only a white Helleborine. This didn’t, frankly, anyway, appear like orchid country – crumbling orange rock looking distinctly acidic. A note on the local geography said the lower 1200m. of the Sierras were limestone, so the next day we drove down towards the Mediterranean. We stopped at a likely-looking roadside flower meadow, studied with limestone boulders, and almost immediately found it, its blue mirror catching the light (**inside front cover**). As one observer wrote, “Although not a rare orchid, it’s a gem and its discovery never fails to brighten a day in the Med!” It certainly brightened mine.

Ophrys speculum is a terrestrial, of grassland, scrub and pine woods, one of the Mediterranean’s most common *Ophrys* species. It is considered a great rarity in France and northern Italy, is probably most common in southern continental Greece, the Aegean islands and Sicily where it can occur in huge colonies, and extends to Turkey, Lebanon and North Africa. This is a small orchid and despite its unquestionable beauty and showy labellum, can be very easily overlooked in the field. It can grow to a height of 25cm but is usually no greater than 10cm with a spike of perhaps 3 flowers. Its flower is characterised by the shiny blue “mirror” (*speculum*) occupying most of the central lobe of the lip.

As with all *Ophrys*, *O. speculum* employs pseudocopulation as a pollination strategy. Male wasps (which hatch a month earlier than the females) are attracted by pheromones resembling the mating pheromones of the female wasp, and then - visually enticed by the mirror, which resembles the folded wings of the female - attempt copulation, so dislodging pollinia, which they carry to the next flower.

Our colony had about 100 plants, none more than 100mm tall, the flowers about 15mm, dorsal sepal to labellum tip. One closed browning flower contained a dead wasp, appearing similar to the common black and yellow “German” wasps in NZ.

Rather like *Cryptostylis subulata*?

The violet limadore

By late May we were in Portugal. On a long inland trip south from Obidos to Evora we stopped at the roadside and I wandered in among the old cork trees, the undergrowth scrubby with stunted broom and gorse, as well as the absurdly bright pink of wild rock roses. There was a widely spaced group of an orchid I had never seen: purple, but with no

leaves, a 3cm mauve flower or two still open at the top of a 15 – 30cm stem bearing spent flowers browning-off. I had to look it up on the Net.

The violet limodore is leafless and depends on mycorrhizal fungi. It is sometimes pollinated by insects, but it is also cleistogamous (pollination takes place inside the flower bud). The specific name *abortivum* refers to the plants' sometimes producing flower stems that die before they come into full bloom.

The violet limodore is among the most beautiful of European orchids. When it is in flower, between April and June, it produces spectacular stems up to 85 cm tall with 10 to 20 flowers. The entire plant is intensely violet and, when fully open, individual flowers may be up to 6 cm across, with a strongly marked, curved lip and a long downward-pointing spur. It grows singly or in small groups in woodland. In the western part of its geographical territory - in Portugal and in Estremadura - plants with shorter spurs and narrower lips are distinguished as var. *trabuttianum*. Ours was this narrow labellum version of Portugal.

There are only scale leaves on the flowering stem. For the first eight to ten years of its life, it develops its short thick rhizome and tangle of fleshy roots below ground, in relationship to *Russulaceae*, an important group of fungi that includes many parasol mushrooms. Russulas are primarily associated with trees, with which they exchange nutrients, but if limodores are present the hyphae of the fungus also grow around the roots of the orchids. Because the limodores cannot generate their own food via photosynthesis, they are entirely reliant on the fungi to which they give nothing in return. The limodore is thus a parasite on the fungus.

Since the limodore is not directly dependant on photosynthesis, it can survive for years underground without flowering. It can disappear for years during periods of drought or if the vegetation around it becomes too dense, reappearing when conditions become more

favorable. It is thus "hard to find" rather than rare.

The plant is sensitive to environmental changes and because it requires such exclusive conditions in terms of host fungi and their symbiotic partners, it is vulnerable to disturbance; furthermore it is highly unlikely that the limodores will ever be cultivated under anything other than laboratory conditions. These are plants to enjoy in-situ and then to leave well alone in the knowledge that their presence is a sure indication of a complex and healthy ecosystem.

Rather like a *Gastrodia*?

Remarkable, isn't it?

Isn't it remarkable that two orchids, *Ophrys speculum* and *Cryptostylis subulata*, from diametrically opposite parts of the globe, should each independently develop a system of pollination that relies on the chemical attraction and sexual deception of a male wasp (different wasps for the different orchids) whose females hatch later?

And isn't it remarkable that two orchids, *Gastrodia cunninghamii* and *Limodorum abortivum*, from diametrically opposite parts of the globe, should each independently develop a system of self-pollination as well as a parasitic dependence on a mycorrhizal fungus (different fungi for the different orchids) so that they can survive underground and not have to emerge in adverse conditions?

References

1. The native wild orchids of Andalusia. <http://tony-allen.suite101.com/the-native-wild-orchids-of-andalusia-a97121>
2. *Limodorum abortivum* - The secret life of an orchid. <http://peter-ashby.suite101.com/limodorum-abortivum--the-secret-life-of-an-orchid-a398104>

The type locality: Ian St George

Pterostylis micromega in a Wairarapa bog

Hooker's description

1853: JD Hooker described a new *Pterostylis*:

***Pterostylis micromega*, Hook, fil.;**
(Latin diagnosis given here)

Hab. Northern Island, *Edgerley*. East coast, *Colenso*.

Stem slender, 4-8 inches long. Radical leaves few, petiolate, 2 inches long, linear-oblong, hardly acute; *cauline* numerous, upper sessile. *Flower* large for the size of the plant (whence the name), 1½ inch long, erect, curved slightly. *Sepals* and *petals* acuminate; *lateral sepals* with long, erect, subulate apices [1].

The type specimen at Kew is labelled with the number 1791 collected by Colenso from a bog in the Wairarapa (er, not exactly on the east coast, Dr Hooker). It was included in a batch of 800 specimens Colenso sent in September 1848 to WJ Hooker.

Colenso's collection

His previous batch had been sent in September 1847, so Colenso would have found this in the flowering season (November to February) of 1847-8.

Colenso tended, at least to some extent, to number his specimens according to the order in which he found them. The series adjacent to No. 1791, however, goes like this [2]

1782. *From woods, Tararua*;

1783. *from nr. top of Tararua*;

1784. *Cook's Straits*.

1785.

1786. *Wairarapa*,

1787. *Te Kaikokirikiri village, Wairarapa*.

1788. *under water with preceding*.

1789. *from Wairarapa*;

1790. *rivers side, Wairarapa*.

1791. ***Pterostylis*, bog, Wairarapa**

1792.

1793. *from Hurunuiorangi, Wairarapa*.

1794. *from Hurunuiorangi, Wairarapa*.

1795.

1796. *wood, Te Kaikokirikiri*.

1797. *Hurunuiorangi*.

Colenso returned from reporting to the Church Missionary Society in Wellington in November 1847, via Petone and the Hutt valley, and for the first time using the new Rimutaka Hill road as far as the summit, then descending via Abbots Stream to the plain, the Ruamahanga river to Martinborough (Huaangarua), north (possibly up the river, possibly overland) via Ahiaruhe to Hurunuiorangi (the marae 5km from my weekend farmlet at Gladstone), on up to Masterton (Te Kaikokirikiri) and thence north through the Forty Mile Bush. Here are excerpts from his journal [2].

1847 November

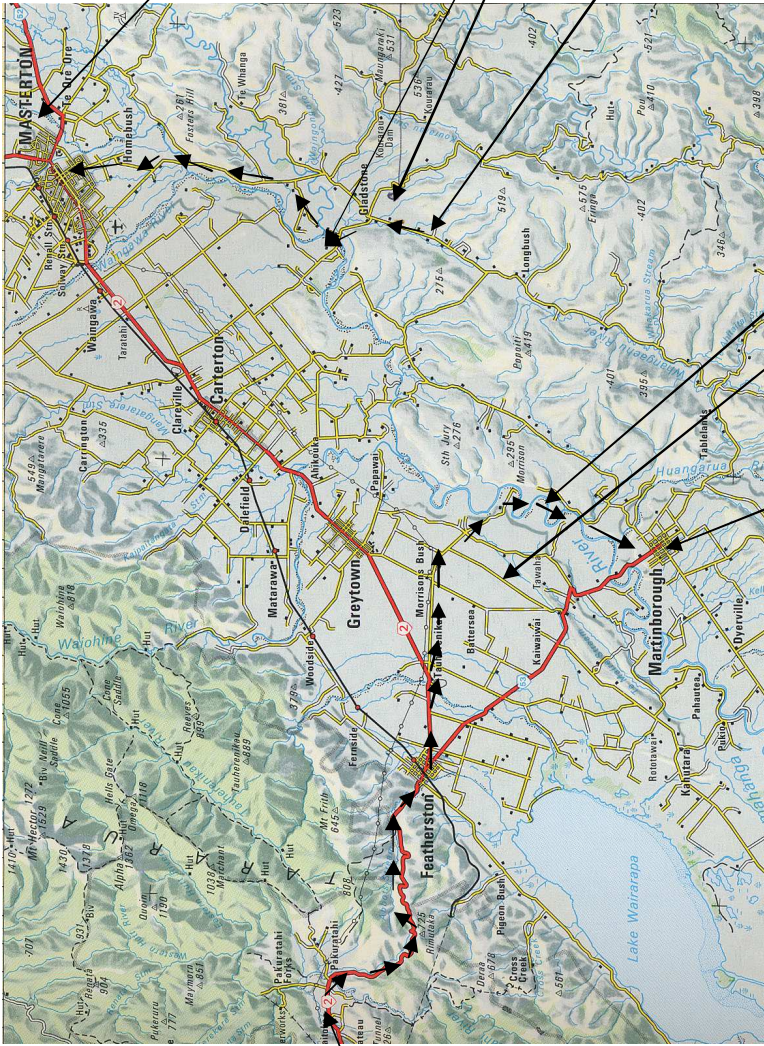
2 left [Wellington]... and arrived at Pitoone, at 9, p.m.

3 [at Pitoone].

4 left Pitoone... by the new road leading up the valley of Heretaunga ("Hutt")... called upon Mr. Barton... up the valley, which is densely wooded... halted for the night [above] the River Te Mangaroa....

5 [left] at 8, a.m. commenced ascending the [Tararua] mountain range, and about 4 p.m., gained the summit of the range, very nearly to which place the road has been cut... as the evening was fast advancing, we hastened to descend by a miserable Native path to the vallies below... through thick woods, when finding a dry and level spot we halted for the night in the forest.

6 An hour's travelling brought us upon the line of road upon this (the Wairarapa) side of the mountain range; and another hour... to the flat open country of Waira-



Colenso's walk through the Wairarapa in 1847

Te Kaikokirikiri

Hurunuiorangi

ISiG farmlet

Ahiaruhe

Okahu was presumably somewhere between Martinborough (Huaangarua) and Te Ahiaruhe but not located.

Ruamahanga river

Huaangarua

The densely entangled Kaitara forest (aka "bog, Wairarapa")

rapa... travelled on for several miles over dry stony plains, on which a rambling thorny shrub, (a species of *Dis-caria*) of stunted growth abounded.... At 1, p.m. we determined to cross the swamp, and cut through the wood before us... [which wood] was entirely composed of a net-work of deep pools of water, among which various species of *Carices* (appropriately named by the Settlers, Cutting- and Razor-Grass) most luxuriantly grew, attaining to the height of 10-12 feet and upwards... we... little expected that we were entering on Kaitara, a forest, which, for its entangled denseness and deep swamps, has been proverbial for ages with the New Zealanders.... The Tawara fruit (or, rather, the spathaceous bracts which enclose the flowers of the *Freycineta* [sic] *Banksii*, which are thick, white, succulent and very sweet,) being ripe & growing plentifully about us, we gathered and ate as we went... sloped away towards the SE., in order to avoid the water... continued to force our way through... the wood &, fortunately, we ... found a small space among the pools of water, where we... halted.

7 LORD'S day... rested during the Sabbath in the wood;

8 left our encampment... In less than 2 hours we cleared the wood, and, [entered] the plain beyond... paddled [in 2 canoes] down the R. Ruamahunga a few miles, when landing we proceeded to Huaangaruia....

9 [at Huaangaruia].

10 left Huaangaruia ... [reached] the village [of Okahu]... travelled to Te Ahiaruhe... [went on] to Hurunuiorangi (a village about 4 miles farther up the [Wairarapa] valley)....

11 proceeded slowly up the valley.... Towards evening we arrived at Te Kai-kokirikiri....

12-14 [at Te Kai-kokirikiri].

15 left Te Kai-kokirikiri... travelling over the hot & dry stony plains... travelled till past noon, when we halted on the banks of the River Ruamahanga... we entered the long forest, and travelling smartly till Sunset, gained the banks of the River Makakahi, where we spent the night.

It seems likely then that he found *Pterostylis micromega* in the dreaded Kaitara forest, forming a densely wooded bog between Featherston and the Ruamahanga river north of Martinborough.

Since then...

Locally, Lucy Moore found a colony at Mangaroa swamp (Whiteman's valley, Upper Hutt) in 1956, and Tony Druce found it again the next year [3]. After that it disappeared.

In 1967 MJA Simpson found it at the Western Lake Reserve of Wairarapa Moana [4].

Then in the early years of the 21st century Tony Silbery and Aalbert Rebergen, Pat Enright, and others found it again in a swamp on private land at a secret location in the southern Wairarapa.

This is one of our rarest orchids, vanishing as swamps are drained and foreign weeds infest. I have seen it in the Wairarapa swamp, but otherwise only in a swamp near Whanganui (**Fig.1**).

There are good populations in the swamps north of Karioi (ER 18)—see J83:25.

References

1. Hooker JD, 1853. *Flora Novae-zelandiae*. London.
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3. Druce AP, 1961. Orchids of the Wellington district: notes and additions (2). *Wellington Botanical Society Bulletin* 32: 14–15.
4. Druce AP, 1967. Orchids of the Wellington district: notes and additions (2). *Wellington Botanical Society Bulletin* 34: 34.

Original papers

Organising photographs

By Gordon Sylvester

I was very interested in a recent article in our journal on organising photographs where the approach was to organise them by locality.

I have nearly 30,000 photos now all digital, after recopying a thousand or so from prints and physical slides. I have set up a simple database to keep track of them and assiduously record some basic details like photo number as recorded by the camera (a key field), date, a title, location some key words (in a single column) and some notes. I do this in a database but this is probably more easily manipulated in a spreadsheet such as EXCEL or BASE (a freebie one as part of OPEN OFFICE). It means that I can readily locate any slide by a simple filter and fill in long blocks of similar information (such as date or locality). This works well with physical or digital photos. All you need to note is the physical place you have stored a photo in the database to be able to extract one or a few for a talk.

But that is about record keeping for the photos. The photos are stored in a variety of ways but always in subsets of folders. For orchid photos (or perhaps any set) you need to consider in what way you wish to look for them. The Australians obviously like to know where they found them and so store them by location. We rarely have sufficient species at a locality to warrant that. In fact I most often want to find all those of the same species so have set up sets of folders by genus and species with little regard for locality, although it is quite easy to add the locality at the lowest level. Horrible messes such as *Pterostylis montana* are split like that at the lowest level. So to find all my slides of *P. montana* and *P. aff montana* I start with the photos folder and then go to:

Flora
Orchids
Pterostylis
montana
aff montana
Horopito
Hauroko
Stewart Is

ie, 5 levels of folders.

Other sets under Flora include Grasses, Sedges, and Ferns (for each of my field Guides) with each split to folders for each species.

But at the top level there are other splits:

Family
Places
Overseas trips
BotSoc camps etc

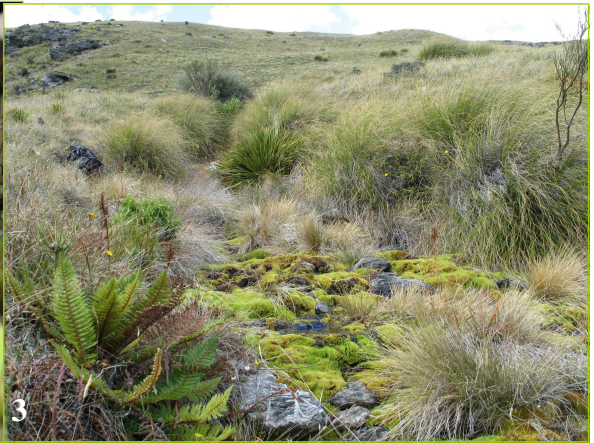
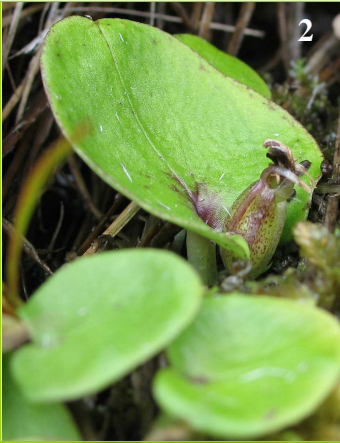
But if you are starting out today with only digital photos there are much better ways to go. One of the best seems to be a free GOOGLE program called PICASSA. Similar programs may be provided by the camera manufacturer but are not as good. Furthermore, as you change cameras you still have to decide which program to go with.

Picassa has a very efficient search that can grab all my *Pterostylis* photos or all any subset as you type, depending on how the photos are stored, labelled or tagged with a keyword. It also allows you to add a title to the photo and search by those titles (this can also be done with photoviewer provided by Windows 7). A huge job to do in retrospect perhaps but you can block sets of photos and with one entry label them all.

The trick though again, is to plan aHEAD and set up albums for those groups of photos in Picassa that you need so there aren't too many albums or folders displayed at any one time.



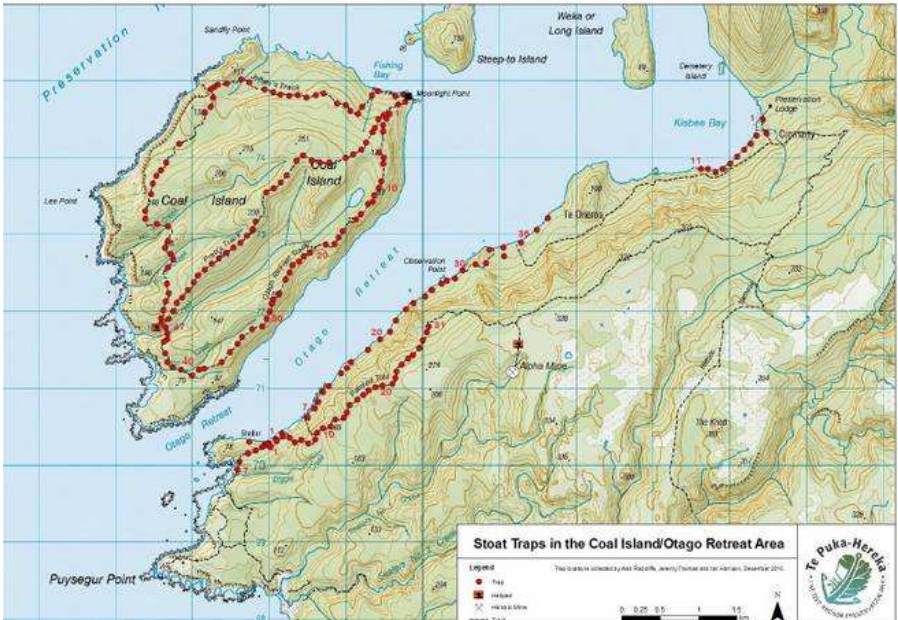
Fig.1: *Pterostylis micromega* in a swamp near Whanganui (see "The type locality" p.7)



Alpine *Nematoceras*: see Jane & Donaghy, p.19









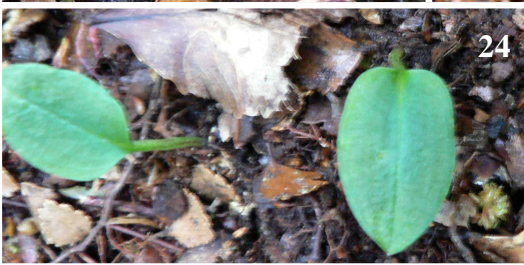
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Figures from
"The Column", p.26.

An alpine *Nematoceras*

By Graeme Jane & Gael Donaghy

On 25 December 2003 we discovered a *Nematoceras* in tussock on Dumblane and subsequently reported it in the Journal [J91, p9]. In the intervening years we have seen similar leaves in alpine areas throughout the South Island in places such as The Cobb, Mt Nimrod, Lake Roe, The Hump, South Mavora and The Roaring Meg. None in flower but the last site had flowers not long over (**Fig.2**).

This summer, on 18 December 2011, we were earlier than usual so we decided to take a detour on our way from Nelson to Kaikoura and attempt to relocate the site on Dumblane. We were hopeful of finding more than the two late stage flowers seen before. It turned out easier than expected and we were soon amongst a large population of plants in various stages of flowering (**Fig.4**).

The site was near a streamlet but plants occurred along the stream for 30 m and in places 10m up the south facing slope. Leaves were numerous and flowers frequent but we had to search for them by lifting tussocks, probing low shrubs and the tussock along the stream side (**Fig.9**).

The plant combines two different sets of characters. The leaf resembles that of *N. longipetalum* or *N. macranthum* but the flower shape is clearly that of a *N. trilobum*, although mostly deep red (**Figs 4-8**). That is in spite of plants usually being well shaded. In other areas *N. trilobum* at this altitude, at the upper forest edge, is often almost colourless.

There are many reports on *N. macranthum* in alpine areas, but most of the records are from the mid to late summer period when both *N. macranthum* and *N. "tussock"* have finished flowering so the taxon may be more common or mis-identified. Furthermore, *N. macranthum* is not typically of wet places such as this, the sites where we have seen leaves are wet and are more typical of *N. longipetalum*.

Clearly we need more observations of this *Nematoceras* in flower from the area above tree line, especially in the South Island. That will require alpine trips for us, much earlier in the season than usual.

Figures (pp. 12–13)

Fig.2. Indeterminate *Nematoceras*, not long past flowering, from the Roaring Meg. The short pedicel suggests the flower was close to the leaf as in *N. "tussock"*.

Fig.3. Habitat in Roaring Meg. Plants were present under tussocks along the mossy "stream".

Fig.4. Plant in flower exposed from under tussocks at Dumblane.

Fig.5. Front view of flower showing position in relation to leaf.

Fig.6. Side view of flower

Fig.7. Dorsal sepal of flower showing its deep red colour.

Fig.8. Rear view of flower showing auricles and small areas without colour

Fig.9. Habitat view, down the south facing slope to streamlet. Plants could be found under shrubs in the foreground

Orchids at Preservation Inlet and Coal Island

19-24 February 2012

by Alasdair Nicholl

Karen and I volunteered along with four others to assist clearing and re baiting trap lines for the Coal Island Trust earlier this year. Coal Island is located in Preservation Inlet in the South-western corner of Fiordland (**map, p.15**). It is now predator free and recently kiwi have been released back on the island.

This trip is carried out in February, May,

September and December each year. We were flown in and out by Helicopter from Tuatapere.

Before leaving I got information/list from Gordon Sylvester on what we might see there although he also indicated “I hope your Fiordland trip is entertaining. But I will doubt there will be anything other than *Earina autumnalis* and maybe *Winika cunninghamii* on its last legs. These are in flower here. Although *W. cunninghamii* is almost completely over.”

Unfortunately time was at a premium on some tracks as we had to liaise with boats for pick up from Coal Island and the walk to the Oil Store near Puysegur Point involved a 9 hour tramp each way.

Coal Island

As this is now predator free the vegetation is quite prolific and the orchids that remained were quite numerous. We were assigned the Otago Retreat Track to do which took 5 hours. What did we see? *Microtis unifolia* (f) at helicopter pad and in seed (a) at the other end of the island; *Thelymitra* sps (s); *Winika cunninghamii* (f); *Earina autumnalis* (f); *Nematoceras trilobum* (foliage); *Prasophyllum colensoi* (f); *Gastrodia* sp. (dry foliage); *Singularibas oblongus* (s); *Pterostylis* sp. (s); *Aporostylus bifolia* (s); *Acianthus sinclairii* (s).

The Mainland

At Preservation Lodge: *Gastrodia* sp. dry stems; *Earina autumnalis* (f); *Earina mucronata* (foliage).

At Puysegur Point and Sealers Beach: *Acianthus sinclairii* (s); *Singularibas oblongus*; *Microtis unifolia* (s); *Winika cunninghamii* (f); *Earina autumnalis* (f); *Nematoceras trilobum* (foliage).

Alpha Mine and Wilson Tramway: *Drymoanthus* sp. (foliage); *Prasophyllum colensoi* (f); *Thelymitra* sps.

[*Alasdair sent photographs of the fruiting Pterostylis* (Fig.17). *The broad leaves suggest P. australis, or perhaps P. areolata—Ed*]

Notes etc

March the 25th. is the earliest Pat Enright has seen *Pterostylis alobula* (Fig.10).

Mike Lusk emailed, “Over Sept and early Oct I’d been looking at the various *Nematoceras trilobum* agg. in the general Hawke’s Bay region (ER 29) and had seen in several places one which I thought was a very late flowering *N. “pygmy”*. The first was on 26 Sept on the orchid-productive Sunrise Track in the Ruahine Ranges. While I’ve seen *N. “pygmy”* Form 3 locally at the proper time (June/July), Eric was not prepared to accept a time so remote from “normal” and he also noticed some differences between my pic and *N. “pygmy”* Form 3. Fig. 11,12. So because my first recordings were in the catchment of the Waipawa River we called it *N. “tri Waipawa”* (Fig.13), thus adding yet another tag to the ever expanding *N. trilobum* aggregate. Subsequent finds have moved the range North into the Ngarururo catchment, still in the Ruahine Ra, and even further into the southern Kawekas.

“But after further thought Eric, who has not had hands-on experience with either taxon, realised that *N. “tri Waipawa”* was remarkably similar to Mark Moorehouse’s *N. “tri E hills”* from the Nelson region (ER 47). So he sent one of my pics to Mark, who agreed, and who kindly sent me a series of his pics. While there are some minor differences, they don’t seem to me to be enough to separate the plants. If this is correct the “tri Waipawa” tag disappears after a very brief existence.

“By great good fortune Carlos Lehnebach, Curator of Botany at Te Papa, was with me at the time of the “first” find on the Sunrise track, looking for *N. trilobum* agg. colonies for his pollination studies. So one of the *N. “tri E hills”* plants has been taken for further evaluation, including molecular studies.”

Mike Lusk “found an *Acianthus sinclairii* in flower on 9 April 2012 along with many plants in bud (Fig. 14). The only other pic of a plant in flower there was taken in June. It’s been a very moist summer in Hawke’s Bay so we may see other spp. early too.”

Pat Enright sent a photograph (Fig. 15) of a late-flowering *Microtis*: “The orchid was photographed on 7 April on a very steep bank above the Manganui Stream in the Rimutakas. There were dried off stalks of *Microtis* growing nearby.” Brian Molloy identified it as *M. unifolia*.

Sue McManus: “Came across this *Earina autumnalis* (Fig. 16) 16 April 2012 at Pureora Forest Park and we were wondering about the green and white flower as we thought they were just white.” [These retain the yellow pigment (rather less orange than usual) but are pretty typical. I am still looking for *Colenso’s Earina alba*, a form that seems to have lacked the yellow pigment altogether—Ed.]

The QEII publication *Open Space* (No. 82, March 2012) has a page on NZ orchids. *Danhatchia australis* has now been found (for the first time) in the North Kaipara district by “plant enthusiast” Doug Shaw. And QEII has received funding from DoC’s Biodiversity Advice Fund to study the nationally vulnerable *Spiranthes novae zeelandiae* in a covenant in Tasman. Populations of the orchid have declined dramatically with the destruction of wetland habitats and this site is now one of only two in the northern half of the South Island where the orchid is known. Over the next three summers an ecologist will monitor the number, distribution and flowering pattern of the orchids with the grazing regimes and water table of the marshland to determine the best way to manage the species. The report will be available in 2014.

Peter de Lange emailed, “It was nice to see the article on *Pterostylis puberula* written by Mark Moorhouse—I have similar sentiments and argued a very long time ago that

this ‘endemic’ was a vagrant (that was one of the taxa that coined my idea of vagrancy in the orchid flora which was first presented to the Orchid Group at Iwitahi in December 1994). Anyway, just to add to Moorhouse’s notes that we have some very large populations of this ‘species’ at North Cape—we finally rediscovered it there in October 2009 (after it was last seen there by Lisa Forester, Gillian Crowcroft and me in October 1990). It is obviously no longer as threatened as we thought but I also do feel that the distribution of the species, and the polymorphic nature of it argues for several independent introductions from Australia and this should be tested. Further, as yet I have not seen any published evidence to show exactly how our species differs from the very polymorphic *P. nana* complex in Australia. Based on recent decisions taken by many orchidologists over various splits proposed for Australasian orchids I would not be too surprised if in the near future our endemic is again merged with *P. nana*.

“Nevertheless, for the time being we have an endemic and one which thanks to the diligent eyes of mostly orchid people is being rediscovered at former localities or turned up in new haunts. However, as with all species who occupy seral habitats it is not the finding but the long term management that is the issue. For the North Cape population we are at least helped by the fact that the very dry, toxic ferricrete soils there tend to inhibit rapid vegetation succession and limit weeds—still even there we may need some form of management—vegetation intervention really, to ensure that the population continues to thrive.

“Also, I read about *Pterostylis auriculata*—with populations reported from Kapiti and the Paraparaumu Coast. It is much to my regret that I did not treat this orchid in our Southern North Island orchid book—I had found it in December 1999 on the summit slopes of Kapiti but my voucher, sent fresh to Brian Molloy was killed by New Zealand ‘Fast Post’ service (it arrived two weeks after it was posted) and so ended up botanical forensic

mush—Brian at the time agreed my mush was this species but then when reviewing our book's MS decided it was better to disregard the record for want of a voucher. Later in 2007 Jeremy Rolfe revisited Kapiti and confirmed the species from there with beautiful images and voucher now lodged in the Allan Herbarium (CHR). As for the Paraparauamu records—all the evidence of this record that I have seen suggests misidentification with one or other of the *P. banksii* agg. Needless to say you will know this species was also discovered by Peter Heenan and I on Rangiauria (Pitt Island) in November 2008, I believe you even used my images of that plant in one of the *NZNO* Jour.”

For at least 400 years, botanists across the globe have relied on Latin as their lingua franca. But all that changed this month. Scientists say plants will keep their double-barrelled names, but the requirement that new species be described in the classical language has been dropped. Instead, they have agreed to allow botanists to use English. In their scientific papers, they can still describe a newly found species in Latin if they wish, but most probably won't. “It was heading toward extinction,” said Warren Wagner, of the Smithsonian Institution's botany department. Globally, scientists discover 2,000 new species per year. As many as one in five of the world's plant species have yet to be identified. *The Washington Post*. See also www.dailymail.co.uk/sciencetech/article-2077542/

The Botanical Society of Otago's *Newsletter* (http://www.botany.otago.ac.nz/bsn/newsletters/latest/bsn_65.pdf) contains a paper by Mary Anne Miller on Cedric and Elsie Smith of Stewart Island (after whom Dan Hatch named a putative *Thelymitra cyanea* variant as “var. *cedricsmithii*). Elsie Smith painted watercolours of orchids, and two are reproduced in the paper. Their daughter, who lives in Dunedin, has a further 30 or so. Watch this space....

South Island Weekend camp and AGM at Lake Lyndon

It was proposed at the last AGM to hold a combined camp and AGM in the South Island. The proposed location was Lake Lyndon but the date was left open. Only one response has been received from a member to attend the event. This makes a total of 6 members—not enough to book the premises.

I will not make any commitment or booking unless I get a better idea of the numbers committed to attending the weekend. It is proposed to hold the meeting around the last weekend in November or the first weekend in Dec 2012.

Perhaps the isolated location is the reason members are reluctant to commit. The cost of getting there and returning will be quite high—hence I suggest a three or four day weekend.

The other factors are the need to have transport to get to other locations in the geographical area. The lodge is at the head of a small lake and has two major river systems on either side. The terrain is tussock country. Some bush areas are within 50kms, on the Broken River Watershed and other locations past Castle Hill on access roads to the various ski fields.

I need an idea of the numbers attending so that food, heating and other costs can be worked out.

If there is no interest in this location, the executive reserves the right to change the location at short notice—which may cause some inconvenience for those wanting to attend an AGM.

It is your decision.

As in the Arthurs Pass Camp, you need to remember that you can have all four seasons in one day. Accordingly you will need clothing and equipment, sleeping bags to suit.

Gordon Sylvester, xtr110796@xtra.co.nz.

The Column: Eric Scanlen

1. *Chiloglottis* “khaki calli”, *C.* “big bract” & *C.* “Corbett”

Ernie Corbett’s orchid leaf and flower (J123:39,49) took the Column’s attention whilst he was indexing the Journal. The outstanding floral bract and the reddish brown calli tapering out towards the tip of the labelum, were not typical of *C. cornuta*, much as the Editor would have us believe it was. Ernie’s leaves, from New Plymouth’s Lake Mangamahoe, had the floral bract as a little cup, **Fig. 19**, enclosing the flower bud. The apiculate floral bract later opens back like a small leaf. Georgina Upson sent a photo of a similar flower, **Fig. 22** from Nelson. Notice the very dark calli tapering forwards. Ernie’s cupped floral bract, looks like an adaptation to protect the emerging bud. *C. cornuta* on the other hand has a sheathing floral bract, tucked out of view, plus variable, lumpy calli which lack that taper. Its calli are either green, in the alba-form or near-black. The alba-form at Karioi Forest Park had a near black stigma but freshly opened *C. cornuta*, with either dark or green calli, have a pale green stigma as in **Fig. 21** from Allan Ducker. What would help, would be more pix of *C.* “Corbett”’s stigma, scape and cotyledon (seed leaf).

You see, the cotyledon of *C. cornuta* is a tiny affair about 10mm long, as one would expect from such a microscopic seed. Most people do not study these insignificant cotyledons; why would you? But the Column did, you see. He hunted around a good colony of flowering *C. cornuta* with their dark, purplish brown calli, at the Sunrise Track in the Ruahines, on the occasion of the AGM of 6 Dec 2008. Scratching in the moss and debris around this colony he found several cotyledons but only these tiny ones. This exercise was purely to ascertain what *C. cornuta*’s cotyledon did look like because those of *C.* “khaki calli”, at Gary Little’s colony in Dig-

gers Valley, were relatively huge; as big or bigger eventually, than one of the two adult leaves on flowering plants. (See J107:32,39,40.) Gary illustrates this in **Fig. 25** from 12 Oct 2008. That leaf in the background, slightly out of the plane of focus, is its typical cotyledon. The Column, who had never seen khaki calli in ER9 during 40 years of orchidising, spotted the Diggers Valley specimens on 9 Oct 2007 when he and Gloria were staying at Gary’s convivial Homestay, and he took an immediate interest.

It reminded him of an embarrassing moment when he had come across similar khaki calli in the Waitarere (pine) Forest near Levin, on 10 Oct 2001. This was immediately after telling the field party, “Calli in *C. cornuta* are either dark purplish brown or pale green but never any colour in between.” That was correct, as it transpires, but back then, this specimen with khaki calli did appear to be a direct contradiction! The gob-smacked Column then photographed one, poorly, for some reason, but the colour is still there. So, back to Gary’s, in 2007. His *Chiloglottis* with khaki calli, thus got active attention and the large cotyledons were noted.

Earlier, at the Lewis Pass, 18 Dec 2002, tracks along the ridge, either side of the pass itself, had numerous single, orchidaceous leaves which bamboozled the Column. But he took no photos; not of leaves alone on expensive film. None had flowers or seed capsules but in hindsight, these probably were the big cotyledons of *C.* “khaki calli”. Somebody please check this out if you are at the Lewis Pass in October or November; are there *C.* “khaki calli” flowering there?*

* I think they are immature *Adenochilus gracilis*—
Ed.

Kevin Matthews was intrigued with the big cotyledons so potted one, as you saw in Far North Diary, J112:13. The following year, the plant sprouted two leaves and eventually flowered with—you’ve guessed it—khaki calli. Kevin has photographed this taxon at Kaitaia Airport so it is well established in the Kaitaia/Diggers Valley area. Allan Ducker sent a pic of *C. “khaki calli”* from Wai-kumete, also in ER9. Cara-Lisa Schloots recently sent some fine pix of *C. “khaki calli”* from the Mt William Reserve in the Bombay Hills, still just in ER9 and only 16km from the Column’s home! She could find no *C. cornuta* there. Tricia Aspen (J107:32) showed the field party *C. “khaki calli”* in two places at Awhitu, ER12. Michael Pratt has it on the website from Dawson Falls, ER25. *C. “khaki calli”* has to be common in Nelson because both Georgina Upson and Mark Moorhouse have mentioned that *Chiloglottis* with calli green, khaki and dark, are intermingled in the bush so were naturally taken to be the one variable species. Gordon Sylvester sent pix of it from Temple Basin, Arthur’s Pass, ER 50. Euan and Kathy Warburton sent a photo (**Fig. 23**) of a fine *C. “khaki calli”* in flower along the Rakeahua-Doughboy Track in Stewart Island, ER79. This taxon has to be widespread, right under our collective noses, masquerading as vexed *C. cornuta*! Do please look for those large cotyledons and see if you have a colony. Pat Enright sent a photo of two large cotyledons in the Tararuas (**Fig. 24**) from 1 Nov 2008. So this orchid, ranging from Kaitaia to Stewart Island, earned itself a place in Colour Field Guide 3. This despite its stony silence from the majority who may not want yet another NZ orchid to memorise. The Column commiserates but wait; there is more, as they say. We have yet to see its dreary scape but mature flowers indicate that the floral bract rises with the ovary/seed capsule as in *Nematoceras*. Orchids vary in this respect. The bract finishes up a third of the way up the scape in *Pterostylis humilis* but it remain at the base of the scape in *C. cornuta* and *C. “big bract”*. What? you haven’t heard

of *C. “big bract”*? That could be because it has been kept under wraps, awaiting any confirmation.

Pat sent a specimen, **Fig. 18** of *C. “big bract”* from 3 Oct 2009, from a colony in pine forest on Mt Cargill, Dunedin. *C. “big bract”* has green calli and an outstanding floral bract like a third leaf whereas the bracts on *C. cornuta* and *C. “khaki calli”* are acute and tightly sheathing. Mark Moorhouse struck a colony with green calli and outstanding floral bracts at Lake Rotoiti south, on 2 Dec 2006 (**Fig. 20**). Georgina has pix of a similar specimen from the Cobb Valley with the floral bract at the base of a tall scape. Another tall scape showed at the Upson’s Baton Valley place, with the bract at the base quite like a third leaf but, only tedious *C. cornuta* sprouted there the following year. Who else has seen this *Chiloglottis* with green calli, a leaf-like floral bract and a tall scape? Do please let the Editor know.

Conclusion

The list given below, in order of probability of differing *Chiloglottis* taxa, has either known or most likely traits included but it requires your sharp eyes to confirm or debunk, in the next few seasons. All taxa have two, more or less equal leaves but sometimes three, just to confuse the issue.

Chiloglottis cornuta. Leaves cauline at first, petiolate in maturity; cotyledon small; floral bract acute, sheathing ovary and base of flower; calli either near black or green, lumpy, variable in number and array, stigma green (**Fig. 21**) but darkens with age, labellum fixed in the great majority of cases but some few will drop down for a time when jiggled. Wide distribution, including most of the main islands and some outer islands, see CFG3.

C. “khaki calli” **Figs. 25 & 23**. Leaves cauline at first, petiolate in maturity; cotyledon large; sheathing floral bract, appears to rise with the ovary on a modest scape; calli a khaki colour, no green alba-forms; stigma pale green darkens with age. Distribution to date ERs 4, 5, 9 25, 31, 46, 47, 50 & 79.

C. “big bract” **Figs. 18 & 20.** Floral bract stands out like a third leaf and appears to stay at the bottom of the scape; calli seen to date have been only green. Distribution thus far, Lake Rotoiti (S.I.) and Mt Cargill in pine forest.

C. “Corbett” **Figs. 19 & 22.** Small, apiculate floral bract arises cup-like, protecting the flower bud, later stands out leaf-like; dark reddish brown calli tapering out towards the tip of the labellum. Distribution thus far, Lake Mangamahoe and Nelson.

From the hit-and-miss traits above, gleaned mostly from photos, it is not realistic to declare any new species. More comprehensive details are needed from more specimens please, to be sure of these tentative identifications. Do please mark specimens photo-

graphed in flower then later record traits such as cotyledon size, site of floral bract on scape and final scape length. What proportion of plants developed scapes and seeds? Size of cotyledon is also important. These traits may be definitive provided you can be sure of which taxon they came from. Does *C. cornuta* (green calli) produce a scape with seed atop? or is it an infertile throwback? The Column for one, hasn't yet heard.

Acknowledgement

Many thanks to all those dedicated souls mentioned in the text above; especially those bringing new info, after the first drafts of this piece hit the email. Only a joint effort across New Zealand can unravel these apparently inconsequential native orchids.

Chiloglottis cornuta

18 Dec 1967 Mt Cargill



Drawing by Bruce Irwin

2. *Gastrodia*, sorting out the imbroglio

Jeremy Rolfe triggered this review of *Gastrodia* with his great pix of *Gastrodia* “long column black”, from 2 Jan 2010. The **cover picture** shows the black tip to the labellum and tuberculate flowers, both as in short columned *G. cunninghamii* but, in this Marangai (ER35) colony, there is that long column showing underneath the labellum. **Fig. 26** also shows the two ridges beneath the labellum, not in the usual Y form but meeting back from the tip then going side-by-side to meet the black tip. One side of a pollinium is showing between the yellow anther cap and the plate-like rostellum. Michael Pratt’s pic **Fig. 27**, from a plant of his at Okoia, ER30, showing the long column and labellum underside, illustrates this well from a different angle with perianth removed. Pat Enright had kindly sent the Column a specimen from Marangai in January 2005 but the bloom had suffered in transit so the black labellum tip had been written off as degradation and, back then, ridges under the labellum didn’t even get a look. Georgina Upson and Mark Moorhouse sent pix, also from January 2005, showing green/tawny *Gastrodia* flowers with long columns and black labellum tips, from Moutere, Nelson. The Column unwittingly contributed to the imbroglio by saving these to file in haste, probably during Field Guide II preparation but he had not then spotted that unexpected combo. **Fig 28**, with the side cut from an mature flower, shows the black tip and the long column. **Fig. 29** with flower dissected across, lets us see twin ridges, under the labellum joining as a dual leg then meeting at the tip. From Moutere to Marangai to Michael Pratt’s Whanganui site, now gives *G.* “long column black” a sizeable territory and credence as a distinct taxon, despite its rarity. Dot Cooper originally found it in the third patch of bush up the Puffer Track (pers. comm. I. St George), then published its photo in her excellent book [1]

as Australian *G. sesamoides*. At that time, only three NZ *Gastrodia* species had been accepted; *G. sesamoides* among them and in error. But the imbroglio started long before that.

Gastrodia “long column” **Fig. 30**, with tuberculate flowers, opening in January, caused a stir when Hugh Wilson first tagged it for Stewart Island [2]. Records of *G. sesamoides* from Southland’s Waituna bog by G. Watson, D. McNaughton and I. St George (N/L21:4), up by to Kellys Creek, D. Petrie’s original find, were scrutinised and found to be, in all probability, *G.* “long column”. Dot Cooper [1], also Moore and Irwin [3] had previously lumped *G.* “long column” with *G.* aff. *sesamoides* although Dot wasn’t happy that some had tubercles on the flowers and some didn’t. The Column checked most of the known *G.* “long column” sites from; 1991 (St Arnaud; calling it *G. cunninghamii* for years!), 1997 (Owhango) and 2004 for the major push to Invercargill and back (J91:16) with able assistance from I. St George, K. Rennell, S. Smithies, M. Moorhouse and Kendyll Levy. There had been rumours that about four *G.* “long column” taxa existed. The 2004 push established confidently, but in error, the existence of a single taxon. There now are at least two, as here set out. Not one of the seven sites scoured then, yielded any *G.* “long column black” with those black labellum tips. In Dec 2011, the Column minutely examined the 90 best slides from those expeditions. Not one *G.* “long column” labellum had a black tip and none had the two ridges meeting then going to the tip as a pair.

Possibly *G.* “long column” evolved from *G.* aff. *sesamoides*? there are distinct similarities. Another possibility is that it could be a hybrid of *G.* aff. *sesamoides*, for the long column and *G. leucopogon* for the tubercles

plus the labellum ridges arrangement? Those possibilities may also ease the embarrassment of many who have mistaken *G.* “long column” for *G. aff. sesamoides* over the decades.

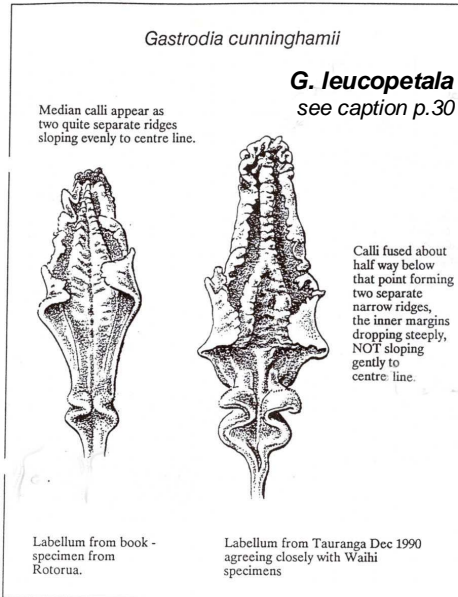
Gastrodia cunninghamii, Hook. f., **Fig. 31**, the well-known subalpine species, was said to have been found originally (J123:36) in the unlikely and lowland, Bay of Islands, by Richard Cunningham [4, 5] possibly “based on the ‘fragment of a specimen’ mentioned by Allan Cunningham” in [6] according to L. Moore [7]. It doesn’t occur there now but *G. aff. sesamoides* is well known up to farthest north, ER3. J.D. Hooker’s 1853 description does mention in the Latin diagnosis, “columna brevissima” or short column, and includes a specimen by David Lyall from Preservation Inlet, ER72 which could perhaps be regarded as the type specimen.

This is a jump start to the imbroglio. Richard Cunningham’s lost “fragment of a specimen” may be best to stay lost or we might have to swap the title *G. cunninghamii* to the equally familiar *G. aff. sesamoides*—and confuse everyone—if that “fragment of a specimen” has tubercles on it. *G. cunninghamii* has been found as far north as Little Barrier Island so it is possible that it once grew in the Bay of Islands.

G. antennifera Blume, from the East Indies and/or Japan, does have a shortish column (J106:5) although a quite different short column from that in *G. cunninghamii*. But it is a possible predecessor to NZ short column species if we could figure out how it could have moved through the islands to NZ. We have none in the far north and there seem to be none in the islands between the East Indies and NZ. Australia is a likely alternative source, starting with seed on the wind from either *G. sesamoides* or *G. procera* as with most of our other orchid genera. Tuberculate flowered taxa, those with short columns and/or black tipped labella with various ridge arrangements below, could well have evolved here through either mutations or movement of retrotransposons in germ DNA, considering the relatively rapid evolution in the orchid family.

Gastrodia “shauroko” (J87:26) is a unique creamy-orange, colour-form of *G. cunninghamii* (**Fig. 32**) found by Kelly Rennell, near the shore of Lake Hauroko. Kelly’s pix of a sectioned specimen **Fig. 33**, from another specimen at Queen’s Park, Invercargill, confirm this with that short curled column. Creamy to greenish forms have been reported elsewhere in the Journals but they tend not to persist. The gene mutations which reduce colour can also causing sterility but this seems not to be the case here. Kelly knows the exact spot where he photographed the original *G.* “shauroko” in January 2003, (see J87:26). That tuber has not been seen sprouting since but Kelly was back again twice this season and found a pale green form in bud, only a few metres from the spot. **Fig. 35**, shows the two under-labellum ridges meeting back from the tip but the short column is hiding in the base, indicating that it is a *G. cunninghamii* alba-form. His second visit on 21 January turned up nine *Gastrodia* stems in seed, four of them with pale creamy *G.* “shauroko” capsules. There has to be a colony here, propagating by seed. Kelly’s photos of the underside of the labellum from Invercargill’s Queens Park, also show the two ridges linking Y form, back from the dark orange tips confirming that it too is an alba-form of *G. cunninghamii*.

Gastrodia leucopetala, described by William Colenso, [8] has stayed largely ignored or lumped with *G. cunninghamii* which is where T.F. Cheeseman put it — his main part in the imbroglio — along with not recognising most of the species Colenso described. It has to be a rare species with no mention of column length in his description. But, on his type sheet (24288 in Herb. Colenso) he did write “Column very small”. However, it appears that the late, and sadly missed, Bruce Irwin, had drawn it, (**line drawing p.28**) on p138 of his book of drawings [9] from specimens at Forestry Research Institute, Rotorua, 7 Dec 1985, but he clearly labelled it, *Gastrodia cunninghamii*. As Colenso described, one can see the dark labellum tip and under the labellum, “two reddish longitudinal ridges, their margins thickly crenulato-



fimbriate, rising divergent from the middle and united towards the tip.” Bruce published an explanation for naming the drawing thus in J38:7 along with his drawing of the labellum underside of typical *G. cunninghamii*, including its Y form ridges but put the discrepancy down to variation within the species. Bruce’s drawing shows the ridges meeting close to the tip but not at it which agrees with Colenso’s ambiguous “towards the tip” but it has been debated that Y form ridges also meet “towards the tip”. What do you think?

So, do get out in “dark forests on the eastern slopes of the Ruahine mountain range” etc., as Colenso reported it, in December-January and find this elusive orchid. The flower spike looks like *G. cunninghamii* **Fig. 31**, but if you peep under a labellum and see those reddish ridges “divergent from the middle and united towards the tip”, you should be onto it.

Gastrodia aff. *sesamoides*, **Fig. 36**, is probably our best known, long columned *Gastrodia* (**Fig. 37**) with the Y form ridges beneath the labellum, (**Fig. 39**) and has the

dubious honour of having the biggest shemozzle made of its naming. As mentioned above, it was possibly Richard Cunningham’s original find in the Bay of Islands but has been inscribed since 1853 as *G. cunninghamii*. D. Petrie announced the find of *G. sesamoides* at Kellys Creek, west of Arthurs Pass, in January 1893 but being so far south and flowering in January it is most likely that he had *G. “long column”* with the tuberculate flowers. His specimen at AK Herbarium is a blackened spike of seed capsules which could be anything. T.F. Cheeseman named, as *G. sesamoides*, the orchid that R.H Matthews found flowering in early December 1896 at Kaitaia and it would most likely have been that which we presently call *G. aff. sesamoides*, with the smooth, creamy flowers, so he aligned it, in error with Petrie’s find. Neither is in fact the Australian *G. sesamoides* which has a deflexed top to the peduncle, not found in NZ. *G. aff. sesamoides*, has a different mycorrhizal fungus according to Dr Ella Campbell (N/L2:1). *G. aff. sesamoides* looks more like the Aussie *G. procera*. Please do not think of changing the tag-name to *G. aff. procera* just yet. Due to the preceding muddle, our best known *Gastrodia* still remains undescribed. Fortunately, this insect-pollinated plant is unaffected by the muddle and has burgeoned with the spread of *Pinus radiata* where it thrives, now sporting bigger plants in greater abundance than ever pertained in native forests.

Gastrodia “city”, **Fig. 34**, was spotted by Max Gibbs in Hamilton traffic islands. It is a form of *G. aff. sesamoides* with charcoal grey tips to the sepals and otherwise, orange-tan flowers. It remains a mystery where it originated and why it came up only in traffic islands. One has to suspect that the original mutation dehisced in leaf mould used for compost by Hamilton City Council and that many of the seeds germinated in this ideal medium when used around plantings in the traffic islands. *G. “city”*’s flowering form does vary from *G. aff. sesamoides* so perhaps they are distinct taxa? Botanists frown on tagging a colour form, however attractive it

may be but there was such a hue and cry over this one in the Journals that it had to be shown, as with *G. "shauroko"*, so that readers could see what it was all about. Should the DNA be significantly different in either of these colour forms, a different story could unfold.

Gastrodia minor, **Fig. 40**, See also, J104:32. Our smallest potato orchid, is the only one with no imbrogio to its name. Like *G. cunninghamii* and *G. leucopetala*, it has a very short column but with the pollinia appearing to be in contact with the edge of the stigma as soon as it opens. The column does not curl the pollinia onto the stigma as in our other two short columned species. The flowers do open, if reluctantly, no doubt, for rare, insect cross-pollination where, in insect-deprived New Zealand, the fall-back self-pollination enables masses of seed to be produced thus reducing the worst effects of in-breeding, by sheer weight of seed numbers. *G. minor*, with parallel, under-labellum ridges

has possibly evolved from *G. leucopetala* although the labellum tip is yellow not black and tubercles occur only occasionally on the ovary not on the flower, according to [9] Bruce Irwin's immaculate drawing on p143-147.

Broomrape, *Orobanche minor*, Fig. 38, needs mention in any treatise on *Gastrodia*. It is a convincing impersonator which has oft been reported as *Gastrodia* by people who fail to check for a column, the universal feature of an orchid. But pistil and stamens are in their, signifying non-orchid but they are not visible to a casual glance. It is easy to be fooled by this root parasite with no green leaves and numerous tubular flowers. It sprouts unexpectedly in flower-borders, paddocks, lupines at the back of the beach, etc. singly or in great numbers. This convincing mimic has caught even qualified botanists who were unfamiliar with it. It is here depicted purely as a warning not to get caught!

Table of traits for *Gastrodia*:

Leafless terrestrial plant, with many tubular flowers on an erect stem.

Gastrodia taxon	Column length	Under labellum ridges	Labellum tip colour	Flowers smooth or tuberculate
<i>G. cunninghamii</i>	Short	Y form	Black	Tuberculate
<i>G. leucopetala</i>	Short	V form	Black	Tuberculate
<i>G. aff. sesamoides</i>	Long	Y form	Yellow	Smooth
<i>G. "city"</i>	Long	Y form	Yellow	Smooth
<i>G. minor</i>	Short	Parallel	Yellow	Smooth
<i>G. "long column"</i>	Long	Y form	Yellow	Tuberculate
<i>G. "long column black"</i>	Long	Y dual leg	Black	Tuberculate
<i>G. "shauroko"</i>	short	Y form	Orange	Tuberculate

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8. Colenso, William, *Trans. NZ Inst.* 1886 18: 268 also in Ian St George's *Historic Series* No. 1, Colenso on Orchids 1989: 30.
9. *Bruce Irwin's drawings* compiled by Brian Tyler and Ian St George, book or DVD.

Illustrations

Cover. *G.* "long column black" Jeremy Rolfe, Marangai. Just like *G. cunninghamii* for colour and black tipped labellum except for the long column below.

Fig. 26. Jeremy's *G.* "long column black" showing the long column and narrow Y, dual-leg ridges under the black tipped labellum.

Fig. 27. Michael's *G.* "long column black" from Okoia, long column, Y, dual-leg ridges under the black tipped labellum

Fig. 28. Mark's *G.* "long column black", Moutere green form sectioned, showing a green stigma at the long column base.

Fig. 29. Mark's *G.* "long column black", showing semi Y, dual-leg ridges under the black tipped labellum at Moutere.

Fig. 30. *G.* "long column" St Arnaud, 3 Feb 2004. Typical colour, tuberculated, yellow tipped labellum, fragile anther and pollinia on the end of the long column.

Fig. 31. *G. cunninghamii*, Karioi, 7 Jan 2002.

Typical tuberculated brown flower, black labellum tip, short column out of sight.

Fig. 32. *G.* "shauroko" or *G. cunninghamii* alba. Kelly Rennell, Lake Hauroko. The tip of the labellum has narrowed and is orange, not black with no sign of that short column.

Fig. 33. *G.* "shauroko", Queens Park, Invercargill, Kelly Rennell, showing the short, curled column typical of *G. cunninghamii*.

Fig. 34. *G.* "city" is Max Gibb's colour form of *G. aff. sesamoides* from Hamilton roundabouts. Charcoal grey tips to the sepals alone would not class it as a distinct taxon but its municipal only existence remains a puzzle.

Fig. 35. *G.* "shauroko", Kelly's green form, , Lake Hauroko 21 Jan 2012. The labellum ridges are semi Y, semi V similar to Mark's *G.* "long column black" except that the column is short so out of sight and the labellum tip is orange, not black.

Fig. 36. *G. aff. sesamoides*, Iwitahi, 9 Jan 1997, occurs in places from Te Paki to Nelson

Fig. 37. *G. aff. sesamoides* from Fig. 36, showing the long column below and the yellow tipped labellum anchored well back in the flower. The stigma is on the far left of the column.

Fig. 38. Introduced *Orobancha minor*, or broomrape, Gary Little, is an attractive but pistillate mimic of *Gastrodia* which continues to deceive. It is parasitic on plant roots but please refrain from reporting it as a *Gastrodia*.

Fig. 39. *G. aff. sesamoides* Iwitahi 9 Jan 1997, showing the Y form ridges under the labellum.

Fig. 40. *G. minor*, Kelly Rennell, Queens Park, Invercargill has a short column and parallel ridges under the yellow tipped labellum.

Line drawing p28. *G. leucopetala*, underside of labellum (L) c.f. *G. cunninghamii* (R) from the late Bruce Irwin's drawing [9] from FRI, Rotorua. Bruce always insisted it was an atypical *G. cunninghamii*. What do you think?

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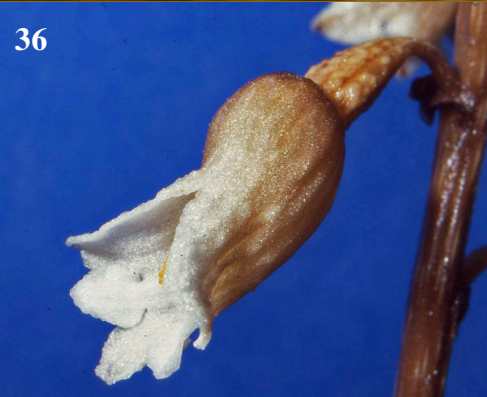
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